



Indicators of Resilience

INTRODUCTION

This document provides an overview of how campuses can identify initial indicators to assess resilience as part of the Campus-Community Resilience Assessment. Identifying indicators and metrics to measure strengths and vulnerabilities is an important part of understanding resilience, and is necessary to

track progress towards increased resilience. Visit Second Nature's guidance *How to Conduct a Campus-Community Resilience Assessment* for more details on the process of completing a resilience assessment, and on reporting for the Climate or Resilience Commitment.

Second Nature's
Definition of Climate
Resilience:

Resilience is the ability of a system or community to survive disruption and to anticipate, adapt, and flourish in the face of change.

WHAT ARE INDICATORS OF RESILIENCE?

Second Nature considers indicators to be features or characteristics of the campus and/or community that the school wishes to assess. The indicator may be assessed through a qualitative description, or through quantitative metrics. Metrics are specific values or data

points that can describe the indicator, which can be measured to show progress over time. Metrics should include a specific unit of measurement. There may be many metrics that can measure and illustrate the status of any given indicator.



HOW TO DEFINE AND MEASURE RESILIENCE



Resilience is place-specific. The definition of a resilient campus and community will depend on unique characteristics of each campus and community, including the climate hazards present. As a result, there is no universal set of indicators and metrics that will apply to all colleges and universities.

assessment should help institutions understand where the campus and community currently stand regarding strengths and vulnerabilities; the indicators identified should reflect these strengths and vulnerabilities. By establishing an initial set of indicators for resilience, campuses can create a baseline from which they will be able to track progress over time.

This is an advantage in that schools have flexibility to define resilience in a way that works for each campus, but a challenge in that there is no universal blueprint for how to measure success. A resilience

Resilience relates to all aspects of a campus and community. To reflect this, Second Nature encourages schools to consider indicators in each of the **Five Dimensions of Resilience**:



Social Equity & Governance

the systems of governance on campus and in the community, levels of engagement among campus and community members, and the capacity of different groups to adapt and respond to climate change. This should include consideration of social justice and equity.



Health & Wellness

the ability of different groups on campus and in the community to fulfill their basic needs. This includes access to healthcare, food, water, housing, and sanitation.



Ecosystem Services

the environmental systems and services present in the campus-community, including natural and geographic features of the region.



Infrastructure

the physical structures built, owned, managed, and/or used by the campus-community, including systems such as communication and public transportation.



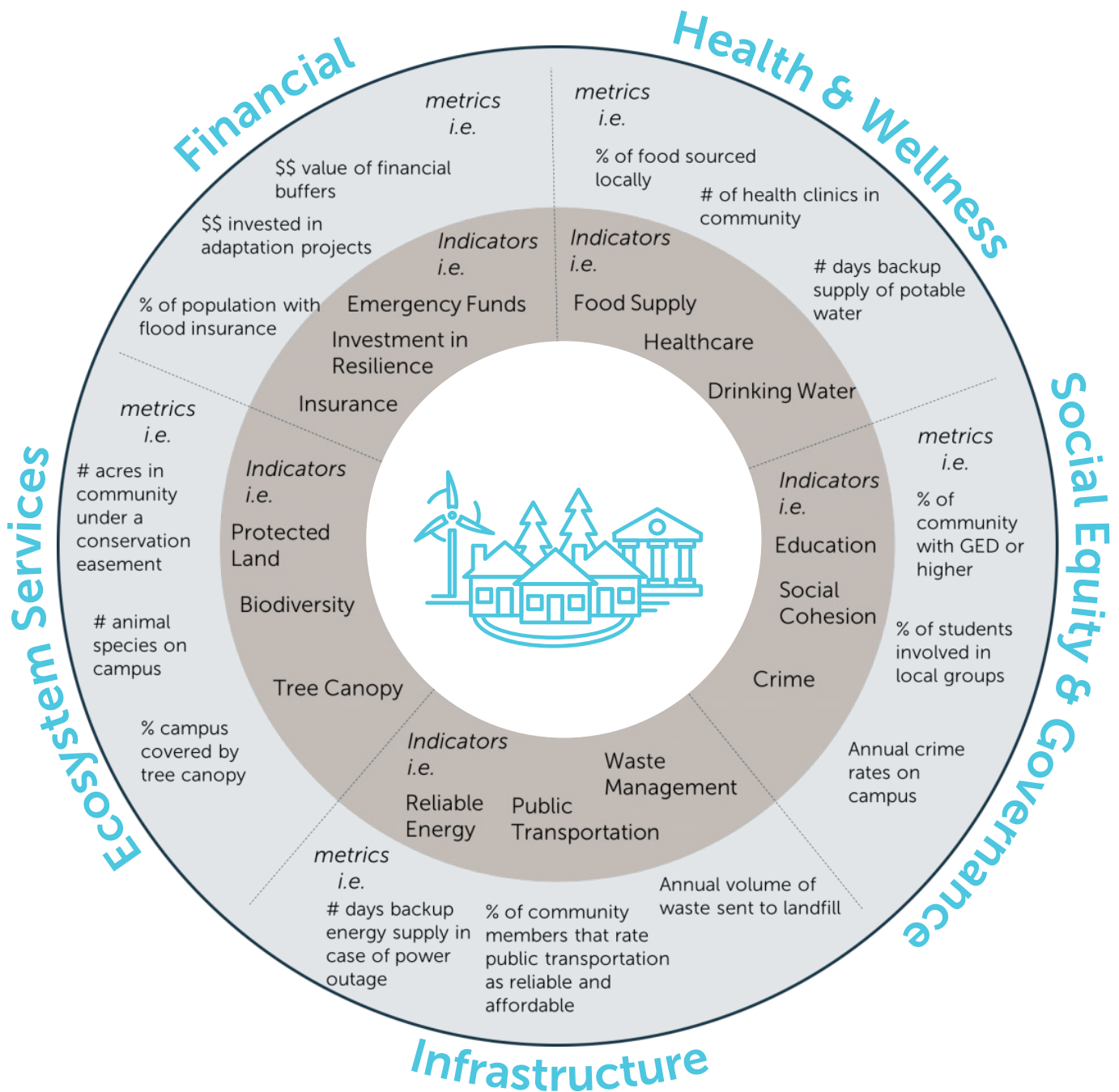
Economic

the financial ability of the campus and community to proactively adapt to changing climate conditions and to respond positively to climate change events.

The Five Dimensions of Resilience are designed to ensure that colleges and universities are thinking comprehensively about the campus and community system. Campuses are often inclined to focus exclusively on the infrastructure and ecosystem services dimensions to the exclusion of the social dimensions. One goal of this framework is to

encourage campuses to consider indicators from all areas during their initial resilience assessment, even if the final Climate Action Plans are oriented towards one or two dimensions. There are many overlaps between these dimensions, and a given indicator may fall within multiple dimensions.

EXAMPLE INDICATORS AND POTENTIAL METRICS OF RESILIENCE



SAMPLE INDICATORS

Below are additional indicators campuses may consider during the resilience assessment. These indicators are suggestions; campuses do not need to assess all of the indicators listed. Additionally, this list is not comprehensive and campuses may identify relevant indicators not included here.



Social Equity & Governance

- Community Connections and Engagement
- Civic Engagement
- Education Levels in the Community
- Emergency Planning
- Vulnerable Populations
- Awareness of Climate Change
- Crime Prevention/Policing
- Institutional Engagement & Participation in Networks
- Income Disparity
- Structural Racism
- Presence of Climate Adaptation Centers



Health and Wellness

- Asthma Prevalence
- Food Security
- Health Insurance Coverage
- Access to Healthcare
- Affordable Housing
- Potable Water/Emergency Planning
- Mental Health Availability and Access
- Access to Exercise Facilities
- Emergency Healthcare Capacity
- Homeless Population



Ecosystem Services

- Urban Green Space
- Tree Canopy Coverage
- Rainwater Management
- Access to Outdoor Recreation
- Air Quality
- Development in Floodplains
- Climate-suited Vegetation/Landscaping
- Conservation Initiatives
- Watershed Protection
- Permeable Surfaces on Campus



Infrastructure

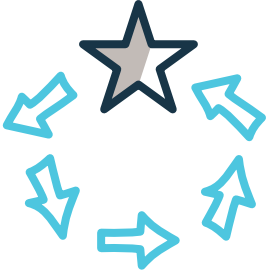
- Public Transportation Availability
- Communication/Alert Systems
- Energy Efficiency
- Flood Resistant Buildings
- Backup Energy Supply
- Access to Multi-Modal Transportation
- Air Conditioning/Cooling Centers
- Heating Centers in Community
- Exposure of Critical Infrastructure to Storms
- Alternative Energy Options



Economic

- Emergency Funds
- Flood Insurance Coverage
- Green Revolving Fund
- Diverse Economy
- Funds for Adaptation Projects
- Applicable Tax Incentives
- Employment
- Access to Credit
- Financial/Emergency Planning
- Climate Risks of Investments

RESILIENCE PLANNING IS AN ITERATIVE PROCESS



Colleges and universities may also look to existing plans on the campus or in the municipality to identify indicators. Schools may wish to consider aligning some of their indicators with resilience indicators and metrics already in use at the town, city, or state level. Keep in mind that resilience planning is an iterative process. The initial indicators identified may be amended as campuses better understand the opportunities, risks and vulnerabilities associated with climate change.