

NIST Special Publication 1190GB-10

**Guide Brief 10 –
Linking Social Dimensions
and Building Clusters**

This publication is available free of charge from:
<https://doi.org/10.6028/NIST.SP.1190GB-10>

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce



NIST Special Publication 1190GB-10

Guide Brief 10 Linking Social Dimensions and Building Clusters

This publication is available free of charge from:
<https://doi.org/10.6028/NIST.SP.1190GB-10>

May 2017



U.S. Department of Commerce
Wilbur L. Ross, Jr., Secretary

National Institute of Standards and Technology
Kent Rochford, Acting NIST Director and Under Secretary of Commerce for Standards and Technology

Certain commercial entities, equipment, or materials may be identified in this document in order to describe an experimental procedure or concept adequately. Such identification is not intended to imply recommendation or endorsement by the National Institute of Standards and Technology, nor is it intended to imply that the entities, materials, or equipment are necessarily the best available for the purpose.

National Institute of Standards and Technology Special Publication 1190GB-10
Natl. Inst. Stand. Technol. Spec. Publ. 1190GB-10, 10 pages (May 2017)
CODEN: NSPUE2

This publication is available free of charge from:
<https://doi.org/10.6028/NIST.SP.1190GB-10>

This page intentionally left blank.

Guide Brief 10 – Linking Social Dimensions and Building Clusters

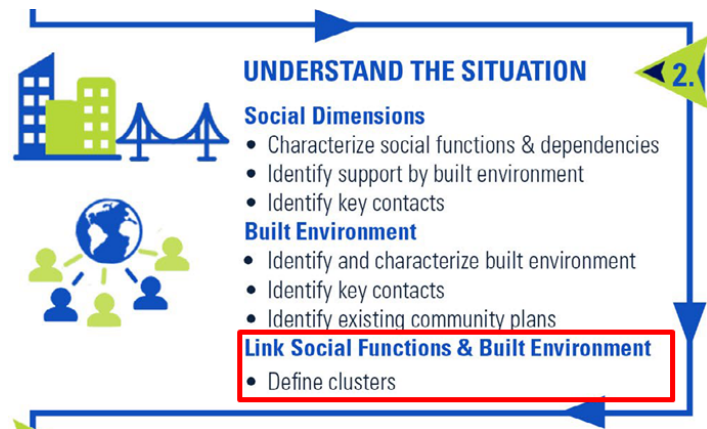
Applicable Section(s) of Guide: Volume 1, Section 3.3, Link social dimensions to the built environment, p. 36

Guide Briefs supplement the Community Resilience Planning Guide for Buildings and Infrastructure Systems (NIST SP1190)

Purpose and Scope

Step 2 in the Guide focuses on characterizing the community's social dimensions and their dependence on the existing built environment.

Buildings play a critical role in supporting the services provided by the social institutions of the community. The collaborative planning team needs to link the functions and services provided by the social institutions to the buildings (and building clusters) supporting those functions, and assign the building clusters to the appropriate functional categories in the performance goal tables of the Guide.



This Guide Brief provides additional examples of how to link typical building clusters to functional categories. Chapter 3 of the Guide outlines the process for identifying and linking social dimensions to the built environment, Chapter 10 provides guidance for how to link building clusters to functional categories, and Tables 10-4 to 10-8 provide examples of links between social dimensions and physical systems for day-to-day operations and the recovery process.

1. Assigning Building Clusters to Functional Categories

The built environment is characterized in multiple ways, including date of construction, occupancy, function, materials, structural system, fire resistance, etc. For resilience planning purposes, the Guide characterizes the built environment in terms of the *community functions and services* they support and enable, and the role these functions and services play in community recovery. Groups of buildings with common community functions that share recovery goals, such as education or banking, are termed *building clusters*. Building clusters are organized into four *functional categories*, based on their role during the recovery period: 1) Critical Facilities; 2) Emergency Housing; 3) Housing/Neighborhoods/Businesses; and 4) Community Recovery. Critical facilities and emergency housing need to be functional immediately after the hazard event; housing, neighborhoods, and businesses are needed next to re-establish the workforce in the community; all other building clusters and their functions are needed to achieve community recovery.

Communities can define building clusters to meet their own needs and performance goals. The Guide offers examples for defining building clusters and associated functions/services and recovery phases in Chapters 4, 10 and 12. Chapter 4 provides guidance for characterizing desired performance goals and the anticipated performance level of buildings within a cluster after a hazard event (Table 4-1), assigning building clusters to the functional categories for recovery according to their community functions and services (Table 4-2), and determining the level of desired functionality for building clusters as recovery takes place (Table 4-3). A detailed list of possible links between building clusters and social institutions is given in Tables 10-4 to 10-8 of the Guide. Table 12-3 of the Guide, *Building Performance Goals*, documents the desired goals and anticipated performance for building clusters by the four functional categories and three recovery phases: short, intermediate, and long-term.

Table 1 through Table 4, below, present examples of additional types of building clusters for each functional category. The functional category and recovery phase during which the building clusters need to be fully functional is listed across the top of the table. The left column of each table lists building cluster types for the given functional category. The right two columns list various functions or services the clusters may provide. However, recovery of building clusters for the intermediate and long-term phases may begin during the short-term recovery phase. While there are no specific rules related to the number of building clusters used for planning community recovery, it is helpful to minimize the number of building clusters for each functional category to simplify communicating the plans and results. These tables are not intended to be exhaustive and will vary by community.

Table 1. Building Clusters and Functions/Services for Critical Facilities

Functional Category: Critical Facilities		
Recovery Phase: Short-Term		
Critical Facilities are needed during and immediately after the hazard event to stabilize the community and prepare for recovery. These facilities are intended to remain safe and operational during and immediately after a hazard event.		
Building Cluster	Functions/Services	
Critical medical	Acute care	Hospice care
Emergency operations center	Emergency operations	
Critical government	Military installations	
Critical city services	Disaster debris and recycling	Police
	Fire and EMS	
Critical commercial	Supply chain distribution	Food distribution

Table 2. Building Clusters and Functions/Services for Emergency Housing

Functional Category: Emergency Housing		
Recovery Phase: Short-Term		
<p>Emergency Housing includes shelter for displaced residents and emergency responders from outside the area. Emergency housing needs to be available as soon as possible, with most of the centers accepting occupants within 24 hours. Emergency housing may include temporary facilities as well as homes that are safe enough to shelter-in-place. Shelters are intended to remain open until people can return home or transfer to interim housing, within days to weeks after the event.</p>		
Building Cluster	Functions/Services	
Skilled nursing facilities	Skilled nursing care and rehabilitation	
Emergency medical	Home/health care	Pharmacies
	Urgent care	
Public information centers	News and broadcast radio	Television, newspapers, magazine publishing
Emergency shelters	Animal shelters	Hotels, motels as shelters
	Assisted living facility	Low cost housing
	Detention centers	Multi-family housing shelter-in-place
	Faith and community based organizations	Single family housing shelter-in-place
	First responder facilities	Transitional housing
Emergency retail	Banking	Gas stations

Table 3. Building Clusters and Functions/Services for Housing/Neighborhoods/Businesses

Functional Category: Housing/Neighborhoods/Businesses		
Recovery Phase: Intermediate Term		
<p>Housing/Neighborhoods/Businesses include the building clusters necessary to restore a livable environment in which people can return home and to work. This may require interim housing within the community to help residents remain within the community, access their normal social and community networks and services, and return to work. In general, this should be achieved within a few weeks (early in the Intermediate Recovery Phase). Recovery of housing and neighborhoods impacts job and economy restoration, and directly impacts mental health, family well-being, and willingness to contribute to recovery.</p>		
Building Cluster	Functions/Services	
Community services	Community centers and libraries	Courts
	Social services	Waste management
Retail	Grocery stores, malls, restaurants, household goods including home repair	Day care centers, fitness centers
Medical	Poison control	Mental health agencies
	Dialysis	Pharmacies
	Medical care	Rehabilitation
Non-governmental organizations	Religious and cultural	Social services
Residential housing	Multi-family	Single family
Schools	K-12	Pre-school

Table 4. Building Clusters and Functions/Services for Community Recovery

Functional Category: Community Recovery		
Recovery Phase: Long-Term		
<p>Community Recovery includes all the building clusters needed to restore jobs, commerce, and financial stability to the community. Desirable times to recover community functions range from days to weeks after the event, but may extend for months to years. Business continuity plans for many medium to large businesses may define their pace of recovery. Communities should work with businesses to develop a collaborative approach to community recovery. The largest employers and significant revenue generators in the community are key players in the recovery as communities need resources and tax revenues to operate.</p>		
Building Cluster	Functions/Services	
Commercial	Arenas, event centers	Marinas
	Cemeteries	Museums
	Conference centers	Newspaper/magazine publishing
	Hazardous materials facilities	Office park
	Hardware & home improvement centers	Professional services
	Hospitality	Warehousing
	Laboratories	All other retail
Industrial	Agriculture	Mining
	Fishing	Petroleum refineries
	Forestry	
Manufacturing	Construction	Processing facility
	Manufacturing	
Colleges and universities	Colleges and universities	

2. Suggested Application to Representative Communities

Guide Brief 7 defines four representative community types:

- A large **Urban City** that has a diverse economy and is fairly self-sufficient
- A **Suburban Community** that primarily provides homes for commuters
- A **Single Industry Community** that has a large employer or a dominant industry
- A **County** serving a variety of incorporated and unincorporated towns

Communities may identify with one of these representative communities or a combination of them. The following examples suggest how the composition and number of building clusters may vary between representative community types.

Urban City. An Urban City may have more types of building clusters than other community types to better define the functions and services supported by the facilities. The building clusters in the community plan will guide the plans of city departments and agencies, and improve collaborative planning with private entities. Urban City plans for recovery of a building cluster may be more detailed to account for dependencies and alternative temporary solutions that will improve implementation.

Suburban Community. A Suburban Community may consolidate some building clusters for Critical Facilities and Emergency Housing to better align with their community departments and responsibilities. Community Recovery building clusters may be dominated by commercial buildings (see Table 4) because of the commuter nature of their economy.

Single Industry Community. A Single Industry Community should consider designating the single dominate industry, and the supporting infrastructure systems it needs, as critical facilities. The community’s lack of economic diversity and financial dependency on a single industry makes the building clusters and supporting infrastructure systems crucial to a successful recovery. This situation was illustrated in the Riverbend example in Chapter 9 of the Guide. Other significant, but not dominant, industries may need to be included if they affect the community-wide restoration priorities or the need for mutual assistance.

County. A County may have varying levels of needs from its incorporated and unincorporated communities for countywide services and functions provided by their physical infrastructure and social departments. The county and communities could work together to develop performance tables that collaboratively address local and county needs.

Excel files with a template that can be used for developing these tables are available at <https://www.nist.gov/el/resilience/community-resilience-planning-guide-briefs>.



NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

This publication is available free of charge from:
<https://doi.org/10.6028/NIST.SP.1190GB-10>