

Driving GIS productivity through workflow



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Abstract

- With 12m km (7.5m miles) of copper and 2m km (1.2m miles) of fibre network being converted and generated for loading into BT's GIS there are going to be some inaccuracies. Manually amending this data once loaded has proved necessary and needs to be simple and productive for an end user.
- Working with Telcordia Technologies, BT developed the 'Network Editing Tool' (N.E.T) to aid users in quickly modifying and replacing telco objects without having to understand anything about spatial geometry.
- During initial evaluation of this suite of tools, it became apparent that there could be productivity gains made in planning as well as correction of the existing network elements. Expanding on the functionality of N.E.T a 'Wizard Framework' was developed that would allow for any defined process to be developed and rolled out to end users. A wizard guides a user every step of the way through the process they have selected to carry out.

What is 'Network Editing Tool'

Working with Telcordia Technologies the 'Network Editing Tool' was developed giving:

- A flexible wizard driven interface
- A means of guiding a user through Network Engineer functionality
 - Amend
 - Replace
 - Create
- The ability to combine multiple functions (ESRI, Network Engineer or both)

Wizard Framework

Network Editing Tool - Wizard Designer

- Create workflows aligned to typical jobs lining up the functions and guiding the user through using administration rather than IT staff to define these
- Reordering the steps of existing workflows
- Creating new workflows by reusing steps from other workflows or newly coded steps
- Restricting access to workflows by Work Order Type or NE Security Models
- Disabling / deleting wizards
- Customizing the operation of existing or newly coded steps

BT's requirement:

- Easily make changes to the network without compromising data integrity

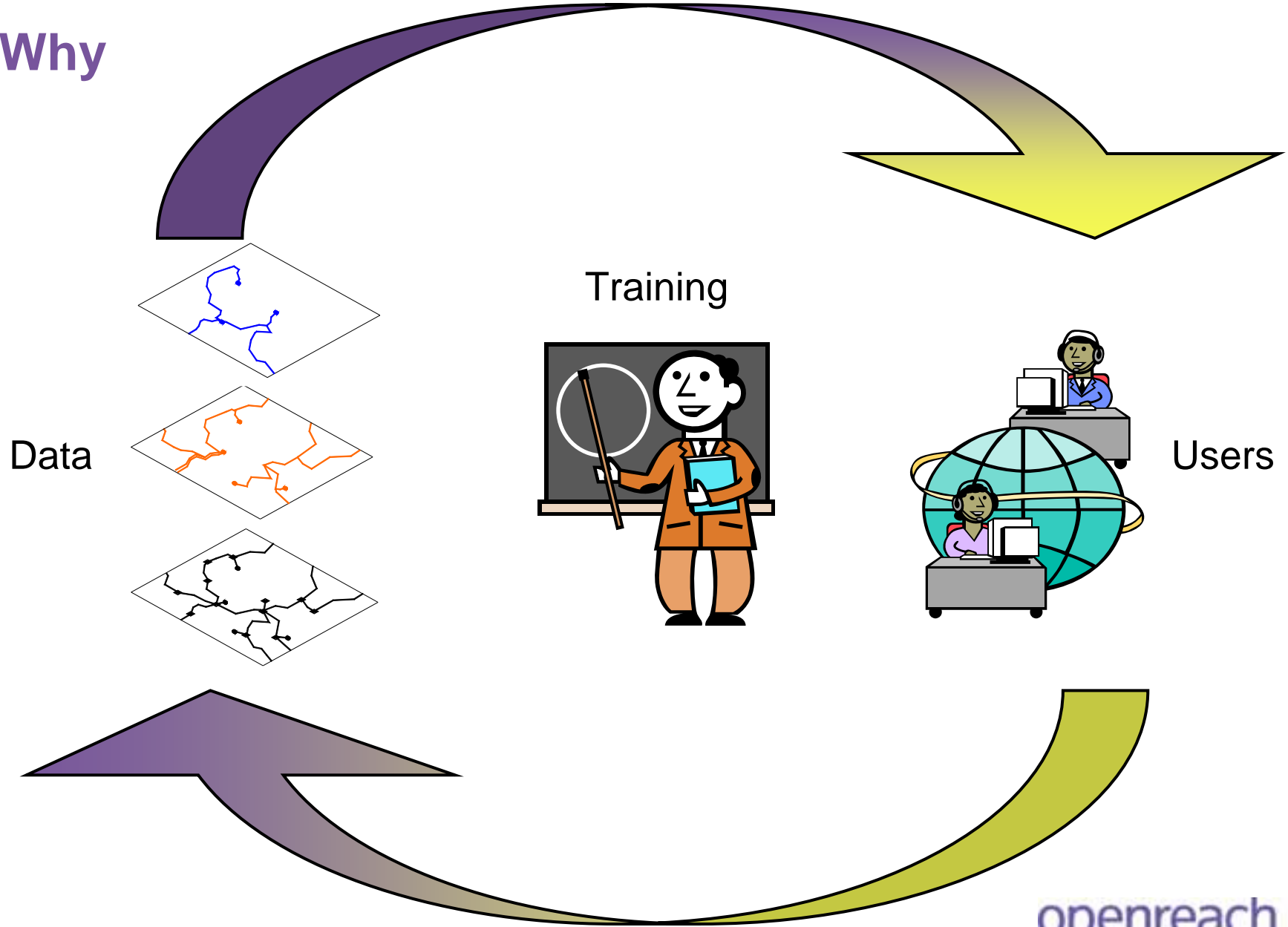
Line features

- Reroute
- Replace
- Stitch
- Reassignment of Blown Fibre

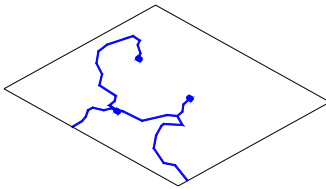
Point features

- Move
 - Replace
 - Change connectivity
- Import of partial NE XML and using it to influence and pre-select where possible
 - Improve productivity

Why

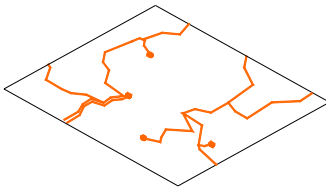


Data



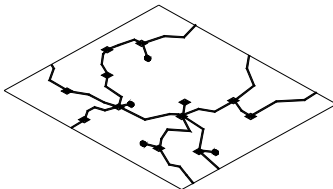
Fibre Network

- Mostly schematic rather than GIS based systems
- Generated data from a NON GIS system (including connectivity)



Copper Network

- Some data converted from a previous GIS
- Connectivity data from NON GIS system



Civil Network

- converted from previous GIS

Data

- Multiple sources of data from historic systems
- As with all large data sources some inaccuracies can be experienced
 - Locations may not always be valid (some historic systems not geographic)
 - Transmedia (cable) routes may lie on different paths
 - Inventory awaiting recording
- Data capture – By geographical boundaries
 - Network stitched at geographical boundary
- This is probably the optimum time for house keeping of Data

Users



Current Project:

3,000 end users – Planning and Recording

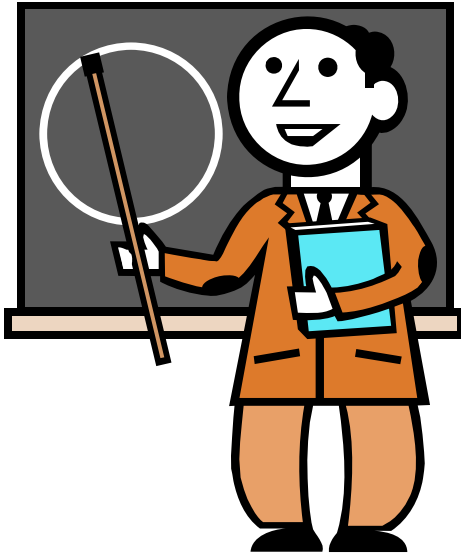
- All experienced in Telco networks
- Not all experienced in GIS application
- Concept change from 'paper' visualisation to electronic



Future Project:

22,000 Field engineers

Training

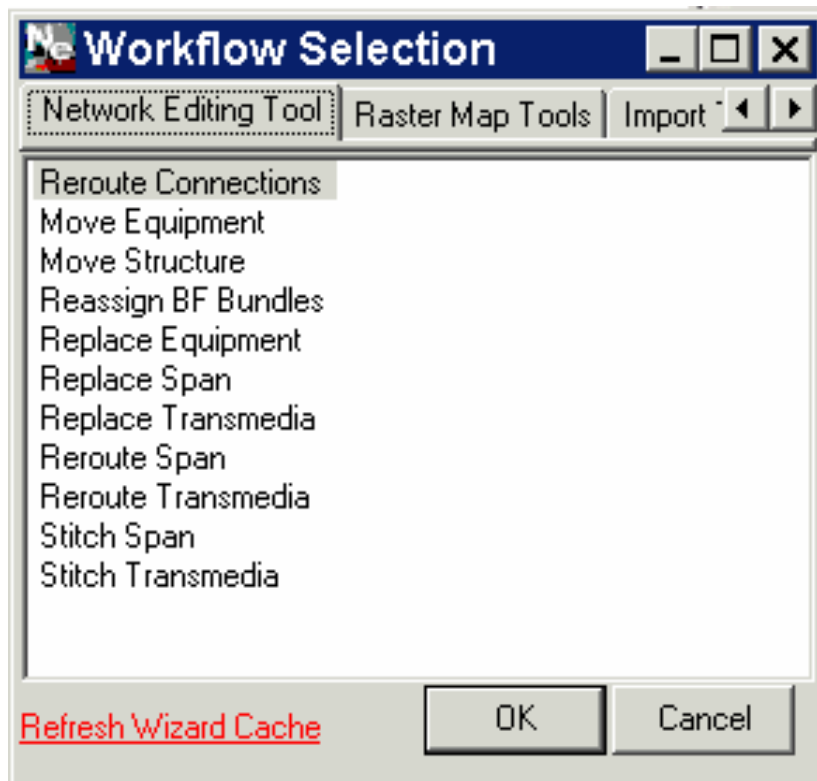


- Each user attends a course
- Discipline specific (e.g. copper provision, fibre provision) but not job specific (splice new tube into existing tubing network)
- Does not cover every tool in system
- Will not make user a GIS specialist

Results in a long learning curve and a lack of confidence and poor immediate productivity

So how does the 'Network Edit Tool' work?

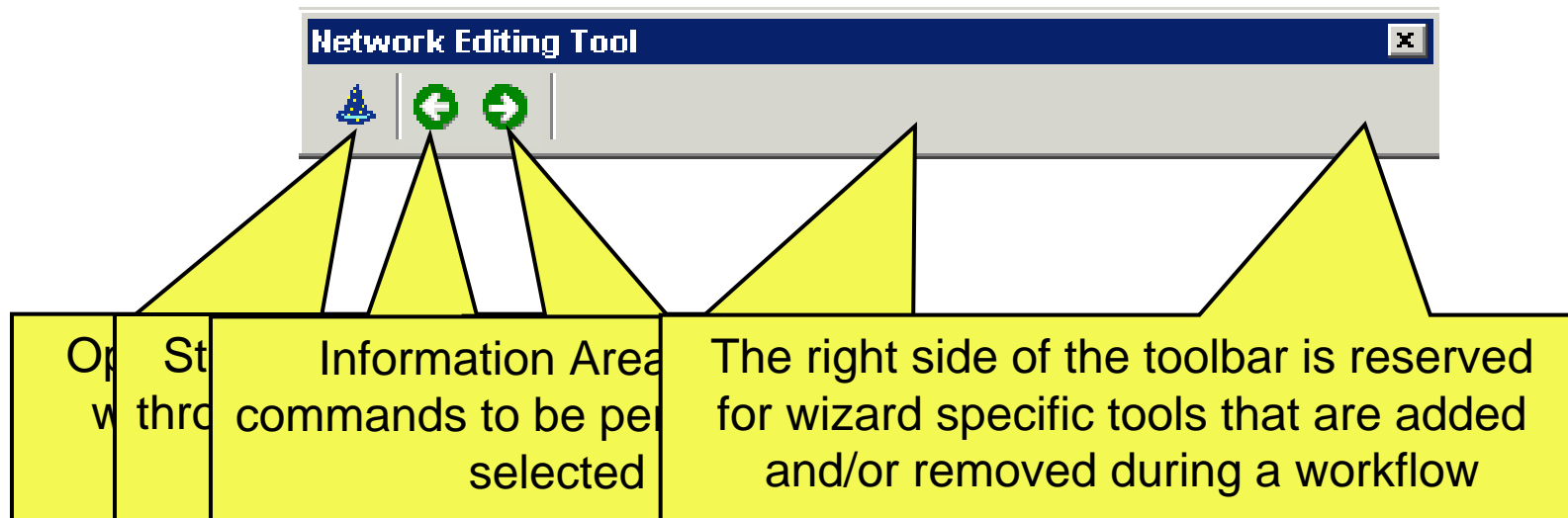
'Wizards' allow a user to perform specific sequences of activities enabling rapid correction, modification or addition of data.



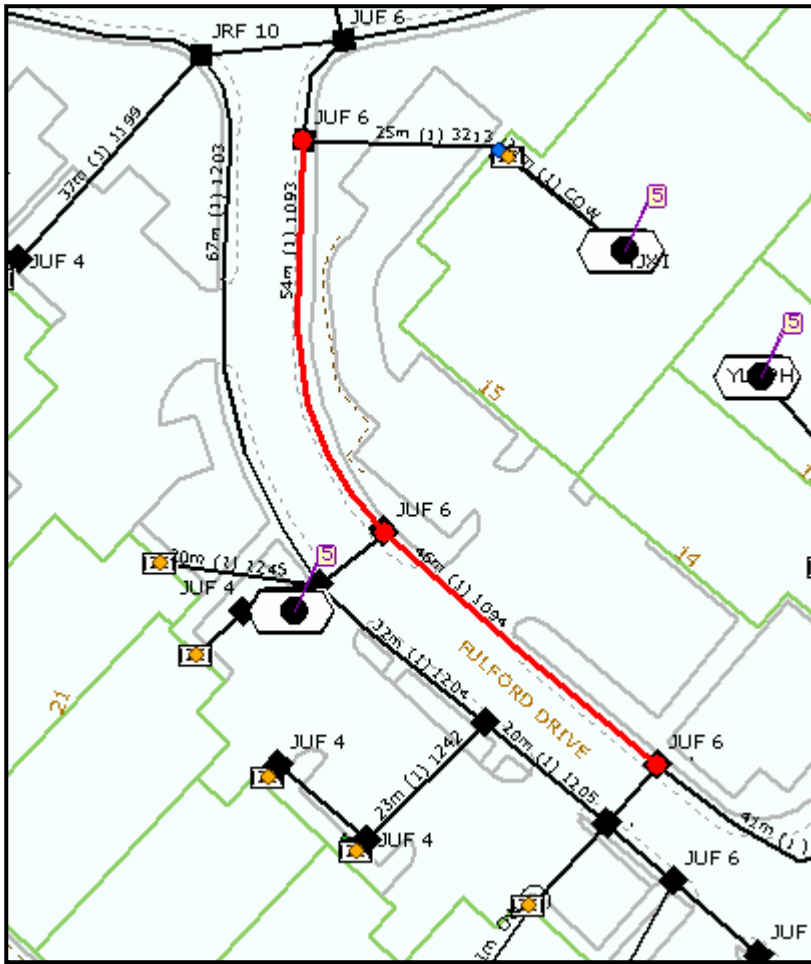
Provides a constant refresher to supplement training, building confidence, expertise and productivity

So how does the Network Edit Tool work?

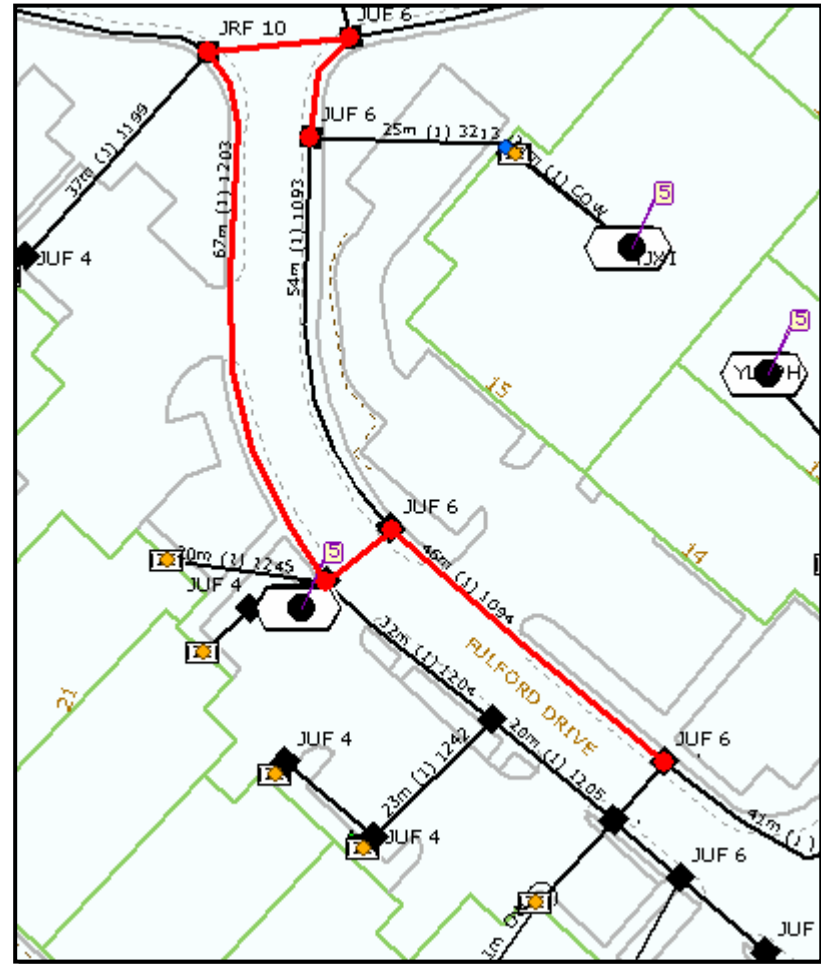
- No matter which wizard is being used, one toolbar guides the user through the wizard task selected



Worked example – Transmedia route is incorrect

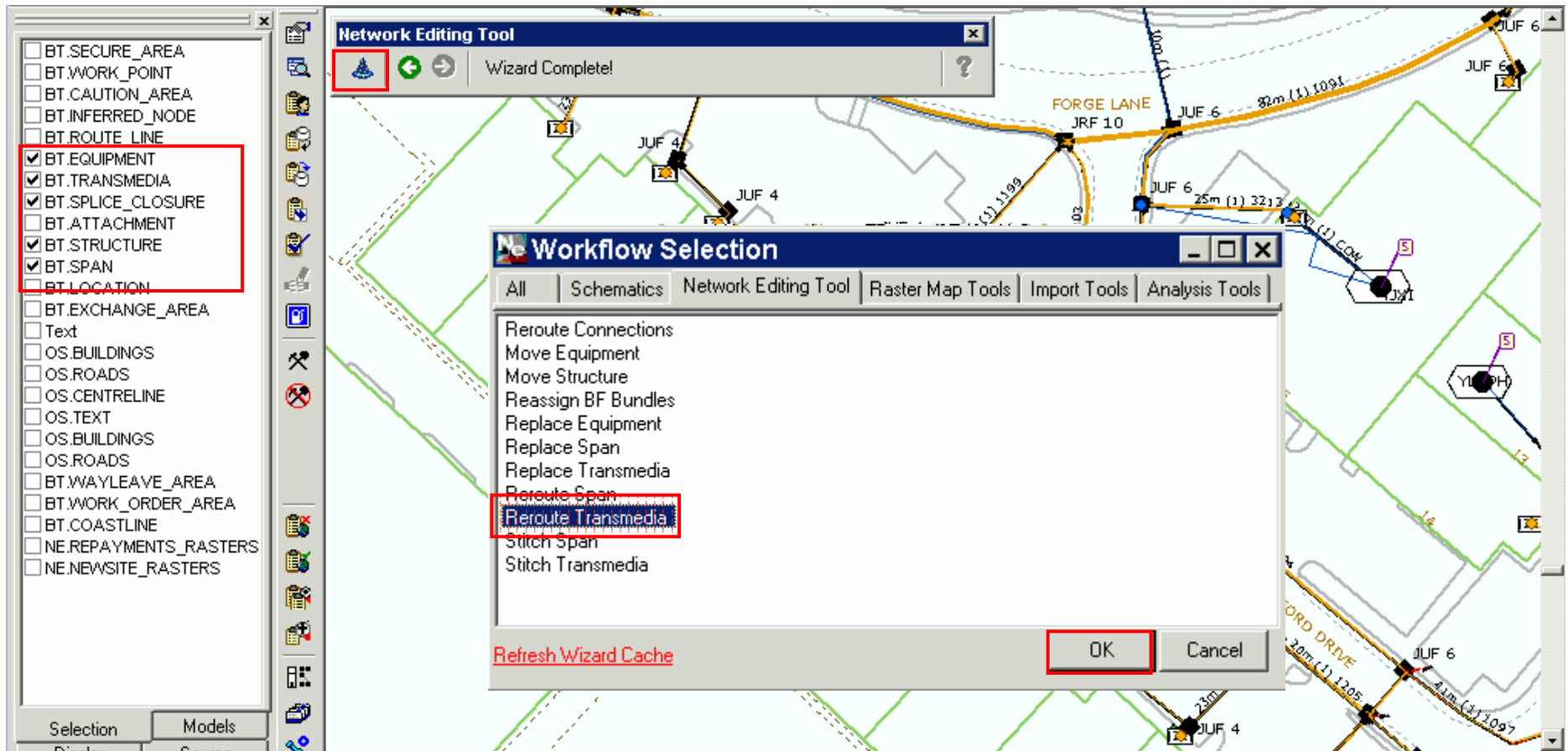


Data base – Transmedia route

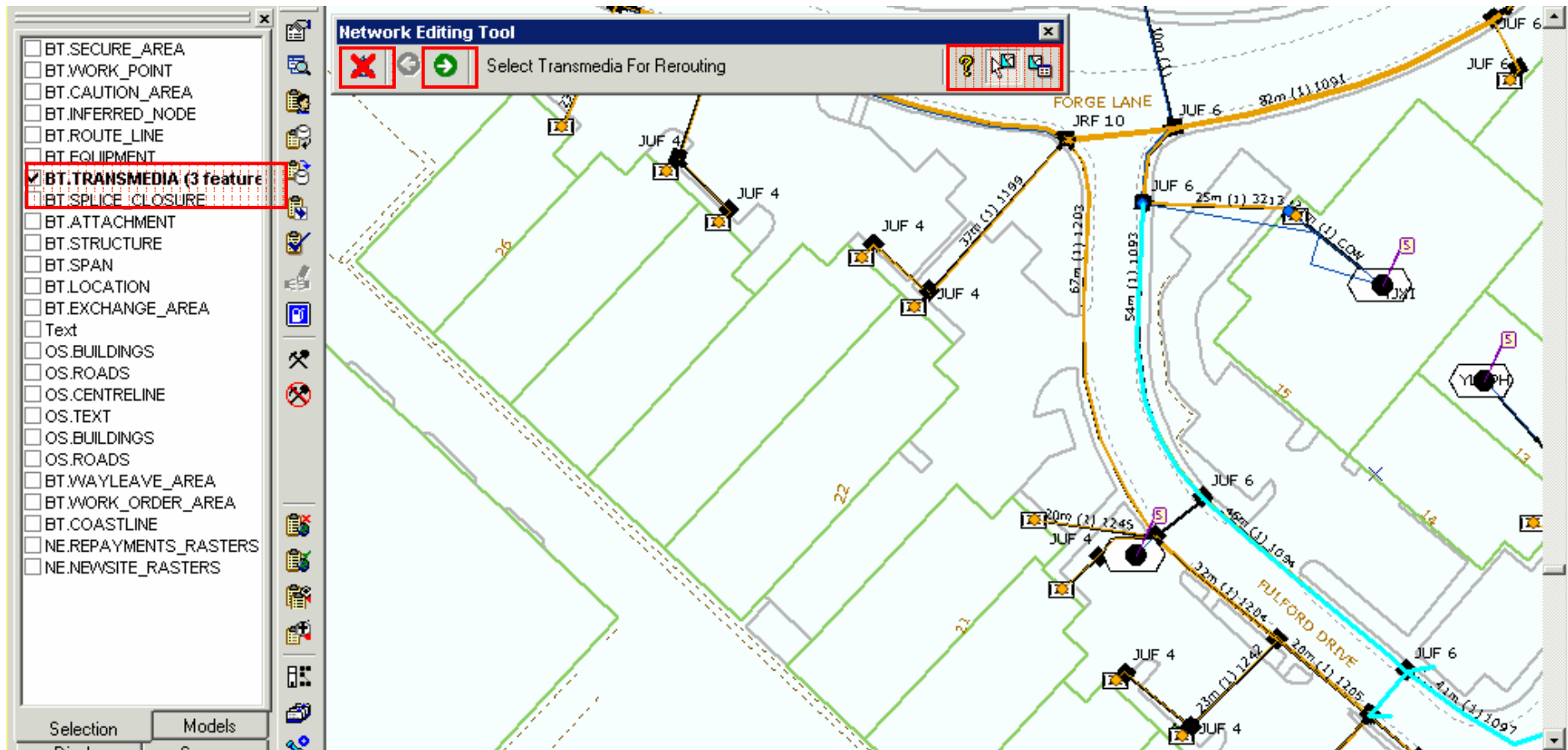


Real World – Transmedia route

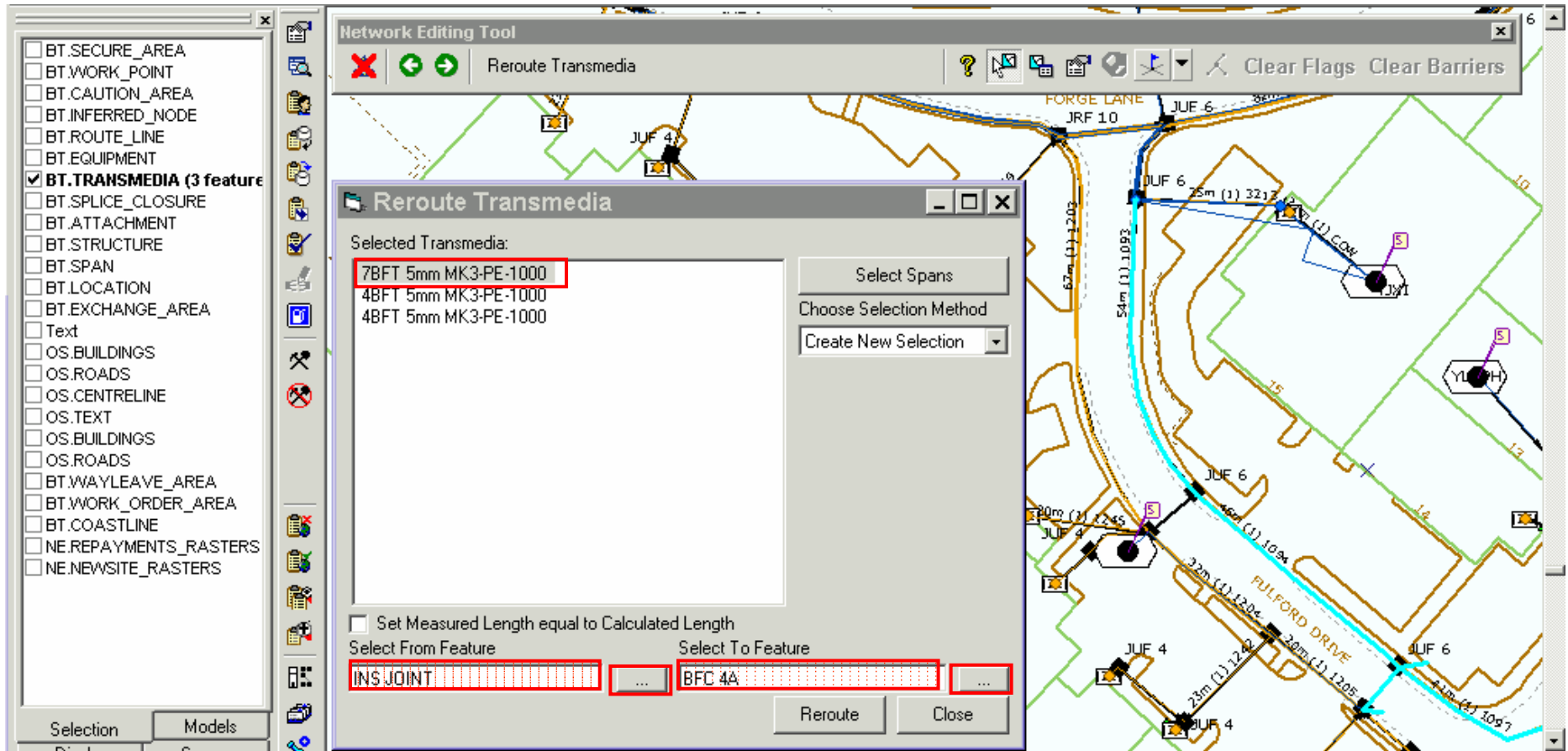
Reroute Transmedia



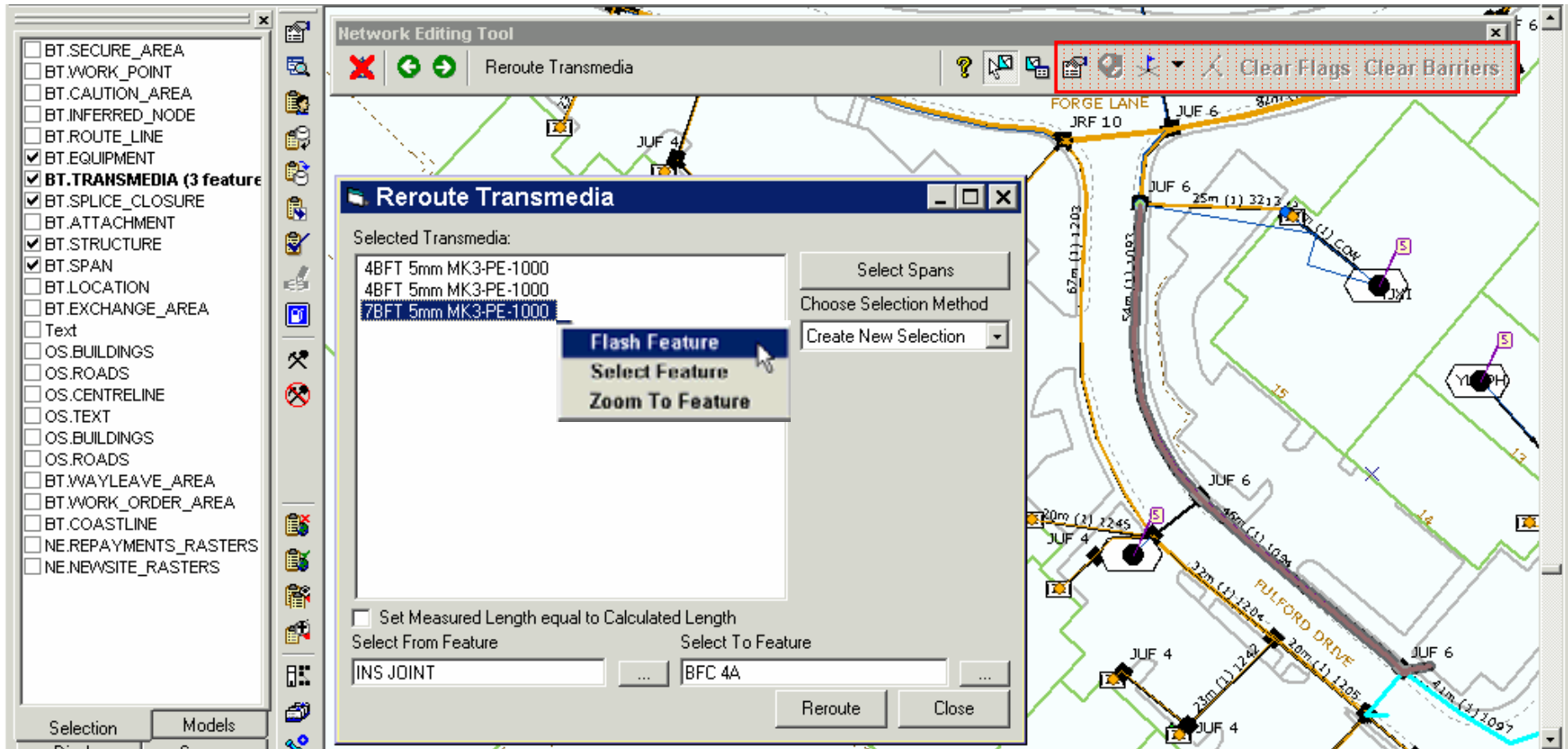
Selecting the Transmedia to Reroute



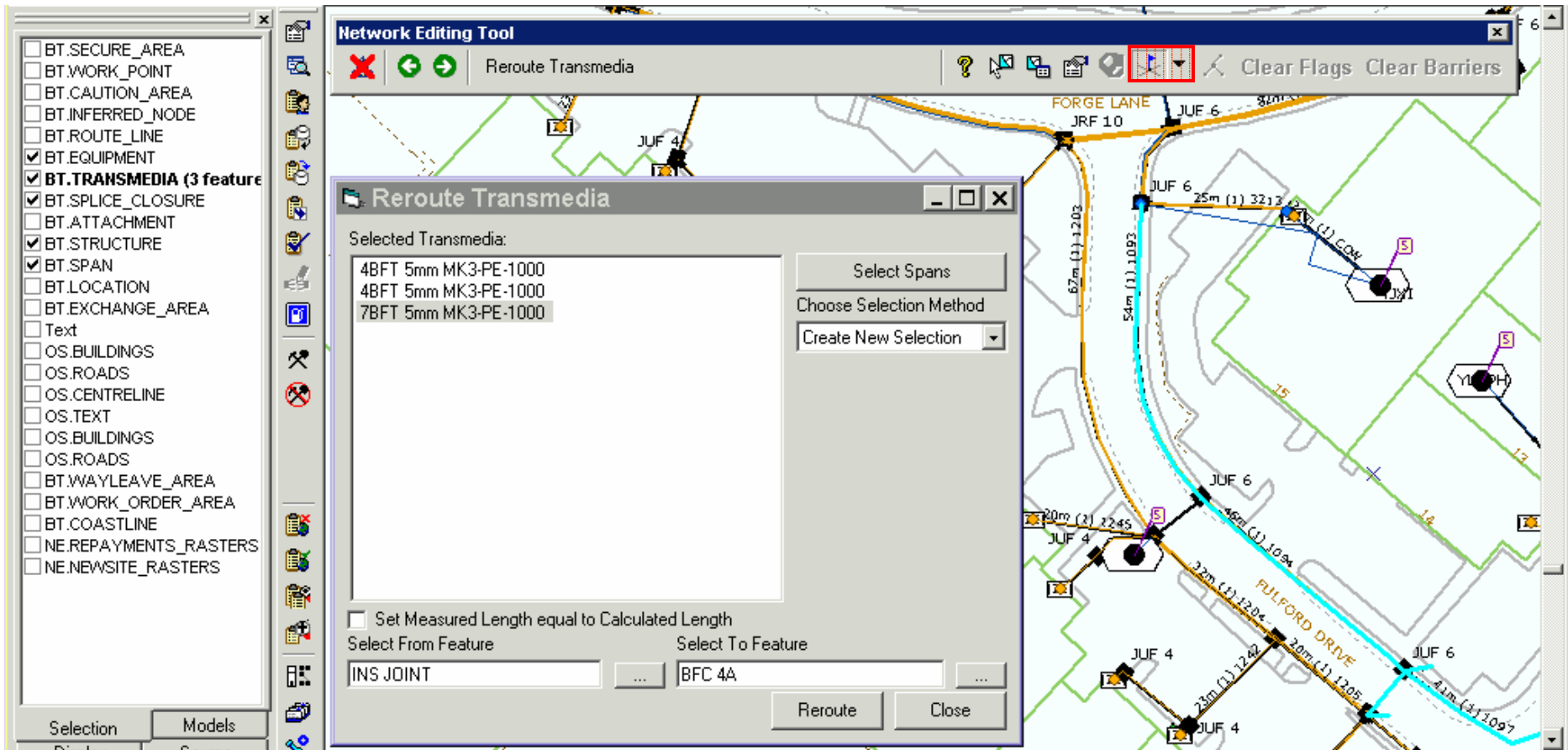
Transmedia selected



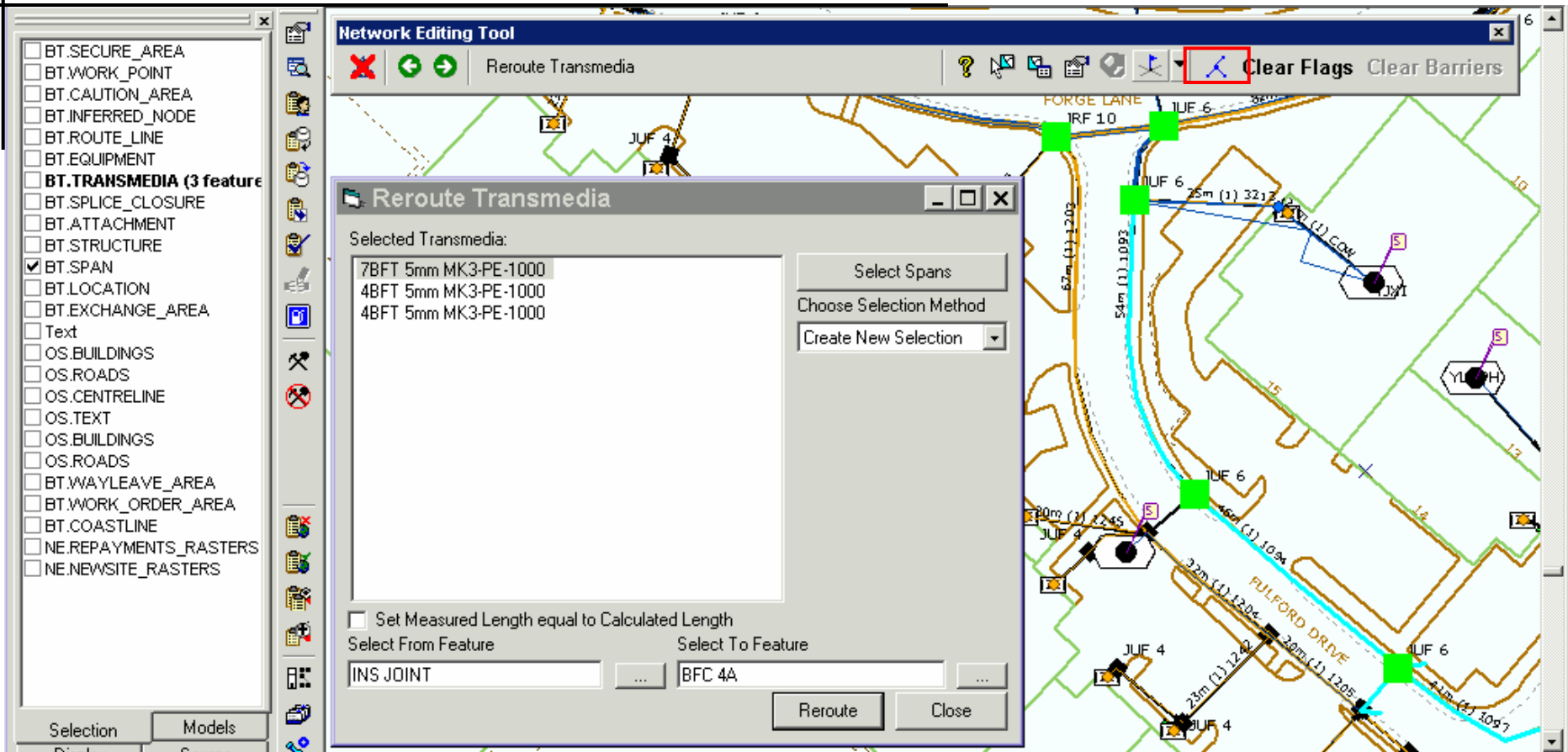
Identify Transmedia



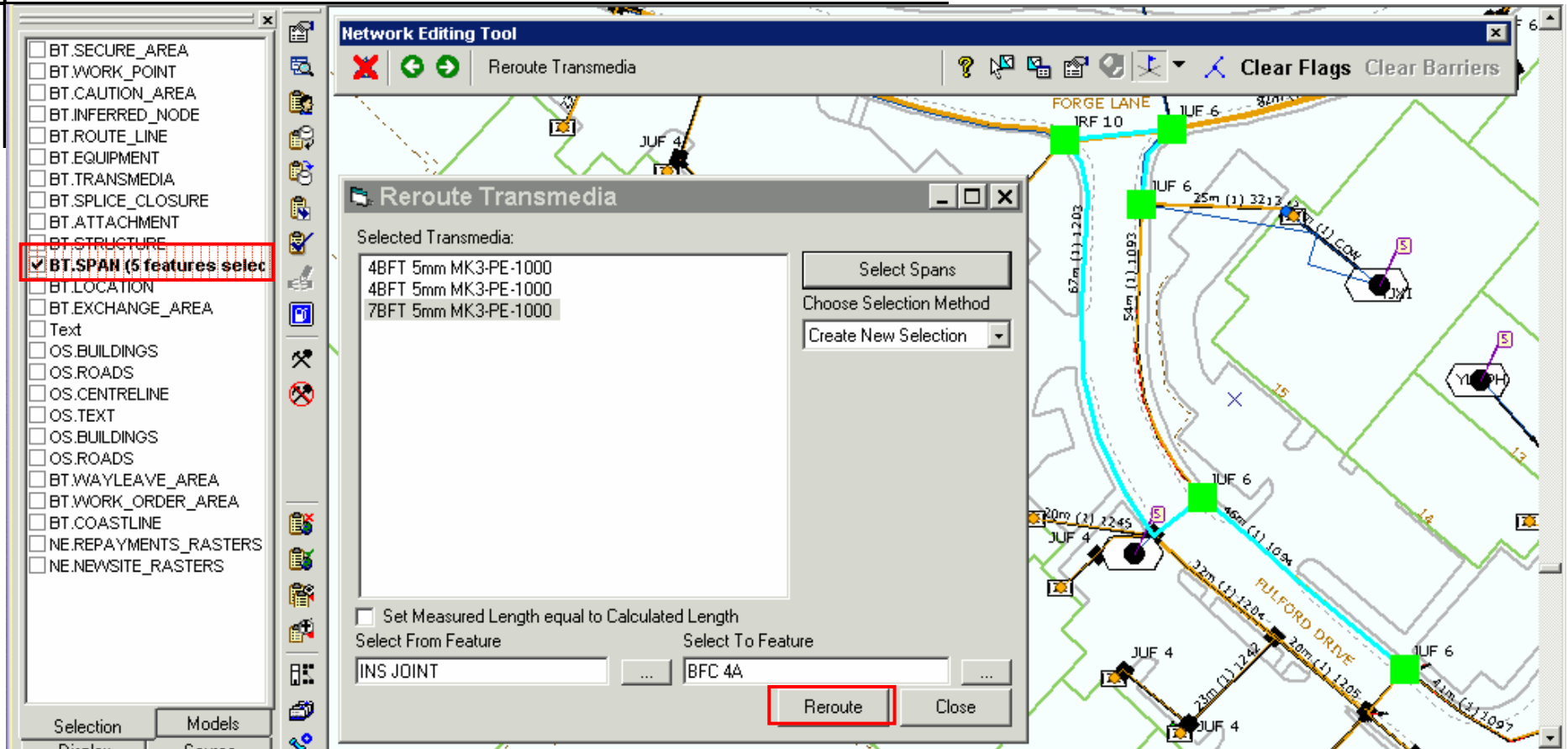
Identify New Route



Identify New Route

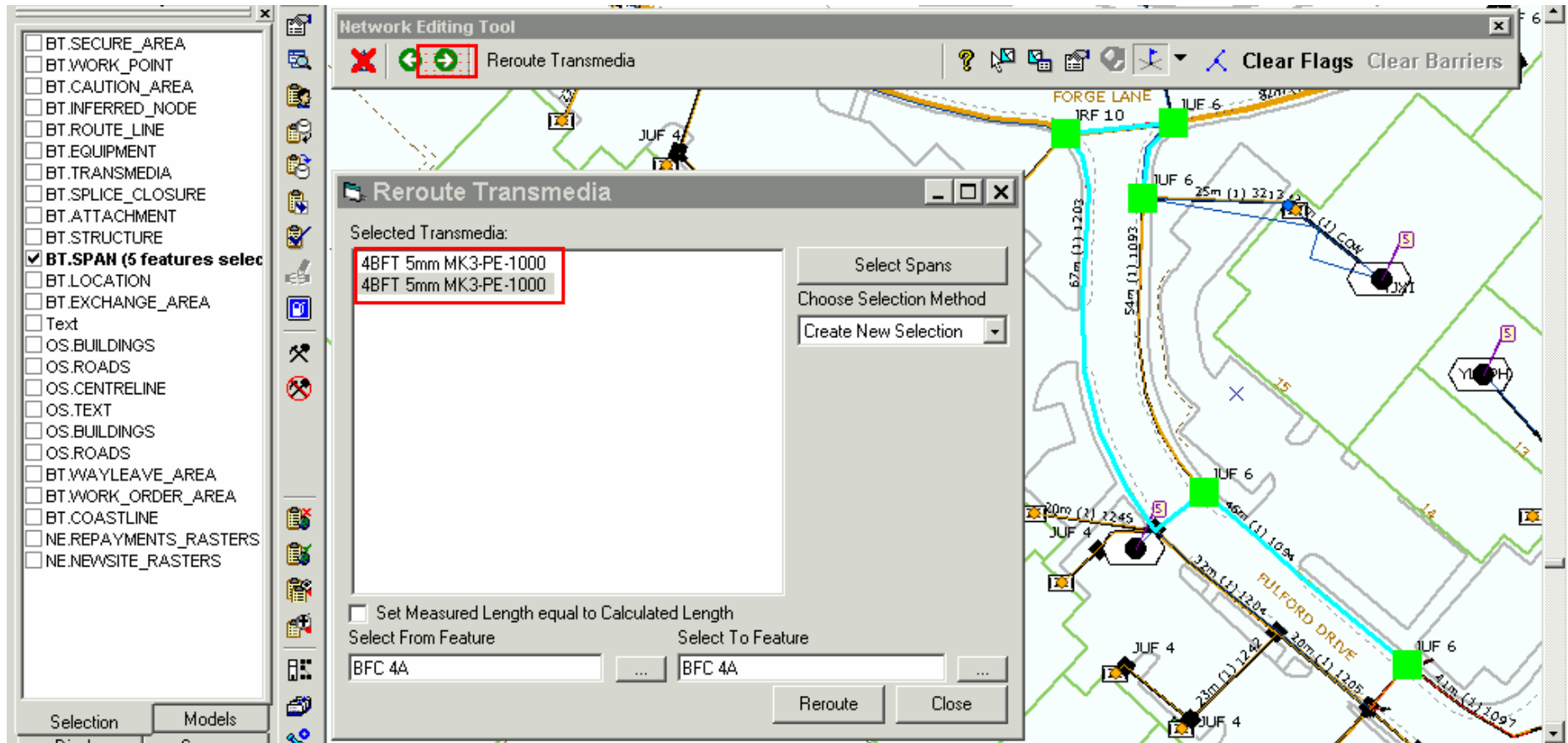


Reroute Transmedia

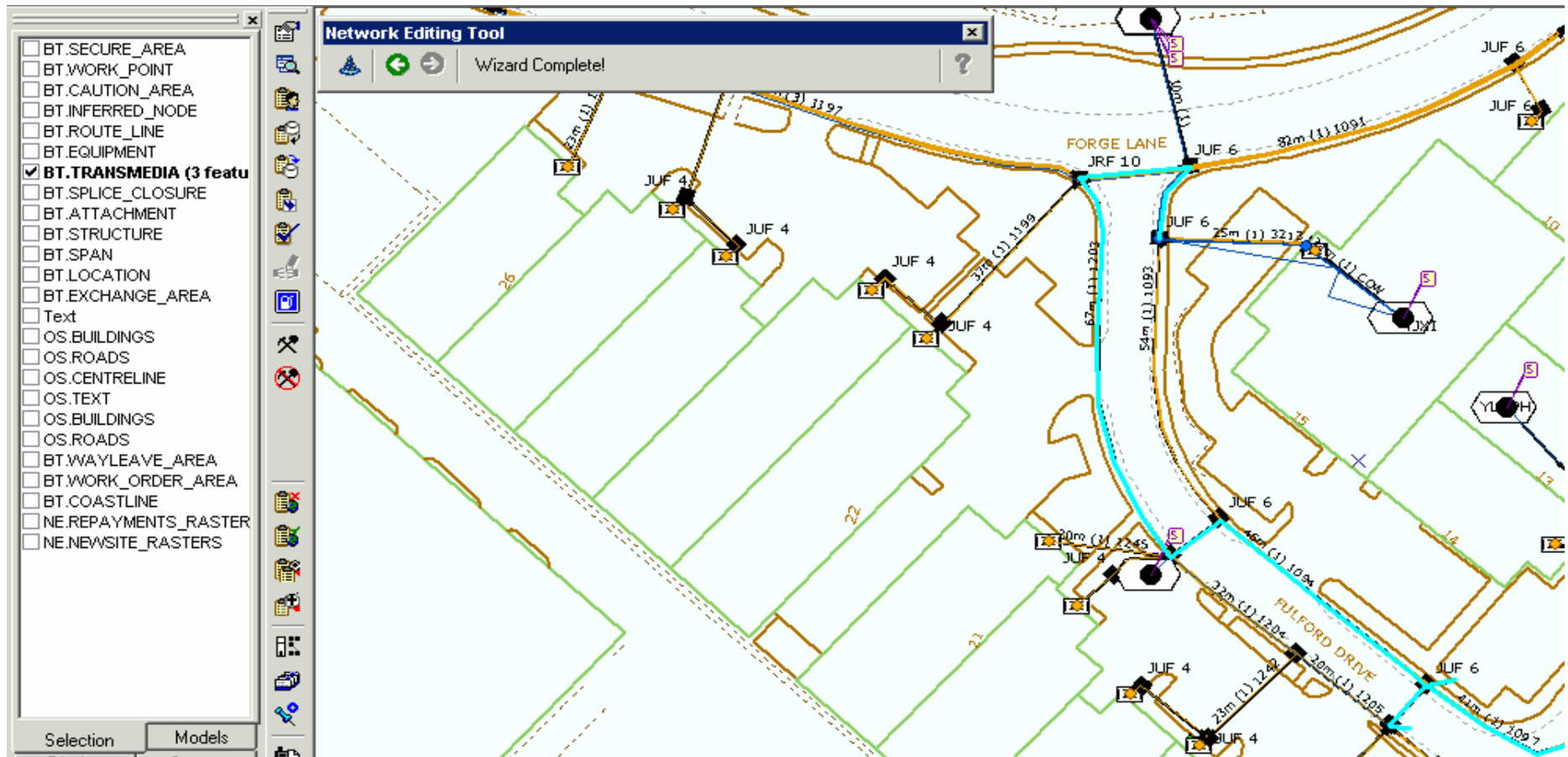


Rerouting transmedia... 73%

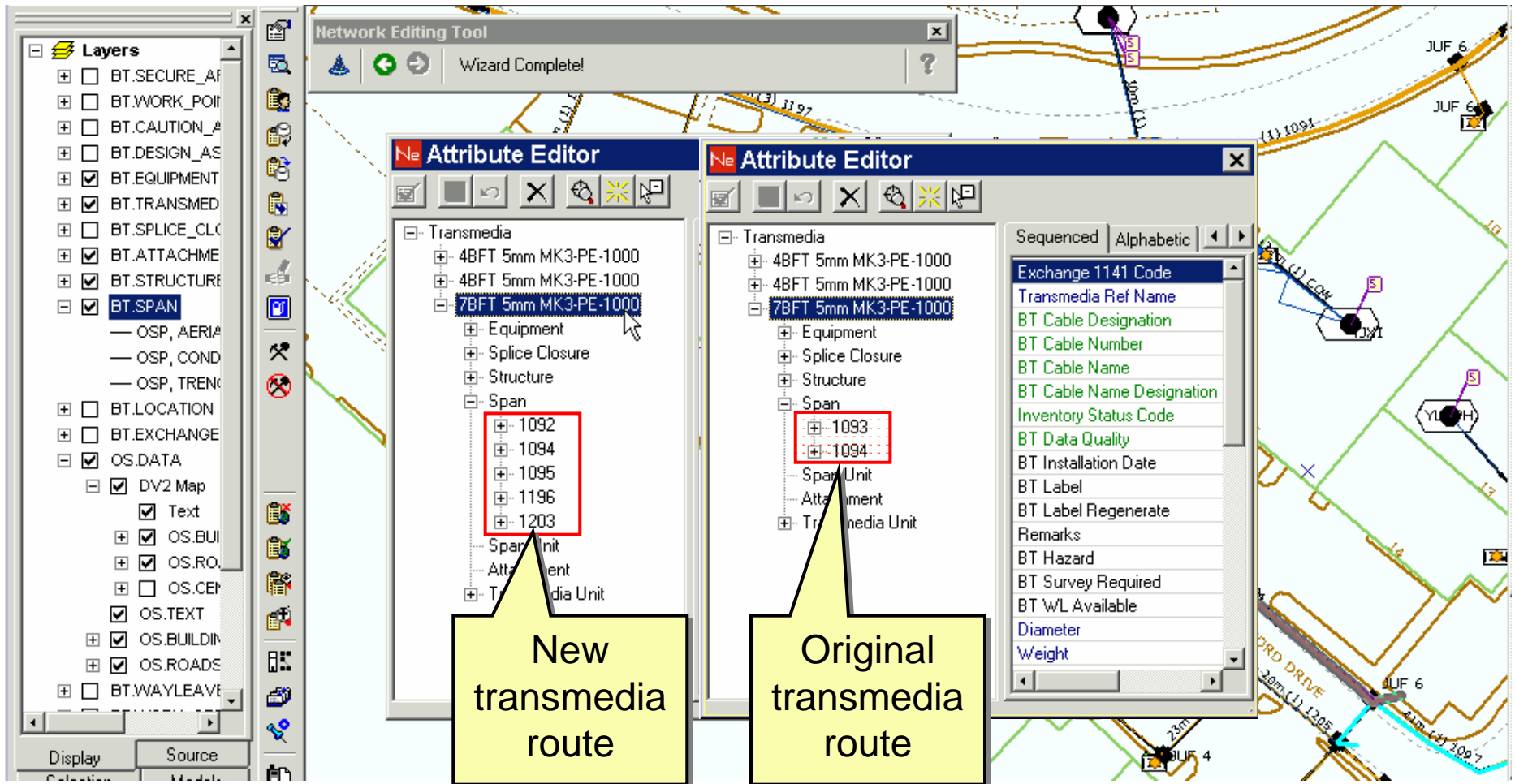
Transmedia Rerouted



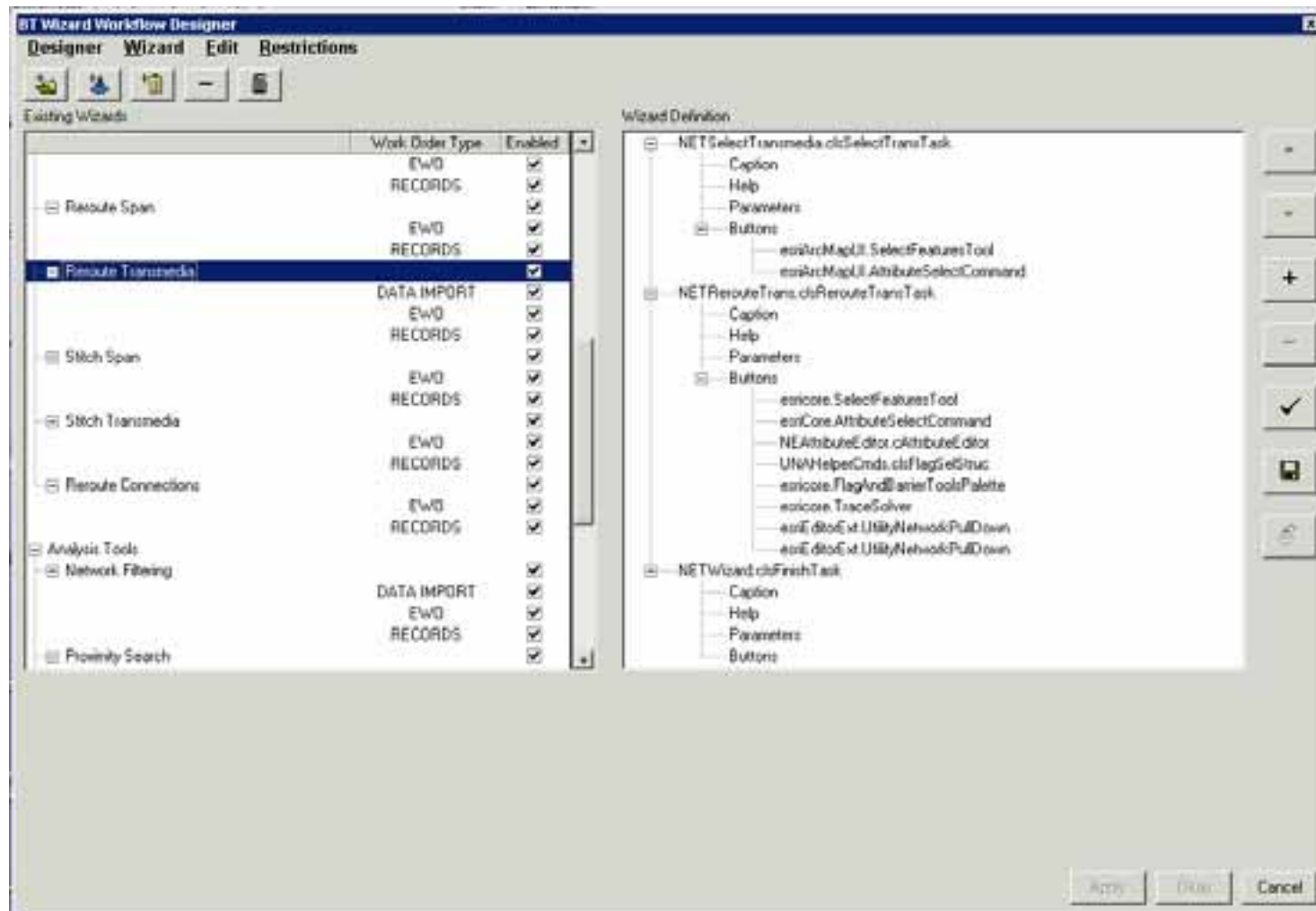
Wizard Complete



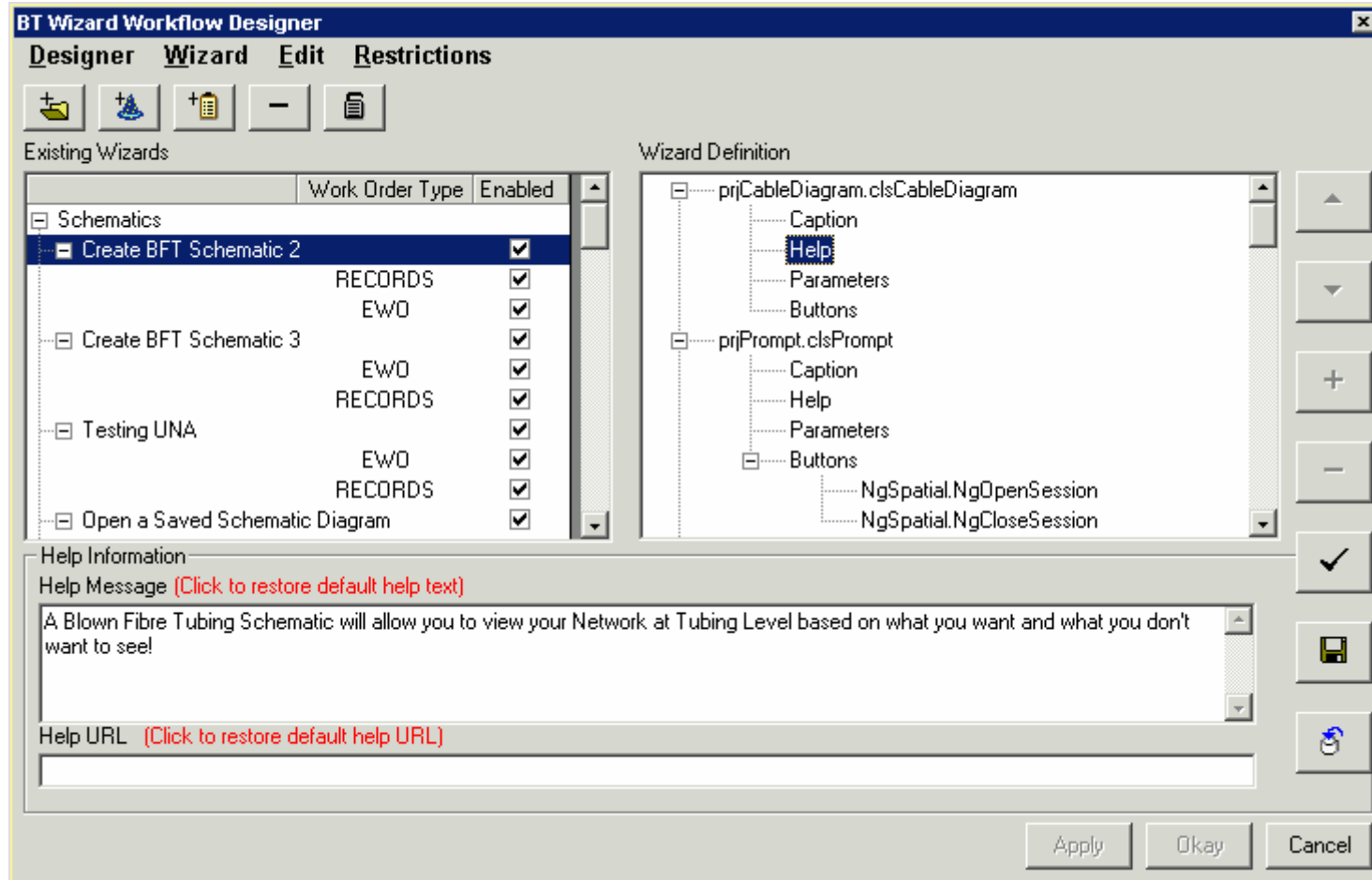
Associations Checked



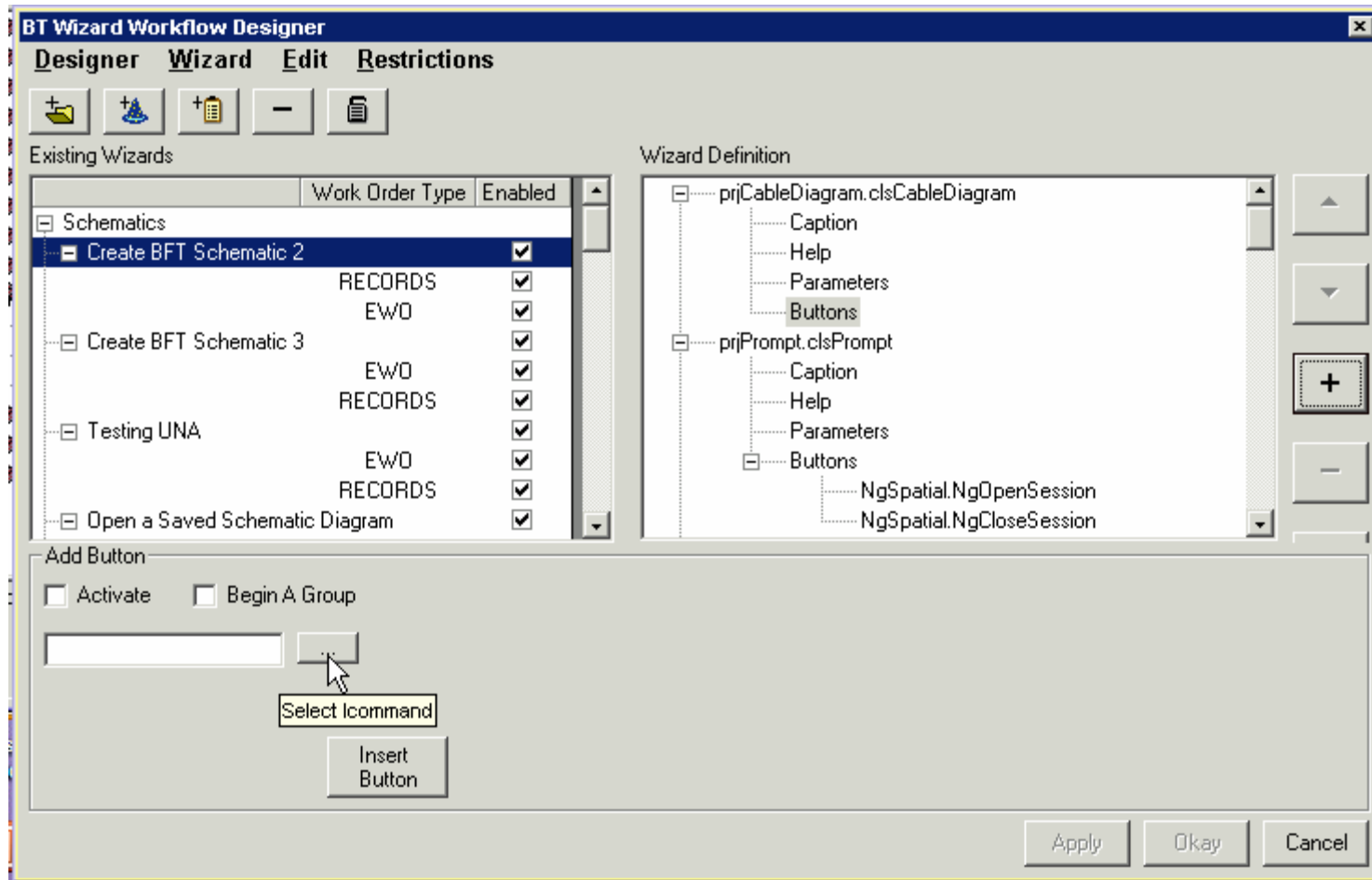
Configuration



Configuration – Help messages



Configuration – adding tool buttons



Wizards – BT development

- Create BFT Schematic
- Open a Saved Schematic Diagram
- Create M-Side Schematic
- Create D-Side Schematic
- Delete a Saved Schematic Diagram
- Create a duct schematic
- Create a connections schematic
- Create a BFCS Schematic
- Create a BFCS Schematic from Existing HL diagram
- Create Duct Box to Box Schematic
- Imports Bookmarks
- Network Filtering
- Proximity search
- Job Specific Renderer
- Import Raster
- Delete Raster
- Reroute Connections

Wizard Designer – Pandora's Box!

Currently there have not been any limitations found in the 'Wizard Designer' functionality (from the developers perspective). Examples of possible work flows include:

- Deletions
- Creations
- Amendments (in excess of the standard N.E.T wizards)
- Selections (Class Category and Type specific)
- Work flow instructions

“This tools power is only limited by the ability of the configuration team and their knowledge.”

Stringent processes for development must be in place when using the wizard designer

Questions

Acknowledgments

- Telcordia Technologies
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