



Case study: Flood Insurance Mapping

Wendy is a certified GIS Professional and the current director of a regional Floodplain Management and Insurance branch of the Federal Emergency Management Agency (FEMA). The branch is responsible for updating and maintaining the region's flood insurance rate maps (FIRMs). FIRMs are used by state and local governments to enforce minimum building standards in flood prone communities and by the insurance industry to determine flood insurance rates for homeowners and businesses. Federal flood insurance maps show the locations of high-risk, moderate-to-low-risk, and undetermined-risk flood areas to help determine the cost of flood insurance. Properties with government-backed mortgages that are located in high-risk flood areas are required by law to purchase and maintain flood insurance.

Wendy's region was recently impacted by an unusually strong tropical storm, which caused severe flooding and damaged or destroyed hundreds of thousands of commercial and residential buildings in multiple states. Subsequent analysis of the flooding event indicates that nearly half of the buildings in the region's coastal areas are not located in the agency's mapped flood zones. To prevent the level of devastation induced by this recent storm, FEMA directs Wendy's branch to conduct a comprehensive flood study and re-mapping project, which will likely increase the total number of coastal properties located in flood zones by 75 percent. The new flood insurance maps will be developed using current and historic flood-related data, including streamflow, tide, and rainfall records, as well as a few land use and infrastructure attributes.

News of the planned re-mapping project is leaked to the public before the revised maps are finalized and made effective. Coastal residents are alarmed about the likelihood of higher flood insurance premiums, which are likely to disproportionately impact low-income homeowners. Commercial property owners and land developers are equally unhappy with the seemingly inevitable increase in construction and insurance costs.

In response to the backlash, FEMA officially announces its intent to update the region's flood insurance maps via press release, affirming the agency's commitment to maintaining transparency and collaboration throughout the re-mapping process. The agency is quick to assure the public that residents and business owners will be invited to comment or appeal the new flood maps after they have been finalized. Local property owners are not pacified by this statement, citing the time and expense required to appeal the status of an individual flood zone. At the same time, several municipalities challenge the agency's commitments to transparency and collaboration, citing the standard practice of excluding relevant geographic factors, such as planned infrastructure improvements, from FEMA's flood risk calculations. Several local governments plan to legally dispute the new flood maps on behalf of their constituents.

Wendy is a loyal federal employee, but she's also sympathetic to the concerns raised by the coastal property owners and their representative governments. She's also sensitive to the criticisms levied at the agency's commitments to the public and the accuracy of its flood risk mapping procedures. Facing mounting political and institutional pressure, she needs to decide how to proceed. As a GISP, what are Wendy's ethical obligations to her employers and to

stakeholders affected by FEMA's actions? Is it possible to reconcile those obligations? What are her options moving forward? If you were Wendy, what option(s) would you choose, and why?

Suggested citation: Clarke Shupe-Diggs (2022) Case Study: Flood Insurance Mapping. GIS Professional Ethics Project <http://gisethics.org>

This work was supported by National Science Foundation (NSF) grant # GEO-0734888. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the NSF.

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