In 2012, Harris County entered into partnerships to launch the first 4G LTE broadband system for public safety use. It allows high speed mobile data communication on a highly reliable, hardened network that is completely independent of consumer cellular users. This network is dedicated for public safety’s current, and future applications. It will provide first responders with better situational awareness through increased broadband capacity.

Harris County ITC and the Houston Ship Channel Security District have partnered through a Port Security Grant to install this first in the nation Public Safety LTE network.

**Strategic Partnerships**

End users participate in sustaining the system through subscriber fees based on bandwidth needs.

A strategic partnership has been established with a major cell carrier to provide extended coverage outside the coverage area, with additional carriers eventually joining the effort. While end users may travel out of the coverage area, their devices will have the ability to work seamlessly, and securely, on commercial carrier networks utilizing a VPN (Virtual Private Network) Client.

**Mission Statement:**

Provide public safety law enforcement with the best possible wireless broadband network in support of their mission, to protect life and property, no matter what the event.

*LTE provides public safety with a dedicated broadband data network.*
Subscriber devices on the network connect via the core or a gateway.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPC</strong></td>
<td>Evolved Packet Core</td>
</tr>
<tr>
<td><strong>MME</strong></td>
<td>Mobility Management Entity</td>
</tr>
<tr>
<td><strong>SGW</strong></td>
<td>Server Gateway</td>
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<td><strong>PGW</strong></td>
<td>Packet Data Network Gateway</td>
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<tr>
<td><strong>HSS</strong></td>
<td>Home Subscriber Server</td>
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<tr>
<td><strong>PCRF</strong></td>
<td>Policy and Charging Rules Function</td>
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<tr>
<td><strong>AAA</strong></td>
<td>Authentication Authorization and Accounting</td>
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<td><strong>OSS</strong></td>
<td>Operation and Support System Manager</td>
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<tr>
<td><strong>Remote Gateway</strong></td>
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<td><strong>Web Portal</strong></td>
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<td><strong>eNodeB</strong></td>
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<tr>
<td><strong>UE</strong></td>
<td>User Equipment</td>
</tr>
</tbody>
</table>
Hurricane Ike, Hurricane Sandy, the Boston Marathon bombing and 9/11 are examples where commercial cellular networks failed in providing real time information to first responders.

A dedicated 4G public safety broadband network provides first responders with real time data, without having to compete with commercial traffic.

**Broadband Interoperable Network (BIG-Net) Benefits:**

**DEDICATED TO PUBLIC SAFETY**
With no commercial traffic fighting for available bandwidth, public safety user and responders have a dedicated network to meet their needs.

**RESILIENCY**
Infrastructure is built with public safety standards in consideration, providing critical resiliency and redundancy, critical for first responder needs.

**PRIORITY**
Incident command can manage network priority by events, users, or applications.

**IMPROVED SITUATIONAL AWARENESS**
Improved interoperability through a dedicated public safety network and through integration of video, computer aided dispatch, priority service and push to talk.
Coverage

Network build out will happen in phases, initially providing a layer of mobile coverage already available in some areas.

Features of BIG-Net:

- User Priority
- Application Priority
- Agency Priority
- Responder Emergency Priority
- Role based Priority
- Jurisdictional Priority
- Incident Priority
- Integrated roaming with commercial carrier
- Interoperable with P25 users
- Compliant with FCC and ERIC requirements
- End-to-End security enabled to meet federal security mandates
- 3GPP standards
- Designed as a Regional/Statewide/National Public Safety network

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