

B3. Ngā pūnaha hanganga, kawekawe me ngā pūngao - Infrastructure, transport and energy

Te whakatupu oranga mō te pāpori whānui

Growing well-being for all of society

B3.1. Issues

The quality of the environment and the well-being of people and communities, including Auckland's crucial role in New Zealand's economy, are affected by choices about the management of and investment in infrastructure.

Realising Auckland's full economic potential while maintaining the quality of life for its inhabitants will need to address:

- (1) efficiency in developing, operating, maintaining and upgrading infrastructure;
- (2) integrating the provision of infrastructure with urban growth;
- (3) potential effects of incompatible land uses close to infrastructure;
- (4) traffic management;
- (5) security of energy supply; and
- (6) resilience of infrastructure, including fuel and electricity supplies, to natural hazards.

B3.2. Infrastructure

B3.2.1. Objectives

- (1) Infrastructure is resilient, efficient and effective.
- (2) The benefits of infrastructure are recognised, including:
 - (a) providing essential services for the functioning of communities, businesses and industries within and beyond Auckland;
 - (b) enabling economic growth;
 - (c) contributing to the economy of Auckland and New Zealand;
 - (d) providing for public health, safety and the well-being of people and communities;
 - (e) protecting the quality of the natural environment; and
 - (f) enabling interaction and communication, including national and international links for trade and tourism.
- (3) Development, operation, maintenance, and upgrading of infrastructure is enabled, while managing adverse effects on:

- (a) the quality of the environment and, in particular, natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character;
 - (b) the health and safety of communities and amenity values.
- (4) The functional and operational needs of infrastructure are recognised.
 - (5) Infrastructure planning and land use planning are integrated to service growth efficiently.
 - (6) Infrastructure is protected from reverse sensitivity effects caused by incompatible subdivision, use and development.
 - (7) The national significance of the National Grid is recognised and provided for and its effective development, operation, maintenance and upgrading are enabled.
 - (8) The adverse effects of infrastructure are avoided, remedied or mitigated.

B3.2.2. Policies

Provision of infrastructure

- (1) Enable the efficient development, operation, maintenance and upgrading of infrastructure.
- (2) Recognise the value of investment in existing infrastructure.
- (3) Provide for the locational requirements of infrastructure by recognising that it can have a functional or operational need to be located in areas with natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character.

Reverse sensitivity

- (4) Avoid where practicable, or otherwise remedy or mitigate, adverse effects of subdivision, use and development on infrastructure.
- (5) Ensure subdivision, use and development do not occur in a location or form that constrains the development, operation, maintenance and upgrading of existing and planned infrastructure.

Managing adverse effects

- (6) Enable the development, operation, maintenance and upgrading of infrastructure in areas with natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character while ensuring that the adverse effects on the values of such areas are avoided where practicable or otherwise remedied or mitigated.

- (7) Encourage the co-location of infrastructure and the shared use of existing infrastructure corridors where this is safe and satisfies operational and technical requirements.
- (8) Avoid, remedy or mitigate the adverse effects from the construction, operation, maintenance or repair of infrastructure.

Natural hazards

- (9) Ensure where there is a functional or operational need for infrastructure to locate in areas subject to natural hazards:
 - (a) that buildings accommodating people are located and/or designed to minimise risk from natural hazards; and
 - (b) that risk that cannot be avoided by location or design should be mitigated to the extent practicable.

B3.3. Transport

B3.3.1. Objectives

- (1) Effective, efficient and safe transport that:
 - (a) supports the movement of people, goods and services;
 - (b) integrates with and supports a quality compact urban form;
 - (c) enables growth;
 - (d) avoids, remedies or mitigates adverse effects on the quality of the environment and amenity values and the health and safety of people and communities; and
 - (e) facilitates transport choices, recognises different trip characteristics and enables accessibility and mobility for all sectors of the community.

B3.3.2. Policies

Managing transport infrastructure

- (1) Enable the effective, efficient and safe development, operation, maintenance and upgrading of all modes of an integrated transport system.
- (2) Enable the movement of people, goods and services and ensure accessibility to sites.
- (3) Identify and protect existing and future areas and routes for developing Auckland's transport infrastructure.
- (4) Ensure that transport infrastructure is designed, located and managed to:
 - (a) integrate with adjacent land uses, taking into account their current and planned use, intensity, scale, character and amenity; and
 - (b) provide effective pedestrian and cycle connections.

Integration of subdivision, use and development with transport

- (5) Improve the integration of land use and transport by:
- (a) ensuring transport infrastructure is planned, funded and staged to integrate with urban growth;
 - (b) encouraging land use development and patterns that reduce the rate of growth in demand for private vehicle trips, especially during peak periods;
 - (c) locating high trip-generating activities so that they can be efficiently served by key public transport services and routes and complement surrounding activities by supporting accessibility to a range of transport modes;
 - (d) requiring proposals for high trip-generating activities which are not located in centres or on corridors or at public transport nodes to avoid, remedy or mitigate adverse effects on the transport network;
 - (e) enabling the supply of parking and associated activities to reflect the demand while taking into account any adverse effects on the transport system; and
 - (f) requiring activities adjacent to transport infrastructure to avoid, remedy or mitigate effects which may compromise the efficient and safe operation of such infrastructure.

Managing effects related to transport infrastructure

- (6) Require activities sensitive to adverse effects from the operation of transport infrastructure to be located or designed to avoid, remedy or mitigate those potential adverse effects.
- (7) Avoid, remedy or mitigate the adverse effects associated with the construction or operation of transport infrastructure on the environment and on community health and safety.

B3.4. Energy

B3.4.1. Objectives

- (1) Existing and new renewable electricity generation is provided for.
- (2) Energy efficiency and conservation is promoted.

B3.4.2. Policies

- (1) Recognise the national, regional and local benefits to be derived from maintaining or increasing the level of electricity generated from renewable energy sources.
- (2) Provide for renewable electricity generation activities to occur at different scales and from different sources to reduce reliance on non-renewable energy sources.

- (3) Recognise the locational constraints in the development of large-scale renewable electricity generation activities.
- (4) Provide for the development, operation and maintenance of small-scale renewable electricity generation, provided that adverse effects on the environment are avoided, remedied or mitigated.

B3.5. Explanation and principal reasons for adoption

Infrastructure is an essential foundation for almost all other activities. While not normally undertaken as activities for their own sake, network infrastructure services and facilities are critical to enable people and communities to undertake the activities that provide for their economic and social well-being, contribute to economic growth and ensure their health and safety. Without the connections enabled by transport networks (land, sea and air), piped networks (water, wastewater and stormwater reticulation), energy generation, transmission and distribution networks (electricity, gas and liquid fuels), and telecommunication networks (wired and wireless), few other forms of activity and development could occur. This means that development, especially that associated with growth in greenfield areas, must be integrated and co-ordinated with the provision of infrastructure and the extension of networks. As well, the resilience of infrastructure to natural hazards is an important aspect of planning for it.

Infrastructure can have adverse effects on the environment, including on sites and areas specifically identified for their high values as well as on neighbouring activities. Sometimes infrastructure must be located in sensitive areas because of the location of development and to achieve appropriate degrees of efficiency. Managing the reciprocal effects of infrastructure on more sensitive areas and uses, and of more sensitive areas and uses on the operation and capacity of infrastructure (reverse sensitivity effects), is required as Auckland grows and intensifies. Conflicts or incompatibilities between adjoining land uses need to be avoided as far as practicable or mitigated where avoidance is not practicable, in order to protect valued parts of the environment while ensuring that the operation of infrastructure is not unreasonably compromised.

Infrastructure must keep pace with the activities and development it serves. These objectives and policies recognise that development, operation, maintenance and upgrading of infrastructure are all essential phases in the provision of resilient, efficient and effective infrastructure.

The road network, both as a transport system and as the location of many other infrastructure networks, raises particular issues that are the subject of specific objectives and policies. Also relevant is the Regional Land Transport Plan made under the Land Transport Management Act 2003.

As well, transport infrastructure is much broader than just motor vehicles on the road network: it involves a number of stakeholder providers operating other land, water and air transport systems within a complex statutory regime. This complexity is amplified by the needs and behaviours of users of transport in a range of modes, across multiple networks and at several scales (local, regional, national and international). The Unitary Plan needs to provide a framework within which these diverse and potentially conflicting networks can be integrated and co-ordinated with the subdivision, use and development

of natural and physical resources in Auckland. A focus on integrating land use and transport to achieve a compact urban form focused on centres and transport nodes can also help promote energy efficiency and reduce dependence on non-renewable energy sources.

National policy statements, such as those for electricity transmission and renewable electricity generation also assist in balancing competing national benefits and local costs to promote energy efficiency and conservation. Some of the adverse effects from network utilities are also addressed by other documents, such as national environmental standards, New Zealand standards and codes of practice.