

---

# Life-Cycle Fiber Management

2007 ESRI International  
User Conference

Chris Schweitzer, AICP, GISP  
City of Auburn, IN



# Overview

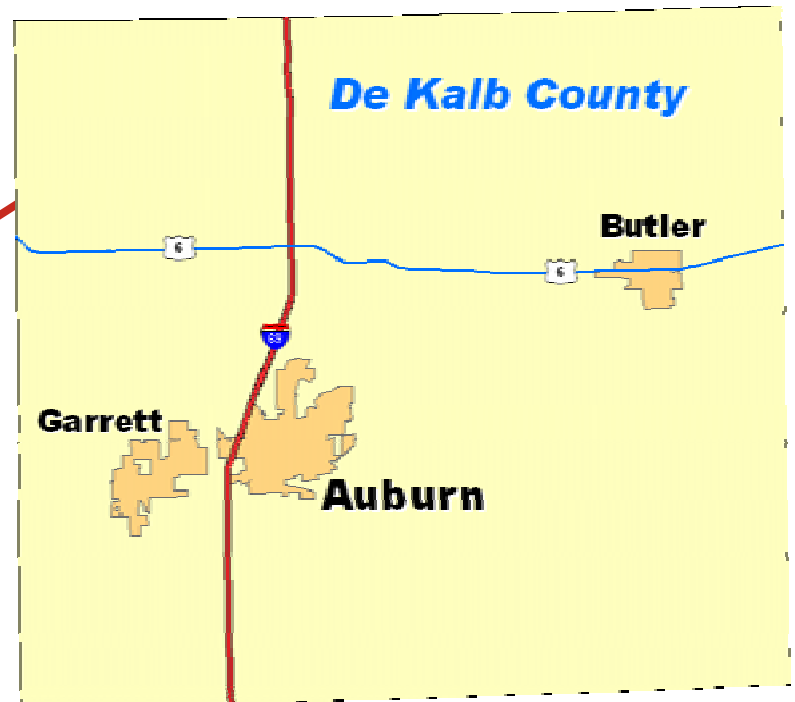
---

- Auburn Background
- Fiber Records Management
  - Goals & Objectives
  - Technology Solution
  - Implementation Approach
  - Experience and Findings
  - Next Steps



# Background

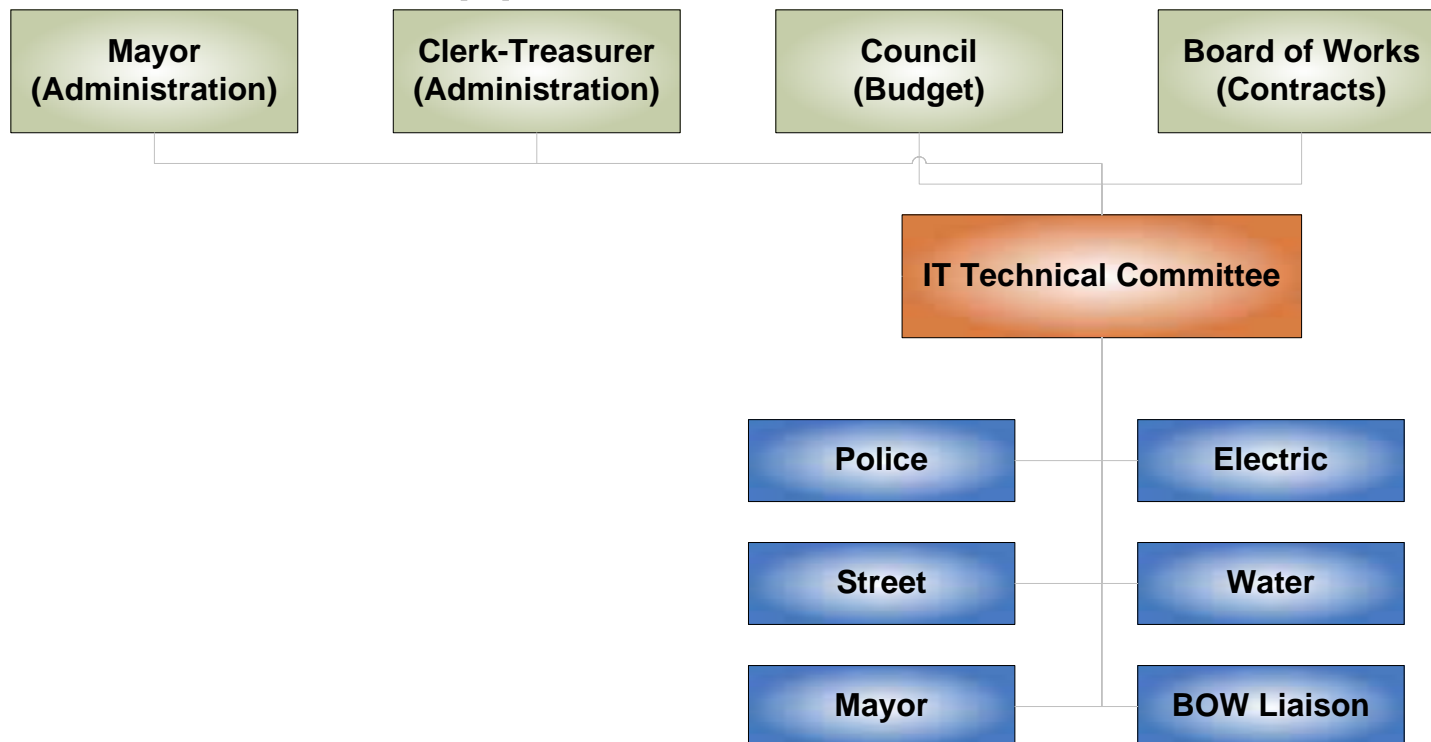
- Small community of 12,075
- “Classic Car Capital of the World”
- Municipal utilities
  - Electric, Water, Sewer, Broadband



# Background

---

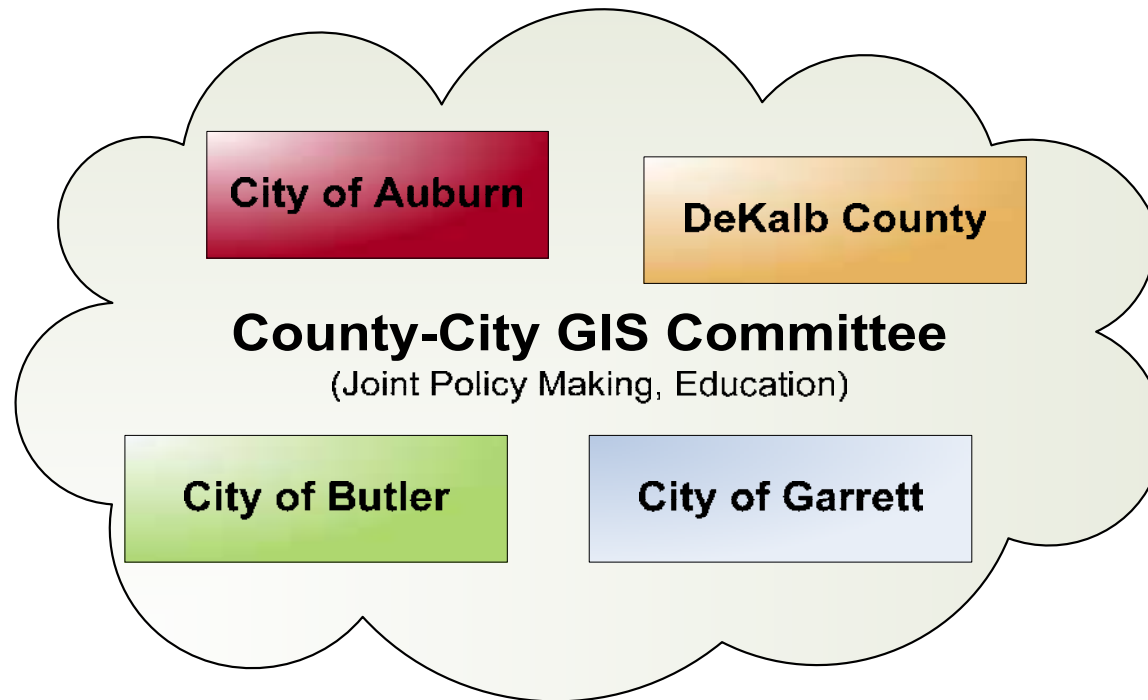
- City-wide connectivity
- Integrated applications and business processes
- Grass-roots approach to IT



# Background

---

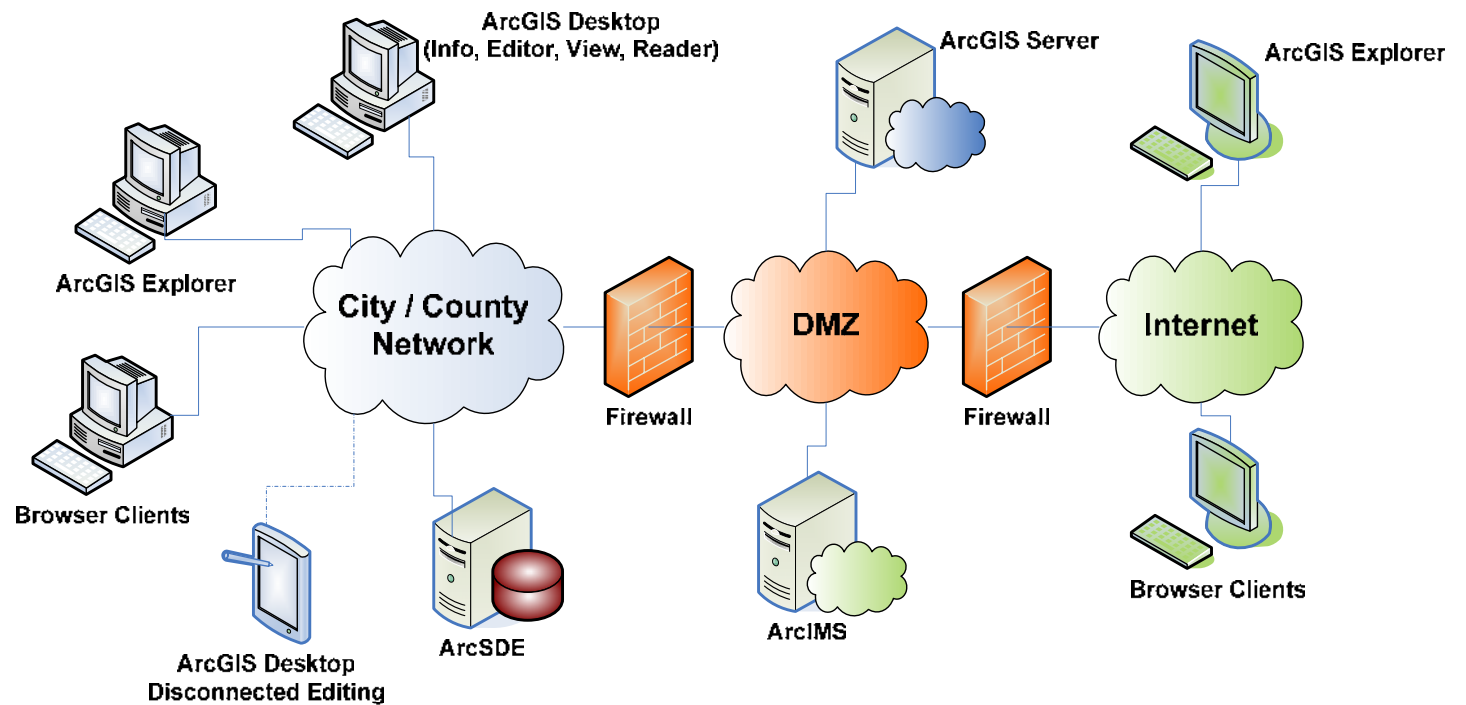
- Enterprise GIS since 1999
  - County-City multi-agency GIS



- Diverse user community
  - Planning to Street to Mayor to Utilities

# Background

- ArcGIS technology framework



# Background

---

- Auburn Essential Services (AES)
  - New information services utility in 2005
- Community Based Network
  - 100% fiber optic network
  - Passive Optical Network, FTTx topology
  - Internet & telephone (business focus)
  - Television (under study)

# Background

---

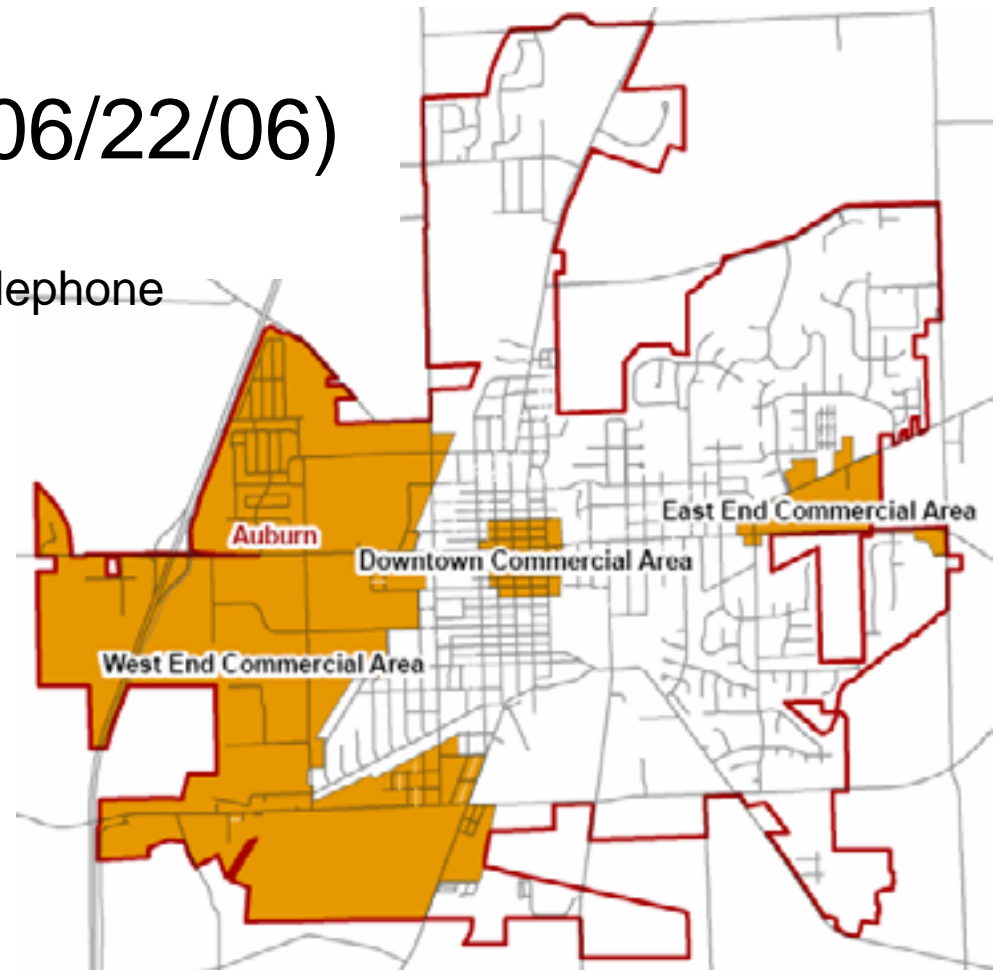
- AES Phase I
- Since March 2005
  - 10 customers (focused need, niche market)
  - Business Internet
  - Business Point to Point data
  - Business Co-Location



# Background

---

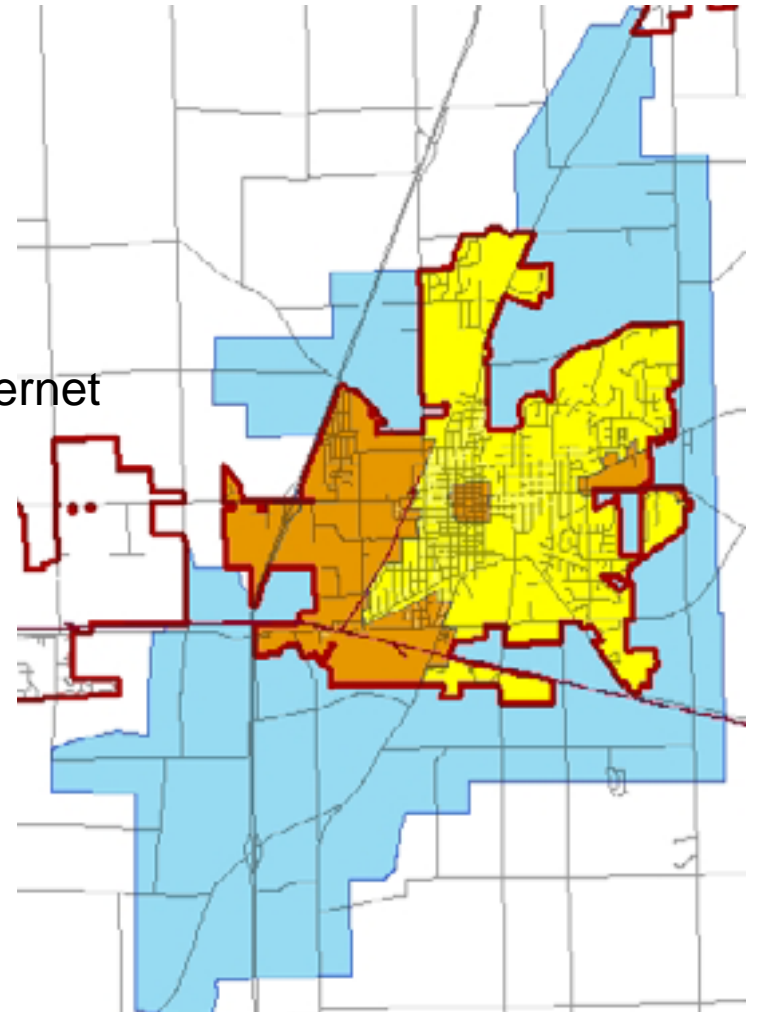
- AES Phase II
- In-progress (since 06/22/06)
  - Business districts
  - Services offered: Internet & telephone
  - Area served: 2.4 square miles
  - Homes passed: 670
  - Businesses passed: 549
  - Design & construction now
  - GA Late Fall 2007



# Background

---

- AES Phase III
- Future (under review)
  - Business and residential districts
  - Entire Auburn Electric service territory
  - Services offered: Telephone, TV and Internet
  - Area served: 21 square miles
  - Homes passed: 5,674
  - Businesses passed: 683



# Project Goals

---

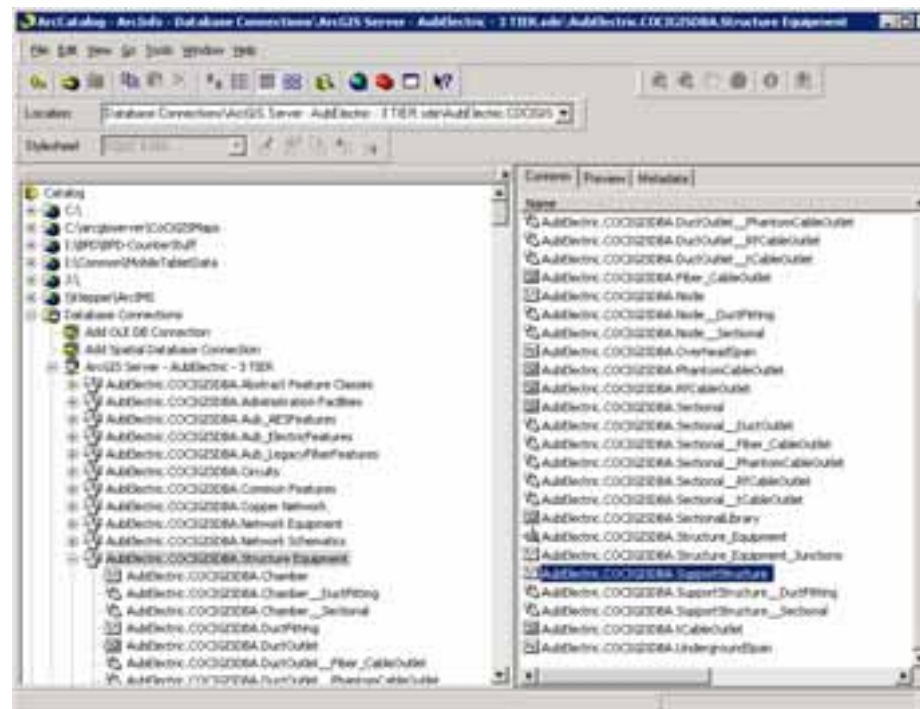
- Manage our fiber assets w/ excellence
  - Accurate inventory & accounting
  - Preventative maintenance
- Operations, decision support
  - Design & construction
  - Restoration planning
  - Marketing support



# Enterprise GIS Resources

---

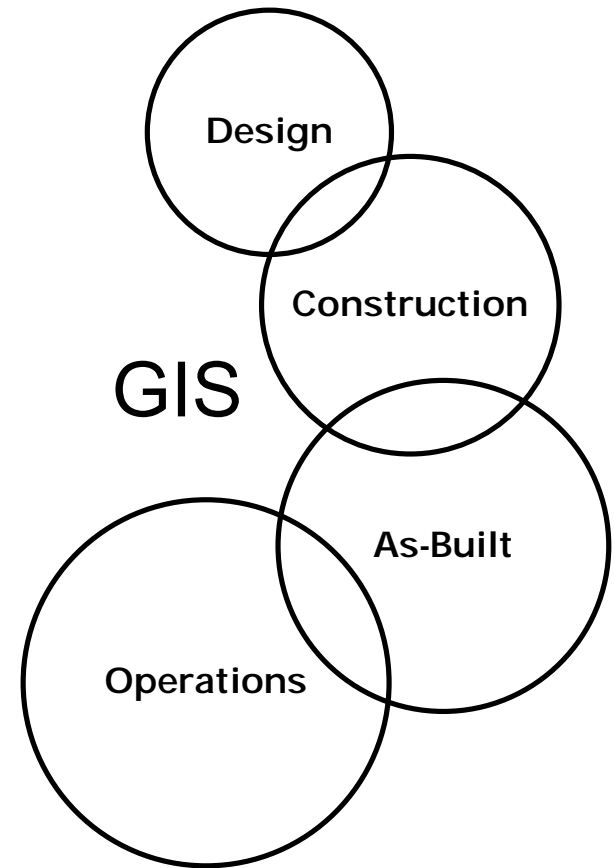
- Shared data model components
- Location-based facilities management
- Leverage & extend existing GIS-based skill sets



# Life-Cycle Record Management

---

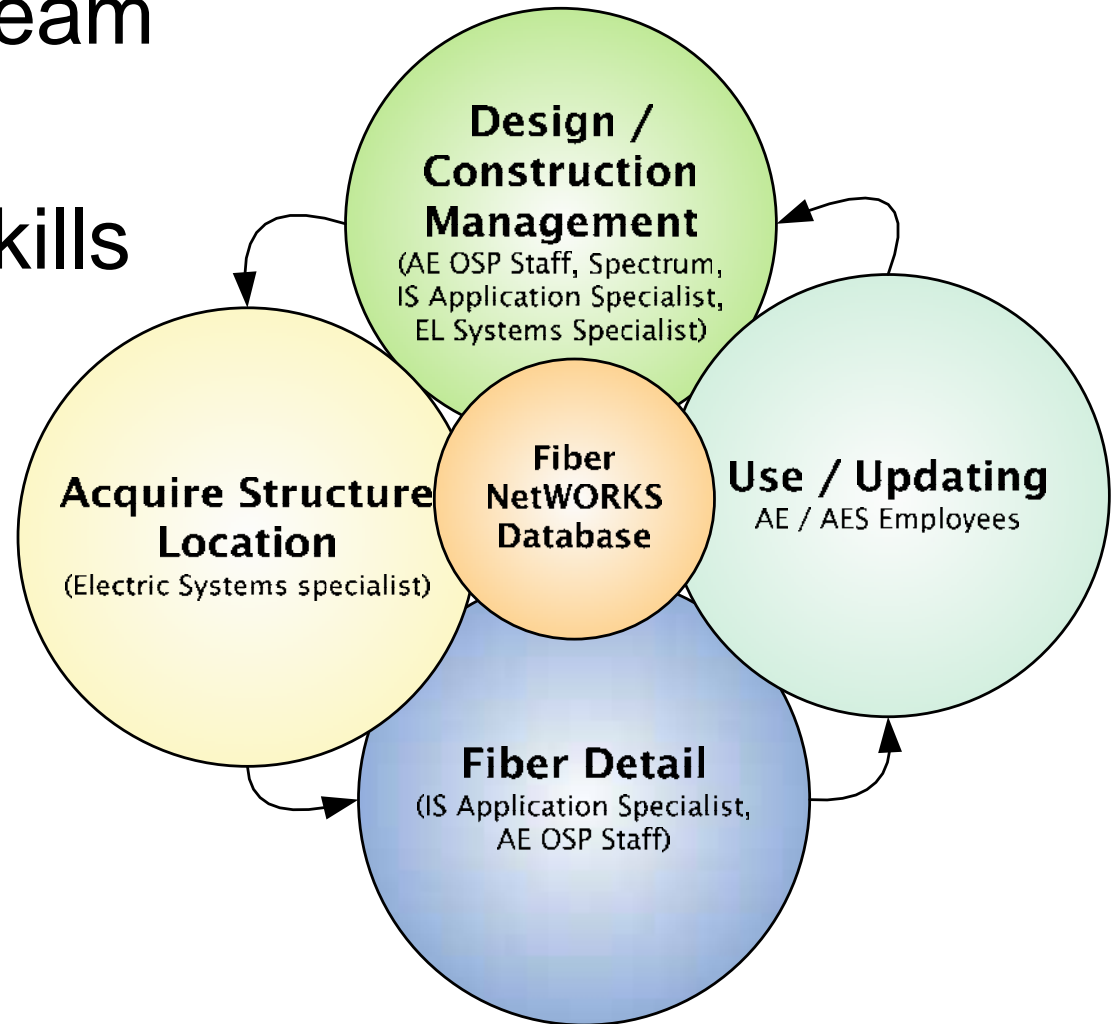
- Full fiber record life-cycle management
  - Design & bill of materials
  - Construction management
  - As-built record
  - On-going operations



# Workflow & Collaboration

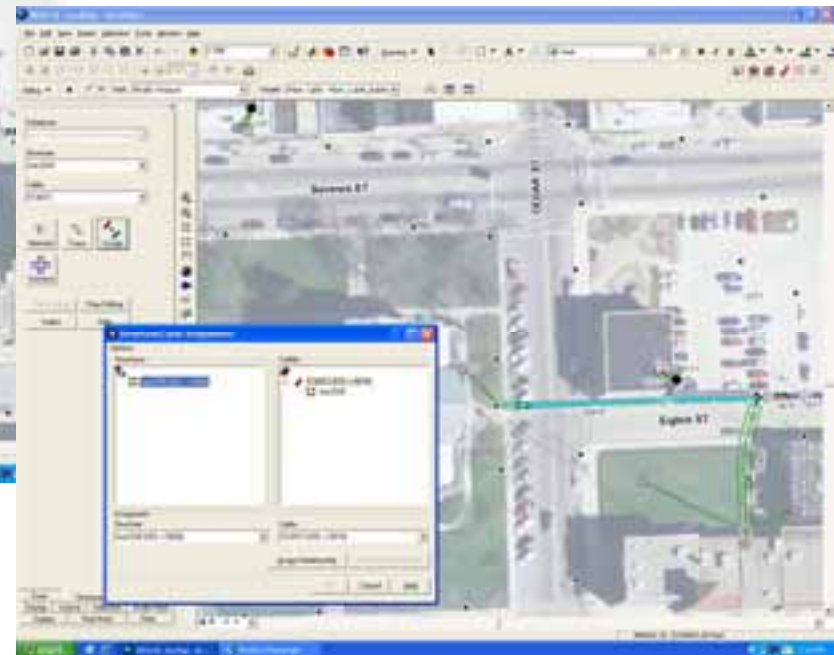
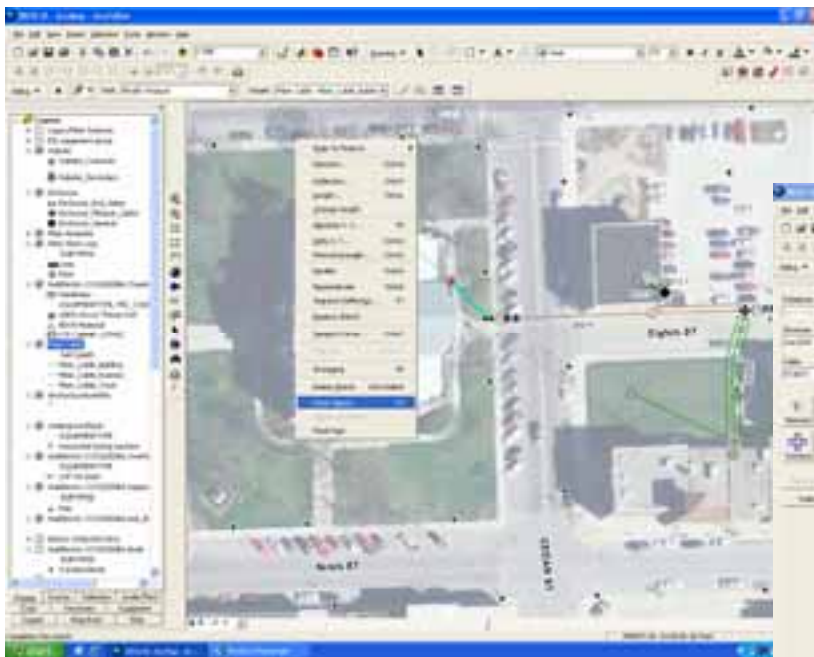
---

- Small, tight-knit team
- Merging of GIS & fiber design skills
- Remote connectivity



# Design

- Pure multi-versioned GIS-based design and editing experience





# Construction Documents

- Construction drawings
- Bill of materials

The drawing shows a complex fiber optic network layout with various cables and connections. A callout detail in the upper right shows a close-up of a cable termination point. A construction note provides specific instructions for the callout. The bottom section contains a bill of materials table with columns for item number, description, quantity, and unit.

**Construction notes for the callout box above:**  
Fiber cables PC3075, PC3090, and PC3111 (not used in panel 2) shall be placed in the cabinet and remain in the LCP cabinet.  
The LCP cabinet is located on the north side of the building.  
Fiber cables PC3075 is a 100-fiber ribbon cable.  
Fiber cables PC3111 is a 100-fiber ribbon cable.  
Fiber cables PC3090 is a 100-fiber ribbon cable.  
Fiber cables PC3075, PC3090, and PC3111 shall be placed in the cabinet and remain in the LCP cabinet.

Item No.	Description	Quantity	Unit
1	Fiber Optic Cable	100	ft
2	Fiber Optic Connector	100	each
3	Fiber Optic Patch Panel	1	each
4	Fiber Optic Splice Tray	1	each
5	Fiber Optic Enclosure	1	each

# Inventorying, As-Built

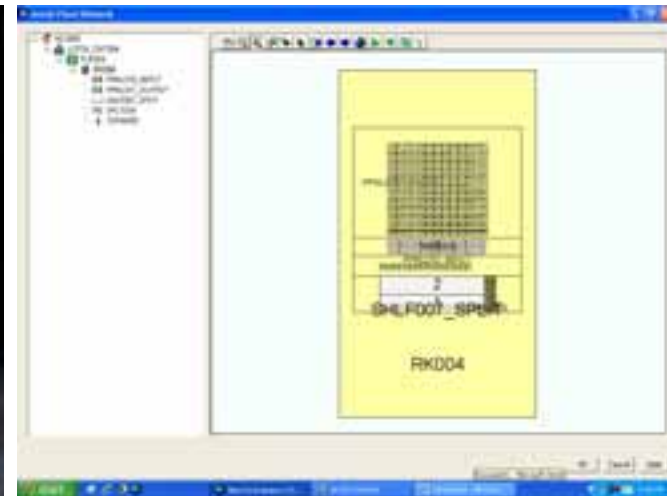
---

- Survey grade GPS
- Field crew data acquisition
- Office staff value-add data editing

# Full-Record Management

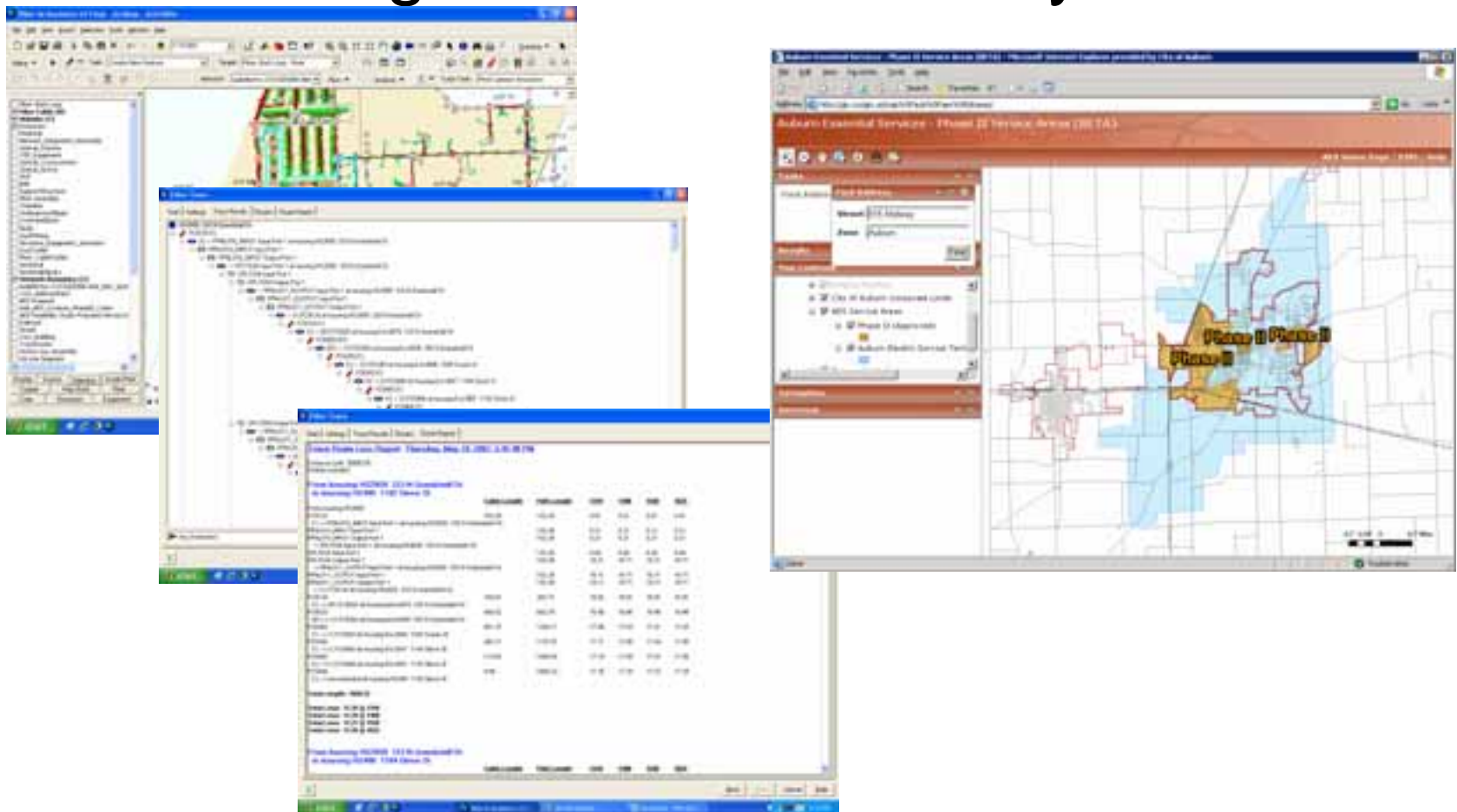
---

- Cable & device location
- Detail records
  - Strand level
  - Splice detail
  - Inside plant detail (cabinets, CO racks)



# View & Analysis

- Fiber tracing / service availability



# Findings, Benefits, Results

---

- Some good, hard work 😊
- Training and merging of disciplines
  - GIS Professional / Fiber Designer
- Tools still maturing, but basic toolkit is present
- Benefits / ROI
  - Complete and accurate picture of our Fiber network: improved decision making
  - Mitigate duplication of efforts
  - The value of collaboration

# Next Steps

---

- Continue to refine workflow
- More field-crew data access
- More ArcGIS Server application deployment
- Feedback to improve software

# Thanks!

---

