# EMPOWERING EMERGENCY MANAGEMENT: GIS INNOVATIONS FOR ENHANCED DISASTER PREPAREDNESS AND RECOVERY

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Geographic Information Systems (GIS) have transformed emergency management through the ability to analyze and visualize spatial data in real-time. From crisis response to post-disaster, IEM utilizes this commercial and open-source technology to elevate our ability to anticipate, react, and recover from disasters. For our submission, we present two work examples of GIS Technology that have helped administer Federal programs in Puerto Rico. First, the Hazard Mitigation Grant Program (HMGP) funds projects that aim to reduce or eliminate the long-term risk to human life and property from natural hazards and risks. IEM's HMGP tool helped contribute data for thousands of benefit-cost analysis and mitigation projects across Puerto Rico by providing information ranging from Infrastructure, Natural Hazards, Disasters, and Economic and Administrative Boundaries. This allowed the user to map and analyze public data independently and strategically to achieve the project's outcome. Second, to address the challenges posed by the global COVID-19 pandemic, the Puerto Rico Homeowner Assistance Program (PRHAP), which is part of the American Rescue Plan Act, was created to prevent mortgage delinquencies and support homeowners facing financial hardship. PRHAP achieved the distribution of over $64 Million to 9,000 homeowners. To transparently communicate the program's progress to the public bilingual online dashboards showcasing real-time statistics were developed on online GIS infrastructure. Automated processes were implemented to centralize and engineer data from diverse sources. Overall, within Emergency Management GIS technologies have proven to be transformative tools that enhance crisis response by building resilient communities, reducing risk, and safeguarding the well-being of individuals and their homes.