

# Hurricane Katrina Catastrophic Communications System Failure Washington Parish, Louisiana

**Given the right set of circumstances, total and complete communication system failure can and will occur**



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# Agenda

- Geographic and Demographic Summary
- Historical Summary 2002 – 2005
- Communication Systems Prior To Katrina
- Effect of Katrina On Each System
- Path Forward For Washington Parish and the Industry

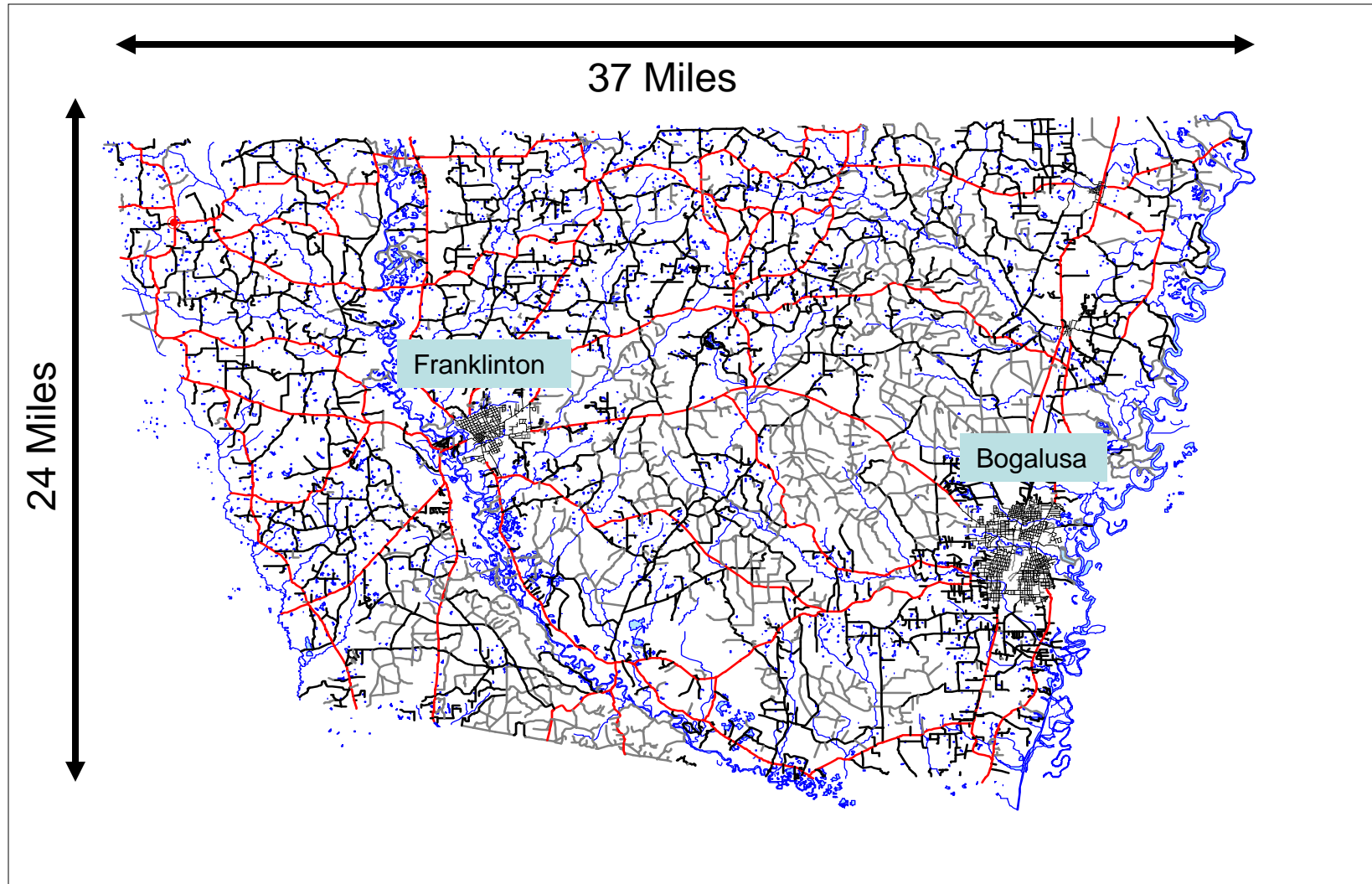
# Washington Parish, Louisiana

## Geographic and Demographic Summary



- Population : 45,000
- Area : 670 sq miles
- Housing Units : 19,000
- Household Income : \$24k
- Major Crop : Timber
- Improved Roads : 1,300 miles

# Geographic and Demographic Summary



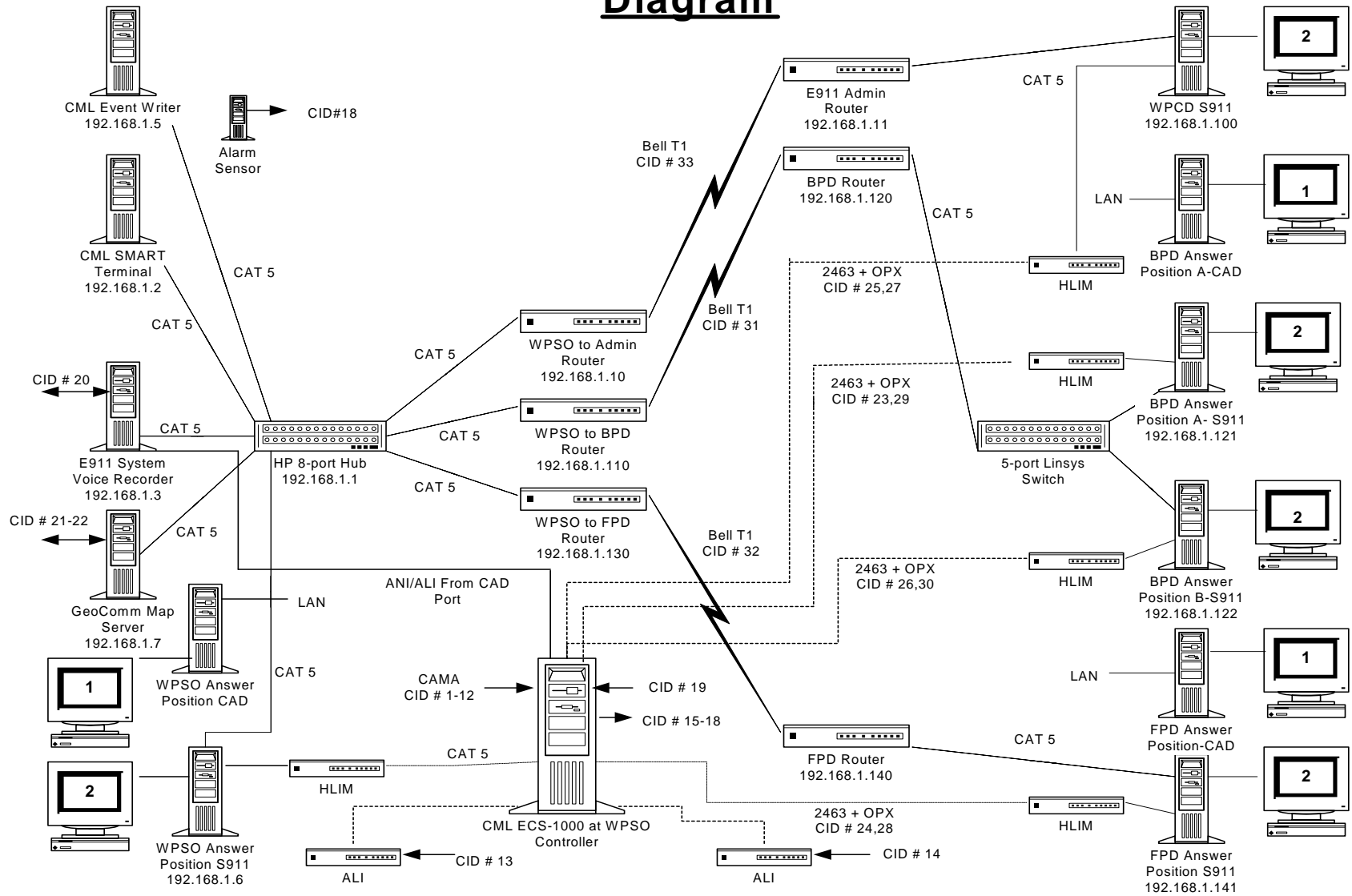
# Historical Summary 2002 – 2005

2002	Geo_Comm Assessment by Paul Linnee : Lack of shared infrastructure improvements such as computer-aided dispatch (CAD) systems, shared records system platforms, shared radio systems, GIS mapping systems and closely coordinated (electronically) E911 telephone systems and networks. At present, these systems in Washington Parish are either totally lacking or relatively isolated with little operational commonality between the various agencies. Operational and some technical deficiencies in the radio infrastructure threaten the safety of public safety responders (especially fire/EMS) . <b><u>There is also a serious deficiency during times of major emergencies involving multi-agency response during times of severe weather, which is characteristic of the area. This will place citizen safety at risk.</u></b>
2003	Voters declined to approve funding for Washington Parish Communications Center to consolidate three PSAP's and improve equipment. Federal government does not act on Appropriations Request to further improve systems.
2004	9-1-1 replaces non-networked, stand alone Positron Phrend and Lifeline 100 with single CML ECS-1000 networked to all PSAP's. Wireless Phase 2 implemented with Geo-Lynx mapping. No change in radio infrastructure or CAD due to lack of funding. Request to FEMA to improve EOC not funded.
2005	<b>Hurricane Katrina results in catastrophic communications failure.</b>

# Communication Systems Prior To Katrina

<b>911</b>	<b>CML with 4 remote positions connected by OPX voice, 2463 data, and T1's. Phase 2 with Geo-Lynx mapping. Tandem in New Orleans</b>
<b>Landlines</b>	<b>5 CO's/EO's</b>
<b>Wireless</b>	<b>5 wireless carriers and 20 sites</b>
<b>VoIP</b>	<b>None in EOC</b>
<b>Sat Comm</b>	<b>One in EOC</b>
<b>800 mhz</b>	<b>Louisiana State System, one tower</b>
<b>155 mhz</b>	<b>Main Public Service Band, 6 main Repeaters</b>
<b>144 mhz</b>	<b>Ham Radio, 1 Repeater</b>
<b>Newspapers</b>	<b>2 daily and 1 weekly</b>
<b>Broadcasters</b>	<b>2 local AM/FM stations</b>

# Washington Parish Current E911 Network Diagram



# Effect of Katrina On Each System

<b>9-1-1</b>	OPX voice , 3465 data, and T1's go down early during storm. Tandem in New Orleans under water. No 9-1-1 for 1 week since CO's/EO's can't reroute. Calls re-routed to 10D in second week.
<b>Landlines</b>	CO's/EO's lose connection to each other and rest of the world for 1 - 2 weeks.
<b>Wireless</b>	All carriers go down due to loss of T1 links for 1 - 2 weeks. Satellite COW at EOC in week 2.
<b>VoIP</b>	Telephone circuits go down taking VoIP with it. Wireless VoIP circuits erected in 7-10 days for EOC.
<b>Sat Comm</b>	One in EOC – Does Not Operate due to programming issues. Two additional phones acquired during first week with intermittent problems due to programming issues and satellite overload.
<b>800 mhz</b>	Not in operation for approx 1 week due to T1 issues.
<b>155 mhz</b>	Main Public Service Band, 6 Repeaters. All down for days due to un-accessible roads and lack of generators. Simplex operation only during this period. Poor simplex coverage due to antenna height. After generator installation - Frequent downtime due to generator fueling issues .
<b>144 mhz</b>	Local repeater down for days due to un-accessible roads and lack of generators. Simplex operation with high power and directional antenna connects to Louisiana EOC on day 3.
<b>Newspapers</b>	None operational for 2 weeks
<b>Broadcasters</b>	None operational for 2 weeks
<b>Courier</b>	Hand carried messages to Louisiana EOC, 100 miles away, only means to communicate for 3 days until 144 mhz link to State EOC is established.



# The Right Set of Circumstances

- Failure to convince funding sources of critical needs prior to event
- PSAP's widely separated with no radio connectivity to each other
- Massive tree damage blocking roads and ripping up underground cables
- Lack of in place generator back up at radio repeater sites
- Massive destruction of wireline / cable service
- Loss of wireless service
- Lack of sufficient Sat Comm capability
- Loss of circuit connections between CO's.
- Lack of local CO capability to reroute to 10D's.
- Loss of T1's, data, and voice circuits
- Loss of Bell system tandem
- Lack of interconnected wireless VoIP system to Louisiana EOC
- Lack of in place simplex radio link to Louisiana EOC
- Lack of mass media access to communicate with population

# Path Forward For Washington Parish 9-1-1

- Local Initiatives :
  - Assist in the review of all emergency plans and SOP's, revise as necessary with emphasis on :
    - Communications
    - Fuel Management
    - Food, water, ice, medical services distribution systems
    - Integration with outside agencies
  - Once emergency plans and SOP's are revised, assist regular parish wide “disaster” exercises
  - Construct and equip modern EOC
  - Common CAD for All Agencies With Links To all PSAP's
  - Improvements to radio systems to include 700 mhz
  - Back up wireless links to supplement T1's whenever possible
  - Increase VoIP system to critical locations.
  - High capacity Satellite telephone and internet system.
  - Natural gas – propane generators, avoid gasoline/diesel
  - Internal private Wi-Fi system in EOC for message traffic

# Path Forward For Washington Parish 9-1-1

- Encourage Industry Changes and Improvements
  - Evaluate communication system failures impact on existing :
    - industry technical standards
    - operational standards
    - informational documents
  - Develop coordination of emergency response teams between NENA, APCO, and ARRL to include SOP's, training, support, deployment, command and control. Teams should include support at all levels - dispatchers to senior managers
  - Develop centralized points of contact for regular wireless and wireline status updates, contingency plans, restoration plans and schedules for 911 and EOC related services, COW acquisition, handset and supplies acquisition.
  - Develop standards to insure LEC tandems are secure from damage and if damaged, how to quickly re-route calls with ANI/ALI.
  - Develop standards for non-traditional methods to connect remote PSAP's given wireline and wireless outages.