

Fiber Optics Network Design Must Haves: Why Icon Engineering's Fiber Design Process is Faster and More Accurate

Building a sound Fiber Optic network requires a carefully considered, field verified design that is accessible and updatable through user-friendly, familiar software. The most responsive and accurate network designs incorporate visual accessibility and manageability. These elements are fiber optic design must-haves, and this is why Icon Engineering's Fiber Design process is faster and more accurate.

The traditional design process consists of a number of repetitive steps that create inefficiencies and errors. The steps, in their normal chronological order are:

1. Address verification – identifying the number and addresses of the homes and business to be served; this process is normally done by field staff walking the area to be served;
2. Route Design – planning the routes and adding the fiber and conduit routes into software;
3. Mapping the Network Design--Creating the network design in a map format suitable for a contractor to build;
4. Engineering Rideout (ERO) – using field technicians to drive out the routes with maps in hand, marking up the drawings by hand with revisions;
5. Bill of Materials (BOM) creation – developing a list that details the quantities of materials needed to build the project;
6. Creating a Splicing diagram – detailing the fiber connections needed to maintain connectivity between the user and network;
7. Creating As-Builts -- correcting the final design in your software for changes that were incorporated by the contractor while building the infrastructure. The contractor adds handwritten notes to the design maps showing where changes from the original design took place.

In the traditional design process, field technicians are responsible for Address Verification. The route designer, back in an office setting, uses this data, but the separation from the field process both in time and distance leads to errors. After the route design is complete, the field technicians during ERO, review the completed work, and mark up the results for revisions. Because of the high cost of paying workers to do this field work, some firms now do no field work, using only aerial imagery (*e.g.*, Google Earth) to assist in placement of fiber and conduit into software. When vendors migrate to all desktop work, with no field verifiers, this ultimately create errors in the designs that make them difficult to build. Even using the traditional process, multiple visits to a design area slow the process while increasing cost.

Icon Engineering's digital, visual, and yet hands-on, approach to network design has proven to be responsive and more accurate than these traditional design approaches. At the start of the process, prior to design, field technicians video record the entire prospective service area, locking down addresses and field features (*e.g.*, utility features) that may not be visible in aerial imagery. This on-the-ground, real-time, video information is then extracted into photographs that can be viewed by everyone involved as the design progresses. This video process is faster, more efficient and accurate than traditional methods. It also means much of the field portion of the project becomes unnecessary because the designer can see as they are designing exactly what the field person sees during ERO.