Managing Display of Large Vectors

obscuring drainage
no scale control

TNT vector objects can have hundreds of thousands or even millions of elements. It is not logical to try to display all elements of such large vector objects at full view because the elements will overlap, overwrite, and obscure each other, forming a solid mass of color that generally conveys no useful information. Drawing such objects at full view may take minutes rather than a few seconds (after all, hundreds of thousands of elements are being drawn). There is no point in waiting to view a display that is meaningless (left) only to zoom in or otherwise view a subset of the area.

The TNT products have long provided for map scale controlled display of elements, layers, and groups. However, when a vector object is newly acquired, you may not realize how complex it is. Once initially displayed, you will know if you need to make scale range settings to control how and when the object is displayed. To prevent even this initial long display time with meaningless results, the TNT products include a verification window that makes you aware of the situation and provides choices to help you avoid unnecessarily long display times for a solid mass of vector elements. Element density is used to determine whether or not you see this verification window. If the verification window appears, it provides several options to deal with display under these conditions.

- **Do not add layer** skips the addition of the current layer and goes on to other layers that may have been added.
- **Add with full visibility** adds the vector to display at Full View regardless of how long it takes.
- **Add with scale range of:** with numeric values in the accompanying fields lets you set the map scale range in which the vector draws. This option is on by default. The upper scale range value for a vector object that has not previously encountered this dialog is a computed estimate based on the estimated average element spacing. The low range value is zero by default, which means the layer will remain on regardless of how large the map scale beomes as you zoom in beyond the view scale at which it appears. This range or a new range you enter is remembered for subsequent display sessions. The "reasonable" map scale for display of a particular object is subjective and often depends on whether it is displayed alone or with other objects.
- **Add initially hidden** does not draw the vector when added and leaves the scale at which you want to turn the layer on up to you.

A portion of a worldwide one-kilometer resolution satellite image with built-up area polygons and with and without hydrology are shown at a number of map scales. The illustration at the top left ignores the settings shown in the Dense Layer Verification window for the hydrology vector object while the others at the right demonstrate the effect of the range settings on the layer's presence. You may not want to turn the vector layer off as you zoom in, but if it becomes apparent that the vector does not closely match the underlying image or obscures image features of interest, you should set a non-zero minimum for the range.

1:20,000,000
hydrology off

1:4,000,000
hydrology on

1:1,500,000
hydrology off, labels on