



Emergency Preparedness Guide

For Mobile Satellite Communications

Meeting the Qualifications and Needs of
Emergency Communications on the National Level



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Table of Contents

WELCOME	1
WHY GLOBALSTAR	2
THE GLOBALSTAR SATELLITE NETWORK.....	5
GLOBALSTAR INTEROPERABILITY	7
GLOBALSTAR VOICE & DATA.....	10
FUNDING & GRANT INFORMATION	11
FREQUENTLY ASKED QUESTIONS (FAQ)	14

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WELCOME

“Communication is key before, during and after disasters. Make sure Globalstar is part of your disaster plan.” – General Honoré



The entire country saw the devastation that was left after Hurricanes Sandy, Katrina and Rita. It's always easy to look back and think about what you SHOULD have done to be better prepared. Lt. General Russel L. Honoré, U.S. Army (retired) knows a thing or two about being prepared. Best known as an expert on global disaster preparedness, he led the joint task force responsible for the massive search-and-rescue mission and restoration of order in New Orleans and the Mississippi Gulf Coast following Hurricane Katrina in 2005. Additionally, he served in a variety of planning and response operations, including Hurricanes Floyd, Isabel, Charley, Frances and Ivan, and has supported U.S. military emergency response abroad.

General Honoré states, “My motto is simple – you should prepare not just when you notice something is headed your way, but prepare now. You need the ability to maintain communications continuity at all times, should the grid go down. Globalstar provides that with the world’s newest MSS network: a long-term, reliable investment with system redundancy that users can count on to reduce their response time, clearly be heard during critical phone calls and transmit data faster than any other competitive network.”

Globalstar provides innovative solutions for emergency management and business continuity applications. General Honoré knows how important it is to have a mobile command center up and running ASAP after a disaster strikes. “First responders and industries off-the-grid will find that Globalstar is something they can’t do without.”

In the aftermath of these recent events, businesses now routinely incorporate satellite phones in their disaster recovery and backup communications planning. Further, as a direct result of Hurricane Katrina, governors have put a renewed focus on statewide disaster preparedness programs, and interoperable emergency communications are a required component of the National Preparedness Goal put forth by the Department of Homeland Security in September 2011. Known for setting the standard in high quality voice and mobile data communications, Globalstar has already been adopted as the preferred statewide backup communications system in many parts of the country.

WHY GLOBALSTAR

As emergency personnel and first responders become more dependent on mobile phone and data services, so too does the need for reliable, space-based technology to support it. As such, **Globalstar meets all Federal SAFECOM standards and requirements for public safety wireless communications interoperability when facing a disaster or terrorist attack. The Globalstar satellite network is operates independently of local terrestrial infrastructure, and in a disaster, Globalstar can be the only reliable operable communications network available. This means Globalstar will work even when cellular and landlines don't.**

During Hurricane Sandy, service disruptions were reported in 158 counties and 10 states stretching from Maine to Virginia. At one point, approximately 25% of cell sites across these affected areas were out of commission and some 911 emergency call centers were disabled. In the New York City area, over 500,000 wired telephone lines and almost 60% of the wireless service networks were inoperable, with nearly 3,500 cell sites knocked off line. During this time emergency personnel and first responders relied on multiple backup systems including satellite phones to maintain critical services and enable harder hit areas to restore basic communications more quickly.

Unique Benefits

Interoperability

Interoperability is defined by Federal Emergency Management Agency (FEMA) as:

The ability for emergency management/response personnel and their affiliated organizations to communicate within and across agencies and jurisdictions via voice, data, or video-on-demand, in real-time when needed, and as authorized.

Globalstar seamlessly combines the reliability of space-based communications and interoperability with virtually any type of Public Safety communication equipment:

- Public Switched Telephone Networks (PSTN)
- Cellular networks
- Globalstar-to-Globalstar
- Globalstar-to-other satellite networks
- Internet
- 911 Emergency Response & Public Safety Answering Points (PSAP)
- Handheld wireless devices (smartphones, tablets, PDAs)

The range of communications services used in post-disaster response and recovery operations are broad and often unpredictable. Given the complexity and cost inherent in building and operating satellite communications systems, many providers focus on a very narrow set, if not just one primary service. Globalstar however is unique in that it balances the diverse needs of first responders providing them with:

- **Instant Infrastructure** – Provides instant communications where no terrestrial infrastructure is available. Terrestrial communication can be disrupted by natural disasters such as hurricanes or earthquakes and Globalstar is the best and most reliable communication platform available.
- **Continuity of Operations (COOP)** - A redundant communications network capable of providing real-time voice and data in the event of a landline failure or system overload.
- **Rapid Provisioning (Temporary Network Solution)** – Globalstar is the most cost effective, practical and easy to deploy solution for sending and receiving information.
- **Surge Capacity Solution** - Globalstar can relieve public telecommunications networks of traffic overload by diverting traffic out of a congested area, and re-routing calls through its own network.
- **System Scalability** – Globalstar is the only satellite operator in the country whose network capacity is scalable and can adapt to any abrupt change or event.
- **Ubiquitous Coverage** – Globalstar’s satellite network covers most of the inhabited Earth’s surface between 70° north and 70° south.
- **Communications Interoperability** – Globalstar provides the ability for public safety agencies and service agencies to talk within and across agencies and jurisdictions, exchanging voice and data.
- **Communications Operability** – Globalstar provides a highly secure, digitally encrypted private network that remains operable even if all land-based communications fail and/or destroyed.

Practical

- US based 10 digit dialing with Florida, Texas or Alaska Area Codes, seamlessly connect to all telecommunication systems
- Dial 911 anywhere in North America - No special provisioning for 911 immediately connects to the GEOS International Emergency Response Center
- True Mobility – Omni-directional antennas allow for continuous movement in any direction at any speed without losing satellite connection
- Hands Free capability with car kit
- One touch dialing

Reliable

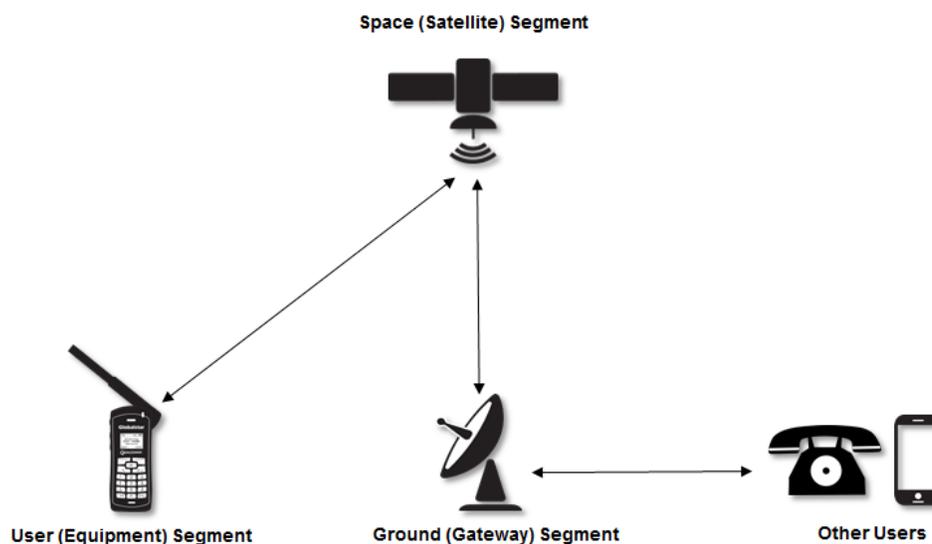
- Only satellite system built with redundancy features – All Gateways can add capacity to adjacent ground stations, and serve nearby area in event of localized outage
- Newest most modern satellite constellation with 15 year life
- CDMA platform provides the industry's best audio-quality, enables higher capacity, process more calls and provides faster data speeds

THE GLOBALSTAR SATELLITE NETWORK

Globalstar recently launched the world's most modern satellite communications network. "As the first in the mobile satellite communications industry to establish a new and modern network, Globalstar is leaps and bounds ahead of the competition," says Jay Monroe, Chairman and CEO of Globalstar, Inc. "With the most modern network in place, Globalstar customers will be connected when it matters most, in emergencies, to continue business or to connect with a loved one."

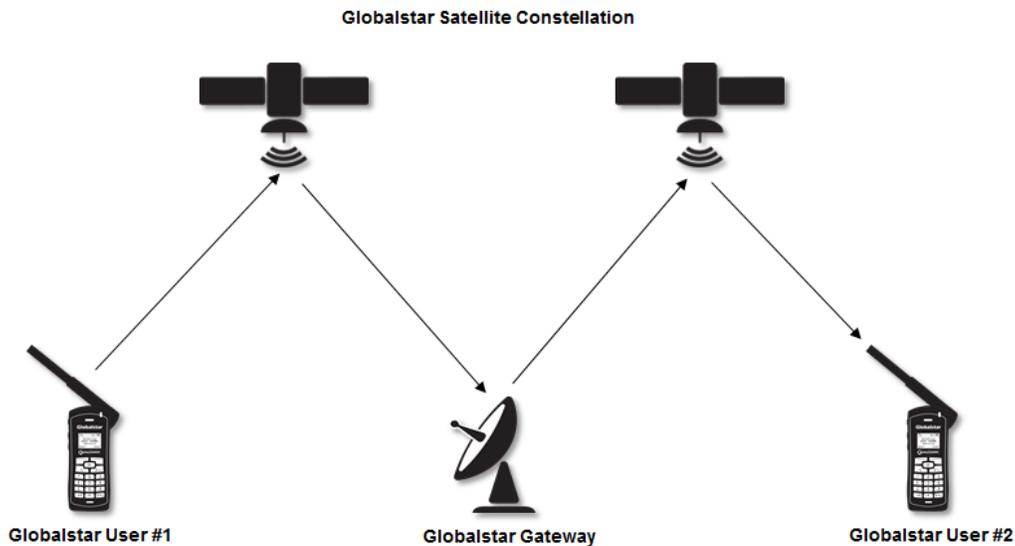
Globalstar uses Low Earth Orbit (LEO) Satellites in an orbit around 900 miles. There are advantages of LEO satellites over Geosynchronous (GEO) systems for delivery of Mobile Satellite Services (MSSs). LEO satellite technology allows the use of low power handheld devices allowing users to be continuously on the move without a disruption of service. In land-based GEO satellite applications (i.e. VSAT or BGAN) the terminal must be stationary to acquire a satellite signal. GEO satellite systems are normally 28,000 miles above the earth and are commonly used for television transmission, high-speed data, and other wideband services. Emergency personnel and first responders require telephone quality transmissions. The time delay and echo inherent with GEO systems can be detrimental to providing life-saving services.

The Globalstar Satellite Network is comprised of 3 segments:



- **Space (Satellite)** – The Globalstar space segment is a constellation of 32 LEO satellites, providing global communications. Operating at an altitude of 860 miles above the Earth, the spot beam coverage (footprint of an individual Globalstar satellite) is the largest among all LEO satellite operators
- **Ground (Gateway)** – An operational gateway is required to send and receive voice and data to other Globalstar phones, landlines, cellular, other satellite networks, or the Internet. The Globalstar ground segment consists of 25 gateways around the world. Each gateway has between three and four large antennas following the movement of the orbiting satellite
- **User (Equipment)** – The Globalstar user segment consists of Globalstar satellite phones, Globalstar Sat-Fi, and other Globalstar equipment used to send/receive voice and data.

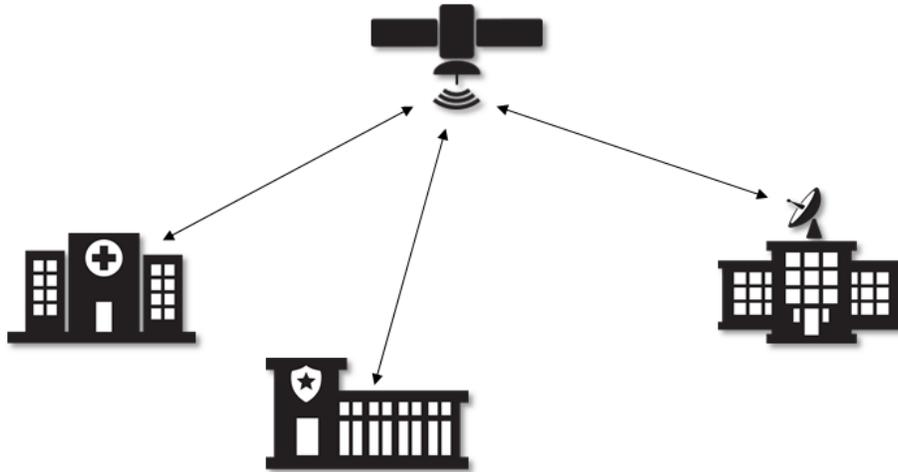
Globalstar to Globalstar Satellite Phone Call “Double Hop” Bypass 100% of Terrestrial Infrastructure



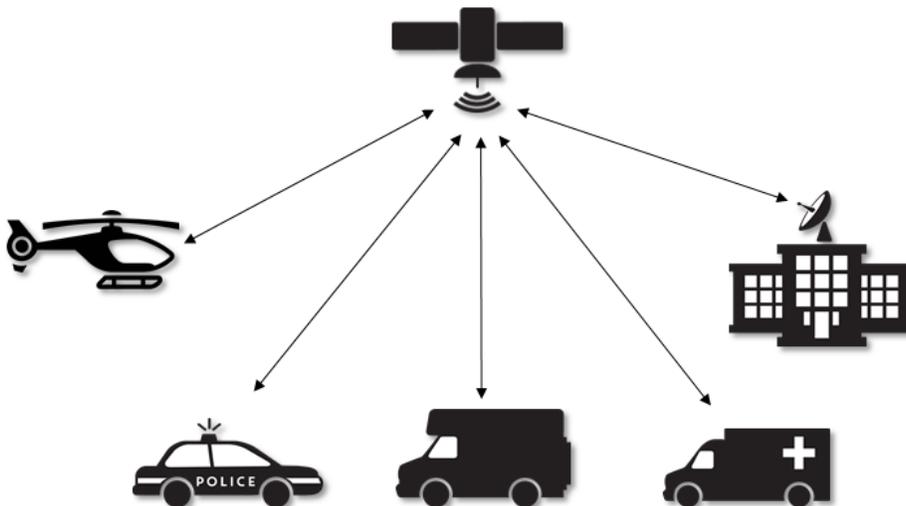
GLOBALSTAR INTEROPERABILITY

Globalstar's interoperability can be illustrated in several calling scenarios over its network. These include, but are not limited to:

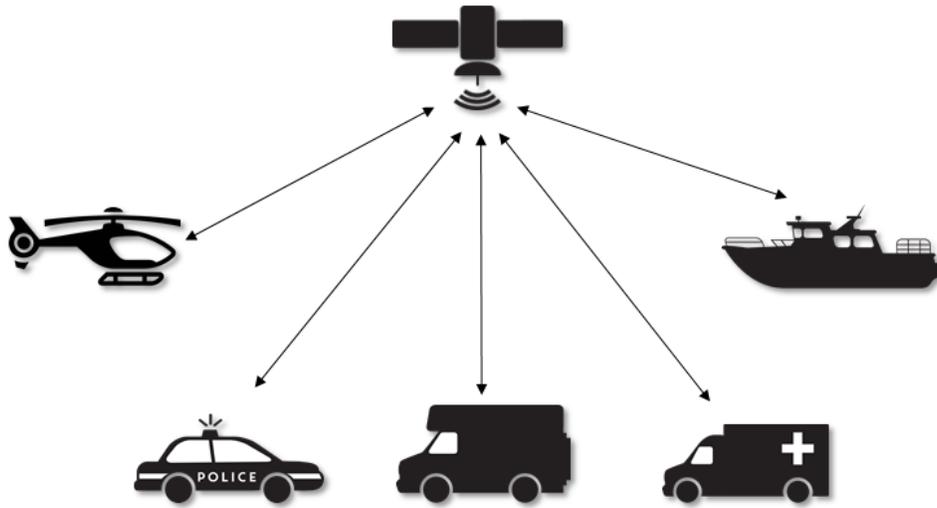
Fixed-to-Fixed



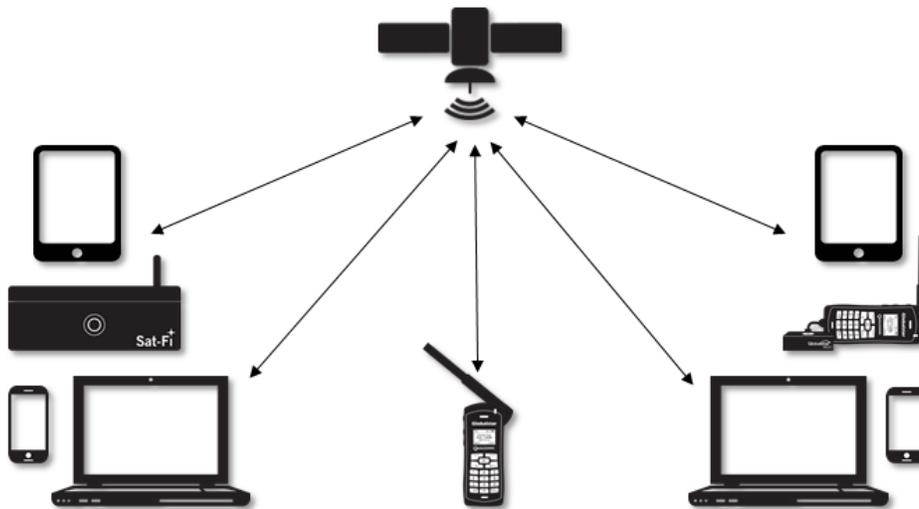
Fixed-to-Mobile



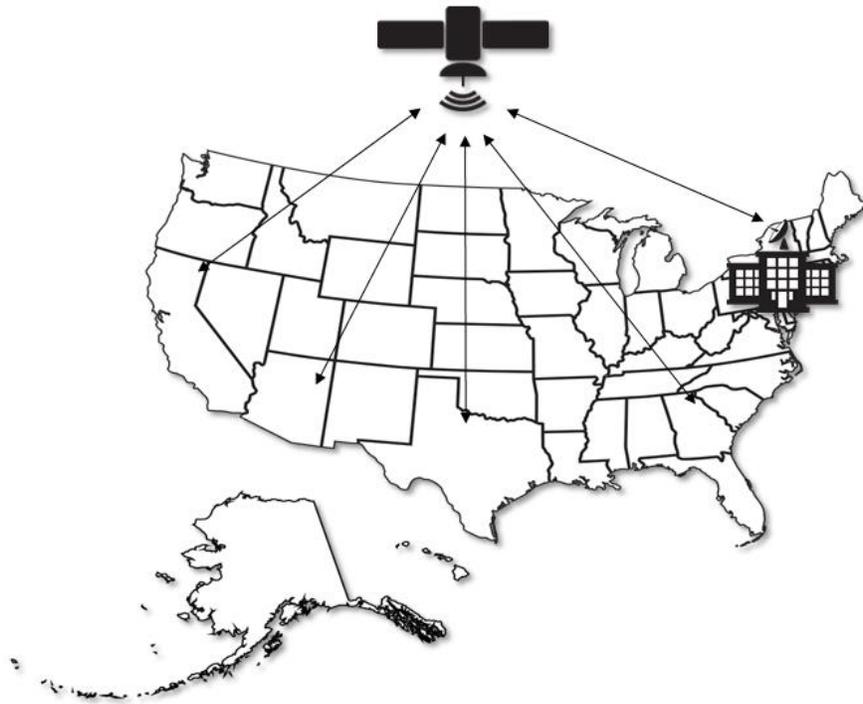
Mobile-to-Mobile



Device-to-Device



Point-to-Multipoint



GLOBALSTAR VOICE & DATA

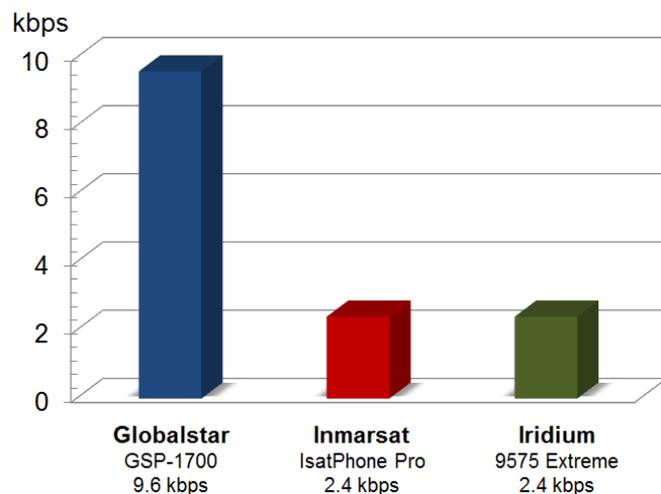
Globalstar is a Mobile Satellite System (MSS) providing communications on the move, including equipment that can be used from inside a car, truck or maritime vessel, as well as helicopters and other aircraft. Globalstar can provide the voice and data connections necessary to expedite damage assessments, medical evaluations, or any of the following:

- Mobile Voice Communications
- Emergency Response Coordination
- Dispatch Coordination
- Asset Tracking
- Rapid Mobile Data Transfer
- Environmental Monitoring
- Event Reporting
- Text Messaging
- Email

Globalstar communication solutions can be deployed and operational within minutes, without the need of expert technical staff, providing emergency personnel and first responders with:

- **Crystal-Clear Voice Quality** – Rivaling the voice quality of modern day digital cellular service, Globalstar is the only MSS provider using the patented Qualcomm-based CDMA technology
- **No Voice Delay** – Calls occur with no noticeable time-delays
- **Simplicity** – Simple 10-digit dialing, just dial area code + telephone number and press connect

Globalstar MSS Data Speeds 4x Faster



- **Superior Data Speeds** – MSS industry's fastest data speeds, allowing you to send more in less time. 4 times faster than all other MSS providers.

FUNDING & GRANT INFORMATION

FEMA – Homeland Security Grant Program (HSGP)

The Homeland Security Grant Program (HSGP) provides funding to states, territories, urban areas, and other local and tribal governments to prevent, protect against, mitigate, respond to, and recover from potential terrorist attacks and hazards.



Office of Emergency Communications (OEC) manages the policy and planning elements of the SAFECOM Program and is charged with the development of national interoperability grant guidance and policies

Interoperable Communications are required by DHS in its National Preparedness Plan as a core capability, and top priority for all recipients and non-recipients of Federal Assistance.

The 2015 HSGP is comprised of three related grant programs:

- **State Homeland Security Program (SHSP)** - SHSP provides \$401,346,000 to support the implementation of the NPS to address planning, organization, equipment, training, and exercise needs to prevent, protect against, mitigate, respond to, and recover from acts of terrorism and other catastrophic events. SHSP also provides funding to implement initiatives that address shortfalls and deficiencies identified in the State Preparedness Report (SPR).
- **Urban Area Security Initiative (UASI)** – The UASI provides \$587,000,000 to address the unique planning, organization, equipment, training, and exercise needs of 64 high-threat, high-density urban areas, and assists them in building an enhanced and sustainable capacity to prevent, protect against, mitigate, respond to, and recover from acts of terrorism and other catastrophic events.
- **Operation Stonegarden (OPSG)** – OPSG provides \$55,000,000 to enhance cooperation and coordination among local, tribal, territorial, state, and federal law enforcement agencies in a joint mission to secure the United States' borders along routes of ingress from international borders to include travel corridors in states bordering Mexico and Canada, as well as states and territories with international water borders.

Additional guidance and application kits are available at <http://www.fema.gov/grants> as well as the Notice of Funding Opportunity.

FEMA - Authorized Equipment List (AEL)

The AEL is a tool used to determine allowability of equipment types for FEMA's Preparedness Grant Programs. The AEL is used to facilitate more effective and efficient procurement of items under specific FEMA Preparedness Grants by informing grantees of equipment items allowed under specific grant programs and relevant programmatic considerations associated with each equipment item.

- **06CC-03-SATB** – Satellite communication device, Fixed phone
- **06CC-03-SATM** – Satellite communication device, Mobile phone
- **06CC-03-SATP** – Satellite communication device, Handheld phone
- **06CC-03-SATP** – Satellite service (voice) with Handheld device
- **06CC-03-SADS** – Satellite data services (Internet and data)
- **06CC-02-2WAY** – 2-way text messaging device

U.S. Department of Health & Human Services

The largest federal effort to support state preparedness stems from the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. This law directs the Secretary of the Department of Health and Human Services to “develop and implement a coordinated strategy to prepare for and respond to bioterrorism and other public health emergencies,” and specifies that the federal government coordinate its efforts with the states.



The law authorizes the Secretary to award grants or cooperative agreements to states for emergency planning and assessment, infrastructure development (particularly laboratory readiness), surveillance and reporting improvements, education and training, and communication in all 50 states, as well as the District of Columbia.

- **The Hospital Preparedness Program (HPP) Grant Program** is focused on addressing eight key Healthcare Preparedness Capabilities found in HPP’s Healthcare Preparedness Capabilities: National Guidance for Healthcare System Preparedness. One of these eight capabilities, essential to providing medical care in the event of a pandemic or epidemic, is interoperable communications.
- **Public Health and Emergency Preparedness (PHEP) Grants** have been crucial in providing effective response resources to the private sector, represented by the hospitals, health care and urgent care clinics. . In 2014, the amount of money allocated through PHEP to health departments was three times the size of funds allocated to the private-sector-based health care facilities.

Additional information is available at: <http://www.phe.gov/Preparedness/planning/hpp>

FREQUENTLY ASKED QUESTIONS (FAQ)

Do Globalstar satellite phones work like cell/mobile phones?

Globalstar satellite phones offer many of the same characteristics as cellular/mobile phones including a similar user interface and design. Satellite phones are slightly larger in size than cellular/mobile phones because the antenna required to communicate on the satellite frequencies must be larger than a cellular phone antenna. Another fundamental difference between traditional cellular/mobile phones and satellite phones is that a satellite phone mode must be within line-of-sight of the satellite in order to make and receive call. The satellite phone antenna must have a clear view of the sky without any obstructions. Therefore, a satellite phone will not work indoors unless there is an external antenna, located outside, that is connected to the phone.

Are Globalstar's satellite services and hardware reliable?

Yes, Globalstar's satellite service and hardware is extremely reliable. A significant portion, if not the majority, of problems encountered in the field with dropped service is traceable to operator error resulting in the lack of training or familiarity with the equipment. A common example is not fully extending the satellite antenna and pointing it up to the sky.

Isn't purchasing satellite services expensive?

Globalstar offers the most affordable satellite communication services in the industry. With the purchase of specific airtime plans Globalstar satellite phones are either FREE or extremely discounted. Additionally, service rates are available for under a dollar a minute.

Why are satellite communications an essential component for all critical telecom network planning?

To enable rapid deployment and/or restoration and truly mobile communications, emergency personnel and first responders should incorporate Globalstar satellite services as a redundancy requirement in any communications network or architecture. A satellite systems should be emphasized and included in the early planning of these initiatives to ensure there is a back-up communications solution when the terrestrial network is damaged or destroyed. Without a satellite component to any future emergency response communications network, emergency communications will be rendered useless when the terrestrial network next sustains damage or is overloaded

For more information, please visit www.globalstar.com

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