EXAMPLES OF AUTOMATED CARTOGRAPHY IN PRESENTING LAND USE AND LAND COVER MAPS AND DATA

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Summary - *

The development and analysis of land use and land cover information is one of the responsibilities assigned to the U.S. Geological Survey. The task embraces a range of activities and products. Among the products already created by this first-time nationwide land use and land cover inventory, and continuing research and development in the techniques involved, are area data sets and map manuscripts in a variety of forms—more than can be formally published. This variety is illustrated by eight maps recently published or in advanced stages of production. The demonstration areas include Pittsburgh, Atlanta, Wichita, Kansas City, Washington, Seattle-Tacoma, San Francisco, and Alaska's National Petroleum Reserve.

A matrix of map feature combinations is arranged by demonstration area, content feature, and/or format feature. Despite the common theme (land use and/or land cover), and common reproduction process (four-color lithography), each map poses a unique challenge that is being met with an innovative solution. Description of these challenges and solutions is the

main purpose of this paper. Five of the maps
demonstrate some recent developments in automated
cartography. The three others are unique in other
respects. Brief comparisons among the four pairs
offer further insight as to some of the benefits and
costs of selected design or reproduction features,
including those resulting from automation.

A second purpose is to suggest that preparation of
even these experimental maps for publication samples a
range in alternatives in the design and presentation
of many thematic maps in general. One by-product is
new insight in preparing thematic Earth science data
for video display and for publication in an updated
National Atlas.

### Examples of Automation in Land Use and Land Cover Maps

<table>
<thead>
<tr>
<th>Map subject, and theme format</th>
<th>Main theme format</th>
<th>Distinction, with respect to automation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pittsburgh</strong></td>
<td>Polygonal (air photos)</td>
<td>None. Color scheme; gazetteer in UTM; land use conversion matrix.</td>
</tr>
<tr>
<td><strong>Atlanta</strong></td>
<td>Laser scanned, -measured -plotted films by class; theme accuracy; no labels.</td>
<td></td>
</tr>
<tr>
<td><strong>Wichita</strong></td>
<td>Black-White Level II; 2-color litho in lieu of open file distribution.</td>
<td></td>
</tr>
<tr>
<td><strong>Kansas City</strong></td>
<td>Level I color; Level II; computer-scribed, hand-peeled; polygon labels.</td>
<td></td>
</tr>
<tr>
<td><strong>Washington</strong></td>
<td>Computer-aided classes; scene overlays; tables; folds; small laser plots.</td>
<td></td>
</tr>
<tr>
<td><strong>Seattle-Tacoma</strong></td>
<td>Computer-aided classes; data tables; quality map base; accuracy statement.</td>
<td></td>
</tr>
<tr>
<td><strong>Meade River</strong></td>
<td>Computer digital mosaic to stand. topo map; laser plots, area measurements.</td>
<td></td>
</tr>
<tr>
<td><strong>San Francisco</strong></td>
<td>Atlas of sectional maps at tabulator page size; laser plots; data tables.</td>
<td></td>
</tr>
</tbody>
</table>

*Some class differences are significant, but less so in the context of this discussion.*