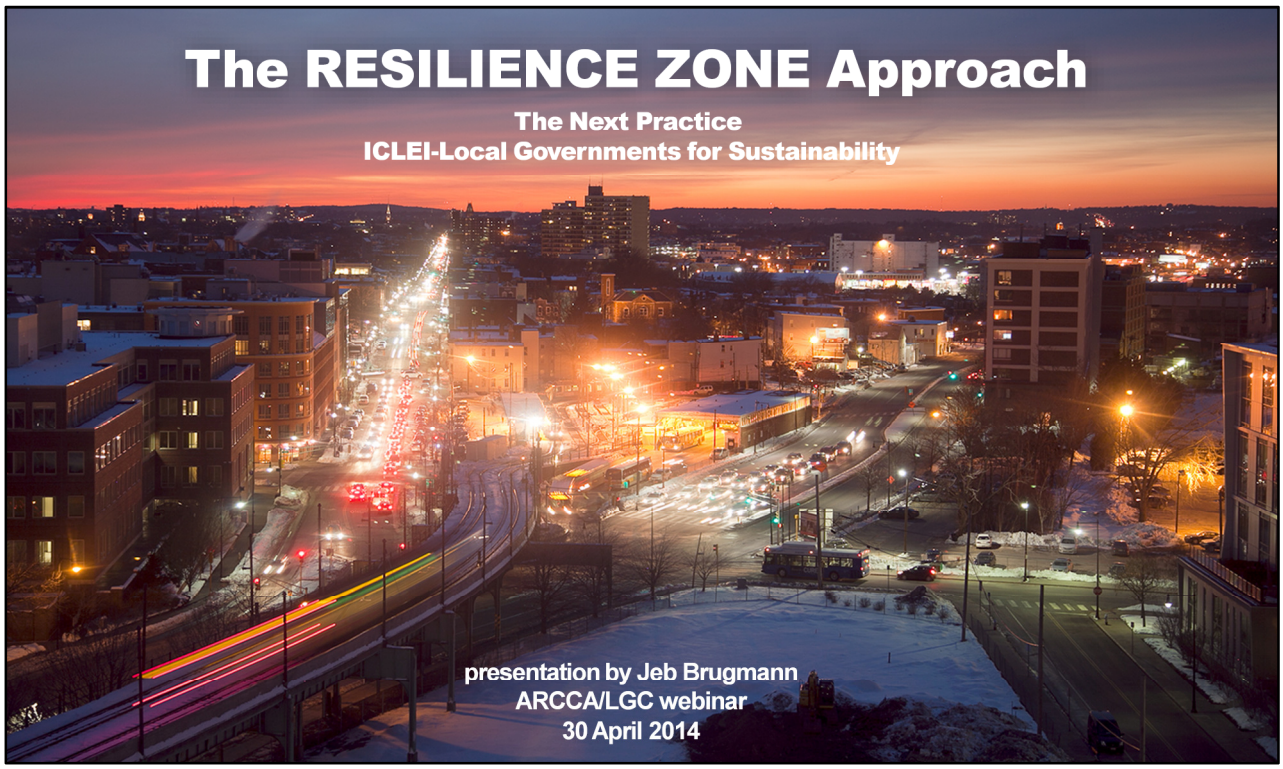
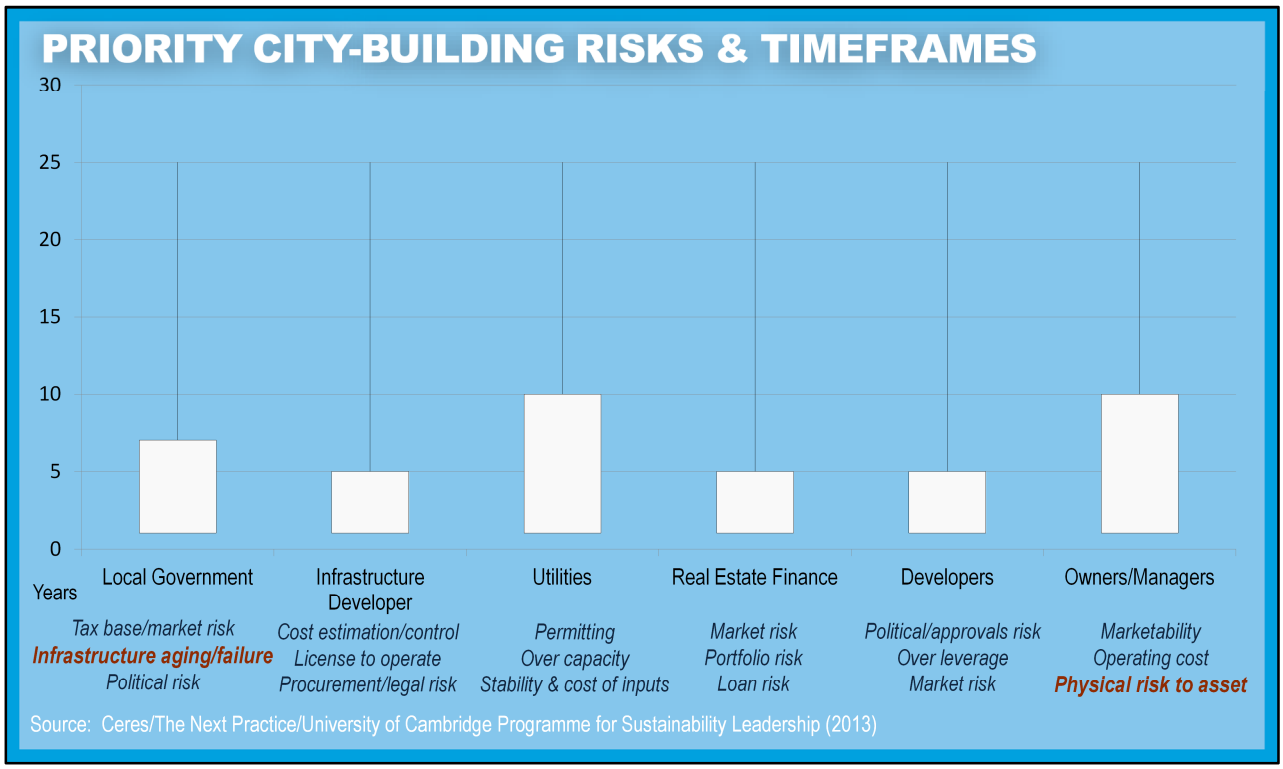

The RESILIENCE ZONE Approach
The Next Practice
ICLEI-Local Governments for Sustainability
presentation by Jeb Brugmann
ARCCA/LGC webinar
30 April 2014



In 2013, with support from Ceres, ClimateWise and the University of Cambridge Programme for Sustainability Leadership, The Next Practice researched the business risk management priorities of each of the key businesses/institutions involved in the production and management of urban areas. In-depth interviews were undertaken with the chief risk officers (or equivalent) in each business/sector. The top three business risk priorities of each sector are illustrated here, along with the mean time horizon applied to evaluate and manage these risks, as reported by the interviewees.

As indicated, those businesses most involved in the production of new urban space and assets reported a short-term risk management timeframe, focusing on issues unrelated to climate change or other catastrophic natural risks. Local governments, utilities, and property owners/managers indicated a longer mean risk management view of 7-10 years for their priority risks. However, only two of the eighteen indicated priority risks in the urban production and management cycle are directly or indirectly related to climate and other natural risks.

In other words, the urban development market place does not generally factor such risks as a part of regular business and operations practice.

The result is the continued development of urban areas and regions without reference to their medium- and longer-term risk exposures. Urban reformers have long wrestled with the awkward reality that the riskiest urban places – like these coastal flats of Richmond, British Columbia – are for many tremendous sites of opportunity, attracting increasing residence and investment. Regulating risky development and relying solely upon public expenditure to mitigate risks does not appear to be an adequate response in a world of both very opportunistic, rapid urbanization and growing catastrophic risk exposures.

Well before the start of suburban development in the pictured area, local and provincial officials in British Columbia knew of the area's high exposure to both liquefaction and tidal waves in the event of an earthquake in the very seismically active Georgian Basin. See, for instance: http://www.sciencenewsline.com/articles/2014012109160009.html

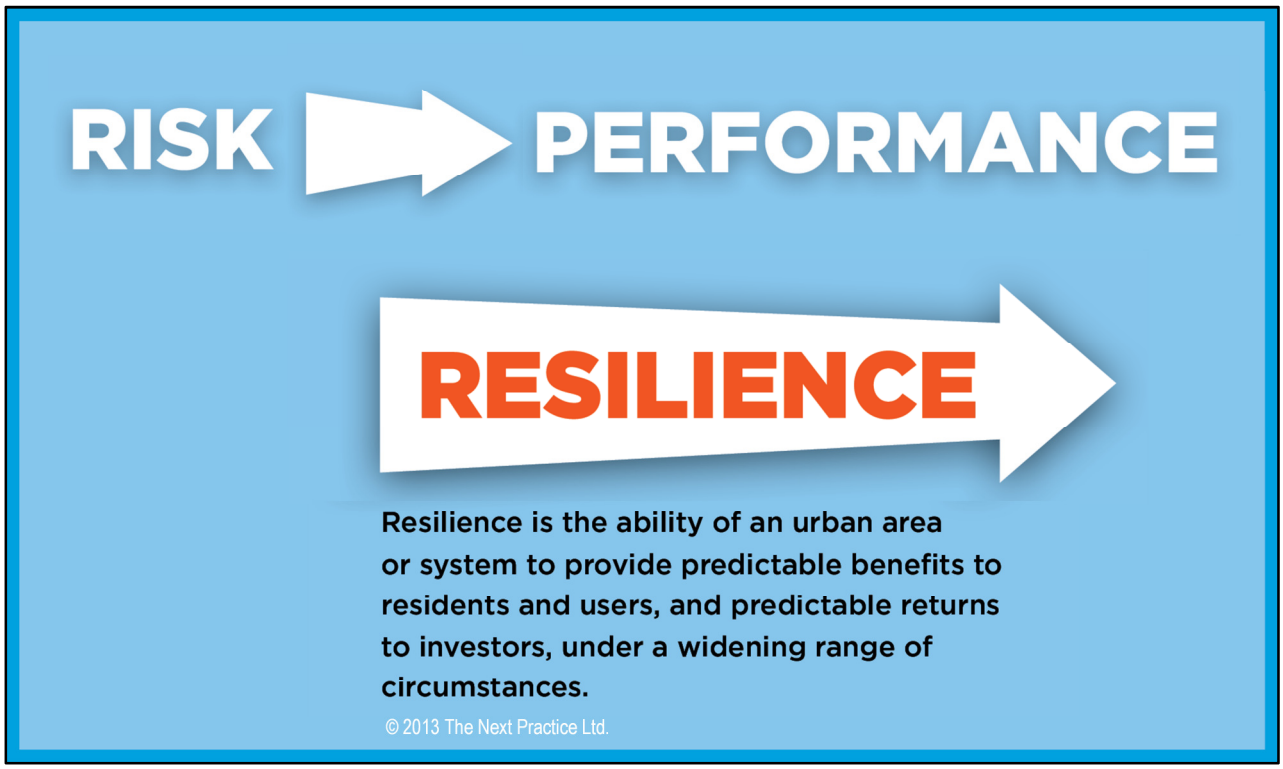
California's highly urbanized coastal region is also exposed to some of the world's most extreme seismic risk. In the twentieth century, the region suffered several costly 7.0 magnitude earthquakes. Yet between 1906, when an earthquake destroyed San Francisco, and 1994, when an earthquake killed 61 and caused US$ 15 billion in damage in the Los Angeles area, metro San Francisco's population grew by nearly six million. Fifteen million new residents, rich and poor, sought their opportunities in vulnerable metro Los Angeles.

The first steps towards a state-wide, advanced seismic early warning system were only taken in 1998, despite the region's wealth and technological sophistication. Silicon Valley's municipal and corporate leadership only started work on a regional disaster preparedness and response plan in the first decade of the 21st century.

See: Brugmann, J (2011), "Financing the Resilient City," *Environment and Urbanization ,* April 2012 vol. 24 no. 1, pp 215-232

and

Sipkin, S A, J R Filson, H M Benz, D J Wald and P S Earle (2006), "Advanced national seismic system delivers improved information", *Eos Trans. AGU*, Vol 87, No 36, page 365

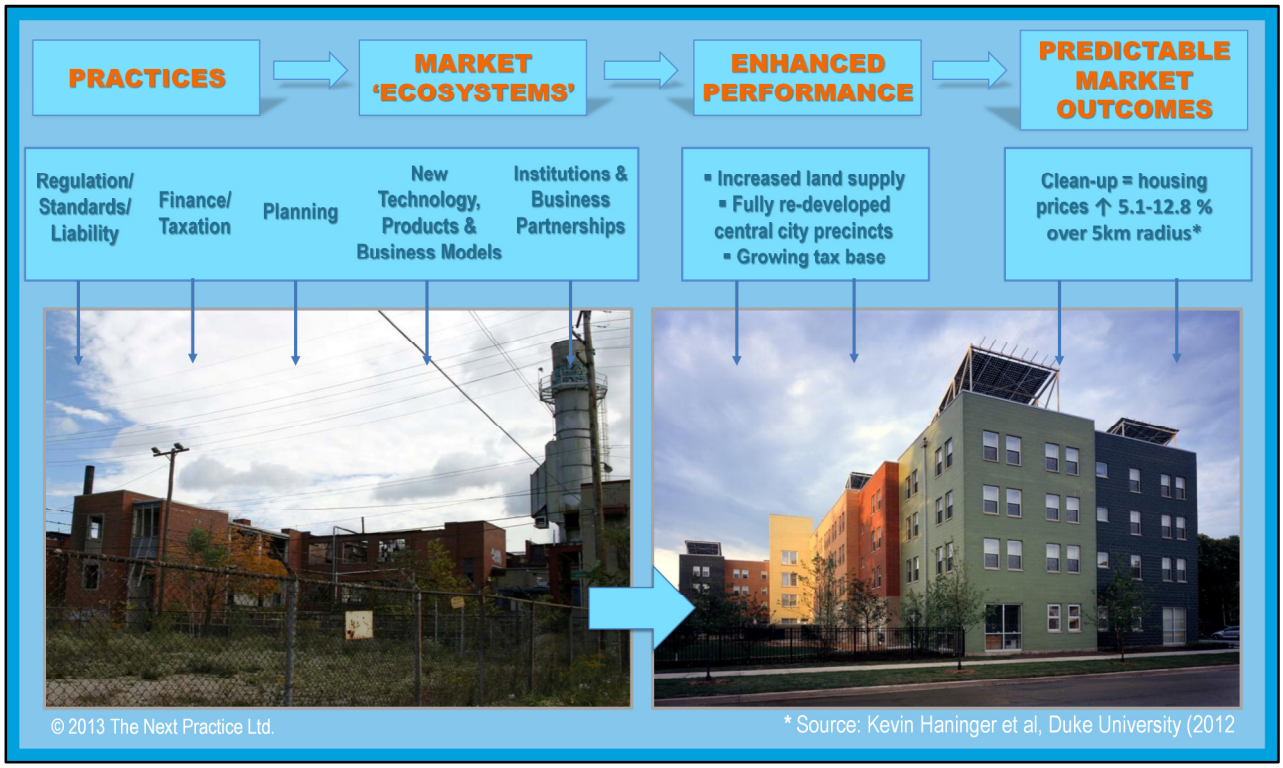


The fact that the urban investment and development process neither factors many risks, nor encourages preventative measures to reduce risk and vulnerabilities has led The Next Practice to reframe the issue of climate change adaptation from an issue of risk to an issue of property and locational performance.

Disaster risk reduction and climate change adaptation are typically viewed as costs to be borne by taxpayers and the public sector. Because there is little sense of return on these expenditures, preventative measures often are not taken. Ultimately, far greater expenditures are required for post-disaster response and reconstruction and the full extent of losses are rarely recovered.

The challenge therefore will only be pro-actively addressed by creating the market conditions for investment and investment return in 'resilience' as a new form of urban performance, akin to the development in recent decades of new performance categories/metrics such as 'healthy,' 'livable,' and 'green."

Given the short timeframes for investment and risk evaluation in the urban development sector, and barring new policies requiring longer term risk management, 'resilience' (as a new performance category) will have to be designed into projects and places in ways that deliver benefits within these short time frames. Concerted communications efforts will need to be made, based on sound market research, to communicate these benefits to investors, customers, and tenants.



The achievement of new kinds and levels of urban performance in areas burdened by high risk exposure and vulnerability requires fundamental innovation in local market ecosystems. Consider for instance the lessons of market creation for green building and brownfields re-development.

In the 1980s North American cities and regions confronted inventories of risk and liability in the form of thousands of contaminated 'brownfield' sites. By 2004, the US GAO estimated that there were 450,000 to 1,000,000 brownfield sites in the U.S. An unexpected process of public and private sector reinvestment was enabled by three key factors:

- New forums for collaboration were created across the value chain of city-building—between governments, banks, insurers, utilities, developers, and local resident communities—to share, manage, and transfer the risks and liabilities together.

- New practice innovations in urban finance, policy, planning, engineering, insur-ance, communications, and institutions—arising from such collaboration—were piloted and then scaled to remediate con-tamination and mobilize investment in the vacant sites.

- Cities and city-builders shared successful practices across the continent, resulting in a repositioning of brownfield sites in the minds of investors, developers, and residents from places of risk to places of revitalization opportunity.

Government programs subsidized initial assessments and site remediation. Insurers created a whole new category of insurance products, including cleanup cost cap in-surance, pollution-in-place insurance, and post-remediation pollution liability insurance. The widespread adoption of tax increment financing in U.S. cities was directly related to brownfields strategies, and reflected confidence in the potential of increased property values in these high risk areas once they were decontaminated. Law reforms were enacted to limit lender liability, and to allocate and set time limits on civil liability. To overcome private developer concerns about higher financing costs, project delays, and sustained post-remediation liabilities on brownfield projects, local governments provided a menu of incentives and supportive measures. These included certificates of compliance, tax abatements, and grants or revolving loans. Supporting all these practice innovations, a new community of practice needed to be established. Collaborative state and nationwide programs along with international conferences and associations created standards of brownfields development practice, training courses, and land qualification and professional compliance services.

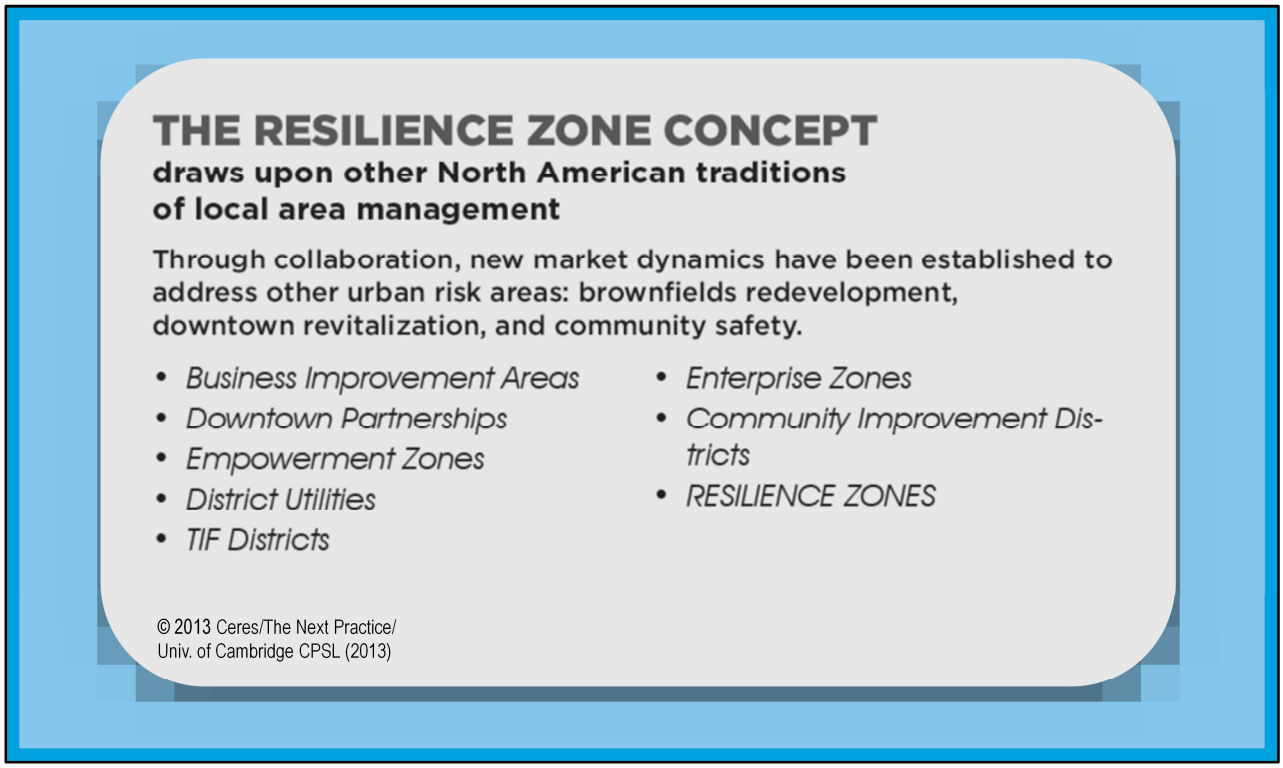
In short, an entire, *new market ecosystem* was established to enable a performance-based, value creation approach to a problem of once intractable risk, cost and liability.

See: Brugmann, J (2013). *Building Resilient Cities: From Risk Assessment to Redevelopment.* Boston: Ceres, The Next Practice, University of Cambridge Programme for Sustainability Leadership

The creation of market conditions for green building followed a similar path of innovation. The professional networks that formed the US and Canadian Green Building Councils and the LEED standard collaborated with pioneering local governments like Portland, Seattle and Vancouver. Municipalities commissioned some of the first LEED certified buildings, thereby engaging regional builders and property developers and their financiers. On the basis of such collaboration, municipalities and state/provincial governments developed incentives and policy reforms in support of market-based green building.

Communications proved a critical requirement for the establishment of a green building market. The LEED standard supported rigorous, comparable claims about performance benefits. Meanwhile, the Green Building Councils established the cross-industry community of practice to share learning and to create supply-side market momentum.

The ultimate outcome from a market perspective has been increased returns on investment and higher market values for LEED Gold and Platinum buildings.



The Local Area Risk Management framework is applied to an institution (e.g., hospital, university campus) or urban area of distinct identity, function and (re)development ambition—that is confronted by distinctly challenging risks and vulnerabilities.

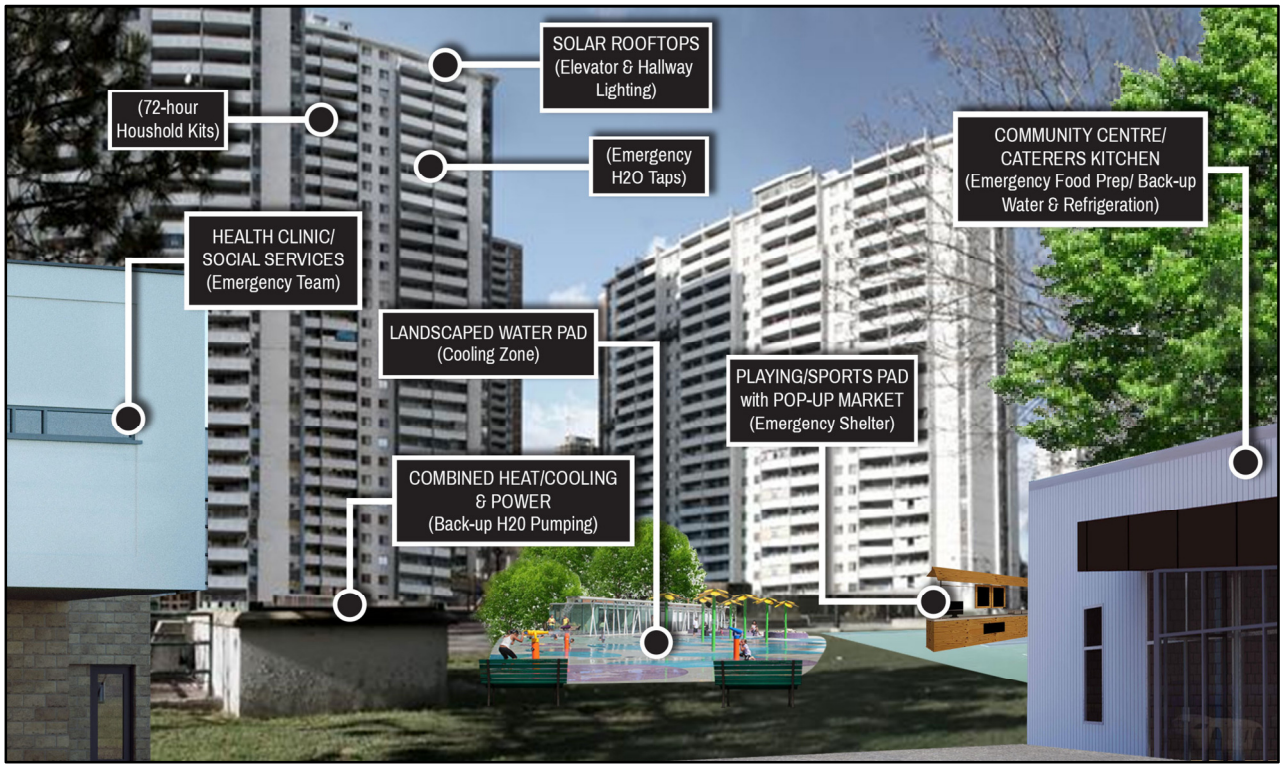
Resilience cannot generally be established on a single asset basis. The performance of assets under extreme conditions is directly linked to the performance of infrastructure, utilities and other service systems under the same conditions. For instance, a building that is flood-proofed provides minimal added benefit if the roads that surround it are flooded. It is for this reason that we propose that resilience can only be established, as a measurable and reliable performance category, at the scale of a campus, precinct, neighborhood, district, or corridor—or at an even greater scale. The development of resilience as a new performance factor is therefore focused at the scale of a designated zone, i.e., a Resilience Zone.

There is extensive urban sector experience in the re-development of campuses, precincts, districts and corridors for targeted new kinds of performance. Business Improvement Areas and Downtown Partnerships have focused on creating market conditions for re-investment in CDBs and old commercial areas to re-establish them as competitive and often specialized commercial districts. Community Improvement Districts and Empowerment Zones have focused on creating social and market conditions to stabilize establish communities and improve their infrastructure, facilities and amenities, often for specific demographic groups. District utilities and eco-districts focus on increased resource efficiency and productivity. Similarly, Resilience Zone initiatives focus on creating the market conditions for re-investment to increase the predictability of benefits to residents, users, and investors under a widening range of unpredictable circumstances.

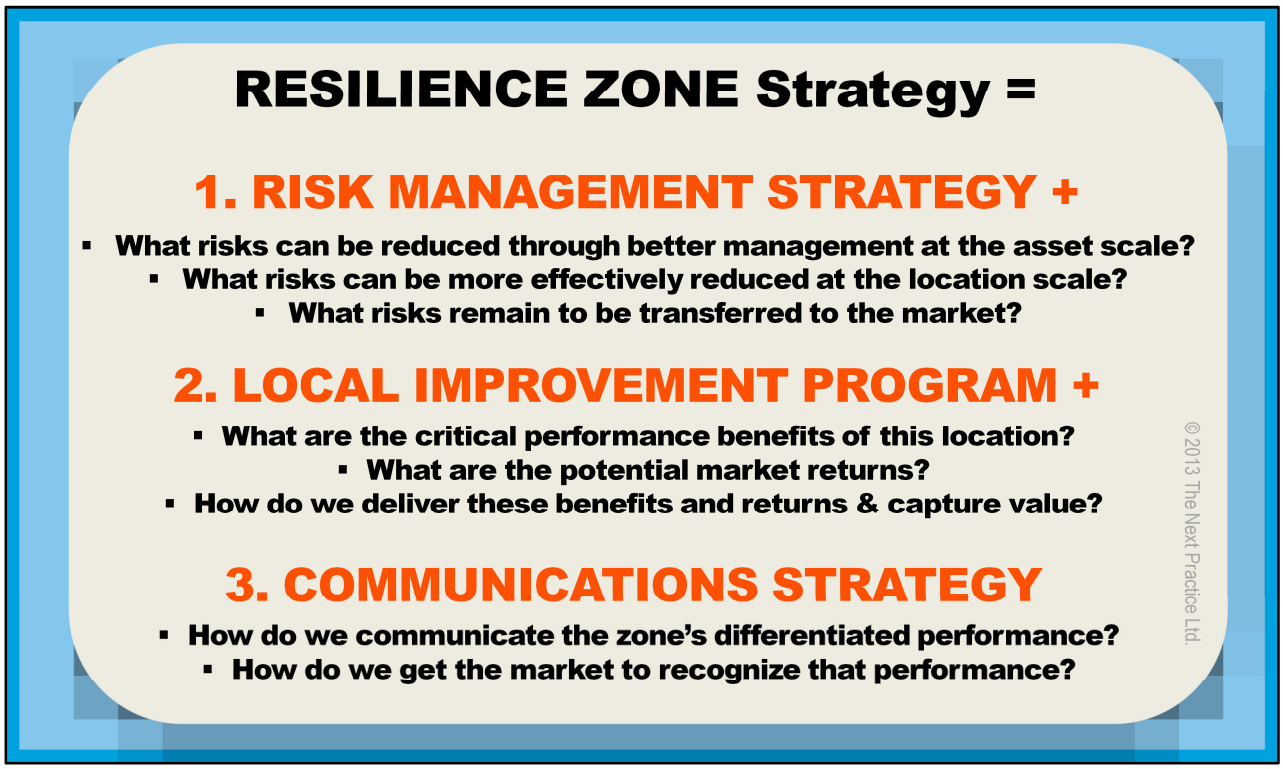
For example, the city of Toronto has identified residential high-rise ‘tower’ precincts as priorities for improvement.

Many if not most neighbourhoods, precincts, districts have already identified social, economic, and environmental priorities. The design process used to prepare a Resilience Zone improvement program identifies ways that identified priorities can be addressed simultaneously with the establishment of risk management capacity.

In a Resilience Zone workshop Toronto stakeholders identified a variety of risk exposures associated with the increasing risk of extreme heat events and associated power supply disruptions in these precincts.



Using this example, a number of improvements can hypothetically be made to increase the everyday performance of these properties and attractiveness of these precincts, consistent with current planning and policy priorities. Many of these improvements could also be designed to manage identified risks in the instance of extreme heat events, as illustrated in this image. Some measures would need to be taken solely for the purpose of effective risk management.



The lessons of market creation for green building and brownfield re-development can be applied to the climate adaptation challenge IF adaptation is approached as a form of positive urban performance enhancement. Towards this end, 'resilience' can be defined and developed as an additional performance factor in property development and local economic development.

A Resilience Zone strategy can be understood as having three main elements. These are 1) a risk management strategy, 2) a local improvement program and 3) a communications strategy.

The risk management strategy focuses on risk reduction, risk management, and risk transfer to the capital markets (i.e., via insurance innovation) at the scales of individuals, single assets, and the location or district.

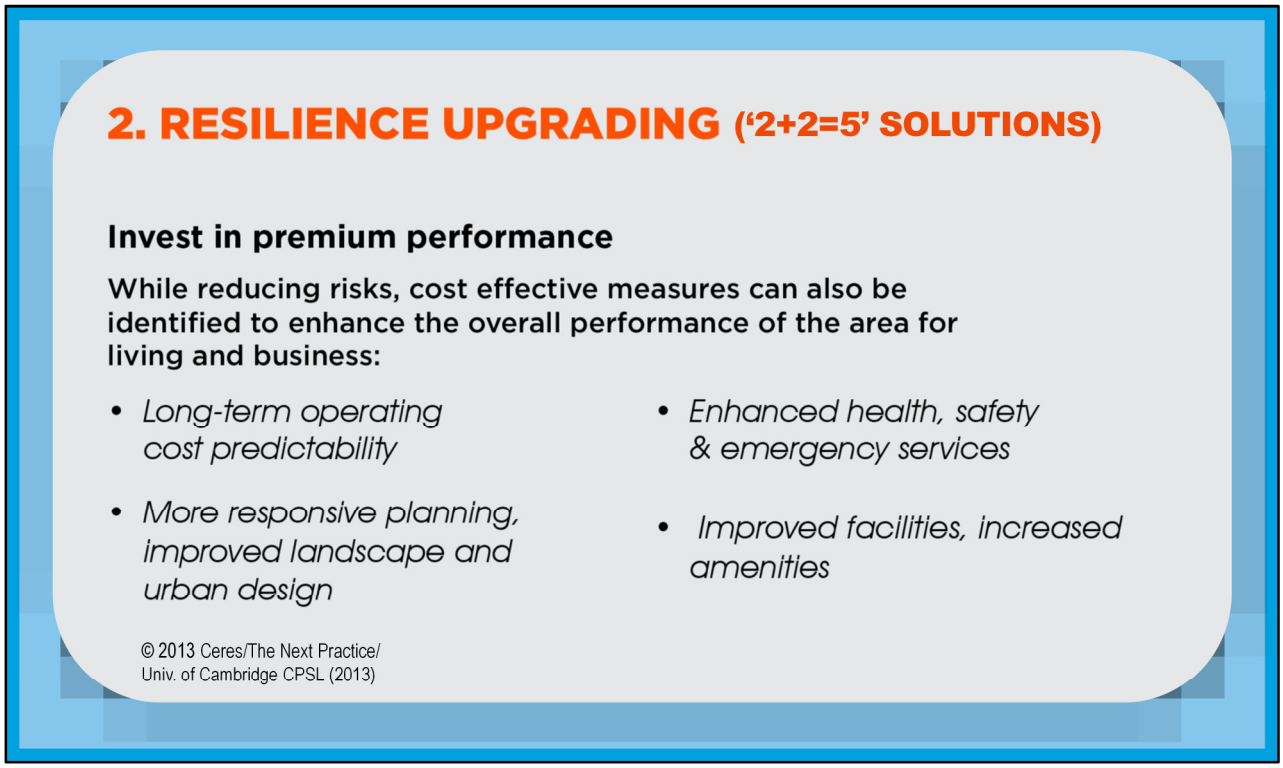
The local improvement program focuses on investments that implement the risk management strategy while also addressing priority facilities and amenities objectives for every day use. This linkage between near-term improvements and medium- to long-term risk mitigation makes resilience relevant within the typical 3-4 timeframe of the urban development sector.

The communication strategy ensures that the market (i.e., investors, buyers, consumers) understand the benefits of the risk management and local improvement efforts, in both absolute terms and relative to comparable other areas.

The risk management strategy differs from conventional risk management in its focus on the Resilience Zone as a unit of risk management, not unlike risk management for campuses or industrial areas or facilities. As noted, Local Area Risk Management focuses on the wide range of risks confronting the Resilience Zone, across the full spectrum of operations and different risk exposures.

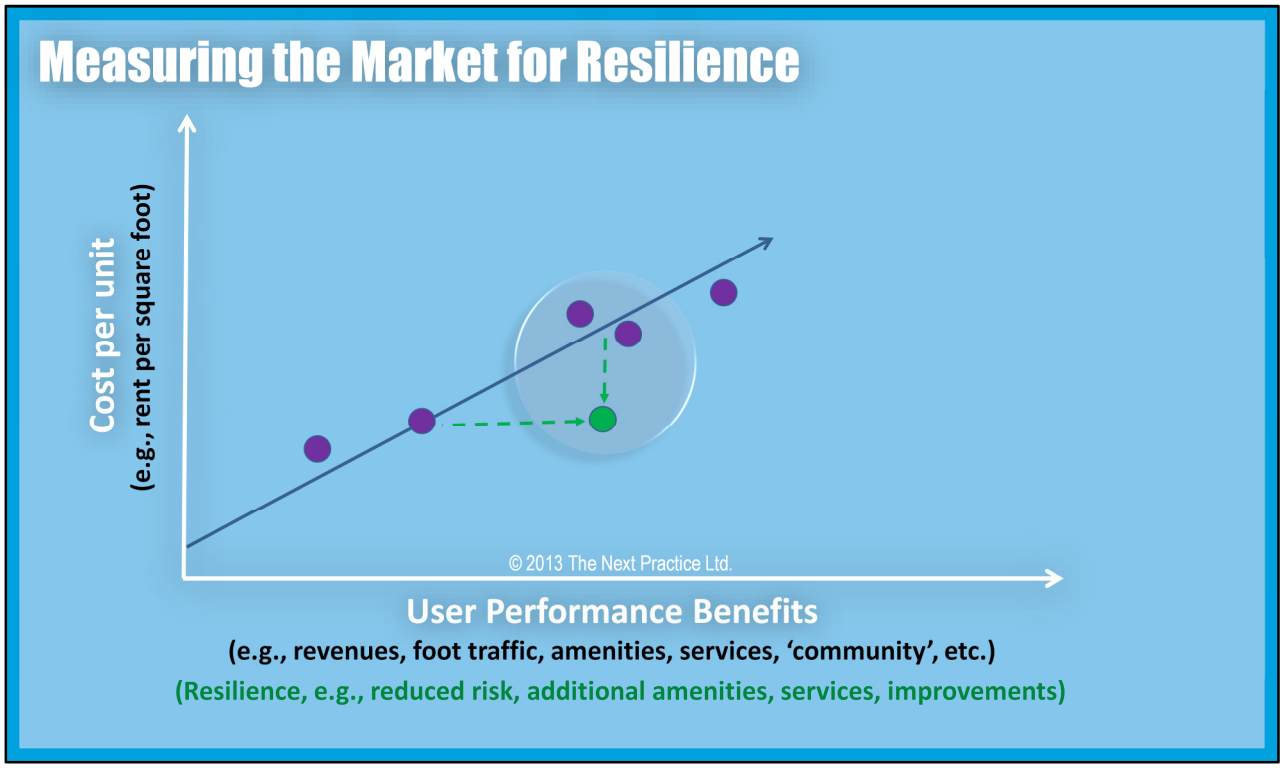
Towards this end, risk management can be approached comprehensively as central part of a strategy for performance in property development, local economic development, or district-level management.

Local Area Risk Management is an application of the premise of Enterprise Risk Management (ERM) to urban locations. ERM is designed to assist complex organizations to manage the risks associated with achievement of their priority business objectives and competitive success. Similarly, Local Area Risk Management considers five areas of risk that influence the success of the local area, and prepares a risk management and risk transfer strategy to prevent risk exposures from impeding such success.



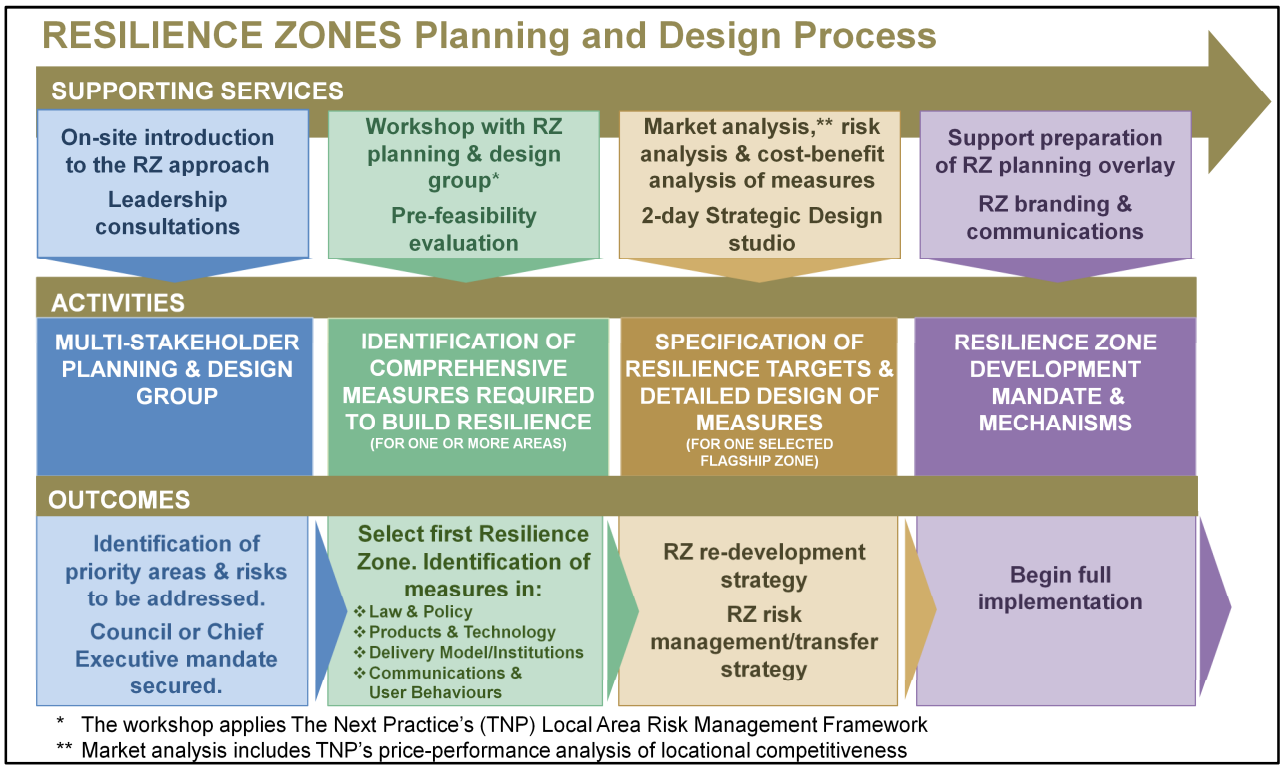
Once risk management requirements are identified, a cost-benefit analysis can be used to determine which components of risk are best managed through local measures and improvements, and which are best transferred to the capital markets via a form of insurance.

The measures identified to reduce or otherwise manage selected risks locally can now be integrated with measures to improve everyday amenities and performance benefits. These '2 + 2 = 5' measures constitute the local improvement program element of the Resilience Zone strategy.



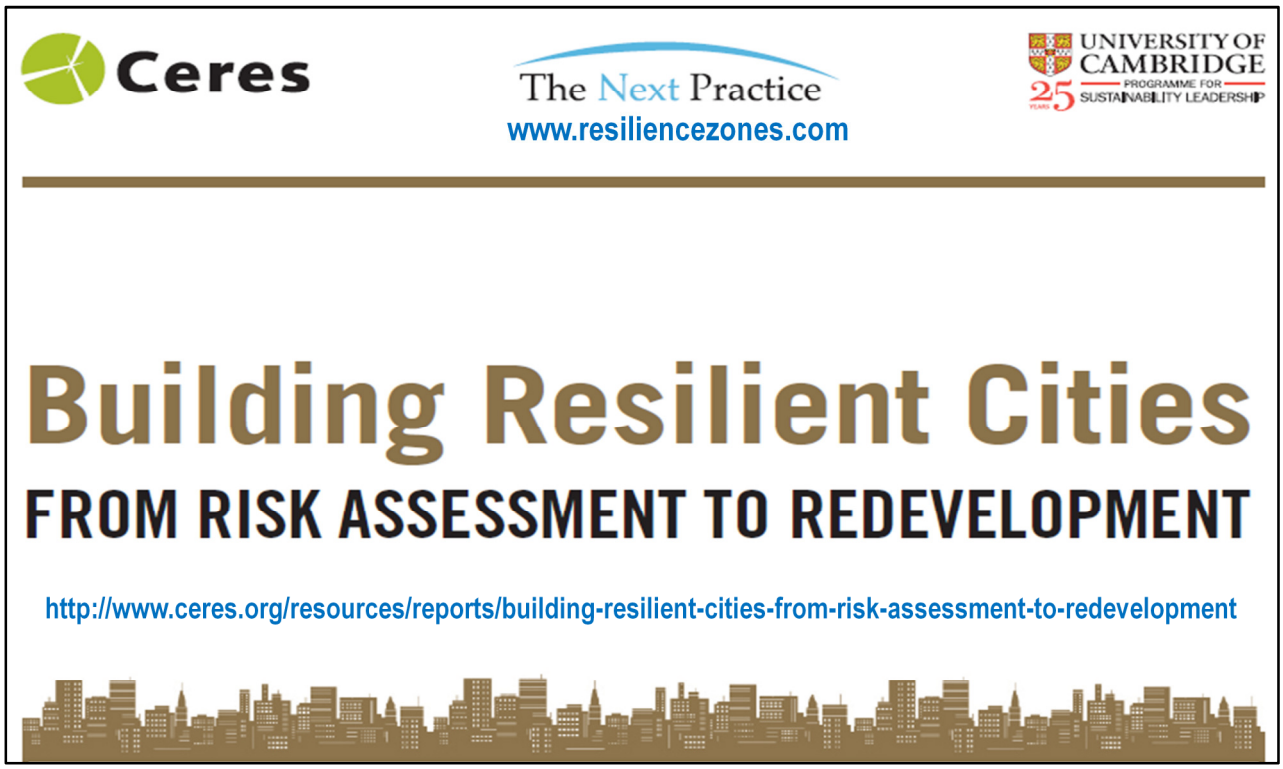
The preparation of a Resilience Zone strategy is informed by market research and cost-benefit analysis. The justification for and degree of incremental investment in resilience can be determined based on a price-performance analysis. Such an analysis provides a comparison between competing districts based on their comparative delivery of performance benefits at a common cost per unit. Such an analysis can be used to estimate the incremental competitiveness of a district that increases resilience performance relative to the others.

Once an improvement plan and risk management strategy is established, the Resilience Zone initiative can also establish the communications element of the overall strategy. Two key elements of a Resilience Zone communications strategy are performance benchmarking (i.e., relative to comparable areas) and place branding to ensure that the full benefits of the Zone are widely understood.



The process outlined above is illustrated in this process diagram.

In conclusion, a Resilience Zone initiative involves a collaborative innovation process, involving the full range of industries, sectors and stakeholders who seek to increase the performance benefits and reduce the performance risks associated with their shared location.



For a more detailed description of the Resilience Zone approach, please read the joint publication of Ceres, The Next Practice, and the University of Cambridge Programme for Sustainability Leadership, *Building Resilient Cities: From Risk Assessment to Redevelopment* (2013). Contact The Next Practice or ICLEI if you seek support in the establishment of a Resilience Zone strategy in your municipality:

info@thenextpractice.com