# Urban Studies

Visualizing Geodata in Google Earth

Google Earth has a raster overlay feature that you can use to provide additional information about the underlying earth imagery. This feature of Google Earth is widely used in urban and regional studies. All types of geodata objects displayed in any TNT product can be used as overlays in Google Earth. Raster overlays for Google Earth must be in GeoTIFF (*.tif), TIFF (*.tif), PNG (*.png), or JPEG (*.jpg) format and be accompanied by a Keyhole Markup Language (*.kml) header file in the same directory with a matching name. There are various ways of creating raster overlays in these formats in TNTmips. Any TNT raster object can be exported with an optional, co-named *.kml header file. Vector, CAD, shape, and other TNT objects can be added as overlays by converting them to one of these four raster formats. The easiest and quickest way to overlay your geodata in Google Earth is using the Quick Snapshot tool. If you have Google Earth installed, you just need to take a snapshot of the view canvas with the Quick Snapshot tool in TNTview or any other TNT product, then double-click on the resulting KML file in the snapshot folder to open Google Earth zoomed to the area of your snapshot. Taking a snapshot is equivalent to extracting a piece except that the cell size is altered to be the ground dimensions of a single screen pixel at the screen resolution when the snapshot was taken. More information can be found in the color plate entitled *Spatial Display: Quick Snapshot of View Contents*. You can also use the Render to Google Earth KML feature to create raster overlays for Google Earth. This TNTmips feature lets you render the full extents of the contents of the view window and set the resolution of the image to be rendered. In a future version of TNTmips, you will also be able to render 3D extruded polygons to KML, which will let you visualize 3D objects in Google Earth.
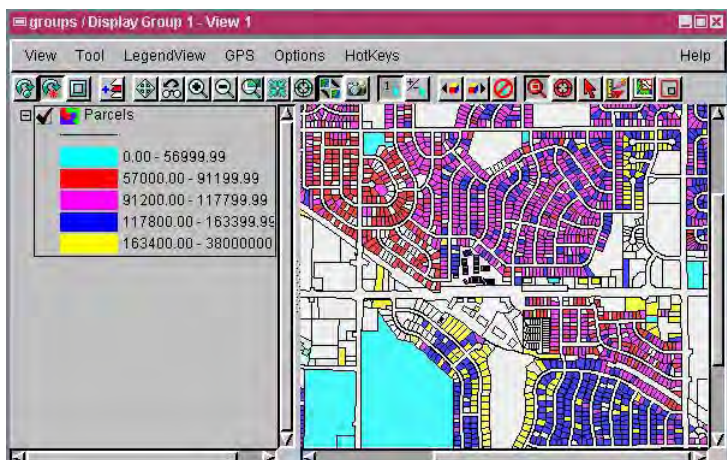
A portion of the theme map of assessed property values in Lincoln, Nebraska is shown in the above illustration. The property values in the owner occupied parcels are divided into 5 categories using TNTmips.

In this example, the parcels vector layer was used to create a theme map of assessed property values for the owner-occupied parcels in Lincoln, NE. The property information for each parcel was obtained from the Lincoln Property Viewer atlas distributed with the TNT products. In the Display process, zoom in on an area of interest for a detailed view as shown in the illustration at the left. The theme map styles were assigned 30% transparency. The snapshot of this view was captured in PNG format so that the transparency of the styles is recognized in Google Earth as shown in the illustration below. You may also capture a Quick Snapshot of the view where the styles are not assigned transparency, and use the transparency slider in Google Earth to adjust the transparency as desired.

The transparency of the raster overlay can be set using the transparency slider in Google Earth. In this example, the raster overlay has its own transparency.
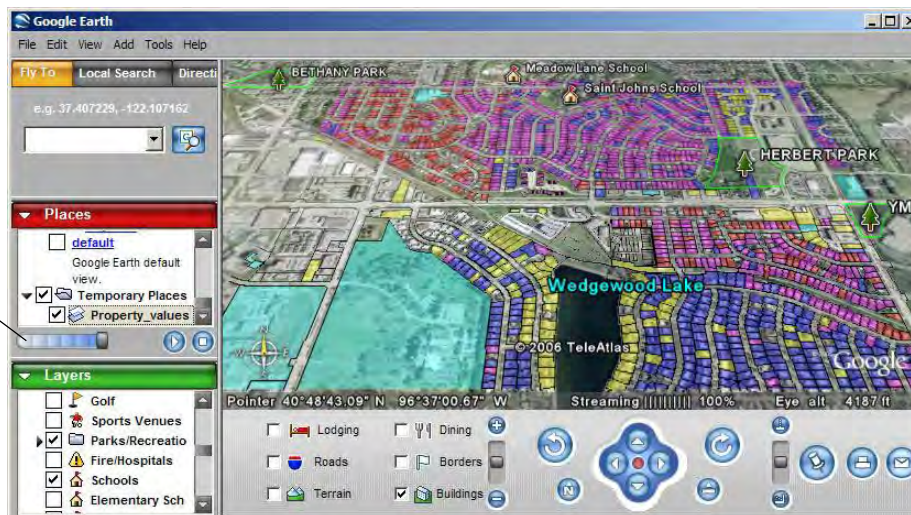
Theme map of property values displayed over Google Earth image of Lincoln, Nebraska. Note the partial transparency of the parcels selected for the theme map.