

NEW ZEALAND

The Christchurch Earthquake

On Saturday 4 September 2010, the city of Christchurch was rocked by an earthquake at 4.35 am. It measured 7.1 on the Richter scale. The death toll was zero.

Christchurch is the largest city in New Zealand's South Island. The city was founded in 1848 by British settlers. It is built on a wide alluvial plain, beside two rivers. Christchurch is noted for its architectural heritage, including a large stock of gothic revival stone buildings dating from the 1850s–1870s, built from the local volcanic rock.



Christchurch, church of St. John's, Latimer Square

New Zealand is located on the boundary of two tectonic plates, and is located on the Pacific "ring of fire". Earthquakes are relatively common in New Zealand: the largest known was in 1855 in Wellington, which is estimated at 8.2 on the Richter scale; another significant quake was the Hawkes Bay earthquake of 1930, which devastated the cities of Napier and Hastings, and resulted in the reconstruction of much of these towns in the Art Deco style.

The earthquake

No-one was killed by falling rubble or collapsing buildings. It is nothing short of a miracle that there were no deaths or indeed major injuries, given the amount of falling brick and masonry. The timing of early morning no doubt contributed to the low human toll.

Aftershocks continued for weeks after the main event. There have been well over 100 aftershocks, some measuring over 5 on the Richter scale. The response was fast and effective. Assessment teams were on the ground the following day, assessing damage to buildings and further risk. The continuing aftershocks further weakened already damaged buildings. Other damage included buckled roads, bent rail lines, large cracks in the ground surface, and liquefaction of the sand underlying much of the alluvial plain.

Christchurch City Council (CCC) were aware of the importance of built heritage to the region's history and identity, and heritage issues were a high priority from the start. CCC issued press releases and information forbidding demolition without a consent, and without prior assessment.

ICOMOS New Zealand issued a press statement urging the authorities to seek professional advice before making decisions on the demolition of damaged buildings. ICOMOS NZ noted that many damaged buildings could in fact be retained and repaired, with expert assistance. With the importance of built heritage in Christchurch's identity, this is critically important.

The effect on heritage

In spite of the 7.1 magnitude of the earthquake the survival rate of heritage buildings has been high, with few catastrophic building failures. All the key buildings which make up Christchurch's unique collection of Gothic Revival buildings, dating from the 1850s through to the 1920s, survived. Some are virtually



Christchurch, damaged private house

undamaged but all are in a condition that means restoration is possible with minimal impact on the integrity of the buildings. These buildings are vitally important to the city's architectural character and sense of identity and it is anticipated that all will be restored and, where appropriate, strengthened, to ensure that they survive subsequent earthquakes. Many other heritage buildings in the central city also survived with minimal damage. These successes are largely the result of the extensive programmes of seismic strengthening carried out over the last three decades.

The most serious damage was sustained by unstrengthened load bearing masonry buildings dating from the 1870s to the early 1930s, but even among these the proportion of buildings damaged beyond repair is relatively small. There were few catastrophic building failures, meaning that stabilisation, repair and reconstruction are possible and that original materials can in many cases be reused.

Of equal concern at the time were the large numbers of buildings throughout the region, including early settler homesteads and small Gothic Revival churches of earth construction, that were damaged, in some cases severely. As well as architectural damage, there was damage to contents and fittings, particularly stained glass. Christchurch and Canterbury possess the largest collection of Victorian stained glass in New Zealand, much of it of very high quality.

The very small number of buildings in the city surviving from the 1850s, mainly of timber construction, survived the earthquake in good condition. From the 1860s onwards there were increasing

levels of construction in both stone and brick. Where masonry structures have been strengthened in accordance with both local and national building codes, the structures have performed well.

The Gothic Revival Canterbury Provincial Council Building, built from 1857 to 1865, survived almost undamaged apart from one stone chimney on the north elevation of the 1865 Stone Council Chamber. This chimney was dismantled in order to be rebuilt utilising all sound material. This building was seismically strengthened in recent decades and has been well maintained. Taller chimneys of the south elevation of the Council Chamber had degraded stone replaced and pointing renewed in 2009 and there was no damage to this part of the building. No masonry fell from any part of the building.

Unstrengthened stone buildings from the 1860s and '70s performed surprisingly well. There were no catastrophic building failures and damage has ranged from the collapse of the tower of St John's Church, Latimer Square (1864) to the more typical damage of the apex of gables falling, coping and capping stones being dislodged, and in some cases falling, and separation of walls at junctions between planes. It is anticipated that all the buildings in this category will be secured, repaired and where necessary, damaged parts restored or reconstructed.

Commercial buildings in Christchurch, constructed in brick from the mid 1870s through to the late 1920s, performed well where strengthening has occurred. Unstrengthened brick buildings typically lost the upper levels of side walls, parapets and, in a few cases, parts of facades. Masonry falling onto adjacent buildings also caused considerable damage. These buildings, both strengthened and unstrengthened, nevertheless performed surprisingly well, probably because of the almost universal use of timber framed roofs and timber floors.

Public and commercial buildings constructed in accordance with the revised building codes adopted following the Napier earthquake of 1931 survived the earthquake with few problems although some repair work was required. Many of these buildings had varying degrees of additional seismic strengthening as building codes have been progressively revised since the 1930s.

A high proportion of the region's domestic architecture is of timber construction, and such buildings performed well in the earthquake. Damage resulted from falling brick chimneys, some of which have broken through roofs and seriously damaged interior spaces, including, in one circumstance, an important collection of colonial furniture. Although building owners were encouraged to retain reusable materials it seems unlikely that many of these chimneys will be rebuilt, especially in Christchurch city, where the use of open fires is now banned. However, brick chimneys of important heritage houses will possibly be rebuilt, although these will need to be re-engineered to ensure that they do not fail in future earthquakes.

Ongoing risk

After the main earthquake event there was further risk from:

- Further weakening of vulnerable structures from continuing aftershocks;
- Unauthorised demolition of heritage buildings;
- Opportunistic demolition of “unwanted” heritage buildings.

The rebuilding of demolished buildings also presents a risk. If it is not undertaken in a comprehensive and city-wide manner, the result could be incoherent streetscapes with no integrity.

Mary O'Keeffe & Ian Lochhead
ICOMOS New Zealand

Heritage at Risk

This 2010 report continues to highlight significant New Zealand heritage at risk and supplements previous reports from ICOMOS New Zealand/Te Mana O Nga Pouwhenua O Te Ao. It discusses heritage protection mechanisms in New Zealand and recent legislative changes which have included heritage as a matter of national importance.

Statutory protection of heritage in New Zealand

The Resource Management Amendment Act 2003 (RMA), Historic Places Act 1993 (HPA) and the Conservation Act 1987 are the three main legislative tools that govern the management and protection of historic heritage within New Zealand.

The New Zealand Historic Places Trust/Pouhere Taonga (NZHPT) is an autonomous Crown Entity originally established by an Act of Parliament in 1954. It administers the HPA and its mission is to promote the identification, protection, preservation and conservation of the historical and cultural heritage of New Zealand. The Trust also manages over 60 historic places as museums open to the public. The NZHPT is one of several statutory bodies in the cultural sector funded by the Government. This funding is administered by the Ministry of Arts and Culture.

Identifying significant heritage

The NZHPT maintains a register of over 5,500 historic places, historic areas, *wahi tapu*, and *wahi tapu* areas. Historic Places in the Register include archaeological sites, buildings, trees, cemeteries, gardens, shipwrecks, landscapes and many other types of places. Historic Areas are groups of related historic places such as precincts of buildings and sites. Emphasis is on the significance of the group. *Wahi Tapu* are defined as places sacred to Maori (the indigenous people of New Zealand). *Wahi Tapu Areas* are groups of *wahi tapu*.

Historic places are considered to have significance because they possess aesthetic, archaeological, architectural, cultural, historical, scientific, social, spiritual, technological or traditional significance or value. Category 1 status is given to registered places of 'special or outstanding historical or cultural heritage significance or value'. Category 2 status is given to places of 'historical or cultural heritage significance or value'.

Legal protection of archaeological sites

The Historic Places Act 1993 regulates activity that would modify archaeological sites in New Zealand. The Act makes it unlawful for



The close knit pattern of small holdings, old hedgerows and shelter belts in the 1862 Northland settlement of Matakoho is at risk from subdivision and lifestyle development as smaller farms cease to be economic units (photo: David Reynolds).

any person to destroy, damage or modify the whole or any part of an archaeological site without the prior authority of the New Zealand Historic Places Trust. This is the case regardless of whether the land on which the site is located is designated, or the activity is permitted under the District or Regional Plan or a resource or building consent has been granted. The Act also provides for substantial penalties for unauthorised destruction, damage or modification. Archaeological sites are defined as places associated with pre-1900 human activity, where there may be evidence relating to the history of New Zealand.

Indigenous heritage

Indigenous heritage, the heritage of Maori and Moriori people, is recognised in the ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Significance (The New Zealand Charter 2010) as a special case where decision-making should rest with the indigenous people at the tribal (*iwi*), sub-tribal (*hapu*) and family (*whanau*) level. Because of the particular associations of such heritage with ancestral figures, ranking systems, such as are used in the NZHPT Register and in district plan schedules, are not considered to be appropriate mechanisms to be applied to Maori and Moriori heritage places.

Conservation lands

The Department of Conservation (DoC) is the central government organisation that has responsibility for the conservation of natural and historic heritage, principally on Crown conservation lands managed by the Department, for the benefit of present and future generations of New Zealanders. The Department works to restore, maintain, protect and interpret sites of historic and cultural importance on public conservation land. Nearly eight million hectares, some 30% of New Zealand's total area, are managed by the Department.

Coastal erosion threatens this pā (earthwork fortification) site at Karakanui on the Kaipara harbour (photo: Kevin L Jones Archaeologist Ltd 2010).

Other organisations maintaining lists or registers of significant heritage

Of particular importance is the New Zealand Archaeological Association (NZAA) Site Recording Scheme which is the national system for recording information on archaeological sites. This contains over 55,000 records.

The Institute of Professional Engineers of New Zealand (IPENZ) identifies and registers sites, projects and structures with characteristics that make them worthy of notice as important features of the nation's engineering heritage.

A number of local councils maintain heritage inventories. One example is the Auckland Council's Cultural Heritage Inventory (CHI). This is a GIS-linked database containing 8,000 recorded archaeological sites, 1,000 sites with historic maritime associations within the coastal environment, 2,100 historic buildings and structures of significance to the local and regional community, and over 600 botanical heritage sites (trees and other plantings).



Heritage at the local level

City, District and Regional councils have a significant responsibility for the protection and management of historic heritage under the Resource Management Act 2003, through the formulation of district plans and by managing the process of granting resource consents. Councils are also responsible for managing the effects on heritage that arise out of the planning and resource consent process. District Plans, reviewed every ten years, contain Schedules of Heritage Places of value to the community, which are protected through district plan rules.

The performance of local authorities in heritage protection varies widely throughout the country. These differences may come more into focus over the next year following changes made to the Resource Management Act, which raised cultural heritage to the same level of national importance as natural heritage.

Heritage orders and heritage protection authorities

A heritage order is a provision in a district plan to protect the heritage characteristics of a particular place. A Heritage Protection Authority is able to give notice to a local council of a requirement for a heritage order to protect the special heritage characteristics of a place or structure of special cultural, architectural, historical, scientific, ecological, or other interest, as well as its surrounding land. All Ministers of the Crown, local authorities, and the Historic Places Trust are automatically a heritage protection authority under the Resource Management Act 2003, and a number of other bodies are eligible to apply to the Minister for the Environment to become a heritage protection authority. Where a heritage order is included in a district plan, no one without the prior consent of the heritage protection authority can do anything that would compromise the effect of the heritage order.

Guiding documents for heritage conservation

The ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Significance (The New Zealand Charter) has become recognised as the standard document that guides conservation practice in New Zealand. ICOMOS New Zealand has recently revised the New Zealand Charter, which first came into use in 1993.

Conservation planning is also a widely accepted practice in New Zealand with some councils including requirements for the preparation of conservation plans as condition for the granting of resource consents for the adaptation of places of high heritage significance. This process is guided by both *The Conservation Plan* by Australian James Semple Kerr (1992), and the NZHPT's *Guidelines for Preparing Conservation Plans* (2000).

Other protection mechanisms

The Reserves Act 1977, the Building Act 2004, and the Protected Objects Act 1975 are also relevant to the protection and management of historic heritage. The Protected Objects Act, which is administered by the Ministry for Culture and Heritage, provides

for the protection of objects forming part of the movable cultural heritage of New Zealand. The Act controls the sale and disposal of artefacts, and provides for the ownership of Maori artefacts to be established and recorded. The Reserves Act contains provisions which allow for the establishment and management of Historic Reserves, which are typically managed by the Department of Conservation, the New Zealand Historic Places Trust, local government and in some cases community groups, City, District and Regional Councils.

New Zealand Heritage at Risk

ICOMOS New Zealand's past contributions to *Heritage at Risk* have focussed on specific places of risk, including the Auckland volcanic landscape and the Cook Landing Site National Historic Reserve. We have also listed types of heritage or themes at risk, including:

- New Zealand's archaeological heritage and associated cultural landscapes impacted by urbanisation and subdivision in the northern North Island;
- New Zealand's earliest colonial heritage and associated cultural landscapes threatened by encroaching incompatible development;
- New Zealand's modern (post-1940s) buildings;
- maritime heritage;
- historic heritage in conflict with natural heritage values;
- 'humble' heritage. (see *Heritage at Risk* 2000).

These places and issues still largely remain at risk. The only significant legislative change that gives hope for increased security and recognition of heritage has been an amendment to the Resource Management Act in 2003 that adds to Section 6 – Matters of National Importance – the protection of historic heritage from inappropriate subdivision, use and development. This brings with it an expectation from heritage professionals that the amendment will see increased activity on the part of Regional and District councils in assessing, reviewing and identifying historic heritage in their areas and making better provision for its protection in planning documents. Whether or not this proves to be the case will be a matter for future reports. Members of the New Zealand heritage sector note the following places and themes at risk in New Zealand:

Archaeological sites under threat from rural farming

Sites representative of New Zealand's first Polynesian and European settlers.

Threats

Farming is a major part of New Zealand's economy: internal resources and external exports rely heavily on the farming industry. In addition, New Zealand has a strong ethos of private property rights, and many landowners resist the perception that their land and everything on it is not theirs to do with what they will. There is a common misconception in the farming industry that the presence of archaeological sites will prevent the economic use or development of the land.



Sheep graze in the partly demolished railway workers' settlement at Arthur's Pass, Canterbury (photo: David Reynolds).

Possible Solutions

Educating landowners as to the nature and implications of the archaeological resource, and especially of its value and significance. Co-ordinating better with local government management systems and rules in district plans.

Coastal archaeological sites susceptible to sea erosion

A high percentage of pre-European sites are located along the coast. They are significant not only because they relate to New Zealand's first people but also because so many of them are sensitive to development.

Threats

These include a rising sea level, apparent increasing storminess, and the destabilisation of dunes by recreational vehicles.

Possible Solutions

Surveying to assess damage and set priorities, either for remedial action or, failing that, urgent excavation (preservation by record). Participation of all key stakeholders is required (Maori tribal groups, New Zealand Historic Places Trust, territorial and regional authorities, Department of Conservation).

New Zealand's railway heritage

The industrial and cultural heritage including structures, archaeological sites, cultural landscapes (urban and rural) and railway settlements, sites and wider communities such as Frankton Junction, Raurimu and Taihape. Over the last 21 years, since the restructuring of New Zealand's national railway system, all 19th and 20th century railway properties have been sold into private ownership and there are now very few railway workers. This is leading to the loss of railway communities, their social structures and buildings. Of the ten 20th century planned settlements based on garden suburb ideals, two have been lost (Newmarket and Taihape) while the remaining

settlements are under the increasing threat of urbanism, subdivision and infill housing (in both urban and rural areas), and building removal (in rural areas). Substantial removal of rural railway houses has taken place. The New Zealand railway 'row' settlement of the 1920s is also under increased threat as people seek houses for relocation; only one railway settlement has been recognised officially as heritage.

The pressure to refit older buildings to attract new tenants leaves interiors such as this one in Auckland's General Buildings at risk (photo: David Reynolds).





Despite the existence of a conservation plan, unresolved management differences between the relative value of cultural and landscape elements, leaves invasive trees destroying these graves in Grafton Cemetery, Auckland (photo: David Reynolds).

Threatened along with the housing communities are the railway lines, the stations and associated buildings, both urban and rural, and associated buildings such as shops and halls. Many lines have been removed and a number of stations closed, sold off and/or removed including buildings built up to the 1950s. Modernisation of the Auckland rail network currently underway has brought with it increased expectations (by the planners at least) of modern facilities with the result that little emphasis is being placed on the incorporation of the older timber-built stations as network facilities for rail passengers and many have been removed to become museums or cafés sometimes outside the railway corridor. Similarly, railway overbridges, often made from railway track have given way to smart new bridges with canopies to shelter commuters.

Threats

These include urbanism, house removal, vandalism, removal of ‘redundant’ stations and other infrastructure from their railside context.

Possible solutions

Strengthening education on the historical context of railway in the development of New Zealand at school and community levels. Undertaking national heritage survey of railway places and the degree of risk and solutions identified. Detailed recording of places where removal or demolition cannot be prevented.

Historic towns

New Zealand’s historic settlements have developed in different ways. Prior to the major phase of European settlement, Kororaraka (now Russell), grew in the early 1800s as a provisioning port for European and American whaling ships. Some were established under planned settlement schemes such as those founded by the Bohemians at Puhoi, the French in Akaroa, the Albertlanders on Northland’s Kaipara Harbour or the English Wakefield settlement of Canterbury. Other towns were established in response to such factors as the availability of land for pastoralism, and opportuni-

ties for commerce and tourism, or grew with the development of transport and communication. Some have been eclipsed by such events as natural disasters (as at Te Wairoa), or by the decline in the railways industry (as at Taihape) or timber milling (as at Dargaville and Kohukohu).

Historic towns are distinctive in their expression of the diversity of those who created them. Their continued attraction rests in such things as their distinctive street patterns, the relationship of the urban area to its landscape setting, and such elements as materials, scale, size, construction and colour of its buildings.

Threats

These include:

- ‘Mainstreeting’, the introduction of reconstructed and often historically absent features such as extensive paving, bollards, imported English cast iron lamp posts and other street furniture in downtown areas, in an attempt to promote economic revival in declining towns.
- Lack of consultation with the residents on the qualities that make towns distinctive.
- ‘Heritage as a designer style’, such as the recent boulevarding, in a quasi Franglais style, of the predominantly English part of the historic town of Akaroa on Banks Peninsula, in order to meet the perceived needs of local tourism.
- Lack of conservation planning preceding urban design exercises aimed at enhancing townscapes.

Possible solutions

- Preparation of regional inventories of historic towns at risk, followed by education programs to inform district councils of their significance.
- Evaluation of the cultural heritage significance of historic towns and development of conservation plans prior to extensive maintenance, urban design or economic recovery-led enhancement proposals.
- Full consultation with residents and other interest groups who value the place and have a comprehensive understanding of what gives the place its distinctive character.

Public and commercial interiors of the early 20th century

- A significant record of the built environment, of ‘going to town’ when New Zealand was still predominantly rural, and other social and commercial activity.
- A record of interior design by both private people/architects and government architects.
- Increased rarity value due to extensiveness of loss of original interiors.
- The loss of the use of many significant buildings such as post offices and large department stores in the last ten years from restructuring has led to many interiors being stripped of decorative and sometimes structural materials. In some major towns such as Hamilton, only one or two interiors from pre-1950s remain intact – none have protection at regional or local level.

Threats

Redevelopment, façadism, café development, ‘adaptive re-use’ that promotes external appearance over internal integrity, unwillingness of authorities to intervene in spaces perceived as ‘private’.

Possible solutions

Protecting at regional and local government level through District Plans/rules. Educating on early 20th century heritage and the value of interiors. Providing more for the interpretative recording of existing interiors to promote greater understanding and education about their significance.

Loss of domestic heritage in growing urban/city centres

These places are significant in telling the story of the growth of towns/cities. They reflect earlier patterns of living, including the frequently close historical interconnection between places of dwell-

ing, work and other activities, including recreation and religious worship.

Threats

High developmental pressure as land prices increase.

Possible solutions

Zoning areas of cities/towns as residential and removing the expectation of being able to develop. Protecting the historic heritage by listing as heritage items on district plans.

Historic cemeteries

These are representative of early religious beliefs and social mores. Grave furniture such as headstones reflect aspects like craft traditions and levels of infant mortality, as well as personalise the past. Genealogy is a growing interest. Many cemeteries incorporate evidence of past botanical landscapes.

Threats

These include neglect, lack of funds to conserve, and a general lack of appreciation by New Zealanders of their significance as a historic record and resource. High operating costs are reflected in either lack of essential maintenance by local councils or church trustees, or by conversion to lawn cemeteries with loss of monumental stonework.

Possible solutions

These include the education, adoption by local community groups, and research as to wider significance. Integrating the recording of grave sites, furniture, associated structures and landscape features (including botanical remnants) can raise their profile within the community and improve understanding of their historical importance.

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