

21st Century Incident Management Communications Systems: “Brick” to the Tricorder & FirstNet!



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Board Member: First Responder Network Authority (FirstNet)

Communications Technology Advisor

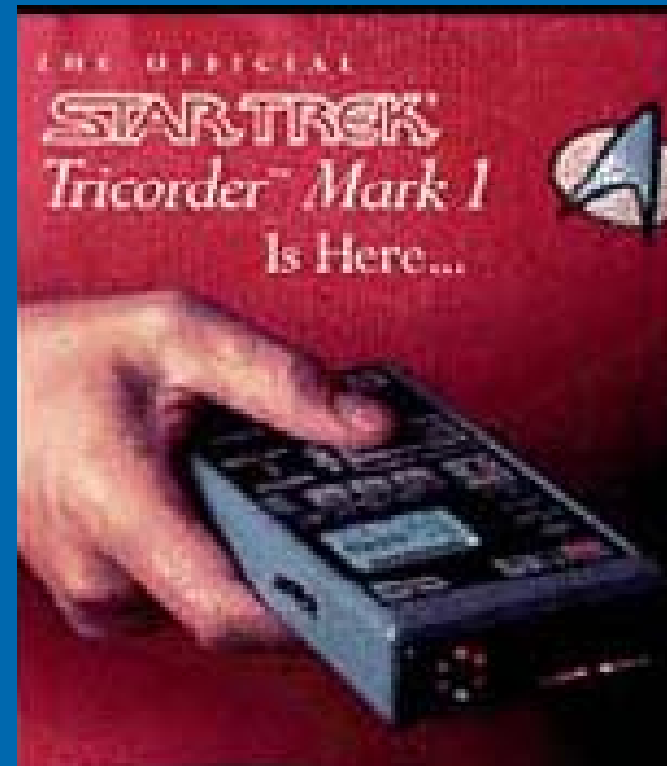
National Association of State EMS Officials

National Association of EMS Physicians

National Association of EMTs

National Association of EMS Educators

National EMS Management Association



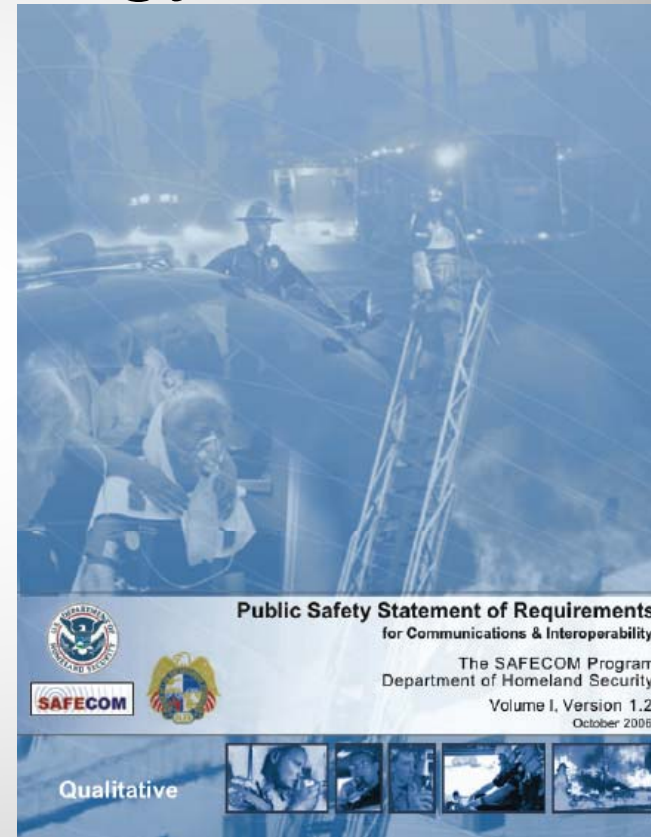
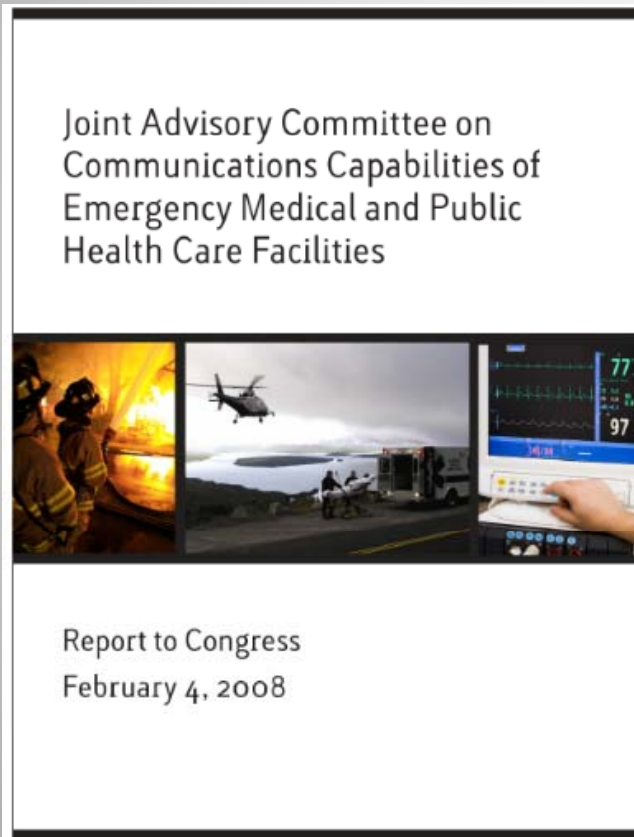
Pre-1970 to 2014

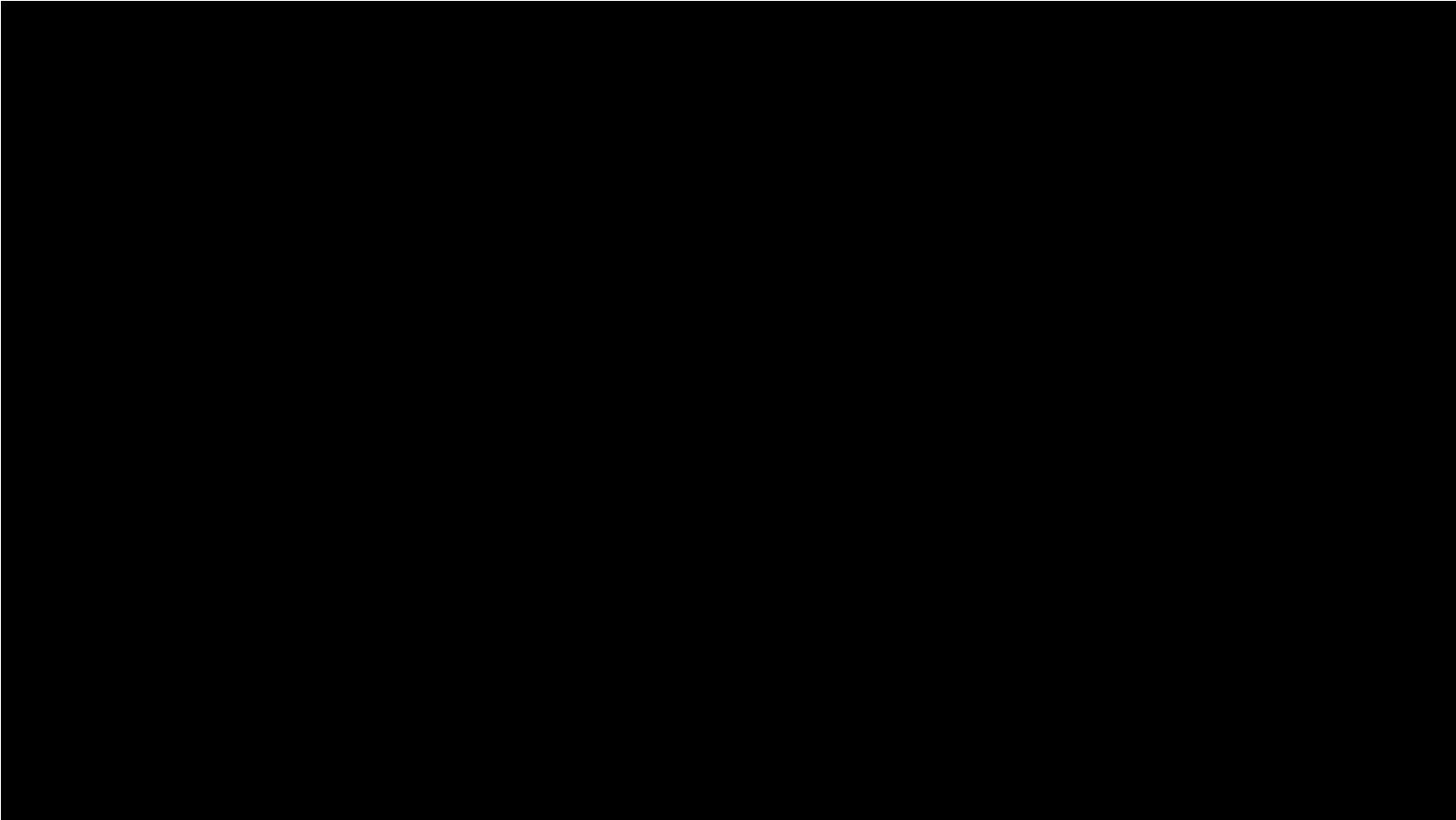


EMS Frequencies

- VHF – 155.xxx MHz
 - 155.340/155.175 (ambulance to hospital)
 - 155.280 (hospital to hospital)
- UHF – 463.xxx/468.xxx MHz
 - (10 “MED Channels”)
 - Frequency Coordination
 - Voice Communications
 - Biotelemetry
- Telephone
- 700/800 MHz

EMS Needs Improved Communications Technology





EMS Information Needs

“I wonder....”



Situational Awareness

“We wonder...”



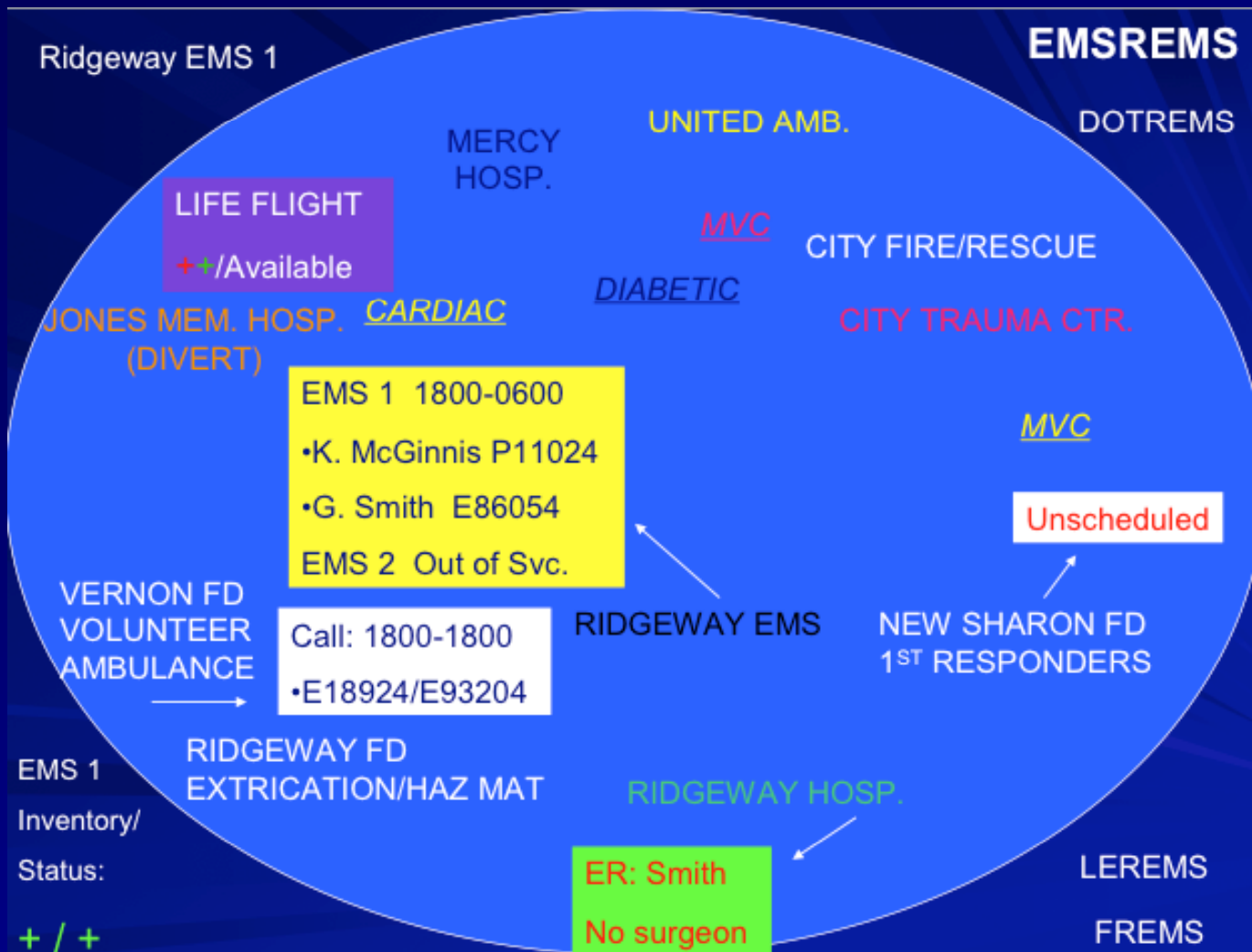
Common Operating Picture

Sequential Processing



Parallel Processing

Inability to Adopt Available Diagnostic Applications



~~THE GOLDEN HOUR~~ Time Dependent Life Threatening Conditions

≠ 20+30+50+40 Minutes



Trauma, Heart Attack, Stroke.....

© First Responder Network Authority

Ridgeway EMS 1

EMSREMS

ACN Alert

UNITED AMB.

MERCY
HOSP.

LIFE FLIGHT

MVC

CITY FIRE/RESCUE

CITY TRAUMA CTR.

MVC

2 Patients/45MPH
1001 Hendrix Highway (Nash/Oak Sts.)
Toyota Prius/Object/Head On

++Airbags ++Belts

++Severity

NEW SHARON FD
1ST RESPONDERS

RIDGEWAY EMS

 **MVC** 

VERMONT
VOLUNTEER
AMBULANCE

RIDGEWAY FD
EXTRICATION/HAZ MAT

RIDGEWAY HOSP.

Other Medical
Alarms

EMS INFORMATION NEEDS

Injury Severity Predictor Allows Early Launch of Resources

Crash at 8:29 PM, 5/8/10

Probability of Injury: 92%

[Add/Edit Passenger Details](#)

Passenger	Age	Gender	Safety Belt	Entrapment	Ejection	Prob. of Inj.
1	40	F	N	Y	N	92.0%

DeltaV: 30mph

PSAP Contact:

PAYETTE
1130 3RD AVE N
PAYETTE, ID 83851
(208) 642-6006

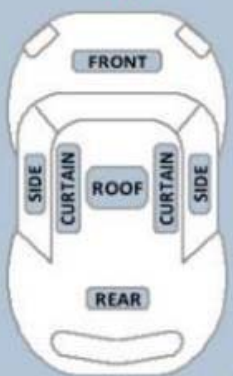
Incident Information:

Incident ID: 1438314045
Event Notification: Vehicle Accelerometer
Event Verified:
Rollover: No
Data Provider: OnStar
Provider Contact: 800-486-7827

Vehicle Information:

Color: White
Year: 2009
Manufacturer: General Motors
Make: Chevrolet (1)
Model: Cobalt Sedan

Direction of Force



☒ Airbag Deployed

Car Curb Weight (lbs): 3200

Passenger Side Damage?

Rear Damage?

[<< Previous Report](#) [Next Report >>](#) [Create Event](#) [Close](#)

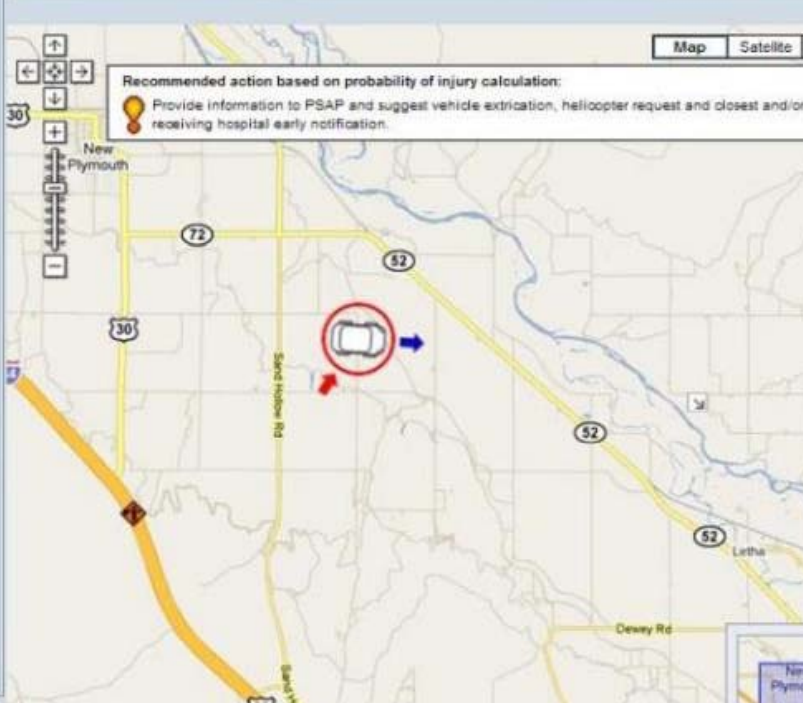
At A35. Look out for an accident.

ID: ONSTAR-1438314045.2
Status: **CURRENT** [Auto-held \(updated\)](#)

Author: unknown
Received: 10:25 PM, 5/8/10

Recommended action based on probability of injury calculation:

Provide information to PSAP and suggest vehicle extrication, helicopter request and closest and/or receiving hospital early notification.



Ridgewa

TOYOTA

PRIUS

Gasoline-Electric Hybrid

*Emergency Response Guide
(Revised)*



VERNO

RIDGEWAY FD

RIDGEWAY EMS

UNITED AMB.

MVC

CITY FIRE/RESCUE

FREMS

ACN Alert

MVC

NEW SHARON FD

 **MVC** 

2 Patients/45MPH/Front Seats

2004 Toyota Prius Head On/Object

++Doors ++Patients (Driver Priority)

Ridgeway EMS 1

Parallel Processing

EMSREMS

MERCY
HOSP.

UNITED AMB.

DOTREMS

LIFE FLIGHT→

ETA: 12 Min's.

MVC

CITY FIRE/RESCUE

JONES MEM. HOSP. CARDIAC
(DIVERT)

DIABETIC

CITY TRAUMA CTR.

Team On Alert for Pt:+

VERNON FD
VOLUNTEER
AMBULANCE

NEW SHARON FD
1ST RESPONDERS

RIDGEWAY EMS

ED On Alert for Pt: +

 MVC 

RIDGEWAY FD
EXTRICATION/HAZ MAT

RIDGEWAY HOSP.

ROAD CLEARANCE

Lights + /Cars ++

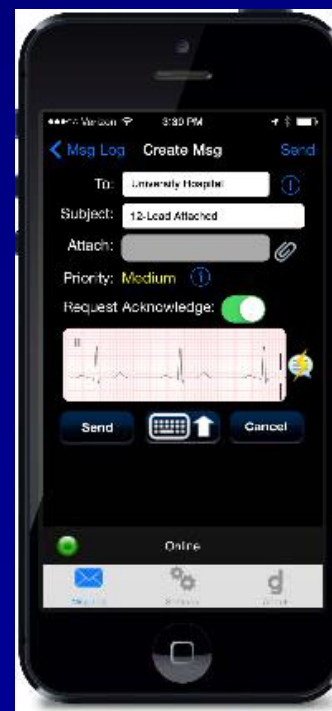
Ames St. to Clark St. to Old
Highway (E); 15.2 Mi.s;
#3945 Old Highway

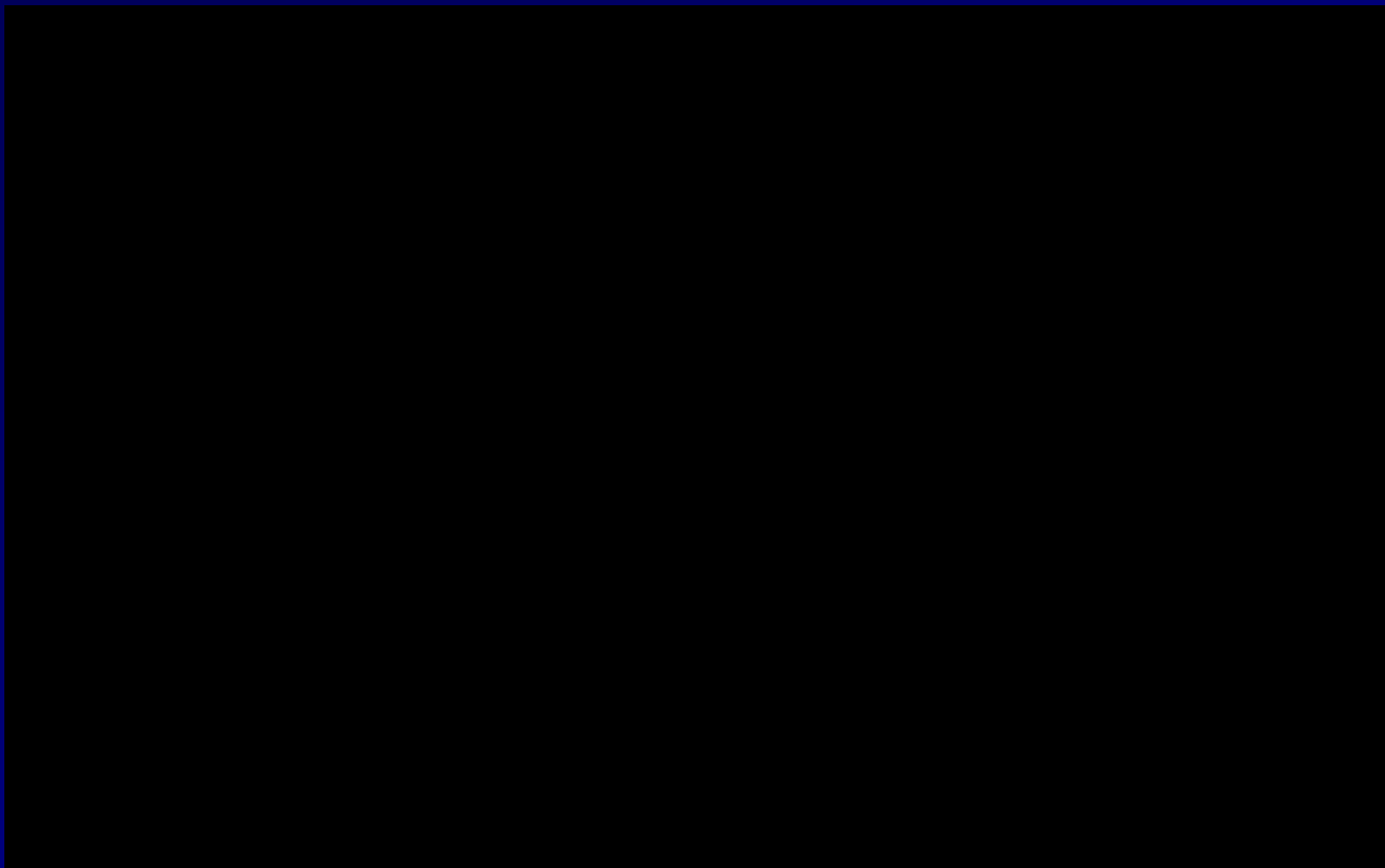
ETA: 10 Min's.

EMS INFORMATION NEEDS

FirstNet devices will improve accident triage and enable parallel processing.







■ Other Technologies

- Two Way Telemedicine (Virtual MD/Community Paramedicine)
- Portable Ultra Sound (Video & Images)

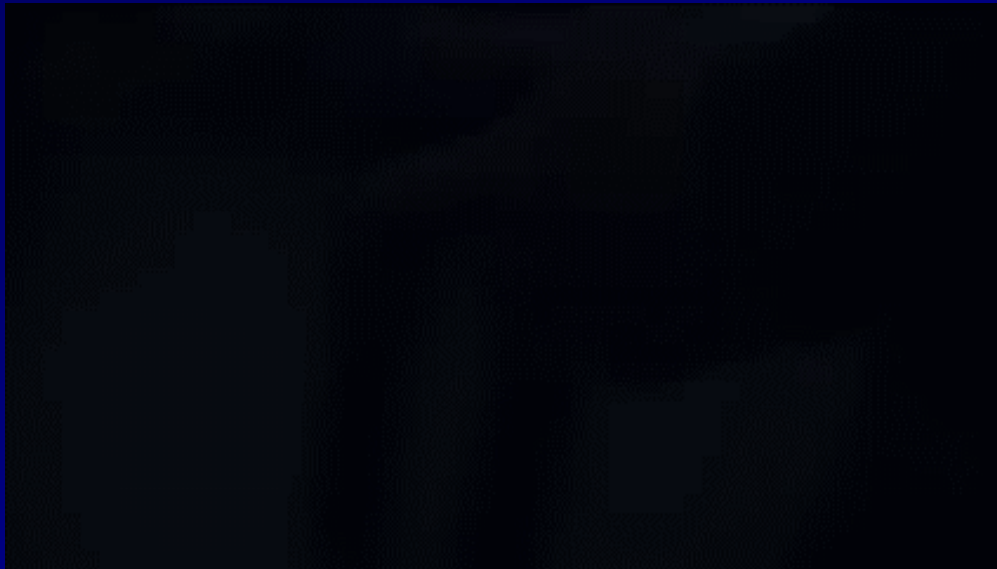


■ Other Technologies

- Multiple Patient Monitoring (Mass Casualty Incident)
- Multiple Responder VS Monitoring



Drones



VHF/UHF

■ Won't Cut It:

- Current: < 9.6+ kbps
 - Early Dial-Up: 14.4 kbps
 - Current Dial-Up: 56 kbps
 - V.S. Transmission: 76+ kbps
 - Basic video (300-700 kbps)
 - Ultrasound???

THE SITUATION

Beginning in 2006, the public safety community fought hard to convince Congress that it needed a dedicated, reliable and interoperable network to provide advanced data communications capabilities nationwide ...fulfilling the last remaining recommendation of the 9/11 Commission.

**Middle Class Tax Relief
and
Job Creation Act
February 22, 2012**

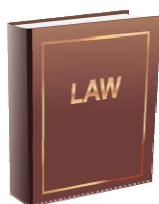


WHAT IS FIRSTNET?

FirstNet will be the first high-speed, broadband and data network dedicated to public safety.



Implementing the Vision



THE LAW

2.22.12

FirstNet becomes law
PL 112-96

GOVERNANCE



The FirstNet Board has **15** members, including those with telecommunications and public safety backgrounds.

Each Governor appoints **1** Single Point of Contact (SPOC) and governing body to represent the State's interests to FirstNet.

40 member Public Safety Advisory Committee (PSAC) advises FirstNet on public safety intergovernmental matters.

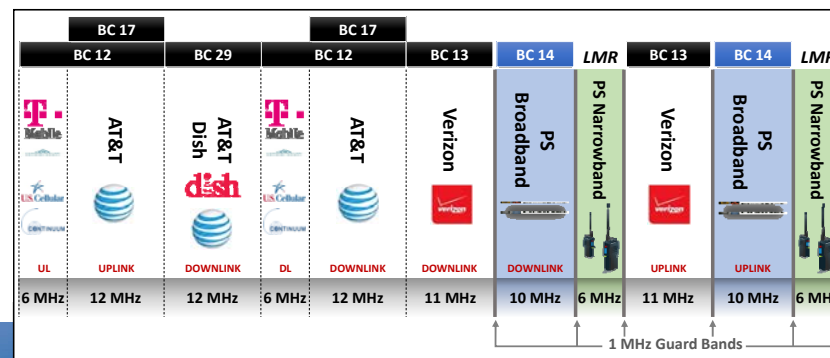
FUNDING



\$7B authorized to build the FirstNet network. Funded by spectrum auctions through 2022.

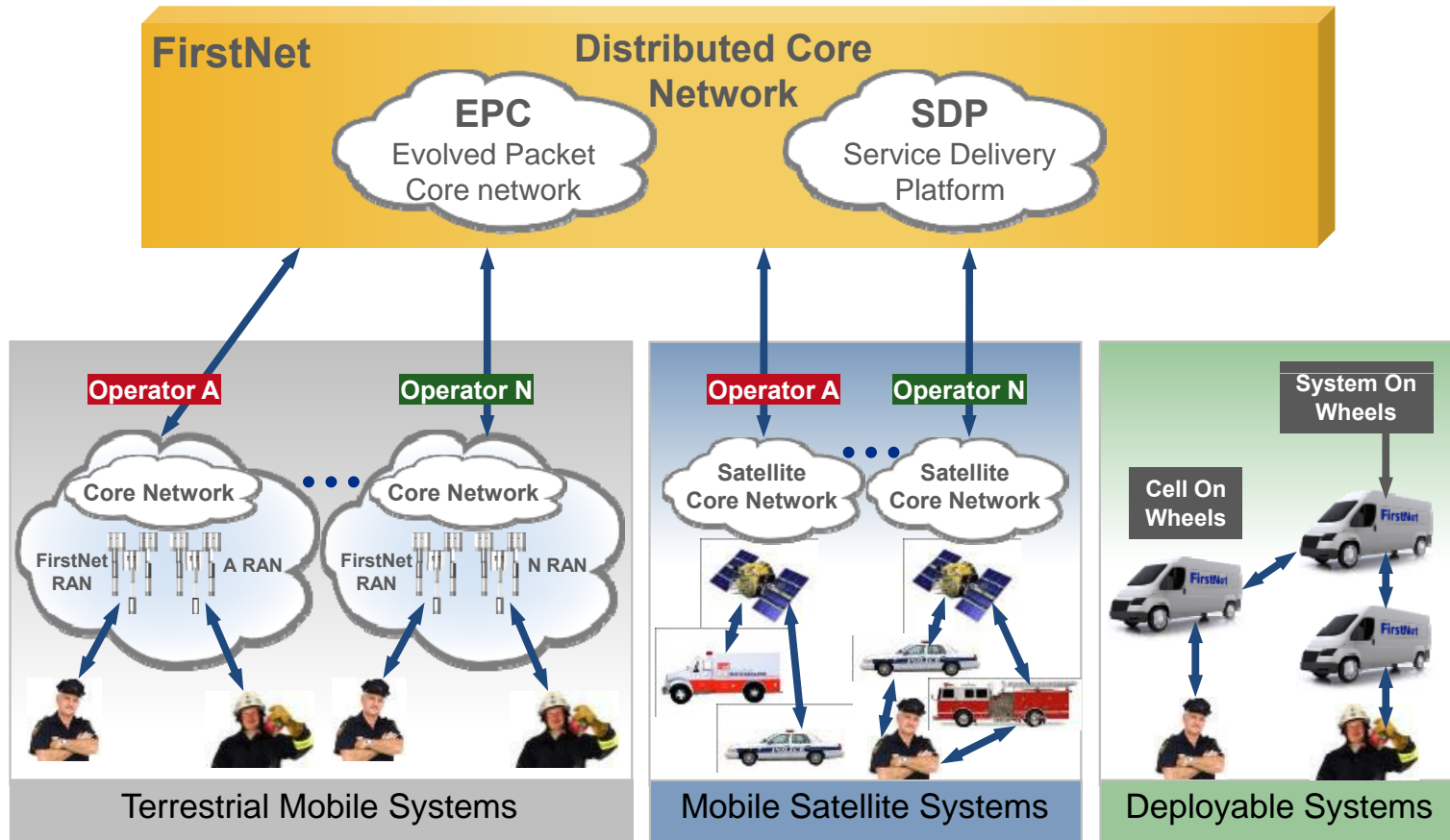
BAND CLASS (BC) 14

20MHz of bandwidth has been dedicated to public safety in the prime upper **700MHz** frequency range.



July 28-30, 2015

FirstNet “3-in-1” Nationwide Network Concept



Get Involved

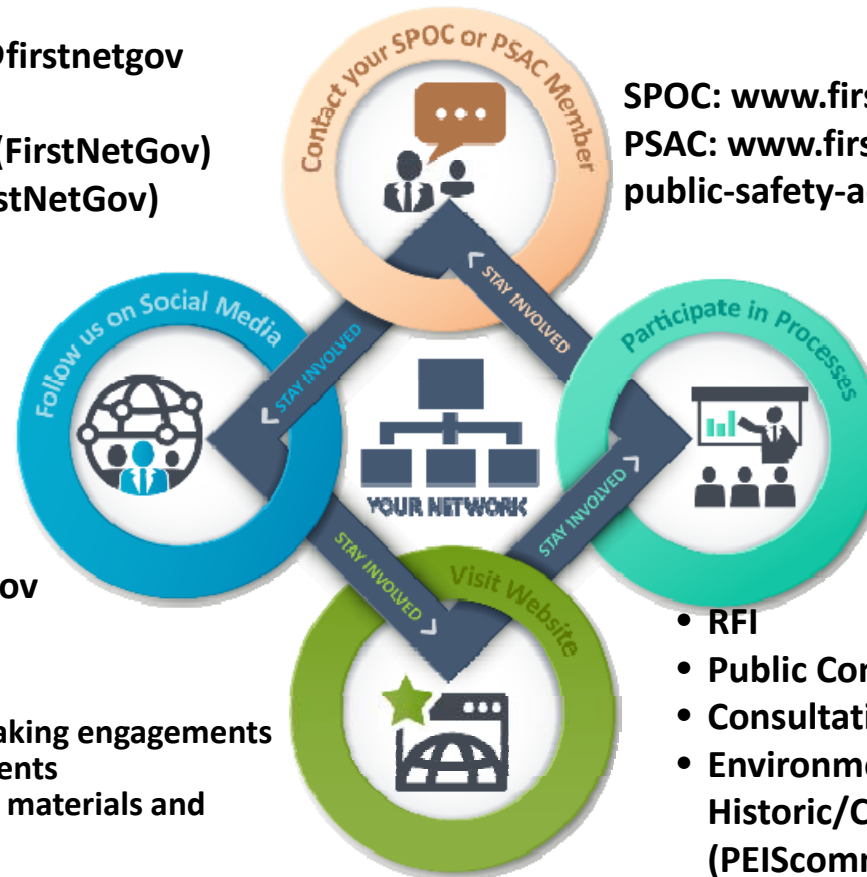


- Twitter @firstnetgov
- LinkedIn
- YouTube (FirstNetGov)
- Flickr (FirstNetGov)

SPOC: www.firstnet.gov/consultation
PSAC: www.firstnet.gov/about/public-safety-advisory-committee

www.firstnet.gov

- Fact Sheets
- Blogs
- Presentations
- Upcoming speaking engagements and current events
- Board meeting materials and webcast



- RFI
- Public Comment
- Consultation
- Environmental and Historic/Cultural Topics (PEIScomments@firstnet.gov)



FirstNetTM

@FirstNetGov



Thank You!

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207-512-0975