

## Institutionalizing Resilience Within City Governments: Early Evidence from the 100RC Network

By Amy Armstrong, VP for Knowledge & Impact at 100 Resilient Cities  
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### **Executive Summary**

100RC was created in 2013 to partner with 100 diverse cities around the world, helping them rethink their risks and opportunities and enact broad based policy change in order to implement meaningful and ambitious resilience initiatives. One of 100RC's goals in this partnership is to support city governments as they integrate resilience thinking into their planning, decision making and budgeting for the future. In a short period of time, many of the 100RC network cities are already demonstrating a range of policy changes that institutionalize resilience. The following paper provides examples in four areas of policy change: project design, land use planning, political alignment, and budgeting and capital planning. While it is too early to identify the impacts of these kinds of policy changes, the fact that municipal bureaucracies are embracing and adapting so quickly is encouraging. It suggests that they see resilience policies as a key method for improving the well-being of their cities and facilitating their chances to adapt, thrive and grow in the face of the shocks and stresses they will inevitably face. We hope this early collection of examples serves as a helpful resource, and the author and her team look forward to future collaboration with researchers to begin to track and understand the impact of these policy changes over time.

### **Introduction to 100RC**

Cities are central to the three defining global trends of our time: rapid urbanization, complex globalization, and a changing climate. These challenges converge most acutely in cities, where growing populations face new, interconnected and often uncertain threats: from severe storms, to aging and inadequate infrastructure, to terrorism and social unrest. Despite being home to more than half of the global population, the centers of finance and diplomacy, a magnet for migrants and the disenfranchised, and located in some of the world's most fragile and vulnerable ecosystems, cities have traditionally lacked the authority, expertise and resources to manage this kind of complexity and uncertainty.

100 Resilient Cities—Pioneered by The Rockefeller Foundation (100RC) was born out of an urgent understanding that confronting these challenges would require a new set of solutions and a new movement for urban resilience. Such a movement is necessary to ensure cities are better able to survive and thrive in the face of 21st century shocks and stresses, save lives of the most poor and vulnerable citizens when disaster strikes, and improve lives in between acute crises.

The Rockefeller Foundation was well positioned to catalyze this movement. From its longer history in urban planning and efforts to transform cities to its large body of urban resilience work in New

Orleans after Katrina and the Asian Cities Climate Change Resilience Network initiative, the Foundation understood the resilience challenges faced by cities and what kinds of solutions could be deployed to address them. It also understood that in order to more comprehensively advance the field of urban resilience, the next intervention they funded would need to be at scale—intentionally building a global network rather than a set of discrete initiatives.

Building on all of this learning, the Foundation launched 100 Resilient Cities with the goal of building the resilience of the initiative’s 100 member cities. Through close partnership with these 100 pioneering cities, 100RC seeks to change the way these cities think and plan, foster new champions and capacity, and ensure their poor and vulnerable are safer, healthier and have increased livelihood options—learning and scaling action throughout. The ultimate impact we seek to achieve is to build a global urban resilience movement that will change the way the world’s cities understand and act on their risks and opportunities.

### **Focus on long-term systems change**

100RC is a unique philanthropic intervention in that it specifically targets long-term systems change at the municipal level. Many international development programs either target funding to federal level capacity building in countries, discrete projects, or seek to build the capacity of the civil society. In contrast, 100RC seeks to transform the way in which municipal/city scale governments understand risk, engage with vulnerable populations, and plan for the future. This is, at its essence, a governance intervention that impacts regulation, organization, resources, and information—the policy instruments the conference conveners asked us to reflect on.

Our program provides funding for a Chief Resilience Officer (CRO), access to a global network of peer practitioners, pro bono technical and strategic support, and a guided process of broad stakeholder engagement, resilience diagnostics and capacity-building. Our hope is that cities will not only use these resources to develop and implement programs to increase their resilience, but will also institutionalize resilience into their core operations and plans for the future. Given how slowly city governments are known to move and change, and given the relatively little seed investment 100RC is making to influence behavior change, this is an ambitious bet.

100RC cares deeply about long-term systems change – or what we refer to as institutionalizing resilience – because we believe that cities that make fundamental structural changes to embed resilience into how they plan and operate will: use their resources more efficiently and for greater benefit; be more organized and coordinated to implement actions; be better prepared to deal with future challenges, both foreseen and unexpected; and be better able to engage with and serve their citizens in both good times and bad. In short, we believe that institutionalizing resilience and fundamentally changing cities’ structures and policies will have the greatest opportunity for long-term change and real impact in the cities where we work.

An external evaluation of our program validated the need for such an approach, citing that: “Building resilience requires profound structural changes in how city institutions plan and function, and in the way that cities provide services that reduce chronic internal stressors and mitigate external shocks, particularly among its most vulnerable populations.”<sup>1</sup>

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<sup>1</sup> Observations are taken from interviews with representatives from programs comparable to 100RC, as part of a Rockefeller Foundation-funded evaluation conducted by Urban Institute and summarized in the March 2017

In addition to the need for long-term change, the evaluators also noted the ambition and distinctiveness of such an approach: “We found no other program explicitly targets fundamental change in city institutions, such as de-siloing within cities, in part due to their self-perceived limited ability to alter existing city government structures.”<sup>2</sup>

For as ambitious and urgent as it may be, we recognize that systems change is also a long and sometimes ambiguous process that is difficult to measure, particularly given the diversity of city contexts and structures. To begin to identify lessons learned and build evidence of traction, 100RC has developed a typology and a set of indicators to track several kinds of progress toward institutionalizing resilience. Using this framework, we assess city progress in various ways: 100RC staff collect data on cities’ systems change on a quarterly basis, while CROs share progress (and challenges) towards institutionalization through biannual grant reports. As mentioned above, we are also joined in this effort by the Urban Institute, who is conducting a five-year evaluation of the program to bring an external and objective perspective to our work and learning. (Please see the appendix for an overview of the indicators 100RC and Urban Institute use to track and measure institutionalization of resilience.)

### **Signs of policy change**

Despite the fact that 100RC’s partnership with cities is only a few years old, we are already seeing signs of cities taking action to institutionalize resilience. The details of how cities are integrating resilience into their policy landscape vary; however, early signs of progress across the 100RC network point to the following trends:

- *Project design*: Cities are changing the design processes that dictate how programs or initiatives are developed or approved. This is done primarily in two ways: by embedding resilience principles and systems thinking into the formal processes and bureaucracies associated with how municipalities design, and/or changing the way in which departments collaborate and make decisions on projects that may influence a city’s resilience.
- *Land use planning*: Based on their resilience profiles (the shocks and stresses they face, their areas of strength and vulnerability, and understanding of interdependencies, etc.) cities are changing the zoning and regulations that govern the built environment—determining what can be built where and with what requirements.
- *Political integration*: Cities are influencing and aligning with the priorities of other government bodies whose formal or informal authority will have an impact on the city’s resilience agenda. This can include integrating resilience as a pillar into a neighborhood, state or national planning process, or bringing together various political entities to align and affect policy change.
- *Budgeting and capital planning*: Recognizing that the budgeting and planning process is a key lever of influence toward long-term change and decision making, many cities are finding ways to integrate resilience into the budgeting and capital planning processes.

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report ‘Overview of the 100 Resilience Cities Monitoring and Evaluation and Status of the Baseline Data Collection’ authored by Carlos Martín, PhD and Ammar Malik, PhD.

<sup>2</sup> Ibid.

What follows is a collection of examples, organized by these categories and sourced from the 100RC member city network, that illustrate the kinds of policy change cities are enacting. Where possible, we use direct quotes from the cities' grant reports to show how they articulate this work and its importance, coupled with summaries from internal and external data collection efforts.

### **Project design**

- **New York City:** “One example of how the city has embedded resilience principles in City processes is through the release of Climate Resiliency Design Guidelines (4/21/2017). These guidelines provide a consistent, City-wide policy and methodology for incorporating climate change projections into the design of all City buildings and infrastructure at risk from extreme weather or changes in baseline environmental conditions due to climate change. The guidelines, which provide guidance on sea level rise, coastal storms, precipitation, and heat, are a technical document that make climate science usable to engineers and architects. The guidelines were co-developed with 15 City agencies involved in design, construction, or engineering procurement, with the aim to meet their specific needs and support their existing design processes. The City's Climate Resiliency Design Guidelines are being used by city agencies, including the Department of Design and Construction and the Department of Environmental Protection, to assess how projects in preliminary design or in the pipeline should be modified or re-sited given climate projections and the resilience standards established in the guidelines. For example, coastal construction projects are being designed to account for sea level rise as well as evaluated to determine risk from extreme heat and precipitation. Projects to be sited in areas of permanent tidal inundation due to sea level rise are undergoing alternative site analysis.” – New York City grant report 6/17<sup>3</sup>
- In **New Orleans**, the city has developed a new Resilience Design Review Committee—an interdepartmental committee that reviews all capital projects meant to enhance resilience in order to ensure consistency, quality, coordination, and public transparency. These agency leaders meet once a month to review project designs (from pre-design through project development), and have already identified ways to streamline delivery and leverage single investments for additional benefit. A further sign of New Orleans' progress toward embedding resilience thinking into design: the city is developing and implementing new resilience design standards for public works and infrastructure, including re-examining its design standards for its streets to incorporate storm water management, multi-modal transit, and recreational amenities (which were identified as resilience challenges in the city's strategy) as standard design components, rather than special features as they had been treated in the past<sup>4</sup>.

### **Land Use Planning**

- The city of **Norfolk** redesigned the city's approach to planning and land use based on the analysis and goals of its resilience strategy. Vision 2100 was released approximately a year after the city's resilience strategy, and is a visionary planning document that explicitly advances the goals of the city's resilience strategy and introduces a bold set of policies and principles to govern future growth in a resilient way. The plan organizes the city into four districts based on their shocks,

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<sup>3</sup> More information available here: <http://www1.nyc.gov/office-of-the-mayor/news/271-17/mayor-new-resiliency-guidelines-prepare-city-s-infrastructure-buildings-for>.

<sup>4</sup> More information on the city's Resilience Design Review Committee here: <https://www.nola.gov/resilience/designreview/>.

stresses and asset profiles, and proposes distinct land use strategies for each, from Transferable Development Rights for high-risk, low-asset neighborhoods, to targeted investment in low-risk areas with the potential for developing new assets. Vision 2100 extends the city's resilience work into practical policy guidance for how the city should grow, and provides a concrete example of a city institutionalizing resilience thinking, with individual city agencies using the goals of the resilience strategy as the direction for their own plans and objectives<sup>5</sup>.

- The city of **New Orleans** updated its Comprehensive Zoning Ordinance with a resilience lens—requiring most new development projects to submit comprehensive landscape and storm water management plans that articulate how the design of the project will manage storm water runoff. By holding individual developments to a higher standard, the city has diffused the responsibility for managing water risk and achieved a more inclusive and widespread water management solution than would have been possible through a single, top-down infrastructure solution. Additional benefits of such parcel-level efforts to manage storm water include reducing the urban heat island effect, decreasing the incidence and severity of flooding, reducing strains on the drainage and pumping system, improving water conservation and protecting public health, safety, and welfare.

### **Political Integration**

- **Mexico City:** “Resilience thinking is starting to permeate through institutions and processes in the City. The new Constitution of Mexico City included resilience as a principle for good government and is highlighted as an element of security, human rights and adaptation to natural disasters. In May, the Office with the support of 100RC, started a participatory process to create a Resilience Law that will support resilience as a cross-cutting theme of public policy, strengthen a link between local and international agendas, and guarantee access to key data and information.” - Mexico City's grant report 1/17
- **Glasgow:** “Resilience has been adopted as a central focus of the Community Planning Partnership, which is the principal vehicle for strategic partnership working in the city. The theme of resilient communities is now fully embedded in the emerging Community Plan (<https://www.glasgowcpp.org.uk/CHttpHandler.ashx?id=38492&p=0>) This means that resilience is a shared goal between public sector partners, community groups, local businesses and third sector organisations. Partners are required to ensure their own policies and practices are fully aligned with this plan. The city is connected to the Scottish Government and its national agenda through the Local and Regional Resilience Partnership arrangements.” –Glasgow grant report 1/17
- **Miami-Dade County** is partnering with key local institutions to embed resilience thinking into the planning and operations of their utilities. Specifically, the county's Water & Sewage Department has launched a Resilient Utility Coalition (RUC) to provide leadership in assessing and adapting utility operations to an uncertain future. It is still in its early phases, but the Water & Sewage department is bringing together the Port of Miami, the County's CRO and others to define the objectives and work of this new coalition.
- **Melbourne:** “Over the past year, Resilient Melbourne undertook the critical task of establishing the Resilient Melbourne Delivery Office (RMDO), hosted by the City of Melbourne. The RMDO is designed to oversee delivery of the Resilient Melbourne Strategy Actions and embed resilience-building principles and activities across metropolitan Melbourne over an initial five-

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<sup>5</sup> More information on the city's efforts to institutionalize resilience into their land use plan, and the interaction with the city's resilience strategy can be found here: <https://www.norfolk.gov/DocumentCenter/View/27768>.

year term. In this first year, Resilient Melbourne was funded by the City of Melbourne and the Victorian Government; other metropolitan councils also began contributing support, such that funding will average to an equal three way split over the five-year term of the Office. We also rely on critical in-kind support and contributions of time from metropolitan Melbourne Councils, 100 Resilient Cities – Pioneered by the Rockefeller Foundation (100RC), many Victorian Government agencies, academics and community and private-sector partners.” – Melbourne grant report 07/17

## **Budgeting and Capital Planning**

- In **Berkeley**, the city is using resilience to prioritize funding for capital projects. In November 2016, Berkeley voters approved a \$100M infrastructure bond, known as Measure T1, which was born directly from the city’s resilience building efforts. The Berkeley CRO developed integrated criteria for analyzing potential projects eligible for funding, such as the reconstruction and improvement of streets, sidewalks, parks, storm drains and senior centers. The criteria reflect the goals of the resilience strategy, and include: project readiness, equity, emergency preparedness, sustainability, cost-benefit analysis, ability to provide multiple benefits, and alignment with existing city plans. After applying these criteria, Berkeley published a list of the first round of proposed infrastructure projects that qualified and could benefit from this bond money, including bioswales and other water management efforts, pedestrian and bicycle infrastructure upgrades to more than a dozen streets, seismic retrofits to several city-designated care and shelter centers, and repairs to the city’s Municipal Pier<sup>6</sup>.
- **Calgary**: “Our Administrative Leadership Team has approved the planning framework for the next business plan and budget cycle (2019-2022) and the resilience strategy will be directly embedded within that. This is the first time that the resilience lens will be intentionally linked into the planning and budget work. Additionally, our capital planning coordination within Infrastructure Calgary has established a series of new capital work, to support the economic activity in Calgary, and the criteria by which projects were assessed and prioritized included resilience criteria based on the CRF. Additionally, we are beginning to embed resilience criteria into our capital planning decisions through the work of Infrastructure Calgary.” – Calgary grant report 7/17

## **Looking Forward**

We are encouraged by the early signs of institutionalization profiled in this report, but much remains unknown. We don’t know yet what kind of institutionalization is more or less likely to position cities to implement specific projects or programs in a resilient way. Likewise, it is unclear what types of policy change will be most effective in supporting cities to build their adaptive, absorptive and transformational capacities to better respond to the next disruption they experience. We also have more to learn about which approach to institutionalization has the greatest impact on strengthening the city’s fabric and improving the quality of life for residents – particularly for cities’ most vulnerable populations. Equally, we hope to build a greater understanding of which of the types of policy and operational changes discussed above are more or less successful within different kinds of city governance structures or regions globally. We have seen significant variety of institutional change across the 100RC network, with dramatic change in some, and very little in others; additional research to better understand what conditions (e.g. city capacity, types of administration systems,

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<sup>6</sup> More information on Berkeley’s bond measure can be found here:  
<http://www.100resilientcities.org/berkeley-makes-major-investment-resilient-infrastructure/>.

recent experience with a shock or stress, leadership, etc.) are more or less likely to spur meaningful policy change will be important to this work moving forward.

In addition to (and often in concert with) the areas of policy change discussed above, another area of importance for 100RC is the formalization of the CRO Office. Already, we have seen that nearly all cities continue to fund their CRO and Resilience Teams beyond the 100RC grant period, and many have taken steps to formalize and expand the office through city charter or mandates. These early signs of institutionalization are incredibly promising and, as with the above areas of inquiry, we continue to explore how the positioning and funding of the office link to other areas of systems change within a city and how we can support cities to ensure the lasting power and impact of their CRO.

100RC is committed to partnering with member cities for the foreseeable future, providing a unique opportunity to help answer some of these questions and advance the field's understanding of how, and what kind of policy changes can best support urban resilience implementation. Understanding this will help us collectively identify the best practices and enabling conditions that will survive political change over time and deliver the greatest benefit and impact to the city and its residents. We look forward to sharing our lessons learned and recommendations throughout the journey.

**Appendix**

**Table 1: Sample 100RC internal indicators for tracking institutionalization of resilience within city planning and operations**

Indicator	Definition
<b>Horizontal Alignment: Resilience Strategy &amp; City Policies and Plans</b>	Horizontal alignment: Intentional alignment between resilience strategy goals and actions and other formal city policies and plans
<b>Vertical Alignment: Resilience Strategy &amp; National, State, Neighborhood Policies and Plans</b>	Vertical alignment: Intentional alignment between resilience strategy goals and actions and formal state, national and community policies and plans
<b>Horizontal Integration of Resilience: Resilience in City Policy Planning</b>	Horizontal integration: City has embedded resilience principles into new/existing planning and policy work, including cross-jurisdictional coordination and partnership
<b>Vertical Integration of Resilience: Resilience in National, State, Neighborhood, Policy, Planning,</b>	Vertical integration: Resilience principles have been embedded “upwards” within new/existing state or national plans and “downwards” within sub-muni and neighborhood plans.
<b>Formal Mandate for CRO Office</b>	City has a formal mandate for CRO Office, such as through executive orders, charters, or legislation (beyond standard program adherence)
<b>Secured funds for CRO office beyond grant</b>	City secured funds for resilience staff and office beyond the initial 100RC 2-year grant period

Table 2. Sample indicators for Urban Institute’s external evaluation of 100RC program. External evaluators will be collecting data through site visits and document review of a sample of 22 cities in the 100RC network, and analyzing the extent to which change was found along the within the following constructs.

**Pathway A Outcome Constructs (for Baseline Pilot)**

Outcome Constructs	Pilot Indicators
<b>Planning</b>	
<b>Explication of resilience</b>	<p><b>Test indicators</b>            Explicit and implicit references to resilience in plans other than the Strategy.            Definition and operationalization of resilience in plans other than the Strategy.            Definition and operationalization of the Strategy’s shocks &amp; stressors in plans other than the Strategy            Articulation of resilience projects or actions in the relevant plans other than the Strategy</p>
<b>Use of science and evidence</b>	<p><b>Test indicators</b>            Cited basis (such as scenarios, forecasts) for defining uncertainty and dealing with uncertain futures Cited reliance on evidence for plan priorities and decisions in plans other than the Strategy.</p>
<b>Internal consistency with other city plans</b>	<p><b>Test indicators</b>            Existence and depth of cross-references within city plans (particularly, on shocks and stressors)            Familiarity of plan authors and implementing agents with other plans (including the eventual Strategy) [Note: data for this indicator likely can only be collected via interviews and not during baseline pilot. However, you are encouraged to find any public sources, including media accounts.]</p>
<b>Vertical integration with broader scale plans (e.g., state or nation for “upwards” integration and sub-municipal or neighborhood plans for “downwards” integration)</b>	<p><b>Test indicators</b>            Existence and depth of plan cross-references across upwards and downwards governance entities’ plans (esp., on shocks and stressors)            Familiarity and involvement of state, regional, or national entities with city plans (including the Strategy). [Note: Like the above, data for this indicator likely can only be collected via interviews but you are encouraged to find any public sources. Also, “downwards” entities are omitted here because they would be documented in the construct immediately below.]</p>
<b>Community accessibility to plans and participation in plan development</b>	<p><b>Test indicators</b>            Procedures (formal requirements and informal) for community participation in plan development            Representativeness and diversity of participants in recent and current plan developments            General community accessibility, awareness, and familiarity with published plans (Note: not feasible in pilot).            Media accessibility, awareness, and familiarity with published plans (both existence of reporting and nature of commentary)</p>
<b>Alignment with vulnerabilities and vulnerable populations</b>	<p><b>Test indicators</b>            Existence of procedures for identifying vulnerabilities and vulnerable populations across planning            Descriptions (including quantification) of identified vulnerable populations in plans            Articulation of actions, programs, or policies for reducing vulnerability</p>

City Operations	
<b>Governmental structure</b>	<p><b>Test Indicators</b>  Existence of CRO position, office, or other central resilience entity  Organizational position of CRO position or office</p>
<b>Function ("silos")</b>	<p><b>Test Indicators</b>  Connections and communications between CRO and other city officials  Non-CRO staff commitments to resilience activities across city departments  Formal connections and communications between city officials (task groups, etc. including Resilience Steering Committee)  Distribution of explicit authority or missions over resilience-related functions  Evidence of "de-siloing" or coordinated action across city functions (particularly around stated shocks and stressors)</p>
<b>Political/public discourse</b>	<p><b>Test Indicators</b>  City leadership commitments to resilience activities (including public statements at first, and then budget or project advocacy as applicable)</p>
<b>Transparency and accountability</b>	<p><b>Test Indicators</b>  Use and release of scientific evidence around risks, shocks, and stressors  Public access to city data, reports, and organizational resources around risks, shocks, and stressors</p>
<b>Budget Operations</b>	<p><b>Test Indicators</b>  Non-governmental revenue sources (private and civic financial commitments)  Resilience "lens," screens, justifications or other framework for budget allocation  CRO office or explicit resilience administration budget line item and funding  Strategy's and relevant plans' project or action budget line item and funding  [Note: these indicators are primarily outputs but with their existence in the long-term is an outcome.]</p>
<b>Governance Operations</b>	<p><b>Test Indicators</b>  Vertical governance actors' ("upwards" and "downwards") commitments to city resilience.  Inter-jurisdictional governance (neighbors and metropolitan entities) actors' commitments to city resilience.  Overlapping governance (utilities, watersheds, etc. but limited to Strategy shocks and stressors) actors' commitments to city resilience.</p>