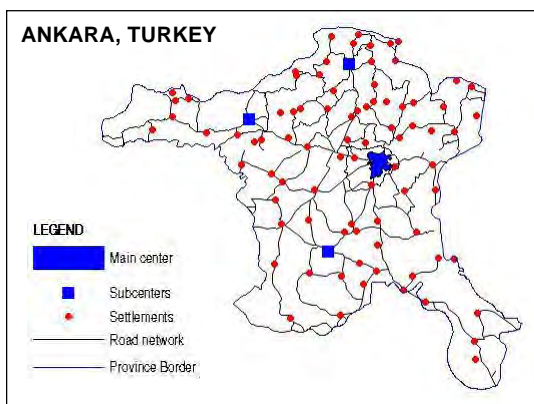


Allocating Services Using Network Analysis

Network analysis has a wide area of application in urban and regional studies especially in transportation/land use planning and economic geography. The allocation of lines for the most efficient use in delivery to or transportation from a set of centers has been widely used to assess the location of existing service centers or to determine the optimal placement of new service centers at various scales. The Network Analysis process in TNTmips includes an Allocation mode, which identifies the linear components of the network that should feed that center (Allocate In) or that the center should service (Allocate Out) when the locations of centers are identified. Once the linear components of the network that should feed that center or that the center should service are identified, a series of processes in TNTmips helps you to continue with further analysis such as designating the catchment areas of these centers, identifying the areas deprived of the service in question, or locating new centers. The Network Analysis process requires you to locate each center on the line network. There is also a sample script provided by MicroImages that is quite helpful for working with data where the centers are off the roads. The color plate entitled *Farm to Market Routing* describes how to use this SML script. More information on Network Analysis can be found in the *Network Analysis* tutorial booklet.



In this example, the aim is to evaluate the accessibility of selected service centers in Ankara, Turkey. The illustration at the left shows the road network, settlement locations, and service centers in Ankara province. These three vector layers were used to classify the settlements according to which center is closest and to identify the settlements that are not within 50 km of any of the centers specified. The evaluation criterion is the distance between the settlements, where the length of the lines that represent roads is the selected attribute to calculate impedance in Network Analysis. The Network Analysis process lets you use a variety of other attributes, such as road conditions, speed limits, and price. You can also designate impedance at nodes, one-way traffic patterns of selected lines, and carrying capacity.

The first illustration at the left below classifies the roads feeding each center within the 50 km impedance limit and shows the areas deprived of the service in question according to this 50 km limitation. The second illustration below shows the classification of settlements according to which center is closest within a distance of 50 km and the settlements that are not within the service allocation area. Based on this information, you can reposition the existing centers, add new centers, or reconsider the 50 km limitation.

