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Review of Changes to Council Development Contributions Policies in Four High-Growth Areas

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New Zealand Productivity Commission

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1. Introduction

1.1. Context and Scope of Report

The New Zealand Productivity Commission is conducting an inquiry into Local Government funding and financing. Insight Economics was commissioned to assist by reviewing changes to the development contributions (DC) policies of four high-growth Councils following the LGA amendments in 2014. The areas studied are Auckland, Hamilton, Queenstown, and Tauranga.

This report also briefly analyses how the DC revenues of these four areas has tracked over time, particularly in relation to total operating incomes and key measures of growth, such as population changes and building consents. Finally, this report contrasts and compares DCs with infrastructure growth charges (IGCs), which are levied in Auckland by Watercare in lieu of DCs for water and wastewater.

1.2. Report Parts

For ease of reading, this report has been split into three parts:

1. **Part 1** reviews how DC policies have evolved since the LGA amendments in 2014, including the extent to which each reflects the new DC principles inserted into the Act;
2. **Part 2** analyses how DC revenues have tracked over time, especially in relation to total operating incomes and measures of growth, such as population and building consents.
3. **Part 3** identifies the key similarities and differences between development contributions and infrastructure growth charges, and comments on their strengths and weaknesses.

1.3. Structure of Document

The remainder of this document is structured as follows:

- **Section 2** describes the methodology used to assess changes to DC policies following the LGA amendments in 2014;
- **Sections 3 to 6** summarise our reviews of policy changes for Auckland, Hamilton, Queenstown, and Tauranga, respectively;
- **Section 7** briefly analyses how DC revenues have changed over time, including how they have tracked against total operating incomes, and key measures of growth;
- **Section 8** compares DCs to Watercare's infrastructure growth charges (IGCs); and
- **Section 9** provides a brief summary and conclusion.

2. Part 1: Methodology

2.1. Introduction

This report analyses how the DC policies of four high-growth areas have evolved over the last five years to reflect LGA amendments made in 2014, particularly the principles inserted into the Act. This section explains how we performed that task for each area.

For ease of reading and due to time constraints, we focus only on changes between the policy that operated just prior to the amendments, and the current policy. In other words, we do not attempt to create a timeline of changes for each aspect of every policy since 2014, and instead focus on cumulative changes.

2.2. Summary of DC Principles

Broadly speaking, the seven DC principles enshrined in section 197AB of the LGA can be divided into two types. The first type affects the calculation of DC charges and the liability of individual developments for paying them. The second type affects policy transparency and accountability. Below we summarise the seven principles under these two headings.

2.2.1. Principles that Affect the Calculation of Charges and Liability for Paying Them

- a) Councils can charge DCs only if a development helps cause the need for new or expanded assets with additional capacity.
- b) DC charges should reflect asset capacity lives and avoid over-recovery of growth costs.
- c) Cost allocations should reflect who causes each project, and who benefits from them.
- d) Developments can be grouped by location or development type to set charges, but Councils should avoid districtwide charges wherever practical.

2.2.2. Principles that Affect Transparency and Accountability

- e) Councils must explain what DCs are used for and why they are being used.
- f) DCs should be predictable, consistent with the underlying methodology, and disclose key information about the charges, including how they were derived.
- g) DCs must be used in the places and for the purposes that they were raised.

2.3. Translating Principles into Policy Requirements

We experimented with several options for reviewing how each Council's DC policy had evolved to reflect the new principles. However, this proved a tricky task for several reasons. First, DC policies are long and complicated, and there is significant variation in their structure and content. This precludes a standardised approach to the assessment.

Second, each policy has evolved from a different starting point prior to the amendments, which confounds trend comparisons between Councils over time. Third, adherence to some principles – such as the need to apply funds where and why they were raised – cannot be inferred from the DC policy, and instead requires a review of back-office accounting functions (which is beyond the

scope of this report). Accordingly, a transparent yet pragmatic approach to the analysis was required.

Our final/adopted approach was to distil the various DC principles down to a set of corresponding policy requirements, which would then form the basis of each Council's review.

2.4. List of Policy Features to Review

Following are the key policy features that we reviewed to determine how each policy had evolved to reflect the new principles. Importantly, these are also the policy features that have the greatest influence on the charges paid by each development.

- **Cost allocation methodology** – the cost allocation methodology divides the cost of each capital works project between project drivers, one of which is growth. When applied to the Council's capital works program, this methodology determines the total growth-related costs to be recovered via DCs. Accordingly, it is a critical element.
- **Funding areas** – these define the geographic boundaries used to set charges for each activity. They help forge a spatial causal nexus between future developments and the growth-related projects that they must help fund via DCs.
- **Cost recovery methodology** – this defines how the growth-related costs of each project are recovered from developments within the funding area over its capacity life. There are two main options. The first is to keep charges constant in nominal terms, while the other is to keep them constant in real terms by pegging them to a price index like PPI. See below for more information.
- **Development types & conversion ratios** – the different development types included in each policy (and their corresponding conversion ratios) determine how growth-related costs are shared between different land uses, and therefore also have a major bearing on the final distribution of charges.
- **Policy transparency & usability** – finally, we considered how each policy's structure and content had developed over time, particularly with respect to transparency, ease of use, and LGA compliance.

2.5. Mapping of Policy Features to DC Principles

Table 1 shows how the DC policy features above map to the new DC principles that form the focus of this report:

Table 1: Mapping of DC Principles to Key Policy Features

Principles that Affect Charges and DC Liability	Cost Allocations	Funding Areas	Cost Recovery	Land Uses & HEU Ratios	Transparency & Usability
a) Councils can charge DCs only if a development helps cause the need for new or expanded assets with additional capacity.	✓	✓		✓	✓
b) DC charges should reflect asset capacity lives and avoid over-recovery of growth costs.			✓		✓
c) Cost allocations should reflect what causes each project, and who benefits from them.	✓	✓		✓	
d) Developments can be grouped by location or type to set charges, but Councils should try to avoid districtwide charges wherever practicable.		✓		✓	
Principles that Affect Policy Transparency and Accountability	Cost Allocations	Funding Areas	Cost Recovery	Land Uses & HEU Ratios	Transparency & Usability
e) Councils must explain what DCs are used for and why they are being used.					✓
f) DCs should be predictable, consistent with the underlying methodology, and disclose key information about the charges, including how they were derived.	✓	✓	✓	✓	✓
g) DCs must be used in the places and for the purposes that they were initially raised.		✓			✓

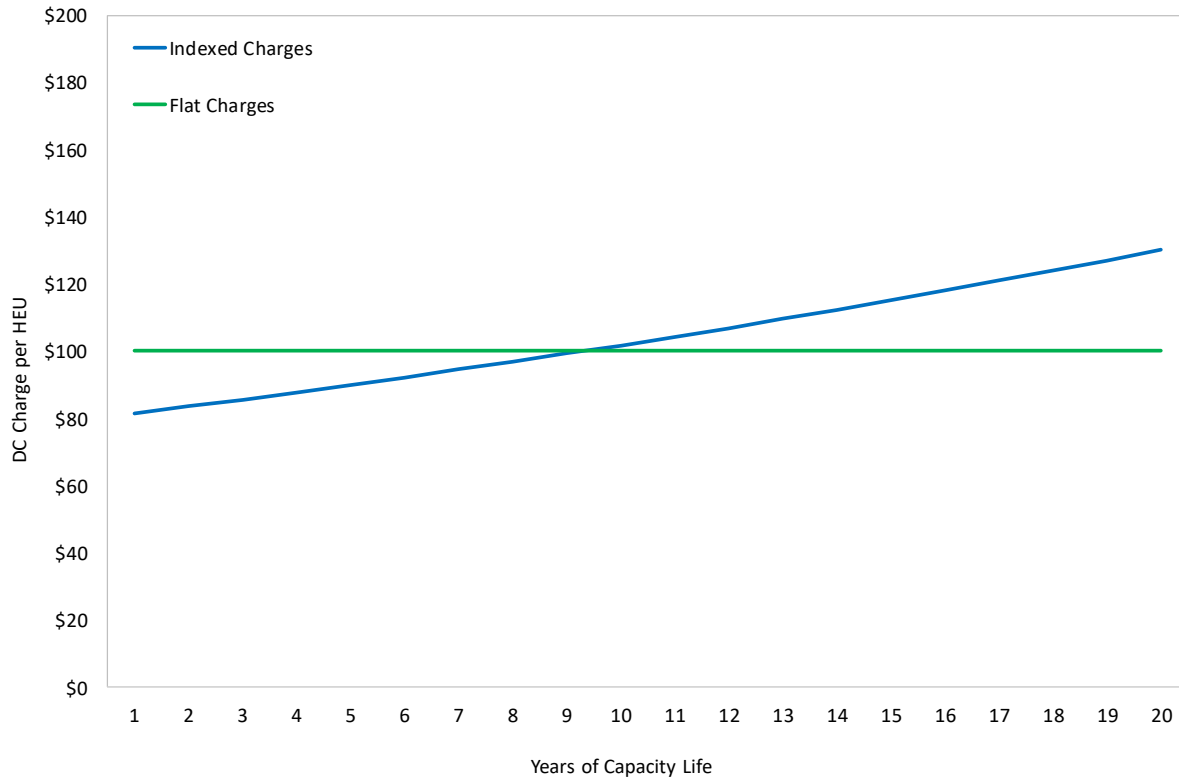
2.6. About Charge Indexation

As noted above, the cost recovery methodology determines how the growth-related costs of each project are recovered from different developments over time. In general, charges are usually kept constant either in nominal terms, or they are kept constant in real (i.e. inflation-adjusted) terms by pegging them to a specific index, such as the PPI. Critically, both options generate the same DC revenues for the Council in net present value terms, so the only difference is how the funding burden is shared across different developments that occur at different points in time.

To see how this works in practice, Figure 1 shows the charges for a hypothetical project that will be recovered over 20 years, which is a typical asset capacity life. The first set of charges are fixed in nominal terms, while the second set is indexed to increase at 2.5% per annum.

Although both produce the same revenues in net present value terms, the second set of charges are cheaper for roughly the first half of the asset's capacity life, but more expensive thereafter. Hence, charge indexation benefits developers that pay during the early years of asset capacity life, but 'penalises' those that pay later (relative to flat charges). In this example, the indexed charge is roughly 20% cheaper than the flat charge in year 1, but about 30% higher by year 20. Again, however, both sets of charges return the same revenues in net present value terms.

Figure 1: Example of Flat vs Indexed Charges (indexed at 2.5% p.a.)



2.7. Glossary

Following are brief definitions for various terms used in this report.

Activities – these refer to the types of capital works for which DCs may be required. They include community facilities, reserves, stormwater, transport, wastewater, and water.

Backlog – works required to rectify existing service shortfalls. i.e. where the current level of service is below the committed minimum level of service.

Capacity life – the period over which an asset has capacity to accommodate new users.

Charge indexation – this is when the DC charge for each project is increased each year to keep them constant in inflation-adjusted terms.

Conversion ratios – used to convert non-residential developments into an equivalent number of household units to calculate the DC charges that apply. They are usually expressed per 100 square metres of gross floor area, except for stormwater ratios (which are expressed per 100 square metres of impervious surface area).

Cost allocation – the process used to allocate the costs of each capital works project between its key drivers, which typically include renewal, backlog, and growth.

Cost recovery – the process of recovering the growth-related costs of each project from developments over the underlying asset’s capacity life.

DC Principles – the seven DC principles enshrined in section 197AB of the LGA.

Development Contributions (DCs) – contributions required to help fund the costs of growth-related capital works, as enabled by the Local Government Act 2002.

Development types – these refer to the different types of development that may attract DC charges, such as residential, commercial, and industrial.

Financial Contributions (FCs) – these are like DCs, but are levied under the Resource Management Act 1991, instead of the LGA. They have become less-commonly used over time, however, and are being phased out by 2022 under recent RMA reforms.

Funding areas – geographic areas used to delineate the developments that will benefit from (and/or cause) a specific project and hence be required to help fund it via DCs.

Household Equivalent Units (HEUs) – this represents the infrastructure demands of an average household, and is used to convert non-residential demand into residential terms for aggregation purposes.

Local Government Act 2002 (LGA) – the legislation under which DCs are enabled.

Producer Price Index (PPI) – various price indices that track the input and output prices of New Zealand organisations.

3. Auckland

3.1. Cost Allocation Methodology

Auckland's cost allocation methodology is embedded in a comprehensive model called the Auckland Council Development Contributions Cost Allocation Model. This allocates costs between three project drivers (renewal, backlog, and growth) based on the underlying causes of each project, and the groups that benefit from them.

Amongst other things, the methodology notes that benefit allocations can be particularly difficult and, accordingly, recommends that they be shared between the existing and incoming (growth) communities based on their shares of the future population. Once derived, these benefit shares are weighted equally with causation shares to derive final cost allocations. This is consistent with the DC principles.

Overall, we could not see any obvious changes between the current cost allocation methodology and earlier versions that prevailed prior to the LGA amendments, probably because it already complied with them and thus no changes were required.

3.2. Funding Areas

Auckland's current policy includes a three-tier approach to allocating the costs of each growth-related project to different areas. Specifically, it allocates:

1. Some projects regionwide;
2. Other projects sub-regionally; and
3. The rest to localised funding areas.

As a result, the charges paid by each development fund projects at all three spatial levels. The only exception is stormwater projects, none of which are funded regionwide. This is appropriate given the localised nature of the hydrological catchments that define these funding areas.

The number of funding areas in Auckland's policy has increased dramatically in recent years. For example, the 2012 policy (which was operative just prior to the amendments) identified a total of 18 funding areas across all DC activities, while the 2019 policy has 94. Table 2 provides further details by comparing the number of funding areas – and the range of charges – set for stormwater and transport activities in 2012 and 2019.¹

¹ Other activities have been excluded from this comparison due to significant changes in the grouping and naming of project types between policy years. For example, the 2012 policy split community facilities and reserves charges into four separate groups, whereas the 2019 policy has renamed them all and condensed them into three groups. As a result, it is difficult to compare these activities across policy years. However, the greatest changes have occurred for stormwater and transport anyway, so omitting the other activities had little impact overall.

Table 2: Comparison of Funding Areas for Stormwater and Transport between 2012 and 2019

Analysis of Charges	Stormwater		Transport	
	2012	2019	2012	2019
Number of Funding Areas	2	34	3	14
Average Charge per HEU	\$4,060	\$1,580	\$2,200	\$4,470
Minimum (Non-Zero) Charge per HEU	\$4,060	\$1	\$1,450	\$20
Maximum Charge per HEU	\$4,060	\$9,290	\$3,520	\$31,270
Range (Max – Min)	\$0	\$9,289	\$2,070	\$31,250

Table 2 shows that there were only two stormwater funding areas in 2012, which paid the same charge, giving one funding area effectively overall. However, by 2019 there were 34 areas with a diverse range of charges. Similarly, for transport. It includes far more funding areas now than in 2012, and the range of charges is much greater.

Overall, Auckland Council’s DC policy includes a much greater degree of spatial disaggregation than before, which is likely to better reflect the DC principles, particularly those requiring a causal nexus between developments and the growth-related works funded via DCs.

3.3. Cost Recovery Methodology

Auckland Council’s cost recovery methodology appears standard, and thus seeks to recover the costs of growth-related infrastructure over capacity lives. This is consistent with the principles.

We also assessed whether the cost recovery methodology keeps the charges for each project constant in nominal terms, or instead increases them gradually so that they remain constant in real terms. The ability to do this was formally enabled by the recent LGA amendments, but many Councils had already been doing it for some time.

In short, we could not find any signs that Auckland Council undertakes this practice yet or, if they do, that fact is not clearly communicated in their DC policy.

Like anything, the (apparent) decision not to index charges has its advantages and disadvantages. The key advantages of not indexing are policy simplicity and transparency. In addition, not indexing helps maintain debt because it generates greater revenues in the earlier years, which reduces early interest costs and hence future debt levels. The key disadvantages of not indexing are losses of equity and efficiency, because indexed charges generally provide a better match with (i) the costs incurred by each development (including interest), and (ii) each development’s ability to pay. Indeed, by not indexing, the price of DCs remains constant while the price of nearly everything increases, as does incomes. This seems illogical, so indexing is generally preferred.

Overall, we could not detect any material changes to Auckland’s cost recovery methodology following the introduction of the DC principles. Again, this is probably because it was already compliant.

3.4. Development Types and Conversion Ratios

Auckland's DC policy includes a wide range of development types and corresponding conversion ratios, which helps to forge better links between the different infrastructure demands of specific development types and the DCs that they are required to pay. Accordingly, this is good policy feature.²

While the Council's 2012 policy already included a wider range of development types than most other policies, it has increased further recently. Specifically, the latest policy identifies two new types of residential development and ascribes specific conversion ratios to each.³ At the same time, it has expanded some existing residential categories to not only differentiate by dwelling type, but also by size. For example, the charges for detached and low-rise attached dwellings now differ across three size bands (less than 100m², 100 to 249m², and 250m²+).

The latest policy has also tweaked some of the conversion ratios for certain residential development types. For example, the community facilities and reserves conversion ratios for retirement units and aged cared rooms have fallen by up to 80%, while those for small ancillary dwelling units have increased slightly. No changes have occurred to the range of non-residential development types or their conversion ratios.

Not only does Auckland's policy differentiate between a wide range of residential development types, but it also uses a range of metrics to set the corresponding conversion ratios. For example, some are set based on impervious surface area, others on dwellings size, and yet others on the number of rooms or units (for aged care, retirement villages, and accommodation). Overall, this is likely to help provide a better fit between the specific needs of each development type and the DCs that they are required to pay.

3.5. Policy Content, Transparency & Overall Usability

The content and format of Auckland's DC policy has not changed materially following the introduction of the DC principles other than necessary changes to meet the new legislative requirements. However, some sections have been rearranged, which has affected its overall flow. Other obvious changes to the policy since the 2012 (pre-amendment) version include:

- The addition of a table of contents, which improves navigability;
- Removed the funding maps from the policy itself, which must now be downloaded separately from the Council's website;
- A bullet point in the introduction acknowledging that the latest policy has been developed in accordance with the DC principles themselves;
- Minor changes to – and an expansion of – key definitions;
- The italicisation of defined terms throughout the policy;
- The ability for developers to choose which policy their development will be assessed under if its building consents and resource consents fell under different versions;

² The only obvious downside is the requirement to derive reliable corresponding conversion ratios.

³ The new development types are accommodation units and student accommodation.

- The addition of a new assessment trigger (which occurs when a certificate of acceptance is granted under the Building Act 2004);
- Clarification that credits will not be based on monetary value;
- Changes to the timing of invoice due dates. Previously, they were due on the 20th of the following month, but now they are due immediately;
- The deletion of provisions that previously allowed the possible postponement of paying charges on “substantial” developments; and
- A far more detailed description of the decisions made pursuant to section 101(3) of the LGA when deriving the policy and its corresponding charges.

These various tweaks aside, however, the latest policy is fairly similar to earlier versions.

3.6. Policy Strengths and Weaknesses

The main **strengths** of the policy include that it:

- Is supported by a comprehensive online calculator, which provides quick and reliable estimates of DCs for any specific lot (or lots) across the region. This is an excellent tool;
- Is relatively concise, particularly given that it covers a region of 1.6 million people;
- Neatly summarises key information, such as the HEU conversion ratios;
- Provides concise summaries of information required in the policy pursuant to the LGA, including a detailed summary of key assumptions and potential risks;
- Includes a table of contents to aid navigability;
- Is well laid-out, and clearly formatted; and
- Identifies a wide range of residential development types and sizes, and varies charges accordingly. This helps create incentives for smaller and more compact urban forms.

However, the main **weaknesses** of the policy are that:

- It no longer includes funding area maps – they must be downloaded separately;
- The various weblinks in the policy only go to the Council’s homepage, and are not direct links to the specific information required;
- It does not appear to index charges, which may undermine equity and efficiency;
- Allocates a significant proportion of total growth-related costs to regionwide catchments, which is unlikely to satisfy the requirement to establish a causal nexus between developments and the growth-related projects that they must fund via DCs;
- Does not list the total charges that apply in each funding area, and instead lists them by activity. This complicates efforts to calculate charges via the policy itself. However, this is largely mitigated by the online calculator;
- No longer provides for the postponement of charges on “substantial” developments; and
- Does not appear to allow customised assessments (also known as special assessments) as of right (i.e. on request of the applicant).

4. Hamilton

4.1. Cost Allocation Methodology

Hamilton's cost allocation methodology is similar to Auckland's. For example, it also shares the cost of each capital works project between renewal, backlog, and growth based on the extent to which each driver causes the need for the project, and the benefits that each receives. Equal weight, again, is placed on both factors to reach the final cost allocation.

However, Hamilton's approach also has some unique features. For example, rather than assigning specific causation and benefit shares to growth and the existing community directly, it uses cost allocation 'bands' to assign midpoint values instead. For example, if a project is deemed to provide a high proportion of benefits to growth, Council will select the high benefit band, and the corresponding midpoint percentage (88%, in this case) is automatically assigned as the growth share of project benefits. These values can be overwritten in extenuating circumstances, but they rarely are.

This approach has two main advantages. First, it overcomes the need to estimate specific causation and benefit percentages for each project, which is time-consuming but nevertheless still fraught with uncertainty. Second, it avoids the risk of extreme cost allocations, where the near-full cost of a project may sometimes be allocated to only one group. Such extreme allocations can often be difficult to justify, which raises the risk of legal challenge.

Another interesting feature of Hamilton's approach is that it incorporates customised engineering and technical reports for the most expensive projects to enable bespoke cost allocations. These not only improve the cost allocations for the most significant projects directly, but they also provide a template for the cost allocations for other (similar but smaller) projects.

Finally, the methodology acknowledges that there may be certain cases where a direct application of the process results in cost allocations that could undermine the social and economic wellbeing of the community. Consequently, it reserves the right to make manual adjustments to the allocations based on the considerations set out in section 101(3)b of the LGA.

Like Auckland's cost allocation methodology, we could not detect any obvious changes to this approach following the introduction of the principles because it was already compliant.

4.2. Funding Areas

Hamilton's policy allocates the growth-related costs of projects to either a citywide or localised catchment, depending on the type of project and the distribution of benefits received. In addition, it allows the growth-related costs of projects to be allocated to more than one funding area. For example, it might allocate half of the cost of a new swimming pool to the area in which it is located, and the rest citywide to acknowledge that it will be available to all residents, not just those that live nearby. Generally, however, growth-related costs are allocated to only one catchment to reflect the typically localised nature of service provision.

While we agree with the LGA principle that discourages the use of citywide cost allocations, they tend to make more sense in compact cities like Hamilton, where many community infrastructure and transport assets truly serve the entire district. Indeed, with a total land area of only 110 square kilometres, many infrastructure networks do tend to operate on a citywide basis.⁴

Moreover, the DC policy also establishes a set of criteria that must be satisfied before a project can be allocated (partly or fully) to a citywide catchment. These ensure that only citywide, open-access projects that form part of integrated networks qualify, with all others required to be funded on a localised basis.

The current policy sets charges for 57 funding areas across its various activities, which is slightly less than in 2013 (i.e. prior to the amendments). However, this is because the current policy no longer includes charges for community infrastructure, which alone spanned eight funding areas. When this is excluded from the comparison, the new policy includes a handful of additional funding areas because it now splits the previous infill area into two parts: one that is east of the river, and another that is west of it. Notwithstanding this minor change, however, the policy's use of funding areas is largely unchanged.

The level of charges set within these funding areas has changed significantly, though. For example, the range of stormwater charges (i.e. the maximum minus the minimum) was previously \$2,600, but now it is more than \$50,000. Similarly, the range of transport charges used to be about \$4,400 but now it is more than \$16,000. Thus, while the number of funding areas has not changed much, the allocation of project costs to those areas has changed significantly.

4.3. Cost Recovery Methodology

Hamilton's cost recovery methodology is like most, and thus recovers the cost of growth-related projects from each funding area over the capacity lives of the underlying assets. One interesting feature of Hamilton's cost recovery methodology, however, is that the recovery period is set to a maximum of 30 years. Hence, if a project's capacity life is longer than 30 years, costs will be recovered over a shorter timeframe of only 30 years.

The rationale is twofold. First, longer recovery periods necessitate demand projections that exceed 30 years, which are difficult to produce with any degree of certainty. Second, longer recovery periods increase the total interest costs associated with each project and cause debt to be higher than it would be otherwise. Accordingly, the recovery period is capped at 30 years.

Like Hamilton's cost allocation methodology, we could not detect any material changes to the cost recovery methodology since the introduction of the DC principles. Again, this is probably because it was already compliant with no pressing changes required.

⁴ This contrasts with other fast-growing areas like the Queenstown Lakes District, whose land area is 80 times larger than Hamilton, but its population several times smaller.

4.4. Development Types and Conversion Ratios

Hamilton's policy distinguishes three types of non-residential development and assigns each its own set of conversion factors. The three types are commercial, industrial and retail. While the conversion factors for these activities are mostly a fixed rate per unit of floorspace, the ratios for transport are determined by a sliding scale, where smaller retail developments pay more per unit of floorspace than larger ones. This, in turn, is based on an NZTA report that estimates the number of trips generated by small and large retailers.

Although the three non-residential development types identified in the current policy have not changed since 2013, the conversion ratios ascribed to them have been updated over time to reflect new information on infrastructure demands.

The situation for residential developments has changed considerably over the last few years. Specifically, previously the policy treated most residential developments the same, except for reductions for higher density units, and ancillary dwellings up to 60m² in size. These have now been replaced with a new approach to setting charges for residential, which vary with the number of bedrooms in each dwelling. Specifically, three-bedroom dwellings pay a standard charge of one HEU, while those with more bedrooms pay a higher amount, and those with fewer bedrooms pay a lower amount.

The underlying theory, which was confirmed by census data for the city, is that there is a strong linear relationship between the number of bedrooms and the number of occupants. Further, because the number of occupants strongly influences the infrastructure requirements of each dwelling, it follows that – on average – the number of bedrooms provides a good proxy for infrastructure demands.

4.5. Policy Content, Transparency & Overall Usability

Like Auckland, the content and format of Hamilton's DC policy has not changed materially following the introduction of the DC principles other than tweaks to meet the new legislative requirements. However, some changes since the pre-amendment version include that:

- The policy no longer modifies the base charges for non-residential developments;
- Provisions that allowed the postponement of charges have been deleted;
- It no longer defines the maximum land values for reserves in each area of the city;
- It includes a range of new or expanded definitions;
- It includes a section that deals with the housing infrastructure fund (HIF);
- Sets out the mathematical equation used to calculate charges for each project;
- Simplifies the discussion of growth projections;
- Redefines residential charges to be a function of the number of bedrooms;
- It splits the infill area into east and west parts;
- It now explains the criteria for allocating projects to citywide or local catchments;
- Remission provisions have been added;

- The assumed floor area ratios for non-residential developments have been reduced when assessing DCs prior to building consent;
- A more detailed section on invoicing has been added; and
- It clarifies the rules for credits.

4.6. Policy Strengths and Weaknesses

The main **strengths** of the policy include that it:

- Summarises all key information in one place, including the policy, funding area maps, and capex schedules. This avoids the need to cross-reference multiple documents when estimating the charges payable;
- Includes a quick reference guide and table of contents, which both aid navigability;
- Provides direct weblinks to supporting information, including a link to the online DC estimation calculator. This is useful, if not quite as comprehensive as Auckland's;
- The calculation of charges follows industry best practice by inflating capital costs and explicitly modelling interest, but it doesn't index charges.
- Provides concise summaries of information required in the policy pursuant to the LGA, including a detailed summary of key assumptions and potential risks;
- Provides remissions in special circumstances, provided that identified criteria are met;
- Enables special assessments to be triggered at the request of applicants; and
- Aggregates charges across activities (except stormwater) to display the (sub)totals for each funding area.

However, the main **weaknesses** of the policy are that it:

- Includes a detailed formula in the body of the policy, which some readers may find intimidating. Further, the text surrounding the formulae do not appear to refer to the correct steps in the process, which may also confuse less-technical readers;
- No longer includes provisions that enable the postponement of charges;
- Includes LGA section references in section titles, which may be confusing to some;
- Derives transport conversion ratios from datasets that are at least 10 years old; and
- Seems to include commercial carparking in its definition of GFA, which is unusual.

5. Queenstown

5.1. Cost Allocation Methodology

Queenstown's cost allocation methodology allocates project costs to five drivers, namely growth, renewal, level of service, statutory, and deferred works. This is more complex than other councils, which typically identify only three drivers (renewal, backlog, and growth). Despite this added complexity, however, the policy provides little information on how costs are specifically assigned to each driver. Instead, it simply notes that this is done using three different methods – asset capacity, design life, and professional judgement.

We consider this level of detail inadequate given the importance of cost allocations. To delve a little deeper, we reviewed the relevant sections of the associated methodology document. This raised further concerns. For example, the asset capacity method appears to assume that there are never any existing service shortfalls, with all additional capacity consumed by growth, while the professional judgement method seems too subjective.

Moreover, Queenstown's cost allocation methodology also does not appear to give adequate weight, if any, to the distribution of benefits when allocating costs. This needs to be addressed or, at least, explained more clearly.

Like the other Councils above, we could not detect any obvious changes to Queenstown's cost allocation methodology following the 2014 LGA amendments.

5.2. Funding Areas

Queenstown's 2019 policy spans 129 funding areas across its various activities. This is up from just over 90 funding areas in the policy that was operative just prior to the amendments. Despite this large number of funding areas, however, the number of unique charges set across them is much less. For example, the latest policy lists 21 funding areas for transport, but there are only two unique charges. In other words, each development pays either one charge or the other. Accordingly, there are far fewer *effective* funding areas than the policy might first suggest.

An interesting feature of Queenstown's policy is that it sets fewer unique charges for stormwater than it does for other activities, such as water and wastewater. This is unusual, with most policies setting a greater number of unique charges for stormwater than other activities to reflect the localised nature of hydrological catchments and hence the ability to set localised charges.

Also, the policy does not appear to allocate any projects to a districtwide catchment, which is appropriate given the geographically-vast nature of the area.

5.3. Cost Recovery Methodology

Queenstown's cost recovery methodology, like the others, is standard. It simply recovers the cost of growth-related capital works from developments inside each funding area over the underlying assets' capacity life. Similarly, like the other Councils, it does not appear to index charges. As mentioned earlier, we prefer the use of indexation for equity and efficiency reasons.

Again, we could not detect any changes to the methodology following the LGA amendments.

5.4. Development Types and Conversion Ratios

Queenstown's policy identifies a wide range of development types and sets conversion ratios for each, mostly based on gross floor area. Unlike most other policies, it even sets the charges for multi-unit residential dwellings based on floor area, rather than the number of dwelling units. Specifically, it divides the total gross floor area of multi-unit residential developments by the assumed average size of a standard residential dwelling to calculate the number of HEUs.

While this approach is not an issue per se, the average residential size used in the calculations appears too low. Specifically, the policy assumes that an average detached dwelling is 140m², and calculates the charges for most other residential dwelling types pro-rata on that basis. However, building consent data show that the average size of detached dwellings in the district is greater than 200m², and has been every year since 1995. By adopting the lower figure of 140, the policy appears to systematically overstate the relative infrastructure demands of denser residential dwelling types, which is probably unintentional and should be addressed.

Other noteworthy features of the approach are that:

- It identifies quite specific non-residential land uses and charges each separately. For example, it differentiates three types of accommodation, and even has a separate category for childcare centres. While this level of differentiation can sometimes be useful, it also creates an onus to populate associated parameters with reliable data, which often are not available at such a fine-grained level.
- Sets different conversion ratios for the same land uses in different parts of the district. For example, it sets accommodation transport ratios of 1.88 for Wakatipu, and 2.25 for Wanaka, while the corresponding community facilities ratios are 0.89 and 1.71, respectively. This is an unusual approach.
- It does not assume a constant relationship between water and wastewater demand across land uses. For example, it assumes that accommodation has high water use relative to wastewater use, and vice versa for childcare centres. Normally, the two are assumed to be a constant proportion of one another, with a specific share of the water provided being returned as wastewater.

Overall, Queenstown's use of development types and conversion ratios is more detailed than prior to the amendments. Specifically, since 2012, they have added new development types and revised

the conversion ratios set for some. For example, the accommodation ratios for reserves in Wanaka have increased from 0.96 to 1.71, but the rationale for doing so is not immediately clear.

5.5. Policy Content, Transparency & Overall Usability

The content and format of Queenstown's DC policy has changed very little following the introduction of the DC principles. This is a slight concern, because the operative policy is quite short and does not appear to address all the reporting requirements set out in the LGA, at least not to any reasonable level of detail. Some obvious changes between the current and prior policies, however, include that the latest policy:

- Provides additional details about how developments will be assessed if its building consents and resource consents fell under different policy versions;
- Includes extra development types and conversion ratios;
- No longer states that DC assessments are valid for only 24 months with reassessments occurring thereafter;
- Provides a simplified approach to estimating HEUs at the subdivision stage;
- Includes new sections dealing with work-from-home and mixed-use accommodation developments;
- Provides a more detailed section on the liability to pay reserves contributions, and indicates the circumstances under which these will normally have to be paid, or not; and
- Enables the Council to perform a special assessment for unusual developments.

5.6. Policy Strengths and Weaknesses

The main **strengths** of the policy include that it:

- Aggregates charges across activities to display the totals for each funding area;
- Adopts a pragmatic view regarding the provision of reserves contributions, and only requires them in areas where there is currently a perceived shortage;
- Provides detailed breakdowns of past and future capital costs, which aids transparency;
- Clearly states the criteria that the Council will apply when assessing proposals to provide land in lieu of cash for reserves contributions; and
- Allows for special assessments to be performed where the infrastructure demands of a development are significantly different than expected.

The main **weaknesses** of the policy are that it is relatively unsophisticated, and appears to omit several important details. Specific issues include that:

- The policy does not appear to fully comply with LGA reporting requirements, for example it does not adequately describe where, why, and how the Council uses DCs. Nor does it explicitly state the significant assumptions underlying its charges, instead referring readers to generic assumptions contained elsewhere in the LTP;
- It does not appear to explicitly consider the distribution of benefits when allocating costs;

- Sets conversion ratios for multi-unit residential that are too high because it underestimates the average size of detached dwellings;
- The funding model used to calculate charges works in real terms, and thus does not inflate future capital costs. Consequently, it systematically understates future capital expenditures in nominal terms, which are required to accurately model the financial impacts of the policy. Performing the analysis in nominal terms (by inflating future costs) solves this, and enables the calculation of a more reliable stream of future DC charges;
- The conversion factors appear to be based on the Statistics New Zealand's Time Use Survey 1998-99, which is now 20 years old, and may therefore no longer be reliable;
- The policy contains some formatting issues – such as inadvertent paragraph breaks and font sizing inconsistencies – which collectively undermine its overall legibility;
- The policy excludes funding area maps; and
- The policy lacks a table of contents and hence has only limited navigability.

6. Tauranga

6.1. Cost Allocation Methodology

Tauranga's cost allocation methodology is similar to Auckland and Hamilton's. Specifically, based on the considerations in section 101 of the LGA and acknowledging the recently-inserted DC principles, it allocates the cost of each project to backlog, renewal, and growth. Again, equal weight is given to both causation and benefits received to reach the final allocation.

Like the others, we could not see any material changes to this aspect of Tauranga's policy following the LGA amendments, with no obvious need for changes given that it already appeared to comply.

6.2. Funding Areas

Tauranga's policy assigns each growth project to either a citywide catchment, or 11 localised catchments (each of which maps to a separate urban growth area). While the principles generally frown upon the use of citywide funding areas like this, we consider it appropriate here given the relatively small and compact nature of the city. In addition, the policy clearly identifies the criteria used to allocate projects to the citywide or local catchments, which aids transparency. Accordingly, we endorse this approach.

Overall, the number of funding areas used in the policy has increased slightly from the version that was operative just prior to the LGA amendments. However, this simply reflects the creation of two new growth areas during that period, namely Wairakei and Tauriko. Those new areas aside, however, there has been no discernible changes to this part of the policy.

6.3. Cost Recovery Methodology

Tauranga's approach to this task is industry-standard, with the methodology simply recovering growth-related costs within each funding area over the asset's capacity life. One interesting and unique feature of Tauranga's approach is that it ignores interest costs accruing beyond the 10-year LTP horizon for a handful of very large projects, which reduces the DC charges by a few hundred dollars.

Most elements of this methodology do not appear to have changed in recent years, which is probably (again) because it was already fully compliant with the DC principles.

6.4. Development Types and Conversion Ratios

Tauranga's approach to identifying development types and setting conversion ratios is quite different from other Councils, at least for non-residential land uses. Specifically, the policy classifies all non-residential land uses as either business activities, low-demand business, or community organisations. Then, it sets separate conversions ratios for each development type and each DC activity.

On the one hand, this is quite a simple approach that is easy to understand. However, it is also likely to mask significant variation in infrastructure demand between different non-residential

development types, particularly for transport infrastructure. This is because the policy sets the same conversion factors for businesses and low-demand businesses even though demand will invariably differ. For example, a warehouse (which is a low demand business) would typically have much lower transport demands than retail, but the policy treats them the same.

Tauranga's approach to setting conversion ratios for residential activities, however, is quite progressive. In short, it adopts the same basic approach as Hamilton, which varies the charges based on the number of bedrooms in each dwelling. As concluded earlier, this is likely to provide the best possible fit between dwelling configurations and resulting infrastructure demands, and could therefore be considered best practice.

One interesting and unique aspect of Tauranga's approach is that it sets the charges for some greenfield areas on a per hectare basis, rather than per dwelling. Amongst other things, this may promote the efficient utilisation of land, and it may also be the most appropriate way to share the costs of certain infrastructure components, such as reticulation.

6.5. Policy Content, Transparency & Overall Usability

The structure, format, and content of Tauranga's policy has changed significantly in recent years. However, at 198 pages, it is not feasible (or, perhaps, desirable) to try and list all those changes here. Suffice to note that the latest policy document is well-structured, transparent, and appears to fully meet all LGA reporting requirements. In addition, it provides clear signposts throughout that direct the reader to the relevant sections. However, on the downside, the policy is very long and may therefore appear unwieldy to some users.

6.6. Policy Strengths and Weaknesses

The main **strengths** of the policy include that:

- It is well laid-out, clearly formatted, and easy to navigate;
- It records the changes made in each successive version of the policy;
- Provides a table of charges and clear funding area maps near the start of the document, which are of greatest interest to most users;
- It includes a detailed table that summarises the various LGA requirements and provides signposts to relevant parts of the document. This improves transparency and navigability;
- Future infrastructure requirements are derived from detailed modelling of growth scenarios, which helps ensure that infrastructure is provided in line with demand where and when it is needed;
- The calculation of charges follows industry best practice by inflating capital costs and modelling interest effects, but it does not index charges;
- Enables special assessments for developments with unusual infrastructure demands, and clearly defines the demand thresholds at which an assessment will be triggered;
- Allows contributions to be postponed or deferred in specific circumstances which, again, are clearly defined; and

- Sets infrastructure charges per hectare for greenfield sites, which may improve land use efficiency by encouraging denser development to occur than might have otherwise.

The main **weaknesses** of the policy are that:

- It is intimidatingly-long at 198 pages including appendices;
- The presentation and summary of the underlying growth projections is confusing;
- It seems to set the same transport conversion ratios for all business activities, but actual demand will vary significantly. For example, industrial land uses typically generate far less traffic than retail ones per 100m² of GFA, but the policy appears to ignore this; and
- It does not provide an online calculator, which would significantly assist many users.

7. Part 2: Brief Analysis of DC and FC Revenues

7.1. Introduction

This section briefly analyses how DC revenues have tracked over time, particularly in relation to total operating incomes and key measures of growth, such as population and building consents.

7.2. Annual DC & FC Revenues

Table 3 summarises the annual DC and FC revenues of the four high-growth areas, plus the rest of New Zealand, between 2003 and 2017. These revenues have varied significantly over time. For example, total DC/FC revenues tripled between 2003 and 2008 as more Councils adopted DC policies and construction boomed, but they fell 46% between 2008 and 2011 following the GFC. Since 2011, however, they have grown 167% to exceed \$380 million per annum.

Table 3: Annual DC and FC Revenues \$m

June YE	Hamilton	Queenstown	Tauranga	Auckland	Rest of NZ	Total NZ
2003	\$7.0	\$4.0	\$0.0	\$71.5	\$5.4	\$88.0
2004	\$6.1	\$6.8	\$0.0	\$69.4	\$18.8	\$101.2
2005	\$7.1	\$0.0	\$0.0	\$71.3	\$58.7	\$137.1
2006	\$10.9	\$0.0	\$14.0	\$65.4	\$76.7	\$167.0
2007	\$15.6	\$0.0	\$23.2	\$101.3	\$95.1	\$235.2
2008	\$12.6	\$14.5	\$19.0	\$105.1	\$114.5	\$265.8
2009	\$6.6	\$7.3	\$11.9	\$85.4	\$85.2	\$196.4
2010	\$5.7	\$10.4	\$11.5	\$77.3	\$73.1	\$178.0
2011	\$6.4	\$1.5	\$8.2	\$61.7	\$64.5	\$142.2
2012	\$9.5	\$4.0	\$8.3	\$51.8	\$71.9	\$145.3
2013	\$11.9	\$3.0	\$9.2	\$64.6	\$100.3	\$189.0
2014	\$18.1	\$5.5	\$14.7	\$102.4	\$119.0	\$259.7
2015	\$16.1	\$7.9	\$19.1	\$106.5	\$126.3	\$275.8
2016	\$24.2	\$8.2	\$27.1	\$130.6	\$131.8	\$321.9
2017	\$15.8	\$13.1	\$36.2	\$163.8	\$152.0	\$381.0

7.3. Contributions to Operating Incomes

Next, we analysed the contribution of DC and FC revenues to total operating incomes in each area since 2003. The results are tabulated below, and show that they have accounted for between 1.9% and 4.3% of total operating incomes nationally. However, much greater variation is evident at the individual Council level.

For example, DC and FC revenues accounted for 26.4% of Queenstown's total operating income in 2008, but only 2.1% in 2011. Similarly, they accounted for 19.2% of Tauranga's total operating income in 2007, but only 5% in 2013. Interestingly, Auckland's shares are more stable, ranging from 0.9% in 2012 to 2.7% in 2007/8. Overall, the DC and FC revenue shares of total operating incomes have varied significantly across both space and time.

Table 4: DC and FC Revenue Shares of Total Operating Incomes

June YE	Hamilton	Queenstown	Tauranga	Auckland	Rest of NZ	Total NZ
2003	7.1%	10.9%	0.0%	2.5%	0.4%	2.1%
2004	5.8%	17.6%	0.0%	2.3%	1.4%	2.2%
2005	6.3%	0.0%	0.0%	2.2%	4.0%	2.8%
2006	9.0%	0.0%	13.4%	1.9%	4.7%	3.1%
2007	12.4%	0.0%	19.2%	2.7%	5.5%	4.1%
2008	9.1%	26.4%	15.9%	2.7%	6.0%	4.3%
2009	4.3%	12.4%	9.5%	2.1%	4.2%	3.1%
2010	3.6%	15.9%	8.6%	1.8%	3.4%	2.6%
2011	3.9%	2.1%	5.6%	1.2%	3.4%	1.9%
2012	5.5%	5.1%	5.2%	0.9%	3.9%	1.9%
2013	6.9%	3.6%	5.0%	1.2%	5.5%	2.4%
2014	10.1%	6.5%	8.5%	1.8%	6.0%	3.2%
2015	8.1%	8.5%	10.5%	1.8%	6.1%	3.3%
2016	12.1%	8.4%	14.6%	2.1%	6.2%	3.6%
2017	7.5%	11.6%	18.2%	2.4%	7.0%	4.0%

7.4. Relationship to Measures of Growth

We also analysed the extent to which the DC and FC revenues of the four Councils had tracked against key measures of growth, such as population and building consents. While there were only mediocre correlations with population growth, much stronger relationships were detected with residential building consents. This is shown in the following series of charts, which plots DC and FC revenues against the number of residential building consents issued the year before for each area since 2007.⁵ The relationships are strong, particularly in Auckland and Tauranga, and for all four areas combined.

To formally test for a statistical relationship between these variables, we estimated a simple linear regression of DC/FC revenues against lagged residential building consents. The results confirmed the strong relationship illustrated in the graphs below. In short:

- The regression had an R-squared value of 0.96, which indicates a very good fit;⁶
- The parameter estimate attached to the consent variable had a plausible sign, and was highly statistically significant; and
- The F-value, which measures the overall plausibility of the model, was also very high.

Accordingly, our simple linear regression confirms that DC/FC revenues are strongly associated with development activity, just as we would expect.

⁵ The analysis begins in 2007 because earlier data are confounded by the gradual uptake of DCs, which causes revenues in earlier years to grow faster than development. In addition, the correlations use lagged consents to reflect the timing gap between building consents (which trigger a DC assessment) and their payment later on (i.e. when a code compliance certificate is issued).

⁶ R-squared is also known as the coefficient of determination. It measures the overall goodness of fit, with an R² of 0 indicating no fit; and a value of 1 indicating a perfect fit.

Figure 2: **Auckland** DC and FC Revenue vs Lagged Dwelling Consents

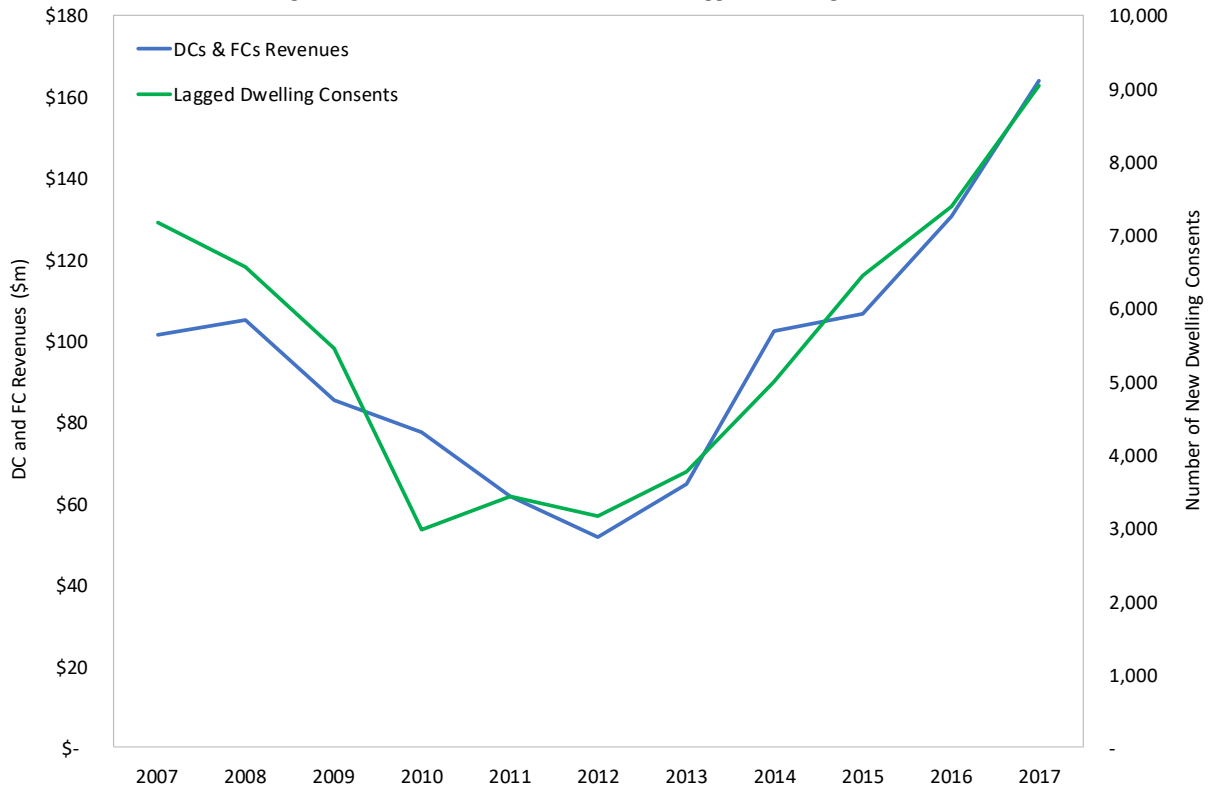


Figure 3: **Hamilton** DC and FC Revenue vs Lagged Dwelling Consents

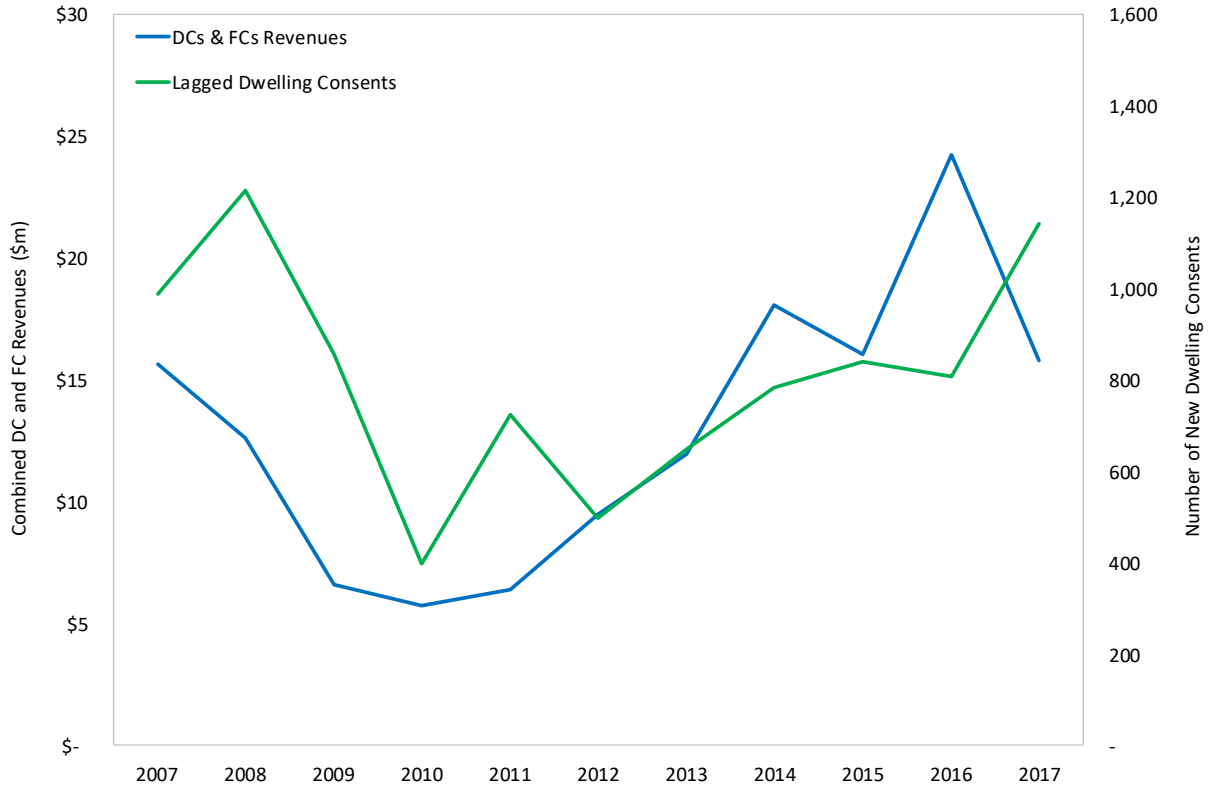


Figure 4: **Queenstown** DC and FC Revenue vs Lagged Dwelling Consents

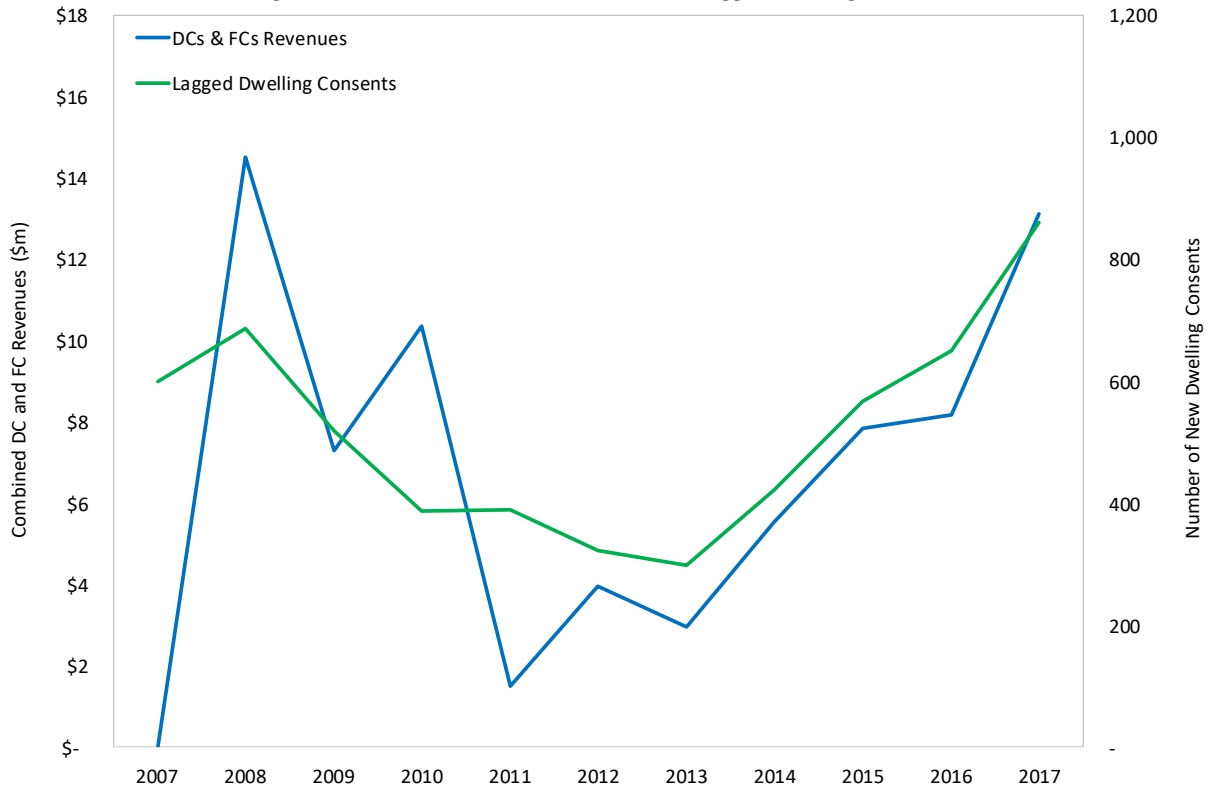


Figure 5: **Tauranga** DC and FC Revenue vs Lagged Dwelling Consents

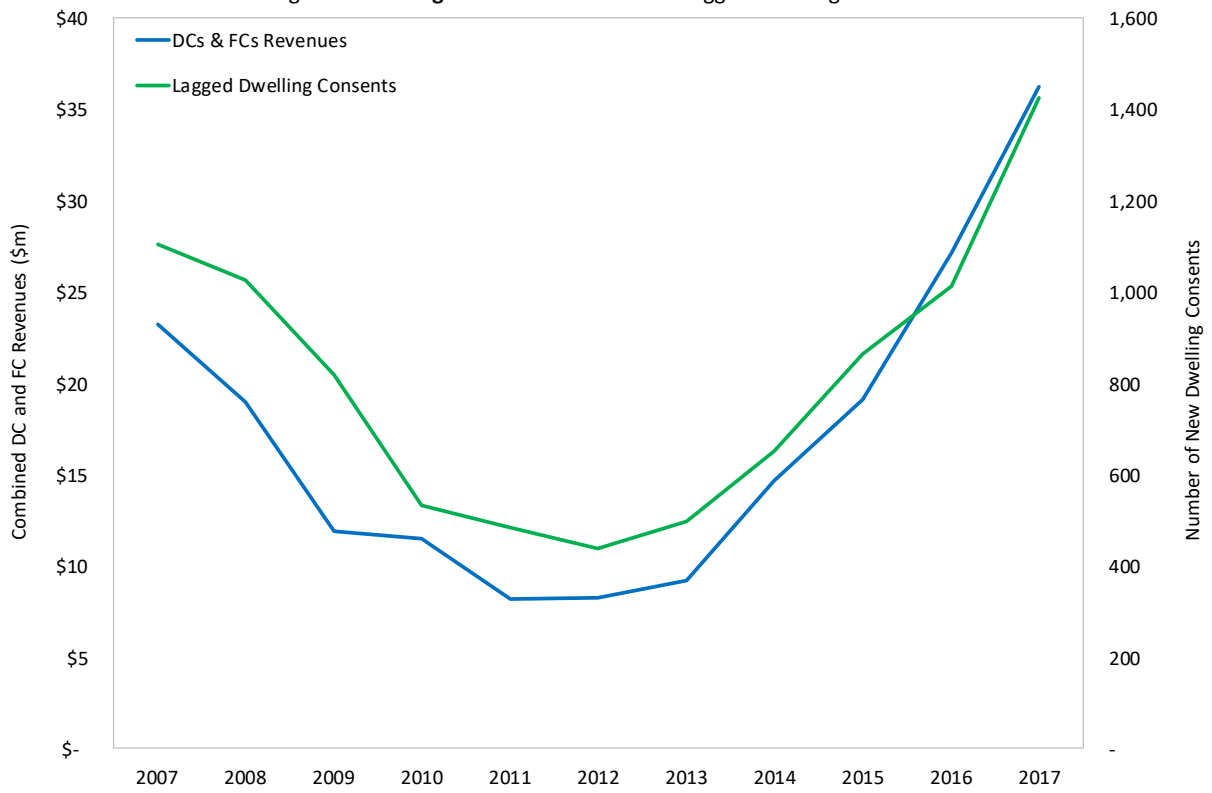
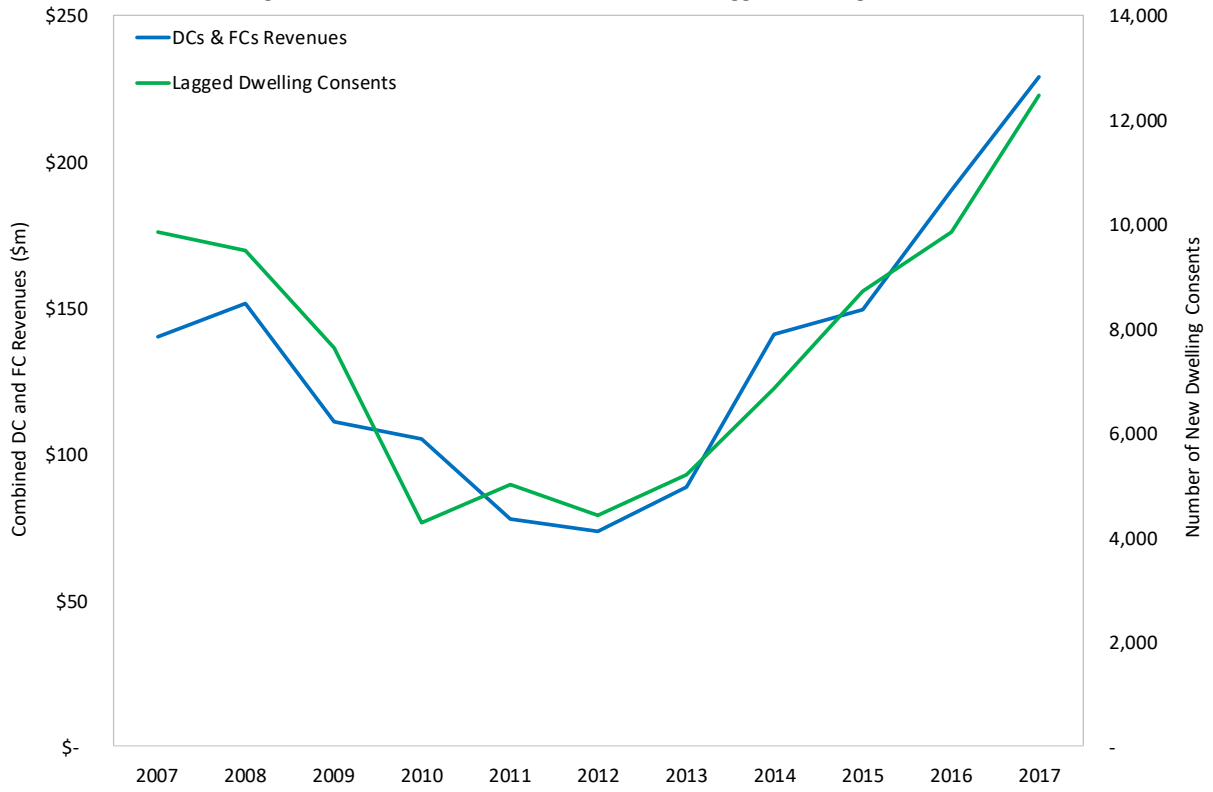


Figure 6: All Four Areas: DC and FC Revenue vs Lagged Dwelling Consents



8. Part 3: DCs vs Infrastructure Growth Charges

8.1. Introduction

Most DC policies cover the full range of activities eligible for charges under the LGA, including water and wastewater. However, Auckland's policy does not because Watercare instead levies an infrastructure growth charge (IGC) in lieu of water and wastewater DCs. This section briefly comments on the similarities and differences between DCs and IGCs, and summarises their overall advantages and disadvantages.

8.2. Similarities

IGCs are akin to DCs in many ways. For example, both help recover the costs of growth-related capital works from development over time, and the stated rationale for using both is very similar. In addition, DCs and IGCs are alike because they both:

- Only fund capital works, with operational works funded elsewhere;
- Acknowledge that the impacts of growth occur cumulatively over time;
- Allow charges to be set for both historic and future projects;
- Allocate costs based on the extent of causation and benefits received;
- Adopt a long-term view when determining the incremental costs of growth;
- Define a standard unit of demand based on the needs of a typical household;
- Provide discounts for smaller dwellings and credits for prior or existing land uses;
- Can be contested via an objection or reconsideration process; and
- Are designed to reflect asset capacity lives and to avoid cost over-recovery;

8.3. Differences

Despite the numerous similarities listed above, however, IGCs and DCs also differ in many important ways. For example:

- Unlike DCs, IGCs are a contractual charge that can be altered unilaterally by Watercare at any time provided they communicate changes at least 10 days before they take effect.
- IGCs can be charged when water and/or wastewater network demand increases absent any form of property development, whereas DCs cannot.⁷
- In addition, IGCs can be charged when a larger water meter is installed or when the land use changes absent a resource consent process, but DCs cannot.
- Where future demand is unknown, IGCs are initially assessed against similar developments. Then, a year later, actual demand is assessed, and any shortfall attracting extra charges. However, no credit is provided for overcharging. DCs, conversely, cannot be reassessed absent a new building consent, resource consent, or service connection.

⁷Specifically, IGCs can be charged where a non-domestic customer increases water usage at their property by 220,000 litres or more per year, or discharge wastewater from their property by 209,000 litres or more per year.

- A uniform IGC rate applies across the entire Auckland metropolitan area, whereas DCs differ sub-regionally.

8.4. Advantages and Disadvantages

The key advantage of IGCs is that they can be levied absent development if or when demand increases. Furthermore, IGCs can also be reassessed at a future date when better information becomes available about actual demand. Both are handy features that are unavailable to DCs.

However, we consider these advantages to be significantly outweighed by the lack of stakeholder participation in the setting of IGCs coupled with Watercare's ability to unilaterally alter them at any time. Together, these contractual abilities confer significant market power on Watercare, which is already the monopoly provider of water and wastewater services in the region and thus free of any competitive pressures. Accordingly, we prefer the more consultative approach of DCs.

9. Summary and Conclusions

This report has analysed changes in the DC policies of four high-growth areas following the LGA amendments in 2014. Overall, our review has detected relatively few changes to those policies over that period, mainly because they were – mostly – already compliant with the new provisions.

However, certain policy features have evolved over the last five years, such as greater use of localised funding areas, and the identification of more development types. Both help forge closer links between the infrastructure demands of specific developments (in certain locations) and the suite of capital works that they are required to help fund via DCs. Accordingly, both help give effect to the DC principles.

While the DC policies for Auckland, Hamilton, and Tauranga represent sophisticated and well-written documents that reflect constant refinement over an extended period, we consider Queenstown's policy to lack the same quality and detail. Although Queenstown's population is considerably smaller, and its Council therefore possibly not as well-resourced, the policy appears to be deficient in many ways and should be updated to align with best practice.

That observation aside, we believe that the DC policies reviewed in this report generally reflect the DC principles to the greatest extent practicable, and thus provide a transparent and reliable platform for setting DC charges.

This report has also briefly reviewed the evolution of DC revenues in the four Council areas, and shown that they have fluctuated significantly over time. As a result, they have accounted for variable shares of total operating incomes. However, simple statistical analysis reveals that this variation is driven by underlying variation in development levels, as expected.

Finally, this report has also compared DCs to Watercare's IGC. While the two approaches have many similarities, they also differ in many important ways. Overall, we prefer DCs because they are more transparent, and they provide much greater scope for stakeholder input during policy development and implementation.