

Alternative Steps for Distance Ed GEO 580 Students Working only with the Student Version of ArcGIS 9, which does not have the *Build Geometric Network Wizard*.

5.4.3 Alternative. Replaces questions 4 and 5. Question 6 is still fine.

Will have created a geodatabase with the highway already (5.4.2).

Create highway network:

In Arc Catalog, right click the feature dataset (not class) and click new > network dataset. The default name is fine.

Click next and choose the feature class you just created. Click next using the defaults until you get to the dialog to specify attributes. Type in the exact field names you just created in the coverage: length_miles and time_used

They are both “cost” attributes. Change units to what is appropriate. Click next, don’t establish driving directs, next, and finish. When you are asked to build the network say yes. You’ll now have ND and ND_junctions layers.

Close ArcCatalog, open ArcMap.

Creating a route by identifying stops:

Make sure the Network Analysts extension is turned on and the toolbar added to display.

Add the ND you just created. When asked to add the associated data, click yes.

Show the network analyst window by clicking to the right of “Network Analyst” (NA) on the toolbar.

From the NA dropdown, choose new route. Stops, routes and barriers appear in the NA window.

There is a button to the right of the Route dropdown, click for properties.

Under network locations change tolerance to 200 meters. This is so you don’t have to zoom in too far on junctions. If a stop or barrier is outside the tolerance it will show up with a question mark and be considered “un-located”. Can be deleted by right clicking immediately after being placed or by selecting and deleting from the list in the NA window.

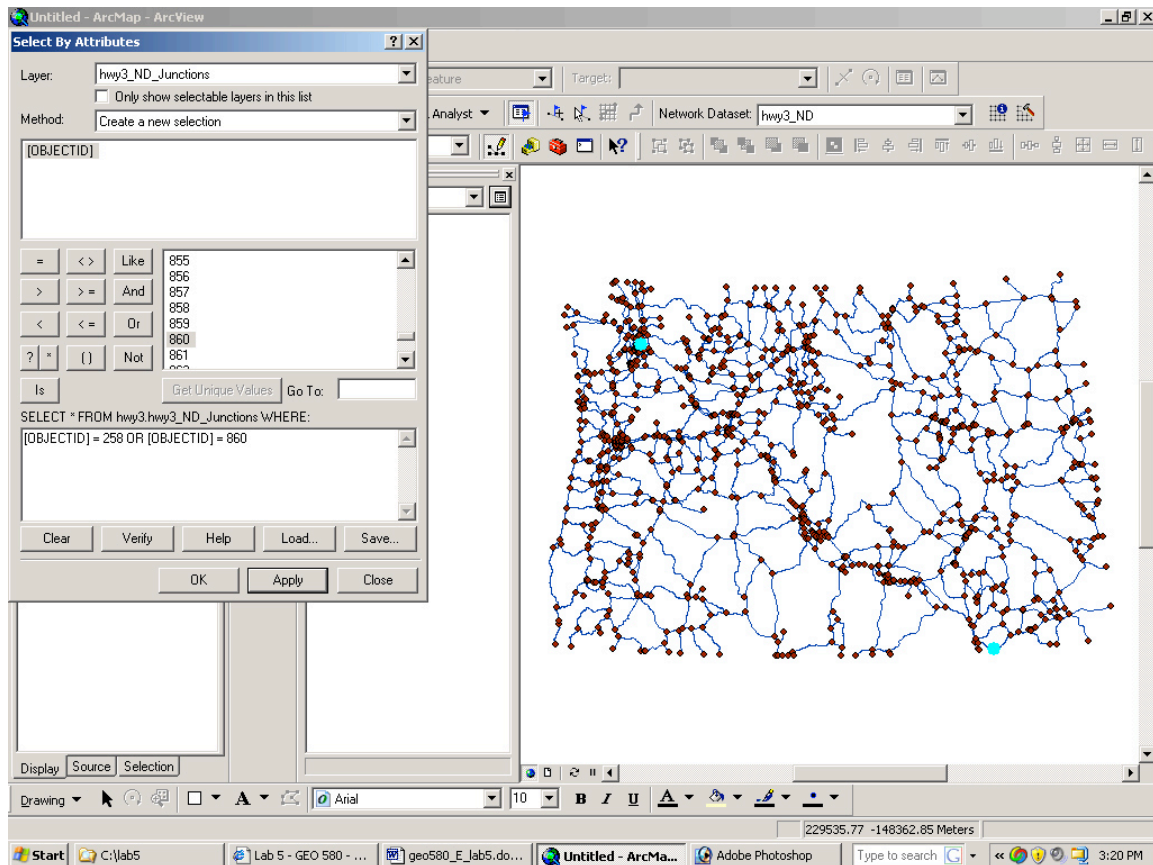
Under accumulation, check both time_used and length_miles.

Under analysis settings chose length_miles as impedance, make sure “reorder stops...” is **unchecked**, and allow U-turns “nowhere”.

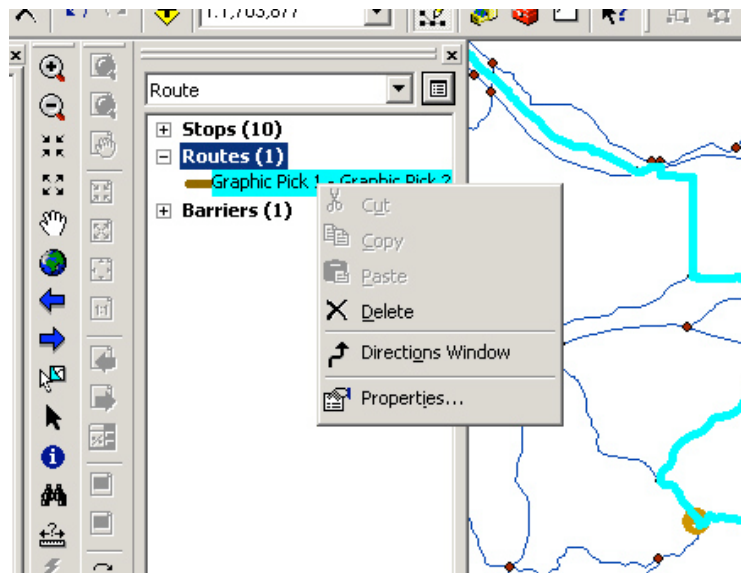
Click OK.

Now select stops on your route at ND_junctions. You have to be within 200 meters for it to be “located”.

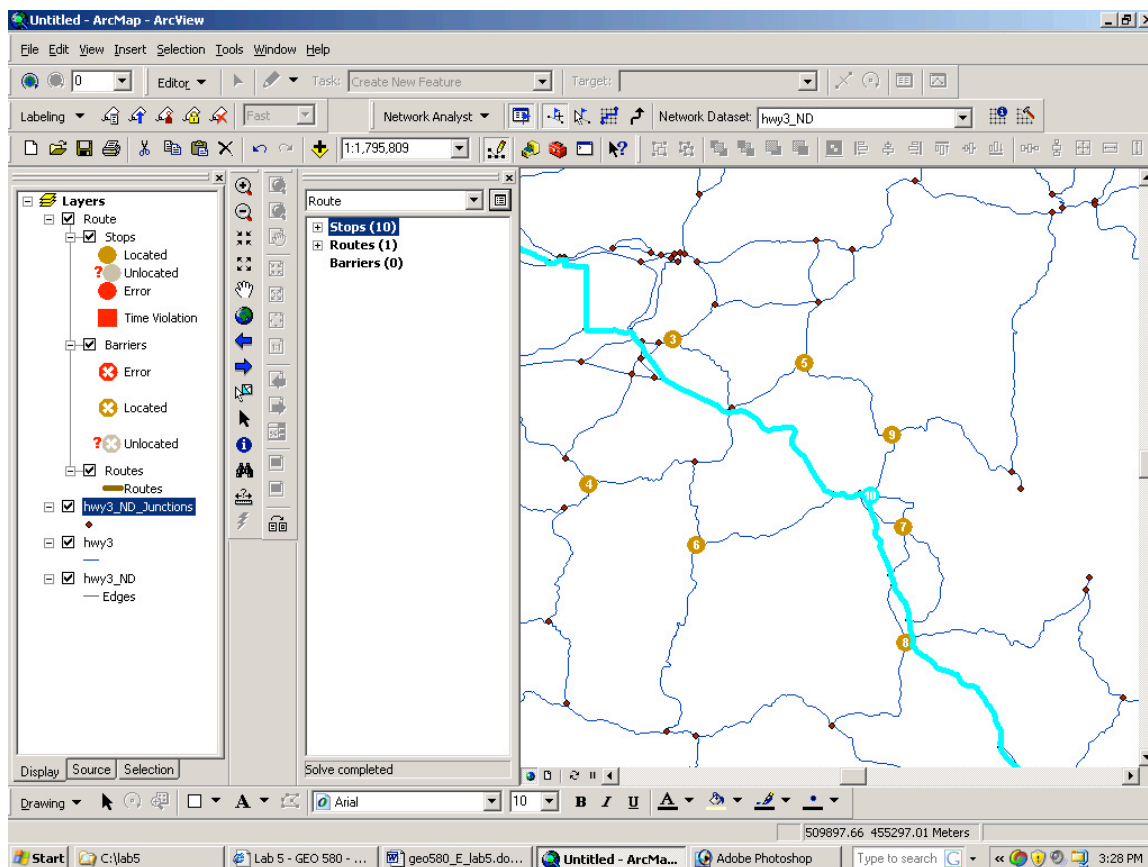
5.4.4.a First choose stops at junctions 258 and 860. (Use select by attributes to locate junctions.) Use the flag with the plus on the tool bar to choose stops. Solve, **export jpeg showing route and paste into lab document.**



Notice the NA window has a (1) next to route. Expand the route until you get the graphic-pick view and right click on the line. **Report the total_length_miles and total_time_used.**



5.4.4.b Now pick several stops on either side of the route alternating sides as you pick. (See example.) Solve, **export jpeg** showing route and paste into lab document. Click on the route in the NA window for properties and **record total_length_miles** and total_time_used.



5.4.4.c Now, under the route properties box, under analysis settings, click “Reorder stops to find optimal route” and have only “Preserve first stop” checked. Solve, export jpeg showing route and paste into lab document. Record total_length_miles and total_time_used.

5.4.5.a Add a barrier: Pick a stop and create a barrier by highlighting “Barrier” in the NA window and use the flag-plus button to place a barrier on the route before the stop is reached. Solve. Report what happens. Is a new route found or is the stop isolated from another route? Experiment a bit with adding and removing barriers.

5.4.5.b In the NA properties under the Analysis Settings tab there are a few options to choose from. Write a sentence or two describing what you think the following option choice is appropriate for:

1. Length vs. time for impedance
2. Allowing or not allowing U-turns
3. Preserving last stop vs. not

Return to the regular lab instructions at dusk.geo.orst.edu/buffgis/Arc9Labs/Lab5/lab5.html, starting at “Your map for Lab 5” in the green box. Create your map and move on the QUESTION 6.