

INNOVATION USING HOUSING CHARGES TO FUND AND FINANCE BULK INFRASTRUCTURE

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ABSTRACT

The principal aim of the research is to provide a critical discussion on the use of housing charges to fund and finance bulk infrastructure. In doing so, we provide a literature review of similar financing models, as set in the infrastructure-housing landscape – particularly theory and concepts on innovation. The methodology includes key stakeholder interviews on the policy development of a pilot infrastructure-housing charge. The focus of the pilot is a new build site case study, characterised as a large-scale greenfield site. The site sits contextually in the city-region of Auckland (New Zealand) that is dealing with problems of funding and financing infrastructure.

Findings highlight that the funding model takes on innovation characteristics that are evolutionary and new. In shaping these innovations we see the realisation of bulk funding born out of a focus on bulk infrastructure requirements. Although this realisation is focussed on economic value and largely via a top-down 'forced' negotiation process. Pressures for innovation are also generated from a wider move to decentralised resource control, but one that defers risk away from the public funds to a partnership. Further, costs appear to be on a myopic focus on growth, and a perceived benefit generated from a traditional ring-fenced approach to a project. Finally we find that the model holds practical innovation, but the limits tend to be as a new and applied innovation to a domestic context.

Keywords: Infrastructure, Funding, Financing, Housing Charges, Innovation

INTRODUCTION

In justifying the need for this research, at a global level, infrastructure and its financing is at a critical point with an ever-widening gap on what ‘should’ and ‘can’ be financed to support real estate development, for instance:

“From 2016 through 2030, the world needs to invest about 3.8 percent of GDP, or an average of \$3.3 trillion a year, in economic infrastructure just to support expected rates of growth. Emerging economies account for some 60 percent of that need. But if the current trajectory of underinvestment continues, the world will fall short by roughly 11 percent, or \$350 billion a year. The size of the gap triples if we consider the additional investment required to meet the new UN Sustainable Development Goals” (Woetzel et al, 2016)

The research establishes a critical discussion on the benefits and costs of alternative or innovative infrastructure financing. More specifically to help bridge the infrastructure finance gap, this project aims to uncover a deeper understanding of bulk infrastructure finance via an introduced debt-equity partnership that includes a private housing charge for New Zealand. This housing charge seeks to pay for new greenfield development bulk infrastructure that includes transport and water – excluding energy, waste, information communications, and public capital/services.

Financial innovation is deemed in part to be the end goal of funding project. As arguably the enablement of development would not have occurred without the private housing charge to pay for infrastructure. For New Zealand and its most populous city of Auckland, with a considerable housing ‘crisis’ in terms of affordability, bridging the infrastructure finance gap was seen by many stakeholders as critical.

Further as introduction, the central research questions gave subject focus to develop clearer findings and subsequent discussion, they were as follows:

1. Why are we looking at Infrastructure Funding and Financing (IFF) to deal with bulk infrastructure?
2. How are public institutional finances constrained?
3. What are the benefits and costs of using an infrastructure bond and housing charge policy?
4. Are the models ‘alternatives’ or ‘innovations’ (or something else) in dealing with ‘the problem’ of financial constraints on infrastructure?

To explore these research questions and meet the objectives this study took a case study approach. The case study takes the form of a geographic case study in Milldale, north of Auckland city centre, New Zealand. The Milldale site is new greenfield large-scale housing development project that includes the provision of bulk infrastructure. The infrastructure is largely funded by a loan, that is financed against a long-term private housing charge, paid by those who will reside in the site’s properties.

Understanding Infrastructure Funding and Finance – As Innovations and Alternatives

Infrastructure can take many categories and various opaque overlapping taxonomies. More crudely, infrastructure may be owned and managed by governments or by private companies, such as sole public utility or railway companies. Generally, most roads, major airports and other ports, water distribution systems, and sewage networks are publicly owned, whereas most energy and telecommunications networks are privately owned (or privately leased). Publicly owned infrastructure may be funded from taxes, tolls, or

metered user fees, whereas private infrastructure is generally funded by metered user fees. Further, funding of infrastructure can be drawn against the person or place: in person in the case of income taxes, or from place in the case of the actual infrastructure project such as a bridge, or the zone/district/parcel/plot/section a user consumes the benefits of the infrastructure (Koh, 2018).

Complications arise as to whether some items are infrastructure or not, such as hotels (commercial or infrastructure) or affordable housing (residential or infrastructure). Sub-categories and complex taxonomies are not explored in depth for this study on 'bulk infrastructure', especially as bulk infrastructure focuses on transport (mainly road) and water; with the 'affordable housing' component sitting as residential rather than infrastructure. Moreover, partnership approaches in projects are becoming more commonplace, particularly in the financing and operating (and also design and build) of infrastructure. The perception of clear and mutually exclusive 'public' and 'private' approaches are no longer applicable. To follow the money takes us on a new paradigm of property ownership.

At the outset an understanding of what we mean by innovation is necessary. In Figure 1 we put forward the nature of innovation by bringing together the central tenets and how they have transcended to embrace deeper requirements, operational needs, financing types, and funding mechanisms. The central tenets in the nature of innovation consider 'new' things that are imagination, creation or ideas based. Particularly those that apply better practical implementable solutions to meet new requirements, meet unarticulated needs or meet existing market needs (Maranville, 2012). Therefore, for 'innovative finance' we are looking at possible future financing solutions that suit new requirements whether known or unknown (possibly even unknown unknowns to be discovered). Hence different geographic and temporal contexts in applying existing solutions could potentially be innovative – especially if there are more effective products, processes, services, technologies or business models for markets, governments and society.

We can begin to see more 'innovations' in infrastructure finance in the literature as those non-traditional forms of funding through private mechanisms, solidarity mechanisms, public-private partnerships mechanisms, and catalytic mechanisms (Grishankar, 2009). When thinking of 'innovative finance', definitions are seen as those measures providing financial support to address one or more policy objectives through the use of loans, guarantees, equity or quasi-equity investment, or other risk-bearing tools – that can be combined with grants and involve risk-sharing with financial institutions to boost investment in large infrastructure projects (Spence et al., 2012).

Innovative finance is integral to successful outcomes, particularly in the present low growth climate where investors are likely to be cautious (Bartke, 2013). To deal with a more complex economic condition, the reality in financing development mechanisms has typically been a blending of loans and grants (Bilal and Kratke, 2013). Innovative finance, in part, is intended to share risk, and potentially provides greater flexibility (Carter, 2006). The sharing of risk as a particularly important aspect of 'public' infrastructure from private finance, especially as it is argued that risks are under estimated and allocated to parties without the knowledge, resources and capabilities to manage them effectively (Ng and Loosemore, 2007).

Figure 1: The nature of innovation in urban infrastructure funding and financing



Source: Author

The nature of financial innovation for infrastructure funding and financing is therefore exemplified by the innovative tools and mechanisms being used, but we are not focussing on the financial product innovations themselves. More a case ‘of what’ their characteristics are, and ‘for whom’ the dimensions of their shaping are directed towards. To be clear we are looking in this study at ‘innovations in infrastructure finance and funding’, not ‘financial innovation’. Financial innovation will more specifically focus and concern itself with new financial products, institutions, and markets that can change the way in which the financial landscape is conducted (Miller, 1986). The relatively recent introduction of derivatives, hedge funds, and the market for crypto-currencies would be good examples of these types of ‘financial innovation’. We are similarly not considering ‘financial innovation’ around approaches using a ‘regulatory dialectic’, a situation where rapid changes in the financial environment, lead to banking regulation becoming overwhelmed by technological and regulation-induced innovation (Kane, 1981).

What Innovations? Infrastructure Funding and Finance Practices

In order to further open themes on urban infrastructure finance it is important to consider the type of practice and whether they embody practices that are traditional, innovative, and/or alternative. From Table 1 we find put forward from prior work (mainly in the UK) that Traditional models cluster around tax type practices, grants, and debt finance. More innovative practices to consider are those clustered around incentives, platforms, capturing, leveraging, and revolving. We see overlap in both traditional and innovative clustering in urban infrastructure finance when they involve more contemporary Public Private Partnerships (PPPs). This is overlap is largely due to actors and institutions being more innovative with the urban infrastructure finance mechanisms available – part ‘what’ and part ‘who’ are practicing innovation in the field.

Table 1: WHAT INNOVATION? Characteristics of Infrastructure Funding and Finance Practices – Traditional, Innovative and Alternative

<i>Type</i>	<i>Traditional, Innovative or Alternative</i>	<i>Examples</i>
<i>General Taxes: Contributions; Agreements; Fees; Levies; and Rates</i>	<i>Traditional</i>	Impact fees; developer contributions; infrastructure levies; community benefit agreements; local authority rates
Grants	<i>Traditional</i>	Grant programmes (e.g. supranational, national, regional, city/city-region, local)
Debt finance	<i>Traditional</i>	General obligation bonds; revenue bonds; conduit bonds; national loans funds (e.g. UK Public Works Loan Board)
Public-private partnerships	<i>Traditional Practice Characteristic (for what) AND Alternative Practice Dimension Use (for whom)</i>	Private finance initiatives; build-(own)-operate-(transfer); build-lease-transfer; design-build-operate-transfer; public-private housing charge
Tax incentives	<i>Innovative</i>	New market, historic and housing tax credits; tax credit bonds; property tax relief; Enterprise Zones
Platforms for institutional investors – equity finance	<i>Innovative</i>	Pension and insurance infrastructure platforms; state infrastructure banks; regional infrastructure companies; real estate investment trusts; sovereign wealth funds; Development Corporation Shares; Infrastructure Project Finance
Value capture mechanisms	<i>Innovative</i>	Tax increment financing; infrastructure financing districts; special assessment districts; community facilities districts; accelerated development zones; transit orientated development funds; priority development areas; (transport) sales tax financing.
Asset leverage and leasing mechanisms	<i>Innovative</i>	Asset leasing; institutional leasing; local asset-backed vehicles
Revolving infrastructure funds	<i>Innovative</i>	Infrastructure trusts; investment recycling initiatives

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Source: Author; adapted from O'Brien and Pike (2019)

In terms of 'what innovation' in funding and financing infrastructure, general taxes are more narrowly defined in terms of their attributes. General Tax attributes could include Contributions, Agreements, Fees, Levies and Rates to fund infrastructure. For contributions in this development context we consider appropriation of funds via 'Developer Contributions' (Gielen and Van der Krabben, 2019). Developer Contributions (alternatively Developer Charges or Planning Gain) are a type of impact fee, where a proportion of the impact is paid for by the developer making the impact.

Community Benefit Agreements (CBA) in the United States are one such development contribution policy that a community and developer stakeholder consortium pays for some of the public and private infrastructure (Laing, 2009). For the United Kingdom, this type of developer contribution is by Section 106 Agreements, where a proportion of payment is given by the housing developer towards any external impacts. By extension the UK looked to supersede the 106 Payment with an 'infrastructure levy' which took the policy form of a Community Infrastructure Levy (CIL), where the infrastructure payment may be for both bulk infrastructure and more soft service provision needs such as playgrounds (Lord, 2009). Interestingly, there is empirical evidence to support the proposition that developer paid infrastructure charges are a significant contributor to increasing house prices (Bryant and Eves, 2013).

These developer contributions and infrastructure levies will often be in addition to traditional public rates that are paid as local authority rate tax by householders, or by businesses collected as taxes at the local and national governance level. As example in the UK of an additional local business tax that connect to urban infrastructure, Business Rate Supplements (BRS) enable cities to generate funding for infrastructure projects through a tax levied on businesses, in addition to the national business rate tax (Harrison and Marshall, 2007). The funds are retained locally and used to raise finance for investment in specific development projects, jointly identified by local authorities and local businesses.

Some of the initiative mentioned above are also grant programmes implemented at differing spatial scales and levels of governance - supranational, national, regional, city/city-region, local. Programmes that include urban infrastructure from a block grant payment are arguably traditional. For the European Union supranational institution, commission of large-scale grant programmes involving infrastructure have been via the European Regional Development Fund (ERDF) that encourages many transnational cooperation projects (Squires et al, 2016).

Debt finance approaches to financing urban infrastructure are also arguably traditional in type. Typical debt finance for infrastructure orchestrated by government include bonds such as 'general obligation bonds' – a type of local authority loan that is secured by larger geographical administrative institution (e.g. territorial state or national) that is paid back by property tax payers. Any shortfall is often guaranteed by the local authority, plus the rate of tax rise/fall can be limited to a certain percentage, or on occasion unlimited percentage backed by a public vote – as exemplified by the Proposition 13 ruling in California (Martin, 2006). Conduit bonds are another type of government traditional debt finance, where a governmental entity issues bonds to finance a project managed as a Special Purpose Vehicle (SPV) that may include non-profit corporations, private companies, or other governmental bodies. More direct larger loans from the public funds are a further traditional debt finance, with institutional examples such as the Public Works Loan Board (PWLB) in the UK that provides low interest government backed debt to fund major infrastructure (Greenhalgh and Squires, 2011).

For tax incentives in urban infrastructure, we see this more as an innovative approach, although what we mean by the 'incentive' can be sometimes traditional when simply considering a tax break for investors.

Innovations are held where a catalysing effect is created to renew or regenerate an area that would not have done so ‘but for’ some intervention. This renewal extends to created new markets that would not have existed but for the tax incentivising intervention. Property tax relief and the encouragement of business districts through the Enterprise Zone and Empowerment Zone initiatives are notable cases (Squires and Hall, 2013). Tax credits as well as tax relief are also innovative ways with which urban infrastructure is funded. With schemes such as the Low Income Housing Tax Credit (LIHTC) scheme that federal guarantee of credits levers commercial and not-for profit institutions to put in match funds for district wide urban development projects that include infrastructure. Even more layered in innovation are tax credit bonds, that not only match credits to other institutional funds, but float these credits as bonds to investors that are paid back by the issuing authority (mainly paying the premium rate and not the coupon rate). As such, the tax credits delivered through the bonds are unlike typical tax credits because the credit is included in taxable income as if it were interest income (Klein, 2009).

More innovative urban infrastructure financing are those contemporary mechanisms with which institutions are able to lever funds on the markets. With patient capital from pension funds and insurance companies being able to be part of the finance mix, new debt-equity packages are becoming more prominent (Squires et al, 2016). Further, more specialise banks and funds are able to evolve for the purposes of infrastructure development such as state infrastructure banks, sovereign wealth funds (Yusuf et al, 2010). This is in addition to new specialised companies that would focus on infrastructure such as national regional infrastructure companies (CIP, 2019). Plus the ability to raise capital for infrastructure via regular companies share issuance via these companies. As well as the proliferation more recently of Real Estate Investment Trusts (REITs), that are effectively real estate backed funds that are tradeable investment commodities in the financial marketplace (Giliberto, 1990). In a similar vein, emerging Infrastructure Project Finance also encapsulate the creation of funding from bonds that are asset backed against projects that are often infrastructure based. These bonds are traded as investment products, and becoming more popular with over 400 project bonds recorded in China by 2013 (Hutchinson et al, 2016).

Value-capture mechanisms focussed on the uplift in real estate are being increasingly adapted at the core of ‘innovative’ infrastructure development (Merk et al., 2012). The focus on capturing uplift is often of prominence, rather than uniform or declining value to capture. Land value finance is used to recover the capital cost of infrastructure development by capturing some or all of the increments in land value resulting from the initial outlay (Medda and Modelewska, 2009; Medda et al., 2012). Land value capture finance, to fund infrastructure has a long tradition in public finance, as value capture can stimulate further land development, economic growth, and increasing property values (Starrett, 1981; Roukouni and Medda, 2012). Examples in this value capture sphere include Tax Increment Financing (TIFs) that fund projects that include infrastructure (Webber, 2010; Squires and Lord, 2012; Squires and Hutchison, 2014). TIFs in California have morphed into what is know as Infrastructure Financing Districts (IFDs), where the focus of the bond is more on infrastructure and even more spatially targeted within a district. Spatially targeted districts and zones feature in further specific US approaches to land value capture with infrastructure in mind when we consider policies that deal with unique parcels of development (Special Assessment Districts – SPD); community (Community Facilities Districts – CFD), and economic urban development (Accelerated Development Zones – ADZ) (Squires, 2018). These spatial boundaries of funding connect to each other geographically and thus consider transport in their connectiveness. More recent Transit Orientated Development Funds (TOAF) within priority development areas are testament to this more innovative funding approach with value capture, as money can be ported over space (e.g. with districts/zones and infrastructure connections) as well as time (e.g. with bonds) (Squires, 2014). Value capture funding within the infrastructure sector is also possible when we consider the ability for transportation sales tax revenues to fund some infrastructure projects (Crabbe et al, 2005).

Innovations around asset leverage and leasing to enable infrastructure funds involve those ways in which (often local) assets can be specifically utilised to evoke financial capital. Local asset-backed vehicles (LABV) could be consortiums that are looking to develop areas and see the realisation of a physical piece of infrastructure to self-finance over a period of time. Of difference to municipal local authority bond approaches, is that the public body transfers real estate to the entity, and the private sector partner matches

the value of those assets with cash (Greenhalgh and Purewal, 2015). As a variation on this LABV approach, there could be a leasing of assets by a public (or private) institution, which means that asset ownership remains with the lease holder, as agreed in the contract between the different institutions (Ashton et al, 2016).

Infrastructure finance innovation via revolving infrastructure funds are those mechanisms that are continually self-funding and thus need no annual government budgeting. An example in the US includes the Clean Water State Revolving Fund (CWSRF) program, a federal-state partnership that provides communities a permanent, independent source of low-cost financing for a wide range of water quality infrastructure projects. Using this example, as loans are paid back on some of the water projects, further water projects are invested in that will generate the next round of loans for future income and so on. Hence, this innovative ring-fenced approach can use 'buckets' of infrastructure funds as 'infrastructure trusts' and as infrastructure programmes that are often referred to as 'investment recycling initiatives' (Bunch, 2018).

The Public-private partnerships (PPP) model is one infrastructure finance type that we consider here as both traditional and an alternative approach, but not necessarily 'innovative'. PPP is traditional in that one or more institutions have historically joined together and pooled finance and/or resources to fund infrastructure. What is arguably more alternative in contemporary urban infrastructure funding and finance, is that public infrastructure are not necessarily from public-led institutions. This raises questions as to what is 'public' when providing infrastructure, and to what extent private finance should fund the infrastructure. To the latter question of private finance, the extent will depend on the organisational contract in terms of funding the design, build or operations. This also extends to differences of ownership at certain phases of infrastructure development. As building to operation phases may change ownership from more public to private hands, before returning to the public after several years of operation.

One traditional infrastructure financing model of PPP is through the use of the Private Finance Initiatives (PFI). PFI involves the transfer of substantial risk relating to construction and operation to the private sector - one argument being that the private sector is better placed to manage the risk (Adair et al, 2011). Services are provided on a contractual basis between the consortium and the relevant public body, with the contract being awarded following competitive bidding. Private Finance Initiatives (PFI) are meant to offer 'value for money', allocated risk sharing, and the general efficiency of the private sector (Wall and Connolly, 2009). PFI financing is structured to ensure the consortium receives a full return on costs, plus payback of interest on the borrowed capital, and a return on their investment (Greenhalgh and Squires, 2011). Despite initial difficulties of PFI, such as insufficient flexibility during the operational period, governments have introduced changes to PFI to address some weaknesses (HM Treasury, 2012). Non-Profit Distributing (NPD) are relatively adaptations of PFI, and have the additional benefits of capped returns. Plus operational surpluses are reinvested in the public sector to maintain a public interest represented in the governance of the NPD structure (Scottish Futures Trust, 2011).

We see in this case study a public-private housing charge for infrastructure as part of this traditional-alternative type. In that the urban infrastructure being developed takes a traditional funding mechanism, including a debt component and general taxation. Meanwhile the public-private housing charge also draws together an alternative 'contract model' institutional base, involving stakeholders that would not have previously collaborated. The institutional collaborative alternative being a SPV led by a central government backed infrastructure company, a large-scale property developer, and a local authority group.

Moreover, for this PPP site scale case study using housing charges for infrastructure financing, we are dealing in part with the principle of a private user charge. This user charge involves direct payments instead of conditions on magnitude of development impact (Brueckner, 1997). We see in this research that the principle is a private 'charge' underpinned by local/central authority regulation to de-risk the collection of the charge. Particularly as user-charges tend to 'recognise the necessity to exclude internal recharges between local government departments in order to avoid multiple counting' (Bailey, 1994). In short, private

infrastructure charges on the household bill are charged in addition to the local authority rates, excluding any privately financed infrastructure costs.

Who's innovation? - Shaping Innovative Funding and Finance Innovation

It is important also to think through the structure-agency of governing the innovation of funding and financing of urban infrastructure. Especially as individuals and institutions shape the innovative practices involved in urban infrastructure funding and finance. Here we bring forward and consider the 'for whom' question, when considering the innovation of governance when using the infrastructure finance models to support infrastructure provision. In fact, we can ask whether governance arrangements are more suited to innovate in favour of a set of traditional funding institutions.

Structurally we need to make reference to the more general urban governance changes. In particular how this governance has transformed from a managerial approach towards an entrepreneurial approach for many municipalities since the 1980s (Harvey, 1989). The new entrepreneurialism is brought out of this text to underscore 'who's governance?' is regarded as more innovative when shaping core goals of economic growth and competitiveness (O'Brien and Pike, 2019). This structural shift to entrepreneurship as innovation, is prevalent in contemporary urban infrastructure shaping. For instance, when we draw out the main dimensions of who shapes the funding and financing of infrastructure, the dimensions see a marked shift from existing established approaches to emergent new approaches (Table 2).

In short with respect to direction, the rationale innovation becomes about future growth values, the focus of innovation is on interdependencies, the timescale for innovation is phased, the geographical space for innovation becomes fluid, the scale of innovation becomes large and integrated, the lead innovation becomes optional, and the organizational innovation dimension emerges as wider task oriented. In identifying the dimensions further in terms of the 'new' innovations, we see funding being about returns, innovations in financing as adaptive, an innovation in process that is more negotiated than prescriptive, a governance of innovation that is now on decentralization, and finally a management and delivery innovation dimension that is multiple in institutions (Table 2).

Table 2: WHO'S INNOVATION? Shaping Innovative Funding and Finance Innovation – City and City-Region Scale

Dimension	Existing and established approaches - Traditional	Emergent and new approaches - Innovation	New Direction
Rationale(s)	Economic efficiency Social equity Market failure	Unlocking economic potential (e.g. GVA, employment) Expanding future revenue streams and/or tax base Releasing uplift in land values Tackling Market failure	Future Growth Values
Focus	Individual infrastructure items (e.g. roads, bridges, rail lines)	Infrastructure systems and interdependencies (e.g. connectivity, telecommunications, district heating)	Interdependencies

Timescale	Short(er) 5–10 years	Long(er) to 25–30+ years	Phased
Geography	Local government administrative area	‘Functional Economic Area’/ ‘Travel to Work Area’, cityregion, multiple local government areas	Fluid
Scale	Small, targeted	Large, encompassing	Integrated
Lead	Public sector	Public and/or private sectors	Optional
Organisation	Projects	Programmes	Task
Funding	Grant-based (e.g. from taxes, fees and levies)	Investment-led (e.g. from existing assets and revenue streams, grants, borrowing)	Return
Financing	Established and tried and tested instruments and practices (e.g. bonds, borrowing)	Innovative, new and adapted instruments and practices (e.g. value capture, asset leverage and leasing, revolving funds)	Adaptive
Process	Formula-driven allocation, (re)distributive, closed	Negotiated, competition-based, open	Negotiated
Governance	Centralised Top-down National government and single local government-based	(De)centralised Bottom-up and top-down National government and multiple local government-based (e.g. Combined Authorities, Joint Committees)	Decentralised
Management and delivery	Single local government-based, arms-length agencies and bodies	Multiple local government based, joint ventures and new vehicles	Multiple

Source: Adapted from O’Brien and Pike (2019)

We will focus this study mainly on these (Table 2) dimensions to explore how the empirical case study has aligned with ‘whom’ stakeholders have used innovation in infrastructure funding and financing. As well as using conceptual characteristics brought forward in ‘what’ innovations have been used (Table 1) in the empirical case study. This conceptual focus is open to further considerations brought out earlier on the nature of innovation as tied to the core subject matter of urban infrastructure funding and financing (Figure 1).

METHODOLOGY

The research approach involved the use of both secondary and primary data. Firstly, a desk-based study enabled some understanding of finance in infrastructure theory, the consideration of innovation and alternative finance in this theory, and the specific application in theory of housing charges to finance infrastructure. We explored academic literature on these fields of enquiry. We also studied the case study in more depth by reviewing a series of grey literature, such as consultant reports, research centre reports, and various policy briefs.

The primary data collection was conducted during 2018-19. Key institutions were selected and a snowball technique used to develop a comprehensive list of interviews as a purposeful sample’ (Denzin and Lincoln, 2003). A range of professions and roles were interviewed due to their in-depth understanding on the case study and the wider strategic and intellectual knowledge of infrastructure charging. Professions were largely from a ‘top down’ informed perspective, they ranged from policy makers, financiers/bankers, investors, authorities (national, regional, municipal), planners, developers, consultants and academics. Roles ranged from Directors, CEOs, Senior Officers, Executives, and Professors.

Table 3: Institutions and roles that contributed to the primary data collection.

Institution	Role
NZ Superannuation Fund	Senior Investment Strategist
Central Government NZ	Central Government Minister(s)
Macquarie Bank	Director
Accident Compensation Corporation	Portfolio Manager
Auckland City Council	General Manager(s) - Development
Auckland City Council	General Manager - Financial Planning
ANZ Bank	Executive Director
BNZ Bank	Senior Executive
LGFA – Local Government Funding Agency	Chief Executive
NZPC – New Zealand Productivity Commission	Chair
HRL Morrison Investors	Chief Executive
Westpac Bank	Executive Director
Chapman Tripp Lawyers	Partner

CIP - Crown Infrastructure Partners	Deputy Chief Executive
The Treasury NZ	Director
The Treasury NZ	Principal Researcher
Infrastructure NZ	Chief Executive
Willis Bond	Director
Real Estate Analysis Unit - Massey University	Director

Source: Author

The method of investigation was predicated upon a deductive process whereby 20 formal and informal interviews were undertaken. The results of which fed into the analysis and further questioning of other participants in the study (Mason, 2017). The semi-structured lines of questioning were designed to provide practical understanding of the case, but to widen thinking more theoretically as to how the housing charge financing approach was ‘innovative’. It was important at a broad level to bring out respondent thoughts as to what innovation means, how it is enabled, and the associated role that housing charges and infrastructure finance have in this respect.

This fieldwork was synthesized and triangulated with the desk study aspects. Collation and analysis of data was further enhanced by categorizing key issues and themes that emerged, with relevant quotes highlighted to evidence the narrative. While interviewee names were anonymized in line with ethical conventions, the institutions detailed in Table 3 provides an insight into the breadth of the discussions.

Like any research method there are various limitations and drawbacks that need to be highlighted. A single in-depth case study such as Milldale will have some contextual considerations, and bias, if applied and generalised to other cases in Auckland, New Zealand, and elsewhere. However, the large scale and high profile of the pilot raises some desires by stakeholders to replicate the model, so will need some practical and theoretical reflection from this research.

Case Study - Researching in the Auckland City Site

The geographical site and financial concept-based case study was used to identify and interrogate key issues in policy and practice of housing charges to finance infrastructure. We use a case study of Milldale in Auckland, New Zealand. Milldale is selected as a pilot project that is using housing charges to pay back infrastructure costs. This approach is something new and novel for New Zealand. Notably in the process of expediently opening up the supply of land available for new housing. The scale of the Milldale development the bulk housing infrastructure will support approximately 4,000 sections, plus an additional 5,000 dwellings in the surrounding area (CIP, 2019; Table 4).

Table 4: Key Projects and Description of the Milldale, Auckland Case Study, New Zealand

Projects	Description
Weiti Stream to Silverdale Interchange	Two lane arterial road and bridge connecting the development to the Dairy Flat Highway and Silverdale Interchange

Wainui Road Argent Lane Intersection Upgrade	Upgrade of intersection for two arterial roads
Milldale to Millwater Wastewater Tunnel	Wastewater tunnel and pumping equipment to service a total catchment of 9,000 dwellings
Milldale to Millwater Wastewater Tunnel stage 2	Stage 2 connection to Milldale Development through private land
Bridge to Highgate Parkway Ave	Connects Milldale Development via a new bridge over the motorway to Highgate Parkway, on the east side of the motorway

Source: Adapted from CIP (2019)

To give some introduction to the financial model, the estimated total cost of the bulk housing infrastructure in the Milldale Case Study is \$91.3 million (Table 5). Auckland Council Group contribute \$33.5 million of the costs. This will later be recouped through developer contributions charged on the surrounding Future Urban Zone land as it is developed. \$48.9 million is financed by a Special Purpose Vehicle (SPV) established by CIP for the purposes of this project. The SPV raises \$3.7 million of equity capital from CIP (which is Crown funding). The debt finance and CIP equity is repaid over the next 30 years by section owners, initially Fulton Hogan Land Development and subsequently the section owners who choose to buy property within the Milldale development. The developer, Fulton Hogan Land Development, fund the remainder of the bulk housing infrastructure costs (plus any cost overruns) (CIP, 2019).

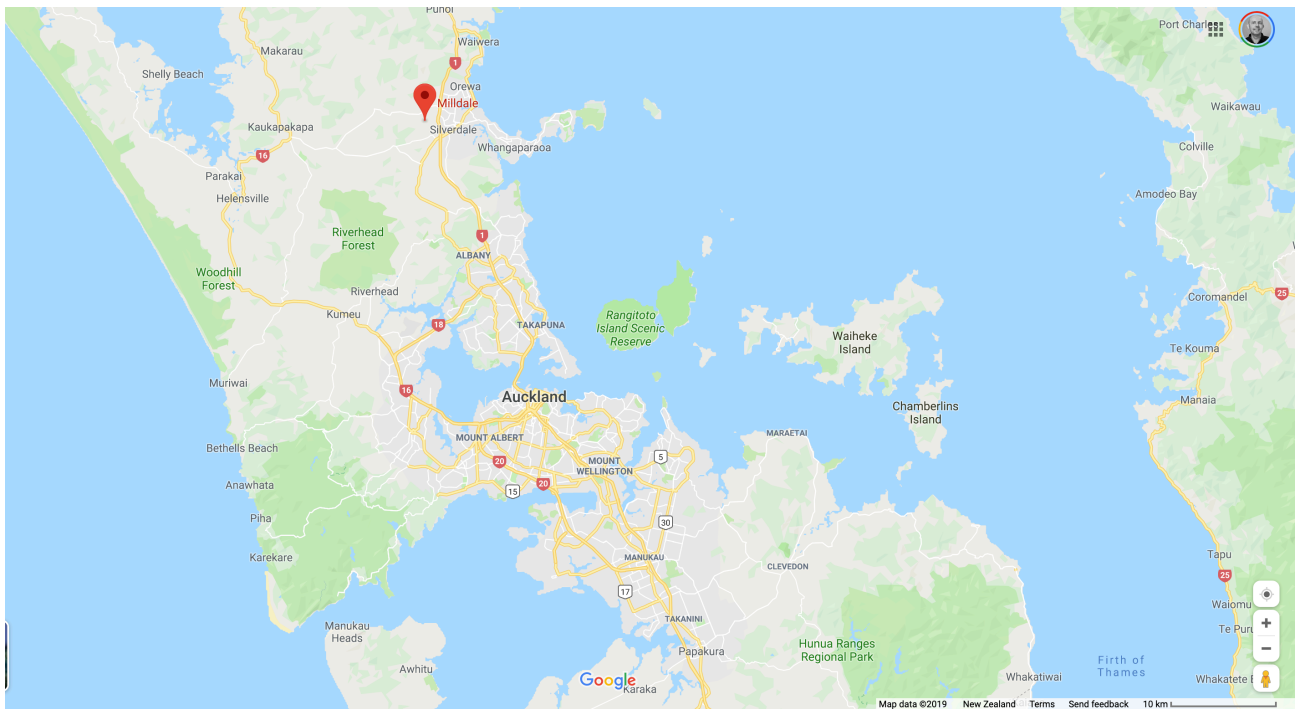
Table 5: Summary of Sources of Funding for the Milldale Case Study Project

Source of funding	Amount	Details
CIP SPV	\$48.9m	CIP has run a competitive debt process and raised a 35- year long-term debt from Accident Compensation Corporation at a fixed interest rate. CIP will make a \$3.7 million equity investment on behalf of the Crown which is expected to be fully repaid plus a return on capital.
Auckland Council Group contribution	\$33.5m	Auckland Council Group will contribute \$33.5m that will be met by future developer contributions charged in the surrounding areas
Fulton Hogan Land Development	\$8.9m	Fulton Hogan Land Development will fund the remainder of the project costs (plus any cost overruns).
Total bulk housing infrastructure cost	\$91.3m	

Source: Adapted from CIP (2019)

The large site case of Milldale operates in part with the Auckland housing market (Figure 2). Noting that the Auckland housing market being nationally dominant. For the purposes of the paper, we define a dominant housing market as one where the value and number of properties in an urban area has a significant and disproportional effect on the national economy. To contextualise, in 2017 Auckland had a population of 1,534,700 people, which accounted for 32% of the New Zealand population (Statistics, 2017). Further, the Auckland rental stock in 2017 was 216,700, which accounts for 40.5% of the Auckland regional total (Johnson et al., 2018).

Figure 2: Map of Milldale Development and its Spatial Relationship with Auckland, New Zealand



Source: Google Maps, 2019

FINDINGS

Innovation as ‘contractual’, ‘evolutionary’, and ‘new application’

This findings and discussion section culminates in a relational model that draws out several innovation approaches in studying infrastructure funding and financing (Figure 3). Analysis of the interview findings are carried out to reach points of discussion and concept with theory. Firstly, the case study stands out as interesting given that the funding model was innovative in that the model was never fixed and evolved through negotiations. In this sense, the case study exemplified what we term here ‘evolutionary innovation’. Particularly as the model evolved as discussions took place on the best course of policy development. Findings during the study clarified who was involved in the case study and what finance model evolved as the financial ‘package’ and policy took root. The evolution led to a high debt model, but one that included a high level of low interest patient capital lending, it was stated that:

“With the debt though, we decided that we would have a significant amount in debt in our first deal. We decided that we would leverage it quite high... The ACC solution worked really well, because it

was a long-term solution for us. Completely locked in. There was no exposure for us required). The total cost of the transaction was enormously attractive. It was the longest-term money raised in New Zealand, and the total rate would've been one of the best priced transactions in New Zealand...it's less than 6%' (Deputy Chief Executive, CIP)

Secondly, we can see from that the conceptual case study model was the first of a kind in New Zealand that included a large amount of patient capital and private infrastructure housing charge. Therefore the model contains some characteristic of being 'new application innovation', particularly in the contextual application of the model. A core aspect was the considerable amount of low risk debt capital (relative to equity) brought *inter-alia* from the national health payment scheme known as ACC – Accident Compensation Corporation. In combination with the debt financing, the main equity partner being the project lead partner Crown Infrastructure Partners (CIP).

Thirdly, for the case study more generally we found that the eventual settling of a contractual model was still to some degree considered by interviewees as innovative. As such, despite the idea of a contract being nothing new or creative over millennia, we can put forward for this study the use of 'contractual innovation'. Contract innovation in this case study included two key pillars. The first pillar was over who puts in what debt or equity amount, and what the returns and ownerships would be expected over a set period. The second pillar of the contractual model was the certainty of income stream. With which the local authority can invoice the partnership a charge on their rating invoice to the household. To detail this further, a good explanation from the vantage point of the partnership, we see:

For the first pillar, the developer would give us [the partnership] a mortgage over all of the land, and then as they sell individual sections, the mortgage is taken off the land and is replaced by an encumbrance. That encumbrance says that the owner of the land will pay us [the partnership] in essence an infrastructure payment for 30 odd years of 'x' dollars... Then the second pillar on which this model is built on is that we [the partnership] successfully negotiated with the Council that our infrastructure payments that home owners have to pay us, we were able to get the Council to agree that that could be invoiced on the rating invoice." (Deputy Chief Executive, CIP).

As such the conceptual model case in focus had a level of imagination and creative ideas (Figure 1). Whilst also transcending this level to apply a better practical implementable solution, as well as a more effective business model for the New Zealand infrastructure and housing market (Maranville, 2012). We also see in this 'contractual model' a finance vehicle that engages with a combination of risk-bearing tools, plus the resultant funding that is 'non-traditional private mechanisms' drawing on a public-private partnership approach. The 'what innovation' characteristics (Figure 1), gravitate around the PPP approach and thus more traditional (Linder, 1999). Although there may be more alternatives in characteristics once we frame against the 'who's innovation' dimensions (Figure 2) For instance, the whole model of a private housing charge to pay for infrastructure could not exist without the PPP vehicle. However, the way in which the PPP is shaped is representative of an emergent innovation approach (large scale, public-private lead, unlocking economic potential etc) and one that is moving in the new innovative directions including a focus on future growth value rationale, an interdependent focus, a phased timescale, and so on (see Figure 2). We will return to these conceptual framings as we connect the findings as aligned to the initial questions raised by the study.

'Forced Innovation' of Bulk Funding and Growth Value

One of the core research questions was to investigate '**Why' are we looking at Infrastructure Funding and Financing (IFF) to deal with bulk infrastructure?** To a large degree the response boiled down to a focus around those wishing to shape innovations via growth values and negotiation dimensions. It was found in interview that the by-product of bulk infrastructure provision is the subsequent ability to develop new

housing, and thus increasing the supply as number of units added to the housing stock (i.e. proposed 4,000 + further 5,000 houses). To enable that supply to be built out, bulk infrastructure was seen to be the spearhead for action in building-out housing units. At its most basic, the clear rationale for building infrastructure was more to kick start 'any' development. As such, we see a greater focus on expediency of housebuilding via a novel financial mechanism enabling infrastructure to be built outside of traditional public finance channels.

The focus was interestingly on (economic) growth value in an already growing city, but a city with perceived financial restrictions such as debt ceilings in enabling more growth. As such the 'what innovation' aligns beyond the PPP vehicle to incorporate more value capture considerations from development (Merk et al, 2012). Plus we have a classic new innovation rationale regarding unlocking economic potential moving in the new direction of future growth values. With a clear financial innovation that incorporates shared risk at scale that can generate bulk funding that enables bulk infrastructure (Carter, 2006). Put quite simply and eloquently we see several stakeholders stating the importance bulk infrastructure finance and funding for growth value rather than housing directly, they state:

"if you're talking about you want to enable growth and free up developments for housing then yeah, you need the bulk infrastructure to get to the development going" (Senior Investment Strategist, NZ Super).

"I think right at its heart, this is about providing infrastructure that is required to support Auckland's growth." (General Manager - Development, Auckland City Council).

It was found that bulk-infrastructure finance was targeted to be the best possible way to 'force through', at scale, new developments. These new developments guaranteed of road and water services could then connect physically and financially to 'other' integrated infrastructure needs and requirements. Further, the less visible raising of public money via a user charge on housing (as similar to rates) rather than road (e.g. toll roads) was important to getting the infrastructure financed and built. This again, brings the ('to what') characteristic of the innovation to be more around the traditional partnership arrangement, and the dimension ('for whom') the partnership can lever for their own interests in terms of risk and reward (Adair et al, 2011). We can argue that there is a new direction involving a negotiated process (Figure 2). Although this does not completely parallel the 'for whom' innovation shaping concept, as this negotiation is somewhat forced or coerced from a top-down central authority weighting of who leads the negotiation. Some of the partners are forthright as to the end goal of 'any development' justifying the means through a forced alternative funding and financing model for bulk infrastructure, namely providing water and transport. For instance:

"I think at the moment, though, it [Financing and Funding] is targeted at those new developments and getting them up and going" (Executive Director, ANZ Bank).

"Transport's particularly problematic because, to date, there has been not any willingness for anyone to take risk on particularly bulk transport infrastructure." (Chief Executive, Infrastructure New Zealand).

"...if you can't turn the tap on and get water. You've gotta start there and I don't think you can move up the hierarchy until you've got that nailed" (Director, Willis Bond).

'Decentralisation Innovation' of Resources and Deferred Risk

As part of the study we asked respondents as to how they see public financial constraints in government institutions. The conversational were open to all tiers of governance whether they were central, regional or local. Interestingly, the focus of conversation centred more on central and local tiers, and the regional

component was rarely discussed. Largely because regional funds are not directly supporting bulk infrastructure, with the NZ regional economic development push being directed by a MBIE (Ministry of Business Innovation and Employment) Supported PDU (Provincial Development Unit) that has a remit to distribute \$3bn over 3 years to deal with employment and climate change issue (MBIE, 2019).

The larger conversation was articulated around central government not being willing or able to directly fund major bulk infrastructure projects. Hence, the need to find more innovative and alternative funding and financing than had been done traditionally. Put simply, it was argued that the central public (crown) balance sheet is not large enough to pay for all of the desired infrastructure requirements. Similarly, the local authority could also not have a balance sheet large enough to fund this infrastructure requirement. Particularly as the local authority's credit rating would be affected if too much debt was incurred.

This focus on 'decentralisation innovation' in governance arrangements is exemplified by the new direction of travel for 'who's innovation' with which the infrastructure funding and financing is encouraged (Table 2). Innovation in this case is a decentralised approach to financial risk, but with the de-risking of the project being more through regulatory powers rather than financial resource powers. Put another way, local authorities are given more of a stake in the project compared to central authorities. Although the local authority defer risk themselves by being in partnership, whilst de-risking the project by bringing in their regulatory powers to collect local rates. As well as the local authority being able to keep the funding liability for any infrastructure being kept off the public balance sheet.

What is of greater constraint in this decentralisation innovation new direction is that the local authority debt-revenue restrictions are set against the business model in developing a site, whereas central government restrictions will be set more against growth of economic development more broadly. As such, debt-revenue restrictions are more of an issue for local authorities than for central government. Local authority borrowing is undertaken against future rates and developer contributions, whereas central government borrowing is justified on future economic growth. For local authorities, compared to central government, borrowing 'cannot get too far in front' of what economic growth will look like in the future, especially in realising the development value once a development is completed.

For the case study, debt ceilings may be more of a problem for Auckland city council than for central government. This is particularly interesting as central government institutions (e.g. CIP) are paying less of a financial stake in the project. This means we see this case study model as not entirely a value capture innovation that considers uplift in values over time (Medda et al, 2012), but more of a public-private partnership arrangement that takes a traditional mix of partners along with an alternative funding approach by the public local authority provider (i.e. by underwriting rather than directly funding). To illustrate this decentralisation of power and deferred risk by the Local Authority, interviewees stated that:

"...but the Crown could never supply all the capital that is necessary for us to meet our aspirations in terms of the infrastructure and the development for urban growth." (Minister, Central Government).

"We would say the financing constraint is a mix of technical and behavioural issues is how we've framed it. Technical issues around things like particular covenants or restrictions; and then behavioural which goes to – and this is at a ratepayer level – willingness for councils to have higher levels of debt. Typically people don't like that" (Director, The Treasury)

“The constraints though on their [Local Authority] balance sheet is rating agency, debenture trust deeds and LGFA (Local Government Funding Agency), but really the fact is they are capped as to how much they can borrow without appalling consequences. Because they’re capped by reference to their operating revenues and operating revenues don't systematically grow with growth...you can start rating a new dwelling once it is built. You can't get out in front of that, and nor is there any cashflow mechanism that readily reflects growth in the same way as money pours into the [Central] Government's coffers when the economy's doing well“ (Partner, Chapman Tripp Lawyers).

Costs and Benefits: Beyond Current Economic Growth; and A return to Traditional Ring Fencing

In exploring responses to questions on the benefits and costs of using a private housing charge policy as per the case study model, we find that several costs were not considered with respect to a reliance on focussing on economic growth. For instance, respondents did not articulate the obvious environmental concerns of building on greenfield land, and any concern on road transport focus (as opposed to alternative low-carbon transport) given the current global climate concerns. Furthermore, this model of financing would have more impact in growth areas. Financial return of income over 30 years would appear too high an economic risk, or even unviable, for areas with low anticipated economic growth.

As such we see a traditional PPP characteristic of what is innovative as there is more of a ring-fenced combination of general taxes, grants and debt finance that suit economic growth rather than the environment. As well as being traditional in the sense that the model does not consider too much on ‘future’ growth values. The innovative characteristics are therefore not particularly representative of being a combination of tax incentives, institutional investor platforms, value capture, asset leverage and revolving funds (Table 1). One respondent argues:

“half to two thirds of our local councils are small with either very slight growth in population or even declining populations and ageing populations is a broad characteristic” (Chair, New Zealand Productivity Commission)

With respect to benefits of this case study model we see a return to traditional ring-fencing, that runs counter to the more innovative move towards broader Programmes and Tasks rather than specific projects (Table 2). Specifically, ring-fencing of the infrastructure to the household using the service was perceived a benefit. Especially as a larger pool of public funds could potentially be siphoned off for other public goods and services. The main reason is that the private housing charge part of the PPP funding and financing vehicle was applied more as a ‘user charge’, with the charge set against the household using the bulk infrastructure (e.g. water, road transport network). This ring-fencing could be seen as a cost though depending on the viewpoint on what, and who, should pay for what may be deemed a public good (Gielen and Van der Krabben, 2019). As well as whether the expediency argument that suggests that any new and quick development by these innovative means is worthwhile at any cost. Interviewees state:

“The benefits are going to be that it is actually ring-fenced. You will have user charging, so you’ll have a direct cost...It really does go to the heart of showing what the exact cost of that infrastructure delivery is going to be, including the borrowing cost.” (Chief Executive, Local Government Funding Agency).

“The benefit of using the house charging policy or the encumbrance on each individual house is that financiers can take a security over that revenue stream so there’s absolute certainty that the money is being hypothecated to meet that debt repayment over a long period of time.” (BNZ Bank, Senior Director)

Innovation as ‘Practical’ and ‘Intellectual’; but more Traditional and Alternative

The final key finding theme looked at the core notion of what was seen by the respondents as ‘innovative’ in this case model. Particularly, whether they thought the models were ‘alternatives’ or ‘innovations’ (or something else) in dealing with ‘the problem’ of financial constraints on infrastructure. When it came to consider whether this specific case study model was an ‘alternative’ or ‘innovation’, the approach was certainly seen as novel or new to the New Zealand context. What we termed above innovation as a ‘new application’. Further, a realisation of innovation as ‘new’ can be seen in the case study model recipients. For example, the ‘new’ private user approach to charging in New Zealand could innovate minds to be flexible in learning lessons and policy transfer with other places around the globe that use this approach (Squires, 2018).

The case study was also solutions driven, which adhered to ideas of practical innovation rather than being purely ‘intellectual innovation’ of ideas. For the nature of innovation, the case study does have ‘ideas’ at the core and a secondary transcended meeting of more practical market requirement (Figure 1; Maranville, 2012). In terms of practical terms this case study enabled New Zealand to raise its first ever 35 year fixed rate debt for a capital project. Plus the realisation and expediency of a project would not have happened but for the consortium being allowed and enabled to raise funds through this model. In terms of intellectual ideas of innovation, the desire for an alternative provision bulk infrastructure did create innovative thinking on funding and financing by a partnership – and for the partnership rather than the public OR private good. Although ‘what’ innovative characteristic that evolved to do this was more alternative rather than innovative. As the ‘risk-bearing’ component of the funding and financing infrastructure practice was diluted down to return to its traditional general tax-grant-debt characteristic. Here we see some of the best illustrative points by interviewees acknowledging that the model was nothing too innovative, but actually more traditional in what was used, and alternative in the way that it was shaped by institutions. Claims to innovation return to the point of being innovative in the ‘new application’ to a domestic context of New Zealand. They state:

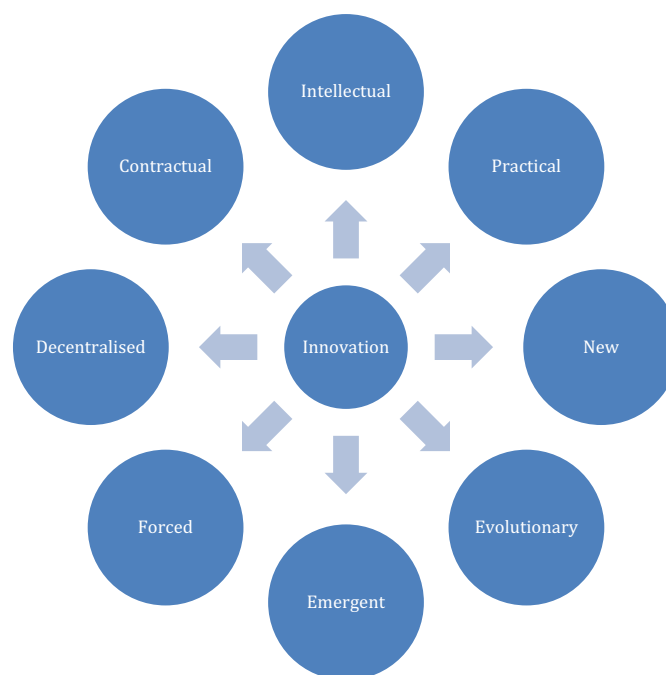
“I don’t think it’s rocket science what we’re doing here, we’re trying to find practical solutions. There are a lot of other sophisticated models used around the world. I look at it, it’s an alternative model in the sense that it’s different to the traditional approach and the traditional approach of just saying, here’s the private cost, here’s the public cost and let’s just wait until the public sector can come up with its share. That model isn’t working so you’ve gotta do something alternative to the traditional. I think for the New Zealand context it’s a bit new and different, it requires a bit of a different way of doing business so in that sense it’s alternative” (General Manager – Financial Planning, Auckland City Council)

“it’s really hard to find anything different and innovative over what the rest of the world has already done. ...To me, the key difference is just the rest of the world adopts user charging far better than what New Zealand has ever done.” (Chief Executive, Local Government Funding Agency).

“I think it is innovative in terms of the fact that you’ve now got a mechanism for financing this infrastructure work for council and keeping it off the [PUBLIC] balance sheet...It’s innovative and it’s another source of investment for New Zealand funds. In terms of, here’s a place that’s something like ACC or whoever can actually invest in New Zealand Inc. You see what I mean? It can deepen the capital markets as well. We’re now in a situation where we don’t have to draw money from overseas the whole time to borrow to do stuff.” (General Manager - Development, Auckland City Council).

“We achieved 35 year fixed rate debt. Never been done before in the New Zealand project financing markets. It opened up a whole new avenue in regards to type of money that was available and the terms of which that was available that will create a greater support and make a greater contribution to making infrastructure affordable. Cos it effectively makes it cheaper, ultimately, for the home owners in terms of the levies that they’ll pay. I think it’s innovative and alternative in that regard” (Director, Macquarie Bank).

Figure 3: The Innovation Approaches to Funding and Financing Infrastructure



Source: Authors

CONCLUSIONS

In summary, we find in the research a new and novel approach to infrastructure financing at scale that has eluded New Zealand’s public financing and policy making for many decades. Bulk infrastructure was seen more to be the spearhead for action in building-out housing units. Plus, we see a greater focus on expediency of housebuilding when enabling infrastructure to be built outside of traditional public finance channels. A type of ‘new application innovation’ in its contextual use, and ‘practical innovation’ in creating an infrastructure funding and financing (IFF) model that could be physically realised.

Our contribution here using our conceptual model, aids in understanding of the nature of innovation in urban infrastructure funding and financing. Moreover, for this case study application we see an ‘evolutionary innovation’. That is, a transcendence from imagination and creative ideas, towards an improved practical implementable solution. As example, the Public Private Partnership (PPP) ‘contractual innovation’ model had a traditional characteristic of what was on offer, but most importantly for innovation it was a shaped by thinking more creatively on who could be involved in the partnership. In

doing so, the model is also representative of an ‘emergent innovation’ approach and one that is moving in a new innovative direction.

The research also demonstrated that the evolution and emergence of what and who were involved in the model was more top-down and forced. Who was leading and involved in the negotiations were to some extent selected on the basis of what will get the finance deal done. Just as what would the funding and financing model look like in characteristic to get the bulk-infrastructure built in the most expedient way. This to some degree can be seen as a type of ‘forced innovation’

The study also found that there was a ‘decentralisation innovation’, where a local authority was enabled to play a larger part in funding infrastructure with less risk. This decentralization is exemplified by local authorities having guaranteed payback from developer contributions and providing regulatory certainty of private rates collection. As such, the partnership contractual model is interestingly decentralizing power to a local authority, but at the same time the local authority is deferring risk to other partners in the project contract. This decentralisation has benefits of ring-fenced certainty to the localized project but has some drawbacks in that central powers cannot reap and redistribute much future uplift beyond current economic growth.

Finally, we see ‘practical innovation’ rather than an intellectual innovation of ideas. The ideas generated in the model are more a meeting of practical market requirements. In specific terms we see the realization of a 35-year fixed rate debt for a capital project, and the building of bulk infrastructure that would not have happened but of a partnership intervention. The contractual model of what was eventually realized is seen more as traditional to what has come before in funding and financing bulk infrastructure. Although the shaping of the model by a more decentralized and private institutional arrangement was an alternative to what preceded it. Hence, the result being a ‘new application innovation’ and ‘practical innovation’ to best describe the innovation that took place.

Further Research

This case study has enabled a useful conceptual model and application for further research in both depth and breadth. Depth in terms of how this type of mechanism can be researched as a case replicable elsewhere. Plus, breadth, in-relation to other models domestically and internationally. The research could then consider ‘what’ models can finance development – such as more integrated that strategically align with inter and intra scales at the city, city-region, region, national and global scales. Given the institutional governance involved in funding and financing infrastructure, research in this way can explore the ‘who’ question in terms of agency-structure of ‘for whom’ these projects are intended and realise unintended consequences.

Recommendations for Policy and Practice

It is not the intention of this study to evaluate or assess the case project and experiment model in financing. However, the research did draw out concerns when an expedited process is one of the central reasons for a project to go ahead, particularly via a small stakeholder consortium acting in the public interest, to provide a public good using private finance. As a point of recommendation, research into integration of this model with other development/infrastructure projects and ‘innovative’ finance and funding models beyond the case study is of pressing implementation success.

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