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RESEARCH BRIEF SERIES

MITIGATION MATTERS

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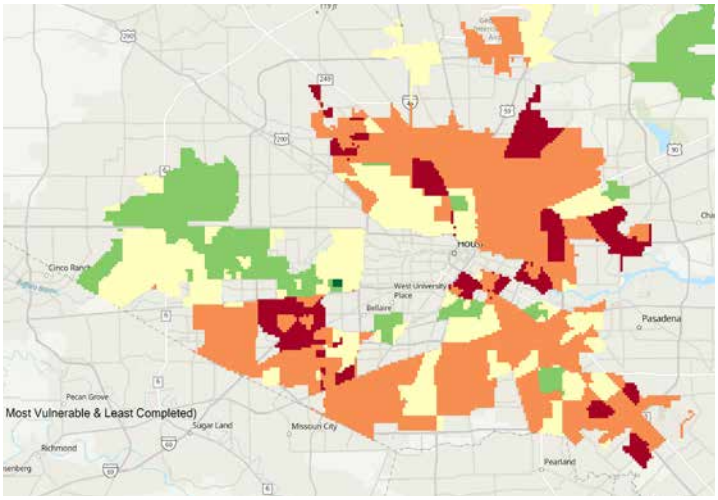
FEMA defines mitigation as the effort to reduce loss of life and property by lessening the impact of disasters. Effective mitigation requires that we all understand local risks and invest in long-term planning to reduce risks and enhance community well-being.

MITIGATING HOMEOWNER FLOOD RISK AFTER HARVEY: AN ASSESSMENT OF HOUSTON'S HOME REPAIR AND ELEVATION PROGRAMS

SUMMARY

This report describes our investigation of a homeowner repair and mitigation assistance program—managed initially by the city of Houston and later by the Texas General Land Office—to help Houston homeowners affected by Hurricane Harvey and other flooding events. Specifically, we focused on the social vulnerability of neighborhoods eligible to participate in the program and the home repair completion rates in these neighborhoods. We also investigated how program participants perceived their previous flooding experiences and the program's offer to elevate their homes to mitigate future flood risk. We sought to understand how homeowners' decision to elevate their home was influenced by demographic, practical, or perceptual factors.

We collected data using multiple methods. First, we conducted surveys and short interviews with 50 households. Second, the first and second authors—who are also faculty members—led undergraduate students on a structured field trip to meet residents in neighborhoods participating in the program and attend a presentation by two elevation experts. Student observations were recorded as qualitative data. Third, we reviewed public documents about the program's project completion rates—by which we mean the number of home renovation projects completed out of the total number of homes that qualified for assistance. The study provides policymakers with insight into developing targeted outreach to homeowners about home elevation in flood-prone areas.



The map depicts a combination of social vulnerability and project completion rates in each Houston super neighborhood. Areas shaded dark red indicate neighborhoods with the highest social vulnerability and lowest project completion rates whereas areas shaded dark green indicate those the lowest social vulnerability and highest project completion rates.

KEY FINDINGS

- Our analysis of public documents about the program showed that project completion rates —by which we mean the number of home renovation projects completed out of the total that qualified for assistance—were lower in more socially vulnerable neighborhoods in Houston.
- Analysis of the survey showed homeowners in more frequently flooded areas tended to raise their homes more often and higher.

- Interviews highlighted the importance of government aid in facilitating home elevation.
- Some homeowners chose not to elevate their homes because they wanted to preserve the original aesthetic of their community.
- Homeowners were concerned about the accessibility of ramps to elevated homes. Several interviewees said they valued ramp designs that addressed their mobility challenges.

POLICY IMPLICATIONS

- Our study showed that the homeowner assistance program run by the City of Houston had lower rates of project completion in more socially vulnerable neighborhoods in southern Houston. This highlights the need for improved resource distribution in those communities that are most at risk.
- Interviewees tended to view the presence of ramps in elevated homes positively. However, they emphasized that ramps must incorporate accessibility features to address their mobility concerns and also be aesthetically pleasing. This highlights the need for more flexible design options that can accommodate different preferences and needs while still ensuring accessibility for those who require it.

Elevated pier and beam home with ramp.
Photo credit: Ivis García, Houston, Texas, March 2024.

Elevated home using dirt.
Photo credit: Ivis García, Houston, Texas, March 2024.

AUDIENCE

This research will be of interest to hazard mitigation scholars, particularly those studying flood risk and housing. It will also be of interest to practitioners with local, state, and federal government agencies seeking to develop or implement home elevation programs.

Full report: Garcia, I., Tao, Z., Orduña, J., Martinez Roman, L., & Welideniya, W. (2025). *Mitigating Homeowner Flood Risk After Harvey: An Assessment of Houston's Home Repair and Elevation Programs.* (Natural Hazards Center Mitigation Matters Research Report Series, Report 25). Natural Hazards Center, University of Colorado Boulder. Available at: https://hazards.colorado.edu/mitigation-matters-report/mitigating-homeowner-flood-risk-after-harvey

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