

11 Infrastructure: funding, financing & procurement

Key points

- Providing infrastructure to support the growth of cities is an expensive undertaking for councils. The costs can vary significantly from location to location, and councils may face problems recovering these costs.
- Efficient funding would enable council infrastructure owners to cover their costs from beneficiaries through an appropriate mix of user and connection charges, peak-load and congestion pricing and efficient taxes/rates.
- Funding, financial, legislative and political-economy barriers are impeding the efficient provision of infrastructure in New Zealand.
 - Councils argue that “growth does not pay for growth”. Available evidence is inconclusive, but suggests that infrastructure projects often only pay for themselves over long periods and this creates financing problems for some councils (particularly high-growth councils). Councils also face “demand risk”, where development fails to occur at the rate originally assumed.
 - Current legislation limits the ability of councils to price wastewater use and road use, and to recover the costs of some community infrastructure through development contributions.
 - Community resistance to higher council debt, rates increases and the pricing of water services constrains revenue and limits the supply of infrastructure and development.
- The Commission proposes a hierarchy of funding tools for councils to fund local infrastructure. Pricing and user charges (eg, water and congestion pricing) should be employed where practical and efficient. Where benefits are localised, councils should use development contributions and targeted rates. Otherwise, they can use general rates, value capture and, sometimes, central government funding to ensure costs are fully recovered.
- Self-imposed or externally set limits on council borrowing are curtailing needed infrastructure investment in some high-growth cities. Policymakers and others should work to ease these constraints and also facilitate greater private provision of infrastructure.
- Procurement of infrastructure involves planning for it, sourcing suppliers to construct and operate the infrastructure over its lifetime, and managing the contracts and relationships involved in this process.
- Local authorities should be open to a wider range of delivery models than the in-house or traditional outsourcing of construction they commonly use. Public Private Partnership (PPP) delivery models or alliance contracting could be suitable for some transport and water infrastructure projects and even for services such as street lighting.
- A future urban planning framework should give councils the support and capability to use a wider range of innovative procurement models, such as PPPs. Councils should consider collaborating to scale up investment projects to make innovative procurement models more cost-effective.

As noted in Chapter 10, the planning and provision of infrastructure can be one of the most challenging tasks that local authorities face. Key reasons why local governments often find the timely delivery of infrastructure challenging is the expenditure involved, and difficulties recovering costs. This chapter explores the nature of these challenges, and considers policy responses. It also explores opportunities to gain better quality and more affordable infrastructure through different procurement practices.

For clarity, the chapter draws a distinction between the *financing* and the *funding* of infrastructure.

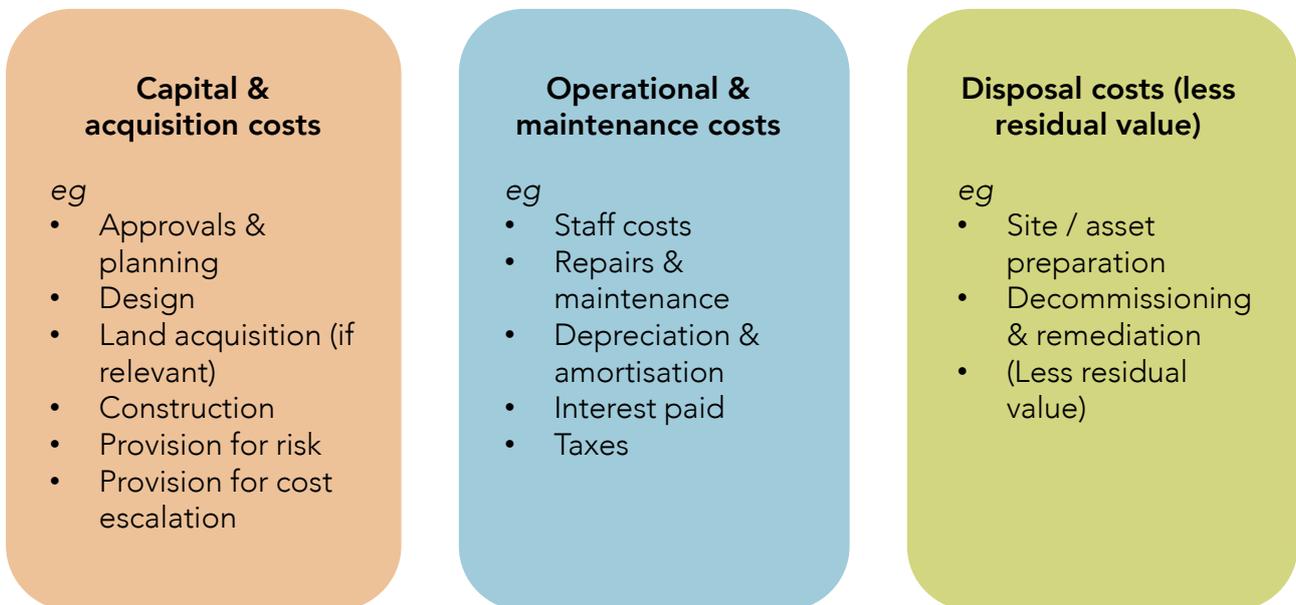
- Financing refers to “arrangements put in place to ensure money is available for the project or service at the time it is needed” (LGNZ, 2015b, p. 44). So, for example, a council may *finance* an infrastructure project through borrowing to ensure that it has the cash on hand to pay the upfront bills.
- Funding tools are the sources of money available to support financing arrangements over time. For example, a council may *fund* an infrastructure project through sources such as rates and development contributions to recover the costs of financing (which would comprise interest and capital repayments in the case of borrowing).

11.1 The costs of infrastructure

Types of infrastructure costs

Installing and maintaining infrastructure assets, such as roads, water pipes, community facilities, sewers and water treatment plants, creates a range of costs for local authorities (Figure 11.1).

Figure 11.1 Whole-of-life costs for public works



Source: Adapted from Department of Finance (Australia), 2014.

In addition to these direct whole-of-life costs faced by councils, infrastructure can create ‘spillover’ costs for society, such as environmental costs (eg, air pollution from vehicles using roads) and congestion.

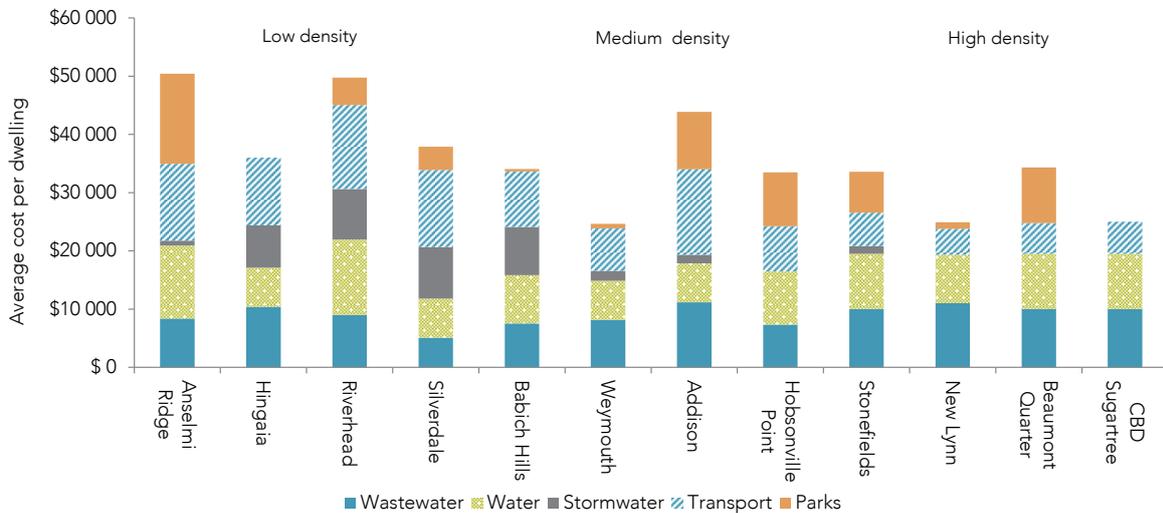
Costs can vary significantly across locations

Developers of new greenfield or infill sites usually provide local infrastructure within a subdivision, while councils provide extensions to trunk infrastructure. The costs that councils incur to provide trunk infrastructure can be large. For example, recently published research into the cost of infrastructure in Auckland showed that, on average, the marginal cost to Auckland Council of providing new infrastructure for housing in high-density or infill areas is close to \$30 000 for each dwelling. For low-density or greenfield areas, the cost is close to \$45 000 (Centre for International Economics (CIE), 2015).

These costs vary significantly, depending on factors such as the type of dwellings/structures, whether the site is greenfield or infill, and its proximity to existing infrastructure, and housing density. The Urban Taskforce (2009) examined the relationship between urban form and infrastructure costs and concluded that “higher levels of urban density, in general, lead to cities that are cheaper to build and run” (p. 8). However, the Taskforce also noted that costs are very site-specific and depend on the nature of existing infrastructure and whether a development requires a small additional investment in that infrastructure, or a complete overhaul. The Commission reached similar conclusions in its *Using land for housing* inquiry (NZPC, 2015a).

Figure 11.2 shows the CIE's estimates of the costs per dwelling faced by Auckland Council of providing the "three waters", transport and parks in different parts of Auckland. It shows that these costs vary in total from about \$20 000 to \$50 000 for each dwelling; that the "three waters" is the largest cost item in all areas, but that transport costs vary more between areas.

Figure 11.2 Infrastructure costs in Auckland by development density, 2015



Source: Centre for International Economics, 2015.

11.2 Efficient pricing, investment and funding

Private businesses sell goods and services to consumers. The sales generate revenues that fund firms' costs (eg, inputs of goods and services, wages, rent, interest) and generate profits. The sale prices and volumes reflect market forces. The prices signal important information to consumers about the value of the resources they use. The prices and volumes signal to businesses the value consumers place on their products and when to invest in new plant and machinery.

As discussed in Chapters 3 and 10, urban infrastructure has important characteristics that can make its services different from many services provided in "competitive" markets. While private enterprises provide certain infrastructure services under competition (eg, electricity and telecommunications), central and local government are sole suppliers of others – notably the "three waters" and transport infrastructure. They are sole suppliers because these services have public-good and/or natural-monopoly characteristics (Chapter 3). In the absence of competition, suppliers must decide the prices at which they will provide these infrastructure services, when and in what way they will invest in greater capacity, and how they will fund the infrastructure.

Whether central or local government is the supplier, they should aim to use infrastructure resources in a way that is *socially efficient* and not simply privately profitable for the infrastructure supplier. To achieve socially efficient provision of infrastructure, government suppliers need to (i) set prices that encourage the efficient use of existing infrastructure, (ii) make timely and wise investments in additional infrastructure capacity, and (iii) generate funds efficiently and fairly to cover their costs. The following subsections cover these three aspects.

Efficient infrastructure pricing

The efficient price to charge consumers for infrastructure services (eg, water out of a tap; driving on a road) depends on whether the total demand by all consumers is comfortably within, close to, or above existing capacity. The efficient pricing rule that councils should use for each of these three cases is set out in Table 11.1.

Table 11.1 Efficient pricing rules for infrastructure services

Total demand for infrastructure service	Optimal pricing rule	Efficiency comment
Well within existing capacity	Set price to short-run marginal cost (SRMC) of use.	Cost can vary across consumers. For example, heavy trucks cause significant damage to roads, while cars cause almost none.
Close to capacity	Set price to SRMC, including additional congestion costs on other users.	The marginal user often impairs the services received by other users. Efficiency requires that the marginal user takes this into account by being charged for this negative spillover (externality). This congestion cost is likely to vary by time and location.
At or above capacity	Set price to ration demand to equal capacity. ⁹¹	With congestion pricing, demand may never reach capacity. But some infrastructure services do not suffer congestion until capacity is reached. Pricing to limit demand to equal capacity ensures users who most value the services receive them. When demand fluctuates, this pricing rule is called peak-load pricing. It also has the efficiency benefit of delaying the need for investment in expensive new capacity.

Source: New Zealand Productivity Commission based on principles set out in writings about the economics of infrastructure regulation, such those by Kahn (1988) and Winston (1990).

By setting prices to short-run marginal costs (SRMCs), infrastructure owners create an incentive for users to balance the benefit they receive from the service against the real resource costs they impose through causing the production of additional units of the service. The users will economise on use to just the right extent. For example, users of waste collection services have an incentive to cut waste, water users will look to use water more efficiently and road users may look to car pool or use public transport. Similarly, during periods of high demand, pricing services at their full marginal cost (including congestion costs) can encourage some people to shift their consumption to a less congested time, freeing up capacity to meet the needs of those who value access more.

In addition to raising additional revenue to help pay infrastructure costs, congestion pricing and peak-load pricing have a further important benefit. By encouraging efficient use, they can delay the time when new investment is required. This delay makes for more efficient investment decisions – it buys time for new and more cost-effective technologies to emerge, and it saves residents the cost of having to invest large capital sums earlier.

Efficient infrastructure investment

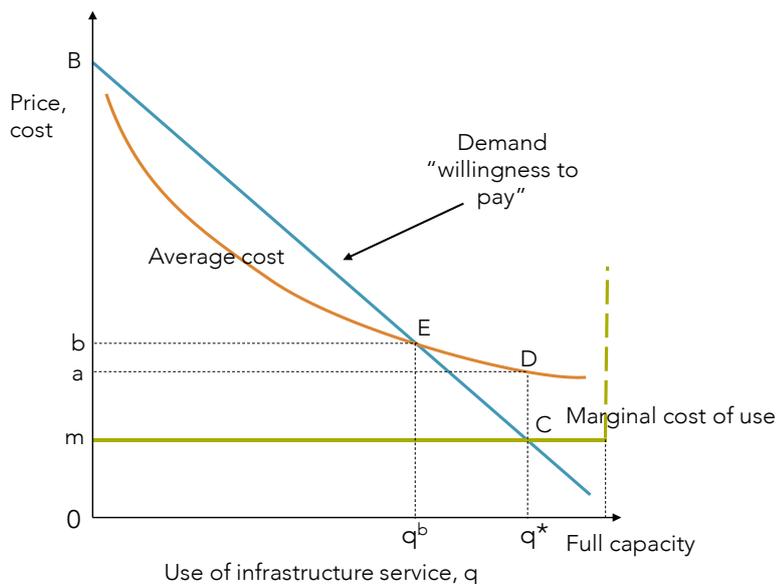
Making optimal investment decisions about large items of transport and water infrastructure is difficult. Private firms are motivated to invest to make money. A few private firms – typically infrastructure owners – have monopoly power that could lead them to hoist prices above costs, exploit consumers and undermine economic efficiency. This is why regulations exist to turn this incentive towards serving the long-term interests of consumers. Councils could likewise make more money from their infrastructure investments by acting as monopolists, but this would lead to both inefficiently low investment in and use of their infrastructure, and harm most residents.

Socially efficient investment in a large and lumpy piece of infrastructure requires a council to estimate the overall social benefits and costs that the project will generate over its lifetime. The council should compare the net benefits of various options and choose the option offering the highest net benefit. Variations in the type, quality, capacity and timing of the infrastructure will generate these options (Winston, 1990).

⁹¹ This is purely the pricing decision of the supplier. Given that demand is at or above capacity, the supplier should already have been considering investment to expand capacity. This decision is dealt with in the next subsection.

Costs include project costs, any harmful spillovers, and operational and maintenance costs. Benefits are more difficult to estimate. Each user will have a “willingness to pay” for successive units of service. This is an indication of benefit. It will normally decline as more of the service is consumed (eg, the first 50 litres of water a day that a household takes from its taps is extremely useful; any litres in excess of 200 are likely to have very low or zero value). Total benefits of a proposed project are the sum of the benefits of individual users at the level of infrastructure use that each individual would choose if faced with efficient prices. Figure 11.3 is a simplified diagram representing the calculation of net benefit. The willingness of consumers to pay is represented by a demand curve that shows total estimated demand for the infrastructure services from the project for each level of price charged. The net benefit of investing in a new piece of infrastructure will be positive only if the total willingness to pay (area BCq*0 in the figure) is greater than its total cost (area aDq*0 in the figure).

Figure 11.3 The decision whether to invest in new infrastructure



Notes:

1. q^* = use of service when price set to marginal cost, m = constant marginal cost of use, and a = average cost of q^* .
2. Total benefit (TB) = area under demand between B and C, and total cost (TC) = $aq^* = F + mq^*$, where F is the fixed cost.
3. Investment should proceed only if $TB > TC$.

Uncertainty further complicates council decisions about infrastructure investments. The cost–benefit procedure that is outlined above assumes that the future is mostly known. In practice, the future will contain significant uncertainties about population, business, jobs and income growth, the progress of technology, the state of the environment, and political and social preferences. As explained in chapter 10, real-options analysis provides a useful and practical framework for handling uncertainties. Keeping valuable options alive will sometimes mean it is better to delay investments. In other cases where, for example, major irreversible damage to the natural environment could occur, it will pay to accelerate investments.

In summary, to make good investment decisions in new infrastructure projects, councils need to:

- identify investment options and assess them for total costs and benefits based on how much use they will attract when priced efficiently; and
- choose and implement the option that maximises net benefits.

A council may find it hard to operate the best option at a cash profit. The next section examines how councils can best approach the challenge of efficiently funding their infrastructure.

Efficient funding of infrastructure

A future planning system should allow councils to recover the full cost of infrastructure fairly and efficiently. It is fair that, in most circumstances, funding should come from users. Yet the large, lumpy nature of infrastructure investment typically means high upfront (ie, fixed) costs and low marginal costs. Average costs decrease with the scale of use and marginal costs typically will be less than average costs even at high levels of infrastructure use. Setting price to marginal cost to encourage efficient use would then leave the councils with a funding shortfall. If so, how should such a deficit be covered?

The council should first check that prices fully reflect all marginal costs (eg, of congestion) and whether peak-load pricing is justified because demand is at or near to the infrastructure's capacity. Congestion and peak-load pricing are efficient and can provide important additional funding. Yet total revenue may still fall short of total cost.

Another way would be for the council to charge a price high enough to recover full costs (ie, a price of b equal to average cost at point E in Figure 11.1). But this would discourage use of the infrastructure at levels where marginal benefits exceed marginal costs and would be inefficient. Instead, councils could reasonably choose to keep the price at the marginal cost of use and raise revenue to cover the deficit by other means that are efficient and fair. Three broad options are (i) some form of "non-linear" pricing, (ii) development contributions and (iii) taxes.

Non-linear pricing

Private infrastructure owners often use two-part or multi-part tariffs rather than a single price for each unit consumed. The generic term for this is "non-linear pricing". A fixed daily charge, discounts for high use and a menu of plans for different sorts of customers are all possible. Each of these is a form of *price discrimination* where more is charged for units of service that are more highly valued. Each extracts more revenue while keeping prices low and close to costs for consumption at the margin. The aim, as far as possible, is to raise revenue from consumers to cover costs, yet in a way that does not discourage additional consumption (in the region where consumers' willingness to pay exceeds marginal cost). (Kahn, 1988; APC, 2007).

Councils can and do use non-linear pricing. They are free within broad limits to set charges for the services they provide, which could include the equivalent of fixed daily charges for water or wastewater. Or councils might use their power to levy targeted rates to impose fixed daily or yearly charges on their service consumers.

Development contributions and connection charges

Councils can sometimes recoup a portion of capital costs from users at the point of new investment in the form of development contributions and connection charges. Where new developments require an extension of local infrastructure, making the new residents bear the costs of installing the extension is efficient (as well as fair).

When those who benefit from new infrastructure pay installation costs, they automatically consider these costs when deciding where to locate. Effectively, the installation costs are the marginal costs of adding capacity to the network (Kahn, 1988, p. 75 / 1). These costs are avoidable; so benefits need to exceed these costs for installation to be justified. If developers and buyers of the newly developed property do not face these costs, they will find locating away from the existing network artificially cheap. This can bias development towards greenfield areas and away from land already serviced by network infrastructure. It can also impose the cost burden on existing ratepayers.

When new residents (or developers on their behalf) contribute to capital costs upfront in these ways, fairness demands that councils should recognise this and not also levy special rates targeted at the new residents. If, on the other hand, they do not contribute, it would be fair to charge the new residents a targeted rate so that the cost burden of the new infrastructure does not fall on existing residents.

Taxes that raise revenue efficiently and fairly

Councils in New Zealand use property rates to raise revenue. Rates are a form of taxation. The “efficiency” with which rates raise revenue refers to how little the rates distort a property owner’s decisions about investing in and using their property. The concept of rates “fairness” refers to either (1) the “benefit principle” – rates should be levied in rough proportion to the benefit that that property owner receives from council-provided services, or (2) the “ability to pay” principle – collect tax in relation to some measure of income or wealth of the property owner. Section 11.5 describes efficient and fair ways that councils can tax a property owner.

Public amenities such as parks and reserves are obvious cases for using rates rather than pricing to cover infrastructure costs not covered by pricing or development contributions. The marginal cost of their use is zero or almost zero, and it would in any case be impractical and/or costly to levy a charge on individual users. In other cases too, rates revenue may be a suitable supplement to marginal-cost pricing so that councils can cover the full costs of providing infrastructure services.

But keep in mind that most taxes distort decisions and create inefficiency. If this inefficiency is significant, it may be better for councils to not use taxes to raise revenue. Rather, they might charge for infrastructure use at somewhat above SRMC. The council should choose the setting that causes the least overall distortion and inefficiency.

Optimal funding

As a guide, the optimal approach to fully fund infrastructure when costs are decreasing (so that setting price to marginal cost will not cover full costs) is first to use methods that are both efficient and fair. These methods include well-designed non-linear prices and development contributions. If a shortfall still exists, a fair and efficient tax (such as a well-designed targeted rate), should be used. However, if a tax would itself cause significant inefficiency or unfairness, its use must be balanced against the option of raising prices above marginal costs. As Kahn (1988, p. 130) summarises this situation:

In short, the problem would be one of weighing the benefits of a closer approach to economically efficient pricing made possible by these [tax-funded] subsidies against the possible departure therefrom involved in the taxes required to finance them.

Councils should make this evaluation before using taxes to cover infrastructure costs. They also need to consider the risk of unfairness owing to taxing one group of residents so as to “subsidise” the infrastructure services enjoyed by another group. Using a rate targeted on the residents who use or indirectly benefit from the infrastructure can often avoid this risk.

F11.1

In providing infrastructure, councils should aim for efficient pricing and efficient investment. Efficient pricing may include congestion charging, multi-part tariffs, development contributions and connection charges. In some instances, rates revenue may supplement these sources of revenue so as to cover the full costs of infrastructure.

Other considerations

Other considerations include practicality and ease of administration, merit goods, public goods, and governance.

- Practicality and administrative ease:** Marginal cost pricing requires a way of measuring the level of services that consumers use – typically through some form of metering. The cost and practicality of monitoring service is often rightly raised as an obstacle to more efficient pricing of infrastructure services. Yet, in some cases, advances in technology are reducing the cost of monitoring service use and providing opportunities to develop sophisticated pricing mechanisms. For instance, rapid advances in transport and communications technology have created opportunities for variable road pricing (Box 11.3). Even so, the potential for marginal cost pricing requires weighing up the benefits and cost of each

case. Often benefits and costs can only be known with considerable uncertainty. This calls for sensible approximations rather than pretending that precision is achievable.

- **Merit goods:** The economically efficient pricing of infrastructure services may not lead to a distribution of services that society considers equitable. While recovering full costs from users is “fair” in that only those who benefit from the services pay for them, there may be instances where the community expects that everyone should have access to a minimum level of service – regardless of their ability to pay. Such examples are sometimes called “merit goods”. Deciding which things are merit goods is a value judgement that the community makes through the political process. When it does, the community pays some of the costs of providing infrastructure services. Council should choose how to do this openly and transparently, so that the community has good information about who is receiving, and who is paying for, subsidised infrastructure services.
- **Public goods:** Some types of infrastructure have public-good characteristics. As discussed in Chapter 3, public goods are those that many people can enjoy simultaneously and where it is impossible (or prohibitively expensive and therefore impractical) to exclude people from benefiting once the good is provided. Examples of local public goods are a park, playground or attractive waterfront. Public goods can be viewed as extreme cases of infrastructure services with high fixed costs and low marginal costs. The marginal cost for additional people to enjoy the services is zero – at least up to the point where the facility becomes congested. The efficient price for these services is appropriately zero, so they require other sources of funding (typically taxes or rates).
- **Governance:** Even if the requirements for efficient pricing, investment and funding of council infrastructure are clear, governance and other institutional arrangements must support efficiency and fairness. The arrangements need to promote the wellbeing of residents (as both consumers and ratepayers), and protect against provider interests and political pressures that can skew decisions in favour of particular groups. Arrangements could include:
 - assigning operational responsibility for specific infrastructure services to a council controlled organisation (CCO) with strong business capability and a clear focus on economic efficiency;
 - muting short-term political pressures by not allowing councillors or council staff to be directors of CCOs (NZPC, 2012b, p. 201); and
 - developing and publishing performance indicators for service standards and efficiency, and having a system that benchmarks the indicators over time and against those of similar operators.

11.3 What tools are currently available to councils to fund infrastructure?

Current laws give local authorities a number of tools to recover the costs of infrastructure.

- **Development contributions:** These contributions are charges levied on developers under the Local Government Act 2002 (LGA) to recover the portion of new infrastructure that is related to growth. They can be charged for the capital costs of connections to trunk infrastructure (water, wastewater, stormwater, roads and other transport), and community infrastructure (such as neighbourhood halls, reserves, playgrounds and public toilets). They can be charged when a resource consent, building consent or service connection is granted. Councils are required to set out a development contributions policy that explains how contributions are calculated and explains the underlying assumptions.
- **Financial contributions:** These contributions are charges set under the RMA that provide councils with resources to avoid, remedy or mitigate adverse environmental effects. Financial contributions can take the form of money or land and must promote the sustainable management of natural and physical resources. They may be applied to fund capital expenditure on similar assets to development contributions, but cannot be used to fund the same expenditure for the same purpose, or to fund operating spending.

- **Prices and user charges:** Under the Local Government (Rating) Act 2002, councils can set volumetric charges for drinking water. They may be calculated as either a constant price per unit of water supplied and consumed, or according to a scale of charges. Councils can also charge per use for services such as solid waste collection, swimming pools, facilities hire and other council-provided services. Such charges help recover operating costs and may contribute to capital costs.
- **Targeted rates:** The Local Government (Rating) Act 2002 allows councils to set targeted rates to fund infrastructure and services that benefit identifiable taxpayers. Christchurch City Council, for example, has targeted rates for properties near new cycleway projects, those that benefit from land drainage and some that are connected to specific water and sewerage schemes.
- **General rates:** General rates are levied on property owners based on the value of property. They are a major revenue source that councils use mainly to fund operating spending. But councils may use general rates in a variety of other ways, including funding new infrastructure assets or the interest costs on debt incurred to finance them.
- **Uniform annual general charges:** These charges are levied at a fixed rate for each property to fund council operating spending.

As an alternative to councils providing trunk infrastructure and recovering costs through development contributions, developers sometimes directly provide infrastructure through **development agreements** (a form of contract with local authorities). Once completed, the infrastructure is vested in the council. In this case, the council does not bear any capital costs for the infrastructure, but will need to meet ongoing operational, maintenance and depreciation costs.⁹²

As discussed in Chapter 5, local authorities receive substantial financial support from central government to help meet land transport capital and operating expenses through the New Zealand Transport Agency (NZTA) and the National Land Transport Fund. The Government has also recently established a \$1 billion infrastructure fund to “accelerate the supply of new housing where it’s needed most” (Minister of Finance (Hon. Bill English) & Minister of Building and Housing (Hon. Nick Smith), 2016). The contestable fund will be open to applications from Christchurch, Queenstown, Tauranga, Hamilton and Auckland Councils and used to “bring forward the new roads and water infrastructure needed for new housing where financing is a constraint” (English & Smith, 2016). Councils will be expected to repay the funds, or buy the infrastructure assets, once houses have been built and development contributions paid.

11.4 Barriers to providing infrastructure efficiently

A number of barriers can or do impede councils from providing infrastructure in a timely and efficient manner in response to growth pressures. Broadly grouped, the main barriers are:

- political economy;
- funding;
- financing; and
- legislative.

Political economy barriers

Pressure from existing residents who are fearful that growth and development will impact them in negative ways is a potent influence on council politics and decision making. A typical fear of existing residents is that the need to fund expensive new infrastructure to accommodate growth will mean rate rises and higher debt burdens for them. As documented in the Commission’s *Using land for housing* report, this often leads existing residents to oppose city expansion (NZPC, 2015a). Responding to this pressure, councils are often wary of the big-ticket infrastructure items that successful growth requires.

⁹² Councils also incur operating, maintenance and depreciation expenses for assets vested in them within subdivisions or created as part of a resource consent condition.

Resistance to rates and debt increases

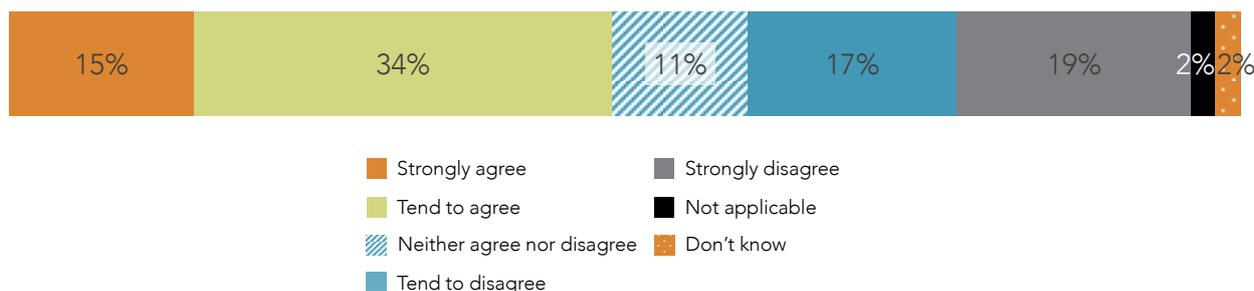
Faced with a large item of infrastructure expenditure, councils have the choice of funding tools listed in the previous section. A key question is whether councils can use these tools to fund the costs of growth out of revenue generated by growth, without imposing a significant burden on existing ratepayers? The most obvious sources of revenue from growth are development and financial contributions, user charges and targeted rates – all of which are or can be aimed at new residents. In addition, new residents add to revenues from general rates because growth produces an increased number and higher-valued rateable properties.

Despite this additional revenue, many councils face opposition from existing residents. While development and financial contributions are capital sums, they rarely cover full capital costs of new infrastructure. Rather than raise rates to cover the difference, councils have the option to borrow and repay the debt over time in line with the life of the asset and the benefits it delivers. Indeed, this is the fair way of spreading infrastructure costs rather than loading them onto current ratepayers (NZPC, 2015a, pp. 207-208).

In practice, councils typically encounter opposition to both higher rates and higher debt. They are not even seen as alternatives. Councils report that they face strong community opposition to debt due to a perception that future repayment obligations will result in rates increases (NZPC, 2015a, p. 211). Respondents to the Commission's survey of local authorities confirmed that many saw rates levels as a barrier to the provision of infrastructure (Figure 11.4).

Figure 11.4 Local authority response to the statement...

"The main barrier to funding our infrastructure needs is we have reached the limit of rating increases."



Source: Colmar Brunton, 2016.

Resistance to full pricing of infrastructure

Political resistance also comes in the form of opposition to charging for infrastructure services. For example, reflecting community opposition, relatively few councils have introduced volumetric charges for water.⁹³ The Local Government Infrastructure Advisory Group (2013) observed:

Despite identifiable benefits in volumetric charging, water metering is a contentious issue. The 2009 - 2019 draft LTP from Waikato District Council reported that the most common responses offered by members of the public who opposed water metering included: that metering was a money-making exercise for the council; that other water management tools should take priority, such as water tanks and education programmes; and that it was inequitable for low income households who would struggle to pay for water... There is also a degree of concern that charging for water on a user-pays basis is the first step towards privatisation. This is unfounded. (pp. 93-94)

Funding barriers

Some councils say they have inadequate means to fund new infrastructure

Councils told the Commission in its *Using land for housing* inquiry (2015) that they hold back from investing in infrastructure, or at least take a cautious approach, because they believe that "growth does not pay for itself" and are concerned about imposing additional cost burdens on existing residents. In a 2015 New Zealand Institute of Economic Research survey (NZIER, 2015), most councils in high-growth areas

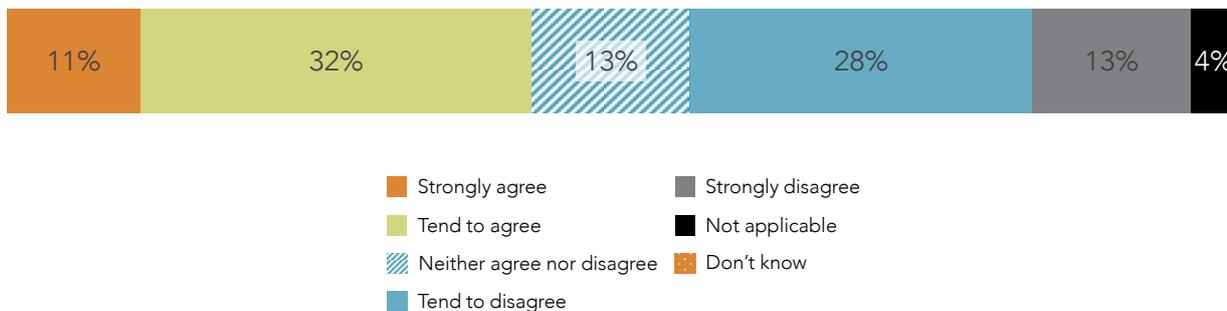
⁹³ Councils are permitted to charge volumetrically for water but not wastewater (except in Auckland where Watercare is permitted to do so).

reported that the cost of new infrastructure was a very important factor influencing the rate of residential development. More than half cited that city budget constraints were important.

Participants in the current inquiry exhibited similar concerns. Of the councils that responded to a 2016 survey by the Commission, 43% found that the inability to fund infrastructure (despite it having a strong business case) often stops or delays the investment (Figure 11.5)

Figure 11.5 Local authority response to the statement...

“Our council often does not invest in, or delays investment in, needed infrastructure that has a strong business case because it cannot fund it.”



Source: Colmar Brunton, 2016.

Notes: Because of rounding, totals may not sum to 100%.

To alleviate these perceived funding barriers, several participants support providing councils with alternative funding options to pay for infrastructure (Box 11.1).

Box 11.1 Alternative funding options for councils – some views from submissions

Duncan Rothwell

Different house building and infrastructure models need to be explored, particularly in the context of delivering physical (road, rail, utilities, etc.) and community infrastructure (such as affordable housing, schools, hospitals, emergency services). The current system is not working and the way infrastructure costs are being paid for is arguably unfair with a significant proportion of costs becoming a financial burden on Government and the average New Zealander (indirectly through taxation). (For example, a recent report by Cambridge Horizons suggests the true costs of community and physical infrastructure can be as much as \$115,000 per dwelling; and it is unlikely this figure is met by the main beneficiary.) (sub. 38, p. 5)

SmartGrowth

SmartGrowth is of the view that alternative funding systems would significantly improve the ability of councils to provide the necessary infrastructure to support growth. A much greater mix of funding tools is required than what currently exists. (sub. DR63, p. 3)

Water New Zealand

Water NZ supports providing councils with alternative infrastructure funding options as this will assist in addressing the funding shortfall which can often mean delays to the implementation of infrastructure. (sub. DR67, p. 11)

Wellington City Council

As indicated, the Council is fundamentally supportive of any tool being made available that provides local government with alternative funding options. (sub. DR68, p. 19)

Auckland Council

The council supports being able to access a broader range of funding tools, this could include the use of road pricing in the form of congestion management tools and the ability to use public private partnerships. (sub. DR86, p. 10)

Does growth pay for itself and if so over what period?

Whether the additional revenue that a council receives from growth covers its costs of needed new infrastructure (and so will not impose any significant burden on existing residents) is a key question. Since revenues and costs arrive at different times, it is best formulated as follows: will the *net present value* (NPV) of the flow of additional revenues that a council receives from a new development over time equal or outweigh the NPV of the costs of providing services to the residents of the development?

To supply these services, a council faces first the large capital cost of installing new connecting infrastructure to the development – mostly the three waters and roads, but also parks and other community facilities. Then it faces the operating costs associated with supplying the services – costs that will continue over many years. On the revenue side, the council (or its CCOs) may collect one-off development contributions and connection charges to put towards capital costs, and, over time, user charges, general rates, and possibly targeted rates from the new residents.

If the NPV of revenues is equal or greater than the NPV of costs, a council will end up in the black – even though it may experience negative cashflow in the early years. Borrowed funds could cover these cashflow deficits and the revenues in later years would cover interest on the loan and eventually repay it. At some point during the life of the asset the NPV of revenues will overtake the NPV of expenditures. This “payback period” is of interest because it indicates the length of time in which finance from council debt (or another source) will be required. Of course, if the NPV of revenues turn out to be less than the NPV of costs then the council would have to resort to funding the difference from another source such as existing residents.

The Commission has examined two modelling exercises that have attempted to estimate the NPVs of costs and revenues from urban growth and how they compare (Box 11.2). Neither has been able to answer it conclusively owing to lack of information on key items.

Box 11.2 Financial modelling of the net costs of growth for local authorities

The Commission contracted SGS Economics and Planning to compare the revenues and costs accruing to Auckland Council from an average new development over a 30-year period. The study also compared these revenues and costs for greenfield and infill developments. The analysis used data for Auckland gathered from historical revenue figures, and costs estimated in an earlier study for Auckland Council by the Centre for International Economics (2015).

SGS also used Auckland Council figures to include their revenues from development contributions and Watercare’s infrastructure growth charges. Together these covered a high proportion of their capital costs associated with new developments, leaving user charges, general and targeted rates largely available to cover operating costs. The study’s results suggest that the payback periods are remarkably short – around seven years for greenfield developments and less than that for infill developments.

In practice, payback periods could be much longer. This could occur if infrastructure were more expensive, a smaller proportion of the capital costs were recovered from development contributions and infrastructure growth charges, or if operating revenues were lower or costs higher. (The CIE operating costs included only those for road maintenance and public transport.) To illustrate this, SGS estimated that if infrastructure costs for greenfield and infill respectively were \$53 000 and \$44 000 rather than the CIE estimates of \$45 000 and \$30 000, and only 60% of general rates of the new residents were available to help pay for the new infrastructure (both quite reasonable alternative assumptions), then the payback periods would extend to 30 years.

Another study, commissioned by the Ministry of Business, Innovation and Employment, used publicly available information to estimate growth-related spending and revenue for nine high-growth councils in New Zealand. The results indicated that the cost of growth-related infrastructure would not generally be fully recovered over a council's 10-year planning horizons, but that most councils would break even or earn a profit over 25 years. Morrison Low emphasised the crude nature of some of the assumptions they had to make, and that their findings were therefore only "tentative". Further work aiming to minimise the number of these assumptions (through discussions with councils) is planned for early 2017.

Source: SGS Economics and Planning, 2016; Morrison Low, 2016.

While both of the studies discussed in Box 11.2 offer some insights into the net costs of growth, their findings should not be used to draw definite conclusions about whether growth pays for itself. Due to lack of accurate data, both studies made several strong assumptions. Further, neither study included infrastructure costs not related to specific new developments. These include community assets such as libraries and sports facilities, expensive city-shaping infrastructure and the costs of securing land for future infrastructure corridors and public open spaces that are required as large, fast-growing cities expand.

Demand risks

The ability of councils to fund infrastructure can also be undermined by demand risks.

- The rates of demand growth factored into development-contribution calculations are by no means certain. The lumpy nature of urban infrastructure extension may lock councils into investments in particular facilities even when lower-than-expected revenue streams to fund the works in question eventuate.
- Risks associated with the fragmented and un-sequenced nature of development in most growth areas can add to roll-out costs compared to the calculations underpinning development contributions.

If councils overestimate future demand, they may face high borrowing and depreciation costs on underused assets, at the same time as facing a rating-revenue shortfall relative to expectations. These risks were highlighted in a number of the submissions to the Commission's recent *Using land for housing* inquiry. For example:

Councils will normally invest in infrastructure to service growth before the growth occurs – sometimes a long time before growth occurs. This time lag is further complicated if growth is lumpy or unpredictable, which could lead to a significant time lag between infrastructure provision and the ability to recover the costs of growth through development contributions or rates. (Christchurch City Council, sub. DR90, p. 9)

It should be acknowledged that Councils take on huge financial risks to manage and facilitate urban and population growth. In most cases where people and organisations take on risk it is because of the expectation of reward. TCC's view is that this risk/reward framework is missing and is the fundamental key to addressing issues like land supply and housing affordability. (Tauranga City Council, *Using land for housing*, sub. 47, p. 18)

Despite this council has decided to mitigate the risk that the growth assumptions do not transpire by setting aside a portion of general rates to ensure that if required costs can be covered where infrastructure has already been provided. (Waikato District Council, *Using land for housing*, sub. 12, p. 21)

Faced with such uncertainty, any other investor in infrastructure funded by a user-pays stream would require a significant risk premium built into their tariffs or tolls. In the absence of this, some councils respond to the uncertainty about whether and when their investments will pay for themselves by taking a very cautious approach that in turn leads to shortages of "ready to go" land for development.

Funding pressures for councils in areas with declining populations

Councils facing the prospect of a population decrease in their town or region must continue to fund their infrastructure needs with a smaller rating base. While population decline removes any need to invest in

growth infrastructure, councils still need to maintain services and replace their infrastructure assets over time. As property rates are the primary source of local government income, doing so can be challenging. Gibb (cited in Radio New Zealand, 2014) explains how declining councils can struggle to fund their essential infrastructure services.

A lot of these smaller towns in rural New Zealand that have got reticulated supplies are facing static or declining populations, which causes challenges round supplying water services because, of course, they depend on funding... These services are capital intensive. So if you've got static and declining populations and your funding base, through your rating base, is put at risk then you're faced with a situation such as Ohura is, where the council has said, 'Well look it's actually cheaper to take the reticulated services out and put catchment from roofs in place' (p. 1).

Many territorial authorities projected to experience population decline comprise small towns and rural areas (Chapter 4). As McKinlay and Selwood (2014) comment, having a small population can pose a challenge for councils.

Many local authorities are very small scale entities. Local funding mechanisms lack economies of scale. Within the transport sector central government funding is skewed by subsidy rates that favour state highway solutions (funded at 100%) over local roads (which require 50% local funding). Failure to meet local share requirements reduces funding for local roads in favour of state highways. The net result is insufficient money to do the job (p. 11).

F11.2

When a council faces population decline in the area it serves, the council's rating base also decreases. This means the council could face a struggle over time to maintain and renew essential services. This will be especially true for smaller councils who lack economies of scale.

Financing barriers

To meet the costs of infrastructure investments, councils have a choice between pay-as-you-go financing, and borrowing – between paying up front, and spreading payments over the life of the asset. The Commission explored this choice in its *Land for Housing* report. For long-lived assets not specific to a new development, it saw borrowing as the way to go because of intergenerational equity, ability to bring forward needed investments, and ability to service debt from rates income (NZPC, 2015a p. 207, F9.1).

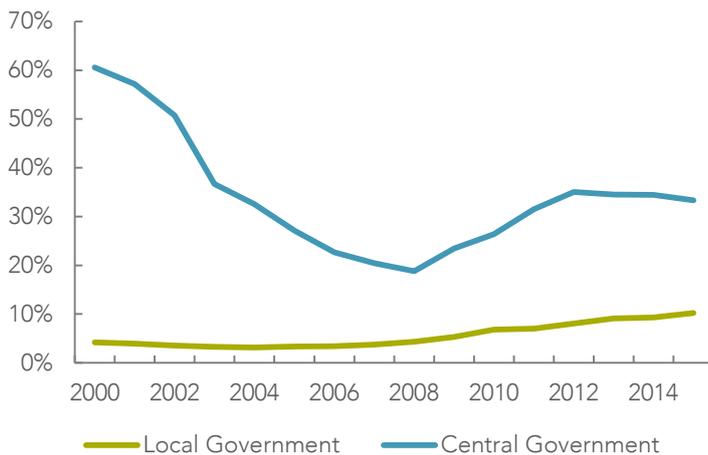
Debt is the largest source of finance for capital spending for most councils (Figure 5.8). Yet councils' use of debt has been very conservative: a study by Grant Thornton (2014) found all high-growth councils rated "sound" or higher. NZIER estimated an average gearing ratio for local authorities of 6.8% (ratio of debt to existing assets). Gearing ratios of local authorities have been much lower than for central government (Figure 11.6) and large companies in the private sector. Contact Energy, Fletcher Building, and Vector had gearing ratios of 36%, 27%, and 44% respectively in 2016.

Self-imposed debt limits or those that are externally set can lead councils to tightly ration the supply of new infrastructure, as a number of submitters to the *Using land for housing* inquiry commented:

The Productivity Commission needs to recognise and appreciate that significant public and Government scrutiny has been placed on local government debt and rates increases. (Palmerston North City Council, *Using land for housing*, sub. DR95, p. 4)

The Council's ability to provide infrastructure faster to facilitate development is constrained because of ... the need to balance this investment against management of the city's debt, including debt to revenue ratio, maintaining our credit rating, and maintaining affordable rate increases [and] [t]he Council's obligations to comply with the Local Government (Financial Reporting and Prudence) Regulations. (Hamilton City Council, *Using land for housing*, sub. 70, pp. 8–9)

Councils are constrained by revenue / debt ratios and their impact on Council credit ratings. Together with political pressure to keep rates and debt levels low a constant tension exists between providing infrastructure for the growth of our cities and communities and meeting the expectations of current communities. (Te Tumu Landowners Group, *Using land for housing*, sub. 40, p. 13)

Figure 11.6 Local and central government gearing ratios

Source: Statistics NZ.

Barriers to councils making more use of debt can be an important cause of urban development failing to keep pace with demand. Even if infrastructure investment to support growth provides a net financial gain to councils over reasonable payback periods, an inability or unwillingness to borrow to finance the investment may well stop it going ahead.

Reasons for councils not taking on more debt

Several reasons are possible for councils not taking on more debt:

- credit-rating risk;
- debt benchmarks in the Local Government (Financial Reporting and Prudence) Regulations, 2014 which are monitored by the Department of Internal Affairs (DIA);
- Local Government Funding Authority rules; and
- political pressures.

Credit-rating risk

Some councils are rated by one of the three main credit-rating agencies – Standard & Poor's (S&P), Moody's and Fitch. Of the 24 rated councils, 14 have an AA rating, 5 an AA- and 5 an A+. In the last three years, four councils have had their ratings upgraded and none has suffered a downgrade (LGFA, 2016). Agencies have their own methodologies for making credit-rating assessments of local authorities. Debt-to-revenue ratios are only one factor. Even so, S&P has warned Auckland Council of a rating downgrade if its debt-to-revenue ratio exceeds 270% (New Zealand Herald, 2016). Harbour Asset Management (2016) estimated Auckland Council's ratio to be close to 250% in September 2016 (based on Harbour's assessment of S&P's methodology) and forecast to rise.

Unlike for most councils in New Zealand, debt constraints have a very real bearing on the ability of Auckland Council to invest in necessary infrastructure, compromising its capacity to deal with a rapidly increasing population. It is clear from its latest 10-year (2015–2025) long-term plan (Auckland Council, 2015b, section 4.2) that the Council does not have the balance sheet capacity to do all the projects it would like to do:

The gap between the demand for infrastructure and our funding constraint is so large that efficient and innovative infrastructure management will not be sufficient to solve the problem.

For transport alone, the gap between the 30 year funding requirement identified in the Auckland Plan and currently available funding sources was estimated to be \$12 billion.

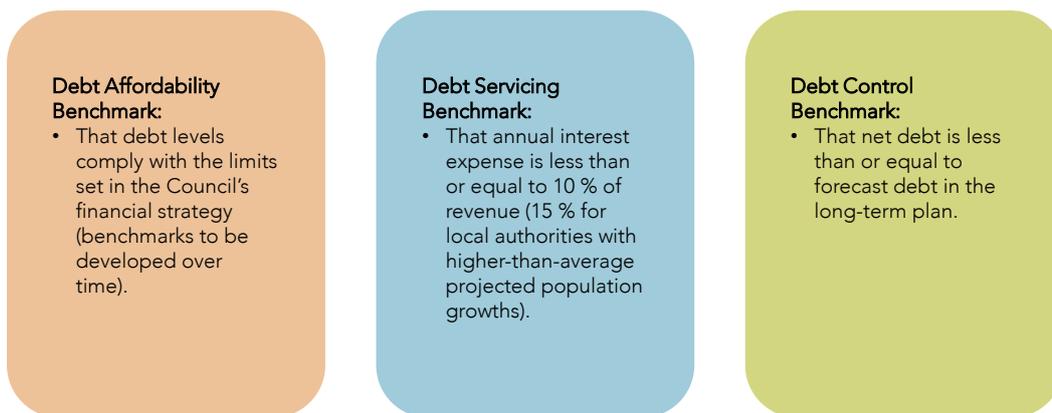
What would be the likely consequences if a council such as Auckland suffered a credit downgrade? Specialist finance staff at Auckland Council and the LGFA told the Commission that it would likely lead to an increase in the interest cost of new debt of 0.1% to 0.15% (10 to 15 basis points) or \$1 million to \$1.5 million a year on a loan of \$1 billion. This may not seem large, yet the Council's reputation in the eyes of credit-rating agencies and investors would take a serious hit if it made a deliberate choice to exceed a limit knowing that it would cause a downgrade.⁹⁴ Also, a two-notch downgrade of Auckland would very likely cause a downgrade of the LGFA's credit rating, leading to a rise in the cost of borrowing for all councils in New Zealand.

Debt benchmark regulations

Central government has increased its scrutiny of local authority debt levels. Regulations introduced in 2014 require councils to report (in their annual plans, annual reports and long-term plans) their actual and planned performance against a number of financial prudence benchmarks (Figure 11.7). One of these benchmarks is the debt-servicing capacity of local authorities. It is met if the costs of servicing loans for the year are no greater than 10% of revenue. For high-growth local authorities, this threshold is set at 15%.

The regulations focus on financial plans and are not "hard" limits. They require councils to prepare disclosure statements about compliance and related information. Central government has graduated intervention powers. Any council acting "imprudently" is likely to be noted in the Office of the Auditor-General's report to Parliament; the council could be subject to a request to report to the Minister, the appointment of a Crown Observer, a Crown Manager or, in an extreme case, replacement by Commissioners or an early election (Minister of Local Government, 2012).

Figure 11.7 Local government financial prudence benchmarks



Local Government Funding Agency rules

The Local Government Funding Agency (LGFA) was established by local authorities in 2011 with central government support. The LGFA's task was to apply scale and specialisation so as to access national and international sources of debt finance more cost effectively. The LGFA undertakes its own internal credit assessment and rating process for all council borrowers. The primary criteria are:

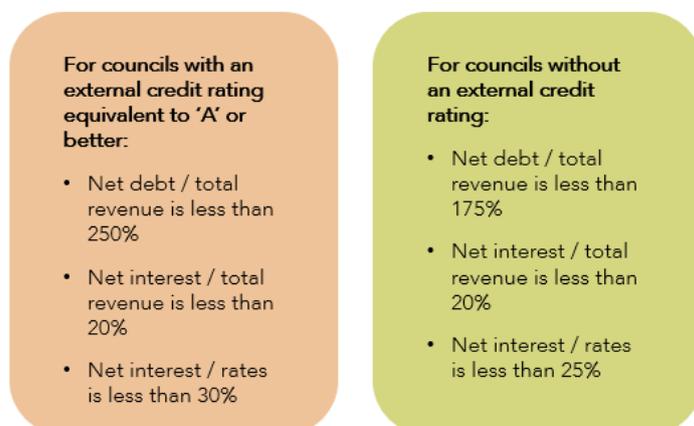
- debt levels relative to population;
- debt levels relative to asset base;
- ability to repay debt;
- ability to service debt (interest cover); and

⁹⁴ Even the current prospect of future debt strain has led Harbour Asset Management (2016) to advise investors to be cautious: "Auckland Council's significant operating surplus is testament to its current prudent fiscal management. However, it has been dealt a difficult hand with a need to provide infrastructure to a growing population who will only pay for the upfront cost over time. Until a sustainable solution is reached, the risks make us cautious as a debt investor."

- population trends.

The LGFA imposes lending covenants on council borrowers. Local authorities with a long-term credit rating of 'A' equivalent or higher (currently all rated councils) are subject to slightly less restrictive financial covenants (Figure 11.8).

Figure 11.8 LGFA financial covenants



Unlike the benchmark regulations these are “hard” limits. Non-compliance will preclude a council from borrowing and trigger a review. Default will occur if a council fails to meet an interest or principal payment and after 30 days the LGFA can seek repayment of all loans. As at 30 June 2015 all member councils were compliant with these ratios. A further LGFA rule limits its exposure to its largest single borrower – Auckland Council – to no more than 40% of LGFA total funding (currently it sits at 33%).

Political pressures

As documented above under “Political economy barriers”, councils can face strong political pressures from ratepayers not to increase their debt levels. Often this is due to a perception that future repayment obligations will result in rates increases. Several submitters to the Commission’s *Using land for housing* inquiry noted community pressure on councils to constrain debt:

... a lot of Councillors use “reduce debt” as one of their election platforms. (Carrus Corporation, sub. 10, p. 5)

... debt reduction was the primary election platform that the majority of the Tauranga City Council Councillors stood on in the 2013 Local Government elections. (Te Tumu Landowners Group, sub. 40, p. 13)

Legislative barriers

Current legislation is relatively enabling of local authorities to recoup infrastructure costs. However, prohibitions prevent them from using some funding tools.

- **Targeted rates:** Under the Local Government (Rating) Act 2002, councils are unable to impose targeted rates based on changes in the value of property. This prevents councils from introducing funding tools that capture some of the uplift in property values generated by infrastructure investment.
- **User charges:** Councils (or their subsidiary infrastructure providers) are not permitted to charge volumetrically for wastewater. Auckland (where water services are delivered through the CCO Watercare) is the only area where volumetric charges are used for wastewater. Current legislation also provides only limited opportunities to apply user charges for roads (eg, tolls and congestion fees). Under the Land Transport Management Act 2003, tolls may only be established with the approval of the Minister of Transport and only applied to new roads.

In other cases, councils face pressure from developers to reduce development contributions:

Most Councils are under pressure from developers to reduce or eliminate development contributions. This is particularly the case going in to and during periods of low construction demand when developers (and some councillors) believe development contributions are an unreasonable impediment to growth. (Christchurch City Council, DR90, p. 9)

Auckland Council's 'per lot' contribution was seriously under calculated meaning that there was a negative cascade effect on all parts of the council that rely on funding through growth DCs for their projects... Too often developers react aggressively to their DC bill and council agreement to reduce the bill is common. This is not a sustainable approach. (A L Christensen, *Using land for housing*, sub. 7, p. 2)

The net benefit from removing barriers to efficient provision of infrastructure

The Commission has heard and read much evidence that the lack of timely investment in infrastructure is a critical cause of councils in high-growth urban areas failing to provide sufficient "ready to go" land to meet demand for development. Yet such investment would have a very high social rate of return. This is evidenced by extremely high and growing prices of such land reflecting people's willingness to pay for housing and the benefits they perceive they will receive. Costs also appear to be high, but that is deceptive. The economic cost of land is its next best alternative use, and that price is well below urban land prices in fast-growing cities. For example land prices within Auckland's Metropolitan Urban Limit (MUL) were nearly 10 times more expensive than prices outside the MUL in 2014 (NZPC, 2015a, p. 312).

Interest rates are also at historical lows because of low inflation pressures, and many savers are competing to put their money into relatively scarce investment opportunities. Yet, here are very secure investment opportunities with high social rates of return that are not being taken up. It is very important that a future planning system overcome the barriers preventing this.

To recap, the reasons that councils invest too slowly or under-invest in infrastructure are that:

- a good proportion of the increase in revenue resulting from growth is received many years after the initial investment, creating short-term financing burdens for councils;
- councils face demand risks;
- debt limits constrain some councils from financing the large upfront costs;
- the cost of securing infrastructure corridors and public open spaces typically need to occur well in advance of development (Chapter 10);
- councils do not fully use existing funding tools; and
- councils face political pressures from ratepayers not to increase rates or debt.

Given this array of factors, the Commission believes that the funding and financing toolkits of councils should be expanded to improve councils' ability to provide infrastructure, and the land needed for future infrastructure and public open spaces, adequately and more efficiently.

F11.3

Councils, particularly in high-growth areas, often invest too slowly or underinvest in infrastructure, even though the additional revenues from growth are likely to cover the costs over the lifetime of the asset. Reasons include the front-loaded costs of infrastructure relative to growth revenue, debt limits, reluctance to fully use existing funding tools, and political pressures to keep rates low and avoid debt. City-shaping infrastructure and securing land corridors and public open spaces for future expansion put additional demands on revenue sources.

F11.4

Legislative, political, funding and financing barriers are limiting the ability of local authorities to provide sufficient infrastructure for development despite the high social returns that investing in such infrastructure would deliver.

R11.1

Growth should pay for itself. Councils' funding and financing tool kits should be expanded so councils can cover the costs of growth – infrastructure investment and securing land for future infrastructure corridors and public open spaces – adequately, efficiently and fairly.

Section 11.5 describes the Commission's proposals for expanding the funding toolkit of councils in a future planning system. Section 11.6 describes its proposals for improving their financing toolkit.

11.5 Funding infrastructure in a future planning system

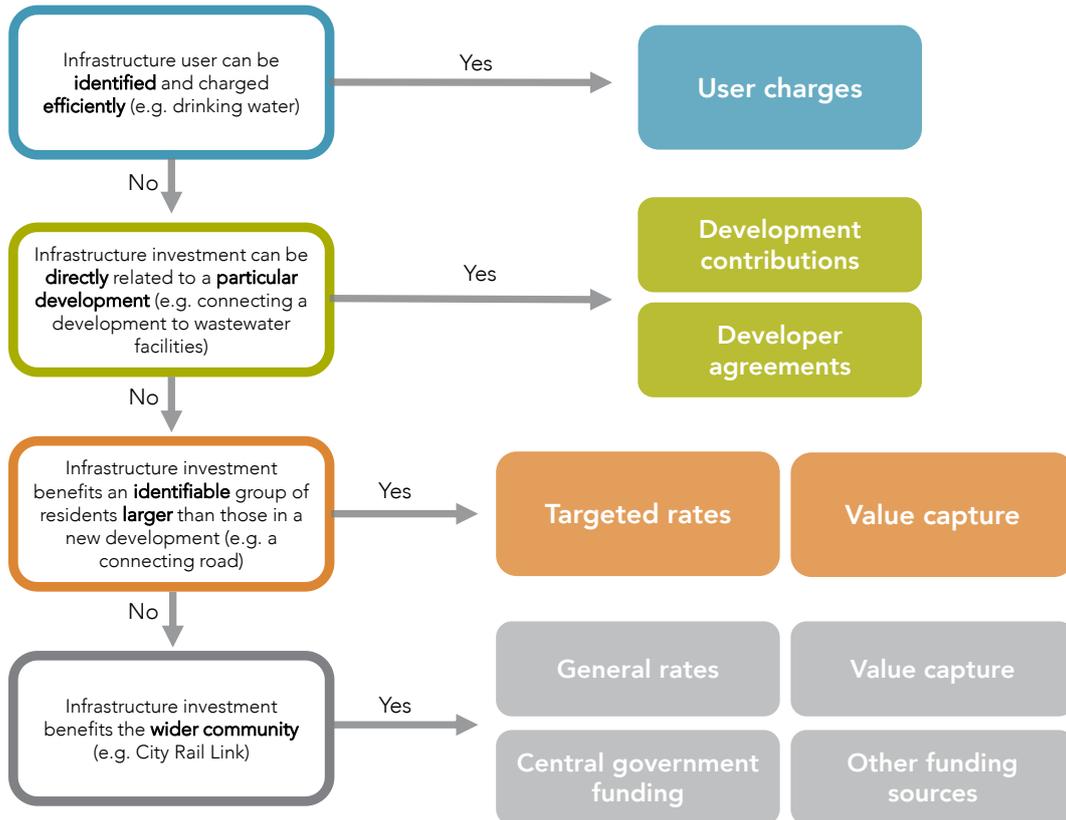
Section 11.3 described how infrastructure should be provided efficiently, while section 11.5 identified some of the funding, financial, legislative and political barriers to efficiency within the existing planning system. This section lays out how the Commission believes infrastructure should be funded in a future system. It focuses on how councils should use the funding tools currently available, such as development contributions, targeted rates and user charges. It also discusses the merits of some alternative funding options. Where legislation prevents councils from introducing funding tools that the Commission considers would deliver net benefits, it identifies the changes needed.

Decision framework for funding infrastructure

A future planning system should allow councils to recover the full cost of infrastructure fairly and efficiently. Funding infrastructure efficiently means providing it to the extent that its benefits exceed its costs. Doing so fairly means that the revenue raised to recover costs should roughly reflect the benefits people receive from council-provided services. It may also be appropriate in some cases for contributions to reflect ability to pay.

Estimating the benefits of an infrastructure investment is not always straightforward. Where the benefits of an investment are localised, linking the costs to a particular development or infrastructure user is relatively easy. For instance, in the case of a local park, a reasonable estimate of the benefits would be based on the number of local residents who use the park (including how often and for how long). Yet other types of infrastructure spending can deliver benefits that are less predictable and more dispersed across a community. For example, the expansion of a city's public transport network would likely improve connections between people, increase commercial activity for nearby businesses, provide new job opportunities and improve the quality of life for many city residents.

Different types of infrastructure investments are therefore suited to different funding arrangements. Following its draft report, the Commission contracted Robin Oliver to prepare a report evaluating options for funding local infrastructure. Based on Oliver's report (Oliver, 2016), the Commission has developed a decision framework for councils as a guide to the most appropriate funding arrangement for an infrastructure investment. Figure 11.9 is a diagram of this framework.

Figure 11.9 Decision-making framework for funding infrastructure

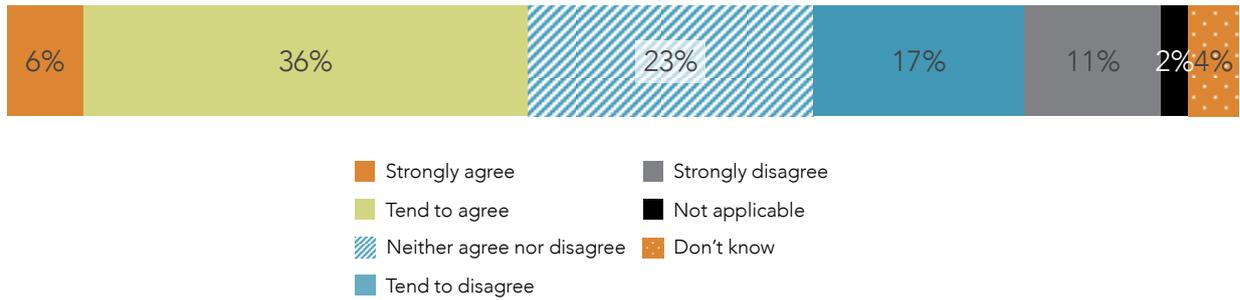
The framework represents the hierarchy of tools that are or, in the Commission's view, should be available to councils to fund local infrastructure. The appropriate tool to fund an infrastructure investment depends on the nature of the benefits the infrastructure provides. It also depends on whether it is possible to apply the funding tool practically and efficiently. For instance, where the user of an infrastructure service can be identified and charged efficiently, councils should implement user charges. Where this is not the case but the benefits are localised, councils should consider development contributions and targeted rates. Investments that benefit a wider range of residents and business across a city or town may be better suited to revenue sources such as value capture, general rates and central government funding.

Use of pricing and user charges, where practical and efficient

The legislative barriers to volumetric charging for wastewater, and to the use of tolls and congestion charges to manage demand on existing roads, impede the development of a more efficient funding system without a clear rationale. They unnecessarily limit the revenue sources of local authorities and their ability to ensure the efficient use of their assets and resources. Over 40% of the respondents to the Commission's survey of local authorities thought greater use of user charges was needed (Figure 11.10). And a majority of respondents to a 2015 survey of 5 000 Auckland residents favoured the introduction of a motorway user charge to fund a more comprehensive transport network (Colmar Brunton, 2015).

Figure 11.10 Local authority response to the statement...

"The problem of funding urban infrastructure could and should be addressed through more extensive use of user charges."



Source: Colmar Brunton, 2016.

Note: Due to rounding, figures may not sum to 100%.

Water consumption and road use are two of the largest infrastructure services provided by councils. Other countries make more use than does New Zealand of charging for water consumption and road use. This is partly a result of legislative restrictions. For example, New Zealand has three toll roads: the Northern Gateway Toll Road (north of Auckland); the Tauranga Eastern Link Toll Road; and the Takitimu Drive Toll Road (in Tauranga). No roads in New Zealand have a congestion charge. The United Kingdom has congestion charges in London and Durham, and charges on parts of the M4, M6, M25 and M48 motorways as well as on many bridges and tunnels on other roads. In the case of water, all urban water businesses in Victoria, Australia charge their customers for water by volume. Such charges for water are rare in New Zealand.

Councils in New Zealand that have introduced water metering and charging have seen significant behavioural changes.

- After Kapiti Coast District Council brought in volumetric charging and water metering, more than 340 water leaks (amounting to a daily loss of 1.8 million litres) were detected on private property (Local Government Infrastructure Advisory Group, 2013).
- Universal water metering in Auckland has led to a significant reduction in demand. Gross consumption per person declined from about 400–425 litres a day (in the 10 years before meters were introduced) to about 274 litres a day in 2013 (Watercare, 2013).
- Universal water charging in Tauranga reduced peak demand by about 30% and average demand by about 25%. This meant that construction of a proposed new water scheme, and upgrades to wastewater treatment and collection systems, could be delayed. The 30-year NPV of the savings generated by metering and charging has been estimated at \$83 million (Sternberg & Bahrs, n.d.).

Greater use of road pricing is likely to have benefits, especially in Auckland (Box 11.3).

Box 11.3 Reducing traffic congestion in Auckland

Traffic congestion in Auckland is estimated to cost about \$1.25 billion a year compared with free flow conditions (Wallis & Lupton, 2013). The Organisation for Economic Co-operation and Development (OECD) points out that while continuing investment in new road infrastructure will probably provide net benefits, better ways are available to manage demand. Charging higher tolls at peak times could help to shift road use away from the peaks (OECD, 2015d, p. 33). Also,

[c]omplementing the additional investments in road infrastructure with better mechanisms to manage the demand on the network is essential to improve efficiency and reduce costs, particularly in Auckland, where the level of congestion and variability of travel times during peak hours is high. (OECD, 2015d, p. 97).

The Ministry of Transport commissioned two studies in 2006 and 2008 (Auckland Road Pricing Evaluation Study 2006 and Auckland Road Pricing Study 2008), which examined how pricing could reduce congestion and raise revenue for investment in land transport. Most recently, the Auckland Transport Alignment Project (ATAP), conducted under the auspices of the Government and Auckland Council, has been reviewing the strategic approach to transport investment in Auckland.

The report found that transport in Auckland will have to cope with a rapidly growing population, with people spread across the city but having to travel to and from work and for other reasons. The freight task will also grow strongly. Projections under Auckland's current transport plan indicate deteriorating access for private cars and worsening congestion, with significant subregional differences across Auckland. The analysis points to a need to improve access to jobs, reduce congestion, and increase the use of public transport.

An interim report released in June 2016 (ATAP, 2016a) took the analysis further. It found that building Auckland's way out of its transport problems is inferior to an approach that takes:

advantage of new demand-side opportunities that have previously not been available. Rapid advances in transport and communications technology provide opportunities to influence the demand for private vehicle travel, through variable road pricing and the emergence of "mobility as a service" technologies. In addition, advances in intelligent transport system (ITS) and vehicle connectivity provide the opportunity for significant gains in network productivity. Our analysis has shown that, in combination, these initiatives have the potential to provide a step change in system performance. (ATAP, 2016a, p. 5)

ATAP's final report recommended that an effective transport strategy should combine influencing travel patterns (eg, through variable road pricing); making better use of existing resources; and providing new infrastructure services. It specifically recommends that "preparatory work on smarter pricing should be progressed with urgency, to develop an ambitious but feasible programme for implementation" (p. 46).

Source: ATAP, 2016a; ATAP, 2016b; Ministry of Transport (MoT), 2006; MoT, 2008; NZPC, 2015a.

Pricing to reflect the marginal cost of additional water use, or to ration supply when capacity is reached, or to make users take account of the congestion costs they impose on others, is fully in line with the efficiency principles in section 11.2.

A proposal to introduce tolls or congestion charges to existing roads would need to consider their implications for equity, in particular their impact on those in a vulnerable position who are likely to be significantly affected by the new pricing arrangements. Options include ensuring the availability of alternative (cheaper but slower) routes, or public transport (with possible concessionary rates for low-income users). A more general equity measure would be to reduce other charges on car ownership (eg, licence fees and/or fuel taxes) so that, on average, the total taxes and charges that motorists pay do not increase. If central government sustained these cuts in revenue, local government could still gain net revenue from congestion charging.

R11.2

A future planning system should allow councils to:

- set volumetric charges for both water and wastewater; and
- price the use of existing local roads where this would enable more efficient use of the road network.

How development contributions and targeted rates should be applied

Under the Commission’s proposed funding framework, development contributions and targeted rates would be used to recoup the costs of infrastructure where the need for an investment and its benefits are clearly localised to a particular developer or group of residents, such as within a new subdivision.

Comparing development contributions and targeted rates

Councils seem to find development contributions more attractive than targeted rates. The likely reason is that development contributions are paid upfront to cover upfront capital costs. Targeted rates are paid incrementally over a longer period and typically require a council to borrow to finance the upfront capital costs. In their submission (sub. DR90, p. 9), Christchurch City Council pointed out that “the longer the gap between the investment and cost recovery, the more likely there will be a higher charge on the existing community through rates”. In the course of the Commission’s *Using land for housing* inquiry several other councils also raised concern that delays in recovering the costs of infrastructure can place pressure on their finances. For example, Tauranga City Council observed:

In respect of targeted rates being used instead of development contributions we wish to point out our significant concerns with this proposal, especially in respect on the increased rates burden it would place on [new] home owners and the additional debt it would place on council balance sheets... The increase in debt is caused by the delay in receiving revenue caused by receiving small payments over a number of years through a targeted rate instead of a substantial upfront development contribution charge... in order to not breach its debt limits TCC would need to substantially decrease its expenditure which may compromise investment in growth-related infrastructure and other investment. (*Using land for housing*, sub. DR102, pp. 24–25)

In the same inquiry some councils also expressed concern that targeted rates shift the risks associated with new infrastructure from the development community to the council and the wider community:

This change would transfer the risk associated with the provision of infrastructure to the council, and if after the services were installed the development was not completed the council and its community would have to carry the debt incurred. In a system based on private developers operating in a market economy with the objective of making a profit the transfer of private risk to the community in such a way would be unacceptable. (Waimakariri District Council, *Using land for housing*, sub. DR108, p. 10)

Yet, for given capital expenditure on infrastructure to connect a new subdivision, it should make little difference to the beneficiaries – the new residents of the subdivision - whether that infrastructure is funded through development contributions or targeted rates.

- **Funding from development contributions:** The developer will recoup the cost of the contributions through higher selling prices to the new residents. In turn, the residents will require higher mortgages, and bear higher ongoing costs in interest and mortgage repayments.
- **Funding from a targeted rate:** The residents will pay less for their properties and have lower mortgages, but will face ongoing regular payments in the form of the targeted rate.

In the first case the debt is on the balance sheets of residents, and in second on the balance sheet of the council, but both debts are ultimately serviced by the new residents. In this respect, the outcome is much the same. However, the difference may be important if councils are more debt-constrained than residents (section 11.6) or less well positioned to manage the risks of unexpectedly low demand than developers (as pointed out above by Waimakariri District Council).

Development contributions (and developer agreements) in a future planning system

It is fair and efficient that developers should meet the costs of infrastructure required for a development to proceed. It is fair because the beneficiaries pay (indirectly) and it is efficient because the developers face the marginal cost of servicing the development with infrastructure. Locations that are more expensive to service would require higher contributions than less expensive locations so as to encourage developers to make efficient location decisions. Accordingly, the Commission agrees with the Oliver report that the developer should make contributions to cover “those council costs [that are] most directly related to the development” (Oliver, 2016). Development contributions can also help to increase the existing community’s acceptance of growth (NZPC, 2015a, p. 216).

The sorts of infrastructure suitably funded by development contributions in a future planning system include (but are not limited to) the following:

- connecting a new subdivision from a subdivision boundary to existing trunk networks for water, wastewater, stormwater and transport; and
- community facilities that exclusively serve a subdivision such as a park, reserve, or community hall.

This use of development contributions is similar to current arrangements. Yet, under current arrangements difficulties and tensions can arise between councils and developers. The Commission examined these in its *Housing affordability* and *Using land for housing* reports. They included complexity and lack of transparency in the basis for charging development contributions, overcharging and “double dipping”. In relation to the last of these, the Property Council alleged cases where councils collected revenue for depreciation of existing assets (through either rates or user charges) and then charged the replacement cost as growth-related expenditure. In its submission to the current inquiry, the Property Council argued:

Property Council's experience with councils' calculation of development contributions is that while most calculate development contributions well, a few do not.... Property Council's analysis has found that for individual developments and over longer timeframes, the NPV model results in significant over-recovery because of the poor assumptions made. In this instance, growth is overpaying for growth. (sub. DR118, p. 14)

In its *Using land for housing* report, the Commission (NZPC, 2015a, Chapter 9) noted the scope for improvements by councils in the following areas:

- charging development contributions that reflect the varying and actual costs of infrastructure across different locations;
- avoiding undercharging and passing costs to existing residents through general rates; and
- instigating discussions with developers about proposed development contributions before the contributions are charged. This approach is used by some councils and enables both sides to clarify how the contributions have been calculated and voice any differences of opinion.

The Commission also endorsed the set of development contribution principles introduced in a 2014 amendment to the LGA: “Application of these principles should go a long way toward ensuring that councils' approach to development contributions encourages efficient locational decisions” (NZPC, 2015a, p. 218 and Box 9.3).

The same 2014 amendment to the LGA also introduced a process that enables development contributions to be challenged if considered excessive. Making it easier for developers and others to do this is an important check on the monopoly power of councils in setting development contributions. Such a process also strengthens the incentives on councils to follow good practice when they set and implement the charges.

All these improvements should be part of a future planning system.

The Commission also recommends greater flexibility and openness by councils to proposals from developers to provide directly the infrastructure normally funded by development contributions. Agreement to such proposals would be in the form of developer agreements rather than development contributions.

R11.3

Development contributions (and developer agreements) should be part of a future planning system as an important means to fund council infrastructure needed for new development to go ahead, and which is mostly for the use of those benefiting from the development. In setting and implementing development contributions, councils should:

- be open and transparent;
- reflect the actual cost of the infrastructure in a particular location and avoid over and undercharging;
- follow the development contribution principles set out in section 197AB of the LGA;
- have processes that allow developers and others to challenge development contributions if considered excessive; and
- maintain an open dialogue with the developer community.

Targeted rates in a future planning system

Under the Commission’s recommended decision framework for funding infrastructure, councils should use targeted rates for three main purposes.

- Councils should use targeted rates as an alternative to development contributions for infrastructure that serves a new development, where developers and residents prefer to spread the upfront cost over time rather than pay it upfront, and where the council is able to extend its debt to enable this.
- Councils should use targeted rates to fund broader community infrastructure that benefits a wider group of ratepayers than those within a new development. Development contributions would not be appropriate in cases such as this because they target only developers (and the customers of developers). This case also assumes that user charges to recover full costs would be either not practical or not efficient.
- Councils should use targeted rates to form part of an efficient scheme of non-linear pricing for infrastructure services. All service consumers could pay the targeted rate in addition to the unit charges they face (based on marginal cost). The rate could proxy the uniform daily charges used by private utility operators and help councils to recover full costs from users.

Many councils make good use of targeted rates – particularly for the second purpose. A few of the examples described in the Commission’s *Using land for housing* report (NZPC, 2015a, pp. 220–221) are:

- construction of road access (Riverhead Drive, Auckland) to those properties accessible only by boat;
- properties in a number of Tauranga subdivisions (that have benefited from wider roads, more numerous gardens, reserves, and more streetlights);
- properties that are near new cycleway projects in Christchurch; and
- properties connected to the Governors Bay water and sewerage schemes (where ratepayers could elect to pay as a lump sum or over time).

Targeting rates towards those ratepayers who benefit from an investment is a fair way of allocating this burden. Targeted rates can be used “where a council decides that the cost of a service or function should be met by a particular group of ratepayers (possibly even all ratepayers) on a basis different from that of its general rate” (Local Government Rates Inquiry, 2007, p. 44). They can be applied to a whole council area or to specified localities. Ensuring that those benefiting from the additional infrastructure bear the financial cost also reduces the burden that infrastructure expenses place on general rates. This overcomes some of the political-economy barriers to growth that councils face.

As mentioned, targeted rates can be an effective way to recover from beneficiaries the costs neither practically nor efficiently recoverable through user charges. For example, people who never use a community facility may benefit from it. Retailers might benefit from a community centre or library that attracts people to their area, even if the retailer never uses the facility.

In a future planning system, councils should continue to use targeted rates for all these reasons, and make more use of them when that use is indicated by the decision framework for funding infrastructure.

R11.4

Councils should continue to use targeted rates in a future planning system as a way to recover the costs of broader community infrastructure from the beneficiaries, to the extent it is neither practical nor efficient to do so from user charges. Councils should also be open to the use of targeted rates as a means of non-linear pricing of infrastructure services, and as an alternative or complement to development contributions to recover the costs of infrastructure specific to a new development.

The Commission favours councils having access to an expanded funding toolkit – especially for those in high-growth cities responsible for delivering much needed infrastructure. Yet local authorities should continue to exercise strong discipline across all their spending to ensure value for money for their communities.

The unimproved value of land is a more efficient and fair rating base than capital value

Even after all other sources of revenue (such as user charges, development contributions and grants) are counted, councils still need to raise around half of their total revenue from rates (Figure 5.7). This subsection compares the efficiency and fairness of land value and capital value as alternative rating bases and explains why the Commission recommends the former.

The base a council uses to set its rates matters for residents and businesses. While the choice of base will not change the total amount of rates revenue a council receives, it can affect the amount an individual landowner pays in rates. This can then affect how owners decide to use, or invest in, their properties. Section 11.3 noted that an efficient rating system would distort these decisions as little as possible. The rates an owner contributes should also be fair by reflecting either the benefits received from council services, ability to pay, or a balance between these.

New Zealand is unusual in giving local authorities the ability to choose the basis on which they levy general rates. They can choose the capital value, land value (or unimproved value) or annual value of a property.⁹⁵

Over recent decades, an increasing number of local authorities have shifted from a land value rating system to a rating system based on capital values. In 1985, about 85% of councils were using land value and about 10% were using capital value. By 2006/7, as noted in the 2007 *Report of the Local Government Rates Inquiry* (the Shand Report) only about 42% were using land value and about 52% were using capital value. Currently, Auckland, Wellington, Christchurch, Queenstown, Hamilton and Tauranga councils all rely on capital value rating.

Councils often cite the findings from the Shand Report to justify moving towards capital value rating. The report recommended promoting a common system of valuation for rating purposes, and strongly favoured a capital value system. It considered this system better reflected the residents' ability to pay. Other arguments often made in favour of using capital values include: capital valuations are more reliable than land valuations; and capital values best fit the benefits received from council services (NZPC, 2015a).

Yet after examining these claims in its *Using land for housing* report, the Commission (NZPC, 2015a) concluded that the arguments made in favour of capital value rating are weak at best.

⁹⁵ The annual value of a property is the greater of either the estimated gross yearly rental less 20% (or 10% if no buildings are on the land) or 5% of the property's capital value.

- *Ability to pay* – both land value and capital value are strongly associated with income, and some national evidence shows that the relationship between land values and income is stronger. This is because high-income people tend to live in areas where land prices are high.
- *Accuracy of valuations* – the evidence that land valuations are less reliable than capital valuations is inconclusive. Further, the distributional effects of a systematic incorrect valuation of land on the rating burden may be greater under a capital value rating system than a land value rating system.
- *Better fit with benefits received* – councils use targeted rates and user charges to fund a range of council services, while the benefit of other services is capitalised into the value of land. So, general rates levied on land values are a better fit for benefits received by the ratepayer rates levied on capital values.

Further, the Commission explained the well-established economic result that a rating system based on the unimproved, or land value, of a property is more efficient than one based on capital values because it does not discourage owners from putting their land to its highest-value use. By contrast, rating based on capital value is a tax on improving land, and will discourage development. LGNZ (2015b) noted:

When a pure land tax is introduced, the owners of the land subject to a land tax suffer an immediate loss in the value of the land and hence their wealth and this would likely impact on their future decisions, but the land would remain in its best use.

Rates levied on improved values do not share the economic efficiency characteristics of a pure land tax, and may discourage investment in improvements and thus come with an efficiency cost. (p. 68)

Oliver (2016) emphasised the efficiency benefits from using land value rating in the context of investing in infrastructure, and the incentive for landowners to hold on to unimproved land rather than develop it under a capital value system.

In all cases as a way of funding infrastructure investment, a base of the unimproved value of land ... is the only base that can be seen as matching the benefits of urban development with its costs. This is also in economic literature the most efficient tax base. Taxing capital value on the other hand is not so closely related to the benefits flowing from council infrastructure investment and penalises investment in improvements. As a way of funding urban growth, rating based on improved value has major drawbacks in that it encourages land banking and other activities detrimental to efficient urban development. (p. 2)

While a shift to land value rating would result in one-off administrative costs for some councils, the Commission believes that, in a future planning system, local authorities should levy their general rates based on the unimproved value of land. Where this would involve a change from a different base, the reform should provide for a reasonable transition period.

F11.5

Many councils have adopted rating systems based on capital value, owing to a common belief that capital value rating is best practice. Yet the arguments in favour of this approach are weak at best. Basing rates on capital values acts as a tax on improving land: this discourages development. National evidence indicates that capital value may be less fair in terms of ability to pay. A shift towards land-value rating would produce more efficient and fair outcomes in urban areas.

R11.5

In a future planning system, councils should levy property rates on the unimproved value of land. Where this would involve a change from a different current base, the reform should provide for a reasonable transition period.

Value capture as a funding tool in a future planning system

Urban infrastructure delivers a range of benefits to residents, including better connection to employment opportunities, reduced congestion, improved amenities, and basic services such as drinking water and

electricity. It is therefore not surprising that these benefits are usually reflected in rising land and property values (Box 11.4).

Box 11.4 **The impact of urban rail upgrades on property prices**

Auckland's passenger rail network was upgraded over the 2000s, in an effort to improve the mobility of residents through the city. Grimes and Young (2013) examined the effect of upgrades to the Western Line, which included double tracking of the rail line from the central business district (CBD) to the western outskirts of Auckland's urban area, station redevelopment "and related urban renewal projects" (p. 1). They compared developments near the Western Line stations in Waitakere City with those elsewhere in Waitakere City, to estimate the impact of proximity to train stations before and after the announcement of the network upgrades.

Grimes and Young found the houses adjacent to a Western Line rail station did rise in price following the announcement of the upgrades in 2005, albeit with some variations:

Houses within 8 km of a station rose in value upon the announcement, but with a non-linear distance effect, reflecting positive amenity value from improved transport access balanced against negative amenity value from being located very near to a rail station. For the outer two station groups, this meant that houses close to a station did not increase in value quite as much as houses 2 km away. For houses close to New Lynn station, the positive amenity value associated with town centre redevelopment outweighed any such negative amenity effect so that house price increases were most pronounced close to the station. (2013, p. 5)

In total, Grimes and Young estimated the total increase in land values resulting from the rail updates at \$667 million; a sum that broadly matched the \$620 million cost of the rail developments.

Increases in land values generated by public action such as rezoning or investments in infrastructure directly benefit private landowners. In its previous inquiry into *Using land for housing*, the Commission (2015) investigated mechanisms that capture some of these private benefits. The Commission concluded that "value capture" tools would enable councils to generate funding for infrastructure projects that would otherwise be difficult to initiate, while allocating the financial burden more fairly towards those who enjoy a direct windfall benefit.

In recent years, value capture has become more widely accepted as a way of funding infrastructure. Recently, the Australian Government (2016) published a discussion paper about the use of value capture to help fund land transport infrastructure. The paper supports the wider use of value capture, and recommends the Australian Government set up a national methodology and guidelines to help state and local governments and businesses. A number of cities around the world use value capture to help fund large-scale infrastructure projects (Box 11.5). Value capture mechanisms show considerable variation.

Box 11.5 **International examples of value capture**

London Crossrail

London's Crossrail railway line is currently under construction. The Greater London Authority (GLA) is raising £5.2 billion out of the estimated £14.8 billion project cost from value-capture sources. The primary source is a Business Rates Supplement – a 2% levy on non-domestic properties with a rateable value of over £55 000. For example, the owner of a property valued at £100 000 would be obliged to pay a yearly contribution of £2 000 to reflect the project's boost to the local economy. Legislation was introduced in 2009 to give the GLA this levying power.

Parramatta Light Rail

The NSW government plan to fund a new light rail network in Parramatta, in part, by levying a Special Infrastructure Contribution (SIC). The new network is expected to “activate a priority growth area” and “kick-start revitalisation and jobs growth along a 22-kilometre corridor” (Baird, 2015). The SIC is expected to be set at around \$200 per square metre of gross floor area of new residential developments within the Greater Parramatta to Olympic Peninsula priority growth area. Any revenue received from the SIC will be hypothecated to recover the costs of the project and associated infrastructure including new schools and road upgrades. Consultation will be undertaken with industry before the SIC is finalised.

Gold Coast Light Rail

To help cover the estimated \$1.3 billion project cost of Gold Coast’s light rail network, a broad based transport improvement levy (TIL) was introduced in 2012. The TIL required each ratepayer in the Gold Coast City to contribute \$111 a year. This levy has been raised recently to \$117 a year. There is no scheduled date when the TIL will discontinue. SGS Economics and Planning (2015) estimated that the TIL could raise up to \$28.75 million a year and noted that the project has been widely hailed.

It is reasonable that a portion of the windfall gains of landowners (in good part created by councils’ infrastructure spending) should be retained for the benefit of the community. Currently, councils can use targeted rates to indirectly capture this benefit. These are usually levied through a fixed charge or on a proportion of a property’s value. Yet, neither of these approaches strongly reflect the windfall gains that a private owner receives. A more effective way of capturing the windfall gains would be to tax landowners directly – through a tax on the uplift in land values.

Several submitters on the Commission’s draft report, including Auckland Council (sub. DR86), New Zealand Planning Institute – Auckland Branch (sub. DR88) and Goodman New Zealand (sub. DR102), supported the draft recommendation to allow councils to capture windfall gains by imposing a targeted rates on increases in land value. Current legislation does not allow this (section 11.5).

In his analysis of revenue funding options for local councils, Oliver (2016) emphasised that there is considerable scope for value capture to be used in New Zealand to help fund the infrastructure needed to support growth. His report concluded that value capture tools could be used to help recover the costs of infrastructure investments where the benefits are widely and unevenly dispersed throughout a city or town.

F11.6

Value capture is a fair way to recover a portion of infrastructure costs because it targets the windfall gains of property owners that arise from the infrastructure. Tools that capture these gains are used overseas to help fund large infrastructure projects.

Offshore examples illustrate a range of ways to design a value-capture tool. The London Crossrail project levies property owners within a designated area based on the value of their property. Property owners are charged different rates depending on the distance between the property and the infrastructure. Other arrangements are blunter, such as the Gold Coast Light Rail project that levies a fixed charge on all property owners across a wider region or city. In its policy paper discussing the use of value capture, Infrastructure Victoria (2016b) concluded that “value capture funding may be more acceptable to the community if mechanisms are simple and broadly applied to align funding with benefits received” (p. 15).

The Commission continues to see merit in implementing value capture in New Zealand by allowing councils to levy a targeted rate on the uplift in land values. A council would identify an area that would benefit from an infrastructure investment. Only those properties (within the designated area) that increase in value sufficiently greater than the general property inflation in the wider region would be subject to the rate. The council would choose a threshold of increase in value beyond which the rate would apply (eg, gains in value 20% above the measure of general property inflation).

Box 11.6 explains how this approach could be implemented.

Box 11.6 Potential method for applying value capture

The following simple example illustrates how value capture could be applied. Suppose the unimproved value of a property benefitting from new infrastructure investment increases from \$100 000 to \$250 000 (ie, 150%) over five years. Further, assume that:

- over the same period, land values across the wider region increased on average by 100%;
- increases in land values greater than 20% above this average increase are rateable (so, in this case, increases in value greater than 120% are rateable); and
- the targeted rate on the uplift in land value is 10%, and is payable over a five-year period.

Under these circumstances, the property would be rated on the increase in value above the 120% threshold: $\$250\,000 - \$220\,000 = \$30\,000$. So the landowner would be required to pay 10% of uplift: \$3 000 over five years, or \$600 a year. The payments would be due over the five years *after* the value increase.

Another property that increased in value from \$100 000 to \$180 000 over the same measurement period would not be subject to the rate since the gain lies below the 120% threshold.

Source: Oliver, 2016.

Targeting above-average increases in land values would be efficient. Some submitters to the draft report argued that it can be difficult to determine the extent that an increase in a property's value is caused by the provision of new infrastructure. Factors other than public action and expenditure (such as the development of private amenities) can also influence neighbouring properties. But the key point for tax efficiency is that any gain in the unimproved value of land (or reduction in it owing to a rate levied on it) is unaffected by a landowner's actions, and therefore would not distort their incentives to make improvements or put their land to its highest value use in other ways.

The tool would also be fair because it would target only those who have made substantial windfall gains in the value of their property where those gains have substantially arisen from infrastructure investments by others. Instances could arise where landowners have substantial increases in land values but lack funds/earnings to pay the targeted rate. However, the general rating system already deals with this situation (eg, through rates rebates for landowners with low incomes). Similar arrangements could be put in place.

The Commission considers that such a tool should be available to councils in a future planning system. Allowing councils to charge targeted rates based on land value increases would require a change to current legislation, and the development of robust processes within councils for estimating changes in land values. Councils can refer to Oliver (2016) for more detail and guidance about how these processes might work.

One potential use of the revenue raised from this proposed form of value capture would be to fund the securing of land corridors and public open spaces needed for future city growth. Councils too often neglect this important planning task (Chapter 10).

R11.6

A future planning system should include a value-capture tool for councils' optional use to help fund infrastructure projects that benefit broad parts or the whole of a city. One way of applying value capture that would be feasible, efficient and fair is to enable councils to levy targeted rates on changes in land values. This would require a change in legislation.

Should central government contribute to funding local infrastructure?

Where there are wider national benefits from providing local infrastructure, it may be appropriate for central government to contribute to its cost. Investments in local transport infrastructure tend to fit into this category. The Government contributes substantially to the costs of local transport assets and services (eg, public transport, local road improvements and extensions) (Chapter 5). Reasons for this are that it is in the national interest for people and goods to move freely through and to cities (Chapter 7) and because local roads are part of the national transport network that is managed and funded by the NZTA. It is also efficient to have fuel taxes and other transport levies are collected through a single national system.

As Chapter 10 discusses, growth pressures in cities often demand additional large investments in expensive city-shaping infrastructure that have both national and local benefits. Such cases may also warrant central government making a contribution. The cost-sharing agreement between central government and Auckland Council that came out of the ATAP is an example. Central government has agreed that it will fund 50% of the cost of Auckland's City Rail Link, estimated to be between \$2.8 billion and \$3.4 billion. Collaborative arrangements such as ATAP can help to assure central government that its investments in infrastructure deliver value for money, while providing councils with a valuable source of funding (Chapter 10).

As noted in Chapter 10, the lack of responsive provision of local authority infrastructure is currently impeding the supply of affordable housing and other desirable urban capacity in the face of growth pressures. This is having serious negative national spillover effects. Yet the Commission considers that meeting these infrastructure needs should remain the primary responsibility of local government. With existing and new funding tools, and other recommendations that the Commission has made for a future planning system, councils should be in a much better position to respond to growth pressures and recover infrastructure costs.

The Government recently announced a \$1 billion contestable fund to help high-growth councils fast-track substantial new infrastructure investment to enable new housing. Funding initiatives such as this may be needed in exceptional circumstances, such as if a high-growth council is hitting borrowing constraints that limit its ability to finance infrastructure investment.

F11.7

Where wider national benefits arise from investment in local infrastructure, a case exists for central government to contribute to its cost.

Funding challenges can also arise from lack of growth rather than growth. As noted in Chapter 4 and earlier in this chapter, a significant number of New Zealand towns face population decline. In some cases people numbers and incomes will be too low realistically to fund the replacement of ageing assets such as water and wastewater treatment plants and distribution networks. Rangitikei District Council observed that

Council's preference would be to retain reticulated water/wastewater services in small communities. However, the tools for growing communities are not obviously applicable to declining ones. Some Government funding seems the only realistic option to enable reticulated systems to be affordable in declining communities. Community desire to retain waste water services was recently demonstrated by the Mangaweka Community's response, when they received notice that Council was considering alternative options for waste water supply (individual septic systems). Alternatively, the Government could lead a national approach to developing standards and affordable systems for safe potable water and disposal of wastewater in smaller communities with declining populations. (sub. DR71, p. 3)

Given that the factors driving decline (eg, urbanisation trends, structural labour market shifts) are usually very difficult to counter (Chapter 4), central government should consider providing funding assistance and advice to councils in areas with declining populations to help meet infrastructure needs. Some form of infrastructure fund that assists these councils as they renew or replace infrastructure assets, conditional on sensible adaptation to demographic change, may be desirable. In 2005, the Government introduced a fund to help small centres struggling to meet higher drinking-water standards. The fund totalled \$137 million over 10 years. Grants to councils and other water suppliers came with technical advice on upgrading water systems.

F11.8

The factors driving population decline in smaller centres are often very difficult to counter and are likely to result in funding shortfalls that affect a council's ability to provide basic infrastructure services.

R11.7

Central government should consider providing funding assistance and advice to councils in areas with declining populations to help meet infrastructure needs. This should be conditional on councils taking sensible steps to adapt to demographic change.

Are more far-reaching changes needed?

A number of commentators argue that more far-reaching changes to the funding system are needed to improve local authorities' incentives to welcome and accommodate growth. Two suggested approaches are to:

- allow councils to set taxes based on local income and expenditure; and
- introduce revenue sharing between central and local government where councils receive a portion of existing national revenues from taxes such as goods and services tax (GST) or income tax.

The Commission has considered the merits of these suggestions (see below).

Another suggestion is to enable councils to auction development rights in particular circumstances. A councils would set a specified development limit (eg, to construct a certain number of buildings up to a certain height limit and floor-area) and then sell the right to develop to the highest bidders. The Commission assesses the merits of this approach in Chapter 12.

Local income and expenditure taxes

Local income and expenditure taxes are sometimes used internationally as a revenue source for local governments. For example, in the United States about 6.9% of local government revenue comes from local sales taxes and 1.9% from individual income taxes (Urban-Brookings Tax Policy Center, n.d), while about 70% of local government revenue in Sweden comes from personal income taxes.

Providing councils with a new tax base (such as local income and expenditure) that increases with local economic activity would ensure that they benefit more directly from growth. For example, councils would receive greater revenues as a result of the spending and income of an increased population as well as from the spending and income earned from investing in the infrastructure to serve the larger population. The relationship between rates revenue and local growth is not as automatic (NZPC, 2015a). As LGNZ (2015b) notes,

[a]nother issue for using property tax revenues to fund the cost of infrastructure expansion is that such taxes respond less quickly to changes in the economy than taxes on income or sales, because economic growth is not capitalised fully into real estate investment and land ownership. (p. 55)

Yet linking council revenue sources more closely with economic activity would risk more volatility in council finances. Wildasin (2009) notes that

it is noteworthy that German municipalities depend heavily on the taxation of local business activity as a principal component of own-source revenues, while deriving very modest amounts of revenues from taxes on land, another permissible source of municipal tax revenue. The revenues of these municipalities are consequently comparatively volatile, since the business tax base is more highly variable than land values. (p. 17)

If council revenue was partly tied to the state of the local economy, declining councils would face an even greater funding shortfall than they currently do. The younger, more productive residents are often the first to leave declining cities and towns. This leads to the contraction of their local economy. While a local income or expenditure tax could provide these councils with greater incentives to adopt innovative policies to reverse

economic and population decline, the structural drivers of population decline are typically very difficult to overcome (Chapter 4).

Local income or expenditure taxes would also be costly to implement. As LGNZ (2015b, p. 68) has noted,

[the] administrative economies of scale of administering our income tax are large. A true local income tax – where the tax was determined and collected locally – would require local authorities to replicate IRD resources and hence would be prohibitively expensive.

Adding a new tax would increase complexity for individuals and firms and reduce the overall efficiency of the tax system. Two strengths of New Zealand's tax system are its simplicity and broad bases. As explained above, the unimproved value of land is a highly efficient tax base because it does not distort an owner's decision about how to use their property. By contrast, taxing income or expenditure distorts incentives to work, invest, and consume.

Revenue sharing between central and local government

Some form of revenue-sharing arrangement between central and local government would be a more practical way to generate additional revenue for local government. For example, central government could share a portion of GST or income tax revenue with local authorities, based on where the spending or income takes place or according to an allocation formula incorporating various characteristics of areas.

Internationally, these arrangements are common. They are typically used to resolve fiscal "imbalances" between different levels of government rather than to improve local government incentives. In a number of countries, local governments are responsible for funding services such as education, health and social services, where there is wider national interest.

Implementing revenue sharing in New Zealand would have practical challenges such as attributing income or expenditure to a particular territorial authority or regional council. In his report evaluating local government funding tools, Oliver (2016) highlighted that

(a) local authority income tax could be implemented as a surcharge on the existing income tax with the surcharge set by each region. However this form of tax would require complex rules to allocate the revenue to each local authority – an internal web equivalent to our international tax treaties... These rules would need to decide, for instance, where to allocate the tax on a company with a Christchurch Head Office, owned by shareholders in Dunedin, manufacturing in Wellington and selling in Auckland.

Oliver (2016) also points out that sharing GST revenue with local authorities would disadvantage areas (such as Taranaki and Southland) where a high proportion of economic activity consists of exports of goods and services. Exports are not liable for GST.

One way to avoid these complexities would be to allocate a portion of national tax revenue to local authorities, based on an easy-to-measure characteristic of each jurisdiction such as its population, or fuel sold within its boundaries. Another recent suggestion that falls in this category is for each local authority to receive a portion of the GST on construction activity within its boundaries (Seymour, 2017).

Section conclusion

The Commission's view is that the existing funding tools it has endorsed and the new ones it has recommended are sufficient to fully recover the costs of infrastructure, providing councils with adequate means and incentive to support growth.

The addition of either a new a local income or sales tax, or a revenue-sharing arrangement between central and local government would be complex and difficult to implement. Such tools would also risk introducing undesirable volatility into council budgeting, and make it even more difficult for councils in cities or regions with declining populations to maintain existing services.

Therefore, these tools should not be a major part of a future planning system. Among narrower forms of sales tax, the Commission sees local fuel taxes, and tourist-related (visitor) levies and a portion of GST on new buildings in the area as the most promising options. Their main advantages are that they are easier to attribute to a local authority area, they address a specific issue or externality, they would be relatively easy to administer, and would have relatively low efficiency costs.

F11.9

Local income and expenditure taxes are sometimes used in other countries as a revenue source for local governments. However, implementing such tools in New Zealand would be complex and difficult. Such taxes would also make it more difficult for councils in towns or regions with declining populations to maintain existing services.

F11.10

Internationally, many central governments share a portion of their tax revenue with local governments. This revenue typically helps to fund expensive services such as health, education and social welfare. Yet local governments do not provide such services in New Zealand. Further, allocating tax revenue to particular councils is a complex task.

R11.8

Broad taxes based on local income and expenditure or revenue sharing between central and local government should not be part of a future planning system because they are complex, less efficient than rates based on land values, and should not be needed when councils use the full range of funding tools recommended by the Commission.

11.6 Financing infrastructure in a future planning system

Solutions to financing barriers

As noted in section 11.4, self-imposed or externally-set debt limits are preventing high-growth councils from investing in much needed infrastructure. Such limits have high social costs – the large foregone net benefits from preventing highly-valued development (well in excess of its opportunity costs) from going ahead.

Further, capital is not in short supply. Particularly now, with the world awash with cheap capital looking for secure and reasonable returns, this is a large system failure. It is damaging the wellbeing of many thousands of New Zealanders because, for example, housing is unaffordable for them.

The key constraint in Auckland (where the problem exists most acutely) comes from the threat of the credit downgrade that would be triggered by its debt-to-revenue ratio going over 270%. Possible solutions include to:

- generate additional revenue that in turn will allow more debt without breaching the 270% ratio;
- find sources of finance that will not require Auckland Council's debt to rise; and
- relax the debt limits and/or regulations.

The following subsections examine each of these possibilities with a view to discovering the best ways forward.

Additional revenue

To finance more infrastructure through borrowing without breaching a strict debt-to-revenue ratio, Auckland Council could generate more revenue. The most obvious source would be higher rates and/or user charges. As previously discussed, higher user charges could raise both efficiency and revenue. Otherwise, the higher revenue would come at an efficiency cost. This approach would also run the risk of political opposition since it would impose the cost of growth on current residents (given that investment needs to precede the revenue streams arising from new residents and new businesses). For example, Auckland Mayor Phil Goff's stated intention is to limit rate rises to no greater than 2.5% a year will not allow Auckland to solve its problem by this means.

It is worth noting that S&P's rules for what counts as revenue do not include development contributions since these are capital in nature and dedicated to a particular purpose. However, operating grants or revenue from central government would count.

Other sources of finance

An outside source of finance would involve putting the debt on someone else's balance sheet. This is easier said than done. For example, public-private partnerships (PPPs) can introduce private sources of finance, but the obligation on the council to pay back the PPP entity by some means over time counts as council debt.

The Government's \$1 billion Housing Infrastructure Fund may seem a lifeline. Yet, if as stated, distributions to councils are in the form of 10-year, interest-free loans, the obligation to repay will count as council debt and could therefore still trigger a downgrade for Auckland Council. This leaves only relatively clean forms of central government capital grants – such as the contributions the Government is making under ATAP to transport investment in Auckland – as solutions from this source.

A way to allow non-council capital to take the strain may be to allow and encourage private developers to finance large new subdivisions, service them with infrastructure, and have the ability to recoup costs from new residents. This would put the additional debt on the balance sheets of households purchasing new properties through their mortgages. This option is further explored in Chapter 12. Desirably, the higher upfront costs of infrastructure for homeowners could be offset with lower land prices through making markets for urban land more competitive.

Taking this idea a step further, the debt needed to pay for the infrastructure investment of a new large subdivision might be assumed by a body-corporate type entity with the power to service and repay the loan over time through levies on the homeowners. Yet this too could be problematic since the entity might fail, which would put a council under political and moral pressure to step in. The risk would therefore sit as a contingent liability on the council's balance sheet. Only a measure as strong as a law forbidding the council assuming any liability for the entity whatever its degree of distress would avoid this.

Another source of finance for infrastructure investment could be generated internally by Auckland Council selling existing assets. For example, it could sell a portion of its ownership of Ports of Auckland or Auckland International Airport. A downside of this is that it would reduce the Council's revenue from these assets (in the form of dividend income) and adversely impact its current debt-to-revenue ratio.

Relax the debt limits and/or regulations

Whether it would make sense to solve the problem by relaxing debt limits and regulations on councils depends on whether (a) that would be a good choice from a prudential perspective and (b) the body setting the limit could be persuaded to do so. The two conditions are connected in that they both concern the risks of higher borrowing, and the creditworthiness of the borrower.

Local governments in New Zealand are extremely creditworthy. This is based on the exceptional security of their main revenue source – rates – the collection of which is underpinned by a very strong, ultimate power to foreclose on the real property of residents in the event of non-payment (Moody's Investors Service, 2012).

Coupling this creditworthiness with Auckland's rapid growth, its urgent need for infrastructure and high likelihood of strong future revenue from that growth adds up to a strong case for permitting higher debt. It seems to the Commission that the Government should carefully consider supporting higher limits, especially if Auckland Council commits to fiscal restraint in other areas.

Yet governments cannot order credit-rating agencies to change their criteria and rating judgements. Ideally, agencies are independent and work for and serve the interests of investors. Yet they are generally willing to listen to a case and take on board information. Stressing the powers that make councils very creditworthy, as well as the unique features of Auckland (most notably its rapid growth rate) might succeed in persuading an agency to allow more debt and either not downgrade Auckland, or at least reassure investors that a downgrade is not a signal to be unduly alarmed about. Rather it should be seen as a slightly higher return that is appropriate for a slightly higher level of risk.

Yet another solution would be reassurance to investors by means of some form of central-government guarantee of the additional debt. While such guarantees are generally undesirable, it might well in Auckland's case be the least-worst solution to the serious problem of the Council being unable to borrow enough to finance essential infrastructure to keep pace with demand for development.

F11.11

Barriers to high-growth councils taking on more debt are an important explanation of shortfalls in infrastructure investment that have high net social returns. The main barrier in Auckland's case is the threat of a credit-rating downgrade. Other potential barriers are opposition to higher debt from existing ratepayers, and overly conservative prudential debt limits and Local Government Funding Authority rules.

R11.9

Councils such as Auckland that face a binding constraint on greater investment in infrastructure with high net social returns should tackle this serious problem by some combination of:

- raising more revenue so it can borrow more within prescribed debt-to-revenue limits;
- financing more infrastructure on the balance sheets of others, such as private homeowners and body-corporate entities in large new subdivisions; and
- working with central government and finance experts to make the case to credit-rating agencies to impose less stringent limits in return for assurances on creditworthiness and fiscal prudence.

Central government should consider capital grants or some form of debt guarantee, if that proves necessary to enable councils such as Auckland Council to invest in sufficient infrastructure for growth.

11.7 Procurement of infrastructure

The recommendations earlier in this chapter aim to strengthen the incentives and capacity of councils to provide infrastructure, when it is needed to facilitate new developments. If councils are to expand infrastructure efficiently, their procurement processes need to be well planned, fit for purpose, and secure value for money (New Zealand Government, n.d.)

What is procurement?

Procurement involves acquiring goods or services, usually from an external source. The Government procurement website identifies three broad stages in procurement: planning, sourcing and managing. The website provides extensive resources including a toolkit, which provides information on procurement policy, including rules, guides, tools and templates covering each of the stages (New Zealand Government, n.d.).

This section focuses on two aspects of procurement, which would most likely be considered during planning.

First is the choice of delivery model that governs the relationship between the commissioning agency and the provider(s). This choice matters.

Selecting a delivery model that is inappropriate for the project in question has the potential to increase project risk and negatively impact the achievement of a value-for-money outcome. A thorough procurement options analysis will substantially reduce the risk of this occurring. (APCC, 2014, p. 18)

Second is the choice of entity that commissions infrastructure and, in particular, whether the commissioned work is undertaken within a council, by a group of councils, or by a joint central government/council body. The appropriate choice may depend on the scale of the infrastructure to be commissioned and the type of delivery model.

What is a delivery model?

A delivery model is an "approach to the delivery of a construction works or services project" (APCC, 2014, p. 8; Box 11.7). While sector-wide data is not available for New Zealand, councils likely use "construct" and

“design and construct” delivery models for smaller infrastructure projects. Auckland Council, which has the largest infrastructure budget in New Zealand, has

historically procured major capital expenditure projects using traditional procurement approaches centred on construction based models, with elements of risk transfer to the private sector in terms of design and construction but generally with no ongoing obligations in terms of asset maintenance and operation. (Hodges, Proctor & King, 2013, p. 1)

In Australia councils and government agencies use traditional models across the civil (road and bridge) and non-residential building sectors. Australian councils and government agencies also occasionally use “managing-contractor”, “construction management” and “direct managed” models. They have used “alliance contracting”, “early contractor involvement” and “public-private partnership” (PPP) models for major (ie, high-risk and/or high-value) projects (APCC, 2014).

This section discusses two delivery models not regularly used by councils: alliance contracts and PPPs. It considers why this is so and whether the social costs of sluggish infrastructure investment would be lower if they were used more.

Box 11.7 **Types of delivery model**

The types of delivery model vary. The more important types are noted below.

- *Construct*: Under this “traditional” delivery model, the project owner secures the project design and calls for competitive bids from contractors to construct in line with that design. Following construction, the project owner is responsible for maintaining and/or operating the asset.
- *Design and construct and variants*: The project owner selects a single contractor to deliver both the design services and construction. Following construction, the project owner usually assumes responsibility for maintenance and operation. Under *design, construct and maintain* and *design, construct and operate* variants, the contractor takes responsibility for the maintenance or operation.
- *Managed (eg, managing contractor, construction management)*: The project owner appoints a *managing contractor* to provide advisory and management services. This includes creating work packages, sourcing and entering into contracts with designers and subcontractors, and coordinating and supervising the work. A managing contractor may directly undertake some of the work for a construction project.
- *Direct managed*: The project owner manages the full project delivery, provides the plant and resources or obtains them from subcontractors, and accepts all the delivery and interface risk.
- *Alliance contracting*: A public sector agency works collaboratively with private sector parties. All participants make unanimous decisions on key issues about project delivery.
- *Early contractor involvement*: A two-stage, relationship-style, delivery model that resembles an *alliance contracting* model during the first stage of the project and a *design and construct* model during the second stage.
- *Public-private partnership*: A long-term contract to deliver a service, where provision of the service requires the construction of a new asset, or enhancement of an existing asset. Private sources finance the asset, while the Crown retains full legal ownership.

Source: APCC, 2014; New Zealand Treasury, 2015c.

Alliance contracts

The NZTA has been using alliance contracts. For instance, it has formed an alliance with five partners to build the MacKays to Peka Peka Expressway north of Wellington, at an estimated cost of \$630 million. The alliance contract allows the partners to work on a number of areas at once, overlap different phases of a project and

gain efficiencies through early constructor involvement. As a result, the alliance can deliver major projects faster, using innovative approaches (NZTA, n.d.).

Under alliance contracting, the government and private participants share risks. The Australian Productivity Commission (APC) argued that alliances may offer value where substantial risk cannot be clearly allocated to one party because risks are difficult to identify and quantify or the price is disputed. However, the overall cost of construction can be uncertain and there is potential to put off rather than deal with risk early (APC, 2008).

The ability under alliance contracting to delay decisions so as to be able to respond to new information at later dates makes sense in a real-options framework (Chapter 10). It will likely pay to wait for further information or developments beyond the control of all partners, and, down the track, decide what is best to do. Conversely, it is likely to be difficult and inefficient to try to anticipate all contingencies in a formal ex ante contract.

Public-private partnerships

PPP refers to a

model in which government contracts with the private sector for new or refurbished infrastructure, with providers designing, building, financing, owning, maintaining and in some cases, operating all or part of the facility over an extended period (usually 25 or 30 years, but sometimes as much as 50 years). (Sturgess, 2012, p. 39)

PPPs take many forms suited to different situations (PPPIRC, n.d.).

Government policy and the advantages of PPPs

The Government established a PPP programme in 2009, when it created a PPP Centre of Expertise within the Treasury. This Centre has published PPP guidance and developed a standardised set of “model terms” for PPP procurement. The Treasury guidelines specify that “[p]rocurring entities that are planning any ‘significant investment’ (including any arrangements with Local Government Authorities seeking Crown funding or support) must evaluate all procurement options, including PPP procurement” (New Zealand Treasury, 2015c, p. 13). The requirement to consider PPPs applies to projects that use Crown funding and so covers only a minority of significant local government infrastructure projects.

According to the Treasury,

[t]he key policy characteristics of the New Zealand PPP model include:

- the specification of service outcomes ...
- the construction of a new infrastructure asset or substantial enhancement of an existing asset ...to facilitate the delivery of the service outcomes
- the delivery of services outcomes by a private sector partner for a defined period (often between 20–30 years)
- the efficient allocation of risk to the party best able to manage that risk
- the separation of ownership (retained by the public sector) and financing (provided by the private sector partner), to provide meaningful risk transfer and management, and
- the application of a payment-for-performance regime to incentivise the delivery of specified service outcomes and penalise non-performance. (New Zealand Treasury, 2015c, p. 3)

The key advantages of PPP procurement include:

- increased focus on the specification and performance of service outcomes;
- integration of asset design and a flow of services;
- a ‘whole-of-life’ perspective that provides greater cost certainty; payment for good performance and abatement for poor performance;
- active management and optimal allocation of risk; and

- wider benefits to New Zealand's infrastructure sector as a result of private sector expertise, experience and innovation, and enhanced procurement discipline (New Zealand Treasury, 2015c, p. 8).

Cost savings are another potential advantage. In Australia, on average, 15% of non-PPP projects over-ran their budgets compared to an average of 1% of their PPP counterparts and, on average, 24% of the non-PPP projects were behind schedule, while on average the PPP projects ran 3% ahead of schedule (Bridger, 2012, p. 56). However, because of a lack of data, the studies demonstrating such benefits do not enable a complete comparison of the efficiency benefits of PPPs over the project life (APC, 2008).

The use of PPPs in New Zealand

The number of PPPs in New Zealand has expanded since the National Infrastructure Unit (NIU) was set up in 2009. Between 2012 and 2014, agencies were planning or had six PPP projects under way, with a total value of \$1.5 billion (Drew, 2014).

For example, a PPP between the NZTA and the Wellington Gateway Partnership will design, construct, finance, operate and maintain the new 27 km Transmission Gully highway for 25 years after the five-year construction period. The NZTA expects that the PPP

will deliver the project at a lower 'whole of life' cost than the public sector could expect to through conventional procurement. The incentives built into the PPP contract will ensure the completed highway will be flatter, wider, and straighter with enhanced safety features making it safer and more resilient to natural disasters and closures. ...The PPP model also encourages the most advanced technology and innovative approaches from overseas to be brought to the project. We can then apply these innovations on other roads right across New Zealand to make travel safer for everyone. ... the PPP will also release flow-on benefits onto the whole New Zealand transport network by introducing new, innovative road safety approaches which can be applied to save more lives in other parts of the country. (NZTA, 2014)

The NZTA entered into a PPP for the Puhoi to Warkworth motorway (NZTA, 2015b). The New Zealand Council for Infrastructure Development (NZCID)⁹⁶ anticipated that construction would get under way "a decade or more faster than if the project had been constrained by traditional funding limitations" (NZCID, 2016b).

The Ministry of Education is engaged in a PPP to construct four schools, with an estimated cost of construction and maintenance above \$200 million, and plans to continue to consider the use of PPPs for projects of sufficient scale (Ministry of Education, n.d). Three of the four schools opened early this year. The Department of Corrections' current Auckland prison PPP has design features intended to create pathways for prisoners' rehabilitation and reintegration (Department of Corrections, 2016).

Auckland Council is currently setting up a PPP for the Auckland Harbour Bridge cycleway, a \$33 million project (Box 11.8). The Vector arena, also involving Auckland Council, and Wellington City Council's "Clear Water" sewage treatment project are other examples of local government PPPs.

Box 11.8 Auckland Harbour Bridge pedestrian and cycleway PPP

In July 2016 Auckland Council agreed to proceed with the \$33 million Auckland SkyPath, with the Finance Committee unanimously agreeing to enter into a PPP with HRL Morrison & Co. Auckland Council hopes the SkyPath will both provide a key missing link in the city, allowing commuters to ride to work and present a popular tourist attraction with views over the harbour and city. The project could be completed as early as 2018.

The partnership terms mean that users will pay a small toll, with profits going to the investment management company for the first 25 years. Auckland Council will underwrite the project to an agreed level (meaning that if toll revenue does not meet this level the council will have to pay out, but if the level is exceeded the council will profit). Under the terms of the PPP agreement, Morrison & Co's Public

⁹⁶ NZCID is now called Infrastructure New Zealand.

Infrastructure Partnership Fund will finance, build and maintain the path for 25 years. Then ownership will revert to Auckland Council.

Source: Lawton, 2016; Slade, 2016

European councils have found PPPs for road lighting attractive. Twenty-five local governments in Europe were using PPPs for road lighting by 2011, and a further 20 PPPs were 'in the pipeline' (Bridger, 2012). Bridger and King (2014) looked at the possible use of PPPs for road lighting in Wellington.

Possible reasons for limited use of PPPs by local government in New Zealand

PPPs are used less in New Zealand than in some other countries, and even less by local government. Between 2012 and 2014, about \$1.5 billion of PPP projects were undertaken in New Zealand, representing about 1% of nominal investment activity, compared to about \$66 billion in Australia, representing about 4% of nominal investment activity (OECD, 2015d). In the United Kingdom, more than 700 PPPs were implemented between 1992 and 2012 to deliver schools, hospitals, highway maintenance, street lighting, waste management, social care, prisons, libraries, and fire stations (Hodges, Proctor & King, 2013).

Possible reasons for limited use of PPPs in New Zealand could include:

- regulatory or institutional barriers;
- features of local government projects that make PPPs unsuitable; and
- insufficient capability in local authorities to set up PPPs successfully.

Yet Drew (2014) argued that PPPs face no regulatory barriers to their use. Consistent with this, Auckland Council has a PPP policy that follows Treasury guidance and gives it flexibility to consider PPPs (Hodges, Proctor & King, 2013).

The rest of this section looks instead at whether the small scale of local government projects make them unsuitable for PPPs; and whether council capability to implement PPPs is a barrier to their use.

The small scale of projects and limited capability may reduce local government use of PPPs

Small scale is the most obvious feature of local government projects that may make them unsuitable for PPPs.⁹⁷ Even for suitably scaled projects, councils may lack the capability to implement PPPs successfully. A perceived lack of capability and lack of scale may make private investors wary of local government PPPs.

Contract scale

Negotiating and managing PPPs can involve prohibitive transaction costs for small projects. The New Zealand guidelines do not set a minimum size before PPPs are considered, but require that PPPs are considered for 'significant' projects. Such projects are those above \$15 million.⁹⁸ Bridger (2012, p. 59) suggested that it may be worth negotiating PPPs for street-lighting projects above \$10 million.

Many councils have few if any projects above these minimum size thresholds, although Auckland is an exception:

Many of the projects essential for enabling urbanisation in Auckland cost hundreds of millions of dollars. For example, as outlined in Auckland Transport's evidence to the Independent Hearings Panel, the 'trunk' transport infrastructure for the 'Future Urban Zone' land in the PAUP has been estimated to cost \$5.9 to \$7.7 billion. The lead time for this infrastructure is significant. For example, evidence to the Independent Hearings Panel on the PAUP cited a 10-year time period to complete the consultation and

⁹⁷ Conditions that suit PPPs are discussed in APCC (2014) and New South Wales Government (n.d.).

⁹⁸ In terms of financial or risk thresholds, "significant" generally means investments that require Cabinet or Ministerial approval as per Cabinet Office Circular (15) 5. Such investments are high-risk proposals or proposals with whole-of-life costs in excess of \$15 million, no matter how funded. For further information, visit the website for the Departments of the Prime Minister and Cabinet (DPMC) at www.dPMC.govt.nz/cabinet/circulars/co15/5 (New Zealand Treasury, 2015c, p. 13).

consenting requirements for the \$734 million (excluding enabling works) Central Interceptor to store and convey wastewater. (Auckland Council, sub. 47, p. 7)

Other councils may be able to create projects of sufficient scale by assembling joint projects, by negotiation or through joint companies. For example, Wellington Water is a CCO jointly owned by four city councils – Hutt, Porirua, Upper Hutt and Wellington – and the Greater Regional Wellington Council. Wellington Water manages the three water networks (drinking water, stormwater and wastewater) across the region on behalf of the councils and provides advice on how best to invest in the future development of the networks.

Local authority capabilities to manage complex risks and measure performance

Project risks occur in construction, scheduling, functionality of design, financing, demand and the long-term performance of the asset. Project costs can be reduced by efficiently assigning these risks, along with the responsibility to make decisions to manage them, taking into account each party's ability to influence the risk factor and to absorb the risk (APC, 2008). PPPs permit the transfer of more risks to the private sector than do other delivery models. Yet assessing the risks and determining where to assign them is a skilled task and councils using PPPs could unwittingly increase their risk exposure. Indeed, Hodges, Proctor and King (2013) argued that even the largest New Zealand council may not have the expertise required for PPPs.

Some councils may also not have sufficient capability to develop meaningful performance indicators and measure against them.

Summary

Regulatory barriers do not seem to prevent councils from using PPPs. Large council projects should be no less attractive for PPPs than are central government projects. However, the small scale of many local government projects and a lack of experience with PPPs may make councils and the private sector reluctant to engage in PPPs.

F11.12

Regulatory barriers do not seem to prevent councils from using Public Private Partnerships (PPPs). Yet the small scale of many local government projects and a lack of experience with PPPs may make councils and the private sector reluctant to engage in PPPs.

Despite the barriers of small-scale projects and lack of experience, there appears to be untapped scope for councils to make greater use of PPPs for projects of a suitable size. The government could encourage councils to make more use of PPPs by extending the current requirement to consider PPPs to include all significant projects involving local government.

R11.10

Councils should consider public-private partnerships for all significant local government infrastructure projects, not just those seeking Crown funding.

If the government does decide to extend the requirement to consider PPPs in this way, it is important that the right institutional arrangements for councils exist. Two critical requirements are scale and specialised capabilities.

Designing commissioning entities with scale to manage larger projects

Local authority project commissioning arrangements that favoured larger-scale projects and developed deeper commissioning capability would likely increase the use of more complex delivery models. Such models include PPPs, alliance contracting and early contractor involvement.

Two options to increase scale and capability are a new commissioning agency, and some form of joint procurement.

A new commissioning agency

The NZCID proposed a specialist local government procurement agency (NZCID, 2015b). Functions of such an agency could include consolidating procurement on behalf of councils; and consolidating advice and assistance to councils.

Consolidated procurement

A new entity could source, procure and manage contracts on behalf of local government. Canada has agencies that perform these roles for large projects. The NZCID argued a similar agency should be created in New Zealand, with responsibilities extending across portfolio areas and levels of government (NZCID, 2016b).

The entity would have more bargaining power and specialist capability than individual councils and could develop a pipeline of projects. The entity could reduce transaction costs by improving information and providing a single point of contact. It would hire staff with commissioning expertise. The LGFA, a CCO operating under the LGA 2002, is a precedent. The LGFA helps local authorities access less costly and more diversified funding (section 11.4; LGFA, n.d.).

Councils would need to delegate decisions about when and from whom to procure infrastructure and to reach agreement about how to measure and share the benefits of joint purchasing power. Smaller councils have most to gain from delegating procurement decisions, but may be concerned that larger councils would dominate decision making.

Consolidated advice and assistance

An agency that advises councils about procurement may reduce the costs for councils of using more complex delivery models. Councils would have fewer concerns about losing their autonomy than with an agency that undertook consolidated procurement. The agency could advise each council about the council's choice and implementation of service delivery models. This might reduce transaction costs, and encourage the council to consider a wider range of delivery models.

Yet a new agency risks crowding out private-sector organisations that might operate in this area. And the scope of the role would need to be carefully designed to ensure that it did not expose the government to risks associated with PPPs taken on by the councils it had advised.

The NZTA performs a role like this for land transport. The procurement page on its website has links to a procurement manual, a state highway procurement strategy and a contract procedures manual, together with guidance on many of the models outlined in Box 11.7.

The NIU and PPP teams in the Treasury already provide advice on infrastructure and PPP issues. It might be more efficient for councils to use this existing expertise for advice and support, instead of creating a new agency. The PPP team has already had discussions with Auckland, Wellington and Christchurch councils.

Joint procurement

Rather than relying on a new commissioning agency, councils could enter into joint procurement arrangements. There could be "virtual clusters" (formal or informal structures) through which a small number of councils jointly procure one-off or infrequently purchased goods or services. Regional clusters are another possibility, involving neighbouring councils and potentially other organisations, such as regional hospitals or schools (Department of Planning and Community Development (Victoria, Australia), 2008).

Joint procurement arrangements have many of the same advantages as consolidated procurement (Sustainability Victoria, 2015), yet may be more attractive to councils than a new commissioning agency. Joint procurement allows councils to work out for themselves whether the benefits outweigh the disadvantages and only undertake joint procurement for as long as this is the case.

Some councils already use joint procurement. For example, the councils in the Hawke's Bay have formed the Hawke's Bay Local Area Shared Services structure (HB LASS n.d.). Nine councils in the Waikato Region have established the Local Authority Shared Services (LASS) company. The LASS company and the Waikato Mayoral Forum enable a strategic approach to planning infrastructure across a region (Box 11.9).

Other groups of councils, for example in the Wellington region, collaborate on procurement in areas such as water infrastructure. They have recently developed a regional procurement strategy through their jointly owned CCO, Wellington Water. The DIA noted that it is “possible that several small, rural councils could decide to jointly enter into a procurement arrangement covering water services across a larger area” (DIA, 2010b, p. 6). Similarly, Bridger (2012) suggested rationalising road-lighting PPPs into three or four areas to cover the whole country.

Box 11.9 **Cooperation between councils in the Waikato region**

Local Authority Shared Services Limited

LASS, created in 2005, is jointly owned by Hamilton City, Hauraki District, Matamata-Piako District, Otorohanga District, Rotorua District, South Waikato District, Taupō District, Thames-Coromandel District, Waikato District, Waikato Regional Council, Waipa District, and Waitomo District. LASS can, on behalf of constituent members, enter into contracts and agreements with external suppliers and provide value by reducing costs. It also provides councils with a company structure under which they can develop and promote services to other local authorities and to external parties. Member councils pay a small yearly levy, depending on their size. Services are funded on a user-pays basis.

LASS’s projects include the Waikato Regional Transport Model (WRTM), the only strategic, regional, transport modelling resource in the Waikato. The WRTM has been used in more than 60 projects that have supported land transport investment in excess of \$3 billion. Projects include the Waikato Expressway Network Plan, Southern Links, and Hamilton City’s Wairere Drive project. The WRTM provides:

- an evidence base to inform decisions;
- a collaborative technical and management framework enabling councils and the NZTA to identify, and jointly resolve, policy and investment issues; and
- efficiencies from joint procurement, operation and delivery of modelling advice for the whole Waikato region.

Waikato Mayoral Forum

Established in 2012, the Forum provides a venue for the mayors in the Waikato region to promote the wellbeing of their communities. Its purposes include increasing the efficiency of council services, such as roads, water and wastewater. The Forum is developing a “Waikato Plan”, which will set strategic directions; identify settlement, infrastructure and service needs; and provide an evidence base to support policy and investment decisions. The plan will coordinate decisions across local authorities, central government and other parties to determine the future location and timing of critical infrastructure. It will help to align regulation, funding and implementation across the partner agencies.

Road Asset Technical Accord

The Road Asset Technical Accord (RATA) seeks to enhance collaboration in the road sector within the Waikato region. In its first 18 months, the RATA generated \$350 000 in initial savings. Between 5% and 10% of total costs could eventually be cut each year through efficiencies gained by working together.

Water and wastewater

A review has indicated that at least several million dollars of savings could be delivered each year by councils working together on water and wastewater services.

Source: LASS, 2015; Ward, 2016.

Increasing capability to use innovative infrastructure delivery models

New Zealand councils are not leaders in using more complex infrastructure delivery models, such as alliance contracts or PPPs, although they have made some use of them. Examples such as the Waikato region LASS

illustrate the advantages for councils from joint procurement of infrastructure, particularly when this extends beyond the boundaries of individual councils.

Councils could secure unexploited value by making more use of complex delivery models or joint procurement. Yet councils without a sophisticated approach to risk management could face significant exposure if they entered into a PPP or alliance contract that left them bearing large risks. A future urban planning framework should provide institutions that give councils the capability to manage complex delivery models successfully. Taking advantage of specialist advice and support on offer to councils from the Treasury specialist PPP unit, and building on current shared services arrangements, look like promising ways forward.

F11.13

Existing specialist capability in the Treasury Public Private Partnership unit is available for councils to draw on. Examples such as the Waikato region's Local Authorities Shared Services Limited illustrate the advantages for councils from joint procurement, particularly when this is founded on a regional approach to planning for infrastructure that extends beyond the boundaries of individual territorial authorities.

R11.11

A future urban planning system should give councils the capability to use a wide range of innovative infrastructure delivery models, including public-private partnerships. Councils, either alone or through joint agencies, will need to develop the capabilities to operate such models successfully. Future arrangements could build on existing specialist capability in the Treasury and current regional shared-services initiatives that increase project scale and develop project-commissioning expertise.

11.8 Conclusion

The quality of life in New Zealand's cities depends on the quality of their infrastructure. A high quality of life needs infrastructure to be maintained, renewed and, where populations are growing, expanded. Planning and funding infrastructure can be a challenge for councils – delivery costs can vary significantly between locations, and local authorities can find it hard to recover the costs or borrow as much as they need. Where they face problems recovering costs from beneficiaries, the burden falls on the broader rating base.

Ideally, a planning system should allow councils to cover the full cost of infrastructure from beneficiaries either through user charges, development contributions or targeted rates. User charges should be set to short-run marginal costs to encourage the efficient use of existing infrastructure, and signal to consumers the additional cost of a unit of service. When it is not efficient to recover full cost from user charges, development contributions and targeted rates are suitable tools, the former being more suitable for infrastructure whose benefits are specific to new developments.

However, full cost recovery faces a number of barriers, including financial shortfalls, legislative prohibitions on some forms of pricing and user charges, and political economy issues.

Some of these barriers can be removed by lifting legislative prohibitions on pricing tools, greater use of development contributions and targeted rates to recover the costs of community infrastructure, and introducing the ability for councils to levy targeted rates based on the increase in land values that results from public action.

The borrowing constraints that sometimes restrict high-growth councils from infrastructure investment with high social returns are difficult, but should not be impossible, to overcome, and it is important to do so.

Some commentators have argued that New Zealand's local government sector needs different revenue sources if it is to truly respond to, and accommodate, growth. The Commission sees no case for local income or expenditure taxes, but recommends introducing and using value-capture tools.

To expand infrastructure efficiently requires each council's procurement processes to be well planned, fit for purpose, and able to secure value for money. Collaborative procurement can enable a council to:

- share the cost of specialist procurement and share expertise, experience and information about suppliers and their performance history;
- permit standardised specifications; and
- facilitate large-volume procurements that attract more competition and keener pricing.

Opportunities may also exist for councils to use more complex delivery models such as PPPs, provided that they have first developed the specialist capabilities required, or have accessed them from an existing source (such as the Treasury's PPP unit).