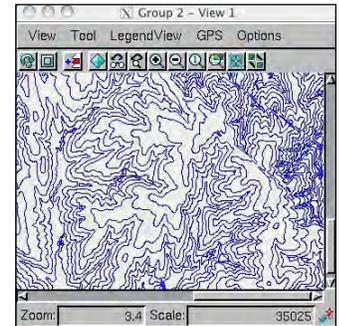


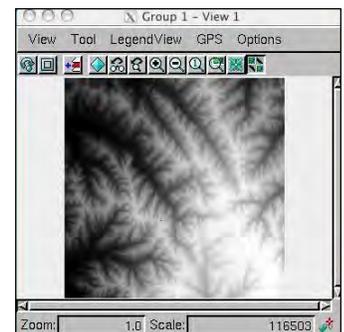
Slope Analysis

The powerful interpretive features of TNTmips expand the use of contour lines from simply making topographic maps to include wider applications, such as in the field of urban studies. Slope analysis is an important component of site selection analysis and the thematic slope layer needed for this analysis can be easily created using a series of processes in TNTmips. A thematic slope layer is composed of slope interval categories derived from a slope layer. Another use of slope layer is discussed on the color plate entitled *Urban Studies: Site Selection Analysis*.

- **Acquire contour lines:** The data of interest may be acquired in various forms. It is important to have a GIS application that is capable of processing the data that is available. In this example, the contour lines of Grant township in Lancaster County, NE were obtained from the City of Lincoln and Lancaster County Information Systems Map Shop website (<http://ims.ci.lincoln.ne.us/gisweb/>) in Arc/Info “Export” (E00) vector format. These contour lines were imported into TNTmips using the Import process.
- **Create DEM using the contour lines:** The Surface Fitting operation in Process/Surface Modeling provides an easy way to create a DEM. When the input vector object contains elevation contours, the Lines/Edges panel is enabled in the Surface Modeling window and if the input object is 3D, Object Z is the default selection on the Value option button. In this example, the input vector object is not 3D but the contour lines are associated with a table that contains the elevation field values. If the input object is 2D, Query is the default on the Value option menu. The query simply identifies the table and field that contain the elevation value. More information on Surface Modeling can be found in the *Surface Modeling* tutorial booklet.
- **Compute slope:** The Process/Raster/Elevation/Slope, Aspect and Shading process computes all three raster types in a single pass through the input DEM. You can also choose just one or two of these output raster types. The cell values of the slope raster can be expressed as percentages or degrees. Percentages are used in this example.



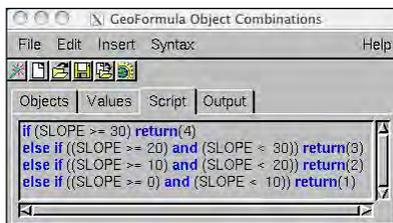
Vector contour lines



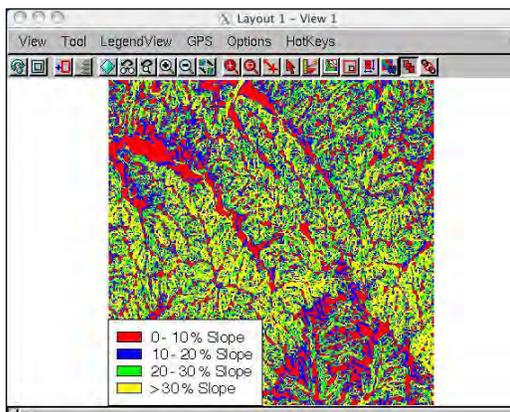
DEM raster object



Slope raster object



- **Generate slope intervals:** Process/GeoFormula is a scripting environment that lets you create a new raster object composed of slope intervals. Using GeoFormula, you can generate slope intervals that designate the areas with a slope less than 10%, from 10–20%, from 20–30% and greater than 30%.



The thematic slope layer illustrated is the raster object created by the GeoFormula process, displayed using a color map to indicate slope range.

The new raster object that was created by GeoFormula can be used in different ways. In the illustrations at the left, the thematic slope layer created by GeoFormula is displayed in a layout. There are various ways of using the thematic slope layer in site selection analysis. The Process/Convert/Raster to Vector/Auto-Boundaries process is a useful tool when a thematic slope layer is required as a vector object. Also, generating Threshold or Raster Expression regions provides an easy way to use a thematic slope layer to make selections from other layers interactively.