

Benefits of Fiber Backhaul Optimization Model

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Overview(Source: ESRI.com)

- The model when given a set of remote assets (e.g. cell towers) and a set of fixed network access points, will quickly generate an optimized network topology or plan. This plan will detail how those remote assets can be most efficiently connected to the network.
- The Backhaul Optimization model provides a repeatable business process for the quick generation of initial network topologies using a geographic approach to optimize route lengths and reduce deployment costs.
- This model can help reduce labor times for network planning, minimize CAPEX for network builds, and provides a repeatable business process for consistency of response & design.

Backhaul Optimization Download

SOLUTIONS.ARCGIS.COM/TELECOMMUNICATIONS



The screenshot shows a web browser window with the URL `solutions.arcgis.com/telecommunications/help/backhaul-optimization/`. The page title is "ArcGIS for Telecommunications" and it includes navigation links for "PLATFORM", "FEATURES", "DOCUMENTATION", and "SUPPORT", along with a "SEARCH" button. The main heading is "Backhaul Optimization" with sub-links for "Home" and "Get Started".

Overview

Whether responding to RFPs as a fiber network provider or deploying fiber to your own cell tower infrastructure, backhaul planning can be a time-consuming & costly endeavor.

The Backhaul Optimization model provides a repeatable business process for the quick generation of initial network topologies using a geographic approach to optimize route lengths and reduce deployment costs.

The model when given a set of remote assets (e.g. cell towers) and a set of fixed network access points, will quickly generate an optimized network topology or plan. This plan will detail how those remote assets can be most efficiently connected to the network.

This model can help reduce labor times for network planning, minimize CAPEX for network builds, and provides a repeatable business process for consistency of response & design.



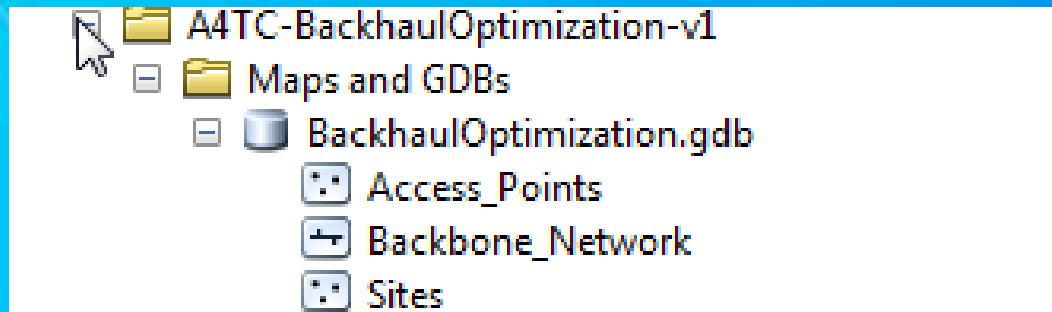
The diagram illustrates a network topology with various nodes and connections. It features several blue circular nodes on the left, a central column of yellow square nodes, and a right column of green circular nodes. Lines represent connections between these nodes, forming a complex network structure.

You may be interested in

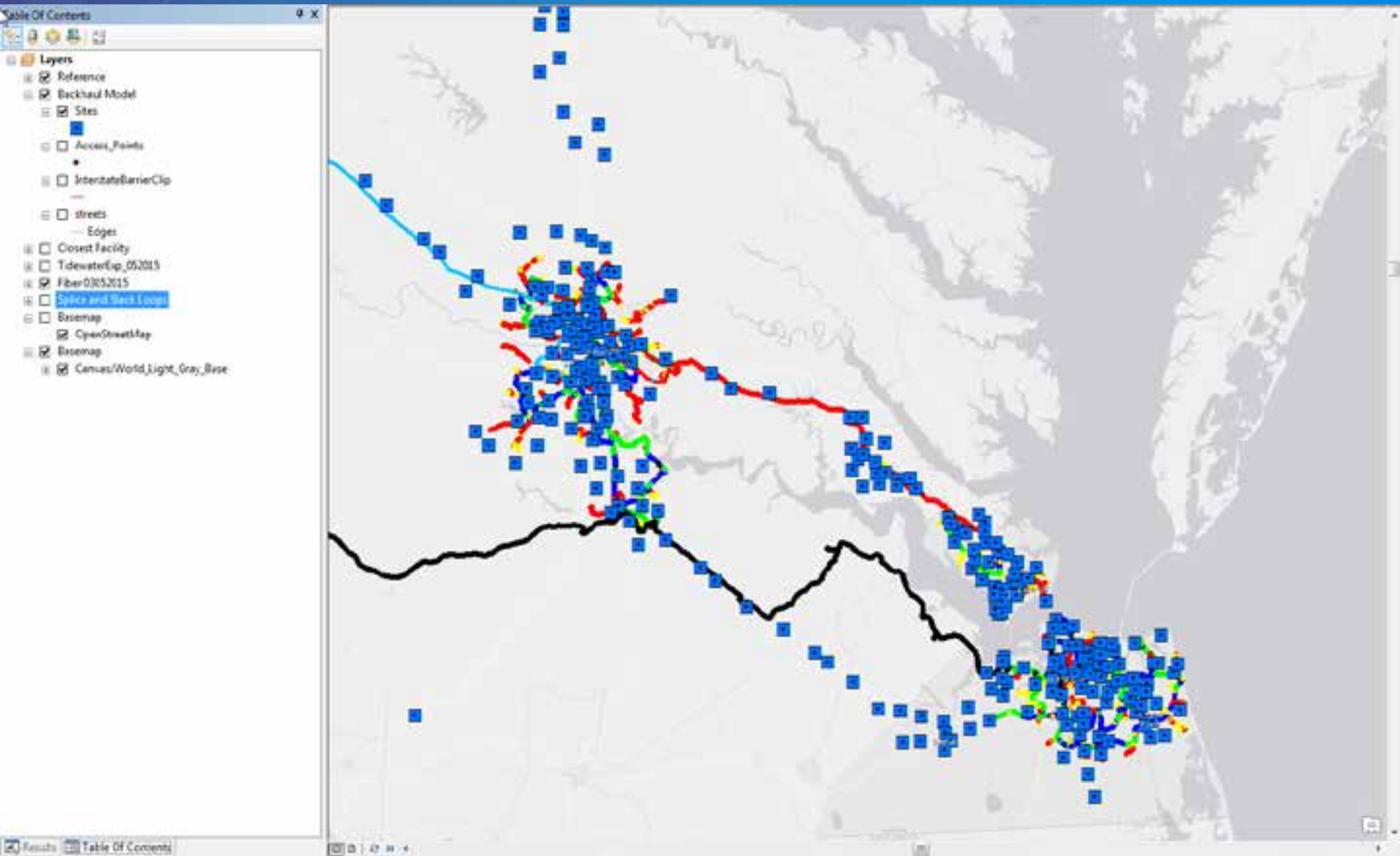
- [Service Qualification](#)

BACKHAUL MODELGEODATABASE

- These are the Feature Classes you need to load into the provided Geodatabase.
 - Access Points (Slack Loops, Splice Points, etc.)
 - Backbone Network (Fiber Network)
 - Sites (Remote Sites that are backhauled to the Access Points)



PROJECT EXAMPLE



CREATE ACCESS POINTS

- In this example, the network is a planned network. There are no current access points on the theoretical network.
 - Use the Network Routes to Access Points Model
 - Creates theoretical access points based on a certain distance along the network.

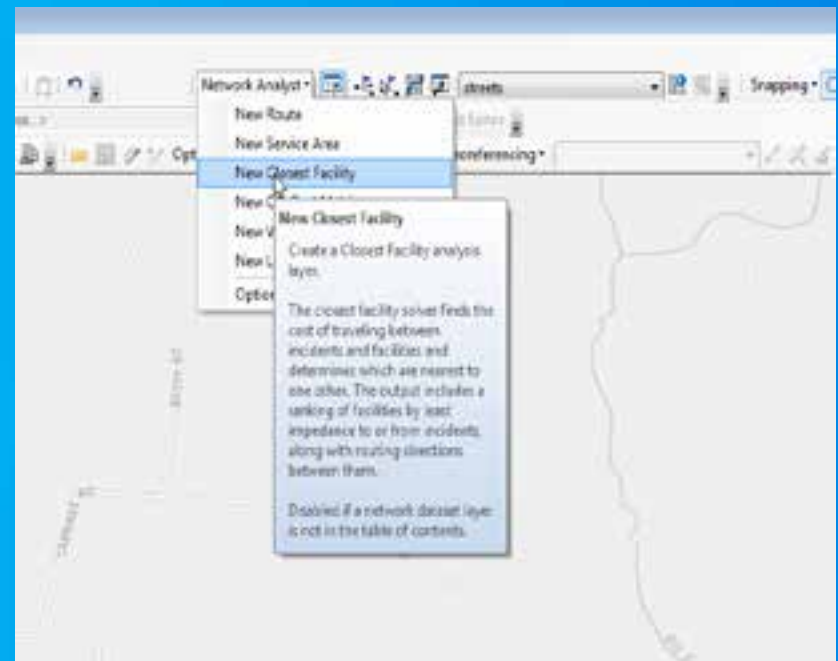
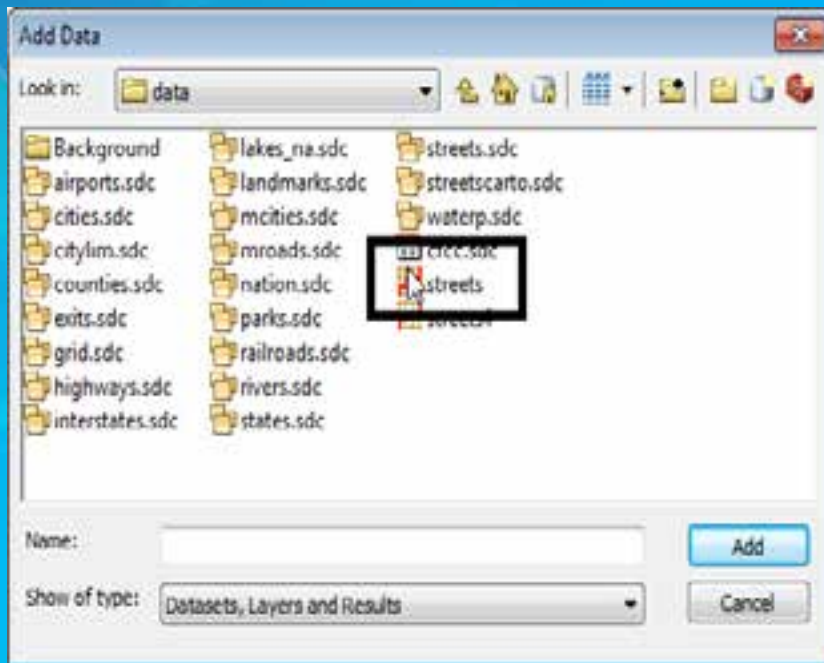


ACCESS POINT CREATION



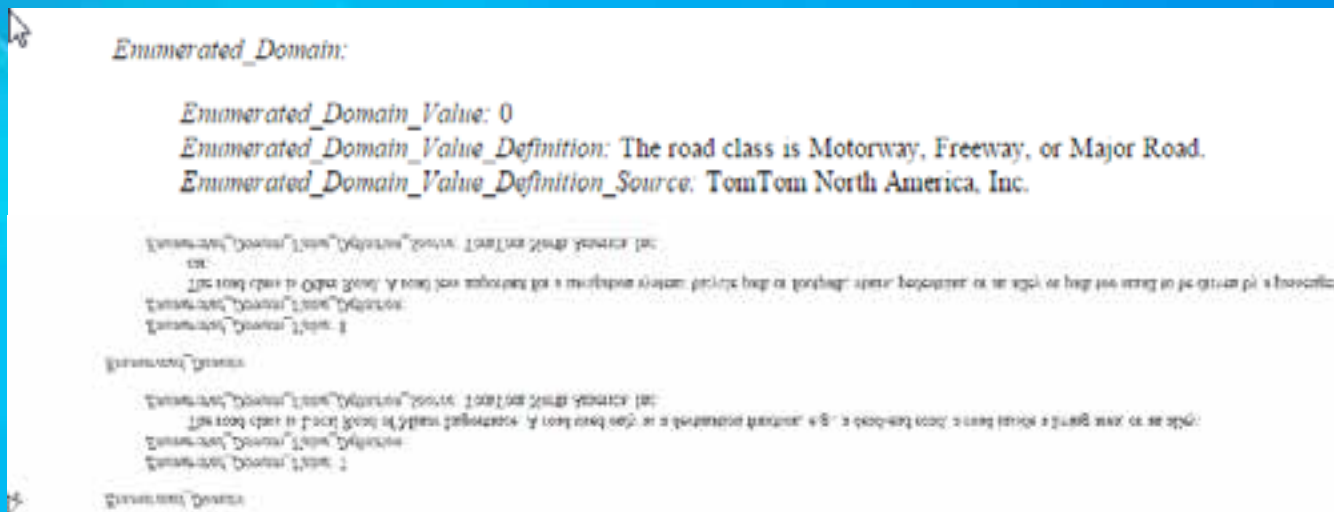
SETUP NETWORK ANALYST

- In order to use model, must set up network analyst and load street network layer.
 - Load street network from ArcGIS StreetMap North America.
 - Select new Closest Facility Layer.



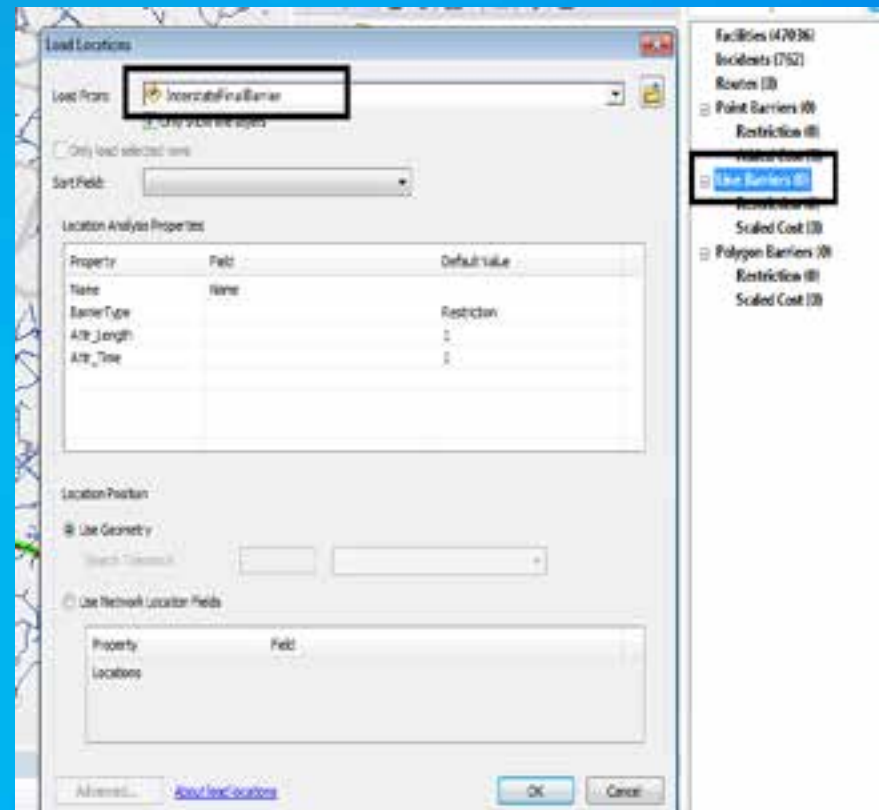
NETWORK ANALYST BARRIERS

- Of course you are able to set up the default restrictions on network analyst, such as one way streets, walkways etc.
- For this analysis, I needed to avoid interstate highways
 - Clip the streets layer for project area.
 - Select by attributes, then export Interstate Highways into a new layer



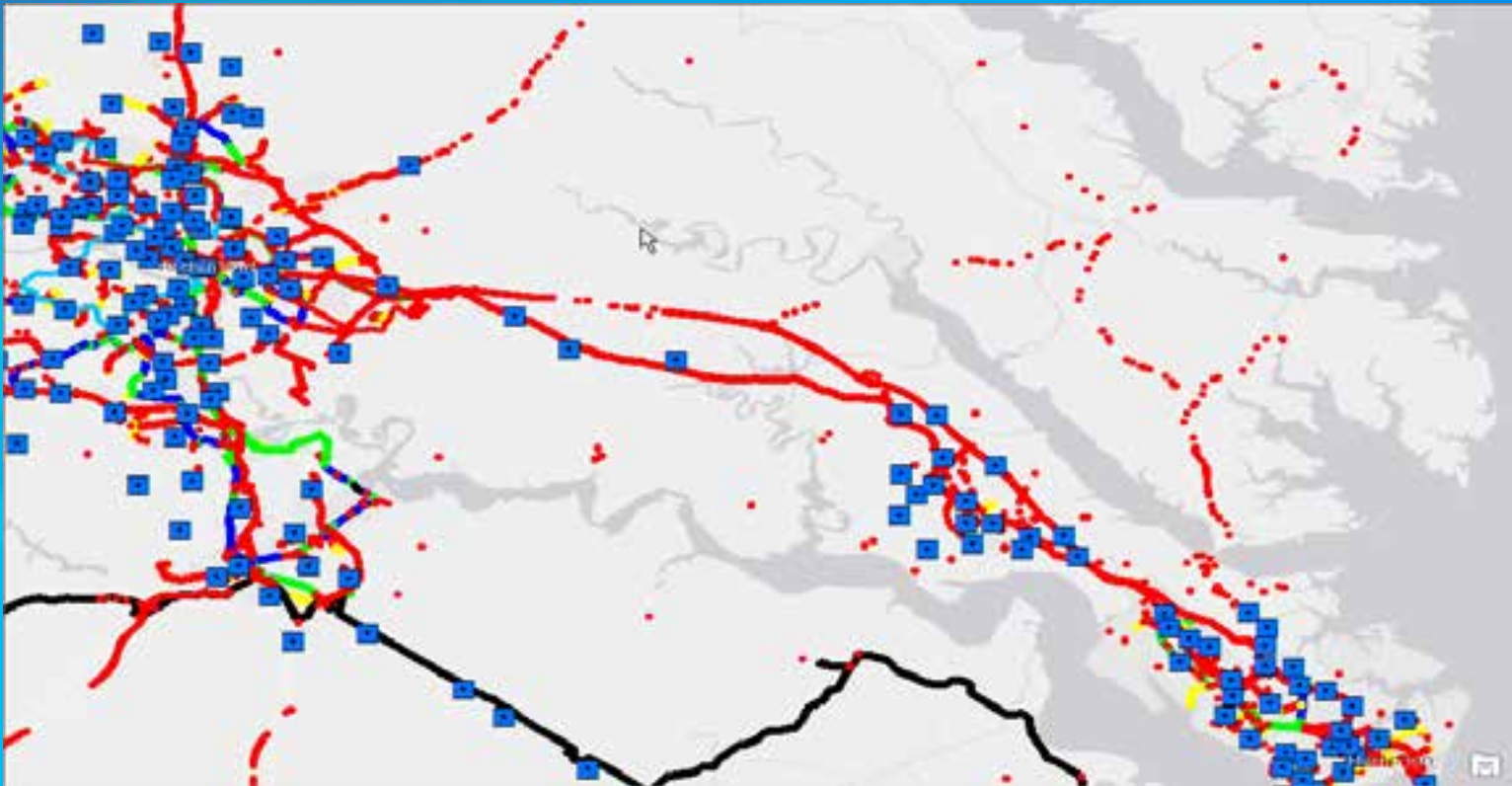
NETWORK ANALYST BARRIERS

- Must Query out the layers based on the attributes
 - Load the new layer into the Network Analyst as Barrier



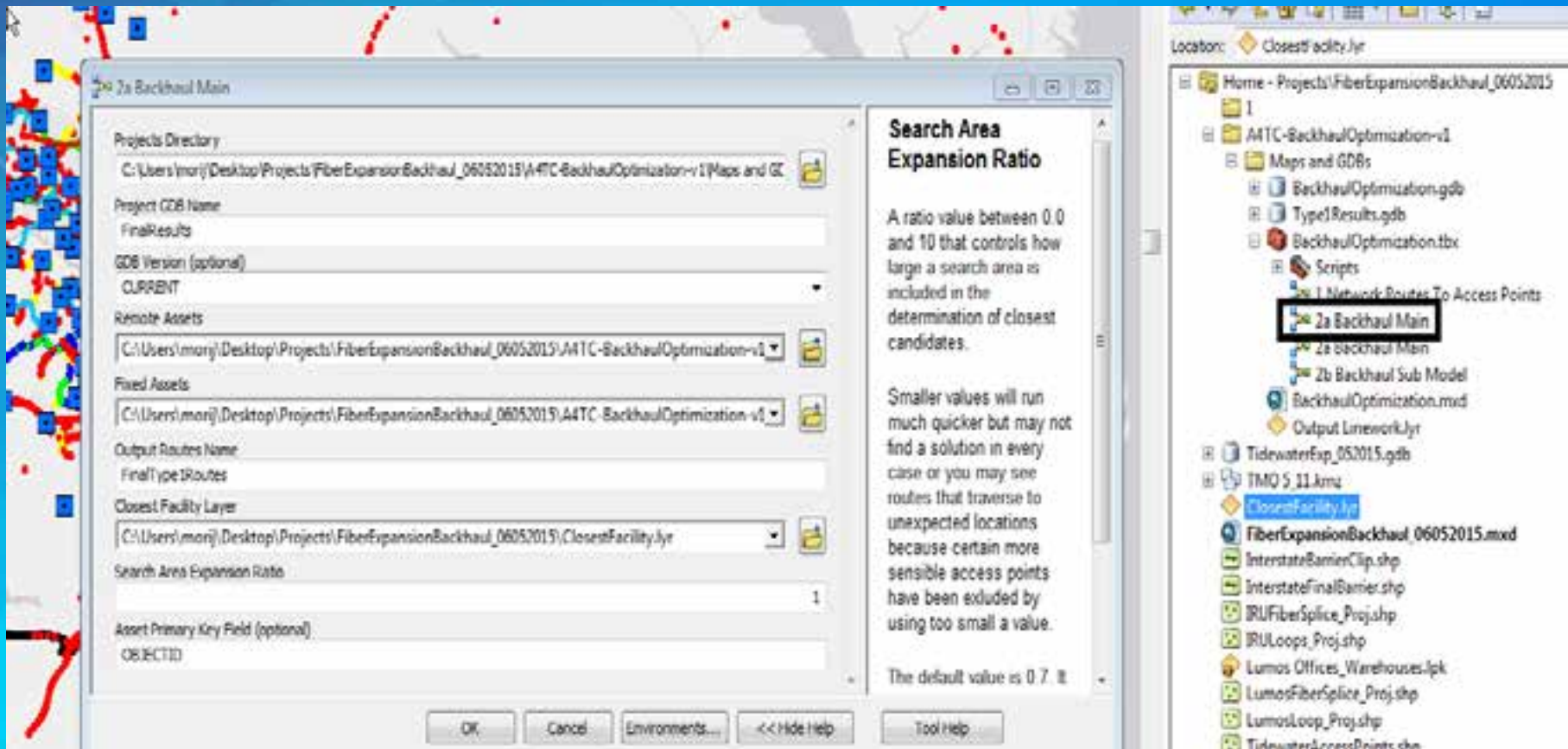
NETWORK ANALYST BARRIERS

- Once Barriers are loaded the Interstates to avoid are symbolized on the map based on the Closest Facility barrier symbol
 - They will now be avoided when running the model



RUN MAIN BACKHAUL MODEL

- It is now safe to run the final Backhaul Optimization Model
 - They will now be avoided when running the model



RUN MAIN BACKHAUL MODEL

- Depending on number of sites will determine how long the model runs.

