

JPEG2000 Compression in Atlases

Including high-resolution satellite or airphoto imagery in an atlas provides a reference layer in which detailed features can be recognized readily by your target audience. Your atlases can include high-resolution images of sizeable areas by utilizing JPEG2000 compression to reduce the stored size of the images. Grayscale and color-composite images can be stored in your atlas Project Files (or as linked JP2 files) with one of several types of JPEG2000 compression: Lossless, Best Quality (lossy), and User Defined (in which you can select a target lossy compression ratio; for example, to fit your atlas on DVD media).

As an example, the Property Viewer TNTatlas prepared by MicroImages (see the color plate entitled *Property Viewer*

Atlas for Lincoln, NE) includes a color orthophoto mosaic with 1-foot (0.3 meter) resolution covering almost 1500 square kilometers. In order to incorporate this detailed **49.7 GB** (uncompressed) image into the atlas, its stored size was reduced to **3.97 GB** by applying JPEG2000 lossy compression with a 12:1 target compression ratio, permitting distribution of the atlas on DVD media. The loss of image content at this level of compression is concentrated in areas of relatively uniform color and brightness, where it has no significant impact on the image quality. As shown in the examples below, color edges and high-contrast image details are preserved, so ground features are as recognizable in the compressed image as in the original mosaic.

Uncompressed Image

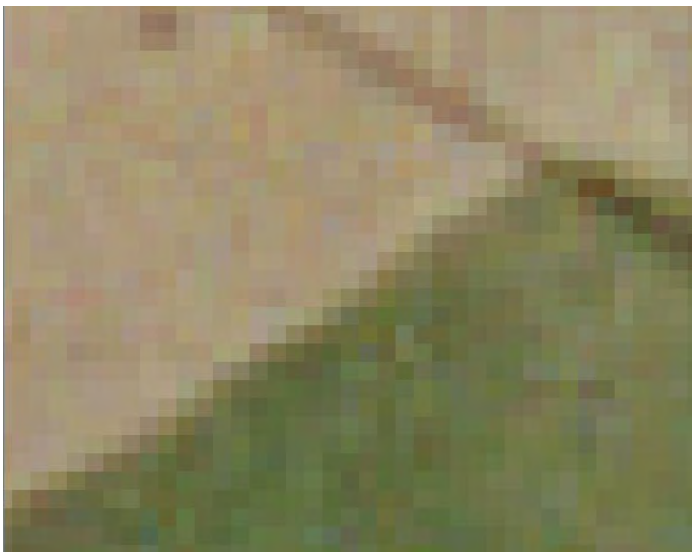


Cars parked around a triangular grass patch. Each cell in the image is 1 foot (0.3 meter) square. The cars are still easily recognizable in the lossy compressed image, and there is little

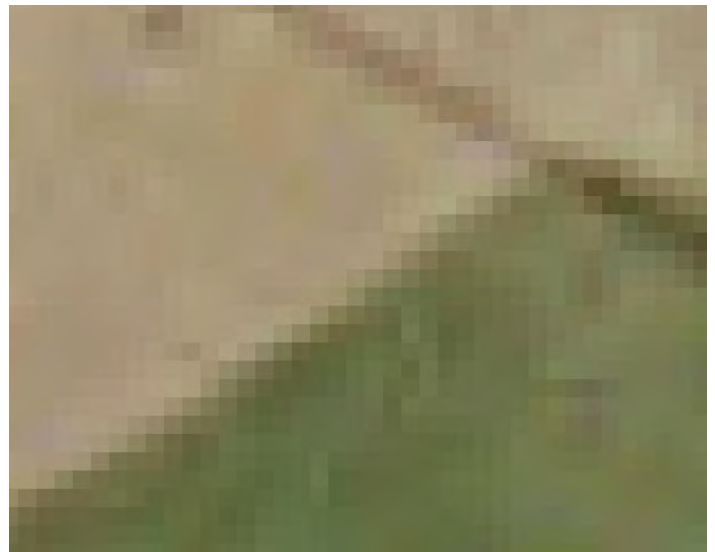
12:1 Lossy JPEG2000 Compression



difference in the colors and detail of the cars between the two versions. The major difference is the smoother appearance of the grassy area in the lossy-compressed image.



Part of a baseball field with dirt infield (upper left) and grass outfield (lower right). The darker diagonal strip in the upper right is the shadow of a light tower. Each cell in the image is 1 foot (0.3 meter) square. The edges of areas with contrast-



ing color are well-preserved in the lossy-compressed image. The smoothing and reduction in color contrast caused by the JPEG2000 compression are mainly noticeable in the areas of uniform color, where it does not affect recognition of features.