IPENZ
ENGINEERS NEW ZEALAND

BETTER URBAN PLANNING

SUBMISSION TO THE PRODUCTIVITY COMMISSION

3 OCTOBER 2016

BACKGROUND TO IPENZ

The Institution of Professional Engineers New Zealand (IPENZ) is the lead national professional body representing the engineering profession in New Zealand. It has approximately 17,000 Members, including a cross-section from engineering students, to practising engineers, to senior Members in positions of responsibility in business. IPENZ is non-aligned and seeks to contribute to the community in matters of national interest giving a learned view on important issues, independent of any commercial interest.

EXECUTIVE SUMMARY

IPENZ notes the complexity associated with planning and allocating land use. In this submission we note:

- the impact planning guidance and legislation has on behaviours and the success of a revitalised planning system
- the need for a multidisciplinary approach to planning to enhance the process and outcomes
- the need for major effort to maintain, renew and extend existing infrastructure and to better plan new horizontal infrastructure
- the importance of urban planning being an enabler of technological change. We believe there is the opportunity for urban planning to assist communities to take up opportunities that arise from technological development, such as low cost photovoltaics with new battery technology, electric vehicles and district energy schemes
- the importance of factoring natural hazards and climate change in both the location of new development and the redevelopment and replacement of existing infrastructure and urban capital
- support for spatial plans as a useful tool to highlight potential areas of development and areas where provision of infrastructure and other amenities are expected
- the need for the ownership of assets to be recognised. While most water services are provided by territorial authorities, this is not the case for other infrastructure. This creates challenges for planning and it is vital that infrastructure providers' investment decisions are factored into planning
- more information about infrastructure is needed, particularly on the state of assets and performance.

COMMENTS

Enabling legislation is a must

IPENZ notes the purpose of the inquiry is to "identify the most appropriate way for allocating land use", and that this is a complex issue which poses a challenge for many areas of New Zealand. The ways in which planning guidelines and legislation are drafted and delivered, and the behaviours that result, are critical to the success, or otherwise, of a revitalised planning system.

It is vital that legislation recognises the processes of planning are the responsibility of regional and local government and their professional and community advisers. To this end, it is critical the legislation is enabling and assists, rather than hinders, local government as they go about the technical and administrative work to prepare plans and undertake urban planning activities.

Multidisciplinary approach to planning needed

We appreciate the crucial role planning plays in providing liveable cities and towns that attract people to live and work in them. We note comments on page 330 regarding the planning profession's difficulty in laying claim to a specific professional space. IPENZ believes the key to good urban planning lies in professions and disciplines working together to achieve a shared vision for a city or town. Engineers should be key contributors to urban planning to ensure plans can be implemented as planned and to improve coordination and delivery of infrastructure and other amenities. We believe there would be merit in designers (ie engineers and architects) and planners being better connected as their collaboration is critical to effective urban development. Obviously, when regional, district and spatial plans are being prepared it is essential that local government takes advantage of the expertise and input from all relevant professional technical contributors, including engineers.

Major effort is needed to maintain, renew and extend existing infrastructure and better plan new infrastructure

We believe significant effort and investment needs to be made to maintain, renew and extend New Zealand's existing infrastructure and engineering services. This is needed to support the existing urban investment and to secure its future. This work is vital and requires as much skill and planning as new development on green field sites.

In addition, there is a need for robust and comprehensive network planning for all future horizontal infrastructure and open space provisions. This is necessary to appropriately locate future infrastructure services and to provide flexibility to meet the transportation and communication investments while also providing recreation amenity and open space networks.

Urban planning must be flexible to, and enable, technology change

IPENZ notes and supports the four urban planning goals set out on page 17 of the draft report:

- flexibility and responsiveness
- provision of sufficient development capacity to meet demand
- mobility of residents and goods to and through the city
- ability to fit land-use activities within a defined biophysical envelope.

We note the flexibility and responsiveness goal relates to the ability to change land uses easily. We believe it is equally important that urban planning is responsive to and enables technological change.

Technology is constantly developing and changing the way we live. We believe technology may in some cases change the way in which we live, work and do business. For example, the uptake of autonomous or semi-autonomous vehicles could result in reduced congestion, reduced demand for parking spaces and lower noise and emissions levels[1], all of which will need to be considered in urban design. The rapid pace of change in ICT means that we are now more connected and working remotely, such as from homes, is a viable option for many industries.

Urban planning also needs to assist communities to take up opportunities that arise from technological development. For example, we believe there are significant opportunities to be realised through New Zealand taking advantage of the energy revolution whereby low cost photovoltaics with new battery technology become integrated in the domestic and commercial sectors and there is increasing uptake of electric vehicles.

The investment in district energy schemes is another area of opportunity. District energy schemes generate heat and power from a centralised energy centre which is distributed to users. There are a small number of schemes in operation in New Zealand using geothermal resources (Rotorua) and constant temperature aquifers (Christchurch) but New Zealand lags most developed countries in its deployment. Opportunities exist for further expansion which would benefit New Zealanders economically and socially by lowering energy costs and lowering communities' carbon footprints. However, further expansion requires a degree of centralised planning and is most economical in medium and high density living environments.

For any of these opportunities to be realised the urban planning system must be flexible and enabling. We thus recommend the "flexibility" of the urban design system be considered laterally to ensure New Zealanders can benefit from the opportunities technology presents.

Urban planning must respect the constraints of natural hazards and climate change

The shape and nature of our urban form has been affected and influenced by lessons from flooding, earthquake risks and other natural hazards. Ongoing developments and understanding, including experience from events like the Canterbury earthquakes, continues to increase our appreciation of the risks posed by natural hazards. These must be factored into planning and the consequent provisions of spatial plans and district and regional plans. Natural hazard risks must also be considered and factored into the location of new development and the redevelopment and replacement of existing infrastructure and urban capital.

Urban sprawl places significant new demands on utility asset owners, especially three waters and electricity supply, at a time when many utility suppliers need to upgrade and rebuild aging systems. Wellington is a particularly good example where neither the water or electricity utilities have access to sufficient capital to undertake routine improvements or to build more resilience to avoid the level of system damage that occurred in the Christchurch central business district in the Canterbury earthquakes.

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[1] Rodoulis, S (2014). The Impact of Autonomous Vehicles on Cities. *Journeys*, 12, p. 12-20. Retrieved from https://www.lta.gov.sg/ltaacademy/doc/J14Nov_p12Rodoulis_AVcities.pdf

Our resilience to climate change impacts and our recovery is another factor that needs consideration in urban planning. As the Royal Society set out in its report *Climate Change Implications for New Zealand*[2], many New Zealanders live on coasts or floodplains, making us vulnerable to flooding, inundation, erosion and sea level rise. These events are expected to increase in magnitude and extent over time, which will place even further stress on local government resources.

In addition, our freshwater resources are under pressure and we need to think carefully about where we source our water from and how it is distributed. This has the potential to affect where we live and also must be considered in urban planning decisions.

Support for spatial plans

IPENZ notes the suggestion in the draft report that spatial plans be a formal part of the planning hierarchy. We believe spatial plans would be a useful tool to highlight potential areas of development and areas where provision of infrastructure and other amenities are expected to be situated in the foreseeable future. Again, we recommend a multidisciplinary team be involved in the development of these plans. Spatial plans should also complement the *National Infrastructure Plan* which sets out infrastructure expected to be developed over the next 30 years[3] and other relevant plans.

The ownership of assets needs recognition

We note section 9 sets out the characteristics and issues associated with infrastructure and its provision. We believe this section has missed one significant point – that infrastructure is provided by multiple parties. While section 9.4 notes most water services in New Zealand are provided by territorial authorities, the same is not true for other infrastructure, which creates potential problems for planning. Electricity supply, electricity transmission, gas supply and gas transmission, communications services, communications infrastructure, roads, and education facilities, are all owned by different parties. It is essential the planning process and system includes all these parties as their investment decisions and plans are critical inputs to the system.

Further, urban planning processes can result in additional costs for infrastructure providers, which need to be recovered from communities in some way. This situation is exacerbated for electricity lines companies who are under long-run price control, which creates significant constraints on planning and implementing new developments.

These issues need to be addressed to ensure New Zealand has sufficient, appropriate and resilient infrastructure into the future.

More information about assets is needed

Further to the weaknesses of the current planning system listed on page 122 of the draft report, we believe the paucity of data about New Zealand's infrastructure assets is an issue.

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[2] Royal Society of New Zealand (2016). *Climate Change Implications for New Zealand*. Wellington: Author. Retrieved from http://www.royalsociety.org.nz/expert-advice/papers/yr2016/climate-change-implications-for-new-zealand/
Ministry of Education. (2056). 2056 annual report [Press release]. Wellington: Author.

[3] National Infrastructure Unit (2015). *Thirty Year New Zealand Infrastructure Plan 2015.* Wellington: Author. Retrieved from http://www.infrastructure.govt.nz/plan

In 2010 IPENZ investigated the availability of data about New Zealand's network infrastructure assets and produced *Assessing the State of Infrastructure: Is what you see what you get?*

We found local authorities were performing best in terms of measuring and reporting levels of service, although there was still scope for improvement. Worryingly we found privately owned and non-regulated organisations provided no non-financial performance information in their annual reports, despite the criticality of their assets. We thus recommended:

- organisations owning significant network infrastructure assets in which the public have an interest should provide separate information on maintenance, renewal and capital expenditure for key asset categories in the Notes to the Financial Statements
- significant improvement in performance indicators for levels of service should be promoted by government oversight agencies
- performance indicators should be related to outcomes, include current and future targets, and be consistent from year to year showing trends over time, so the level of preparedness for providing services in the future can be assessed
- additional asset information should be provided on remaining useful lives, replacement levels, asset condition and capacity assessments, and risk assessments
- private sector organisations providing critical infrastructure should be required to provide statements of service performance.

We believe the availability of information on the financial and non-financial performance and state of infrastructure assets needs to be improved as it is a critical input to planning.

CONCLUSION

We appreciate the opportunity to make this submission and are able to provide further clarification if required.

For more information, get in touch with:

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