

# Prompt Cartography as Method: Human Responsibility and the Future of Map Design

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**Keywords:** prompt cartography, map director, prompt pipeline, LLMs, natural language GIS

## Abstract:

The recent popularity of large language models (LLMs) and generative AI has produced both enthusiasm and anxiety within cartography. On one hand, these systems appear to lower technical barriers to map production by allowing users to describe desired outputs in natural language. On the other, they are often associated with superficial experimentation, visual novelty, and a troubling assumption that automated systems can replace cartographic expertise. This paper argues that such views *misunderstand* the emerging practice of prompt cartography. Prompt cartography is not the casual act of asking an AI system to “make a map,” nor is it a surrender of design responsibility to machines. Rather, it is a structured, iterative, and thoroughly human-directed approach to mapmaking in which natural language becomes a primary design interface for specifying intent, constraints, critique, and revision. This understanding aligns with the broader argument of Prompt Cartography (Muehlenhaus, 2026), where prompt-based design is framed not as a replacement for cartographic craft but as a new mode of expressing it.

This paper introduces prompt cartography as a workflow-based practice grounded in familiar cartographic principles: purpose, audience, hierarchy, rhetoric, accountability, and revision. Its central claim is that prompting should be treated as a design artifact, *not* as an improvised conversational trick. When prompting is approached casually, outputs may appear plausible while remaining opaque, unstable, and difficult to critique. When prompting is approached systematically, however, it becomes possible to externalize design thinking, make reasoning more legible, and distribute work across linked stages *without erasing human authorship*. In this sense, prompt cartography is best understood not as “AI mapping,” but as a new framework for directing map production through structured language. It relocates judgment rather than removing it.

To make that claim concrete, the paper outlines a prompt cartography pipeline organized around several interdependent stages. First, a **data engineering** stage frames what the map can legitimately show, including dataset discovery, selection, and ethical evaluation. Second, a **visual planning** stage establishes rhetorical tone, hierarchy, and aesthetic direction before implementation begins (Dondis, 1973). Third, an **interface and behavior** stage determines how users will encounter, manipulate, and interpret the map (Gruget, Touya, et al., 2023). Fourth, a **critique and review** stage evaluates whether outputs remain aligned with the original design purpose (Field and Muehlenhaus, 2024) and whether automation has introduced misleading defaults, drift, or unnecessary complexity. Finally, a **publication and maintenance** stage treats release not as the end of production but as a moment of accountability, documentation, and ongoing stewardship. This pipeline matters because it distinguishes prompt cartography from ad hoc prompting.

A second argument of the paper is that prompt cartography does not absolve the human cartographer of responsibility. Quite the opposite. Because intent is specified earlier and more explicitly in language, prompt-based workflows can make authorship more visible than some traditional software pipelines, in which decisions disappear into interfaces, defaults, or scripts. If a map misleads, overstates, aestheticizes harm, or reproduces bias, the problem cannot be dismissed as a neutral machine failure. The human prompter remains responsible for framing the problem, establishing guardrails, selecting sources, reviewing outputs, and deciding what is ultimately published. This is especially important at a moment when visually persuasive synthetic outputs can create a false sense of authority. Prompt cartography therefore demands not less cartographic education, but more: stronger design literacy, clearer rhetorical awareness, and a more disciplined habit of critique.

At the same time, this paper argues that prompt cartography is genuinely liberating for map design. It enables cartographers to articulate visual and behavioral intentions directly, to prototype rapidly, to compare alternatives with unprecedented speed, and to collaborate with computational systems without being confined to code-first workflows. For experienced cartographers, this can make tacit knowledge newly expressible and portable. For students and practitioners

entering the field from adjacent domains, it can lower barriers to experimentation while still insisting on disciplinary rigor. The deeper transformation, this paper argues, is not that maps can now be made by AI, but that cartographic thinking itself can be externalized, iterated, and shared through natural language in ways that may broaden participation while preserving the need for expert judgment.

### Acknowledgements

I would like to thank Linda Beale, Eric Losang, and Guillaume Touya for our discussions over the past several years leading to many of the ideas in this paper.

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