

I have an Intermodal layer with the following attributes (See table below and diagram below). The blue highlighted selected segments are the rail segments and the rest are highway elements. The railways have a priority I assigned as 1 and the highways as 2

The screenshot shows the ArcGIS Network Analyst interface. On the left, the 'Layers' panel shows 'Intermodal_ND_Junctions', 'Intermodal' (selected), and 'Intermodal_ND - Edges'. The main window displays a 'Table' of attributes for the 'Intermodal' layer. The table has columns for OBJECTID, SHAPE, Type, Type_1, SHAPE_Length, Speed, and Priority. The first 10 rows are highlighted in blue, indicating they are selected. The selected rows are all of Type 'Railway' with Priority 1. The unselected rows are of Type 'Highway' with Priority 2. The map view on the right shows a network of red lines with several blue lines representing the selected rail segments.

OBJECTID	SHAPE	Type	Type_1	SHAPE_Length	Speed	Priority
12507	Polyline	Railway	Primary	45978.122929	80	1
12521	Polyline	Railway	Primary	18503.87061	80	1
12537	Polyline	Railway	Primary	157081.892253	80	1
12546	Polyline	Railway	Primary	28008.560471	80	1
12567	Polyline	Railway	Primary	15818.58928	80	1
5991	Polyline	Highway	Secondary	7765.6602	90	2
5992	Polyline	Highway	Secondary	5494.00677	90	2
5993	Polyline	Highway	Secondary	5081.426877	90	2
5994	Polyline	Highway	Secondary	311.426877	90	2
5995	Polyline	Highway	Secondary	128.426877	90	2
5996	Polyline	Highway	Secondary	121.426877	90	2
5997	Polyline	Highway	Secondary	72.426877	90	2
5998	Polyline	Highway	Secondary	208.426877	90	2
5999	Polyline	Highway	Secondary	181.426877	90	2
6000	Polyline	Highway	Secondary	91.426877	90	2



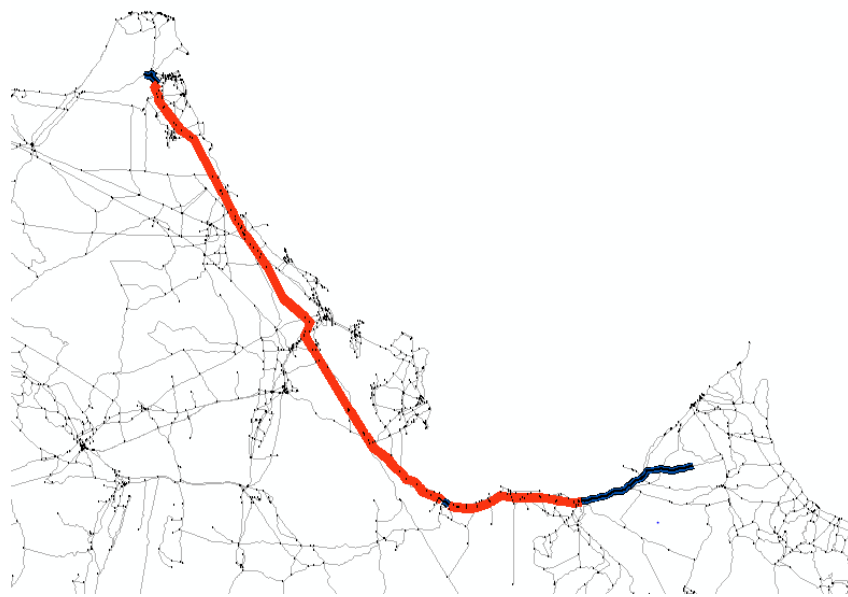
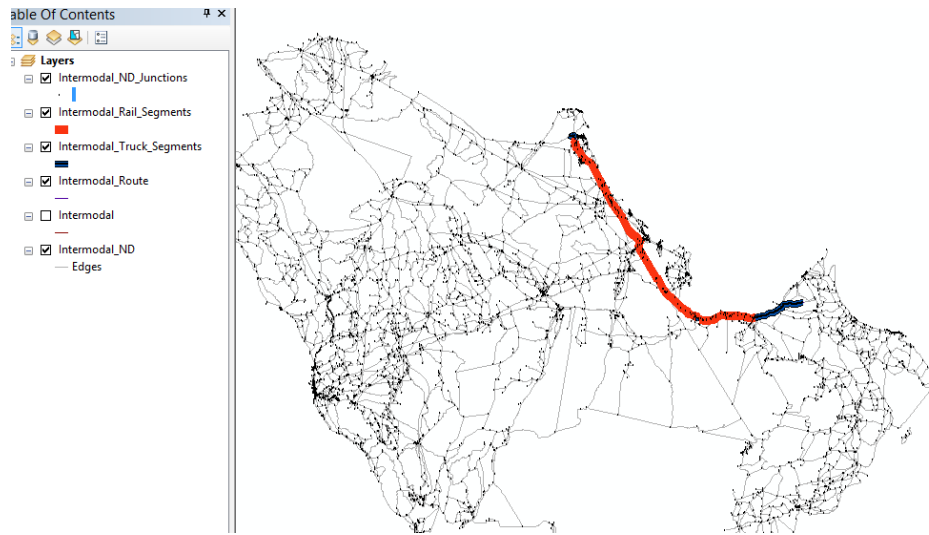
I am creating a route from one location to another for transportation of freight using the intermodal system. I want it to use a railway whenever possible and highway whenever a railway is not an option while minimizing the travel distance. Ideally, Rail-Highway-Rail transportation is what I want to see.

When I run the analysis without hierarchy as a parameter in the evaluator while leaving length as default value (shape_length), this is the output I get for a sample route (Point a to point b) **Highway-Rail-Highway-Rail-Highway. (This is not good as I will need to load and unload shipments too many times)**

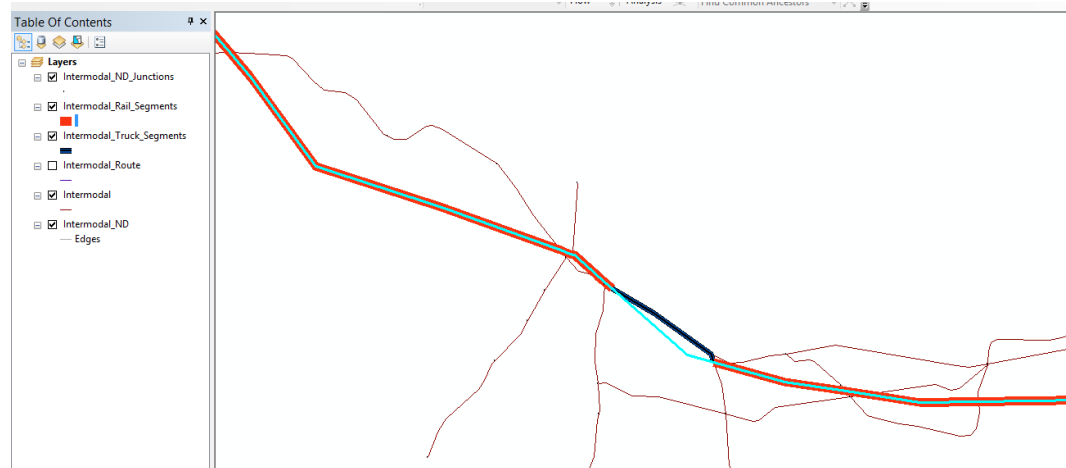
The screenshot shows the 'Network Dataset Properties' dialog box. The 'Attributes' tab is active, showing a table with columns for Name, Usage, Units, and Data Type. The 'Length' attribute is selected. The 'Evaluators' tab is also visible, showing the 'Attribute' set to 'Length' and a table of 'Source Values'.

Name	Usage	Units	Data Type
Length	Cost	Kilometers	Double

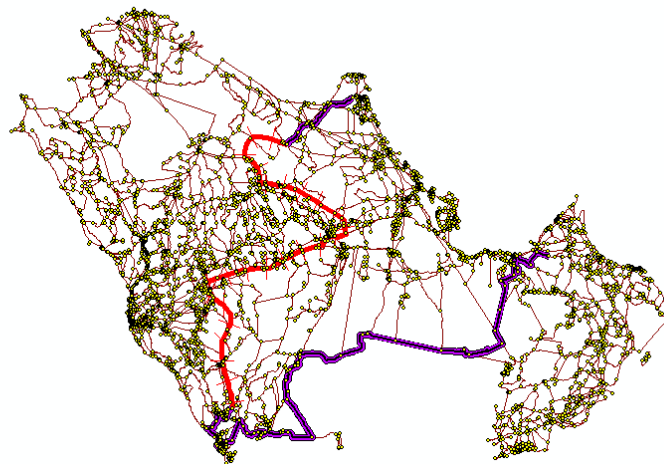
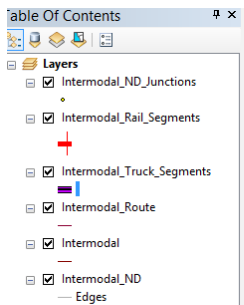
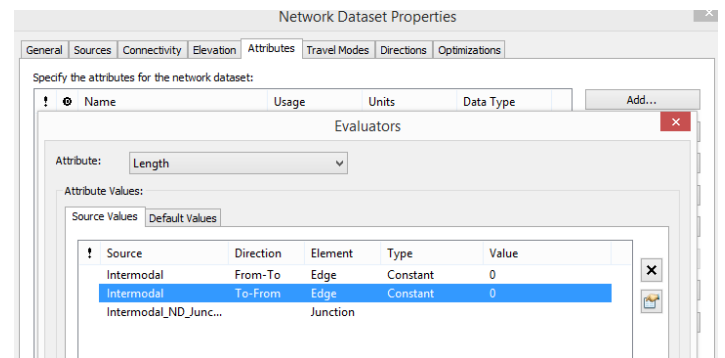
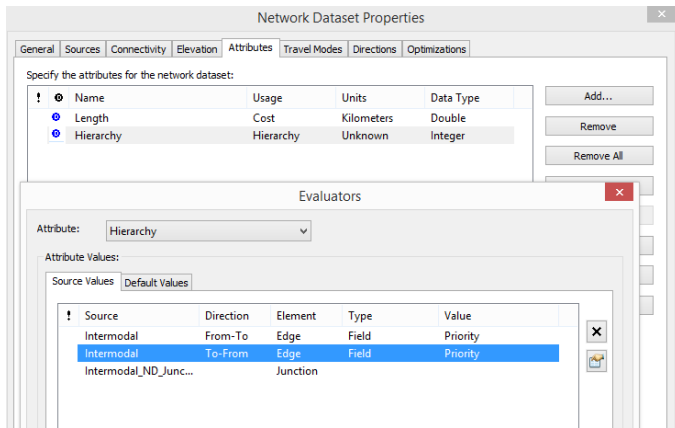
Source	Direction	Element	Type	Value
Intermodal	From-To	Edge	Field	SHAPE_Length
Intermodal	To-From	Edge	Field	SHAPE_Length
Intermodal_ND_Junc...		Junction		



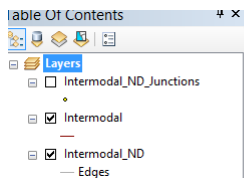
Moreover, if you zoom in, the route takes railway (red) and then goes to highway (dark blue) and then railway (red) when it should have continued on rail (highlighted in light blue as selected by attribute)



And when I run the analysis, if I set the hierarchy as a default parameter in the evaluator while leaving length as a constant (0), this is the output I get for a sample route (Point a to point b) **Highway-Rail-Highway**.



This is something that I want to see (Highway-Rail-Highway), but with optimal distance. The output length is too long here. There is a faster route while using railway, but the analysis is not recognizing it. See below the light blue highlighted railway segments.



How can I then do an analysis so that I can have an optimum (minimal) route generated while maintaining hierarchy to get an output (Highway-Rail-Highway) without changing modes too frequently? Given that it is freight transport, this is not a viable approach.

Could you kindly please advise me oh how I may be able to solve this problem? Thank you very much in advance