GIS for Next Gen 9-1-1

CHRIS DILLER – WISCONSIN DEPARTMENT OF MILITARY AFFAIRS
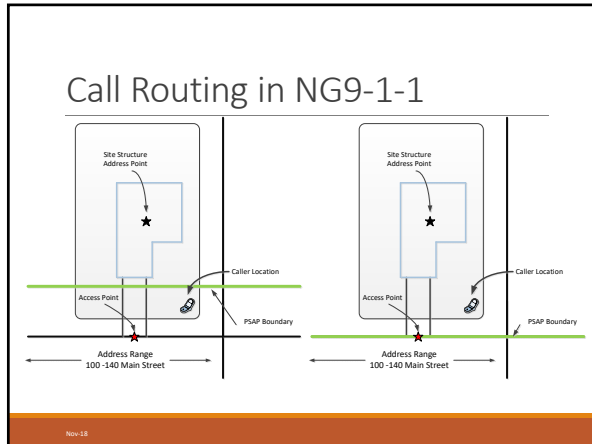
NOVEMBER 2018
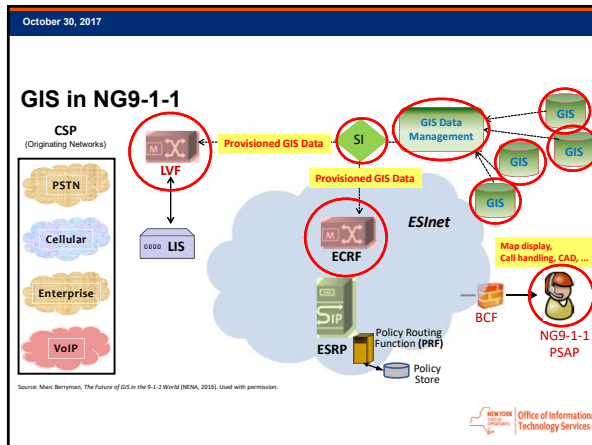

What is NG9-1-1?

- Internet Protocol (IP)
- Also supports texts, photos, video
- Works with any connected device
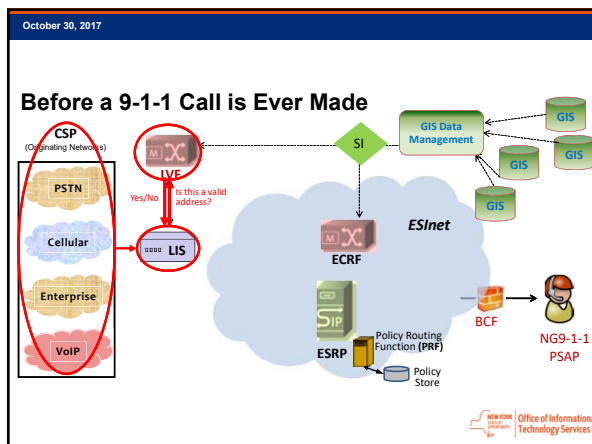- Interoperable at county, region, state and federal

ESInet

GIS Data

Policies, Standards

Funding

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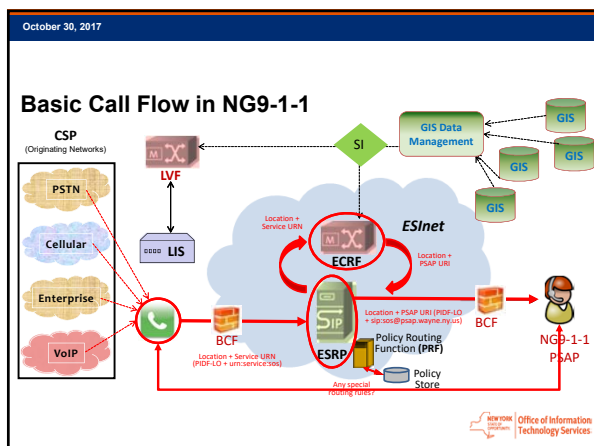## GIS Data Layers in a NG9-1-1

- REQUIRED GIS data layers:
  o Road Centerlines
  o PSAP Boundary
  o Emergency Service Boundary (must include separate layers for Law, Fire, and Emergency Medical Service)
  o Site/Structure Address Points
- Absolutely necessary for:
  o Location Validation Function (LVF)
  o Emergency Call Routing Function (ECRF)
  o Call taking
  o Dispatch operations

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Call Routing in NG9-1-1

GIS in NG9-1-1

Before a 9-1-1 Call is Ever Made

Basic Call Flow in NG9-1-1

Report to Congress – Oct 2018

- NG911 will allow the nation's 911 systems to:
  - meet the communication needs and expectations of the public
  - deliver reliable, resilient, redundant emergency communication services to communities nationwide
  - enable seamless integration with the Nationwide Public Safety Broadband Network (NPSBN)—which is being implemented under the auspices of the First Responder Network Authority (FirstNet)—**creating a unified digital public safety communications ecosystem**

Source: Next Gen 911 Cost Estimate report to Congress – OCT 2018

Report to Congress – Oct 2018

- Because NG911 relies on GIS data for call routing, the **GIS data must be highly accurate**. The PSAP or 911 authority responsible for the data must ensure that the data is of such quality to achieve a 98 percent or greater match rate with its legacy Master Street Address Guide (MSAG) and its GIS street centerline data before migrating to NG911. To accomplish this, the **PSAP or 911 authority must have skilled GIS personnel on staff**…

Source: Next Gen 911 Cost Estimate report to Congress – OCT 2018

Report to Congress – Oct 2018

- The NG911 lifecycle cost estimate range, shared between localities, States and federal agencies, is between 13.5 and $16 billion…and the **cost estimate range for NG911 deployment is between $9.5 and $12.7 billion.** The time-period for the implementation estimate is ten years, assuming no scheduling delays, no funding delays, and no deviations from the recommended implementation path.

  https://www.911.gov/pdf/Next_Generation_911_Cost_Estimate_Report_to_Congress_2018.pdf

Source: Next Gen 911 Cost Estimate report to Congress – OCT 2018

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National Estimated GIS Costs

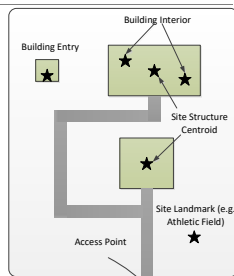| Cost Type	State Implementation
Hardware	$2.4 million
Services	$5.4 million
Staff	$1.07 billion
Software	$86 million
Grand Total	$1.7 billion

Source: Next Gen 911 Cost Estimate report to Congress – OCT 2018

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Address Point Considerations

- Complex property sites
- Multiple points per address allowed
  - Primary site address
  - Sub-address (e.g. apartment units)
  - Commercial sites, schools, marinas many other examples
- Stacked points vs. distributed
- Cost considerations
- Phase in approach
- About **6 million** addresses and sub-addresses in Wisconsin.

Building Entry · Building Interior · Site Structure Centroid · Site Landmark (e.g. Athletic Field) · Access Point

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GIS Data Standards

- Required for NG9-1-1 to work
- NENA has published a NG9-1-1 GIS data standard
  - **NENA-STA-010**, *NENA Detailed Functional and Interface Standards for the NENA i3 Solution, Appendix B*
  - **NENA-STA-006**, *NENA Standards for NG9-1-1 GIS Data Model*
- Standards will:
  - Allow exchange of data with local, regional, state and federal agencies
  - Allow interoperability
  - Allows call transfers to anywhere
- **Finalized on June 16, 2018**
  - https://www.nena.org/page/NG911GISDataModel

NENA Standard for NG9-1-1 GIS Data Model

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GIS Management

- A centralized management framework has to be created to collect data
- A partnership must be established between all stakeholders
  1. Local and tribal governments or 911 authority
  2. Telecommunication companies (e.g. Verizon, AT&T, TDS, etc.)
  3. CAD Vendors
  4. ESInet Vendor
  5. State of Wisconsin

- GIS standards have to be created and enforced
- Process, workflows and quality control have to be implemented

- **GIS Management is a required function but non-mission critical component of NG911**

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Questions

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