

2017 Resilient Cities Summit

Finance and Implementation Strategies

JULY 17–19, 2017
STOWE, VERMONT





SUSTAINABLE CITIES INSTITUTE

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Mayor John Hollar
Montpelier, Vermont



Harriet Tregoning
Keynote Speaker



Mayor Coral Evans
Flagstaff, Arizona



Mayor Dennis Doyle
Beaverton, Oregon



Mayor Lily Mei
Fremont, California



Mayor Stephanie Miner
Syracuse, New York

ACKNOWLEDGMENTS

We would like to thank our host, Mayor **John Hollar** of Montpelier, Vermont, as well as our keynote speakers for the event—**Harriet Tregoning**, city planner and previous principal deputy assistant secretary at the U.S. Department of Housing and Urban Development (HUD), and **Tom Murphy**, former mayor of Pittsburgh, Pennsylvania, and senior resident fellow at the Urban Land Institute—for motivating this group of city leaders, businesses, and nongovernmental organizations (NGOs) from across the United States to convene and discuss this important topic.

We are grateful for the leadership of our nation’s mayors and local government leaders, and for this opportunity to elevate their outstanding work and discuss solutions to implement strategies to build local resilience. We would also like to thank the following 2017 Resilient Cities Summit participants.

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- Dennis Doyle**, Mayor, Beaverton, Oregon
- Coral Evans**, Mayor, Flagstaff, Arizona
- John Hollar**, Mayor, Montpelier, Vermont
- Lily Mei**, Mayor, Fremont, California
- Stephanie Miner**, Mayor, Syracuse, New York
- Mark Mitchell**, Mayor, Tempe, Arizona
- Tom Murphy**, Former Mayor, Pittsburgh, Pennsylvania
- Sal Panto Jr.**, Mayor, Easton, Pennsylvania
- Capi Peck**, City Director, Little Rock, Arkansas
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THE RESILIENT CITIES SUMMIT

In summer 2017, a group of mayors, senior city officials, and nationally recognized resilience experts from the public and private sectors gathered in Stowe, Vermont, for the Resilient Cities Summit, hosted by the National League of Cities (NLC), the Urban Land Institute (ULI), and the U.S. Green Building Council (USGBC). Against the scenic backdrop of Stowe's mountain views and rustic charm, the group of 60 participants from across the United States explored how cities can be more prepared for climate risk and achieve a more resilient future.

After a successful 2016 summit focused on environmental planning and solutions for sustainable land use, the 2017 summit centered on how to finance resilient infrastructure and implement actions to build more resilient communities. Summit sessions focused on how to identify funding sources, prioritize equity in resilience planning, and galvanize support for investing in a more resilient city.

While the impacts of climate change that cities face back home vary from sea-level rise and heat islands to droughts and flooding, it was striking how much city leaders found they had in common in the challenges to strengthen community resilience. Key themes that defined the conversation included the following:

- Local leaders must be willing to reimagine their city.
- A resilient city requires innovative funding sources.
- Building resilience entails enhancing equity.
- Collaboration is key.

WHAT IS RESILIENCE?

According to the American Planning Association (APA), the American Institute of Architects (AIA), the Urban Land Institute (ULI), and a number of other organizations that focus on the built environment, the definition of *resilience* is “the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events.”

As severe weather events become more frequent and intense due to climate change, disruptions and stressors become a common concern among city officials and residents alike. Addressing these issues requires projects, programs, and infrastructure investments that offer multiple economic, environmental, and social co-benefits. The ability of a city to “bounce back” ultimately benefits everyone, providing evidence that bringing this concept to fruition is key to solving problems now and preventing hardship in the future.

SUMMIT OVERVIEW

Over the course of the two-day event, the 2017 Resilient Cities Summit participants exchanged ideas and challenges, cited examples of resilient infrastructure and financing methods, created personal connections, and generated new, or supported continued, commitments to advance resilience in their cities. Below is a summary of the program:

Foundational Conversation on Resilience for Decision Makers with Harriet Tregoning

Participants heard from keynote speaker **Harriet Tregoning**, who has spent her career working on planning, sustainability, and economic issues at the city, state, and federal government levels, including leading economic resilience work for the Office of Community Planning and Development at the U.S. Department of Housing and Urban Development (HUD). She explored the definition of resilience and shared her experiences leading HUD's National Disaster Resilience Competition (NDRC).

Building a More Resilient City

This session focused on best practices in resilient infrastructure, land use strategy, and real estate development, with presentations by **Brian Swett** of ARUP and **Elizabeth Heider** of Skanska. Participants discussed tools and practices that cities are using to promote resilient land use patterns and build infrastructure that can adapt and bounce back quickly after a major event.

Financing a More Resilient City

This session offered a deep dive into innovative finance approaches to deliver resilient infrastructure, with a presentation by **Tim Olson** of Wells Fargo and responses by several of the private sector experts attending the summit. This session focused on strategies to leverage public dollars, and explored alternative financing tools and entrepreneurial strategies available to cities, including green bonds.

Breakout Sessions: Resilience in Action

Breakout groups, including groups of elected officials and city staff, explored community priorities and how to advance implementation and embed resilience into existing projects and capital improvement programs underway.

Equity and a More Resilient City

Economic inequity, racial inequity, and environmental injustice are all major concerns for cities. Presentations by **Felipe Floresca** of the Emerald Cities Collaborative and **Kizzie Charles-Guzmán** of the New York Office of Recovery and Resiliency explored how equity and resilience intersect, including policy examples from New York. Breakout groups followed to continue the discussions in the context of the participants' cities.

Closing Remarks with Tom Murphy

Former mayor of Pittsburgh and keynote speaker **Tom Murphy** wrapped up the summit by talking about how elected officials, city staff, and the experts in the room have the tools to solve some of their toughest challenges related to resilience. He shared his experience as mayor, reacted to the conversations that took place during the event, and expressed that leadership and vision are key to leading cities toward a resilient future.

“WE COULD
CALL THIS
RESILIENCE,
OR WE COULD
CALL IT
MANAGING
CHANGE—
THAT’S WHAT
ELECTED
OFFICIALS DO
EVERY DAY.”

—2017 Resilient Cities
Summit participant

KEY THEMES

LOCAL LEADERS MUST BE WILLING TO REIMAGINE THEIR CITY

At its core, a resilient city is one that is thriving and evolving rather than simply surviving. Resilient cities are adaptive, competitive, and equitable, and this requires local leaders to position their city to respond to changes. Resilient city leaders should have an outlook for infrastructure and land use that incorporates the next 20, 30, or even 50 years as opposed to a time frame that extends only through the duration of their term. This often requires cities to do something they have never done before, whether it is changing how they finance redevelopment projects or how they use data to inform decision making.

The status quo might be comfortable, and governments are rightfully risk-averse, but elected leaders also have a responsibility to reach for the future. In today's world, contexts are constantly in flux, whether they are based on economic, social, climatic, or other factors. The city that thinks about tomorrow's risks and vulnerabilities and acts on that future in a collaborative, equitable fashion will ultimately be more resilient.

Interdisciplinary thinking and an embrace of innovation and technology are critical for enhancing urban resilience. Local leaders, including elected officials, should identify opportunities to encourage outside-the-box thinking that will strengthen their city and reduce its vulnerabilities.

In 2014, the U.S. Department of Housing and Urban Development (HUD), in collaboration with the Rockefeller Foundation, launched one example of such a program: the National Disaster Resilience Competition (NDRC). The NDRC was an ambitious national competition that awarded almost \$1 billion for disaster recovery and long-term resilience projects. **Harriet Tregoning**, previous principal deputy assistant secretary for HUD's Office of Community Planning and Development and a keynote speaker at the 2017 Resilient Cities Summit, described the NDRC as an opportunity to "learn together about how to encourage a broader range of benefits from every federal dollar that gets expended." All states and local governments with presidentially declared major disasters within the previous three years were eligible to participate in the competition.

The competition sought to encourage participants to establish opportunities for investments in resilience that would bring their local communities additional social, environmental, and economic benefits, and which would be delivered through partnerships. The opportunity to obtain significant funding for these proposals served as a catalyst to ignite this thinking and spur projects across the United States.

Finalists developed proposals including stormwater and water quality projects, low-income housing renovation and relocation, energy resilience, watershed restoration, and other resilient infrastructure activities. Ultimately, the NDRC awarded funding to 13 states and communities.

Shelby County, Tennessee, whose county seat is Memphis, was one funding recipient, receiving over \$60 million. The county had experienced three events resulting in three presidentially declared disasters and the designation as a most affected and distressed area by HUD in May 2014. With the NDRC's award money, Shelby County is modeling drainage basins to influence the development of future green space and wetlands to reduce flooding in areas with the most vulnerable populations. Other plans for Shelby County include master planning, wetland restoration, and new housing development, among other initiatives that would not be possible without the NDRC. For more information, visit resilientshelby.com.

BUILDING RESILIENCE THROUGH VOLUNTARY STANDARDS

Voluntary standards offer another approach that can guide, measure, and validate resilience actions at multiple scales. Many U.S. cities—such as summit participants Tempe, Arizona, and Syracuse, New York—have long referenced the Leadership in Energy and Environmental Design (LEED) certification as a means for ensuring that the city's sustainability goals are being met in public and private construction. Newer versions of LEED raise the bar for sustainability expectations, and go farther to promote, reward, and sometimes require resilient building strategies such as energy efficiency, on-site water reuse, and building design for passive survivability (or buildings that facilitate sheltering in place even in the presence of infrastructure failures).

The city of Hoboken, New Jersey, participated in the 2016 Resilient Cities Summit in order to further explore best practices for boosting resilience in the wake of Hurricane Sandy. At the summit, city officials learned about voluntary standards that could keep their projects on track and help communicate their leadership in resilient infrastructure once complete. As a result, the city is now pursuing Performance Excellence in Electricity Renewal (PEER) certification (a LEED-like program for resilient power systems) for its downtown microgrid and Sustainable SITES Initiative (SITES) certification (a LEED-like system for sustainable landscapes) for its new “resilience park” that consists of active seawalls, berms, and levees that are designed to function as a public park. Learn more about voluntary resilience standards at mc-group.com.

“PART OF WHAT WE HEARD IS THAT YOU NEED TO REIMAGINE YOUR CITY. IT'S ABOUT CARVING OUT A NEW KIND OF VISION.”

—Tom Murphy,
Keynote speaker
and former mayor of
Pittsburgh, Pennsylvania



Mayors Lily Mei of Fremont, California; Dennis Doyle of Beaverton, Oregon; and Mark Mitchell of Tempe, Arizona, join other mayors, city staff, and national experts at the 2017 Resilient Cities Summit.

A RESILIENT CITY REQUIRES INNOVATIVE FUNDING SOURCES

Cities must be able to find the funds necessary to implement the solutions critical to their resilience challenges. Participants pointed out that federal funding for community development and infrastructure has declined for decades, so cities need to build off of available programs, work with the private sector, get creative, and leverage every dollar, including allocations in existing capital improvement plans.

In addition, resilience should not be thought of as competing with other budget priorities. Cities already have comprehensive plans, zoning codes, capital improvement plans, and more. Refreshing these documents and strategies to reflect a consistent vision, mitigate risks, and be more forward-looking is crucial.

A central idea is to approach reinvestment from a perspective that seeks maximal co-benefits in order to solve multiple problems at once. One participant asked whether cities are asking their engineers and planners to think big enough. For instance, a needed flood barrier could be designed to also serve as a park that adds community space and boosts real estate value while, in parallel, offering drainage solutions for the surrounding neighborhoods.

Elected officials and city staff should also be aware of the growing market for green funding, such as the growing green bond market.

In addition to exploring emerging financial tools and forms of financing, summit participants discussed how to better engage with the private sector and envision resilient urban outcomes. For example, the **Global Real Estate Sustainability Benchmark** (GRESB) Resilience Module helps real estate, infrastructure companies, and funds better understand resilience risks and make informed investment and management decisions, considering resilience risks and capacity to manage those risks.

Stormwater management regulations in Washington, D.C.—which require new real estate projects to incorporate green infrastructure or use market-based solutions to mitigate off-site impacts—offer examples of how the public and private sectors can jointly contribute to the implementation of resilient infrastructure. More examples of private sector involvement and leadership in stormwater management, including policies and real estate projects, are available in ULI's recent report, *Harvesting the Value of Water*.



Mayor Stephanie Miner of Syracuse, New York, discusses strategies for building resilience.

GREEN BONDS

Green bonds are an emerging form of project financing that designates proceeds for a broad range of categories, including renewable energy, energy efficiency, low-carbon transport, sustainable water, and waste and pollution. At the 2017 Resilient Cities Summit, **Tim Olson**, director of municipal trading at Wells Fargo, explained that green bonds differ from conventional bonds because they specifically provide financing for projects with environmental and public health benefits.

Resilience bonds, modeled after **catastrophe bonds** or “cat bonds,” also are currently being developed. Resilience bonds would seek to monetize reduced or avoided losses, linking municipal insurance coverage with investments in resilient infrastructure anticipated to reduce losses after peak events.

Green bonds are becoming increasingly common, especially in the U.S. municipal bond market, and the market is expected to continue to grow as investor demand increases. The first green bond was issued in the United States in 2013; since then, \$269 billion in green bonds has been issued, with most of these funds used for water, transportation, and energy projects.

Green bonds can be used for projects that align with four core principles:

- *Use of proceeds:* A broad range of categories qualify as “green.” Projects should provide clear environmental benefits in terms of energy efficiency, pollution control, biodiversity conservation, transportation, stormwater management, climate change adaptation, or green buildings. Qualifying projects are feasible, quantifiable, and assessable.
- *Process for project evaluation and selection:* The issuer can provide a framework for how the project fits within a “green” category, its related criteria, and environmental sustainability objectives.
- *Management of proceeds:* Proceeds of green bonds are deposited into a tracked segregated account.
- *Reporting:* Annual reports outline how proceeds are used, including an update on the project and its expected impact.

Participants in the market also have varying motivations. For municipal issuers, the market operates somewhat apart from traditional municipal bonds, and high demand can help the bond sell faster. In some cases, cities with lower bond ratings have seen reduced interest rates as well. For investors, green bonds can be a way to ensure that funds are being directed to projects that meet higher standards for social or environmental responsibility. The additional reporting requirements associated with green bonds can also provide more information and due diligence that have the effect of reducing risk.

New resources such as the recently issued ***Green Bond Guidelines for the Real Estate Sector***—which will help real estate projects such as green buildings attract and invest capital by slashing energy and environmental impacts—can help this market expand.

BUILDING RESILIENCE ENTAILS ENHANCING EQUITY

Equity is another key to building urban resilience. Throughout the world, low-income, elderly, and minority communities are more severely affected by extreme weather events, environmental degradation, economic insecurity, and climate change than other communities. Low-income communities are often located in parts of cities that are most vulnerable to extreme weather, and households can lack resources to bounce back from devastating events. Residents also often lack resources to be sufficiently prepared for an extreme event or to evacuate when necessary.

Cycles of inaction must be broken. Climate change resilience without inclusiveness results in the abandonment of a city's most vulnerable residents. When planning for climate risks such as extreme heat, successful programs engage the potentially affected communities for stability.

Cities must ensure that investments in resilience are transparent and that benefits accrue to all members of the community. Gathering reliable data is an important aspect in this regard. For example, in New York City, data and GIS mapping are used to inform city staff about which areas are most at risk to the urban heat island effect by showing which neighborhoods suffer from the highest incidence of heat-related deaths. This information is used to inform tree planting and cool roof initiatives (see the next page to learn more about Cool Neighborhoods NYC).

Summit participants also highlighted the importance of directly engaging community constituents, including vulnerable and low-income communities, in the planning process. Though often unintended, an open call for participation may not yield a balanced set of community interests. Rather than engagement by proxy, groups that are expected to be significantly at risk should be especially sought out and directly engaged. Cities that hold many different styles of meetings and prioritize the early involvement of residents are better equipped during decision-making processes, which therefore lays the groundwork for implementation.

Lastly, engagement requires action and follow-through to maintain trust, especially in communities that are already overburdened by economic and social forces. Soliciting input and establishing a shared vision for the future is one thing—but in cities throughout the country, these communities have seen plans, promises, and administrations come and go. Implementation of inclusive and comprehensive plans is of paramount importance.

“EMPOWER PEOPLE [IN THE COMMUNITY] TO HELP YOU.”

**—Kizzy Charles-Guzmán,
Deputy director, New York City
Mayor's Office of Recovery and Resiliency**



Kizzy Charles-Guzmán, deputy director of the New York City Mayor's Office of Recovery and Resiliency, and Martha Graham, director of public works for the city of St. Augustine, Florida, at the 2017 Resilient Cities Summit.

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CURBING EFFECTS OF EXTREME HEAT IN NYC

Extreme heat is perhaps the deadliest risk of climate change, with tremendous public health implications and the potential for increased incidence of dehydration, heat stroke, heat exhaustion, and death. Vulnerable populations, including the elderly, children, and low-income households unable to afford air conditioning, are the most at risk of extreme heat.

In New York City, the **Cool Neighborhoods NYC** initiative, presented at the 2017 Resilient Cities Summit by the deputy director of the New York City Mayor's Office of Recovery and Resiliency, **Kizzy Charles-Guzmán**, is designed to protect against the worst effects of extreme heat due to climate change, with a focus on serving those most at risk. Heat reduction efforts include planting trees, painting roofs with reflective paint, and outreach to underserved communities throughout New York City. Key to the program's work is ensuring that all New Yorkers benefit from investments in urban heat island mitigation.

The Cool Neighborhoods NYC initiative includes numerous strategic partnerships and outreach to public, private, nonprofit, affordable housing, and social service partners. The goal of this outreach is to increase general awareness of the risks of extreme heat, as well as services and opportunities for relief from extreme heat. Outreach components of the program, seeking to engage communities at risk, have included the following:

- *Launching Be a Buddy NYC*: A two-year, collaborative model to promote community cohesion, Be a Buddy NYC will work with community-based organizations to develop and test strategies for protecting against the health impacts of extreme heat.
- *Partnering with home health aides*: New York City will work with three home-care agencies to promote heat- and climate-based health information and will work to engage home health aides as key leaders in building climate resilience.
- *Partnering with news reporters*: The city will host a workshop and conduct outreach to health and medical reporters and meteorologists to improve the way that New Yorkers receive crucial information about heat and the protective actions to combat heat-related illness.

COLLABORATION IS KEY

While mayors and other city officials play a critical role in leading their communities to a more resilient future, they cannot accomplish these goals alone. City staff should work across departments to ensure that staff members at all levels are collaborating, using a common vocabulary, and building awareness of what resilience is and how it affects everything from public works to economic development. Working across agencies also allows city staff to better understand city needs and establish opportunities for co-benefits relevant to resilient infrastructure.

The private sector also has a key role to play. Banks, utilities, insurers, business leaders, and community groups should both increase leverage of and access to funding and be part of the planning process for building resilience. Understanding the private sector perspective is critical for cities to create a favorable business environment for private sector contributions toward and partnership in investment in resilient infrastructure. Moreover, building a business case for investing in resilience will enable cities to more effectively work with the private sector. For example, introducing incentives such as density bonuses or permit expediting for resilient design practices can help improve the business case for resilience for the real estate sector.

Regional collaboration is key as well, given that climate vulnerabilities do not adhere to municipal boundaries. A notable example of a regional approach to building resilience discussed during the summit is the Southeast Florida Regional Climate Change Compact, which coordinates mitigation and adaptation strategies across political boundaries. Since its initiation in 2009, the compact has grown to include federal, state, regional, municipal, academic, and private sector partners to foster a coordinated climate resilience effort, guided by a **regional climate action plan** (RCAP). The RCAP identifies vulnerabilities, prioritizes actions, and shares best practices for a clear path toward resilience in the region. Summit participants also discussed opportunities for forming other types of regional collaboratives tackling common issues such as sea-level rise.



Mark Wilbert, chief resilience officer for the city of Charleston, South Carolina, during a breakout session.

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PRIVATE SECTOR LEADERSHIP: OVER-THE-RHINE

Summit participants from the private sector underscored that there is untapped opportunity to partner with business to achieve resilience goals. Nearly every country has signed the Paris climate accord, but climate challenges cannot be solved by governments alone. Many American businesses are up to the challenge and are eager to act if the priorities can clearly be set in requests for proposals and if they are invited to the table to explore how business can help.

Private and nonprofit partners can also work together to revitalize a city and provide new pathways to long-term funding. **Tom Murphy**, keynote speaker of the event and former mayor of Pittsburgh, shared an example from Cincinnati, Ohio: “The business community came forward and built a nonprofit for the redevelopment of the city.”

The nonprofit Cincinnati Center City Development Corporation (3CDC) has led a dramatic transformation in Over-the-Rhine, a downtown-adjacent neighborhood previously plagued by crime. The organization’s four strategic goals include “to create great civic spaces; create high-density, mixed-use development; preserve historic structures and streetscapes; and build diverse, mixed-income neighborhoods supported by local businesses.”

To accomplish these goals, the business community raised \$50 million and created 3CDC to respond to deteriorating conditions in this neighborhood. In turn, 3CDC brought together the city’s major employers and public officials to leverage the \$50 million into more than \$1 billion in the last seven years through an array of creative financing techniques and partnerships. Next, 3CDC used this investment to buy and rescue 131 historic buildings and constructed 48 new buildings, while maintaining subsidized housing, rehabilitating parks, and developing vacant lots. Today, the neighborhood is a vibrant area, with Fountain Square as its centerpiece offering frequent family-friendly and free programming. This transformation is an inspiring example of the impact that public/private partnerships led by the private sector can have in cities.



© 3CDC

The Over-the-Rhine neighborhood in Cincinnati draws many patrons to its vibrant restaurant scene.

**“ IF YOU’RE
A LOCALLY
ELECTED
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YOUR CITY,
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TO YOUR
CITIZENS.”**

**—2017 Resilient Cities
Summit participant**

CONCLUSION

Although no public official runs for office on a platform of “community resilience,” the underlying issues of public safety, infrastructure maintenance, land use, economic opportunity, and reducing vulnerability are central to any administration. To enhance resilience, local leaders must see the relationships between these issues and identify opportunities to achieve multiple benefits with their capital investments, forge partnerships, and have a clear, positive vision about what kind of community they want these investments to create. Summit participants left the event with new ideas, relationships, and tools to carry forward these goals into their communities.



Tom Murphy, former mayor of Pittsburgh and current senior resident fellow at the Urban Land Institute, delivers closing remarks.

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RESILIENT CITIES SUMMIT VISIBILITY

Route Fifty, the summit's media sponsor, held interviews with public officials about local resilience-related issues, strategies, and lessons learned. Below are links to a series of four articles published in the days after the summit.

- Mayor Nancy Shaver of St. Augustine, Florida, took office and was greeted with immediate impacts of sea-level rise on the community, including sea urchins appearing in the city's stormwater drains.

<http://www.route fifty.com/smart-cities/2017/07/st-augustine-florida-mayor-climate-change/139609/>

- Mayor Coral Evans of Flagstaff, Arizona, views sea-level rise and flood mitigation as intrinsically related to social issues.

<http://www.route fifty.com/infrastructure/2017/07/climate-resilience-flagstaff-coral-evans/139651/>

- Stephanie Miner, mayor of Syracuse, New York, discusses how building resilient city infrastructure starts with issues like municipal finance and alleviating poverty.

<http://www.route fifty.com/infrastructure/2017/07/resilient-cities-infrastructure-syracuse/139764/>

- Lisa Craig, chief of historic preservation for Annapolis, Maryland, tackles the impacts of sea-level rise on the city and its historic building stock.

<http://www.route fifty.com/smart-cities/2017/07/annapolis-maryland-rising-sea-levels/139835/>

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