

# **SHORING UP DAM SAFETY: ASSESSING THE FUTURE THREAT LEVEL OF GEORGIA'S DAMS AND REVIEWING THE APPLICABILITY OF SIMPLIFIED INUNDATION MAPS FOR EMERGENCY PLANNING**

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Adequate strategic and emergency planning is essential to protect Georgia's expanding communities from aging dam infrastructure. This project accessed the National Inventory of Dams to produce summary statistics describing the state of Georgia's dams. Georgia's dams are aging, mostly privately owned, primarily earthen, and variable in size. Communities will be increasingly threatened as they continue to expand into dam break floodplains. In the event of a dam break, emergency action plans (EAP) can prepare local emergency responders to quickly issue warnings, plan for efficient emergency service delivery, and identify at-risk infrastructure. While the high cost of complex dam break inundation mapping studies has prevented EAP development across the United States, new Environmental Protection Division (EPD) rules now require all category one dams that, by definition, may cause a loss of life upon breaking to have EAPs. However, given a situation in which full dam break studies are unavailable, simplified inundation maps may be able to fill the gap in dam break emergency action planning. To explore simplified mapping reliability this project reviewed engineering recommendations and created a simplified mapping methodology that utilizes Arc GIS mapping and HEC RAS steady state modeling. Federal Emergency Management Agency Recommendations for EAP development were assessed to produce road crossings and threatened structures as the most relevant and practical points of comparison between simplified and formal maps. Two qualitative case studies were developed comparing simplified maps against formal, unsteady state maps provided by the Georgia Soil and Water Commission. Ultimately, the simplified mapping methodology either over or underpredicted flooding as compared to formal mapping. However, these qualitative case studies were not able to formally measure risk or create perfect steady state models. Emergency managers must ultimately determine if simplified methodologies produce maps that are better than nothing for EAP development.

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