



# The Michigan ENHANCE 9-1-1 Grant Project

GIS Technical Advisory Committee

Michigan APCO Conference

September 29, 2011



# Today's Agenda

- What is NG9-1-1
- GIS and 9-1-1 Today
- GIS in NG9-1-1 Environment
- 9-1-1 GIS Grant Project
- Open Discussion

# What is NG9-1-1?

# Today's 9-1-1 System – Timeline

1968:

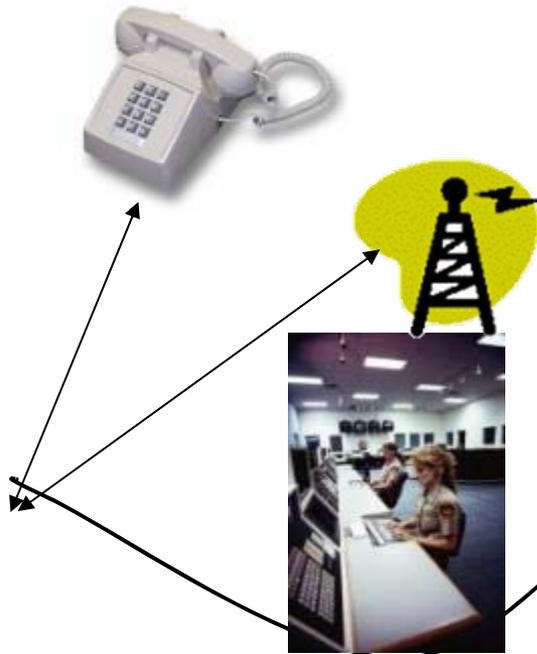


Basic 9-1-1:

- Copper Land Line
- Analog Technology

1980s–90s:  
Enhanced 9-1-1:

- ANI / ALI



1990s – 2000s:  
Wireless E9-1-1:

- Phase I
- Phase II

Today:



Voice over IP, Images,  
Video, Text, Telematics

# What is NG9-1-1?

The current 9-1-1 system is not broken

- Initially designed to do one thing – complete emergency **calls**
  - 3 digit dialing from fixed locations (landline) to reach emergency response

- CAMA trunks added ANI
- E9-1-1 adds in ALI w/ANI

New technologies caused a patchwork of modifications

- Wireless** added through considerable system modification and effort (patches)
- VoIP** added but still has limitations (more patches)
- Legacy 9-1-1 Platform is not extensible to support newer technologies

9-1-1 Today	NG9-1-1
Primarily voice calls via telephone handsets	Voice, text, or video information available from many different types of communication devices
Minimal data available	Advanced data sharing is available
Access to services are locally provided, backup is local, usually not enhanced	Enhanced capabilities; physical location of PSAP becomes less important
Routing based on phone number / MSAG	Ability to route “calls” more accurately

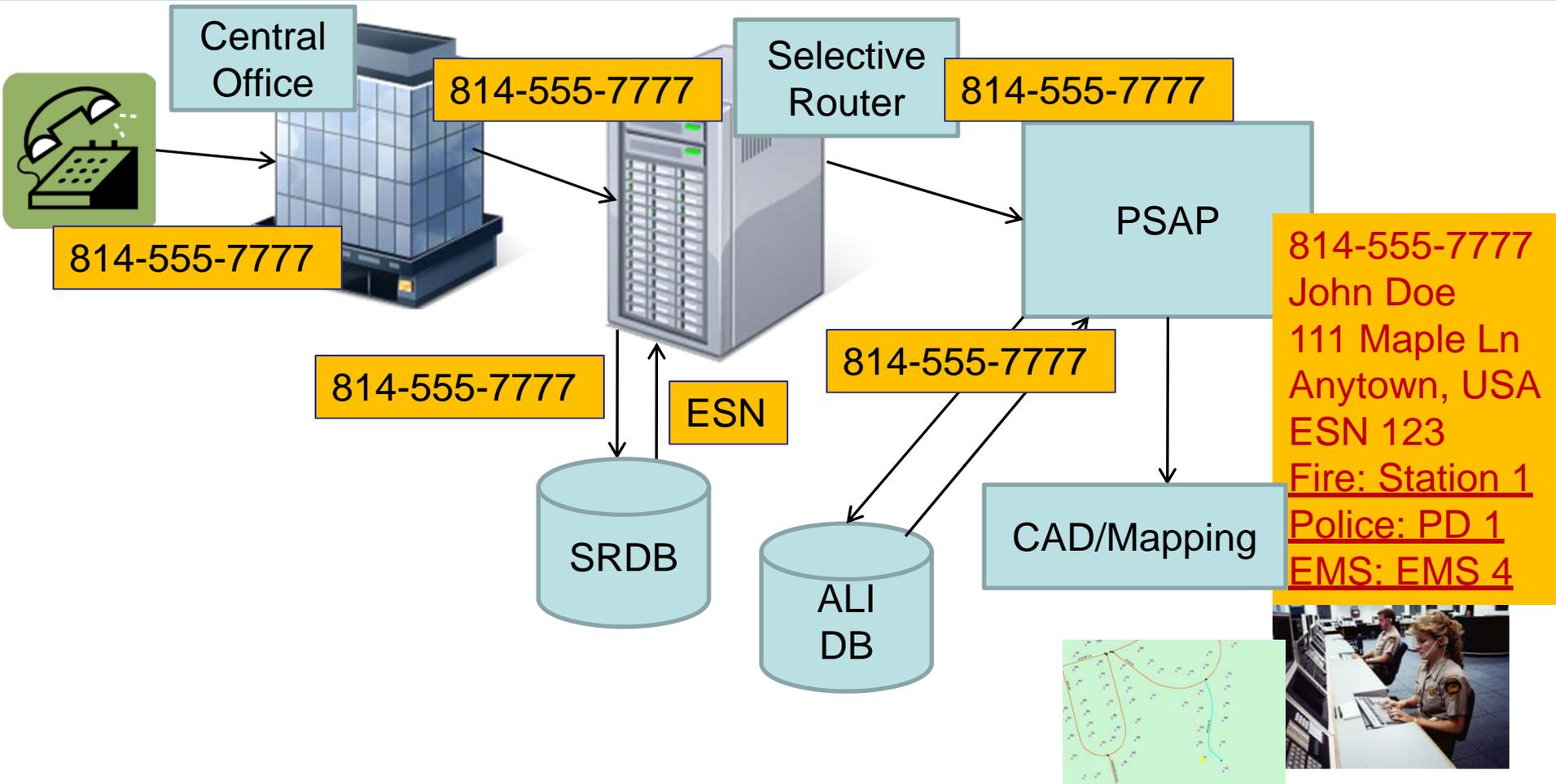
# Current Relationship With GIS and 9-1-1

# Overview of GIS and 9-1-1 Today

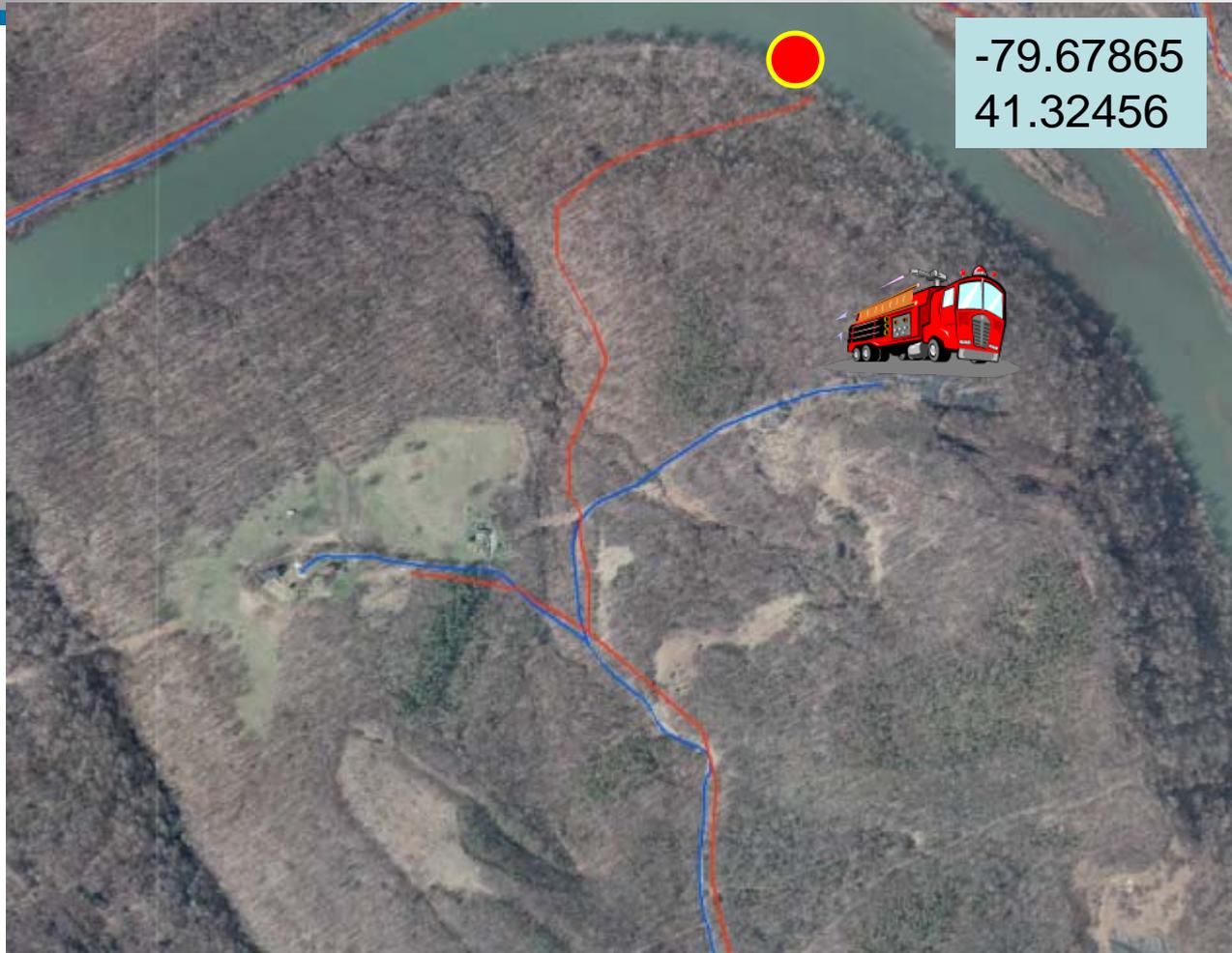
- ◆ Locate address, coordinates, physical location on earth's surface
- ◆ Plays an important role in providing location to 9-1-1 call takers on mapping displays in PSAP, especially during wireless calls
- ◆ Importance of accurate and complete GIS data effective decision-making by call takers – trust in the data
- ◆ What if GIS data is incorrect or incomplete?
  - Incorrect routing of emergency responders
  - Increases response time
  - Lives in jeopardy – every second counts

# Overview of GIS and 9-1-1 Today

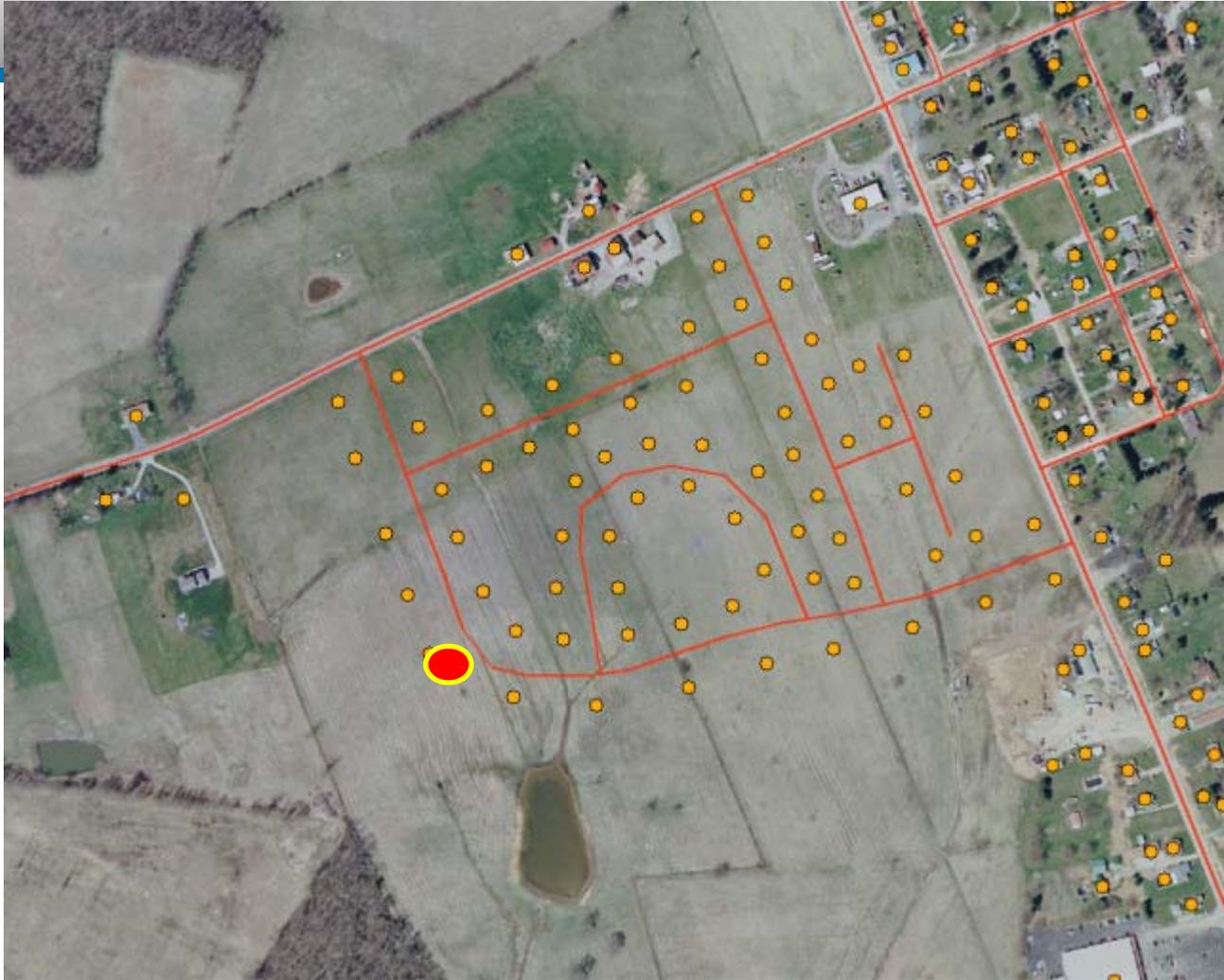
## Routing of Wireline Call and Use of GIS During 9-1-1 Call



# Issues Today – Accuracy



# Issues Today – Current Data



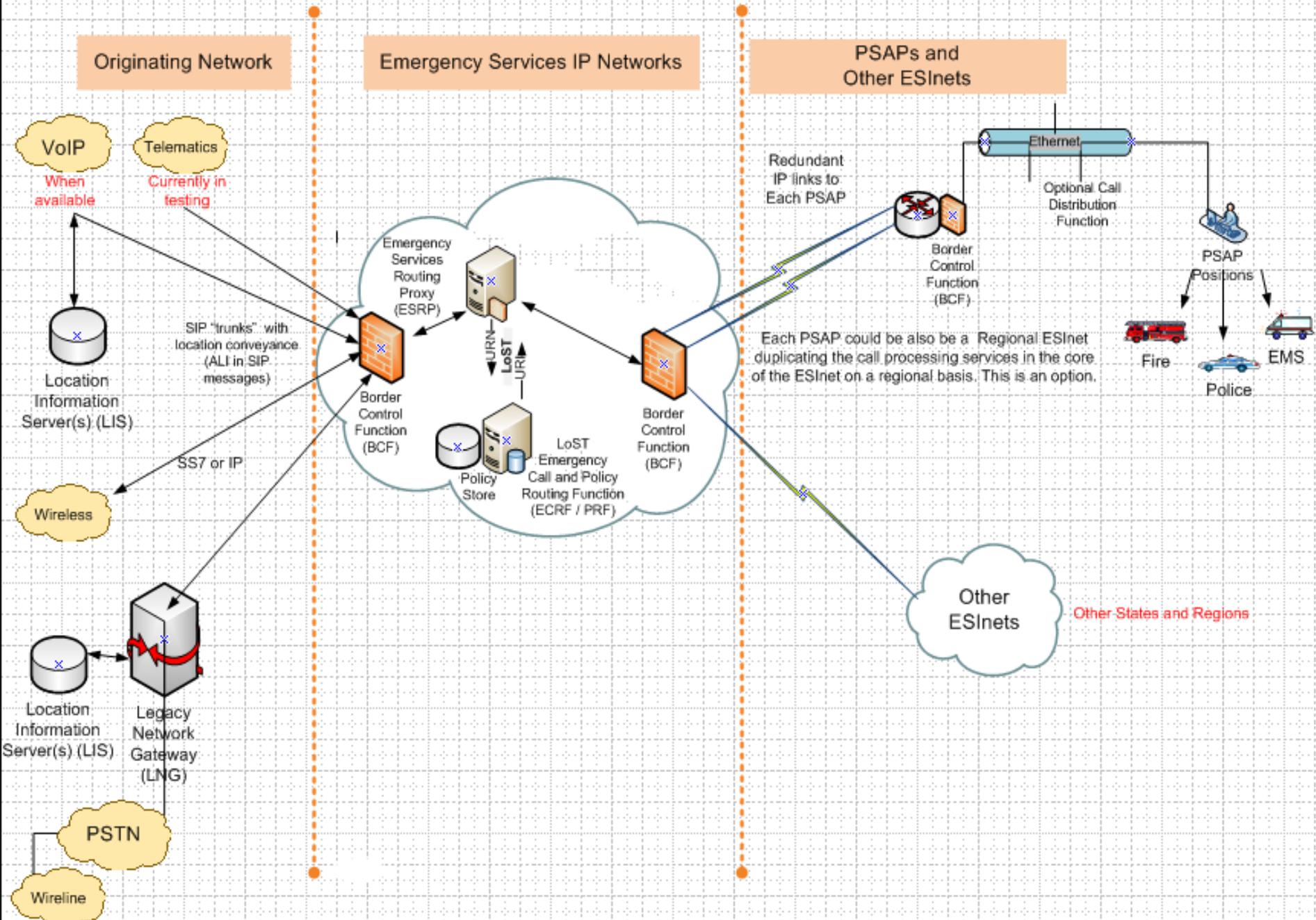
# Role of GIS in a Next Generation 9-1-1 (NG9-1-1) Environment

# GIS in NG9-1-1

- ◆ GIS plays crucial role in NG9-1-1 call routing - ECRF
- ◆ Routing database is GIS data centric
- ◆ Accuracy of GIS data is paramount
- ◆ Shared data – coordination
- ◆ 9-1-1 authority is responsible for the data
- ◆ Location is delivered with call
- ◆ Location is pre-validated using GIS data - LVF

# Full NG-9-1-1

# Conceptual Only



Originating Network

Emergency Services IP Networks

PSAPs and Other ESInets

VoIP  
When available

Telematics  
Currently in testing

Location Information Server(s) (LIS)

Wireless

Location Information Server(s) (LIS)

PSTN

Wireline

SIP "trunks" with location conveyance (ALI in SIP messages)

SS7 or IP

Emergency Services Routing Proxy (ESRP)

Border Control Function (BCF)

Policy Store

LoST Emergency Call and Policy Routing Function (ECRF / PRF)

Border Control Function (BCF)

Redundant IP links to Each PSAP

Border Control Function (BCF)

Optional Call Distribution Function

PSAP Positions

Fire

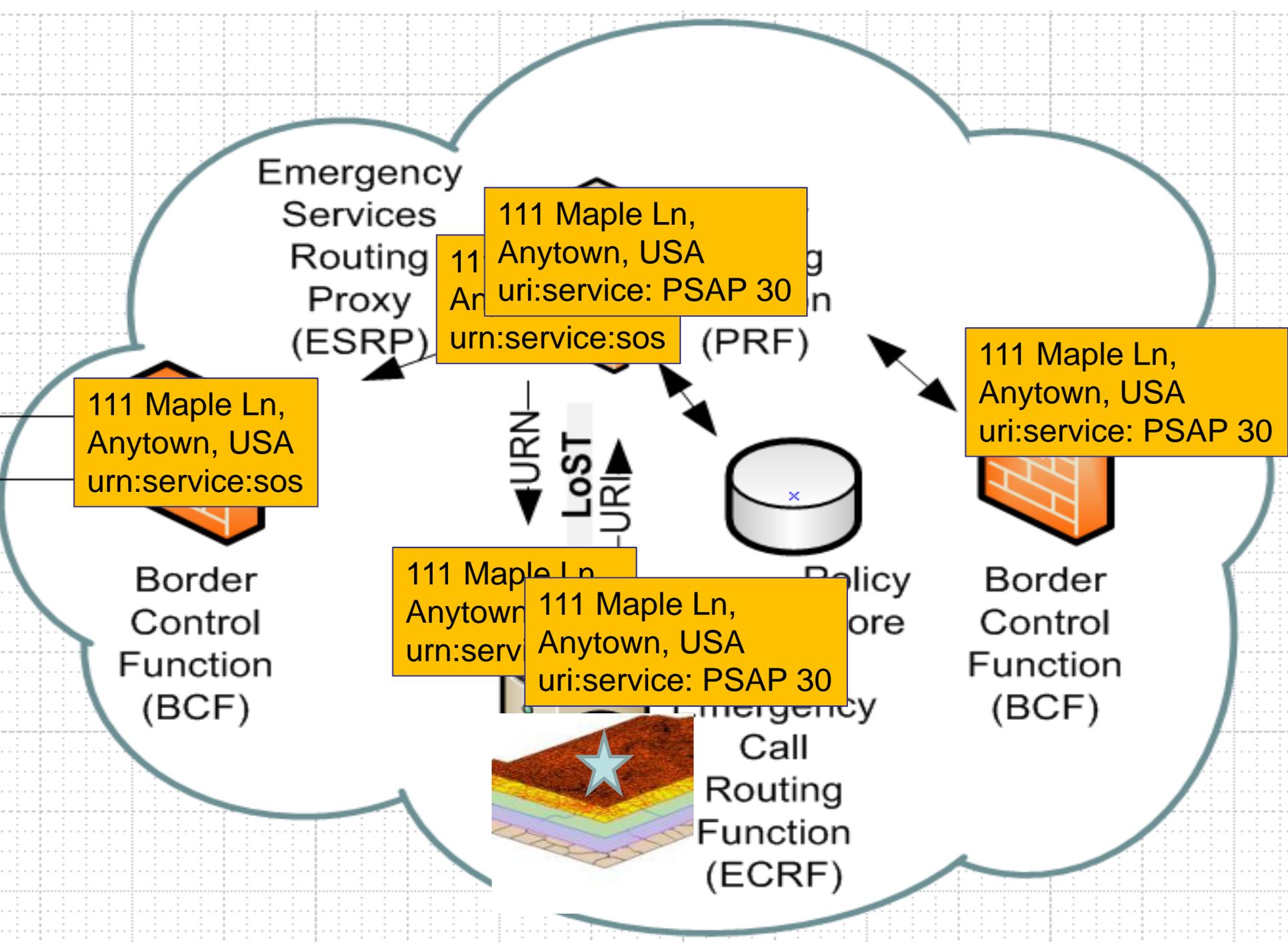
Police

EMS

Each PSAP could be also be a Regional ESInet duplicating the call processing services in the core of the ESInet on a regional basis. This is an option.

Other ESInets

Other States and Regions



# 9-1-1 GIS Data - Focus Themes

- ◆ Accuracy
- ◆ Maintenance
- ◆ Standards
- ◆ Policy and Governance

# 9-1-1 GIS Grant Project

# ENHANCE 9-1-1 Grant

- ◆ History
- ◆ Background
  - Act in place in 2004
  - Funds authorized, but not appropriated until 2009
- ◆ June 2009 announcement
- ◆ June 2009 SNC approval of application
- ◆ August 2009 application due
- ◆ Sept 2009 award announced of \$1,699,999
  - \$1,108,704 base
  - \$591,295 supplemental

# What is the project NOT about?

- ◆ NOT replacing the local 9-1-1 GIS data systems and making the state responsible for all PSAP GIS data
- ◆ NOT for use to create a single statewide CAD or PSAP
- ◆ NOT creating a platform for non-public safety purposes

# What Grant Project IS About

- ◆ Creating a central 9-1-1 GIS Repository
  - Enabling PSAPs to share GIS information
  - Establishing MOAs
  - Setting standards for GIS data entry
  - Future framework for NG9-1-1 database
- ◆ Statewide Public Safety Answering Point (PSAP) Boundary Layer
- ◆ Statewide Road Centerline Layer

# Formation of the TAC:

- ◆ Established as a technical advisory committee to the Local and State Cross Boundary Technology Steering Committee
  - Local representation from the 9-1-1, IT, and GIS communities to provide first hand knowledge and experience to the 9-1-1 GIS Grant Project
  - Will make recommendations on project direction to the Local and State Cross Boundary Technology Steering Committee

# Project Organization Overview

- ◆ Project Sponsor

Harriet Miller-Brown – Michigan 9-1-1 State Administrator

- ◆ DTMB Project Staff (CSSTP)

Eric Swanson - CSSTP, Project Sponsor, Director

Laura Blastic – CSSTP, Project Manager, Geo-Framework  
Services Manager

Paul Harmon – CSSTP, Communications Liaison

Mathi Ramachandran – CSSTP, Data Architect

John Clark – CSSTP, GIS Solutions Architect

Mark Holmes - L.R. Kimball

# Project Organization Overview

## Technical Advisory Committee (TAC)

### ➤ 9-1-1

- Mike Muskovin, Ottawa County
- Mike Szor, Alpena County
- Phyllis Fuller, Barry County
- Harriet Miller-Brown, State 9-1-1 Office

### ➤ IT

- Ron Plamondon, Leelanau County
- Dawn Siegel, Oakland County
- Tom Shewchuk, Ingham County

### ➤ GIS

- Scott Ambs, Jackson County
- Chris Cantrell, Midland County
- Nathan Fazer, Eastern UP Planning Region
- Eric Swanson, CSSTP

# Role of the TAC:

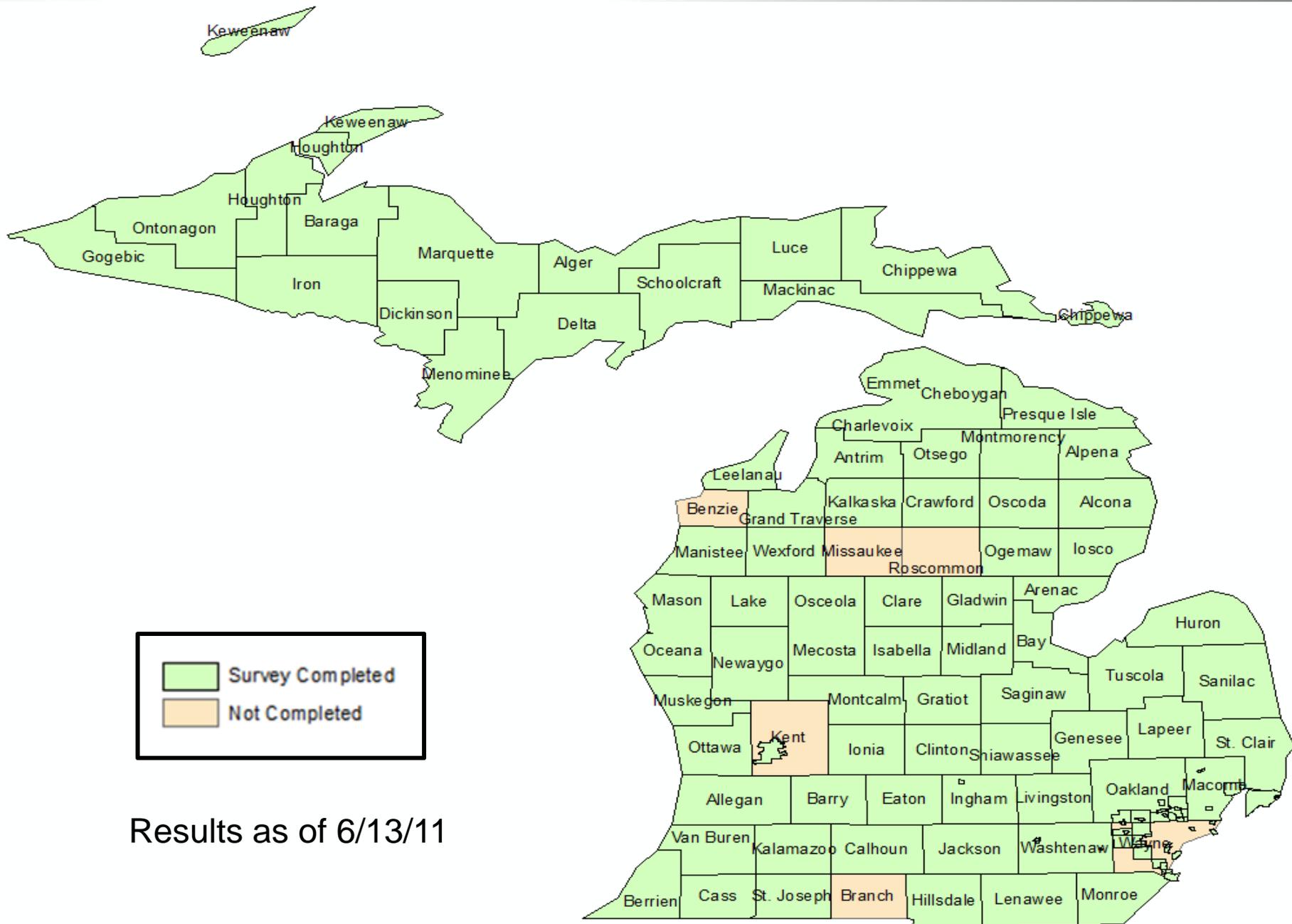
- ◆ Provide local insight and collaboration as project develops
  - Project documents (e.g. Charter, MOA's)
  - Develop technical standards
  - Develop communication and outreach plan
  - Initial data assessments
  - Serve as the voice of the local units of government who will be the end users of the system

# Project Tasks Overview

- ◆ Initial Assessment and Data Development Plan
- ◆ Community Outreach
- ◆ Statewide 9-1-1 Database Design
- ◆ Develop and Implement Database and Application Architecture
- ◆ Develop Statewide PSAP Boundary Layer
- ◆ Develop Complete Statewide GIS Road Centerline and an Initial Point Address Layers
- ◆ Maintenance Plan and Workflows Implementation

# 9-1-1 GIS Survey

- ◆ Statewide survey that was sent in May of 2011 to PSAP Managers/Directors and County 9-1-1 Coordinators
- ◆ High level participation - 115 of the 168 PSAPs provided responses
- ◆ Get a current snapshot of GIS/9-1-1 systems today
- ◆ Collaborate with GIS resources to fill out survey
- ◆ Survey has guided the planning of the project



Results as of 6/13/11

# System Architecture

- ◆ GIS Repository

- Data Standards

- Road Centerlines and PSAP Boundaries – Mandatory
    - Address Points and Emergency Service Zones
    - 9-1-1 GIS Data Standards for GIS Repository
      - Incorporates current 9-1-1 standards
      - Includes NG9-1-1 data standards for future implementation

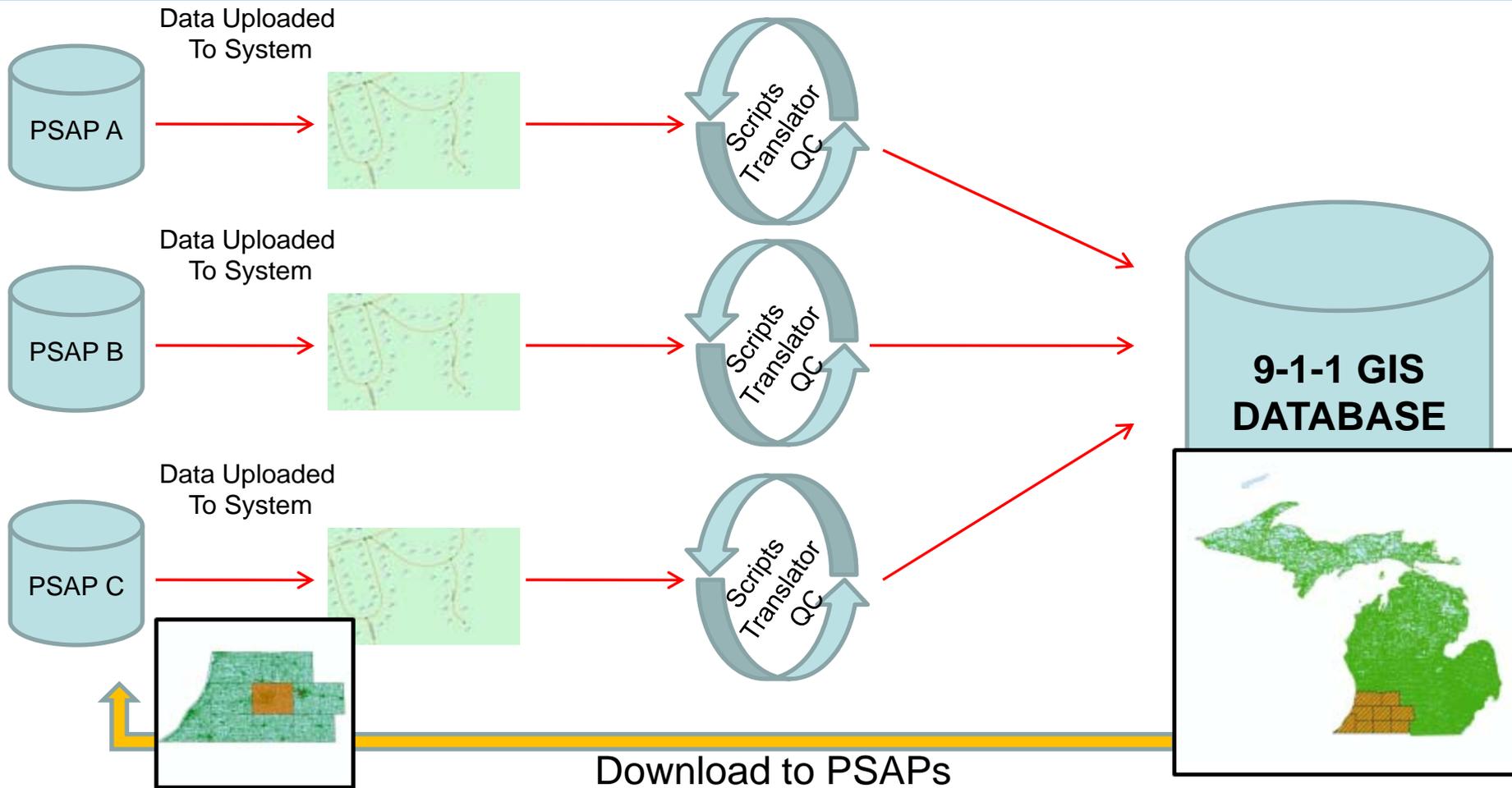
- Public Comment Period

- Beginning September 30, 2011 Until October 14, 2011
    - Document available at:
      - [www.michigan.gov/911gisgrant](http://www.michigan.gov/911gisgrant)
      - [www.michigan.gov/snc](http://www.michigan.gov/snc)
    - Comment form also available for download at above web sites

# System Architecture

- ◆ User Interfaces Into System
  - ETL Processes
    - Translation scripts
    - Projections
    - Field mapping
  - Interactive Map
    - Red lining of edits to road, PSAP boundaries
    - Data update approval processes
  - Quality Control Tools and Reports
  - Import and Export Utilities

# Data Interoperability



# Data Sharing and Agreements

- ◆ Enhanced Access to Public Records Act
  - DTMB Policy Developed Specific to Project
    - Local Participant Will Need a Local Enhance Access to Public Records Act Policy
    - Project Will Provide Examples of Enhance Access to Public Records Act Policies – If Local Participant Does Not Have One in Place
  - Memorandum of Agreement Between CSSTP and Each Participating Entity
    - Outlines Roles and Responsibilities of CSSTP and Participants
    - Established Disclaimers for Data Sharing
    - Signed Agreement

# Local Grant Program

- ◆ Developing Grant Guidelines
- ◆ Developing Grant Application Form
- ◆ Proposed Timetable
  - Nov 1, 2011 – Local Grant Program Opens
  - Jan 3, 2012 – Local Grant Application Deadline
  - Feb 1, 2012 – Local Grant Award Notifications
  - June 30, 2012 – Local Grant Project Completion
- ◆ Local Grants will be Prioritized Based on the ENHANCE 9-1-1 Grant Project Requirements for Road Centerlines

# Current Activity

- ◆ Request for Letters of Intent to Participate
- ◆ Participating Counties/PSAPs for Pilot
  - Alpena, Jackson, Leelanau, Barry, Midland, and Allegan Counties
- ◆ Steps to Participation
  - Sign Letter of Intent to Participate
  - Sign Memorandum of Agreements Between Participant and CSSTP
  - Implement Local Enhance Access to Public Records Act Policy
  - Provide Data to CSSTP for Data Assessment
- ◆ Talk to your GIS department
  - Discuss Participation
  - Make inquiries to the TAC members if you have questions

# More Information

- ◆ [www.michigan.gov/911GISGrant](http://www.michigan.gov/911GISGrant)
- ◆ [www.michigan.gov/snc](http://www.michigan.gov/snc)
- ◆ Harriet Miller-Brown
  - [MillerHR@michigan.gov](mailto:MillerHR@michigan.gov)
  - 517-241-0080
- ◆ Laura Blastic
  - [blasticl@michigan.gov](mailto:blasticl@michigan.gov)
  - 517-373-7910

# Questions

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Open Discussion