



ENGINEERING PARTNERSHIPS IN INFORMATION TECHNOLOGY

“Enhancing economic development through infrastructure”

Why you should choose

SPECTRUM for FTTX

- **OSP Engineering**

Our objective is to help your current and future staff develop a set of construction plans and specifications for an FTTP design that will allow for an efficient, cost effective, and manageable project.

We will design a fiber optic data model using GIS-based Esri® and Enghouse products. By using your existing system maps and base maps, we can offer a superior product at an affordable price. Key advantages include:

- A recognized standard design process.
- Automatic generation of route trace reports, fiber splice diagrams, and 90% of the bill of materials and work units in RUS format.
- The ability to store all splice diagrams, test results, and customer information in a relational geodatabase.
- Accurately model end to end losses.
- Pinpointing fiber breaks resulting in faster outage management.

A detailed Design Criterion is developed for each project stating all construction, assignment and validation criteria to be used. General methods of installation and phased deployment strategies are established. A Preliminary Design including drawings, specifications, and bid documents for major equipment drawings is reviewed with you to ensure we are in agreement. After approval, a detailed design is produced which will be reviewed and mi-

nor revisions are incorporated into a final set of bid/construction documents.

A complete Bill of Materials available by map grid will be aggregated for each fiber service area. We can also use this information to track construction costs to budget and to manage field change order requests by the OSP contractor. We can assist you with materials delivery and marshalling and materials inspection.

“Best in Class”

Selecting the “best in class” materials for a project requires attention to the details in the specifications. Open bidding forums, common on public projects, do not typically eliminate unqualified parties from submitting a bid or proposal. Tight standards and clearly stated eligibility requirements are the protection a client has against simply the “lowest” versus the “lowest and best”.

Qualifying and quantifying what meets the “best” requirement is vital to a successful project from a long-term vantage point. We view the **total cost of ownership** as the measure to establish tight specification standards. From there it becomes necessary to properly and thoroughly evaluate bidders based on those established criteria. The total cost of ownership begins with receipt of the contracted product and does not end until that device is retired at the end of its useful life.



In addition to stringent standards, Spectrum typically reviews hardware specifications to ensure that your standard stock items are included. This saves you from stocking various similar parts that offer no advantage and only raise operating costs.

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OSP Engineering Experience

Customer Name	CONSOLIDATED ELECTRIC COOPERATIVE, INC. MT. GILEAD, OH	
	<u>PROJECT MANAGEMENT</u> Doug Payauys, VP-Info Systems 5255 State Route 95, Mt. Gilead, OH 43338 419.949.2941	 Consolidated Electric Cooperative, Inc. Your Touchstone Energy® Partner 
Customer Type	Electric Cooperative	
Contract Start/Finish	July, 2010 to Present	
Project Size	123.5K	
Scope	<ul style="list-style-type: none"> • OSP Document Mapping • RUS Contract Management • OSP Design and Construction Inspection • Assisted with OSP RFP and Selection of Contractor 	
Role	<ul style="list-style-type: none"> • Project Management • Fiber Design 	
Project Stage	Ongoing	

Consolidated Electric Cooperative (CEC) is a member-owned, not-for-profit electric distribution cooperative serving the electric energy needs of nearly 16,000 members in 8 counties of North Central Ohio: Delaware, Franklin, Knox, Licking, Marion, Morrow, Richland, and Union — predominantly rural areas surrounding urban centers maintaining nearly 2,000 miles of power lines, 15 substations, and 2 office locations.

Broadband access is as important today for the success of rural areas as electricity was 75 years ago. The vision of CEC's founders in 1936 was to provide electric services to those who were un-served in rural Delaware and Morrow County. In December of 2009 CEC followed through with their commitment to the rural community by applying for and being awarded a \$2.4M grant/loan from the U.S. Department of Agriculture (RUS) to construct a 166-mile broadband network deploying a 10 Gigabit Ethernet ring core network solution across a multi-strand single mode fiber optic network.

CEC enlisted the services of Spectrum for guidance throughout the stages of developing a network operation. We assisted CEC with the bidding process and awards for all phases of the project: OSP Design,

FTTP Materials and Training and Optical Equipment, including administering the required RUS contracts and approvals.

Outside Plant (OSP) engineering included:

- **Gathering** orthophotography and planar **data** along with pole details to create database for design
- **Pre-design Walkout**—Route planning and ride-out to review important route details and complete necessary field engineering and data capture
- Complete required **design** drawings including construction drawings for installation (RUS compliant)
- Work with CEC to complete and stamp necessary **permits** and rights-of-way for construction and railroad, water, and road crossings as required for compliance with RUS.
- **System completion**, including providing final “as-built” drawings and turnover of the database to CEC, and review of the new facilities for proper installation.

With Spectrum's assistance, CEC continues to expand their network.