Creating a strong infrastructure is a leading national priority, particularly in the wake of natural disasters like Hurricane Sandy and terrorist attacks like the Boston Marathon bombings. Researchers at Northeastern are at the forefront of developing new methods and technologies to help our buildings, bridges, and roads withstand such stressors—making our cities and towns safer and more resilient.

Jerry Hajjar, professor and chair of civil and environmental engineering

Hajjar and his team are designing state-of-the-art resilience technology that will make structures better able to withstand natural and manmade disasters, from hurricanes to earthquakes to terrorist attacks. If we were to include resilience technology into nationwide building codes, says Hajjar, cities and towns could realize millions of dollars in savings, and, more important, maintain far more sustainable communities.

Recent Grants

- $195,000 from the Charles Pankow Foundation
- $183,043 from the National Science Foundation
- $50,000 from the American Institute of Steel Construction
Ming Wang, professor of civil and environmental engineering

Wang and his team could revolutionize the very big, and expensive, problem of roadway maintenance. They’re combining patented sensing technology and computer analytics to reveal structural defects in highways and bridges—before they become hazardous.

Recent Grants

- $9 million over five years from the National Institutes of Standards and Technology’s Technology and Innovation Program
- $600,000 over four years from the National Science Foundation

Ali Abur, professor and chair of electrical and computer engineering

Abur is making the nation’s power grid smarter. A lot smarter, in fact. With sophisticated GPS technology embedded in next-generation software, Abur’s team captures synchronized real-time snapshots of usage along the system, so the nation’s growing supply of renewable energy can be harnessed more efficiently.

Recent Grants

- $1.4 million from the University of Tennessee–Knoxville
- $400,000 from the National Science Foundation
- $80,000 from the Entergy Corporation

Promoting Strategic Resilience

In 2012, Hurricane Sandy killed dozens and left millions in the dark. Stephen Flynn, founding co-director of Northeastern’s George J. Kostas Research Institute for Homeland Security and a leader in national resiliency policy, is exploring the possibility that the key to withstanding such fierce natural disasters lies in taking care of our nation’s critical infrastructure.

Supported by a one-year, $575,000 grant from the Alfred P. Sloan Foundation, the Kostas Institute is investigating how to enhance the resilience of transportation, energy, health service, and communications systems in coastal cities.

Building that kind of resilience into our infrastructure requires collaboration by experts across a multitude of disciplines, such as engineering, economics, management, public policy, psychology, and computer science.

Flynn and his team are cultivating that expertise to identify the critical points in our systems, analyze their vulnerabilities, and decide how best to minimize the damage—and impact—of a blow, whether from a bomb or a hurricane.

For more information, contact Tim Leshan, vice president for government relations, 617.373.8528, t.leshan@neu.edu, or visit northeastern.edu/governmentrelations.