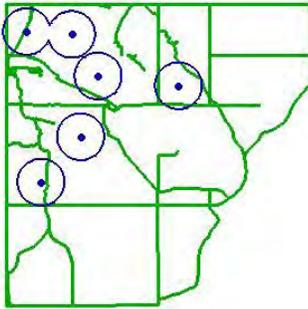


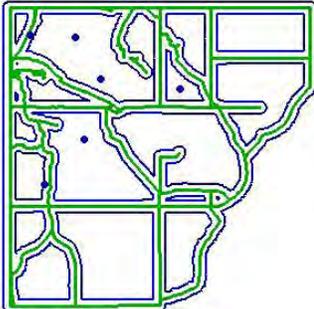
Proximity Analysis

Proximity analysis determines the relationship between selected geographic elements by identifying the locations of other elements within a specified distance. Creating buffer zone regions is the most common method used in proximity analysis. TNTmips provides powerful tools, such as the Region and Select tools, in the GeoToolbox that help you easily generate a zone of a specified distance around geographic elements and select elements based on whether they fall inside or outside the boundary of this buffer. Regions provide very sophisticated and powerful selection capabilities for proximity analysis. More information on regions can be found in the *Interactive Region Analysis* tutorial booklet. The issue addressed in this example is identification of land use within a 750 m distance of public schools or 200 m distance of pedestrian trails in Grant township of Lancaster County, NE using a series of features in TNTmips.

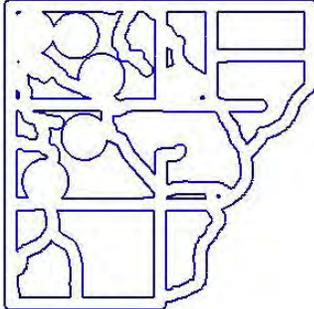
- Create buffer zones for selected features.** In this example, the data of interest is composed of vector polygons with attributes of land use categories, vector points for public schools and vector lines for pedestrian trails. The Display process allows you to select elements from each layer and create a buffer region around the selected elements. In this example, all point elements from the schools layer and all line elements from the trails layer were selected. Then, a 750 m buffer zone from each public school and a 200 m buffer zone from each pedestrian trail were generated. These two buffer zone regions were automatically added to the list in the Region panel of the GeoToolbox window. This panel also provides tools to delete, save, add, or combine regions.



750 m buffer zone region from public schools represented as point elements

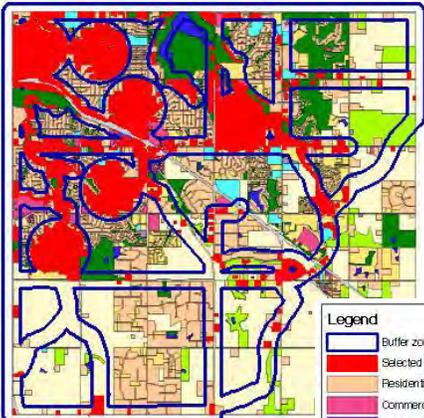


200 m buffer zone region from pedestrian trails represented as line elements

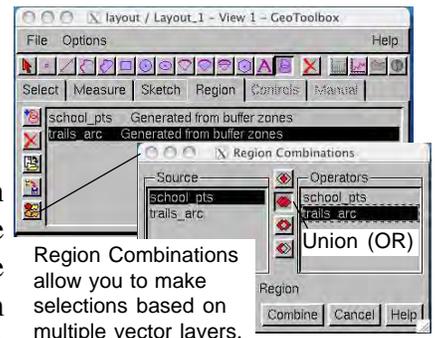


combination of buffer zone regions: 750 m buffer region from public schools or 200 m buffer region from pedestrian trails

- Combine regions and select areas of interest using new region.** The Combine icon on the Region panel of the GeoToolbox becomes active as soon as two regions are listed. There are four combination operations available to help you answer many questions related to proximity analysis: Intersect (AND), Union (OR), Exclusive Union (XOR), and Subtract. In this example, the Union (OR) operation was selected to find the areas within either the 750 m buffer zone from each public school or the 200 m buffer zone



from each pedestrian trail. The resulting region was used to select the polygons from the land use layer that fall completely within the region created.



Region Combinations allow you to make selections based on multiple vector layers.

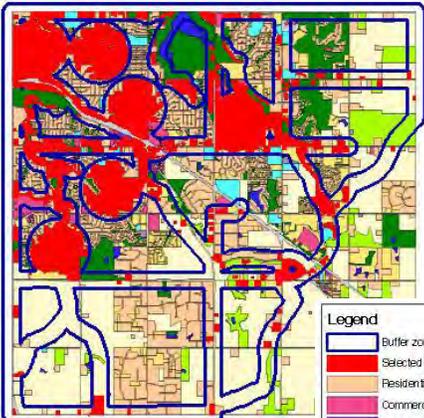
Landuse	Total Area (ha)
Commercial Area	725
Cropland / Tree Farm	405
Green Area	1253
Industrial Area	47
Lake / Water Body	35
Pasture / Grassland	214
Residential Area	7285
Social Service Area (610
Transportation	1
Utility Facility	76
Vacant lots	1240
Σ	11691



areas classified into land-use categories within the specified distance of public schools and pedestrian trails

from each pedestrian trail. The resulting region was used to select the polygons from the land use layer that fall completely within the region created.

- Calculate statistics for selected features.** Once the polygons within a 750 m distance of public schools or 200 m distance of pedestrian trails were identified, the total area devoted for each land use category was easily calculated for the selected polygons using the automatically created polygon statistics table and the substatistics feature in tabular view. TNTmips also lets you save the statistics in a separate database table. The illustration at the left shows the total area devoted to each land use category within the specified distance of public schools and pedestrian trails.



from each pedestrian trail. The resulting region was used to select the polygons from the land use layer that fall completely within the region created.