

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

James R. Wray, Geographer
Land Information and Analysis Office
U.S. Geological Survey Mail Stop 710
Reston, Virginia 22092

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

* - Summary of oral-visual presentation at International Symposium on Computer-Assisted Cartography: Auto-Carto IV, Reston, Virginia, November 4-8, 1979.

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

Map subject, and theme format		Main theme	Scale range	Major classes	Geo-info system	Reproduction	Distinction, with respect to automation
Polygonal (air photos)	Pittsburgh	All land use and land cover inventory	All between 1:100,000 and 1:250,000	Similar, based more on land cover than use.*	Data adaptable for storage, retrieval	All by four-color offset lithography	None. Color scheme; gazetteer in UTM; land use conversion matrix.
	Atlanta						Laser scanned, -measured -plotted films by class; theme accuracy; no labels.
	Wichita						Black-White Level II; 2-color litho in lieu of open file distribution.
	Kansas City						Level I color; Level II; computer-scribed, hand-peeled; polygon labels.
Digital (Landsat)	Washington	All land use and land cover inventory	All between 1:100,000 and 1:250,000	Similar, based more on land cover than use.*	Data adaptable for storage, retrieval	All by four-color offset lithography	Computer-aided classes; scene overlays; tables; folds; small laser plots.
	Seattle-Tacoma						Computer-aided classes; data tables; quality map base; accuracy statement.
	Meade River						Computer digital mosaic to stand. topo map; laser plots, area measurements.
	San Francisco						Atlas of sectional maps at tabulator page size; laser plots; data tables.

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