

Campus-wide Resilience Assessment

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There are many ways to conduct vulnerability, resilience, or risk assessments. Assessing the resilience or vulnerability of a single building or single facility is rather straightforward, but assessing them for a campus-like environment that has many buildings or facilities and diverse missions presents several challenges. For example, a campus environment could be a group of several facilities within a well defined perimeter. In other cases, it could be a group of buildings or facilities belonging to a single organization that are in close proximity but within an area with only a minimal or no defined perimeter. These cases occur often when a college campus, a group of Federal or State buildings, or research laboratories are being assessed. The common theme in most campus environments is the various buildings' dependence on a common utility (e.g., electric power, steam, water, wastewater removal services, natural gas, and communications) or utility provider; however, the business impact of a loss of service on each individual facility or asset within the campus is unique.

Recent events (e.g., the assault on a California power station; the discovery of an incendiary device in a substation near Tucson, Arizona; the incident at a Federal Aviation Administration air-traffic control center in Aurora, Illinois, which halted operations across Chicago Air Route-controlled airspace; and the shutdown of two national laboratory supercomputers because of smoke from a nearby wildfire) have reinforced the need for an all-hazards risk assessment that could identify the vulnerabilities of utility systems and also the enhancements that could improve these systems' resilience. For a campus, such an assessment must characterize the vulnerability and resilience of the primary utilities that supply resources to the campus and also define how their disruption or loss might affect the campus's essential functions.

The Risk and Infrastructure Science Center has developed a "threat-agnostic" assessment methodology in order to capture the widest possible range of vulnerabilities and resilience measures as well as to consider the potential consequences, protective and emergency measures already in place, and dependencies on utility supply. This type of method also avoids overlap or interference with any regulatory or ongoing security or threat assessments. The assessment includes four main phases:

- Background research,
- Identification of critical assets and utility nodes,
- Site visits, and
- A vulnerability, resilience, and consequence analysis.

The scope of an analysis is directly related to the requirements of the stakeholders that are in charge of campus business continuity and to the types of final products desired (e.g., report or interactive display tool). The objective of this presentation is to explain the different phases of the assessment methodology developed for addressing the resilience and protection of a campus. Case applications will be used to illustrate the assessment framework and to generate a discussion on possible ways to conduct vulnerability, resilience, and risk assessments of a campus, cluster, or system of infrastructures.

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