



INFRASTRUCTURE RESILIENCE PLANNING FRAMEWORK

APPLICATION TO HAZARD MITIGATION PLANNING



INTRODUCTION

The Cybersecurity and Infrastructure Security Agency's (CISA) [Infrastructure Resilience Planning Framework \(IRPF\)](#) is a voluntary, 5-step approach developed to assist local and regional planners with planning for the resilience of critical infrastructure. The IRPF provides guidance and resources for engaging diverse stakeholders, identifying critical infrastructure, assessing dependencies and risks, developing solutions, and implementing actions to enhance resilience.

CASE STUDY

In 2019, CISA partnered with the Commonwealth of Kentucky Division of Emergency Management (KYEM) to demonstrate the use of the IRPF by a regional planning and development organization. With 14 national disaster declarations in as many years, KYEM wanted to reduce repetitive losses by offering better planning tools and outreach to local governments that had repeatedly requested state funds to rebuild critical infrastructure facilities after floods and storms.

Kentucky works through regional development organizations—known as area development districts (ADDs) in Kentucky—to help city and county governments plan for and invest in transportation, economic development, hazard mitigation, healthcare, and other services. This project focused on incorporating the IRPF into planning being undertaken by one ADD to update their local Hazard Mitigation Plan (HMP). The Green River Area Development District (GRADD), a mid-capacity ADD that serves 27 urban and rural communities in seven counties in northwest Kentucky, offered to model application of IRPF guidance and resources and share lessons learned with KYEM and other ADDs that maintain hazard mitigation and regional development plans.



Courtesy of Kentucky Association of Economic Development

USE OF THE IRPF

GRADD successfully applied select portions of the IRPF without adding steps to their already-established planning processes. Specifically, GRADD incorporated IRPF guidance and resources into three of its four hazard mitigation planning process steps, as follows and shown in Figure 1:

1 Organize the Planning Process and Resources

GRADD was especially interested in how the IRPF could help involve private sector infrastructure stakeholders in hazard mitigation planning. The IRPF contains a **stakeholder invitation letter** template that outlines the need for and value of private stakeholder involvement and participation in hazard mitigation planning. GRADD used this and other IRPF guidance to identify, reach out to, and better engage with critical infrastructure partners. As part of this step in the process, GRADD also reviewed their existing infrastructure system GIS data identifying gaps in natural gas, power, and telecom network data. GRADD requested additional **data from the CISA Regional Office**, a resource noted in the IRPF, and received supplemental open-source mapping data for electrical power transmission facilities within the region.

Understanding dependencies, critical infrastructure, and services brought additional stakeholders to the table. The dependency questions got participants to dive in, analyze an event, and identify what was impacted, thus leading them to a discovery of infrastructure vulnerabilities.
~ Blake Edge, GRADD Director of Community Development

2 Assess Risks

GRADD used the IRPF to integrate dependency thinking into hazard mitigation risk assessment, which had traditionally focused on critical facilities but not fully considered the electric, communications, and fuel infrastructure on which those

facilities depended. GRADD used questions from the IRPF **community dependency discussion guide** in meetings with jurisdictions to facilitate identification of critical community functions and the infrastructure systems on which they rely. This approach helped expand the risk assessment beyond an asset-by-asset analysis to a system-based examination of vulnerabilities to essential community functions. GRADD also used questions from the **system owner/operator interview guide** with a regional power utility to gather information on the systems' interconnects and capability to restore services in the event of a disruption.

3 Develop a Mitigation Strategy

GRADD used IRPF guidance and resources to help identify and prioritize more regional and integrated mitigation projects to address critical infrastructure dependencies. By using the **meeting facilitation guide**, which is centered around community functions, facilities, infrastructure systems, and interdependencies, GRADD was able to evaluate mitigation measures to prioritize those that would be most effective in improving resilience to hazards. Use of the guide at community meetings helped focus discussion, promoted knowledge sharing, and led to the identification of key issues and mitigation ideas to move forward as projects. The IRPF specifically helped community members consider implementation of back-up measures and mitigation projects to improve system and service redundancy.

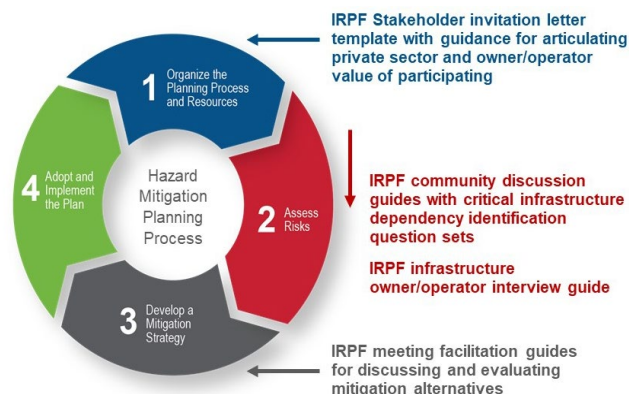


Figure 1: IRPF Resources Applied to Hazard Mitigation Planning

As a result of this IRPF application project, GRADD was able to add a regional preamble to its local Hazard Mitigation Plan that emphasizes the importance of mitigating risk to systems that support not only local communities but also regional industry, some of which have national importance.

BENEFITS

The IRPF added value to GRADD's local and regional hazard mitigation planning efforts by helping to:

- engage with private sector infrastructure stakeholders and incorporate their knowledge;
- consider infrastructure dependencies and vulnerabilities to assess risk;
- use dependency analysis to develop mitigation strategies that reduce risk across systems and jurisdictions; and
- identify infrastructure projects with eligibility for FEMA Building Resilient Infrastructure and Communities (BRIC) program funding.

While not required for hazard mitigation planning, KYEM found true value in incorporation of IRPF guidance to improve the efficacy of an HMP, making it more relevant to the grant programs for which an approved plan is a prerequisite.

OUTCOMES

- An increased understanding of infrastructure dependencies among local officials and a rationale for working regionally to address critical infrastructure risk and build community resilience.
- Greater emphasis on identification of critical infrastructure in hazard mitigation and other regional development plans. GRADD began incorporating IRPF concepts into its other planning and preparedness efforts by holding workshops with regional committee members to discuss how major industries and healthcare facilities in the region rely on infrastructure to operate.
- Application by GRADD and award by FEMA of a mitigation planning add-on grant to further incorporate infrastructure resilience into its HMP. In 2022, GRADD began conducting a more in-depth dependency assessment of regional water and wastewater systems using IRPF resources to identify vulnerabilities and mitigation projects to build resilience. Results will be incorporated into GRADD's regional water management planning, as well as an annex to the HMP.

For more information or to seek additional help, contact us at Resilience_Planning@cisa.dhs.gov.