



2020

RESILIENCE SUMMIT

EVENT SUMMARY AND KEY FINDINGS



About the Urban Land Institute

The Urban Land Institute is a global, member-driven organization comprising more than 45,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide.

ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 80 countries.

Drawing on the work of its members, the Institute recognizes and shares best practices in urban design and development for the benefit of communities around the globe.

More information is available at uli.org. Follow ULI on Twitter, Facebook, LinkedIn, and Instagram.

About the Urban Resilience Program

ULI's Urban Resilience program is focused on how buildings, cities and communities can be more resilient to the impacts of climate change and other environmental vulnerabilities. The program works with ULI members to provide technical assistance, advance knowledge through research, and catalyze the adoption of transformative practices for real estate and land use policy.

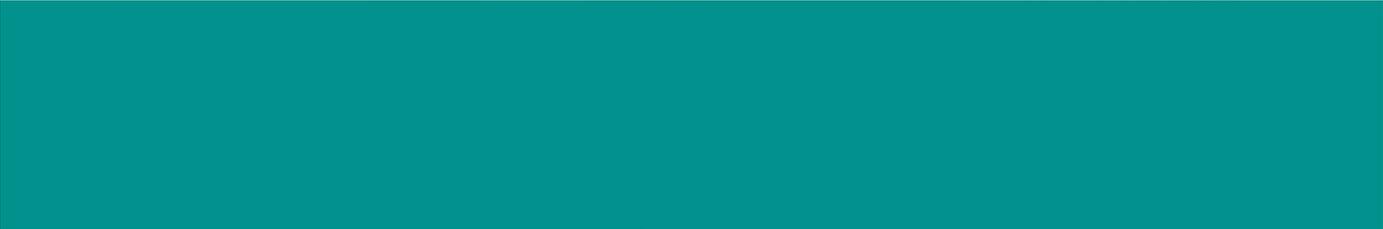
For more information, visit <https://americas.uli.org/resilience>

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Overview:

2020 ULI Resilience Summit

The Urban Land Institute's 2020 Resilience Summit invited ULI members from across the Americas to engage, network, and learn about best practices and industry trends related to climate risk and resilience. Hosted by the ULI Urban Resilience program, the event built from the first Resilience Summit, hosted at the 2019 ULI Fall Meeting in Washington, D.C. This exclusive event, held on December 2, 2020, laid out the new realities of resilience during a pandemic while examining the ways in which industry leaders could make more informed decisions to further protect communities and investments from climate hazards.

As climate change leads to more frequent and intense weather events, as well as to chronic risks like sea-level rise and drought, resilience has become an increasingly important issue for real estate development and land use professionals to understand and address. In 2020, the topic became more urgent given the compounded challenges of COVID-19, and increased recognition of the role of resilience in advancing environmental, social, and racial justice.

At the summit, more than 225 attendees heard from real estate professionals, land use experts, and city officials, reflecting on climate adaptation and mitigation strategies. Attendees were able to learn from cutting-edge research on climate risk and resilience in the real estate industry and have collaborative conversations with industry leaders from across the real estate value chain to better understand the impacts of climate risks on communities and investments.

After the successful virtual gathering, ULI looks forward to hosting its third annual Resilience Summit in late 2021 or early 2022.



Keynote speaker Dr. Katharine Wilkinson kicked off the day with a call for climate leadership.

“Thank you for sharing your work. So much to do, and the message is we need to work together more than we ever have before. Terrific event, thank you very much!”

—Resilience Summit attendee

Summit Themes



Left to right: Speakers Laurian Farrell, Alexandria McBride, and Mark Wilbert shared their expertise on how cities can address the impacts of climate change during the “Climate Leadership and City Resilience” panel.

2020 was an unprecedented year. Amid the fear, uncertainty, and loss of the COVID-19 pandemic, ULI members’ day-to-day lives also fundamentally changed, especially as relevant to gatherings, work, and travel. The economic fallout and shutdowns have had significant impacts on the real estate industry, while city governments have struggled to meet basic health care needs and support communities most affected. Climate resilience has also remained a prominent concern in the midst of the pandemic, especially given the destructive hurricane and wildfires seasons. COVID compounded many communities’ vulnerabilities to these natural disasters, and made preparation, evacuation, and recovery all the more challenging for local governments.

The speakers at the 2020 Resilience Summit focused on how their understanding of climate resilience has advanced during this unusual time, and how their work is continuing to prepare cities, buildings, and communities for the impacts of climate change. Key themes from the day’s discussions included the following topics:

- **Climate change is leading to increasingly costly human and financial impacts.** Throughout the day, industry leaders and speakers agreed that climate change is leading to increasingly severe impacts and harm to human health, infrastructure, properties, and investments due to the increase in catastrophic climate events such as wildfires and hurricanes, as well as acute stresses such as sea-level rise. Speakers shared their concerns about both the physical and transition risks related to climate change and shared what impacts they are already seeing in their cities and businesses, and what impacts they expect to see in the near future.

- **Public- and private-sector climate leadership is critical in addressing and acting on the climate crisis.** Speakers emphasized that the industry increasingly has some of the tools and approaches needed to address climate risk, but strong leadership is needed for broader application and recognition of the gravity of the climate crisis. Partnership between the public sector and the private sector will be crucial to advance resilience and to identify innovative funding approaches for complex projects.
- **Racial, social, and health equity is key to resilience.** Communities that have long been disenfranchised by land use planning decisions, including low-income communities and communities of color, face the most risk from climate events. Real estate and land use leaders explored how policy and infrastructural investments could best support those who need it most, as well as the compounded risk of climate events and COVID-19. Speakers also noted the role that community engagement plays in fostering more equitable planning and development processes.
- **Evaluating and assessing climate risks at a market scale is essential but remains challenging.** Speakers agreed that real estate investors and developers need to assess climate risk at the market scale to fully understand how climate risk drives near-term, and potential mid- and long-term, financial impacts that influence market stability. However, speakers also alluded to the challenges with interpreting climate data and considering both climate risk and investments in resilience, whether at the asset scale or market scale.
- **A movement to reduce carbon emissions and environmental degradation is supporting resilience efforts.** Speakers throughout the day emphasized the importance of climate mitigation and moving toward energy-efficient and renewable technologies, noting that net-zero-energy buildings are the current industry best practice.

Attendees' Professions

The roughly 225 ULI Resilience Summit attendees represented the full spectrum of professions from within the ULI membership including:

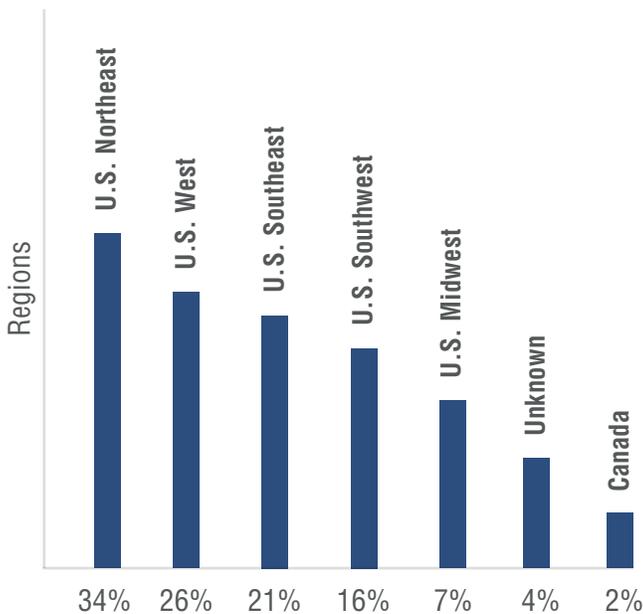
- Architect
- Asset manager
- Consultant
- Developer
- Engineer
- Financial adviser
- Landscape architect
- Land use lawyer
- Public official
- Real estate investor
- Urban planner

Attendees' Reflections

Attendees of the 2020 ULI Resilience Summit shared the following lessons learned and reflections in the post-event survey:

- There are “serious financial implications [from] climate change to the real estate industry and market.”
- “[I] appreciated [the] opportunity to listen to community reps on regional approaches to climate assessments and adaptation.”
- “[There is a] need for the industry to voluntarily pursue climate resilience measures for both investment protection and because it’s the right thing to do.”
- “I don’t believe it’s yet widely understood how important it is [for] banks and the insurance industry to jointly work with communities to identify and address climate risks to buildings and infrastructure.”
- “Now is the time!”

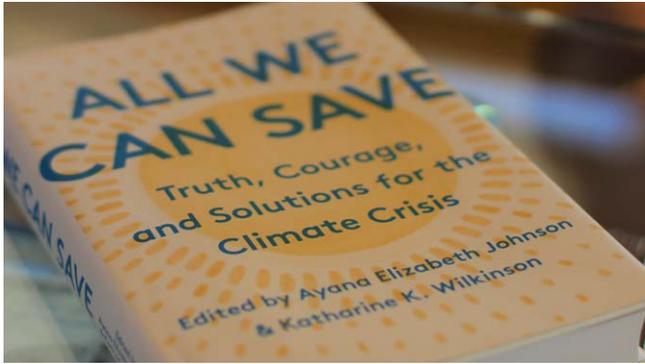
Attendees' Home Regions



Post-Event Survey Findings

- 100 percent of survey respondents agreed that the 2020 ULI Resilience Summit gave them at least one valuable insight that they will use in the future.
- Over 94 percent of survey respondents agreed that the summit increased their understanding of resilience and climate risk.
- 87 percent of survey respondents said that they were likely to incorporate content from this year’s summit into their work.

Session Summaries



Attendees of this year's event could elect to receive a hard copy of *All We Can Save*, a new anthology of essays on climate leadership edited by Dr. Ayana Elizabeth Johnson and Resilience Summit keynote Dr. Katharine Wilkinson.

Keynote: All We Can Save—2020 Perspectives on the Climate Crisis

ULI member leader and moderator Jeff Hébert, president of HR&A Advisors, kicked off the keynote session by reflecting on the compounded climate and social justice challenges that cities around the globe are facing. He noted the importance of finding action-oriented solutions before handing the podium over to keynote speaker Dr. Katharine K. Wilkinson.

Wilkinson, principal writer and editor-in-chief for Project Drawdown and co-editor of the new anthology *All We Can Save: Truth, Courage, and Solutions for the Climate Crisis*, began the day with a call for climate leadership. “The climate crisis is a leadership crisis,” she said. “To transform society this decade, it is going to take transformational leadership.” Throughout her presentation, Wilkinson drew from the Drawdown framework, a comprehensive plan that outlines methods and solutions to reduce greenhouse gas emissions and address environmental degradation. The framework looks at both sources of emissions and sinks which uplift nature’s carbon cycle. “It is critical to understand all of these solutions as a system, in some ways an ecosystem,” she explained.

Project Drawdown has estimated that if roughly \$22.5 trillion were invested to meet a peak drawdown by 2060, there could be total cost savings of about \$95 trillion. Similarly, a more ambitious goal to meet drawdown by the mid-2040s could yield initial costs of around \$28.4 trillion, with the potential

cost savings exceeding \$145.5 trillion. “There is also a really compelling financial story to tell,” Wilkinson said. “There are sizable but very doable costs to implement solutions, [but there are also] significant savings over time. It is critical to understand all of these solutions as a system, in some ways an ecosystem, all of [the proposed solutions] are needed and all of them are connected.”

Panel 1: Climate Resilience and City Leadership Panel

After the keynote, the Climate Resilience and City Leadership session focused on how city leaders could address the impacts of climate change, partner with the real estate sector, and protect at-risk communities. The panel of city leaders represented cities facing a range of challenges due to the impacts of climate change, such as sea-level rise, coastal storms, extreme heat, and air quality concerns from regional wildfires. Their discussion addressed strategies for incorporating resilience into community engagement and infrastructure investment, and policy approaches for supporting communities facing the greatest challenges from climate disruptions, including low-income communities and communities of color.

Moderator Laurian Farrell, regional director, North America, Resilient Cities Network, framed the session: “We are going to focus on two accelerators towards resilience: how cities work with the real estate industry and what cities need from the industry. . . . We can have the dialogue in a new and meaningful way.” Farrell warned, “I implore all in the real estate and land use industries to not think about this as just city leadership, but how you can collaborate with public-sector leadership because resilience is something that cities cannot do alone.” Drawing on her work supporting chief resilience officers throughout the United States, she noted that “it’s going to take all hands on deck to get this job done.”

Alexandria McBride, assistant to the city administrator and chief resilience officer for the city of Oakland, California, offered lessons learned from Oakland’s community-led neighborhood planning initiatives—EcoBlock and Better Neighborhoods, Same Neighborhoods. These two projects strive to build community through arts and culture while demonstrating technical, social, and financial methods for radically reducing the environmental footprint of neighborhoods through cost-effective retrofits. “We need to think differently about how we equitably engage

communities and let them drive planning,” she said. “Only real deep community engagement enhances the climate solution. The urgency is real but should not compromise the engagement; we need to come up with comprehensive solutions that are supported by communities.”

The time dedicated to both initiatives paid off. Both programs have been deemed successful in visioning environmentally and economically resilient communities and are now in the implementation phase thanks to the partnership garnered and grants awarded from the processes.



City of Charleston

Panelist Mark Wilbert shared images of record high tide events in Charleston, South Carolina, during his presentation.

Following McBride, Mark Wilbert, chief resilience officer and director of emergency management for the city of Charleston, South Carolina, painted the picture of what the city will look like in 50 years as flood risk grows and sea levels rise. “I’m going to be focusing on flooding because that is our number-one most-pressing challenge in Charleston,” Wilbert said. In 2013, high-tide flood events occurred 29 times. By October 2020, the number of events had already amounted to 89 and hit record-high water levels. “The challenges are increasing. . . . We are setting new records [for flood impacts] each year.”

The need for adaptation infrastructure in Charleston is increasingly complex because coastal conditions are changing faster than the projects can be funded and implemented. To get ahead of the risk, Wilbert spoke about massive infrastructure projects in the pipeline that have major ramifications for the Charleston peninsula and the surrounding region’s economy and natural habitats. Wilbert concluded by stating, “This is a shared responsibility and there is not a city out there that can do this alone . . . if you are going to tackle these challenges to build a more resilient future, it’s going to take partnerships.”

Visualizing Sea-Level Rise with Aerial Photographer Alex MacLean

During the midday conference break, attendees were invited to view photographs of landscapes affected by sea-level rise by world-renowned pilot and photographer Alex MacLean. MacLean’s aerial photography focuses on the built and natural environment. From vast agricultural patterns to city grids, his powerful and descriptive images allude to the relationship between the natural and constructed environments, and visually capture the impact of—and potential for impact from—climate events. His recent book on sea-level rise includes photography of a range of types of affected environments, from central business districts to industrial hubs, natural landscapes, and low-density residential neighborhoods.

Fireside Chat: Climate Risk as the Next “Big Short”



David Burt shared insights with ULI member leader Lynn Jerath as to why he sees climate risk as one of the biggest mispricings in the industry.

The afternoon’s programming focused on climate risk and real estate, highlighting the work of investor David Burt, who spoke during a fireside chat with ULI member leader Lynn Jerath. Burt runs Delta Terra, an investment research and consulting firm that measures climate risk exposure and makes investment decisions accordingly. Burt was featured in *The Big Short* by Michael Lewis for his short bet on subprime mortgages in 2008, and he has described climate change as the “Big Short” of today’s economy.

Throughout the discussion, Burt emphasized that wildfire and flood risk are two of the most mispriced climate risks, noting that “we [are seeing] a very immediate repricing catalyst from problems in the California insurance market [due to the increase in wildfires],” and “[the] sheer magnitude of damage [flood risks] could do to the backdrop of poor pricing [is substantial].” Burt added, “I created Delta Terra because I believe that climate risk and its mispricing have created a similarly large value bubble [to the 2008 subprime mortgage

crisis] that will significantly impact real estate investment portfolios when it breaks down. . . . Lenders are essentially making the same mistake today [as in the 2008 financial crisis] by qualifying borrowers' ability to pay based on an assumption that their insurance costs will stay constant in the future.”

Climate Risk and Real Estate: Industry Innovation and Emerging Practices Panel



Left to right: Mona Benisi, Brodie Boland, and Daryl Fairweather discussed how climate risk is affecting commercial and residential real estate markets.

The summit's main-stage programming concluded with a discussion panel on climate risk and real estate. In the session “Climate Risk and Real Estate: Industry Innovation and Emerging Practices,” moderator Brodie Boland (associate partner, McKinsey & Company) and panelists Mona Benisi (global head of sustainability real assets, Morgan Stanley Investment Management) and Daryl Fairweather (chief economist, Redfin) discussed how climate risk data are influencing investor and homeowner decision-making, especially at a market level.

Boland emphasized that “physical risk and climate change are already here,” and that “one of the important things from the perspective of a real estate investor, owner, or operator is” the increase in extreme weather events. Investors and developers are increasingly conducting physical risk assessments of their assets and portfolios, but they say that navigating the growing climate analytics market is a challenge.

Benisi discussed how climate risk fits into ESG considerations at Morgan Stanley, and spoke about the challenges associated with different methods of measuring climate risk. “All of the [climate analytics] providers use scientifically sound climate models, but the difference is the interpretation of the models and that the tools are all asking slightly different questions. You have to take the time to go through the process and understand this,” she said. Benisi recommended that Resilience Summit attendees consider the type of company, risk score delivery, type of included risks, measurement of direct or indirect impacts, as well as climate change scenarios and time horizons when considering which data providers to select.

In contrast, Fairweather noted that Redfin's recent research has shown that homeowners do not typically have access to sophisticated climate analytics. However, she said that “homebuyers are starting to think about what climate risks might be in the metro areas they're moving to.”

Overall, speakers emphasized that “tail events” (extremes that occur rarely but cause significant damage) are a key concern for investors and that in-depth ESG and climate analyses of assets and portfolios are increasingly used in investment decision-making.



Throughout the day, attendees participated in interactive small-group discussions where they engaged and networked with key leaders and doers from across the industry.

“The entire summit was excellent and very pertinent. I liked [the summit's] focus on the challenges of addressing climate change and resilience and found the examples to be very relevant.”

— ULI Resilience Summit attendee

Track Summaries

The 2020 ULI Resilience Summit concluded with three smaller, discussion-based tracks, offering attendees the opportunity to explore more-focused resilience topics and engage directly with speakers and other participants.

Track 1: Climate Data, Disclosure, and Industry Impacts



Left to right: Austin Perez, Nancy Watkins, and Roy Wright unpacked how and why climate risk should inform insurance pricing.

In this discussion-based session, speakers Austin Perez (senior policy representative, National Association of Realtors), Nancy Watkins (principal and consulting actuary, Milliman), and Roy Wright (president and CEO, Insurance Institute for Business and Home Safety) explored whether and how climate risk and disclosure requirements are informing real estate and insurance pricing.

Speakers observed that insurers have more flexibility in reacting to climate risk; insurers are typically focused on short-term risks due to one-year contracts and on managing the concentration of risk in a geographic area, not necessarily asset-level risk. In contrast, real estate investments rely on understanding medium- and long-term risks, and the availability of data may be influencing price signals.

While the general trends of climate change are well studied and established, speakers discussed that the predictive models for various hazards and for certain time horizons differ in certainty due to the amount of available input data and the difficulty of accounting for all the relevant factors. For example, while both immediate- and long-term climate models accurately predict outcomes with a high level of granularity, models for the events that may happen in the next 10 to 20 years are less certain and more difficult to create.

“There are community risks that are bigger than just thinking about one property at a time, and those are the kinds of things we want to start modeling,” Watkins said.

Looking to FEMA Risk Rating 2.0, a more robust risk rating system launching in 2021 for the National Flood Insurance Program (NFIP), speakers expressed enthusiasm for the accuracy and geographic coverage of the improved system. Speakers also observed that Risk Rating 2.0 may lead to a stronger climate risk price signal, which could create or exacerbate affordability challenges for some communities.

Overall, speakers advised attendees to work closely with their analytics teams, stay abreast of changes in the climate modeling field, and continue to implement climate change mitigation measures to reduce the negative impacts of climate change for the real estate and insurance industries.

Track 2: Regional Resilience—Innovative Planning and Funding Strategies

Climate change impacts do not respect jurisdictional or property boundaries. Speakers during this track hosted an open conversation with the audience to share pioneering regional resilience initiatives and how resilience goals are folded into local-level codes and regulations.



Julie Wormser, Mystic River Watershed Association

The Resilient Mystic Collaborative partners with neighboring communities in Greater Boston to mitigate current climate risks in the Mystic River Watershed and also protect it from future climate risks.

Jessica Fain, director of planning for the San Francisco Bay Conservation and Development Commission, spoke about Bay Adapt, a new initiative that seeks a regional agreement on the actions necessary to protect people and the natural and built environment from rising sea levels. After providing an overview of the program, she led a mini workshop with the audience focused on prioritizing actions that the commission could take with real estate industry support.

Julie Wormser, deputy director of the Mystic River Watershed Association, is also the founder of the Resilient Mystic Collaborative based in Massachusetts. Since its launch in September 2018, the Resilient Mystic Collaborative has grown to include more than 20 municipalities and has secured over \$2.5 million in funding to pursue regional climate preparedness projects. Wormser spoke to the challenges of coordinating among government entities, but also offered lessons on the efforts they are taking to overcome boundaries to address heat and flood impacts in the region.

Track 3: Resilient Housing—Opportunities and Challenges

For this conversation-based session, speakers Joy Sinderbrand, vice president of recovery and resilience at the New York City Housing Authority (NYCHA), and Brad Lebin, associate at David Baker Architects, conversed with each other and with attendees on how the housing sector is adapting to the risks of climate change and what barriers remain to doing so.



Bruce Damonte

David Baker Architects designed La Valentina Station, a multifamily affordable housing development in downtown Sacramento, California, which includes green stormwater infrastructure.

Some quick polling at the start captured attendees' views on resilience and housing. Attendees were equally concerned about all physical climate risks, from sea-level rise and coastal or inland flooding to extreme heat. However, only a few reported seeing significant climate impacts on their market, with most reporting moderate impacts.

NYCHA is conducting major resilience upgrades across its portfolio, which houses over 600,000 New Yorkers in about 2,500 buildings. After experiencing extensive damage due to Hurricane Sandy in 2012, NYCHA has been implementing over \$3 billion in grants and insurance to retrofit its assets for flood protection, using a combination of strategies that include floodable passive open space and flood walls, elevating key mechanical equipment, and deployable barriers at building entrances.

David Baker Architects, which designs both affordable and market-rate housing, has started to incorporate resilience hubs within its designs. These function as community gathering spaces during normal operation, safe spaces during climate events or other disruptions, and coordinating centers for recovery efforts after disruptions. They feature backup energy through solar power and battery storage, while offering medical refrigeration, air filtration, clean water and first aid supplies, and a communications center, all key for offering shelter and essential services.

Speakers and attendees agreed that community engagement is invaluable to the success of resilient housing strategies, both for designing new housing and retrofitting existing houses. New construction must respond to the needs of its future occupants and neighbors, while retrofits can be disruptive to residents. Involving stakeholders in design visioning throughout the process is the best way to create effective designs and sustain community support during long construction periods, and it often translates to enhanced social resilience and preparedness for future disasters and extreme weather as well.

Acknowledgments and Sponsorships

Host Committee

ULI would like to thank the following ULI members who served on the 2020 Resilience Summit Host Committee for contributing their time and expertise to shaping the event:

- **Claire Bonham-Carter**, Director of Sustainable Development, AECOM
- **Justin Chapman**, Senior Development Manager, Skanska USA Commercial Development
- **Lynette Cardoch**, Director, Resilience and Adaptation, Moffatt & Nichol
- **Jack Davis**, Director of Program Development, RE Tech Advisors
- **Jeff Hébert**, President, HR&A
- **Lynn Jerath**, President, Citrine Investment Group
- **Yoon Kim**, Managing Director, Global Client Services, Four Twenty Seven
- **Brad Leibin**, Architect and Associate, David Baker Architects
- **Leroy Moore**, Senior Vice President and Chief Operating Officer, Tampa Housing Authority
- **Joy Sinderbrand**, Vice President, Recovery and Resilience Department, Capital Projects Division, New York City Housing Authority
- **Nancy Watkins**, Principal, Consulting Actuary, Milliman

Sponsors

ULI is grateful for the generous support for the 2020 Resilience Summit provided by these organizations:

Gold



Silver



Bronze



To learn more about ULI's Urban Resilience program and opportunities for partnership and involvement with future events, including the Resilience Summit in 2021, please reach out to resilience@uli.org.



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