## **Bad Maps and How to Make Them Better**

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In a world where there is relatively easy access to mapping tools and software, maps, both good and bad, are all around us. Often, the user may not realize the difference between the two or take it for granted that what they see is the best it could be. US Census Bureau cartographers work with a variety of customers—usually without a geography or cartography background—on a regular basis to make map visualizations for data dissemination and reference, and for reports, papers, and presentations. The cartographer has to carefully evaluate and interpret the requirements and needs of the customer and the visualization. During the design phase, the product goes through much iteration, including: changes to format, content, and colors; data classification; fonts; symbology; text placement; and margin, to name a few. Small changes can create a large difference concerning the impact, usefulness, and effectiveness of the map product. This presentation focuses on the Census Bureau's cartographic design and review process and how simple design changes can make a large, positive difference in the final visualization. Also, this presentation discusses how the establishment of an internal-use only standard cartographic template and guidelines has helped improve mapping throughout the Census Bureau. While implementing these steps has improved mapping throughout the bureau, this discussion illustrates the need for cartographic expertise and review, realizing that there is no best way to standardize practices given such complexities.

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