

Infrastructure

What is urban resilience?

Urban resilience refers to the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow no matter what kind of chronic stresses and acute shocks they may experience.¹



Chronic Stresses

Stresses weaken the fabric of a city on a daily or cyclical basis.

Examples include:



Ineffective public transport system



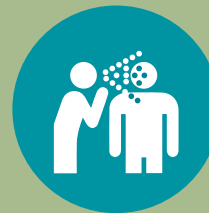
Climate change



High unemployment



Natural disasters



Disease pandemics



Extremist acts

Acute Shocks

Shocks are sudden, sharp events that threaten a city.

Examples include:

Urban resilience and our critical infrastructure

Most Australians are accustomed to a high level of service from our critical infrastructure, such as utilities, transport networks and the healthcare system. Particularly in cities, rapid population growth is putting these expectations to the test, requiring significant investment from governments with constrained access to capital. Addressing this will require a broader conversation about funding models, as well as more interconnected and multipurpose infrastructure.

Natural disasters add to these pressures – the Australian Business Roundtable for Disaster Resilience and Safer Communities estimates that \$17 billion will be spent on rebuilding critical infrastructure after natural disasters by 2050. This figure does not take into account other emerging risks to our critical infrastructure, such as cyber-attacks and extremist acts. Climate change also imposes a greater uncertainty over future infrastructure investment decisions, requiring a new model for decision-making.

What we think of as critical infrastructure is also changing. Rapid advancements in technology mean broadband is rapidly

outmoding landline telephones. We are increasingly realising the importance of our natural assets and the ecosystem services they provide. These shifts provide a major opportunity to improve the wellbeing of all Australians, especially those who were left behind by our old models of service delivery.

The principles of urban resilience offer organisations a new lens through which to view their operations and realise these opportunities. It encourages those with a stake in critical infrastructure to consider not only how to maintain functioning in emergency situations, but also to focus on how services they deliver can contribute to a higher quality of life by enhancing economic, environmental and social outcomes. It is a model for good times, as well as bad.

Throughout the development cycle – from design and planning, to construction, operation and decommissioning – the critical infrastructure sector has a significant role to play in the future of our cities. This fact sheet has been designed to help organisations in this sector begin the journey.

See overleaf for information on the attributes of resilient systems, along with a series of self-assessment questions for organisations.

How can your organisation contribute to a more resilient society?

Resilient systems share certain attributes.

To help you embed resilience principles into your organisation's decision-making, consider these questions in relation to each attribute of a resilient system.



Flexible

Alternative strategies can easily be adopted to deliver critical services, depending on the circumstances.

How do city residents and businesses use our infrastructure and services?

In the event of a crisis that disrupts supply, what back-ups are in place to provide access to critical services?

Do we have documented plans for business continuity and maintaining essential city services?



Reflective

Past experiences inform future decisions and actions.

How does our organisation measure its performance in delivering critical infrastructure services?

How have previous shocks or stresses affected critical infrastructure designed, built, operated or maintained by our organisation?

How can we learn from these events and adapt our infrastructure and services accordingly?



Robust

Systems are well-conceived, constructed and managed. Any failure is predictable, safe, and proportionate.

What external inputs, systems and services does our organisation rely on and what would the consequences be if these were disrupted?

Has our infrastructure been designed, constructed and managed in a way that ensures public safety in any event?

How can the infrastructure we design, construct and manage take into account current climate change projections?



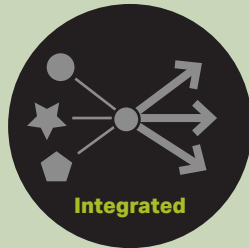
Inclusive

Broad and meaningful engagement – aiming to create a sense of shared ownership among stakeholders.

Who are all the stakeholders that rely on, or could benefit from, our infrastructure and services?

How do decisions about our operations affect vulnerable populations?

How have stakeholder voices influenced how we provide critical infrastructure and services to date? What more can our organisation do to make stakeholder input meaningful?



Integrated

Connections between systems and institutions are harnessed to generate multiple benefits.

How is our organisation collaborating with other organisations and sectors to maximise benefits for cities?

How can we promote a culture of integration and collaboration within our organisation?

In providing infrastructure services, how can our organisation support social cohesion and community connectedness?



Resourceful

Seeking better ways to use existing resources, both in good times and bad.

What resources does our organisation have (e.g. knowledge, people, equipment, natural capital) that could be shared to support city functioning in the event of a crisis?

How does our organisation identify new knowledge and/or technologies that could help us deliver better infrastructure services?

Does our organisation's culture and investment support continual improvement (i.e. improving in good times, not just in response to a crisis)?



Redundant

Spare capacity exists to allow continued functioning even when disrupted.

Does our infrastructure have spare capacity that allows continued delivery of city services even when disrupted?

How are we planning our infrastructure and services to account for future demographic change (e.g. population growth, ageing population)?

The attributes on this page are adapted from the qualities of resilient systems, available through www.cityresilienceindex.org.

If you're interested in reading more about how cities around the world are building their resilience, see www.100resilientcities.org.

