Foundations of ANCR
Community Resilience Benchmarks

INTRODUCTION AND SUMMARY

The Alliance for National Community Resilience (ANCR) is developing Community Resilience Benchmarks (CRBs). The CRBs will help communities assess their resilience and point them toward practical action they can take to become more resilient.

This ANCR Working Paper presents the bases of the CRBs. An operational definition of community resilience is used to identify the essential elements of community resilience. *Guiding Principles* that have provided the foundation for development of the CRBs are then discussed. Chief among these is the importance of taking a *Whole Community* approach. This requires a parsing of communities into their constituent parts, designated as *community functions* (briefly described in Appendix A).

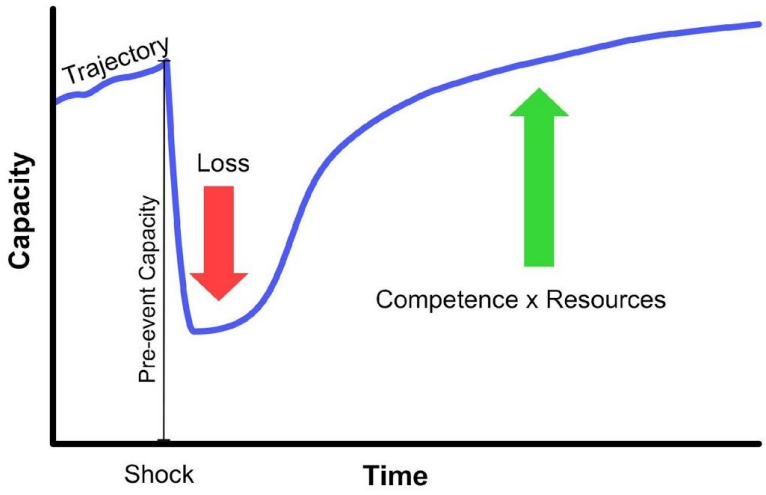
Using the definition and the nineteen community functions, a "Strawman" set of Benchmarks to be used as a starting point for in-depth development have been developed. These Benchmarks are structured around requirements (actions, plans, policies, etc.) identified as crucial to building resilience in a given functional area. The requirements associated with any given aspect of the functional area are organized across three tiers: Essential, Enhanced, Exceptional. Each "higher" tier demands a greater level of community commitment, investment, and/or engagement to achieve and presumably will have greater impact on enhancing community resilience. The bases for the Strawman are detailed and the anticipated development path is laid out.

WHAT IS RESILIENCE?

Resilience (derived from the Latin *resalire*, to spring back) has become an important term in the language of many disciplines ranging from psychology to ecology. Rather than adding to the welter of words, ANCR has adopted an operational definition based on the experience of actual communities that embodies the concept common to these definitions of "bouncing back." This provides a clear formulation of resilience, useful for development of community benchmarks.

This operational definition is shown in the figure below.

Elements of Community Resilience



Adapted from UK Department for International Development

The blue line represents some measure of a community's capacity from before a disruptive event through recovery. The capacity might be the amount of water or electrical power provided to the community; or perhaps the number of habitable homes; or the number of businesses able to open.

As indicated, the functional capacity of the community (e.g., its ability to deliver clean water) prior to a disruption may be changing (its **trajectory**) – increasing (as shown) or decreasing or staying constant. When a community is "shocked" – faces a disruptive event – it experiences a **loss of capacity** (the red arrow in the figure). This may be due to downed power lines, or roads washed away, or homes damaged or destroyed. Over time the community recovers (green arrow) toward a "New Normal." Recovery requires **resources** and the ability to use them effectively (**competence**).

Experience indicates that each part of a community – its neighborhoods, its economy, each of its infrastructural systems, and its natural and built environment – will have a similar curve to that in the figure. However, the trajectory, the pre-event capacity, the amount of loss, the amount of capacity recovered, and the time scale for loss and recovery will likely differ depending on the type and magnitude of the shock.

Experience has shown that two pre-shock attributes can help predict how well the community will recover (i.e., the community's resilience): its **trajectory** and its **pre-event capacity**. There is a sort of conservation of "community momentum" that makes the community's trajectory important: a community growing or gaining

capacity prior to a shock is likely to recover faster than one that is contracting. A positive trajectory often means that the community has invested in itself – for example, replacing more fragile with more robust infrastructure. Conversely, a community that is having difficulty providing adequate service to all of its members prior to a shock is unlikely to recover very rapidly or to achieve a "New Normal" that is better than before the disruption.

Thus, an assessment of a community's resilience needs to answer questions like the following about each of these essential elements:

- *Trajectory*. Is the community's capacity growing or contracting? Is the community doing this with its own or external resources?
- *Pre-event capacity*. Are all members of the community being adequately served? Are there geographic "pockets" where residents are underserved ?
- *Loss of capacity*. What are the significant risks (potential shocks) facing the community? What services may be affected?
- *Resources*. What internal resources does the community have to reach its "New Normal?" What external resources can it access?
- *Competence*. Does the community have a plan for dealing with a shock? Does the community have the connections and the know-how to access external resources? Does the community have experience in recovering from a shock?

GUIDING PRINCIPLES FOR DEVELOPMENT OF THE CRBs

Ultimately, the CRBs should provide an assessment of the entire community in terms of each of the essential elements for a community. Development is proceeding based on the following Guiding Principles:

A community's resilience depends on every segment of the community; each segment has its own resilience.

This principle embeds the Whole Community concept in the CRBs. It requires a consistent framework for parsing a community into its component parts. It also requires that the CRBs provide a measure of the resilience of each of those parts.

A community's resilience only has meaning in terms of its risk profile, which should include all of the significant risks the community faces.

Experience on the Gulf Coast has shown that a community's resilience to one type of risk (e.g., Hurricane Katrina) is not necessarily the same as its resilience to other risks (e.g., the Great Recession or the BP oil spill). Further, every community has its own distinctive risk profile – some communities are threatened by natural disasters; others face the threat of terrorism. All face the risks of economic

disruption, or social unrest, or a health crisis. Some communities face all of these. Thus, the CRBs must consider the comprehensive risk profile of the community – the hazards it faces, their potential impacts, and their likelihood of occurrence.

The Benchmarks should be useful for any American community.

While this may seem only a "Motherhood and Apple Pie" statement, it has significant practical implications. While small rural communities may be functionally similar to mega-cities (perform the same functions for their residents), the scale of these functions may make for practical differences in application. In general, there is less data available to assess the resilience of rural communities; conversely, the complexity of most mega-cities can make it difficult to assess the resilience of each of their parts.

The Benchmarks should be useful to both the community itself and to those outside the community.

In general, those inside the community will be most interested in shoring up weaknesses and developing greater strengths, i.e., they will be most interested in a detailed breakdown of the community – its trajectory, its capacity and its resources. Conversely, those considering investing in a community will be more interested in the overall risk to and opportunities for their investment.

PARSING THE WHOLE COMMUNITY

For development purposes, ANCR has used a fairly granular approach to parsing the Whole Community. It assumes that all communities carry out the same essential functions; what differentiates communities is the manner and effectiveness with which these functions are performed. In every community, there is a system that carries out the function (usually a combination of several subsystems). The system often includes agents both within the community and outside the community. For example, a community may receive its electric power from a generating facility in another state or country. As another example, a regional hospital may be an important player in providing health care to a rural community.

The advantages of this type of approach are that "functions" are a fairly intuitive concept for most stakeholders (community leaders and residents) to grasp and accept. In addition, the boundaries between the functions can be readily delineated which makes the assessment process more straightforward.

The ANCR development team has parsed communities into the nineteen functions identified in the following figure. Each is briefly described in Appendix A; examples of those involved in carrying out the function are also identified.

STRAWMAN BENCHMARKS

To facilitate development of the Community Resilience Benchmarks, ANCR has chosen to provide a Strawman set of Benchmarks to act as a starting point. While these may not bear any resemblance to the final product they do have a sound fundamental basis:

- The essential elements of community resilience discussed above.
- ANCR's *Guiding Principles*. Both the Guiding Principles and the essential elements of community resilience have been honed through review by a score of professionals in the field.
- The United Nations International Strategy for Disaster Reduction (UNISDR) assessment tools (*10 Essentials*) developed to support the Sendai framework. These provide a consistent and defensible basis for the Strawman. They help to resolve the tension between the public's focus on service and continuity, and service providers' focus on asset protection.
- The practical experience of the Community and Regional Resilience Institute (CARRI). CARRI found that resilience is a manifestation of the strengths of a community; thus, the Benchmarks need to focus on determining the community's strengths and weaknesses. Both CARRI's experience and that of others who have worked with communities demonstrate that

performance-based, outcome-oriented approaches tend to be most useful to communities looking to become more resilient.

- Existing standards. In many cases, existing standards – especially those used for accreditation – include one or more of the essential elements of resilience. For example, a health care facility meeting the standards of the Joint Commission will have demonstrated risk awareness, essential capacity, and competence to deal with crises.

The Strawman is organized by functional area (i.e., each of the community functions has its own Benchmark). This reflects the first guiding principle that each part of the community has its own resilience. Each Benchmark covers key issues relevant to a given functional area through a set of tiered requirements moving from Essential, to Enhanced, to Exceptional. The rationale behind the requirements in each tier can be understood as follows:

Essential. These requirements, if met, should ensure that the community function can be restored after a disruption. The questions are aimed at the entities that carry out the specific community function. Taken together, the questions establish that:

- The community has identified the risks it faces and their potential impacts. This means it recognizes the potential for **Loss of capacity**.
- The community has prepared to deal with the potential shocks it faces (**Competence**). This implies that the community has either developed plans for dealing with disruptive shocks, or has otherwise shown that it has the human capital to manage the effort (e.g., an upward **Trajectory**).
- The community can meet the needs of all of its members even before a shock (**Pre-event capacity**). Otherwise, it is unlikely to be able to meet the public's needs after a shock.

Enhanced. Many communities have enhanced the resilience of one or more of the community functions in some way, thus increasing confidence that the community can withstand a shock and recover more rapidly. Some communities have strengthened building and fire codes and their enforcement, or have hardened their infrastructure (reducing **Loss of capacity**). Some local governments have set up reserve funds (providing **Resources** for recovery). Many utilities have established mutual assistance agreements (increasing both **Competence** and **Resources**). The requirements in this category, therefore, go beyond the Essential. In general, they will require a greater commitment on the community's part to be met.

Exceptional. A few communities have taken additional actions to bolster their resilience that are highly innovative or that are very rare. The success, the novelty, and/or rarity of these actions boost them above the well-recognized and common approaches to enhance resilience, and make communities that employ them

exceptional. The "catastrophe bonds" sold by New York's Metropolitan Transportation Authority focused on storm surge are a good example. These could become a very important new tool as communities hedge their risk, providing a valuable source of new **Resources** for recovery, in this case of the transportation function. The requirements in this category thus are indicative of the types of actions that an exceptionally resilient community might take.

DEVELOPMENT PROCESS

The Strawman Benchmarks are the starting point for the next phase of development. In this phase, a group of subject matter experts (SMEs) will be empaneled for each functional area. These will be tasked with the following:

- Ensuring the boundaries of the functional area are well-defined.
- Identification of function-specific risks. For example, the water-wastewater functional area might identify contamination as a risk.
- Identification of credible strategies for dealing with both community-wide and function-specific risks. For example, it is often impossible to ensure that food distributors and retailers will not experience interruption of electric power. In this case, backup generators can reduce the risk to the food supply.
- Development of recommended changes to the Benchmarks for each functional area. The SMEs will ensure that existing codes and standards are referenced to the maximum possible extent, and that the Benchmarks are consistent with resilience-building processes such as that laid out in the National Institute of Standards and Technology's Community Resilience Planning Guide. As much as possible, SMEs will be asked to supply specific sources of information community leaders can use to shore up weaknesses.
- Identification of acceptable evidence that the requirements have been met.

Once each panel's work is completed, the Benchmark will be submitted to the ANCR Board for approval.

Appendix A
Community Functions

Title	Function	Performers
Buildings	Ensuring structures are fit for use	Homeowners; realtors; builders and developers; commercial property owners; building supply companies; emergency shelters; housing focused NGOs; civic building permit writers and inspectors
Business	Ensuring economic vitality	Small businesses; major employers; chamber(s) of commerce; business support centers; regional suppliers; economic development organizations; unions; workforce
Communications	Communicating	Those human networks and organizations involved in messaging; media organizations; public information officers; post offices
Communications infrastructure	Enabling communications	Telecommunications providers; telecom regulators; telecom workforce
Culture and recreation	Providing opportunities for physical health and cultural growth	Organizations promoting or providing cultural, recreational or athletic events; libraries; parks and public works departments; youth and adult sports leagues; museums
Education and training	Enable community members to participate in community life and to contribute to the community	Educational institutions; those involved in workforce training (e.g., job training centers, unions)
Energy	Enable the community to live, work and travel	Electricity generators; electric transmission companies; state and local regulators; liquid fuel retailers and distributors; energy workforce; utility support organizations (e.g., decon/waste management, parts suppliers); real estate developers; consumers

Finance	Ensure community has financial resources	Banks; insurers; credit unions; mortgage and payday lenders; local investment entities (e.g., CDFIs, CDCs); credit rating agencies
Food	Ensure the community has an adequate food supply	Food distributors and retailers; food banks; restaurants; public health departments; farmers markets
Governance	Making and implementing community decisions	Organizations involved in making community-wide decisions
Housing	Providing adequate housing to meet community needs	Housing authorities; citizens; housing advocates; employers; financial institutions; developers
Local government	Provide governmental services reliably and fairly	Municipalities, special purpose/assessment districts; regional boards or governmental organizations (e.g., Council of Governments)
Natural environment	Ensuring the health of the community's natural environment	Public health and public works departments; environmental regulatory agencies; environmental interest groups; environmental cleanup contractors; consumers of ecological services
Neighborhoods	Providing social capital and support	Individuals; families; neighborhood associations; crisis shelters; crisis centers; social service providers; labor exchanges
Public health and healthcare	Protecting public health and providing health care	Medical practices; hospitals; community clinics; medical health facilities; hospice and home health providers; public health department; ambulance services; pharmacies; laboratories; nursing homes and rehab facilities; morgues; health care workforce and consumers
Public safety and security	Ensuring community safety and security	Law enforcement; court system; correctional facilities; fire departments; emergency management organizations (including EMTs and CERT teams); private security firms; specialized workforces

Solid waste	Handling and disposing of solid waste	Solid waste haulers, treatment and disposal organizations; recycling organizations; chemical and equipment suppliers; environmental regulators; public
Transportation	Enabling movement of people and goods	State and local departments of transportation; air- and seaport authorities; freight and passenger carriers; road and bridge owners; maintenance and other support contractors; transportation workforce; real estate developers; public
Water	Providing water and wastewater services	Water and wastewater utilities; water quality regulators; water-testing labs; chemical and equipment suppliers; utility workforce; real estate developers; consumers