

2025 Community Resilience Economic Decision Guide and Tool: Research Overview

Christina Gore
Jennifer F. Helgeson

*Division 730 Applied Economics
Office, Engineering Laboratory,
National Institute of Standards and
Technology, USA*

**NIST Research Brief
NIST RB 7**

July 2025



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Research Summary

Community resilience planning often requires quantifying and understanding the trade-offs that communities make between the benefits and costs of different potential resilience actions. This research Brief provides a 1-page handout to describe the tools created by NIST to assist communities in this process including: The Economic Decision Guide (EDG) walks communities through the steps to evaluate investments aimed at increasing a community's ability to adapt to, withstand, and recover from a disruptive event. Case studies are available to serve as a resource for communities in using the EDG framework. An online tool to assist communities with the framework steps, as described by the Economic Decision Guide, a tool called the Economic Decision Guide Software (EDGeS) Online Tool is available to assist communities. Guidance on loss amplification and risk aversion that are critical factors in accurately determining the benefits and costs of resilience investments is described. A brief overview of non-market valuation techniques that are used in community resilience planning to assist communities is referenced. In addition, the NIST Community-informed Decisions for Efficient, Cost-effective, and Integrative Disaster Resilience planning (Co-DECIDR) framework and potential advances are noted.

Research Advancement Details

Community Resilience Economic Decision Guide and Online Tool



The Community Resilience Economic Decision Guide for Buildings and Infrastructure Systems (EDG) provides a standard economic methodology for evaluating investment decisions aimed at improving communities' ability to adapt to, withstand, and quickly recover from disruptive events. NIST has also produced the EDGe\$ tool Version 1.0, a powerful, platform-independent online technique for selecting cost-effective, infrastructure-based community resilience projects based on the EDG.

This handout offers an overview of the Economic Decision Guide, details of the EDGe\$ tool, and other methods designed to support cost-effective and efficient community resilience planning for the built environment and associated socio-economic functions.

Webpage: <https://www.nist.gov/community-resilience/edge-and-economic-decision-guide>

Economic Decision Guide (EDG) process assesses and compares alternative infrastructure projects for community resilience by analyzing the benefits and costs associated with competing capital improvements to support selecting investment strategies.



Case Studies can be found at <https://tinyurl.com/y3h4dury>

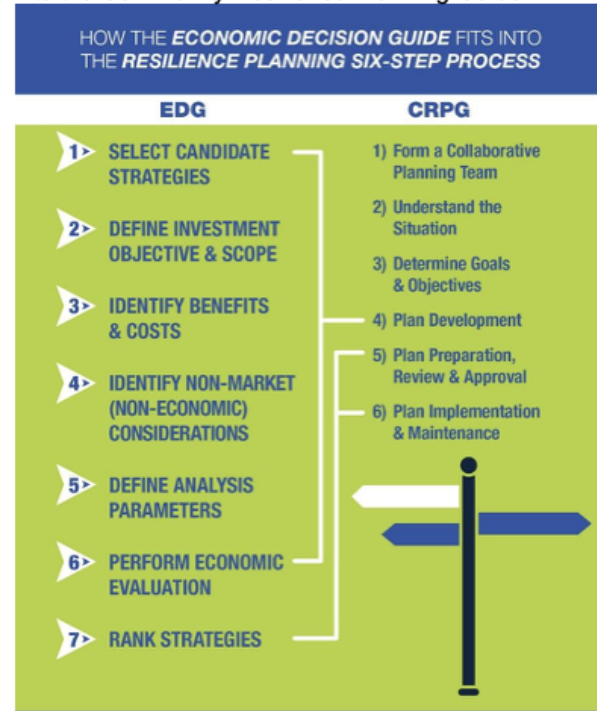
EDGe\$ (Economic Decision Guide Software) Online Tool helps the user to identify and compare the relevant present and future resilience costs and benefits associated with new capital investment versus maintaining a community's status-quo.



EDGe\$ with Loss Amplification and Risk Aversion demonstrates an example of loss amplification and risk aversion in benefit-cost analysis. Risk aversion is a tendency to prefer lower return events with higher certainty over a higher return event with more uncertainty.



Figure 1: Economic Decision Guide's integration into the Community Resilience Planning Guide



Details of the importance of nonmarket valuation techniques for community resilience planning can be found at:

<https://tinyurl.com/fjma7k6r>

Updates on **Community-informed Decisions for Efficient, Cost-effective, and Integrative Disaster Resilience planning (Co-DECIDR)**: <https://tinyurl.com/yuap2pmd>

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Publication History

Approved by the NIST Editorial Review Board on 2025-07-03

How to Cite this NIST Technical Series Publication

Christina G, Jennifer H (2025) Community Resilience Economic Decision Guide and Tool: Research Overview 2025. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Research Brief (RB) NIST RB 7. <https://doi.org/10.6028/NIST.RB.7>

Author ORCID iDs

Christina Gore: 0000-0002-3586-6918

Jennifer F. Helgeson: 0000-0002-3692-7874

Contact Information

christina.gore@nist.gov



U.S. Department of Commerce
Howard Lutnick, Secretary

National Institute of Standards and Technology
Craig Burkhardt, Acting Under Secretary of Commerce for Standards and Technology and Acting NIST Director

This publication is available free of charge from: <https://doi.org/10.6028/NIST.RB.7>