

RE-PLACING INFRASTRUCTURE

by Richard Reid

The design of infrastructure is a complex mediation process within the city. The relationship between infrastructure and its locality should be mutually supportive and sustaining. For infrastructure to work meaningfully in any given locality it must appeal to more than the ideal of integration. Its design should allow for the accommodation of the locality in its conceptual structure. Too often, however, the intervention of infrastructure into local communities and environments is managed by the mitigation of effects.

Infrastructure has the potential to empower a place by delivering public-good outcomes as a core component of the solution. Success should be measured by how well infrastructure enhances the locality it is a part of, as much as by its service value for the city. This article will consider the effectiveness of design in recent infrastructure projects in Auckland. Three projects of different scale will be examined where the author has played an instrumental role in producing alternative solutions.

Design of urban infrastructure

I have been involved with a dozen infrastructure projects in Auckland over the past five years, either by being engaged in a professional capacity or by contributing as a member of the public or from within a community group. Projects have included strategic roading systems, walking networks, regional cycling links, transport interchanges, public space networks, city-scale residential developments and cemetery extensions.

Each project needed to resolve multiple objectives within complex urban environments. Good working relationships with and between a diverse range of activities, contexts, communities and iwi were required for each project's support. The projects' scale and breadth of intervention required thinking about the city at high-order conceptual and spatial levels, as well as from on-the-ground experiential locations. Both positions are necessary, especially when studying existing or emerging patterns, or exploring future potentials.

A 'whole environment' approach is called for, suggesting urban infrastructure works best when it is a 'bridging structure' incorporating multiple concerns and interests, rather than a

built structure concentrating or monumentalising individual ones. This enables the creation of mutually reinforcing spaces and the generation of social / environmental / economic opportunities, instead of costs to mitigate the 'object' and left-over space.

A strong case can be made for foregrounding public good outcomes instead of technocratic ones, as these encourage bigger picture considerations and innovative planning solutions. There is more flexibility in the design of infrastructure than agencies responsible for its provision like to admit. The outcome largely depends upon what is trying to be achieved in principle and the skills brought to each local situation.

Charles Landry believes that understanding a city's soft infrastructure (the social, cultural, psychological and economic) is key to how a city works. "Technical disciplines are important, but they are a smaller part of the urban story than their practitioners would wish to think."¹ Landry worries that there is no professional discipline focussed on the whole picture, linking sensory, social and cultural resources to the built environment.

Recent urban infrastructure proposals

Most recent urban infrastructure proposals in Auckland have produced poor design outcomes unless significant remedial action has been taken by others. Typically, projects have offered singular responses with only one outcome in mind. These usually represent the vested interests of one party which traditionally uses its power and resources to override opposition through an adversarial approach or superficial consultation process.

Conceptual designs have mostly been formulated by specialist professions, often with an engineer-led vision that is 20 years out of date. Other consultants, such as architects and landscape architects, seem to have little power to shift outcomes and are employed instead to wallpaper projects with detailed design features. Few public good benefits are offered that extend beyond the programmatic concerns at hand. What constitutes the interests of the "the public" is often limited to users of the infrastructure itself. Local environments and communities almost always come off second best. There is very little idea of how to build the city into the outcome.

Designers place too much importance on

resolution of the physical structure in isolation from context. A lack of skill in bringing environments and activities together is evident. Weak existing patterns are reinforced instead of risking their interruption to create what Mark Wigley terms "productive mutations".² Such conservatism appears to reflect a lack of awareness, or confidence, or integrity, in what design can achieve. In this respect, the current review of Auckland's governance probably deflects responsibility from designers' key role. Governance issues and planning controls do not prevent lateral thinking and excellent outcomes on the ground. Nor should they increase costs.

However, strong executive leadership is vital for supporting or transforming outcomes for the better. Its application almost always leads to braver decision-making, the effect of which infiltrates through the project. For example, the outcome for the Mt. Roskill volcano significantly improved with Transit's CEO and Auckland City Transport managers' personal involvement and direction (see the case studies below).

Where both leadership and professional practice are remiss, then the public's right and ability to contribute becomes more important. The regulatory process increasingly recognises relevant and astute public participation. Transit's SH20 Manukau Harbour Crossing Project is a case in point. The hearing decision noted: "The Auckland City Commissioners witnessed the significant positive involvement of submitters from the local community, who, together with Maori, have put forward a well considered package of alternative options. The community response overall reflects a more balanced approach."³

Future investment

Some 40 billion dollars is forecast to be spent on new public infrastructure across New Zealand in the next ten years. Rather than simply eyeing the business opportunity within this investment, designers should be moving towards producing more imaginative and holistic outcomes. Landry encourages our minds to be "wider in analysing opportunities and problems and in finding richer ways of identifying and implementing solutions".⁴ I believe the following case studies below illustrate such thinking. [Note that reference to Transit NZ is made where the project predates the formation of the NZ Transport Agency (NZTA).]



Case study 1: Alternative design for the Gloucester Park Interchange, SH20 Manukau Harbour Crossing Project (2003 – ongoing)

Transit's Manukau Harbour Crossing Project is part of the Western Ring Route, an alternative regional transport route through greater Auckland to SH1. This section largely consists of widening 6km of existing motorway between Mangere and Hillsborough, including duplicating the existing Mangere Bridge.

The Auckland Volcanic Cones Society (AVCS) challenged Transit's application for a new designation to build an overbridge for the existing Gloucester Park Interchange (GPI) (02). The proposed overbridge (03) conflicted visually, spatially and geometrically with an adjacent low rising volcanic cone, Hopua (01), which had already suffered much damage through construction of the original motorway in the 1970's. As part of preparing the society's evidence, I developed an alternative design (04) for the GPI, in the process delivering a solution which Transit never considered in its many years of transport analysis. The commission hearing the application preferred this solution to Transit's and recommended Transit modify their design to be consistent with it.

My design retains the existing roading system

at ground level but re-routes the southern half of the interchange over a railway corridor to connect with a cul-de-sac outside the Onehunga town centre. The re-routing links two completely separate areas and allows half the traffic to be diverted around the town centre. The bypass follows the historic form of the cone and I argued, produces more efficient movement, greater capacity, less congestion, faster journey times and a smaller motorway footprint. The commissioners also supported my design of a walking and cycling network because it re-connects old desire lines and keeps pedestrian movement completely separate from the roading system.

The bypass avoids the need for Transit's overbridge and protects the open space of the coastline. Future improvements could include property acquisitions, mixed native planting, mixed-use re-zoning of the lower town centre and use of the crater floor as saltwater marsh and stormwater treatment ponds, transforming the motorway landscape into a fitting gateway to Auckland City (05).

My GPI design delivers the kind of multi-dimensional outcome that is now required of integrated planning. The deceptively simple diagram works at the scale of both the built

and natural environment and accommodates a complex and diverse range of land use interfaces. The design not only improves the project's social, urban and environmental outcomes but will significantly enhance the future locality. It has encouraged the local community to press ahead with demands for restoration of the coastline.

Case study 2: Re-shaping and landscaping Puketapapa Mt. Roskill for SH20 and the Waikaraka Cycleway (2003 – ongoing)

The SH20 Mt. Roskill Extension continues the previous section of the Western Ring Route another 4km towards the SH16 North-Western Motorway. Its construction has required significant modification of the Mt. Roskill volcanic cone, also known as Puketapapa (01, *overleaf*).

Both the Environment and High Court weighed moving the motorway to protect this landscape of national and international importance against the national benefits from building key transport infrastructure. It granted Transit the right to build the motorway in a deep trench cut through the cone's lower north face and apron (02, *overleaf*).

Transit later chose to revise its approach to the cone after resurrection of 'the 1915 Act' which prevented this cut being vertically retained. It



reached agreement with the AVCS for the author to sensitively re-contour the lower north face instead. The re-shaping was significantly aided by Transit finding extra room for the motorway to move 10m northwards.

My aim was to maintain the volcanic cone's sense of volume and curvature, remove the distinction between existing mountain and engineered slope, and create a new joined integrity for cone and motorway. The desired outcome was a foregrounding of the volcano as the primary visual experience of the motorway. The project (03) is now under construction at no extra cost.

At the same time Auckland City Council was planning part of a regional cycleway across the volcanic cone. Their engineered design largely replicated Transit's original approach but on a smaller scale, sacrificing the cone's values for the rigid alignment of transport infrastructure. After a prolonged period of stakeholder resistance, my suggestion of a more sympathetic fit led to my redesign of the cycleway with the assistance of

URS NZ.

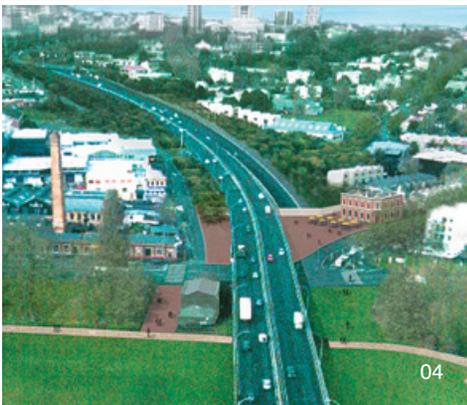
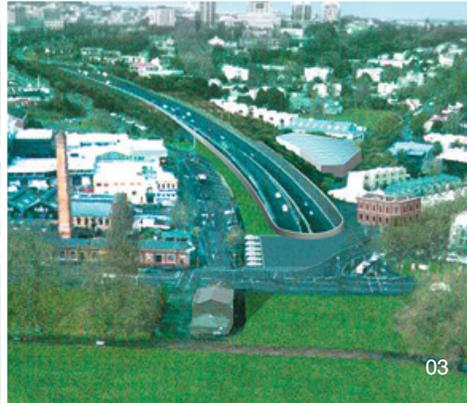
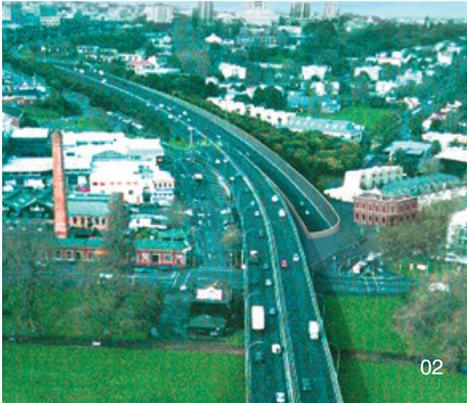
The council believed that the cycleway could be supported by embracing a wider vision for the cone. The preparation of a landscape plan was seen as the best way to ensure a holistic outcome, including enhancement of the cone's cultural values. The plan is largely a collaboration between Ngati Whatua o Orakei and the author on behalf of AVCS. It uses the cone's new form, open space and excavated basalt, created by the motorway, to provide for a greater understanding of Ngati Whatua and their ancestors who once extensively occupied the Maunga. The plan aligns itself with the historic way Maori organised space on Auckland's Maunga and re-introduces native grass and harvestable species. The cycleway project has been submitted for resource consent.

Case study 3: Birdcage Hotel and open space proposal, SH1 Victoria Park Tunnel Project (2006 – ongoing)

The SH1 Victoria Park Tunnel Project is part of

NZTA's long-term plan to ease congestion through the Spaghetti Junction motorway corridor which circumnavigates Auckland's CBD. The project will increase road capacity by creating a new carriageway underneath Victoria Park for traffic travelling northwards towards the harbour bridge and converting the existing two-way viaduct over the park for south-bound use only. Long term (20+ years), NZTA plans to underground the south-bound lanes and demolish the viaduct. This will enhance the open space and recreational amenity of the park, as well as potentially its relationship with the surrounding precincts.

NZTA's design of the tunnel's south portal requires relocating the Birdcage Hotel (01, overleaf), an architecturally significant heritage building (1886) built on the original coastline before Freemans Bay was reclaimed by Victoria Park). NZTA's movement of the hotel will protect the physical substance of the building but not the relationship with its urban, landscape and social context. The building's relocation would also



separate it from a key area of open space which acts as an invisible foreground for appreciation of the hotel. NZTA's focus on a roading solution reinforces the area as an urban wasteland (02). The future scenario will be more brutal and destructive, with the full undergrounding of the motorway (03).

NZTA (when it was Transit) and its consultants never foresaw that the existing open space in front of the hotel possesses a remarkable potential to be transformed into a landmark urban square in conjunction with the hotel. If the portal was shifted 10m back, the focus could initially be on a revitalised public space (04), until the return of the hotel to its former site on top of the tunnel (05). The hotel's return would allow all aspects of the

heritage precinct to be developed to their potential, including additional residential development in the left-over space on Franklin Road. A gateway to Victoria Park, used also for weekend markets, is also envisaged. Transit's own documentation, as well as overseas examples, indicates that moving the portal will work.

I have gained support for my alternative design from city and regional councils and other affected parties. In the process, I have demonstrated again how integrated transport infrastructure can work on multiple levels, drawing together local communities, restoring the ruptured fabric of the city and at a much larger scale, creating a new urban vision for the city. Auckland City Council is currently pressing Transit to revise its approach.

Endnotes

1. Charles Landry, *The Art of City Making*, Earthscan, London, 2006, p40.
2. 'Architectural Weaponry: An interview with Mark Wigley, 12 April, 2007, <http://bldgblog.blogspot.com/2007/04/architectural-weaponry-interview-with-html>
3. Auckland City Council, 'SH20 Manukau Harbour Crossing Report' (June, 2007), part IV, Commissioners' Recommendation on the Notice of Requirement, p11.
4. Charles Landry, *ibid.* p41.