

# PLAN TECTONICS!

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City planning and the role of planners  
after the great Wellington earthquake

The tectonic forces triggering the Great Wellington Earthquake to come will devastate the city and could kill an estimated 900 people (Dominion Post 2004, p.2). It will also lead to a shake-up of the city's planning policies. As the recovery process gets underway, hard questions will inevitably be asked about the loss of life and property and how existing planning policies might have contributed to these losses. There will be a call for the city to be reconstructed more safely than before.

A symposium in Napier last July, initiated by the Ministry of Civil Defence and Emergency Management has given fresh impetus to the disaster recovery process.

The Ministry is working to establish a framework for recovery and guidelines for recovery practice in New Zealand, as a means to advancing the development of local disaster plans under the new Civil Defence and Emergency Management legislation.

The symposium attracted a wide cross-section of participants but there was little interest from the planning profession. Only 4 out of 230 or more could be identified as having a city planning background and there was no representation from the Ministry for the Environment. This low planning turnout was disappointing. City planning will be an important part of post-disaster recovery and reconstruction, and planners need a better idea of their role in the process.

This short paper presents some preliminary thoughts on what is a neglected area of planning and looks at what planners might do to prepare for an earthquake disaster. Before considering this it is helpful to reflect on the direction of city planning today and some of the factors that might be taken into account in the post-disaster planning of the city.

### City Planning Today

Wellington City might be supremely sited, as its coat of arms proclaims, but it is also located in an extremely vulnerable position on the so called 'Pacific Ring of Fire'. The hazardous location has not,

however, had a huge impact on the planning and development of the city. The pattern has been one of increasing intensification of development as the city has been built and re-built over successive generations.

Today, the District Plan and related documents specifically promote intensification as a means of achieving a more sustainable city. The Outer Town Belt acts to curb sprawl and suburban rules encourage higher residential densities and more mixed use development.

Intensification has been most dramatic in the central city area. In the old days building development was constrained by the maximum reach of fire department ladders but from the commencement of statutory planning, successive policies have promoted high-rise development and an ever increasing intensity and diversity of land uses and activities. The most recent phenomenon has been the growth of inner-city apartments, which has resulted in some 10,000 people now living in the central area.

The whole gamut of social, economic and planning change in recent times has achieved a level of growth and vitality that, according to one commentator, has transformed a rather drab, climatically challenged city into arguably New Zealand's first truly urban centre (Zollner 2003, p.12). Exciting moves are now afoot to expand the city into the more sparsely developed railway and port lands to the north of the existing central business district.

### Earthquake Hazard Mitigation

In modern Wellington you would be hard pressed to find any obvious physical manifestation of planning measures designed to mitigate the effects of an earthquake disaster.

Some 30 years ago when the Council purchased the Midland Hotel on Lambton Quay and developed the site as an inner-city park, one of the reasons for acquisition was reputedly to provide refuge space for the public in the event of an earthquake. There was talk of a string of similar parks being provided along the main shopping

*BELOW:: The Government Centre ideal – office buildings in park-like surroundings that would facilitate evacuation after an earthquake.*

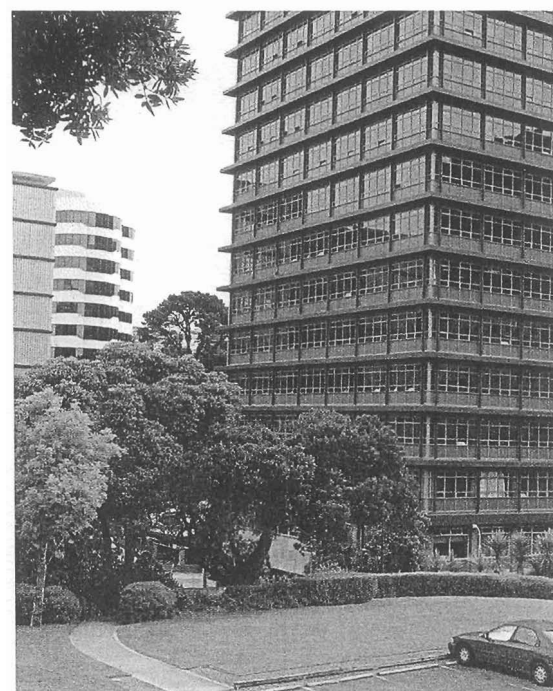
*LEFT:: Woodward Street – an intensive and attractive urban space but arguably more hazardous in an earthquake.*

streets, but this idea was never pursued and no longer features in any Council plans or policies.

Various mitigation provisions have, however, been included in the District Plan. In 1979 the main Wellington earthquake fault-line, which cuts through the historic suburb of Thorndon, close to the central area, was identified in the Plan and rules were included to limit the intensity of development along the fault zone. More recently other fault-lines in the rural area have also been included.

Also in 1979 provisions were introduced requiring the undergrounding of services in all new subdivisions. Although adopted primarily for amenity reasons, there has always been tacit recognition that the elimination of overhead poles and wires would be advantageous in the event of an earthquake disaster.

In 1985 a plot ratio bonus scheme was introduced for new central area developments, that offered additional building floor space as an incentive for the provision of certain public benefits, one being the strengthening of existing earthquake-risk buildings on the site. Later, new



provisions were added to permit the transfer of approved development rights to other sites to secure the protection and strengthening of earthquake-risk heritage buildings. These schemes were subsequently replaced by direct Council financial incentives to owners under the Building Safety Fund and Heritage Policy to assist the retention of heritage buildings.

More recently, the Plan has identified ground shaking hazard areas throughout the city. The associated rules, however, only require resource consents to assess the siting of critical facilities such as fire stations, medical centres or power sub-stations.

All of the earthquake hazard mitigation measures implemented to date would, of course, be helpful in the event of a major disaster - but the key question is whether they really do enough? The honest answer to this must be no. Against the

of Urban Design and Physical Planning at the Warsaw Technical University, presented a paper at a conference in Wellington on the design of cities in earthquake-prone areas (Ciborowski 1981, p.55). At a subsequent talk to the local planning group, he made an interesting observation on planning in Wellington City. He compared the Government Centre as it was being developed at the time, with its orderly arrangement of office towers and other official buildings set in landscaped surroundings, with the more congested development in the adjacent commercial areas. He suggested that the master-planning for the Government Centre provided a model for the future planning of the city as a whole, from the viewpoint of reducing vulnerability to earthquakes.

In his paper, Ciborowski went on to identify the specific planning and urban design measures that, in his view, should be applied in the wake of an

The avoidance of urban gas distribution was specifically mentioned

In their totality these measures conjure up an image of the ideal earthquake-resilient city - a city characterised by a dispersed, spacious and ordered form akin to many of the well known planned cities of the world.

The rebuilding of the old industrial city of Tangshan in China after the great earthquake of 1976 - which killed an estimated 240,000 people - provides possibly the best example of a city re-designed to mitigate the effects of future earthquake disasters. Chen et al (1988, pp.93-94) describes how the new city was laid out on a grid system. All narrow roads were widened and public parking lots established near highway exits to facilitate evacuation. Lifeline systems were decentralised and buildings designed to higher seismic standards. Existing parks that had been used for temporary housing were expanded, and new parks were created. The people of Tangshan are doubtless proud of their reconstruction efforts, but modern Tangshan is reported to have a major drawback that stigmatises other planned cities: a lack of spontaneity, excitement and vibrancy.

Wellington City clearly contrasts with the ideal form. This is not to say that grand scale master-planning should be emulated in Wellington in the post-disaster world. The geography and history of the city would certainly work against this. Nevertheless, elements of those planning and urban design measures that would assist in reducing vulnerability could be adapted to improve the future resilience of the city. As part of a pre-event planning process consideration needs to be given as to what these elements might be, and how they might be applied in the Wellington context. As has been said (Schwab 1998, p.48):

The secret lies in identifying in advance those decisions that will need to be made after a disaster that are most likely to have long-term repercussions for hazard mitigation.

If nothing is done, planners will inevitably be on the back foot amid the tumult and turmoil of the disaster. The danger will be the marginalisation of

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forces driving the development of a more compact, crowded and therefore inherently more vulnerable city, the existing measures, in terms of reducing the loss of life and property, would be marginal at best. In the current development climate, the adoption of new mitigation measures of any consequence would appear to be highly unlikely as it would raise the spectre of rethinking existing planning strategies.

### The Ideal Earthquake-Resilient City

If little more is to be done, then it would seem that the only real opportunity for change would be through the implementation of more comprehensive mitigation measures during the recovery and reconstruction period following the next big earthquake event. If this does not happen soon, there is time to give some thought to what might be done.

In 1981 Adolf Ciborowski, then with the Institute

of earthquake disaster. These were:

- The decentralisation of population and economic activity on a regional basis
- Decreasing urban densities both in terms of population and building intensity  
The rationalisation of land use to locate uses of high sensitivity to low hazard areas and vice versa
- The provision and use of parks and open space to isolate fires and to provide refuge areas and space for temporary housing
- Adapting the street system (including street widening) to improve access for emergency services and for evacuation purposes  
Regulating the siting and design of buildings to minimise damage, provide protection from falling debris and to enhance escape and evacuation  
The safe provision of infrastructure and utilities, including the undergrounding of power.

any effective planning contribution in the recovery and reconstruction of the city.

### The Post-Disaster Plan for Wellington and the Role of Planners

If the post-disaster plan for Wellington is not to be a master-plan, a blueprint or some other preconception of the reconstructed city, then what is it to be? It should instead be the identification and elaboration of processes for ensuring an effective planning contribution to post-disaster recovery and reconstruction. The primary aim would be the planning and design of a safer and more resilient city. This would happen within the wider context of civil defence and emergency management recovery planning. To get things moving, there are five tasks that would warrant immediate attention.

The first would be to ensure that business continuity planning within the Council, and indeed other key planning organisations, is taken seriously. Business continuity planning should not just be a matter of keeping a copy of the District Plan and some stationery in a safe place. Planners will need the capacity for quick and effective action, particularly in the early days or weeks of a disaster when electronics systems will be out of action.

Second, there is work to be done in ensuring that the new Group Plan for disaster management - being prepared under the Emergency Management and Civil Defence Act 2002 - recognises urban planning as an integral part of the post-disaster recovery process. Without proper recognition,

planning opportunities could easily be lost in the rush to return the city to normal life.

A third task would be to map out the likely operational roles and responsibilities of planners in the various stages of the recovery process. An essential component of this would be provision for the early deployment of a forward planning team that would work exclusively on long-term planning and reconstruction issues. Without such a dedicated resource, effective planning would be seriously constrained.

Fourth, it would be extremely helpful to have thought through in advance how information on the disaster, relevant to city planning is to be gathered. Effective planning will hinge on the availability and quality of information. There will be limited scope for specific planning surveys and consequently a need to rely on data compiled for other purposes. The key will be the foreknowledge of how to tap into the various information sources.

Finally, there is a need to ensure that the positive work that planners might do is not frustrated by the lack of an appropriate legislative mandate. It is apparent that the existing emergency provisions in the Resource Management Act 1991 were not drafted with a major calamity in mind. In the heat of an emergency, it is likely that existing plans and processes would have to be suspended for a time to deal with pressing response issues, and new rules introduced speedily to reinforce revised planning policies. Answers are needed to important questions about how the statutory system is to work in the

BELOW: Midland Park - Recreation space and refuge space in the event of a major earthquake.

event of a major disaster. This should not wait until the disaster strikes.

### Conclusion

It is not known when, but one day Wellington will be devastated by an earthquake. While some planning mitigation measures are in place they are likely to be of only marginal effect in terms of reducing the loss of life and property. Existing urban containment and intensification policies are at odds with those that would achieve a safer urban form. Given the forces driving city development, it is unrealistic to expect any change in the present direction. The postdisaster period of recovery and reconstruction would instead provide the best opportunity for change. The aim would not be the imposition of some radical new master plan for the city, but the implementation of enhanced mitigation measures that would work to counter some of the shortcomings from the past. To be effective, planners need to plan for their role in the recovery process - or risk being relegated to the sidelines.

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