Resilient against what?

How leading U.S. municipalities are understanding and acting on resilience

Contents

Resilient against what?: How leading U.S. municipalities are understanding and acting on resilience

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Executive Summary

Over the last fifteen years, many US municipalities have set sustainability goals and implemented policies and programs to achieve them. More recently, *resilience* has emerged as an additional goal of some municipalities, particularly in the wake of extreme weather events like Hurricane Sandy and major economic disruptions like the Great Recession.

This study explored how some municipalities that are already leading the way on sustainability are now understanding and applying the concept of resilience. Senior staff at fourteen selected municipalities of various regions and sizes were surveyed on their communities' perceived risks and vulnerabilities, and how these were being addressed. Five major conclusions were derived from the responses, some of which run counter to the "conventional wisdom" on resilience:

1. **While "resilience" is interpreted many ways, it is largely understood by these sustainability leaders to have a scope greater than mere disaster preparedness.** This stands in contrast to the current public conversation on resilience in urban planning and policy circles (and increasingly in popular media and politics), where concerns about climate change and natural disasters generally dominate.

2. **Resilience-building is already regarded as an important part of these communities' ability to deliver services,** although respondents ascribed different specific activities to it. This was unexpected as resilience has not been a significant topic in local public policy and planning until only very recently.

3. **Lack of time and lack of resources are seen as the biggest barriers to resilience-building actions,** not necessarily a lack of public or government awareness. Budgetary constraints also had a direct impact on the pace of adoption of relevant initiatives.

4. **Citizen pressure is a major influence** on resilience-building actions. Citizens understand the need for greater resilience and want actions to enhance it.

5. **Neither national nor local regulations are seen as significantly hindering community resilience-building actions.** Changes in local regulations are, in fact, pushing adoption of resilience-building approaches more than federal regulations.

These findings suggest that efforts to encourage resilience-building in all U.S. communities should:

- Reach beyond disaster preparedness and basic awareness-raising.
- Identify and work with local government officials, agencies, and staff—as well as community leaders and stakeholders—who are already engaged in resilience-building.
- Prioritize the need for dedicating resources.
- Recognize the value of local leadership and policymaking.
- Look to and learn from the experiences of those communities in the vanguard of building resilience.

Background

Communities across the United States face significant challenges in the 21st century, including the impacts of global climate change, the end of cheap fossil fuels, the shift to a low- or no-growth economic norm, and the accelerating depletion of natural resources.

These global challenges manifest as local environmental, social, and economic vulnerabilities. Climate change is fueling more extreme weather events and threatening public safety and private property. The end of cheap fossil fuels has reshuffled the assumptions and expectations built into public infrastructure, supply chains, and business models. The continuing globalization and technologization of the economy makes it ever easier for capital and jobs to move, a reality that many communities are unprepared for or simply ill-suited to address.

When a short-term disaster strikes—or a long-term disruptive change unfolds—we are vulnerable where we live. Our local natural resources, economic activity, and social and political systems all experience stress, and our communities, families, and economies can suffer.

Resilience is a term often used in discussions about communities wrestling with disruptive change. It's most commonly meant as simply the ability to "bounce back" from a single disaster like a hurricane or earthquake. At a deeper level, however, resilience involves *adaptation* to changing circumstances, and consideration of the *complexity and interconnectedness* of systems. One of the most well-developed and influential conceptions of resilience comes from the field of environmental science. There, resilience is understood to have three defining characteristics:

1. The amount of change the system can undergo and still retain essentially the same function and structure.
2. The degree to which the system is capable of self-organization.
3. The ability to build and increase the capacity for learning and adaptation.[*]

Although environmental scientists studying resilience talk specifically about socio-ecological systems—the combination of an ecosystem with the human social system that uses it, and in doing so changes it—the concept can also be applied usefully to the complex systems that are our communities.

For communities, building resilience for the challenges of the 21st century means anticipating changing environmental, social, and economic factors; identifying specific local vulnerabilities; and restructuring public services and decision-making to enable both learning and adaptation.

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[*] See the definition offered by the Resilience Alliance, http://resalliance.org/index.php/resilience. The first characteristic here has been simplified slightly based on the more commonly cited definition of resilience found in Brian Walker, et al., "Resilience, adaptability and transformability in social– ecological systems," *Ecology and Society* 9(2):5, 2004.

Box: Principles of community resilience

In *The Resilience Imperative*, Michael Lewis and Pat Conaty offer up seven principles that help identify what generates resilience within our communities:

- **Diversity:** A resilient community supports and sustains diversity in various forms, in terms of cultures, economic activity, landscapes, and so on. Diversity provides for greater adaptation and innovation, while reducing the risks of systemic collapse.

- **Modularity:** A resilient community is made up of distributed elements that can operate independently of one another. Rather than being hyper-connected, these elements are capable of functioning alongside, and overlapping with, but independent from, other parts of the system.

- **Social capital:** A resilient community fosters trust, leadership, and the ability to community members to respond collectively to challenges and disruptions.

- **Innovation:** A resilient community encourages and values learning, exploration and adaptation, and creates an environment that fosters experimentation.

- **Overlap:** A resilient community prioritizes redundancy over economic efficiency in order to minimize risk.

- **Tight feedback loops:** A resilient community seeks to grow and maintain strong feedback loops that allow its members to recognize thresholds (social, ecological, economic) before crossing them.

- **Ecosystem services:** A resilient community takes into account the impacts of its activities on the ecosystem, rather than just passing those impacts on to somewhere else "out of sight and out of mind."

Source: Michael Lewis and Pat Conaty, *The Resilience Imperative: Cooperative Transitions to a Steady-State Economy*, (Gabriola Island, BC: New Society, 2012).

Purpose and Objectives

The purpose of the study was to explore how municipalities in the United States that are already leading the way on sustainability are understanding and applying the concept of resilience in their policies and planning. The results of this study will be used to facilitate further conversations about community resilience with municipalities, advocacy organizations, and funders, and to determine what tools and resources would be of best use to municipalities seeking to build community resilience. Ultimately it's hoped that this project can be a catalyst to facilitate and expedite a widespread transformation of resilience concepts and theory into practical principles and programs, with measurable outcomes and benefits for communities.

The specific objectives of the survey and subsequent evaluation of responses were as follows:

1. Evaluate how well the local governments (i.e., staff and elected officials) understand the potential threats, risks, and impacts associated with the current and projected challenges related to climate change, energy, natural resource constraints, and economic trends.

2. Determine how "resilience" is being addressed by these municipalities in ways that may differ from existing sustainability or emergency management initiatives.

3. Identify who is involved in (and responsible for) the planning and implementation of any community resilience plans and programs.

4. Identify perceived barriers to implementing actions that increase community resilience.

5. Determine if any best practices can be identified and then shared to enhance understanding of community resilience and accelerate more widespread adoption of those practices.

The survey also aimed to identify possible tools and metrics for evaluating the effectiveness of community resilience-building programs. Such tools could encourage collaboration among communities and civic leaders to transform "resilience" from a vague attribute of successful community planning into a well-documented and applicable set of actions ripe for adaptation by communities across the nation.

# Survey Methodology

Boundaries and Process

Forty communities across the United States were considered to receive the survey, with the goal of providing a cross section of communities and drivers. Of those 40 communities, 25 were selected based on criteria that included: recognition as a leader in sustainability, including in planning, innovation, energy, climate, and the "green economy"; population and geography (for diversity); and a history of experiencing at least one significant natural or manmade disasters as listed in the FEMA database. Not all communities fulfilled all criteria.

A final list of 25 invited communities represented small, medium, and large metropolitan areas across the United States, in all geographic regions. Of these, 14 completed the survey in time to be included in the analysis discussed in this report. Because some respondents asked for the responses to remain anonymous, the 14 represented communities are not specifically identified.

The researchers pre-qualified contacts via phone or email to confirm that the survey was directed to the individuals best able to answer the questions. To ensure the effectiveness of the survey, an early draft was shared with the Director of Emergency Management at a major city to review and provide feedback on the design, terminology, and clarity. The survey was disseminated via SurveyMonkey.com.

Municipalities invited to participate in the survey. *Fourteen of these twenty-five communities completed the survey; to preserve anonymity, the respondents are not identified.*

MUNICIPALITY	POPULATION	MUNICIPALITY	POPULATION
NORTHEAST		**WEST**	
Cambridge, Massachusetts	105,162	Bellingham, Washington	80,885
Keene, New Hampshire	23,409	Honolulu, Hawaii	337,256
Lewes, Delaware	2,747	Oakland, California	390,724
New York, New York	8,175,133	Portland, Oregon	583,776
		San Diego, California	1,307,402
MIDWEST		Vernonia, Oregon	2,151
Bloomington, Indiana	80,405		
Chicago, Illinois	2,695,598	**SOUTH**	
Lawrence, Kansas	87,643	Alexandria, Virginia	139,996
Minneapolis, Minnesota	382,578	Atlanta, Georgia	420,003
		Chapel Hill, North Carolina	57,233
CENTRAL/MOUNTAIN		Chattanooga, Tennessee	167,674
Denver, Colorado	600,158	Gainesville, Florida	124,354
Houston, Texas	2,099,451	New Orleans, Louisiana	343,829
Tucson, Arizona	520,116	Raleigh, North Carolina	416,468
Tulsa, Oklahoma	391,906		
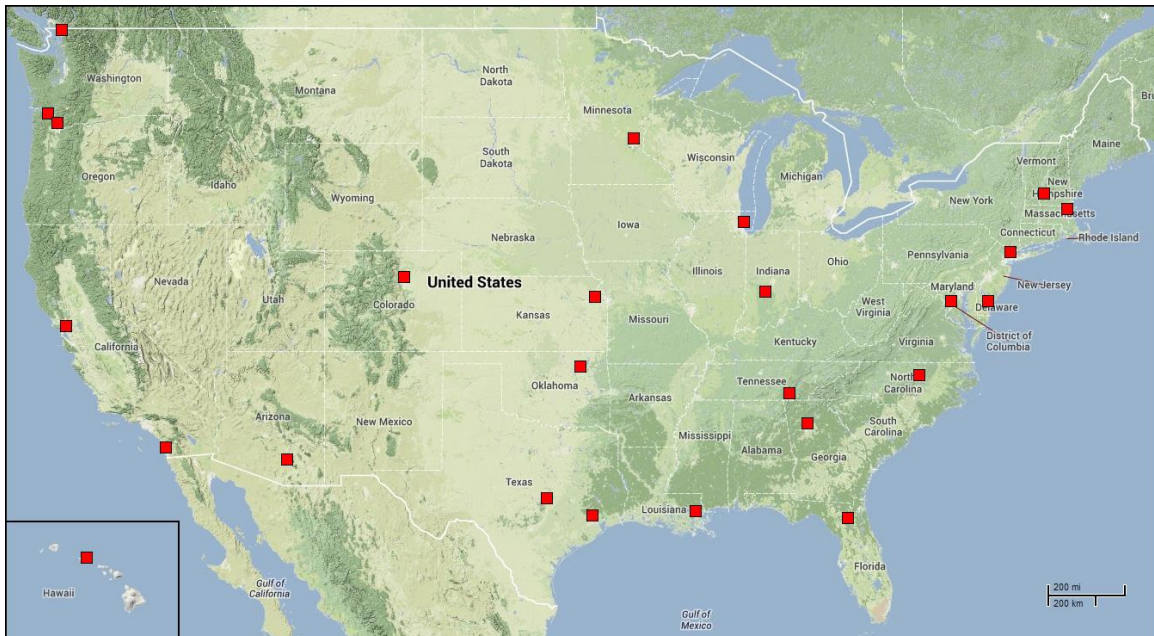
Survey Design

The survey was designed to evaluate respondents' knowledge and understanding of resilience on their own terms. "Resilience" was purposefully left undefined at the beginning of the survey to avoid influencing answers. The questions were organized as follows:

1. Background Information (on the individual respondent)

2. Community Risks and Vulnerabilities

3. Community Actions and Innovations

4. Effectiveness of Measures

5. Goals and Measurements

6. Definitions

7. Capacity

8. Next Steps

After establishing the identity of the survey takers, the survey determined what the respondents felt were the most significant risks and vulnerabilities facing their communities over the next five years. By initially focusing on these external issues, the researchers wanted to encourage respondents to consider how resilience was being addressed in their community, not just in their specific job function. By stipulating a five-year period, the researchers sought to define the challenges in such a way that they did not reflect the priorities and struggles associated with short-term financial or political issues. (Ten years was considered too long, since most communities' sustainability and resilience programs are probably less than ten years old.) The intent was to ensure the focus would be on relatively recent sustainability and/or resilience programs and activities.

The survey then asked respondents various questions about addressing the perceived risks and vulnerabilities, including: barriers and influences; existing policies and programs; stakeholder groups; and resources needed. The survey questions (and an analysis of the responses) are described in detail below.

Analysis of Survey Responses

This analysis of the survey results focuses on the salient questions, and adds details from some of the supporting open-ended questions as they pertain. In certain charts the grouping of responses in the analysis is indicated by color.

Question 1:	"What jurisdiction are you answering this survey for?"
Question 2:	"What is your position?"
Question 3:	"How would you best describe your role? (operations, manager, elected official, finance, etc.)"

These questions collected information about the individuals completing the survey to ensure that the correct person was taking the survey, as well as to provide possible insight into respondents' perspectives.

The 15 respondents worked in the following city departments:

- Department of Planning and Permitting
- Mayor's Office of Sustainability
- City Manager's Office
- City Administration
- Bureau of Planning and Sustainability
- Public Works
- Environmental Services Department
- Emergency Management

Question 4:	"Of the following, **which are the most significant risks and vulnerabilities facing your community over the next five years?** Please number the top five in order of significance, with '1' indicating the most significant and '5' indicating the least significant. Please remember your answers as we will ask you further questions about them later in the survey."
Question 5:	"If there are any other significant risks and vulnerabilities facing your community over the next five years not included in the list above, please write them here."

Responses to Question 4. *Respondents chose five items from a list of eighteen and ranked them on a scale of 1 ("very influential") to 5 ("non-influential'); thus the lower the score, the significant the item was found to be. The size of the bubbles corresponds to the number of responses received for those answer. The colors of the bubbles correspond to their grouping in the subsequent analysis.*

Most Significant Risks and Vulnerabilities
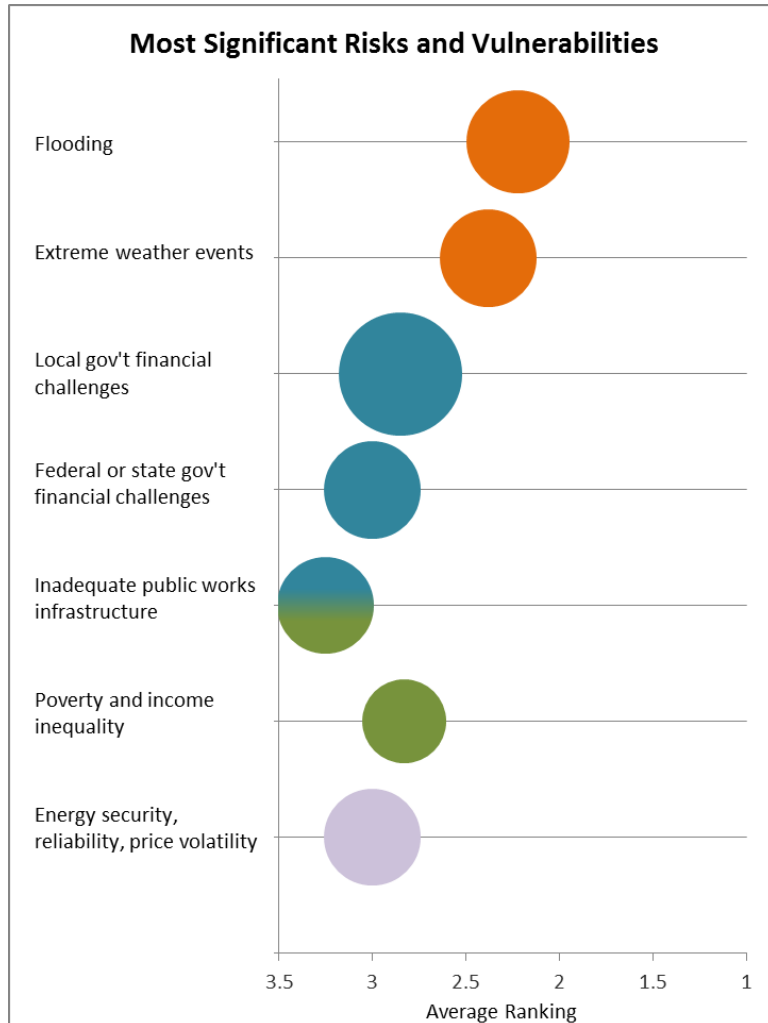
Questions 4 and 5 asked respondents to rank their communities' top five perceived risks and vulnerabilities from a set of seventeen possible answers covering environmental, social, and economic concerns. In ranking the respondents' answers we selected those categories that received at least six responses from the total pool of respondents. These were then scored to determine the lowest score achieved, since "1" was an indication of the highest concern.

The highest risk was perceived as resulting from natural occurrences, mostly attributable to climate change; it included extreme weather events and flooding, but not unique events like earthquakes and tsunami.

The next highest risk was split between (1) local financial challenges and (2) federal and state financial challenges. Another related area of concern was the inadequacy of public infrastructure to deal with potential disruptive events. This could indicate a lack of prior investment in such projects as levees and drainage projects, or it could be related to the next category of concerns: poverty and rising income inequality. Though fewer respondents chose this issue, those that did gave it a higher priority. Inadequate public investment in infrastructure could also include public housing—an aspect of infrastructure clearly related to the economic well-being of the community. This high ranking for issues related to economic dislocation and poverty, was, in the opinion of the researchers, a clear indication that economic problems were also a legitimate part of the stress that needed to be overcome by investing in greater resilience.

Finally, concerns about energy security, reliability, and price volatility also ranked reasonably high.

This question was one of several used to "define" what resilience was without using the term itself in the question or the preamble. Resilience was mainly perceived by the respondents as responding to natural events. This question was concerned with the first order of impacts, but less focused on subsequent instability. Tellingly, the one exception was the high concern for dislocation due to economic challenges affecting the public purse at the local, state, and federal levels.

No statistical analysis was applied to Question 5, although the comments were noted and informed the overall analysis.
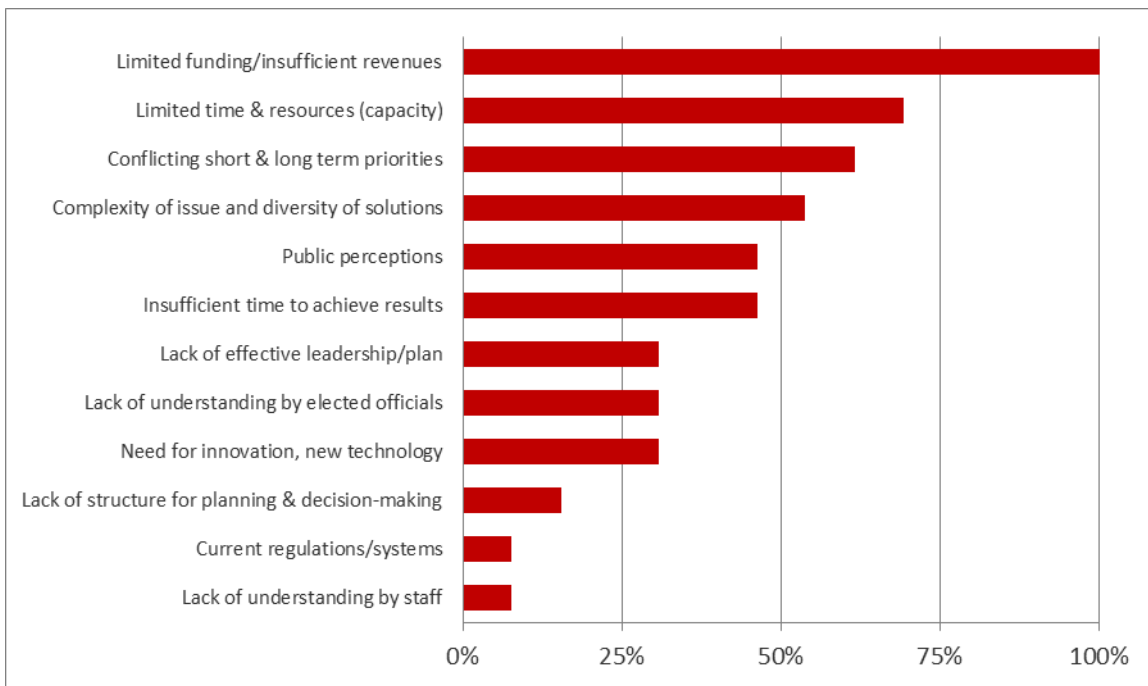
Responses to Question 6. *The percentage on the x-axis indicates the percentage of respondents who selected the issue as a barrier to implementation of resilience-building activities.*
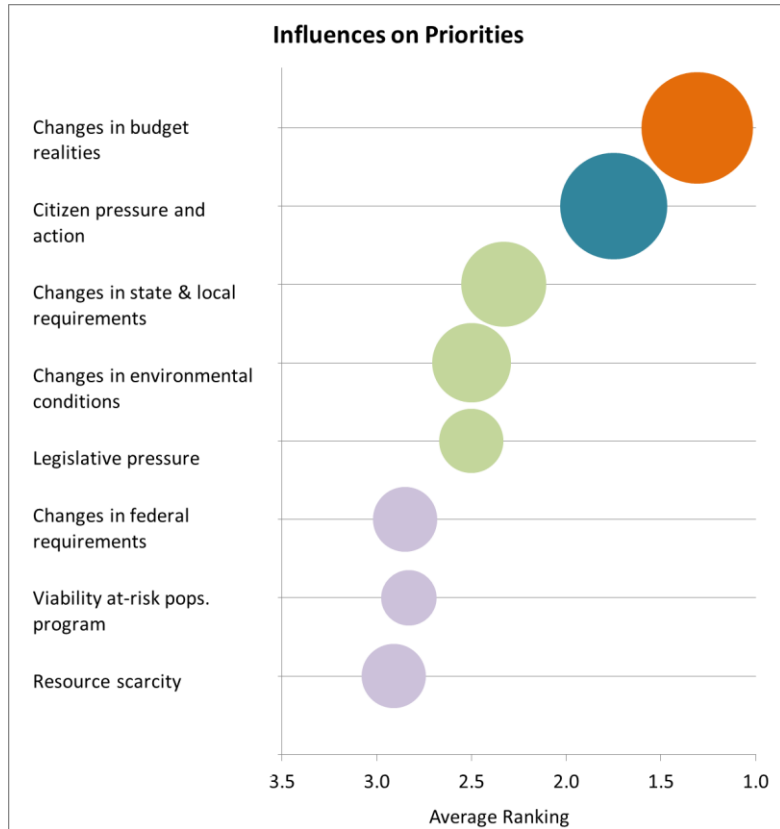
This question asked respondents to choose from a list of twelve "institutional" and "cognitive/social" barriers to action; respondents could choose as many of the barriers as they liked.

A lack of money, capacity, and (to a lesser extent) time were clearly the biggest impediments to the adoption of risk-mitigating actions. Many respondents acknowledged the complexity of the issues, and conflicting short-term and long-term goals contributed to impasses that stalled action. Interestingly, respondents largely did not cite decision-making structures and regulatory structures as significant barriers, nor was "lack of knowledge" seen as an impediment. We had anticipated that the concept of resilience (and the urgency of climate change mitigation) would potentially be shrouded in the dissonant cloak of politics; these responses suggest that is not the case, at least among this select group of communities leading on sustainability.

Question 7: "What influences your department's/agency's priorities when addressing the community risks and vulnerabilities you indicated in Question 4? (Rank the priority of each, with 1 being very influential and 5 being non-influential.)"
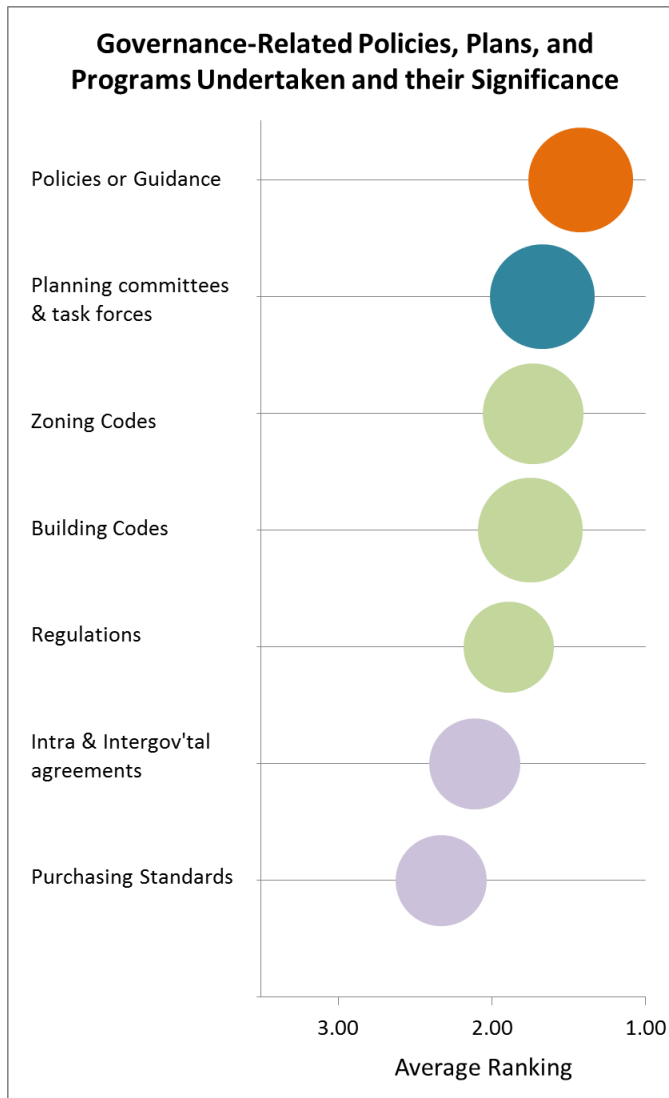
Responses to Question 7.
Respondents ranked each item on a scale of 1 ("very influential") to 5 ("non-influential'); thus the lower the score, the more influential the item was found to be. The size of the bubble corresponds to the number of responses for that item with a score of 2 or better.

Influences on Priorities

Changes in budget realities

Citizen pressure and action

Changes in state & local requirements

Changes in environmental conditions

Legislative pressure

Changes in federal requirements

Viability at-risk pops. program

Resource scarcity

3.5   3.0   2.5   2.0   1.5   1.0
Average Ranking

Not surprisingly, the biggest influence on setting priorities was "changing budget realities," i.e., the prevailing economic situation. Over ninety percent of the respondents put this into the top two rankings of importance. A very close second was citizen pressure, which only one respondent marked as "neutral" and none marked as of low or no influence.

Question 8: "Please select the types of GOVERNANCE-RELATED policies, plans and programs your community has undertaken, and indicate how significant they are to addressing the risks and vulnerabilities you indicated in Question 4."

Responses to Question 8.
Respondents ranked each item between "1" (most significant) and "3" (other relevant implementations), or "N/A"; thus the lower the score, the more significant the item to addressing the community's risks and vulnerabilities. The size of the bubble corresponds to the number of responses for that item that were not "N/A".

Governance-Related Policies, Plans, and Programs Undertaken and their Significance

Policies or Guidance

Planning committees & task forces

Zoning Codes

Building Codes

Regulations

Intra & Intergov'tal agreements

Purchasing Standards

3.00   2.00   1.00

Average Ranking

This question was intended to tease out what functions of municipal government were being affected by the introduction of policies and/or programs related to building resilience. Over half the respondents reported that formulating policies or guidance was of "most significance." Forming committees or task forces was of "most" or "secondary" significance to 85% of respondents, and none found it "not applicable." From these two items, one might surmise that about half the municipalities are at least engaged in policymaking related to perceived risks and vulnerabilities.

Of notable but slightly significance were concrete actions such as issuing codes and regulations. Over three-quarters found building codes of secondary or highest significance, with zoning codes and other regulations not far behind. None found inter- and intra-governmental agreements of "most significance," and purchasing standards were of minimal significance.

Question 9: "Select the types of FORMAL PLANS your community has undertaken, and indicate how significant they are to addressing the risks and vulnerabilities indicated in Question 4."

Responses to Question 9.

*The key concept in this question was the "formal" aspect of the work in the form of plans.*

Respondents ranked each item between "1" (most significant) and "3" (other relevant implementations), or "N/A"; thus the lower the score, the more significant the item to addressing the community's risks and vulnerabilities. The size of the bubble corresponds to the number of responses for that item that were not "N/A".

Formal Plans Undertaken and their Significance
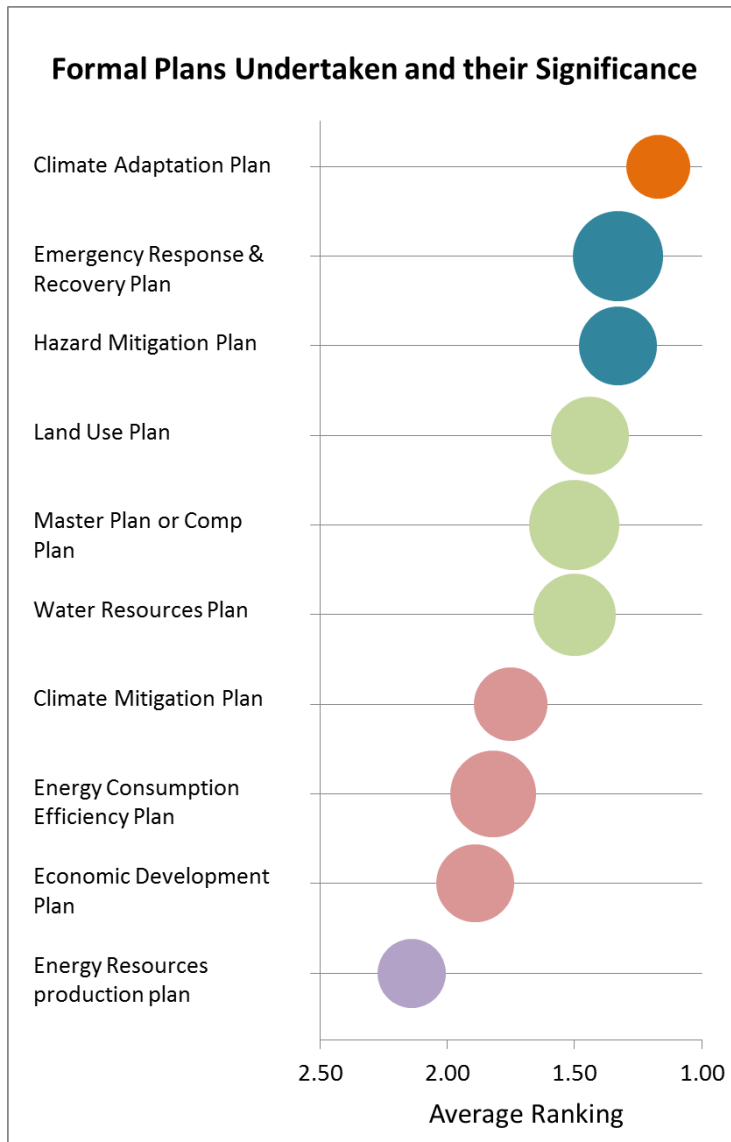
The development of local Hazard Mitigation Plans and Emergency Management plans is required by the U.S. Department of Homeland Security in order to receive funding from FEMA for mitigation projects and recovery after a disaster declaration. Thus, as expected, most of the respondents indicated these types of plans have been implemented in their communities and are highly relevant (although not necessarily the most relevant). Communities were split on the relative importance and value of climate adaptation plans; although five selected them as "most significant," four selected them as "not applicable." Master/comprehensive plans, land use plans, and water resource plans were seen as relatively significant—interestingly, more so than climate mitigation plans.

Responses to Question 10. *Respondents ranked each item between "1" (most significant) and "3" (other relevant implementations), or "N/A"; thus the lower the score, the more significant the item to addressing the community's risks and vulnerabilities. The size of the bubble (exaggerated or greater visibility) correspond to the number of responses for that item that were not "N/A."*
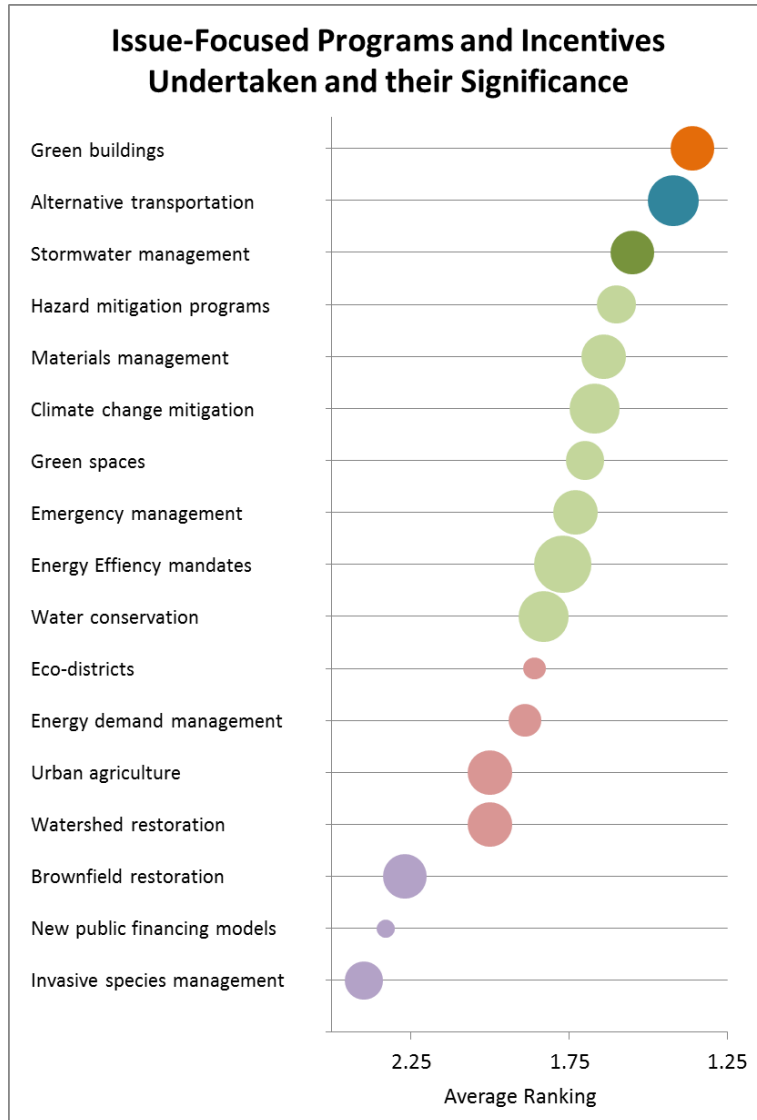
Over 60% respondents said that programs related to alternative transportation were "most significant" in addressing risks and vulnerabilities, 92% ascribed them some significance, and none marked them as "not applicable." Green buildings and stormwater management also scored relatively high. In comparison, the areas conventionally associated with resilience—emergency management and hazard mitigation—scored notably lower: under 40% ranked either of these as "most significant." Over 90% of respondents indicated some significance for programs related to energy efficiency, climate change mitigation, and water conservation, although they were split on whether these items were of top or secondary importance.

Water conservation, watershed restoration, urban agriculture and brownfield program had high participation, but were largely rated at secondary importance.

It is possible that the kinds of programs being assessed in this question are managed by multiple agencies in respondents' jurisdictions, and as such, the respondents may not have been sufficiently aware of them. Most of the programs that scored high were those that would traditionally be managed by—or were within the extended purview of—planning staff.

Question 11:	"Are there any innovative policies, plans or programs your community has implemented that you think are particularly successful, might be promising, or would qualify as a best practice for building community resilience?"

This open-ended question produced anecdotal information about the municipalities' leading efforts. Several jurisdictions cited the importance of assuming a coordinated approach and actually getting policies and actions implemented. One respondent indicated, "[t]he City isn't doing anything unique but is probably in the vanguard of communities addressing the range of issues."

Several cities emphasized their progress in stormwater management, building codes and standards, transportation planning, and inter-agency oversight of issues related to climate change. For example, one respondent highlighted their city's "dedicated, pay-as-you-go fund" for maintenance and upgrades of drainage and street infrastructure as an example of a successful resilience-related program. Another described how their community established a non-profit organization to help homeowners plan and finance energy efficiency upgrades in older homes (established with the help of a $20 million grant from the U.S. Department of Energy's Better Buildings Neighborhood Program).

Question 12:	"Please describe what the term "resilience" means to you in the context of community planning."

This question was in some ways the crux of the survey. One of our major interests was to determine how communities understood the concept of "resilience," especially since the term has been used in various and inconsistent ways in recent years: from a narrow sense of simply "bouncing back" from a disaster (flood, earthquake, terrorist attack) to a much broader sense of adapting to long-term change in environmental, social, and economic systems.

To avoid influencing respondents' answers, the survey largely avoided using the term (the first instance of "resilience" in a question was in Question 11). In this way, we hoped the survey could introduce general activities that could be considered "resilience–building" without prejudicing what was and was not included in the concept. See Box below for a description of how responses were analyzed.
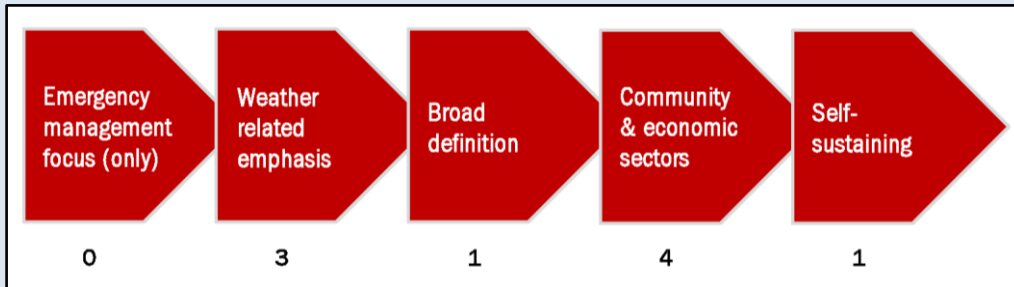
Significantly, the survey showed that most respondents understand "resilience" to apply to more than just emergency services and hazard mitigation (none of the respondents' answers suggested such a narrow definition). Moreover, only about half the respondents interpreted resilience to apply mainly to weather-related issues (most likely linked to some extent with climate change).

Here are the verbatim definitions of resilience submitted by the respondents:

- *The ability to be a vibrant and vital community and to weather challenges confronting the community fabric.*

- *Ability to withstand significant events, and when that cannot happen, ability to recover quickly.*

- *Both acute/immediate response to manage emergency events, AND planning and preparedness to provide for long-term viability and vitality of our community over time.*

- *Ability to absorb and rebound quickly from the effects of a changing climate.*

- *Resilience is the ability of a community to withstand economic, social and environmental changes without collapsing.*

- *Building a strong community that can thrive under a wide range of future scenarios.*

- *A reduction in climate vulnerability to the extent that climate impacts can be handled within the constraints of a community's (adaptive) capacity to avoid or mitigate without major disruptions or damage to social, economic, or natural systems.*

- *The ability to stabilize and recover quickly from a disaster.*

- *Planning for a community to be able to withstand extreme weather events or disasters without major disruption in services.*

- *Resilience means planning for a community able to withstand (and thrive in the context of) upcoming climate and economic uncertainties.*

- *Similar to "adaptability'; the ability of a community to respond to adverse conditions; whether a sudden environmental disaster event, or severe economic downturn that will take a while to turnaround.*

- *Building community resilience incorporates all aspects planning ahead to be able to "bounce back" after a disaster or other event that impacts any sector of the city and community (e.g. people, property, city infrastructure, business/economy, natural resources, etc.)*

- *Creating a healthy community that is increasingly independent of importing goods and services.*

Box: Interpreting definitions of resilience

In order to better understand the range of answers received, we considered them on a spectrum that ranged from the narrowest definition of "resilience" to the broadest:

Emergency management focus (only)	Weather related emphasis	Broad definition	Community & economic sectors	Self-sustaining
0	3	1	4	1

*(The numbers indicate how many respondents we classified under each category.)*

The spectrum describes a series of positions that begin from a simple, narrow definition (on the left), gradually including more factors and ending with a complex and all-encompassing perspective (on the right). For example:

a) The most narrow understanding of resilience might be characterized by a focus merely on emergency management and hazard mitigation.

b) A somewhat deeper understanding would incorporate concerns about weather and climate change.

c) Noticing that a number of communities responded in a generic way that evinced an understanding of resilience that went beyond disasters (but without much specificity), we posited a next stage of simply "broad-definition resilience."

d) The next stage is characterized by inclusion of human factors like social and economic developments and needs.

e) Finally, one response extended the interpretation of resilience to include—among other things—becoming "increasingly independent of importing goods and services," a goal that considers interrelated economic, social and environmental factors, and thus suggests a more complex understanding of resilience.

Although the artificial distinctions created by each stage in this scale do not reflect any of the respondents' actual interpretations of resilience, we found it a useful way to compare communities' perceptions.

| Question 13: | "Is there a department or agency in your jurisdiction tasked with coordinating local resilience planning? If yes, please identify it and who (official, agency, etc.) it reports to." |

Finally, we asked about the presence of any department or agency tasked with coordinating local resilience planning. A little under two-thirds of respondents cited the presence of a coordinating body, and the remaining third said there was none. We found this ratio of responses consistent with the substantive answers given in the foregoing questions, and it may explain the lack of knowledge and coordination in some communities.
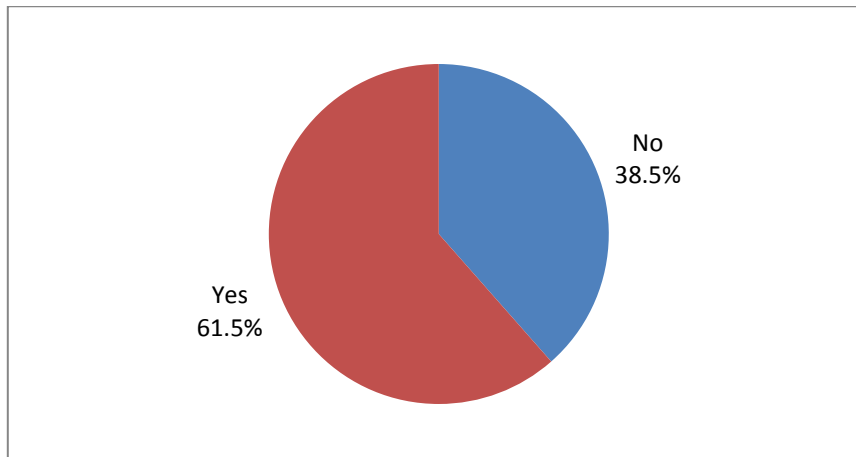
Responses to Question 13.

Question 14:	"Please name the stakeholder departments, agencies, and/or groups in your community that you consider to be essential partners for planning, developing, and providing services to build community resilience."
Question 15:	"What tools or resources would you need (or think other communities might find useful) to improve resilience planning and systems?"
Question 16:	"Final thoughts, comments, insights, feedback, questions?"

These questions aimed to collect unanticipated responses and provide greater context.

Conclusions

Five major conclusions emerged from an analysis of the survey responses. They suggest a useful frame for further examining the role of resilience in community policymaking and planning.

1. **While "resilience" is interpreted many ways, it is largely understood by these sustainability leaders to have a scope greater than mere disaster preparedness.** This stands in contrast to the current public conversation on resilience in urban planning and policy circles (and increasingly in popular media and politics), where concerns about climate change and natural disasters generally dominate.

2. **Resilience-building is already regarded as an important part of these communities' ability to deliver services**, although respondents ascribed different specific activities to it. This was unexpected as resilience has not been a significant topic in local public policy and planning until only very recently.

3. **Lack of time and lack of resources are seen as the biggest barriers to resilience-building actions**, not necessarily a lack of public or government awareness. Budgetary constraints also had a direct impact on the pace of adoption of relevant initiatives.

4. **Citizen pressure is a major influence** on resilience-building actions. Citizens understand the need for greater resilience and want actions to enhance it.

5. **Neither national nor local regulations are seen as significantly hindering community resilience-building actions.** Changes in local regulations are, in fact, pushing adoption of resilience-building approaches more than federal regulations.

These conclusions point to the need for a commonly held and generally recognized understanding of what resilience (or perhaps better stated, "community resilience") actually means. Merely using the term to describe an additional desired attribute of municipal efforts to accommodate climate change or emergency preparedness risks diminishing its usefulness. To the extent that "resilience" remains vague in planning and policy usage, it risks ultimately becoming as meaningless a term as "green" (and, in some quarters, "sustainable").

By using a concept of resilience that considers interconnected systems, changing circumstances, and community-specific vulnerabilities, municipalities may be impelled to take farther-reaching steps than they might otherwise. These actions could include anticipating ongoing or permanent volatility and stresses so that the community's response might consider how to leverage the "new normal" for long-term benefit. In addition to adopting mutually agreed-upon terminology and vernacular, conducting technical education and outreach will be critical for ensuring best practices and technical information are widely shared and implemented. Recognizing "resilience" as a specialized imperative can help justify the human and capital investment in resources needed for resilience-building initiatives.

Finally, these conclusions suggest that efforts to encourage resilience-building in U.S. communities should:

- Reach beyond disaster preparedness and basic awareness-raising.
- Identify and work with local government officials, agencies, and staff—as well as community leaders and stakeholders—who are already engaged in resilience-building.
- Prioritize the need for dedicating resources.
- Recognize the value of local leadership and policymaking.
- Look to and learn from the experiences of those communities in the vanguard of building resilience.

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