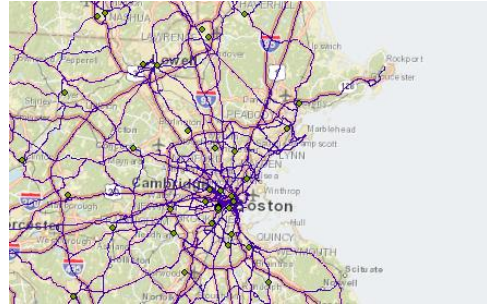


Network Analyst Workflow - Service Area Analysis



Modified December 2, 2009, revised January 5, 2011

Introduction

Types of network-based analysis

1. Service area analysis
 - Especially good for delineating ‘travelsheds,’ and defining accessible areas based on driving, transit, etc.
 - Focus of this Workflow tip sheet.
2. Closest facility
3. Vehicle routing
4. Origin Destination Cost Matrix
5. Location Allocation

Network Analyst tools

For an introduction to the Network Analyst tools, we recommend going through the Network Analyst tutorial

- At the Medford campus GIS Lab, this can be found on the S: drive - **S:\Tutorials\ESRI\ESRI_Library\Network_Analyst_Tutorial.pdf**
- On the web, it can be found on the ArcGIS 10 Help – Tutorials site: http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/About_the_ArcGIS_Network_Analyst_tutorial/00470000005r000000/
- The tutorial data set can be found in **S:\Tutorials\ESRI\ESRI_Library\ArcTutor\Network_Analyst** folder

See the ArcGIS 10 Help for details about and an overview of Network Analyst -

http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/What_is_Network_Analyst/0047000000100000/

Set up

First, make sure all of your data layers are in the same coordinate system. For help with this, see the Tip Sheet “Setting up for spatial analysis” under the Spatial Analysis Tools at our [Tufts GIS Tips and Tutorials web site](#)

Create the network data set in ArcCatalog

The first step is to create a network data set from your street centerline file. Network data sets are created using ArcCatalog, and it is now possible to work in ArcCatalog directly from ArcMap.

1. Enable the **Network Analyst** extension if not already enabled (**Customize – Extensions**)
2. Open ArcCatalog as a Window in ArcMap if you haven't already (choose **Windows – Catalog**)
3. Navigate to your data folder and right-click on a street centerline layer
4. Choose **New Network Data Set**
5. For your first time through, accept all defaults by clicking **Next**, except click NO for directions, and finally say **YES** to building the network dataset. This will create a street network data set where your only constraint is the length of the street centerline.
6. Also say **YES** to adding it to your map.

See ArcGIS Help for tips on Creating a network data set -

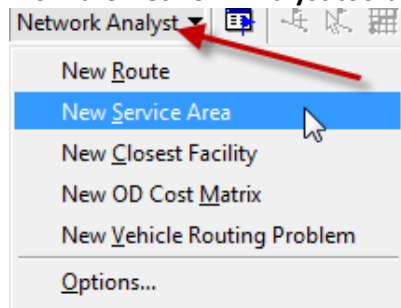
http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/A_quick_tour_of_Network_Analyst/0047000000200000/

Delineating a Service Area

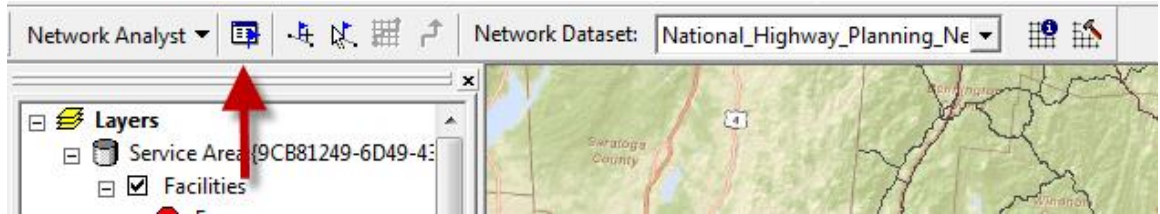
See ArcGIS Help for details about how to set parameters for the Service Area Analysis -

<http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#//004700000048000000.htm>

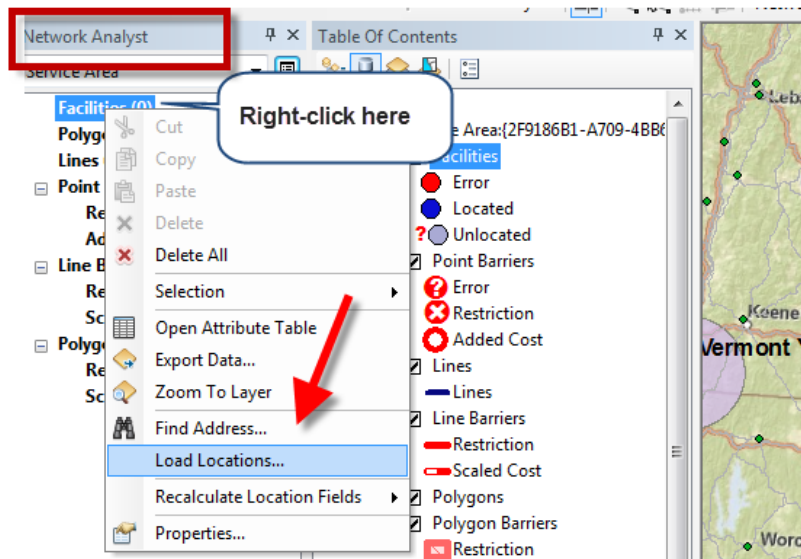
1. Make the **Network Analyst Toolbar** visible (**Customize – Toolbars**)
2. Add facilities that will be the centers for the service area (e.g., schools or hospitals)
3. From the **Network Analyst** toolbar choose **New Service Area**.



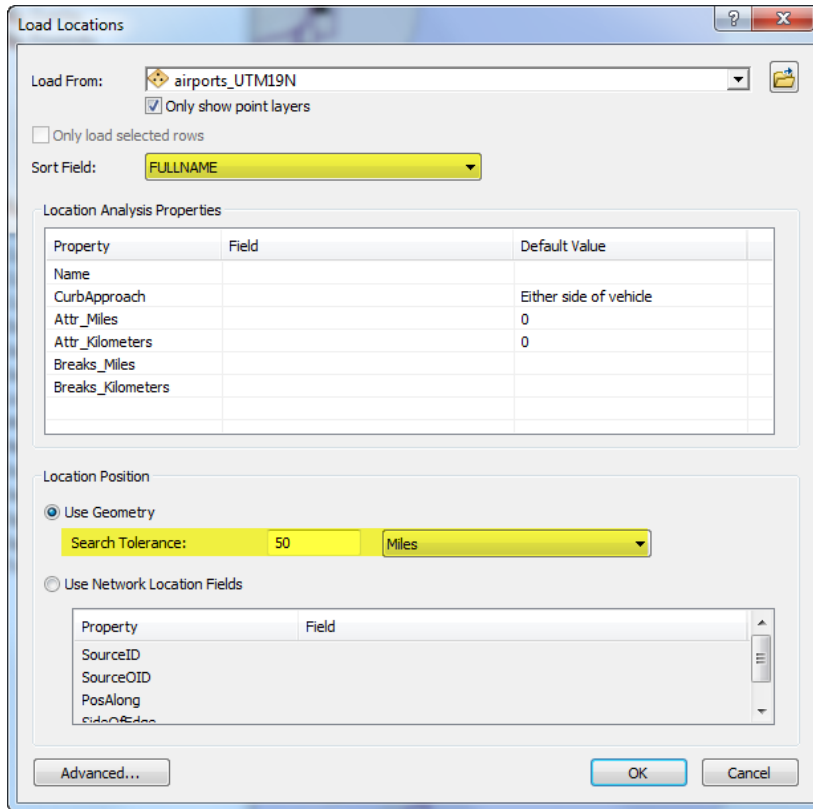
4. From the Network Analyst toolbar, click on *Show/Hide Network Analyst Window*:



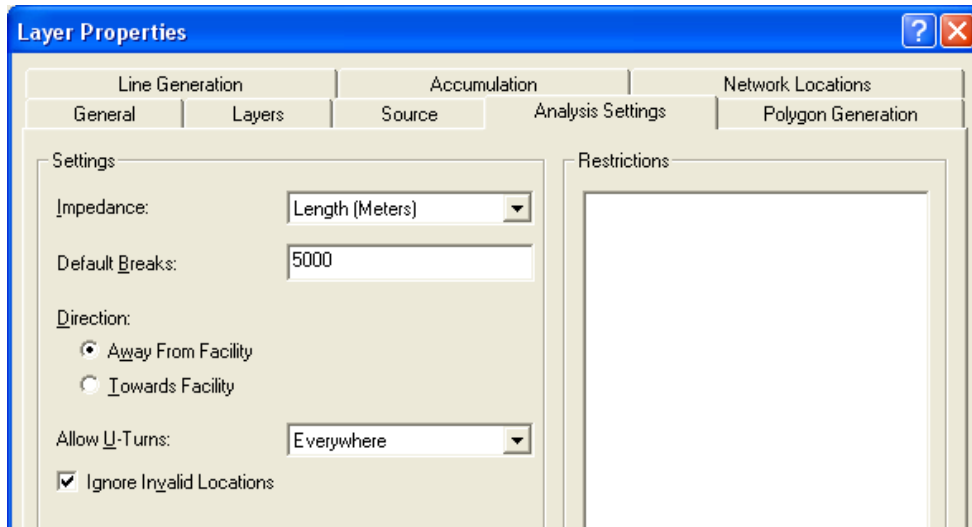
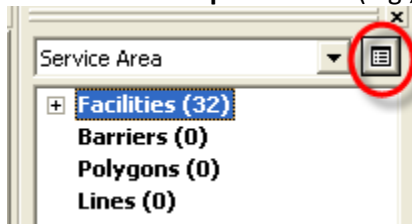
5. In the new **Network Analyst Window**, right-click on *Facilities* and choose *Load Locations*- these could be Hospitals, Schools, etc.



6. Fill out the *Load Locations* dialog box as appropriate for your data: include parameters for Sort Field and Search Tolerance.



7. Set **Service Area** parameters (e.g., distances to analyze, line and polygon generation)



8. Click Ok.
9. Now click the **Solve** icon in the Network Analyst toolbar

