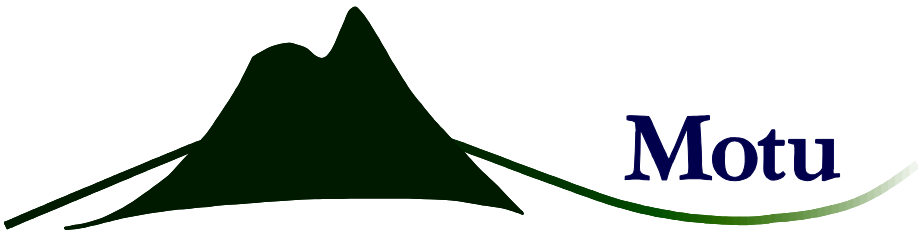

Impacts of Planning Rules, Regulations, Uncertainty and Delay on Residential Property Development

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Abstract

Dwelling prices are determined in the long run by the total costs of a development, where costs include regulatory costs, including costs of delay and uncertainty. We outline a conceptual framework for the development process and then develop a real options model of housing development that indicates more formally how regulatory policies and regulatory practices affect development decisions. We apply these insights to the design of a survey of property developers active in the Auckland market, with an emphasis on the 'affordable' part of the market. In surveying developers, we aim to elicit *their* views regarding the impacts that planning rules and regulations have on total development costs. We do not attempt to value the corresponding benefits of the planning rules and regulations, so this study is not a cost: benefit analysis of council planning approaches; rather it documents the costs of the rules and regulations – as perceived by developers – to provide a basis for benefits to be compared. Almost 90% of surveyed developers have been affected by delays or uncertainties related to regulation. Regulations that have had major effects on the actual building costs of apartments include: building height limits, balcony requirements, conforming to Council's desired mix of apartment typologies and minimum floor to ceiling heights. Major cost effects on developing residential sections and standalone dwellings include: infrastructure contributions not related to the specific development, section size requirements, extended consent processes and urban design considerations stemming from Council's urban designers. Reserve and development contributions and Watercare levies affect the costs of both types of development. Excluding the cost of Watercare and reserve and development contributions, the typical cost range of the total impact of regulations is estimated to vary between $32,500 and $60,000 per dwelling in a subdivision. In terms of affordable apartments, assuming the total internal floor area remains the same and no deck is built, the impact on total cost typically is estimated to range between $65,000 and $110,000 per apartment.

JEL codes

K29, R31, R38

Keywords

Residential property development; planning rules; delay; uncertainty; Auckland

Executive Summary

- Dwelling prices are ultimately determined by the total costs of development. Costs include construction and land costs, opportunity costs, costs of council rules and regulations, costs of delay and uncertainty, and financial costs with allowance for risk.

- In the case of certainty, a project will proceed if and only if expected market prices for a development exceed the expected total costs. Thus council-related costs can transform a viable project into one where no development occurs.

- Greater uncertainty reduces the likelihood that a prospective development will proceed. Greater delays and less certain consent outcomes increase uncertainty.

- Greater front-end consent costs raise the developer's holding costs so reducing the likelihood of development. In addition, early lock-in of consent parameters reduces a developer's flexibility to react to changing market conditions so reducing the likelihood of embarking on a development. These effects may be partially offset if early lock-in reduces uncertainty over consent outcomes.

- To provide evidence on the impacts of council-related costs, we present results of interviews with Auckland developers, focusing on 'affordable' housing. The interviews provide information on 21 developments from 16 developers with the objectives of:

    - Understanding the reasons behind the design of individual developments, including the impacts of council planning rules, regulations and actions;

    - Estimating the reported per unit cost impact of council rules, regulations and actions; and

    - Understanding how delay and uncertainty affect developers' decisions to develop or not to develop a project.[1]

- All the surveyed developers stated that they had abandoned one or more projects as a result of expected project length and/or uncertainties.

- Table 2 in the main document lists the effects of council-related actions on estimated development costs per dwelling for developments that proceeded.

- For affordable apartments, building height limits and balcony requirements can each have cost impacts of over $30,000 per apartment; conforming to council's desired mix of typologies and increased minimum floor to ceiling heights can each add over $10,000 per apartment. Minimum floor area requirements reduce the supply of affordable units.

- For residential sections and standalone dwellings, elements that can raise costs by at least $15,000 include: infrastructure contributions that are not directly related to a specific

[1] The information presented with regard to each of these aspects reflects the respondents' own views about costs. Unless otherwise specified in the main report, costs relate to existing (legacy) regulations, rather than to regulations proposed under the Auckland Unitary Plan. It was beyond the scope of the project to estimate corresponding benefits, so our study cannot be interpreted as a cost: benefit analysis of regulation. Ideally, relevant authorities will assess the benefits of each regulatory aspect and compare those estimated benefits to the estimated costs..

development, section size requirements, extended consent processes and other urban design considerations (stemming, in particular, from council's urban designers).

- A range of other elements cause lesser, but still material, cost increases per dwelling.

- Developers consider that council has not balanced or arbitrated contradictory demands of different parts of council and council controlled organisations (CCOs) when considering consents. Developers have been left to mediate disputes over how the development should be designed, adding significant uncertainty and risk.

- Developers felt that they were increasingly being asked to fund key community infrastructure beyond infrastructure directly related to their own project.

- Council-imposed urban design requirements are subjective, so increasing the length of time required to gain consent, increasing the costs of the planning process, reducing the saleability of units within developments and increasing costs.

- Council imposed rules and regulations result in a significant loss in potential development capacity[2]. The median loss in capacity was 22% (for developments that proceeded). For apartment buildings, the loss of capacity was primarily due to height restrictions or issues relating to view shafts. In other developments, the loss in capacity related to issues associated with urban design requirements, retention of heritage building and protected trees, and the need to provide on-site infrastructure over and above what was required to service the development.

- As a result of residents' objections, council has hitherto tended to notify non-complying consents even when the effects are relatively minor. This increases uncertainty and timeframes for consent applications.

- The business strategy adopted by the developer impacts on the level of uncertainty and amount of time required to complete the consenting process. The "complying developer" attempts to minimise the consenting timeframe. However, there is significant cost in terms of incorporating all Council officers' preferences in the development's design and the process may result in a sub-optimal product in terms of market demand. As a result, developers abandon a significant number of projects. Conversely, the "non-complying developer" is prepared to work with longer timeframes with less certain outcomes, but this requires the developer to be well capitalised in order to fund long-term legal processes with uncertain outcomes.

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[2] The loss in development capacity is defined as the difference between the optimal market related development capacity and the capacity after council related restrictions are imposed.

Impacts of Planning Rules, Regulations, Uncertainty and Delay on Residential Property Development

1. Introduction

The property development community often cites the cost of local and central [3] government planning regulations and rules as a cause of high (and rising) residential property prices. Costs in this context may include direct costs, opportunity costs arising from forced changes to proposed developments, costs of providing specific infrastructure, costs of delay, and costs related to uncertainty about consenting decisions. However there is a paucity of data to assess whether these claims have merit. This report is designed to provide some evidence concerning these claims, drawing on industry based experience. First, we present a framework for considering the issues, highlighting the importance both of regulatory policies (i.e. the regulations themselves) and of regulatory practices (i.e. the implementation of the regulations). We then use a counterfactual research methodology in which we question developers directly concerning a range of planning-related matters to find out whether certain policies: (a) raise costs of particular forms of development, or (b) prevent particular developments from proceeding at all.

We stress at the outset that our analysis only covers costs of regulations, not their benefits. Thus our study should not be interpreted as a cost:benefit analysis of any of the regulatory policies or practices discussed. Regulations are adopted because the relevant authorities consider that they have benefits that outweigh their costs. The New Zealand Productivity Commission[4] highlights, for instance, that land use regulations are imposed because of the existence of externalities (actions of land users that affect the amenity use of others), less than optimal provision of amenities without regulation, and/or coordination failures (for instance, in the timely provision of infrastructure).[5] In order to assess whether the benefits of regulation outweigh the estimated costs, one must necessarily understand the costs imposed, and it is this step on which we concentrate. Ideally the regulatory authorities can then explicitly assess the benefits of each of the

[3] National legislation such as the Resource Management Act affects council approaches, for instance, to notification of developments.
[4] New Zealand Productivity Commission. 2014. *Using Land for Housing*. NZPC: Wellington.
[5] For a useful overview of the multiple benefits that arise from urban planning, see: Adams D. & Watkins C. 2014. *The Value of Planning*. RTIP Research report No. 5.

regulatory aspects that we analyse to determine whether the benefits do indeed outweigh the costs.

In examining costs, we concentrate, in particular, on investigating what impacts, if any, planning rules and regulations, council-related delays and uncertainty have on the development cost of residential dwellings within the 'affordable housing' category.[6] Unless stated otherwise, we examine the effects of existing (legacy) planning rules and regulations, some of which will alter with the proposed Auckland Unitary Plan (PAUP). The study's scope includes the subdivision of land, and construction of stand-alone dwellings and apartments, with an Auckland focus. Specifically, we report information on what a developer develops given actual council planning rules, regulations and actions, and compare the cost implications of this outcome against those that would be associated with the developer's preferred development if it was unconstrained by those council rules, regulations and actions (thus incorporating opportunity costs). Since planning rules, regulations and council actions have the potential to impact on development costs at each step of the development cycle, we have undertaken in-depth interviews with a number of medium to large developers across a number of development styles (albeit with a focus on affordable dwellings). Our developer sample includes land-subdividers, standalone dwelling developers, suburban and central city apartment developers, and retirement village operators. It is not a random sample of developers, instead reflecting the experience of the developers interviewed. Our judgement, however, is that the costs indicated by these developers are representative of costs faced by other developers.[7]

Given these interviews, we have endeavoured to ascertain the extra per unit cost for an affordable dwelling that is caused by the relevant restriction. We note that the effect of these costs on the price of a dwelling will depend on market factors. The price effects of changing the cost structure are expected to be more apparent in the long run than in the short run. We discuss this issue more in the next section. Section 3 provides a formal framework used to assess the effects of regulatory policies and regulatory practices, including uncertainty and delay, on development. Following this discussion, section 4 sets out our survey approach and presents the results of our property developer survey.

[6] As a rule of thumb, we concentrate on effects of council-related actions on dwelling prices in the sub-$500,000 dwelling category.
[7] This judgement reflects similar cost estimates across the surveyed developers, and also reflects information obtained from separate discussions with consultants to the industry.

Section 5 then discusses the implications of the survey results in the context of the frameworks outlined in sections 2 and 3.

2. Costs, Prices and Residential Development

To provide context for the detailed information presented from our survey, consider a developer who owns, or who has an option to acquire, a piece of land and is planning the development of a new dwelling on that land.[8] In the absence of council regulations and consenting processes, the developer will assess market demand (and hence market prices) for alternative dwelling types and compare these prospective prices to the costs of development (including finance, materials and labour costs). The financing costs will include an allowance for risk; i.e. required expected profit will be higher for a more risky development. As discussed more fully in section 3, the degree of risk is likely to be positively related to the length of a development since costs and prices vary over time, so the developer has less certainty over the residual profit (that accrues to the developer) as the development period lengthens. The degree of risk (and hence the required return on capital) is also increasing in the degree of uncertainty, including in relation to consenting decisions, and particularly notification. As shown in section 4.11, developers are averse to projects that require public notification because of the delays and increased uncertainty associated with such projects relative to non-notified projects.[9]

Taking the expected price, costs and risk into account, the developer will build the type of dwelling that maximises the developer's (risk-adjusted) expected profit. In doing so, the developer takes market prices and costs essentially as given for each type of development (since the developer is assumed to be small in relation to the total market). If no development type is expected to yield a sufficient profit (i.e. to make a sufficiently high risk-adjusted return on the developer's equity, after first paying debt-holders) then the developer will choose not to develop and instead will incur zero further costs and will await a better development opportunity in future.

[8] To keep the example concise, we just refer to development of a single dwelling, but the example can easily be extended to a multi-dwelling development.
[9] The PAUP is intended to allow more developments to proceed on a non-notified basis to avoid costs and uncertainties associated with public notification of developments with minor non-complying elements.

Aggregating all developers together[10], we expect new developments to occur in a locality so long as the sale price of new dwellings exceeds the total cost (including required return on capital) of those new developments. Thus the dwelling stock will increase when sale prices exceed the total costs of development. Conversely, the housing stock will stagnate if market prices are below costs. As a result of these two forces, in (long run) equilibrium, the price of a new dwelling should equal the total cost of development of that dwelling (including the required return on capital after accounting for risk and uncertainty). Thus, at the individual level, the developer is a price-taker (and cost-taker) while, at the aggregate level, the long run price will be set by the total cost of development. In the short term, excess demand may push the price above total costs, so bringing forth new supply to meet the excess demand.

Now consider how a cost imposed by a council, that is not already part of the developer's optimal plans, impacts on this situation (e.g. introduction of a mandated minimum stud height).[11] The new cost will add directly to the total cost of the development. This may have one of three short-term outcomes. First, if there was initially surplus profit for the developer (over and above the required return on capital) that is in excess of the added cost, the original development (with the added cost feature) can still proceed and the developer will end up with a lower, but still acceptable, profit on the development.[12] Second, the added cost may cause the developer to develop an alternative type of (profitable) dwelling that now yields a better profit than the modified original development. Third, the developer may choose not to develop the site currently either if there is now no profitable type of development available or if delaying a development is expected to lead to a more profitable development opportunity in future (after accounting for holding costs) because of an expectation of future price rises (or cost reductions).

Note that in the first two options, the short run market price of the development is assumed to remain unchanged by the council's requirement since the developer cannot push up the market price just because their individual costs have increased. In all three

[10] As in Grimes A. & Hyland S. 2014. "Housing Markets and the Global Financial Crisis: The Complex Dynamics of a Credit Shock", *Contemporary Economic Policy*. Forthcoming.
[11] We do not examine the benefit side of the equation, so the analysis here is purely about cost and supply impacts of regulation. As a result, we do not make any judgements as to whether council-imposed costs (and/or delays or uncertainties) have a net social benefit or not.
[12] This assumes that the added cost feature does not also enhance the market price. If it does enhance price then the development can proceed provided that the added price plus the original surplus profit exceeds the added cost.

cases, the long run price will be pushed up by the added cost since, in the long run, prices are determined by the total cost of development. This process occurs even with the third option, since the lack of new development causes a shortfall of dwellings which pushes up price through excess demand to the level where new supply will be forthcoming.[13]

Now consider a situation in which the developer experiences council-imposed delays and/or uncertainties about the likely type of development that will be approved. These circumstances can be considered a cost in the same way as an explicit added cost of construction. In the case of a known length of delay, the developer faces: (a) added financial holding costs, and (b) greater risk surrounding other costs and prices. Each of these raises the required expected return in order to undertake the development, and hence raises the total cost. Again, while this might not affect the short run price charged for the development, it will raise the long run price of such dwellings.

In the case of uncertainty, the issues are magnified since not only is there a delay incurred, but also there is no certainty that a development will even be feasible once the full council (and related) processes are undertaken. As in the previous cases considered, this may lead to a change in the type of development or a decision not to proceed with any development.[14] The latter situation, in particular, will have a long run impact on prices if other developers also face similar uncertainties. Grimes and Hyland's (2014; op. cit.) analysis indicates that a 1% decrease in the housing stock relative to population leads to a 2.2% increase in the real house price for an area. Thus the house price effect of decisions not to develop will depend on how large is the number of foregone dwellings in relation to the existing dwelling stock and the population of the area.

The difficulty that these alternative circumstances pose for the analysis in this paper is that certain council-imposed costs (such as the impact of regulations on uncertainty) are not always reflected in the immediate price of a development. Indeed, it is unlikely that the immediate price of a specific development will be affected materially by an added cost placed on a developer. Rather the main effect is a long run one as prices eventually

[13] Again, see Grimes and Hyland (2014, op. cit.) for a more detailed analysis of this point.
[14] In section 4, we find that developers filter out a large number of potential developments at an early stage of the development process in cases where the expected market price for the units is insufficient to meet the expected costs, including council-imposed direct costs and costs of delay and uncertainty.

reflect total costs. In our analysis we have therefore attempted to quantify the effect of certain council actions on costs, with the understanding that these costs will eventually be reflected in prices. Costs of uncertainty, in this respect, are the most difficult to value since frequently they may result in a development being abandoned at an early stage (e.g. at the original scoping stage) and so there is little specific cost information available in this case.

Another complicating factor for the analysis is that where council-imposed costs lead to a change in the developer's chosen development type, the added cost of the (now avoided) feature is not apparent in the final cost structure. Again, its effect is on the long run price of developments that would require that specific feature.

Given these complications, we have adopted two alternative strategies to shed light on the effects of council actions on development. First, in section 3, we provide a formal model of development under uncertainty. The model provides a rigorous framework for interpreting the impacts that uncertainty, delay and other council-related actions have on development choices. While helpful as a conceptual framework, this model cannot provide the detailed information needed to quantify the actual effects of council regulations and actions. The second approach, detailed in section 4, presents the results of our survey in which we ask a broad range of questions of developers to help quantify the effects of a range of council-related activities on development costs. The questions also provide indications of when council-related actions impact on decisions of whether to develop at all. In our concluding section, we place these factors into the context of the discussion in sections 2 and 3, relating to short-term and long-term price effects of council actions.

3. A Real Options Model of Housing Development

In order to understand how regulatory policies and regulatory practices, including delays and uncertainty, may affect the development process, we consider a stylised three stage model of development. Each stage may be of different (and initially indeterminate) lengths. The three stages are denoted s=0,1,2.

At stage s=0, a developer has access to an area of land (CBD, brownfields or greenfields) that is physically capable of being developed for urban use. The developer must decide at stage 0 whether to apply for consent(s), and the type of consents, to develop the land. Consents may range from the full gamut of consents shown in Figure 1 (section 4), including master plan changes, etc, to minimal consents for a complying activity. Given the existing regulations, the developer's choice of proposed development, and hence of consent types, will affect: (a) consenting and development timeframes; (b) the probability of gaining a consent; (c) allowable development alternatives; and (d) expected costs and revenues. Hence the probability of eventually undertaking the development is conditional on this strategic choice. A developer will apply for the type of consent(s) that maximises the expected value of the project as viewed at stage 0.

The initial stage cost of the chosen consent application is denoted A; a more complex consent has a higher A than a less complex consent. A includes all costs of designers, consultants, lawyers, etc involved at this stage of the process.

Development can only proceed if the development process delivers an outcome in which development can legally proceed. We denote a positive consent outcome as '|C' (i.e. given a consent), although the conditions of the consent may differ from (be more restrictive than) those initially applied for. The ex ante probability of being granted a consent, given that cost A has already been incurred, is denoted p_0 where this probability is viewed as at stage 0 prior to cost A being incurred. If no consent is forthcoming (or none has been applied for) then the project is abandoned. The developer may then return to a new stage 0 and decide whether or not to embark on a new consent application.

A consent, if obtained, occurs at stage 1, at which time the developer has the choice of deciding to undertake the development or to abandon it (effectively returning to stage 0). Just because the consent is granted, there is no obligation for the developer to develop. The developer will only develop at stage 1 if the development's expected value, as viewed from stage 1, excluding the sunk cost A, is positive.

Expected project value (as viewed from stage 1), given that a consent has been obtained and that development proceeds, is denoted $V^1_{|C}$ which equals discounted

expected revenues from a completed development (obtained in stage 2) less expected building and other costs (incurred in stage 1). Thus $V^1_{|C}$ is given by:

$$V^1_{|C} = \frac{E(R_{|C})}{1+r_1} - B_{|C} \qquad (1)$$

where $E(R_{|C})$ is the expected revenue from the development in stage 2 conditional on a consent, r_1 is the discount rate over stage 1 (which is a function of the expected length of the development) and $B_{|C}$ is the actual cost of the development in stage 1 conditional on a consent.

Development will only proceed at stage 1 if $V^1_{|C} > 0$. At stage 0, a developer places probability p_1 on $V^1_{|C} > 0$ given that a consent has been granted. Thus, at stage 0, the probability of a development proceeding is given by $p_0.p_1$ (i.e. the probability of a consent being granted multiplied by the probability of the development proceeding if it has been consented). The probability of a consented project actually being developed may be less than 1 since market conditions may change between stage 0 (when the consent was first applied for) and stage 1 (when the consent is granted).

Importantly, the probability of abandonment at stage 1 increases (p_1 decreases) as the length of the development process increases. To illustrate why this occurs, consider an example in which the expected market price next period of a development is $500,000 but that the outcome is expected to be either $500,000 minus $20,000 or $500,000 plus $20,000, each with probability 50% (i.e. equal chances of either $480,000 or $520,000). Two periods ahead, the price could again increase or decrease by $20,000 from the period 1 price, three periods ahead it could again increase or decrease by $20,000 from the period 2 price, and so on. By period 4, the probability distribution of the outcomes (with probabilities in brackets) is: $440,000 (0.125), $480,000 (0.375), $520,000 (0.375), $560,000 (0.125). By period 5, the probability distribution is: $420,000 (0.0625), $460,000 (0.25), $500,000 (0.375), $540,000 (0.25), $580,000 (0.0625). If a price of $475,000 is required to go ahead with a development, then there is a 12.5% chance that a decision taken after 4 periods will be to abandon the project, but if the decision is delayed until the fifth period there is a 31.25% chance that the project will be abandoned. Notably, this increase in the probability of abandonment (reduction in p_1)

occurs despite the expected value of the market price remaining constant at $500,000 throughout.

Combining stages 0 and 1, a developer will apply for a consent at stage 0 if and only if (iff) the value of the project at stage 0 (V^0) is positive, i.e. iff:

$$V^0 = -A + \frac{p_0 p_1 V^1_{|C}}{1+r_0} > 0 \qquad (2)$$

where r_0 is the discount rate over stage 0 which is again a function of the expected length of stage 0. The expected length of stage 0, in turn, will depend in part on the complexity of the consent(s) applied for. The type of consent(s) that the developer will seek will be that which maximises V^0.

The probability of choosing to develop at stage 1, p_1, will be dependent on the volatility of outcomes at stage 1. For instance, as viewed from stage 0, the expected profit at stage 1 may be positive. If there is no volatility in that outcome then $p_1 = 1$. However, for the same expected profit, the greater the degree of volatility (e.g. in revenue, costs or discount rates) the greater will be the proportion of occurrences where $V^1_{|C} < 0$; thus greater volatility of outcomes at stage 1 reduces p_1. Volatility in outcomes may be driven by: (a) market forces affecting market prices and building costs; (b) the length of time between stages 0 and 2 since a greater variance of outcomes is likely over a longer time period; and (c) planning uncertainties which may affect the nature of the development relative to what was originally envisaged, and so affect $R_{|C}$ and $B_{|C}$.

There are therefore several avenues through which the regulatory and consenting process may affect the decision of a developer on whether to embark on a consent application. The process may affect:

i. The likelihood of achieving the consent(s) applied for, which in turn depends on: (i.a) the restrictiveness of regulatory policies (relative to the developer's optimal development), and (i.b) the degree of uncertainty in relation to the interpretation of the regulations (e.g. uncertainty relating to specific aspects of the regulatory practices of decision-makers);
ii. The length of time taken to achieve a consent (which affects both the stage 0 discount rate and the probability of proceeding at stage 1 given a consent);

iii. The length of development time contingent on a granted consent, for instance by adding extra consultation or inspection phases once the consent has been granted (which affects both the stage 1 discount rate and the probability of proceeding at stage 1 given a consent);
iv. The cost of preparing and obtaining a consent (A);
v. The costs of the development itself caused by consenting conditions ($B_{|C}$);
vi. The revenues of the development caused by consenting decisions ($R_{|C}$);
vii. The volatility of profits through added uncertainties (in addition to the volatility effects of delays).

Two important points arise from this list of effects of consenting processes on development decisions. First, the combination of these factors means that the effective cost of the consenting process is much greater than the costs incurred solely in preparing and obtaining a consent application (A). Furthermore, these combined costs are in addition to the expected effects of planning rules that are already taken into account in designing and choosing the preferred project.

Second, a developer has choices at stage 0 that affect how great these effects may be for a particular development option. Consider, for instance, a case where a developer has a plot of land worth $50,000 that is capable of being developed for a single dwelling unit. The developer has two alternative projects , I and II. As shown in Table 1 (column 1), Project I has consenting costs of $25,000 so that up-front land plus consenting costs are $75,000. The expected revenue from the project, given a consent, is $500,000, while building costs are $330,000. Each of the two stages is expected to take 12 months with a discount rate of 0.01 (1%) per month, resulting in a compound interest rate for each stage of 0.127 (12.7%). If the probabilities of gaining a consent and of proceeding with the project were each 1 (i.e. conditions of complete certainty) the value of the project at stage 0, from equations (1) and (2), would be $25,925 so that the project would be eligible for development.[15]

A simpler project, project II, is also available to the developer with consenting fees of only $10,000 (column 2 of Table 1). The difference in consenting costs may be because project I stretches the boundaries of what may be permitted so involving considerable design and legal costs, while project II conforms with existing planning rules. In this

[15] A spreadsheet incorporating the model and the values presented here is available from Arthur Grimes.

case, if all other costs and probabilities were identical, the developer can afford to have a lower expected revenue of $480,954 and still have the same value project. (Note that the reduction in revenue is $19,046 which equals the $15,000 reduction in consenting costs discounted over the two stages.)

We can alter the project parameters to see how various factors affect development of each project. Specifically, we solve for the value of each factor individually that makes each project's value at stage 0 (V^0) equal to zero. Column 3 of Table 1 shows the value of each factor, when taken in isolation holding all other factors constant, that yields $V^0 = 0$ for project I; column 4 similarly shows the values for project II.

Table 1: Stylised Model Values

	Initial Values			**Extreme values**[1]	
	Project I	**Project II**		**Project I**	**Project II**
Up-front costs (A)	75000	60000		100925	85925
Expected revenues ($R_{|C}$)	500000	480954		467082	448036
Building costs ($B_{|C}$)	330000	330000		359213	359213
Prob of a consent (p_0)	1	1		0.743	0.698
Prob of stage 1 proceeding (p_1)	1	1		0.743	0.698
Months (stage 0)[2]	12	12		41.8	48.1
Months (stage 1)[2]	12	12		18.8	19.1
Project value (V^0)	25925	25925		0	0

[1] Each value in these columns, ceteris paribus, takes the value of the respective project (V^0) to zero.
[2] The monthly discount rate is set at 0.01 (1%); thus a 12 month stage corresponds to a stage discount rate of 12.7%.

With project I, a 41.8 month consent processing time for the stage 0 consent would render the project valueless ($V^0 = 0$) whereas project II could withstand a 48.1 month processing time. If processing time was expected to be less than 12 months, project I would be preferred, while if processing time was between 12 and 48.1 months, project II would be preferred; if processing time was expected to be greater than 48.1 months, neither project would proceed. The lower up-front consenting costs of project II relative to project I enables project II's greater resilience to consent processing time. If the actual consent led to a lengthening of the stage 1 construction period to 18.8 months,

project I would be rendered valueless, whereas project II could withstand a slightly longer construction period of 19.1 months; again the financing costs of the higher up-front consenting costs for project I is the reason for this difference.

Project I requires at least a 0.74 probability of gaining a consent to have value at stage 0, whereas project II's required consent probability is 0.70; the same respective probabilities apply for proceeding at stage 1. Again, the lower up-front consenting costs of project II explain its greater resilience to variation in these parameters. With certainty, both projects can suffer an identical decline in expected revenues ($32,918) or increase in building costs ($29,213) from their baseline levels before losing all value.

Each of the figures in columns 3 and 4 of Table 1 is presented in the context of a change to a single factor influencing the development choice. In general, however, a change to one factor may cause changes in related factors. For instance, a lengthier consent process at stage 0 is likely to reduce the probability of proceeding with a development at stage 1 since there is likely to be a greater chance of negative outcomes for expected revenues and building costs as the development process lengthens. Thus an increase in the number of months taken for consenting is likely also to reduce the value for p_1. As an example, recall that for project I, a consent process of 41.8 months, ceteris paribus, would render the project valueless; however if p_1 fell to 0.9 as a result of the delay, then a consenting time of 31.2 months would render the project valueless. Project II could still proceed with a consenting time of 31.2 months if p_1 was at least 0.85.[16]

In the model above, all consenting costs have been allocated to stage 0. However it is possible that these consents (and costs) could be shared across stages 0 and 1. We can denote this as a consenting cost A-X at stage 0 and as a building plus consenting cost $B_{|C}$ +X at stage 1, where X is only borne at stage 1 if the required initial consents have been granted at stage 0; for simplicity we assume that the future consenting cost, if the project goes ahead, is known at stage 0. The higher consenting cost to be met at stage 1 reduces $V^1_{|C}$, ceteris paribus, and hence contributes to a reduction in p_1. Conversely, the delay in some aspects of a consent to stage 1 may enable a more flexible response if market conditions change between stages 0 and 1, so contributing to a rise in p_1. Thus it is unclear whether p_1 will rise or fall with a move to two-stage consenting. Denote p_1

[16] Other combinations of parameters can be considered within the available spreadsheet.

under the initial (one-stage consent) structure as $p_1^{\wedge}$ and that under the distributed (two-stage consent) process as p_1^*, and initially assume that no other variables change as a result of the distributed consent process. Recall that an initial consent will be lodged if and only if it is profitable to do so at stage 0. Using the one-stage consenting structure, with equation (1) inserted into equation (2), an initial consent will be lodged iff:

$$V^{0\wedge} = -A + \frac{p_0 p_1^{\wedge}\left[\frac{E(R_{|C})}{1+r_1} - B_{|C}\right]}{1+r_0} > 0 \qquad (3)$$

where $V^{0\wedge}$ (V^{0*}) denotes the value of the project at stage 0 under the one-stage (two-stage) consenting process. Using the two-stage consenting structure, an initial consent will be lodged iff:

$$V^{0*} = -(A - X) + \frac{p_0 p_1^*\left[\frac{E(R_{|C})}{1+r_1} - (B_{|C}+X)\right]}{1+r_0} > 0 \qquad (4)$$

Thus the difference in value at stage 0 between the two-stage and one-stage consenting structures is:

$$V^{0*} - V^{0\wedge} = (1 - \frac{p_0 p_1^*}{1+r_0})X + \frac{(p_1^* - p_1^{\wedge})p_0\left[\frac{E(R_{|C})}{1+r_1} - B_{|C}\right]}{1+r_0} \qquad (5)$$

The first term on the right hand side of (5), which is positive, represents the advantage of a two-stage process for the developer stemming from a delay in up-front consenting costs. The advantage comprises both a saving in consent costs in the case that the project does not proceed (so that X does not need to be spent) and a financial saving as a result of delay in the timing of costs even where the consent costs are incurred. The second term on the right hand side of (5) will be positive or negative depending on whether p_1^* is greater than or less than $p_1^{\wedge}$. The greater the volatility in market conditions, the greater is the prospect that $p_1^* > p_1^{\wedge}$ so that two-stage consenting is preferred. In more settled market conditions, $p_1^{\wedge}$ may be less than p_1^*, raising the likelihood that one-stage consenting is preferred. If delaying the lodging of some consents raises p_1 or does not change it markedly (so that the second term is positive or a small negative), then the two-stage consenting process is beneficial for development. However, if the two-stage

consenting process significantly reduces the probability of proceeding at stage 1, the one-stage consenting process may be more conducive to development.

The example above considered that the switch to a two-stage consenting process only leads to a change in p_1. However the same insights carry over to cases where the two-stage process may also change other variables. A shortening (lengthening) of overall consenting times, leading to a reduction (increase) in combined financial costs through r_0 and r_1, will be favourable for development while a decrease in $\mathrm{E}(\mathrm{R}_{|\mathrm{C}})$ or an increase in $\mathrm{B}_{|\mathrm{C}}$ will be detrimental to development. The key point is that a one-stage consenting process resolves uncertainty earlier than does a two-stage process, which is beneficial for developers, but at the cost of greater up-front financial cost, which is detrimental for developers. If consents that are inconsequential for the success of the development can be delayed, a two-stage structure is preferred over a one-stage structure; but where the outcome of consents is uncertain, the analysis does not clearly favour one structure over the other.

One message to take away from all these examples is that numerous planning and regulatory elements, including uncertainty and delay, can combine to change the decision of a developer about whether or not to develop a project.

A second, more nuanced, message is that planning and regulatory issues may rule out a developer's ex ante preferred project but the same rules and processes do not necessarily rule out development of the same available land; an alternative project (either by the same or a different developer) may still proceed that has different consenting costs, probability of consenting success and/or different timeframes, building costs or expected revenues relative to the initially preferred project.

The ability to substitute one project for another makes it conceptually difficult to measure the costs of planning and regulatory matters. For instance, an increase in consenting times may shift the preferred development from project I to project II in the example above. The cost of the extra consenting time cannot be measured by the abandonment of project I; rather it is the loss of producer plus consumer surplus (plus any extra uncompensated resources used by the consenting authorities) entailed in moving from project I to project II. In general, unless no project replaces the ex ante preferred project, we cannot derive a clear estimate of this loss (nor do we have an estimate of any

offsetting benefits that might arise from the extended consenting process, such as accommodation of neighbours' concerns). Furthermore, often we do not even observe the foregone projects (and hence their parameters) and instead only see the parameters for the projects that replaced them. In interpreting our empirical work, these observations need to be kept in mind; most of our direct cost estimates relate to projects that did eventually occur, albeit sometimes in modified form as a result of the planning and regulatory process.

4. Property Developer Survey

4.1 Introduction

In this section, we complement the conceptual framework with data obtained from our survey of residential property developers. The discussion covers our methodology; the impact of rules and regulations on residential development costs and profitability; other issues identified in the survey; developers' business strategies; retirement village developers' experiences relative to greenfield and apartment developers; uncertainty considerations; and issues relating to development uncertainty. Unless otherwise stated, the analysis in this section of the report relates to Auckland's existing (legacy) planning rules and regulations rather than the provisions include in the PAUP. Some provisions incorporated into the PAUP, and some changes in planning practices within Auckland Council, will have the effect of reducing costs relative to those modelled in this report while others (such as a minimum stud height requirement for certain dwellings) may increase costs.

It is important to note that the information presented in this section of the report is the respondents' views (rather than those of the authors) regarding the market and the impacts that planning rules and regulations have on development costs and uncertainty. It is also important to stress that some of these rules and regulations have benefits which may offset some or all of the costs identified in this study. However, it is beyond the scope of this project to identify these benefits. Rather, we supply (developers') baseline cost estimates against which others' analyses of benefit can be compared. In addition, it is beyond the scope of the project to investigate directly the actions of Council and their agencies (Auckland Transport and Watercare), although we do report on

developers' views of their actions. The focus of this study is on Auckland, with an emphasis on the affordable end of the housing market.

4.2 Methodology

The methodology adopted for this part of the project involved two key steps. The first used a series of face to face semi-structured interviews with property developers. The objective of these interviews was to:

- Understand how planning rules and regulations influenced their development's design and outcomes relative to the optimal design based on their assessment of market demand and feasibility;
- Collate financial information from developers relating to development costs with a particular focus on the costs associated with the consenting process and the application of Council's rules and regulations; and
- Address specific questions on planning policies and planning practices to assess their effects on a development's risk and uncertainty.

The information collated from the developer interviews was subsequently used to model the impact of the planning rules and regulations that developers identified as having a significant impact on a development's outcomes using a counterfactual approach. The approach compares the base development case with scenarios which reflect the impact that different Council planning rules and regulations have on development costs. A copy of a sample costing spreadsheet used for a hypothetical greenfields development and one used for a hypothetical apartment development is attached in Appendix 1.

The survey approach was pilot tested on two Wellington based developers and the Auckland based interviews were completed during June and July 2014. Surveyed developers were all active in the market and were in the process of completing at least one development. We did not include any prospective developer who had chosen not to undertake any developments as a result of Council or other factors. This exclusion may bias the results towards findings of lower costs of Council rules and actions since all developers contained within the sample have found a way to develop within the current framework. Given the small number of active developers in the market, the developers

who were surveyed were not chosen randomly but were instead selected to traverse a range of development types including:

- Greenfield subdivisions;
- Infill/brownfield developments;
- Residential builders;
- Suburban and CBD apartment developers; and
- Retirement village developers.

In total the interviews collated information on 21 developments from 16 developers. Signed confidentiality agreements were provided to each developer participating in the survey. The developers included in the survey were medium to large firms. The developments included in the analysis included 5 greenfield, 9 infill/brownfield and 7 apartment developments. The developments ranged in size from smaller infill sites with fewer than 10 units up to greenfield projects which will have more than 1,000 dwellings on completion. Approximately 60% of the developments commenced (the first stage) prior to the formation of Auckland Council. The development sites were distributed across the whole of Auckland Region. Four of the developments were located in the northern part of Auckland, five were located in the west, three in the south, six are in the isthmus, and three in the central city.

The interviews were divided into two phases. The first phase encompassed a counterfactual approach to understand the reasons behind the design of an individual development and how Council planning rules and regulations may have impacted on the design. Developers were asked to:

- Describe the development and how it related to the market conditions at the time it was developed;
- Describe the development design process;
- Describe why the development was designed in the way it was;

- Discuss the factors influencing the development's design (various prompts were available to cover a range of areas);

- Provide specific information on the development's financial outcomes; and

- Discuss how the property may have been developed if the Council rules and regulations were relaxed and the impact that this would have had on the development's cost and profitability. This counterfactual concept investigated how the property would have been developed in the absence of particular planning rules and regulations, including drawing out the financial implications of these issues.

The second phase of each interview addressed a number of specific questions focused on stages in the planning process and the implications of these stages on the development's uncertainty and risk.

The financial data collected from developers was used to model the impact of each attribute on development costs of developments that proceeded. Developers provided a range of information on their developments and the cost of planning rules and regulations. This ranged from limited data on the cost of a rule or regulation for their development to a detailed breakdown of the development's costs. This information was used to develop financial models for greenfield and apartment developments as shown in the spreadsheets in Appendix 1. These models were used to simulate the impact of different rules and regulations on the cost per dwelling unit.

The impact of planning rules and regulations varied across the different developments for a number of reasons. These included the location of the development, initial underlying zoning of the site, the existing infrastructure available, the operative planning rules for the location, the individual staff members who were assessing the resource or building consent (in particular planners and urban designers), the nature of property market demand relative to planning rules and regulations, and the natural and physical attributes of the site. In addition, the information supplied by developers relates to a range of projects. Some of these reflect current costs whilst others have been underway for a number of years. As a result, the costs and levies reflect the way in which rules and regulations were actually applied over a number of years and thus reflect past and

present policy. Consequently, the impact of the different planning rules and regulations is expressed as a range per dwelling unit.[17]

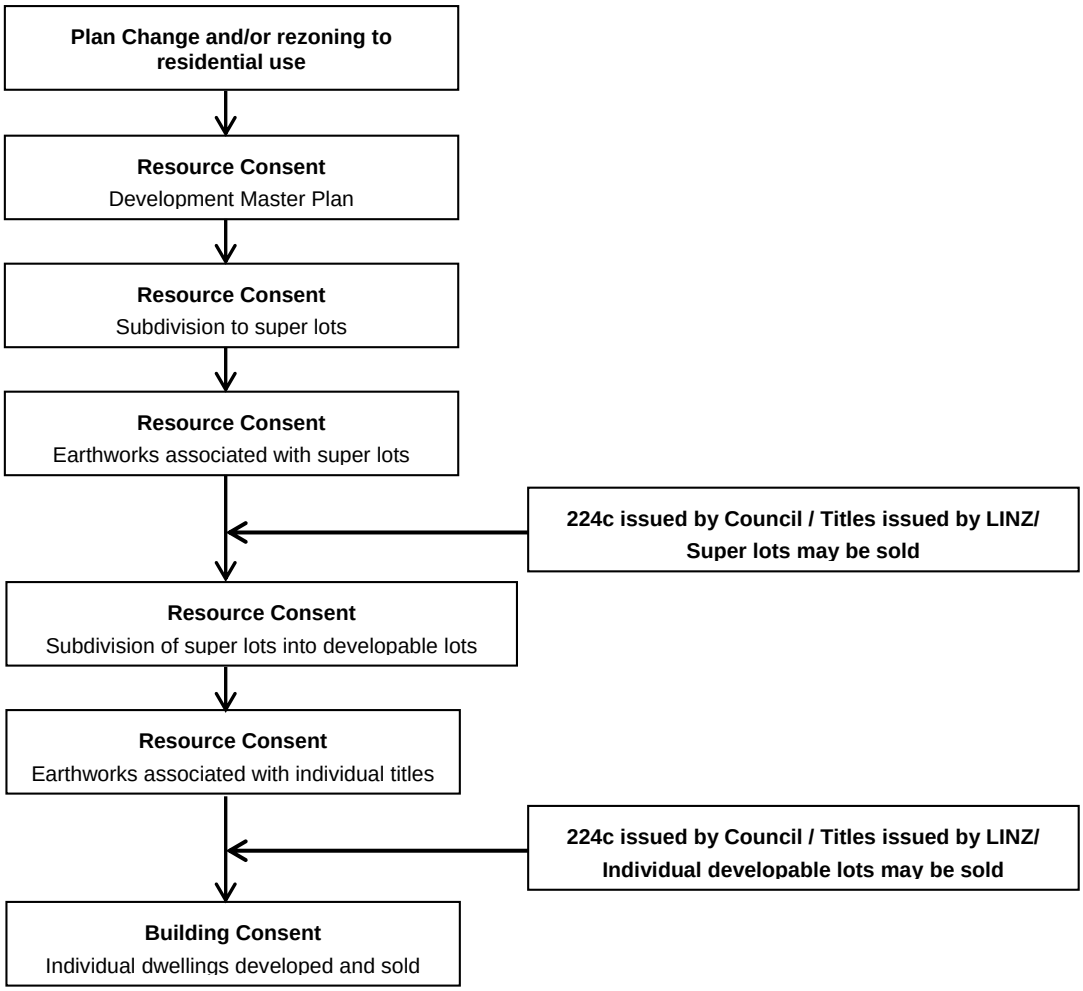
One key finding that needs to be stressed at the outset is that developers undertake a comprehensive filtering process on prospective developments at an early stage of a project, often before they have control over a site (but when they may have an option or opportunity to acquire the site). At this stage, they make a decision on whether or not to embark further on the development after assessing the required up-front costs (and hence the costs of being left with a potentially stranded asset), expected market price of the finished units, total costs (including Council-imposed costs) and risk (including risks associated with planning delays and uncertainties). According to developers, it is at this stage that many of the Council-related costs and actions have their greatest impact in the sense that the development decision is often not to proceed in the light of these costs and uncertainties. Alternatively, a different type of development (that is not optimal in the eyes of the developer) may instead be considered. In each of these circumstances, market prices rise as a result of the shortfall in supply rather than directly reflecting specific costs. For our purposes, these cases do not result in observed added costs of development because the development does not proceed. Thus our observed costs are likely to represent a lower boundary on the actual cost and price impacts of the actions and regulations that we examine.

4.3 Planning approval process and potential time delays

The size and nature of a residential development can impact on the number of planning/resource management steps that are required between purchasing land and ultimately developing dwellings on the site. During the development process, ownership of parts of the development may change. Figure 1 provides an overview of this process, summarising the planning and approval process for a larger greenfield development.

[17] The cost ranges indicated in Table 2 refer to cases where costs (including opportunity costs) were actually incurred by a project. They are expressed as the lowest to the highest cost impact across our developer sample where we have excluded some outlying high cost estimates that may be idiosyncratic to a particular development.

Figure 1: Planning Approval Process



Note that smaller developments may combine a number of steps into one and may develop individual lots (rather than super lots) and seek subdivision and earthwork consents within the same resource consent.

A section 224(c) certificate is a final approval from Council that all conditions of the subdivision consent have been complied with. Once Council is satisfied that all conditions of subdivision consent have been complied with then the 224(c) certificates are signed. The developer then lodges this certificate with Land Information New Zealand (LINZ) to allow separate titles for the newly created lots to be issued.

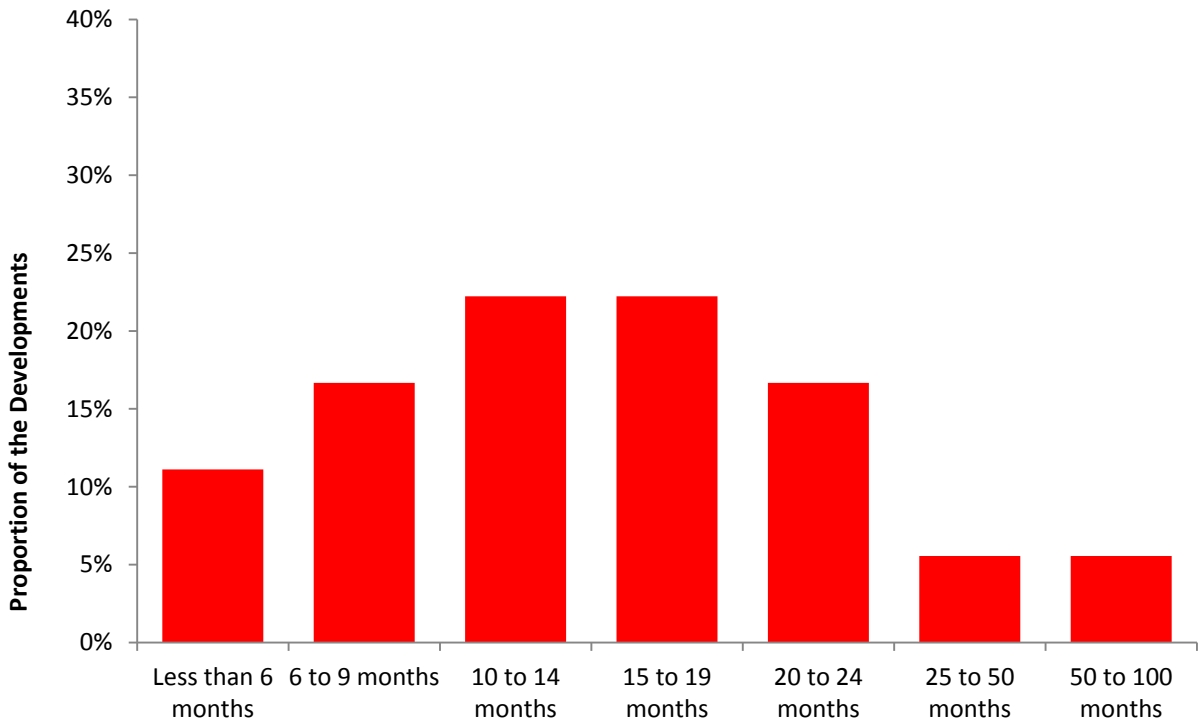
The planning approval process may require multiple resource consents before a building consent can be issued. Developer feedback suggests Auckland Council now requires more detailed information earlier in the consenting process than was previously the case. As discussed in section 3, this has two potential effects. First, it increases the costs in the initial stages of the consenting process and potentially lowers the cost in later stages. While providing greater certainty to developers after the initial stages of a development, it has a drawback in that it reduces developers' flexibility over the final design of the development. Developers report that they prefer flexibility over final design as this allows them the opportunity to adapt to market demand over the project's life. From a planner's perspective, reducing flexibility has the advantage of increasing certainty over the outcomes from the development.

The length of time required for this process varies considerably. The key factors impacting on the length of the planning process include:

- The size and scale of the development;
- The initial planning designation of the land and the scale of any change of use via a plan change, if a plan change is required;
- Whether the development proposal conforms to the existing planning rules;
- Whether the proposed development is a radical change relative to the existing land use, style and density of other developments in the surrounding area;
- The quality of the information provided to Council by the developer and their consultants;
- Whether Council officers support or disagree with the development proposal;
- The level of earthworks required to develop building platforms; and
- The availability of infrastructure.

Figure 2 presents a summary of the timeframes achieved in the various developments included in the developers' survey. This figure relates only to developments that have proceeded and does not include developments that did not proceed.

Figure 2: Development Timeframes from Initiation of the Planning Consultation with Council to Granting of the Consent to Allow Civil Work to Commence



The median length of time taken to obtain the required consents was 18 months. These timeframes incorporate a number of consenting stages and also include any time required to respond to Council's queries for additional information. A number of developments appear to have almost stalled in the consenting process and took over 100 months to gain consent. These developments typically had issues such as being outside the metropolitan urban limit (MUL) and were going through a plan change process. Alternatively, they related to a development involving the intensification of an urban site which attracted considerable opposition from the local community.

Within the typical 18 month consenting timeframe, developers considered there were four to six months of Council related delays. These delays reflected time associated with requests for additional information, time required to facilitate compromises between different parts of Council with regard to requests for design modifications[18] and the time required to incorporate any agreed changes into the project's design.

4.4 Impact of regulations on residential development costs

The survey identified a number of development attributes which are affected by residential planning rules and regulations. Each of these attributes is discussed along with a summary of developers' comments and the estimated per dwelling cost implications for the development. The cost implications are calculated on the basis of the spreadsheet templates included in Appendix 1. The development attributes include:

- Intensification including height limits, section sizes, green space requirements, and unit orientation;
- Floor to ceiling heights (hypothetical impact under initial discussions for the Auckland Unitary Plan);
- Mix of units within a development;
- Floor area requirements, room sizes and balcony requirements;
- Green star ratings (hypothetical impact under PAUP);
- Impact of delays in the consenting process;
- Infrastructure standards and costs including reserve, development and Watercare contributions;
- Urban design considerations; and
- Heritage controls and tree protection.

[18] For example, requests from planners, urban designers, and Auckland Transport may conflict (see section 4.10 for further discussion of this issue).

Overall developers' sentiment was that Auckland Council did not cope well with the concept of development. Council was seen as wanting to preserve the existing environment (both within urban and rural areas) whilst wanting to increase the density of development. These concepts conflict with each other since development, by its very nature, alters the landscape, so explicit trade-offs are required.

Table 2 presents a summary of the impact of each of these attributes (each taken in isolation) on development costs. The following sub-sections provide more detail on each cost attribute. While each development was impacted in some way by Council's rules and regulations, each development was unique in the way in which these factors influenced costs. Thus some of the costs impact on some developments but not others and, as discussed previously, some costs resulted in a decision not to proceed with a development at all. In the affordable apartment category, height limits, minimum floor to ceiling heights, balcony requirements and minimum floor area requirements[19] were particularly important in stifling developments.[20] Section design considerations (e.g. section sizes, site coverage, heritage protection, etc.) had an important effect on decisions whether or not to develop residential sections and stand-alone dwellings.

Excluding the cost of Watercare and reserve and development contributions, the typical range of the total impact varied between $32,500 and $60,000 per dwelling in a subdivision. In terms of affordable apartments, assuming the total internal floor area remains the same and no deck is built, the impact on total cost typically ranges between $65,000 to $110,000. Note, the existing building regulations in Auckland City require all CBD apartments to have decks and in this case the counterfactual development excludes decks.[21] The majority of the cost relates to height limits on the building and the area of the balcony which is no longer included. These estimates assume a 2.4 metre stud height. An increase in supply of more affordable apartments could be achieved by reducing the existing minimum allowable floor area of the units.

[19] Current minimum floor area requirements for CBD apartments are: Studio (30 m2 internal plus 5 m2 balcony, one bedroom (40 m2 internal plus 5 m2 balcony), two bedroom (62 m2 internal plus 8 m2 balcony), and three or more bedrooms (82 m2 internal plus 8 m2 balcony)

[20] Indeed, we do not even enter a cost estimate for minimum floor area requirements since these often resulted in a decision not to proceed with a development that included affordable units. Where these requirements led to larger than preferred units (i.e. where the development proceeded) the cost impact is difficult to ascertain since the quality (size) of the apartment has also increased.

[21] The balcony regulations are an example where the principal cost arises from an opportunity cost of the use of space rather than from direct construction costs.

Table 2: Cost Impacts of Planning Rules and Regulations*

Rule and Regulations	Increase in Cost per Dwelling[1]	
	Apartments	Subdivisions
Building height limits	$18,000 to $32,000	See note 2
Section size / density controls	n/a	$11,000 to $19,000
Site coverage/setbacks/green space	n/a	$5,000 to $10,000
Unit orientation	See text	See text
Floor to ceiling heights[3]	$21,000 to $36,000	n/a
Dwelling floor areas	See text	See text
Balcony area	$40,000 to $70,000	n/a
Green star ratings	See text	$4,000 to $7,000
Extended consent process	$3,000 to $6,000	$4,000 to $16,000
Provision of additional infrastructure	See text	$10,000 to $21,250
Infrastructure standards	See text	See text
Mix of dwelling units	$6,000 to $15,000	n/a
Reserve & development contributions	$14,000 to $19,000	$20,600 to $34,800
Watercare contributions[4]	$12,500	$12,500
Other urban design considerations	$1,500 to $8,000	$9,000 to $20,000
Heritage and tree protection	See note 5	$6,000 to $10,000

* All costs include opportunity costs in addition to direct construction costs.

[1] In cases where this factor is the limiting constraint.

[2] There was no definitive information available from the developers surveyed on the impact of building height restrictions within the selection of subdivisions included.

[3] The modelled effect here is of a minimum stud height of 2.7m (as discussed early in the PAUP consultation phase) whereas the PAUP incorporates a less restrictive 2.55m minimum stud height. We estimate that the cost for an affordable apartment of a 2.55 metre minimum stud height will be approximately half that shown, i.e. approximately $10,500 to $18,000.

[4] Watercare contributions have recently increased to $12,500 per connection.

[5] Typically sites with heritage or tree protection considerations were filtered out as potential development sites early in initial feasibility studies and as a consequence there was not definitive information available on these costs.

Intensification - height limits

Rules and regulations restricting the height of developments impact on the development capacity of sites and hence on per unit costs. The proposed unitary plan has introduced a range of height limits across the urban area, some of which reduce the development capacity of suburban and central city sites (as a result of new viewshaft requirements). The impact of height limits varies significantly across different sites. On the sample of

developments included in our analysis the impact under the existing planning rules and regulations ranged from an increased cost per unit of $18,000 to $32,000.

The impact of the height limits on the development capacity of a site resulted in:

- A reduction in the number of units in a development of between 0% and 29% in suburban locations. Note, that in the example of the development in which the capacity was reduced by 0%, it required the developer to significantly change the design. Achieving the same floor area required a much larger building footprint, so reducing profitability;

- A reduction in the desired capacity by 34% to 49% over the economically optimal height in the CBD; and

- A restriction in the potential number of apartments that can be developed on a site, particularly when height limits are combined with view shafts. This results in a large number of potential developments being abandoned at a very early stage of the feasibility assessment, particularly within the central city area.

Appendix 2 includes a representative sample of developers' comments on this and on other issues covered in this section.

Floor to ceiling heights

Floor to ceiling (stud) height requirements can impact on a development in a number of ways. First, they increase the cost of construction. Second, they increase the height of a building for a given number of levels. There are no floor to ceiling height controls under the existing planning rules and regulations. However, under the PAUP a minimum stud of 2.55 metres will be introduced in the terraced house and apartment block and central city zones. The analysis used in this report assumed a 2.7 metre minimum stud height reflecting the upper end of the submissions on minimum stud heights when the developer survey was being undertaken.

In locations where height limits are imposed based on height in metres this can reduce the number of levels within a building and consequently reduce the number of apartments.

Developers' estimates of the impact of increasing the stud height (to 2.7 metres) is that it increases the cost by $360 to $600 per square metre in CBD apartments or, in some cases, prevents a development from proceeding. These costs are applicable to the lower end, or more affordable, apartments as this category is where stud heights act as a binding constraint.

Mix of units within an apartment building

Apartment developers expressed concern that Council staff were trying to force them to include unit typologies that had limited saleability. For example, developers suggest that urban designers like to see a balance between studio, one, two and three bedroom units within a building even where market demand does not support the optimality of such a mix. The PAUP rules only apply to developments with 10 or more units in the mixed housing zone and 20 or more units in the terraced house and apartment block and central city zones.

Information provided by the developers' survey implies that Council imposed requirements on the mix of typologies increases the costs by $100 to $250 per square metre (or $6,000 to $15,000 for a 60 square metre apartment).

Balcony sizes

Balcony size requirements were identified as an issue by developers focused on developing affordable apartments. Information provided by the survey of developers implies that the full cost (including opportunity costs) of a balcony is similar to the cost of enclosed space. Thus an increase or decrease in the balcony size, assuming it increases the area of the apartment (internal and balcony combined), will have a direct impact on the cost per apartment. Consequently, the minimum balcony size regulations reduce the number of units within an apartment building for a given land area.

Information provided by the developers' survey demonstrated that balcony size requirements increased modelled costs by $40,000 to $70,000 per unit (assuming a range in balcony deck sizes of 5 to 8 square metres). The costs are influenced by the average deck size across the development.

Floor area requirements and room sizes

The current restrictions on the size of apartments and room sizes were seen by developers as an impediment to providing affordable housing, particularly within the CBD. Rather than increasing the cost of a unit that exceeds the minimum size, the restrictions on floor area result in fewer low cost dwellings being developed. Anecdotal evidence, however, suggests that there is demand from both investors and occupiers for the smaller units.

Removal of floor area restrictions would directly reduce the cost of a dwelling unit affecting by the restriction (albeit also reducing one aspect of apartment quality, i.e. the floor area). However it is important to note that the total cost of a unit is not proportional to apartment size, with the rate per square metre being higher for smaller units. A large proportion of the higher cost per square metre for smaller units reflects the fixed costs associated with the bathroom and kitchen being spread over a smaller area.

Unit Orientation

Unit orientation (e.g. positioning requirements relative to the sun) influences building development layouts and yields. We were unable to source any definitive data which could be used to model the impact that this has on the cost per dwelling unit within an apartment development or sub-division. The impact is likely to vary significantly across different sites with the shape, area and orientation of the site having a significant impact on the overall cost implication.

Green star ratings

Green star requirements provide a challenge for developers trying to incorporate additional features into their developments whilst trying to control costs, maintain margins and still have a marketable product. Developers were not able to provide a

large amount of information on the cost of achieving different levels of green star ratings. Developers targeting the mid to upper end of the market were confident that their product already achieved good green star ratings (although they had not been rated) whilst developers targeting the more affordable end of the market saw any green star requirements as an additional cost.

The operative district plans do not include any green star rating requirements. However the PAUP requires new buildings to meet the 6 Homestar certification established by the New Zealand Green Building Council. (These rules are currently being applied in the SHAs.)

The best cost data provided implied that green star ratings would add between $4,500 and $7,500 per unit to a dwelling that was already well designed. This would be a 1% to 1.5% increase relative to the dwelling's sale price.

Infrastructure contributions (reserve, development and Watercare)

Developers have typically paid infrastructure contributions in the past through a variety of mechanisms. However, they think that increasingly Watercare and Auckland Transport are engaging in monopolistic behaviour to force them to fund upgrades and the expansion of infrastructure where the benefits extend beyond the boundaries of their development, the costs of which are not being offset by reductions in either development contributions or Watercare levies. The overall sentiment from developers is that Watercare contributions have been consistently escalating and are now $12,500 a connection. Developers consider that they are paying for a lack of past investment.[22]

Information provided by the developers' survey demonstrated that infrastructure contributions that pertain to matters that extend beyond the development increased modelled costs by $10,100 to $21,250 per unit. The increase in costs reflects the expenditure over and above what was required for the subject development. For

[22] We make no judgement as to whether the developers' concerns are accurate in this respect, or whether current Watercare charges are too high, too low or are broadly correct.

example, in some cases developers are asked to incorporate storm water schemes servicing the whole catchment whereas their property forms only part of the catchment.[23]

Infrastructure design considerations

A number of developers (both apartment and non-apartment) commented that infrastructure requirements were over-designed and lack innovation. This resulted in increased costs to the developer. No definitive data was available on the impact that this had on development and infrastructure contributions. Consequently, it is difficult to estimate the impact on the cost per dwelling.

Section sizes

Council imposed section size requirements can have a range of different effects in different locations. Information provided by the developers' survey implies that Council imposed requirements on section sizes may increase cost by $11,000 to $19,000 per section. The additional costs accumulate in two ways. First, in some instances they force the developer to sell sections that are not the preferred market size, thereby increasing the sales period. Second, in some instances, they limit the number of sections a developer can subdivide within a development.

Site coverage and green space

Developers' perceptions are that the current planning process limits the level of innovation in development design. For example, it is far easier to undertake a traditional infill development than come up with an innovative design that achieves higher density and lower site coverage ratios with more private green space.

Information provided by the developers implies that Council imposed requirements on site coverage and green space may increase cost by $5,000 to $10,000 per unit.

[23] In such cases, the costs of providing the capacity to service the storm water from the catchment area that they do not own is incorporated in our cost estimates whilst the cost of servicing storm water from within their development is excluded.

Other urban design considerations

Developers provided detailed comments about the impact of urban designers on their development proposals. The majority of comments about the (external) urban design panel were complementary (a view held by over 70% of respondents); however almost without exception Council's urban design staff were considered inexperienced and a hindrance to innovation and to the provision of marketable residential solutions.

Information provided by the developers' survey implies that Council imposed urban design requirements increase the length of time required to gain a consent, increase the costs of the planning process as designs need to be reworked multiple times, reduce the saleability of the units within the development and increase the costs as developers attempt to conform. Estimates of the impact of urban design input into projects suggest that they increase costs by $9,500 to $20,000 per dwelling. Note that these cost estimates exclude the rules discussed separately in this section. The factors covered in these estimates include decreased yield due to design changes such as limiting rear sections, road layouts and increased infrastructure costs due to the requirements to have roads on all reserve boundaries.

Car parking requirements

There were diverse views of the impact of car parking requirements on developments, reflecting differing development types. CBD apartment developers, particularly those developing at the affordable end of the market, prefer to include fewer car parks. They saw car parks as a cost to the development as the market value of a park was less than the cost of including them on the development. In contrast to CBD apartment developers' views, suburban apartment developers tended to favour offering more car parks (as indicated by their comments in Appendix 2). Insufficient information was provided by developers to accurately assess the impact of car parking requirements on development costs and profitability although some comments suggested that the net cost/loss per car park in a CBD development was approximately $32,000. We note that minimum parking requirements were removed from the city centre in the late 1990s and the PAUP further removes minimum parking requirements in some other areas.

Heritage controls and tree protection

A number of the projects included in the survey were developments which incorporated heritage buildings (e.g. older villas) and protected trees. Developers' perceptions were that Council was inflexible in its consideration of these issues. Consequently, these features resulted in a loss of development capacity and more complex design to integrate the trees or buildings into the development's design.

Information provided by the developers' survey implies Council imposed requirements in relation to the retention of heritage buildings such as villas and protected trees can increase the costs by $5,600 to $9,800 per dwelling.[24]

Building Consents

The building consent process can impact on development cost in a number of ways. First, delays around issuing the building consent can impact on building design and increase the length of the planning process. These delays can relate to a number of design issues already discussed such as site coverage ratios, minimum floor and balcony areas, floor to ceiling heights, and urban design considerations.

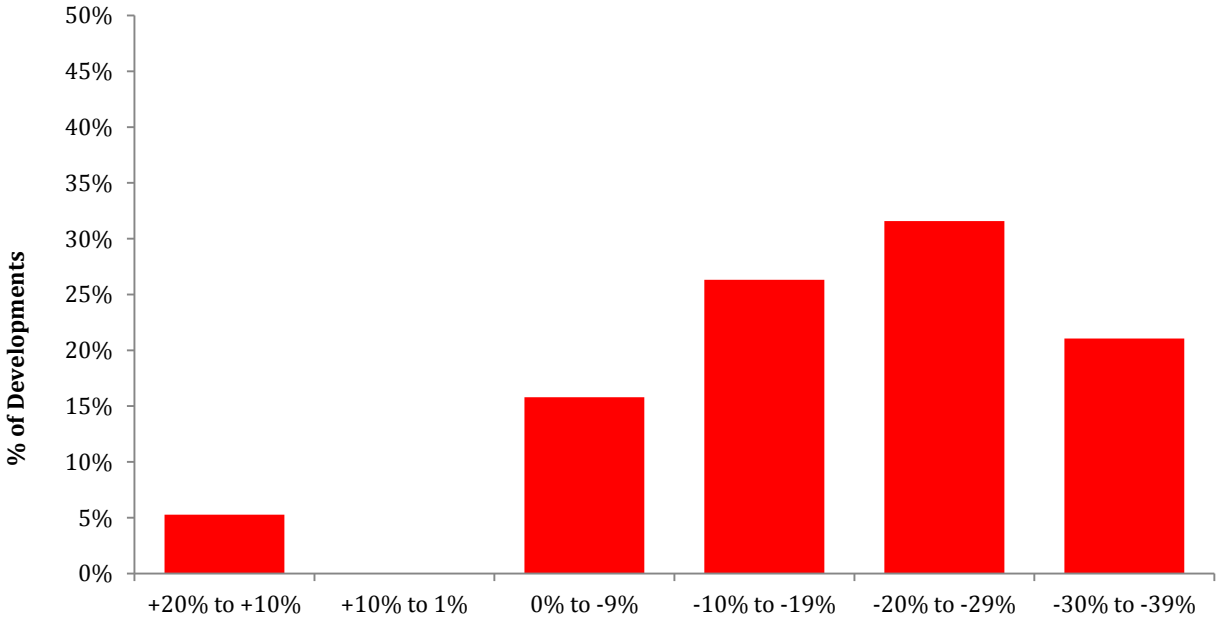
Second, the compliance inspections associated with the construction of the building can add delays. Building inspections need to be booked in advance and builders need to anticipate the timing of the inspections relative to progress on site. This system offers greater certainty to developers over the timing of inspections than a system without bookings. However, if developers allow insufficient time to complete a stage and the inspector visits the site in line with the original booking, the building timeline may be disrupted whilst the construction activity catches up, sub-contractors are reorganised, and the inspection is rebooked. This may add a number of weeks to the build process and increase the overall costs. Builders are faced with a balancing act of managing the timelines so that inspectors visit the site as key construction milestones are reached whilst not allowing too much of a buffer for unexpected delays so that key staff and contractors are not idle.

[24] We note that the blanket requirements for resource consents for tree removal have been removed from the PAUP and from the operative plans. This is likely to reduce the impact of tree protection by reducing the number of affected sites. The heritage controls remain in place.

Loss of potential development capacity

One effect of the application of Council imposed rules and regulations can be a significant loss in potential development capacity. We summarise the loss in capacity between the developer's proposed outcome and the eventual consented outcome in Figure 3.[25] The figure presents the impact that Council rules and regulations had on development capacity (the number of units included in the development) measured across all our interviews. The outcome is expressed as the percentage change in units relative to the number of units that would have been developed under the counterfactual (proposed) design. Again, the figures only relate to developments that proceeded; they do not include developments that did not proceed.[26]

Figure 3: Loss in Development Capacity



[25] In some cases developers applied for more capacity than was allowable. This may possibly have been part of a bargaining strategy with Council in which the developers expected Council to counter with a response that would include less capacity than was allowable. In one case, a developer was required to develop at a higher capacity than they considered optimal for the market.

[26] Note, the data in figure 3 is based on developers' responses to how rules and regulations influenced design of their actual developments compared to the counterfactual market scenarios, and consequently differs to developers' responses to survey question 2 on page 44.

The median loss in capacity was 22% of units. For apartment buildings the loss of capacity was primarily due to height restrictions or issues relating to view shafts. In other developments the loss in capacity related to issues associated with urban design requirements, retention of heritage building and protected trees, and the need to provide on-site infrastructure over and above what was required to service the development's requirements. In one case the developer was required to increase the density over and above what they considered to be the market optimum.

Length of the planning process

Developers consider that the length of the planning process and the way in which Council staff and related agencies engage with developers increases the uncertainty and the time required to obtain resource and building consents.

Information provided by the developers' survey implies that delays with the consenting process can be a significant cost and can vary significantly depending on the individual project's consent application. In the more extreme cases the delay in obtaining consent added more than 3% to the total costs associated with the project. These reflect the additional holding costs associated with the lengthened consenting period.

4.5 Other Issues

The survey identified a number of other issues relevant to this project, two of which we highlight here.

Developers felt that there has been a lack of alignment between the Council's (planning) goals/plans and those of the related Council agencies (parks and reserves, Auckland Transport, urban design, Watercare). This has resulted in developers trying to mediate disputes over how the development should be designed between different parts of Council. In addition, they held the view that there was little or no accountability or pressure on Council staff to seek to resolve inter-departmental differences. Consequently, developers felt that this process was dysfunctional with no-one within Council balancing/arbitrating the contradictory demands by different parts of the organisation and the related Council controlled organisations (CCOs). One exception to

this lack of coordination was in the case of Special Housing Areas (SHAs), discussed further below.

Over the last two years development land values have appreciated. Developers' perceptions were that purchasers had acquired the land as a medium to long term investment with little intention of developing the sites in the near term. An economic interpretation of this behaviour is that this implies that it will become more profitable to develop that land in future than at present (e.g. because market prices are expected to escalate, or costs to diminish). The escalation of land values in the central city makes it considerably harder to develop apartments in affordable price ranges. In 2012, CBD development sites sold for around $5,000 to $6,000 per square metre. In 2013, prices had escalated to $10,000 to $12,000 per square metre. A recent sale on Elliot Street was at $18,000 per square metre. Although there are some locational differences, the escalation in values increases the land value component associated with each unit/apartment developed unless the sites are more intensively developed. In these circumstances, it is important that planning rules and regulations are conducive to intensive developments if affordable apartments are to be offered to the market.

4.6 Special housing areas (SHAs)

Although the impact of the rules, regulations and processes associated with Auckland's special housing areas were not specifically included in the project's scope, developers provided a range of perspectives on the SHAs. Key points were as follows:

- The majority of respondents felt council officers responsible for administering the process associated with special housing areas were useful in assisting to resolve internal design conflicts between different parts of Council and related CCOs. However a limited number of developers have had difficulties progressing their applications within a SHA due to issues in dealing with the Council;

- Developments proceeding under the special housing area process have to use the proposed unitary plan rules and regulations rather than those set out in the previous operative plan. In a small number of locations this means that the development density (number of units per hectare)

relative to the optimal development has to be reduced making it less attractive to proceed as part of the SHA;

- Affordable housing criteria under the special housing areas are seen as an additional cost to developers and makes SHAs less attractive;

- Some developers did not want to be first to proceed with a development within a SHA and would rather progress their resource consent under the rules and regulations that they and their consultants are familiar with. This means they feel that they are better able to manage the risks and uncertainty associated with their proposals.

4.7 Impact of rules and regulations on affordable housing

Developers' views were that affordable housing projects did not receive any special treatment that is not available to other developers. In some cases, developers felt that they may even face additional challenges gaining planning consent if their proposal includes innovative solutions that are not typically included in other developments. Specifically, developers considered that being innovative in order to reduce cost heightens the risk and uncertainty when trying to obtain a consent, both in terms of the time required to work through the consenting process and the ultimate outcome in terms of the number of dwellings. Developers commented that urban designers do not like small uniform dwellings which are easy to produce and which reduce costs.

Developers reported that existing planning rules and regulations impact on affordable housing by imposing controls which add costs to the development. For example, requiring balconies on apartments, controlling minimum apartment floor areas, and restricting the density of developments are all likely to impact on the cost of affordable dwellings. Similarly, development, reserve and Watercare contributions all add to the cost, reducing affordability of dwellings.

4.8 Developer business strategies

The survey identified a range of business strategies adopted by developers. These were in part associated with their business philosophy around dealing with the uncertainty and risk associated with development.

Typically, developers undertake a pre-purchase high level feasibility before trying to gain control over the site. This determines the broad parameters of the development potential of the site. This filtering technique reduces the number of projects that are abandoned by developers.

There are two extremes in business models that developers adopt. These are the 'complying' and the 'non-complying' developer. There is a significant number of strategies in between these two extremes.

'Complying' developers normally have conditional control over the site. They incorporate the majority of Council's feedback into the proposed design of their development, estimate the costs, add their margins and estimate their ability to sell the units in the current market. If the development metrics are positive they proceed with the development. Otherwise they abandon the development. Conversely, 'non-complying' developers adopt a more aggressive consenting strategy and prepare their resource consent application with the expectation that it will eventually go to the Environment Court. Again their eventual choice of whether to proceed or not with a development comes down to whether their expected risk-adjusted return is sufficiently high to make the development worthwhile (after receiving the Environment Court decision).

4.9 Retirement village developers

A number of retirement village developers were included in the survey. Retirement village operators have been one of the more successful low cost housing developers that have developed a range of medium density suburban sites in Auckland and other centres. Retirement village developers typically have a non-compliant development business model and will use their resources to drive towards outcomes that they want.

In comparing their experiences with other developers, we found that retirement village operators' experiences are not dissimilar to other developers. In particular, they found

council-imposed height limits to be an issue and found requirements imposed by council's urban designers to be onerous and often impractical in terms of the market. However retirement village operators are long term holders of their development which appears to assist them in the consenting process. Their use of corporate balance sheets and their willingness to use industry expertise and to challenge the council in the Environment Court tends to drive successful consent outcomes.

4.10 Uncertainty considerations

The business strategy adopted by the developer impacts on the amount of time required to complete the consenting process. The 'complying' developer will minimise the consenting timeframe; however, there may be significant cost in terms of incorporating all Council officers' preferences in the development's design, potentially producing a suboptimal product in terms of market demand. Conversely, the 'non-complying' developer is prepared to work with longer timeframes with less certain outcomes. Developers adopting this approach are typically well capitalised to ensure that they have the resources required to carry the upfront development costs for a number of years. Within the sample of developments included in the project, there were some which have changed ownership more than once as developers failed, in part, because of the time taken during the planning process. The delays in the process are not always the result of Council's actions.

In this section of the report, we provide an overview of the development and planning process in order to discuss issues that result in the greatest uncertainty in terms of development outcomes. In addition, we discuss some of the timeframes involved. The various steps in a development include:

- A potential development site is offered to a developer;
- Prior to any formal meetings with Council staff, developers may engage with their consultants and Council officers to discuss the development's concept and what is feasible on the site, prior to purchasing or gaining control of the site;

- A significant number of projects are abandoned at this stage, for a number of reasons. These include: the asking price and/or market value of the land is too high relative to the number of units that can be developed on the property; the planning issues associated with the property are such that the risk/reward equation is unbalanced; issues over access to infrastructure (three waters and transport/roading) and or the cost of upgrading the existing infrastructure is too great; or market demand is insufficient to support the development;

- Assuming the developer decides to proceed, typically some form of control over the site is negotiated. Initial concepts of the proposed development are completed, taking into account what the market could support and the existing planning environment. Decisions around whether to propose a complying or non-complying development will be made. The level of uncertainty over the consents outcome increases if the non-complying strategy is adopted;

- The developer and their consultants may meet informally with Council staff again to discuss the proposal or go straight to a pre-application meeting. The goal of these meetings is to manage the risk and uncertainty associated with the project by identifying possible design related issues so that solutions can be agreed prior to the consent being lodged;

- Council delivers their feedback on the project's design via the planning department. This often includes conflicting advice from different parts of Council and their agencies. Typically the developer is left to resolve these issues. This can be a time consuming process. In some cases the differing views between the parts of Council can be based on different philosophies in terms of how the property should be developed. Developers think Council staff are under no internal pressures to resolve their differences. This can significantly increase the amount of time involved in this part of the process. Non-complying developers sometimes skip this stage knowing that they will eventually have these issues resolved by the Environment Court;

- The developer lodges the resource consent detailing the precinct design and incorporates the feedback from Council staff. Developers' perceptions are that Council staff, particularly urban designers, get focused on the detail and go beyond their remit in terms of the Resource Management Act;

- Requests for additional information on the consent typically delay the processing of the application;

- Once the resource consent has been granted, detailed work required for the earthworks and other civil works can be completed along with the subdivision consent.

Key areas which cause uncertainty in this process include:

- Council staff may agree solutions to issues associated with a development during pre-application meetings, and then change their view once the consent application has been lodged. Consequently, issues associated with a project may have to be re-litigated multiple times which results in lost time and multiple redesigns;

- Negotiating issues relating to key infrastructure can be challenging with the agencies under no pressure to agree solutions. Developers think that both Watercare and Auckland Transport use this process to get the developer to fund infrastructure over and above what their individual project would require;

- Developers think that the concept of "best practice" is a continually evolving concept particularly with urban designers. Engaging with these staff members takes time particularly since they have a limited concept of the marketability of the changes they propose;

- Resolving the differences between Council staff and their agencies;

- Council staff seem to lack urgency particularly around processing consents prior to the start of the earthworks season.

In addition, developers think too much weight is placed on concerns from people who own properties in the surrounding area. They think Council should focus on the issues and the impact of the development rather than the voices of what may be a vocal minority. Cities need to continually evolve to remain relevant. A recent comment, typical of existing residents trying to preserve their existing environment at the expense of the wider community, appeared in the *New Zealand Herald*:

> *The Grey Lynn Residents Association, which has a number of heritage and special character state homes in its neighbourhood, were dismayed at the corporation's submission. "We are empathetic to Housing NZ's wish to house more people ... [but] the heritage overlay is absolutely critical to the fabric of Grey Lynn," said spokeswoman Nicola Legat. Lynne Butler, Freemans Bay Residents Association co-chair, said: "To start pepper-potting [properties in] Freemans Bay will have a huge impact on the character of the streets." – (NZ Herald 11th July 2014).*

Developers think Council struggles with the conflict between their stated desire to intensify residential development in the existing urban area and the resistance from residents to change in their suburbs. As a consequence, Council tends to have a preference for notifying non-complying consents even when the effects are relatively minor. This increases the uncertainty with consent applications.

4.11 Development uncertainty

In the second section of the survey, respondents were asked a series of questions specifically designed to elicit developers' views of the impacts of uncertainty on the development of new dwellings. The questions and responses are included below.[27]

Question 1: Is/was your choice of development affected by whether or not it required notification under the existing planning rules and regulations?

- Yes – avoid consent applications which require notification - (69% of responses);
- No – (31% of responses).

Question 2: How was your project affected?

- Increased time to gain consent and higher costs - (44% of responses);

[27] For some questions, developers could give multiple responses; in these cases, totals do not add to 100%.

- Reduced development capacity - (6% of responses);
- Had to be flexible in the design to accommodate Council's requests - (25% of responses);
- Had to change to a suboptimal design to comply with the consent - (13% of responses).

Question 3: Was your choice affected by the potential time taken to deliver the project to fruition?

- Yes - (81% of responses);
- No - (19% of responses).

Question 4: If so, which choices did you make to reduce project length, and what differences did those make to the development?

- Staged the project - (31% of responses);
- Did not proceed with the development after the initial concepts - (6% of responses);
- Staged the consenting process - (25% of responses);
- Tried to engage with and communicate with Council on an ongoing basis - (38% of responses);
- Hired the best consultants - (25% of responses);
- Prepared consent with the expectation of going to the environment court - (13% of responses).

Question 5: Is/was your choice of development affected by the degree of uncertainty over the expected development period)?

- Yes - (88% of responses);
- No - (12% of responses).

Question 6: If the potential project length and other uncertainties caused you to abandon one or more projects, what was the cause?

- Market conditions – (88% of responses);

- Issues around the consenting process - (88% of responses);
- Urban design changes – (25% of responses);
- Availability of infrastructure – (13% of responses).

Question 7: How did you manage these uncertainties and their effects?

- Maximise pre-sales – (44% of responses);
- Consultation/have good communication /engage with Council – (94% of responses);
- Have a high amount of equity - (38% of responses);
- Be flexible and comply with Council's every wish (19% of responses);
- Select sites carefully – (63% of responses);
- Employ the best consultants – (38% of responses).

Question 8: Did the potential project length and uncertainties cause you to abandon one or more projects?

- Yes – (100% of responses);
- No – (0% of responses);
- Defer the project until conditions improve - (28% of responses).

Question 9: If so which were the dominant factors influencing the abandonment?

- Zoning issues[28] – too few units possible within the development – (88% of developments);
- Zoning issues – surrounding land owner issues (63% of responses);
- The cost of providing infrastructure – roading and three waters – (38% of responses);

[28] Zoning issues may impact on uncertainty if the development is non-complying making outcomes from the resource consent process less certain. Developers note that pre-application meetings sometimes raise issues with the proposed development that heighten uncertainty over the final outcome of a consent, causing the developer to abandon a project.

- Zoning issues – height restrictions - (38% of responses);
- Adverse market conditions – (44% of responses).

Question 10: Where you did proceed with a project, did the project length and uncertainties affect:

- The final sale price – (0% of responses);
- Project profitability (88% of responses);
- Both - (12% of responses).

Question 11: Why did the effects come out this way?

- Increased costs reduced profit – cannot pass on high costs in the short term – (63% of responses);
- Delays in proceeding with the project meant that the units were sold in a different market environment - (75% of responses);
- Consent costs were much higher than expected which reduced profit – (19% of responses);
- Increased project length also increased holding/finance costs reducing profit – (69% of responses).

4.12 Survey Summary

In summary, Council's planning rules and regulations, together with the ways in which Council and CCO staff apply them and interact with developers, have added significant cost and uncertainty to residential developments. Furthermore, planning rules and regulations reduce the potential development capacity of projects.

It is beyond the scope of this project to determine the reasonableness of Council's approach in terms of whether the benefits of their approach more than offset the costs (including uncertainty) imposed on developers. This is an issue more appropriately considered by Local and Central Government. Of concern are developers' views about Council's internal urban design process, its subjectivity, and that it is being used to drive personal preferences rather than compliance with planning rules and regulations. A

clear definition of the interrelationship between urban design and planning rules appears to be required. In addition, the way in which Council processes resource consents and manages the feedback from the different parts of their organisation is in need of clarification. It seems unreasonable to expect developers to mediate differences between the various parts of Council and CCOs on a development.

Council's goal of a compact city appears to be compromised by rules and regulations that reduce the development capacity of brownfield sites. Developers' views were that height limits, balcony requirements, floor to ceiling height requirements, increased number of view shafts, minimum dwelling floor areas, and desired dwelling mixes (number of bedrooms) all impact on development capacity. Furthermore, developers think that Council places too much weight on concerns from people who own properties in a surrounding area and that Council should focus on the issues and the impact of the development rather than the voices of what may be a vocal minority.

All the issues raised in this report impact on developers' costs, profitability, risks and uncertainty and hence on their ability to increase the supply of Auckland's housing stock. Initially, developers absorb a significant proportion of unexpected cost levied throughout the development process. However, in subsequent projects, these costs and issues of uncertainty will inevitably be encapsulated into their costings which are reflected in the prices that need to be achieved to generate developers' required rates of return. At the same time, the cost of development land has not responded (downwards) to the increase in costs; rather land values have continued to escalate, possibly indicating increased potential development profits through future (rather than current) development.

5. Conclusions

Conceptually, dwelling prices are determined in the long run by the total costs of a development, where costs include costs of delay and uncertainty. When prices exceed costs (e.g. in the short run during housing booms) developers bring forth new supply, while the housing stock stagnates when costs exceed the market price. Costs imposed by Council regulation and/or by delays and uncertainties in the development process, have the effect of raising long run costs, and hence market prices, as the cost impacts of each of these elements is built into a developer's initial calculations regarding a

prospective development. In the short run, an unexpected cost is unlikely to be reflected materially in the market price of a dwelling since that market price is essentially already determined by supply and demand of the type of dwelling. As other developers come to reflect these costs in their own development calculations, however, the costs feed through fully to dwelling prices.

We show that extra development costs do not only result from explicit regulatory policies such as minimum stud heights. Regulatory practices, affecting uncertainty over consenting outcomes and delays in the consenting and development process, also reduce the likelihood that a developer will proceed with a project at either the initial stage (i.e. when deciding whether to apply for consents) or following a successful consenting outcome. In the latter case, the longer the time taken to process the consent, the greater is the likelihood that market conditions will have changed adversely so causing a project to be abandoned. The likelihood of abandonment increases both where the consenting timeframe lengthens and where the outcome of the consents is less certain.

Overall, if new supply is constrained in the face of extra demand, market prices will rise and eventually the rise in price will reflect the increments to total development costs (including costs of uncertainty and delay). Thus an important mechanism that raises the price of dwelling units is through restrictions of supply as a result of raised costs.

The results of our developer survey for Auckland, concentrating on the ‘affordable’ end of the market, confirm these conceptual predictions. All the surveyed developers stated that they had abandoned one or more projects as a result of expected project length and/or uncertainties. Almost 90% of our survey respondents stated that delays and uncertainties related to a project that did proceed had the effect of reducing profits but did not affect the final sale price of units in the development; the remainder saw some effect on each of profits and sale prices. However, because of the effect of the extra costs on future developments, we can conclude that prices, and the types of development, are affected by additional Council-related costs.

Table 2 listed the effects of Council-related actions on development costs per dwelling. Some of the cost elements are relatively minor; however, some have major effects. In particular, for apartments, building height limits and balcony requirements can each have cost impacts of over $30,000 per apartment; conforming to Council’s desired mix of

typologies and increased minimum floor to ceiling heights (in affordable apartments) can each add over $10,000 per apartment. For residential sections and standalone dwellings, elements that can raise costs by at least $15,000 include: infrastructure contributions that are not directly related to a specific development, section size requirements, extended consent processes and other urban design considerations (stemming, in particular, from Council's urban designers). Reserve and development contributions and Watercare levies affect the costs of both types of development. A range of other elements can cause lesser, but still material, cost increases per dwelling.

In some cases, the extra costs cause developers to substitute a different development type for the preferred option. In other cases, a developer may abandon a prospective development altogether if prospective costs (including potential delays and uncertainties) are prohibitive in relation to the expected sale price. Indeed, all of our respondents stated that they had abandoned one or more projects as a result of potential project length and uncertainties. In these cases, there is no observable extra cost that can be derived from development calculations, since there is no observed development. In particular, developers report that an outcome of binding minimum floor area requirements for apartments is the development of fewer affordable dwellings.

More generally, Council imposed rules and regulations result in a significant loss in potential development capacity. The median loss in capacity was 22% (for developments that proceeded). For apartment buildings, the loss of capacity was primarily due to height restrictions or issues relating to view shafts. In other developments the loss in capacity related to issues associated with urban design requirements, retention of heritage building and protected trees, and the need to provide on-site infrastructure over and above what was required to service the developments' requirements. Research by Grimes and Hyland (2014, op. cit.) shows that a 1% reduction in the dwelling stock (relative to population) leads to a 2.2% price increase in order to equate demand with (the reduced) supply. Thus restrictions on development capacity, plus the effects of uncertainties and delays force up dwelling prices by curbing dwelling supply.

Our survey results are based on a detailed survey of 16 developers active in the Auckland area, some with multiple developments. While picked to reflect currently active Auckland developers, the relatively small numbers involved mean that we cannot

attribute any statistical significance to the figures obtained. The cost intervals indicated in Table 2 cover the reported effects of the cost attributes across the various developers' total costs of development per dwelling. The broad consistency of results across developers (and in relation to their responses to the questions regarding uncertainty and delay) indicates that the cost ranges in Table 2 provide a reasonable starting point for assessing the long run dwelling price effects of various Council rules, regulations and actions.

Excluding the cost of Watercare and reserve and development contributions, the typical range of the total impact varied between $32,500 and $60,000 per dwelling in a subdivision. In terms of affordable apartments, assuming the total internal floor area remains the same and no deck is built, the impact on total cost typically ranges between $65,000 to $110,000. The majority of the cost relates to height limits on the building and the required balcony area. These estimates assume that no stud height restrictions are imposed. Furthermore, an increase in supply of more affordable apartments could be achieved by reducing the existing minimum allowable floor area of the units. We do not separately assess the benefits derived from these elements, but our estimates present a basis for others to compare the benefits of certain elements and so decide whether the extra costs are warranted or not.

Notwithstanding how these cost/benefit calculations proceed, two process improvements that could reduce costs without obvious negative benefit implications are: (a) to confine Council's urban design input regarding developments to the external interface of the development with its environment; and (b) for Council to coordinate responses by various arms of Council plus CCOs before responding to developers with a consistent set of requirements when considering a development application. These recommendations, and the cost information, are designed to provide evidence for interpreting whether changes can be made by local and/or central government that could reduce the price of affordable housing, especially in Auckland. We leave it to those whose decisions affect these costs to consider our results and to consider whether changes can or should be made to reduce costs where those costs currently outweigh the benefits that may result from their imposition.

Appendix 1: Sample Hypothetical Development Spreadsheets

Greenfields Development Costs*	Base case		Scenario 1	
	Stormwater servicing for own site only		Stormwater servicing for whole catchment	
Number of sections	***277 units***		***250 units***	
Land		$14,280,000		$14,280,000
Pre Construction Costs				
Civils & legal		$329,000		$329,000
Property Costs				
Rates	$163,000		$166,000	
Utilities	$20,000	$183,000	$21,000	$187,000
Professional Fees				
Urban Design, planning, traffic	$687,000		$698,000	
Other consultants	$1,469,000		$1,492,000	
Beacon assessment of design	$41,000		$41,000	
Project management	$326,000		$331,000	
Management/governance	$224,000	$2,747,000	$228,000	$2,790,000
Civil Construction				
Civils stage 1 - contract price	$17,544,000		$16,851,000	
Landscaping	$3,400,000		$3,315,000	
Utilities - Vector	$884,000	$21,828,000	$794,000	$20,960,000
Build Form				
Construction costs		$90,630,000		$81,796,029
Other costs				
RMA & Consent Fees	$575,000		$575,000	
Watercare	$4,148,000		$3,729,000	
Development Contributions	$9,665,000	$14,388,000	$9,250,000	$13,554,000
Sales				
Marketing	$408,000		$387,000	
Agents fees	$2,026,000		$1,809,000	
Legal fees - conveyancing	$415,000		$373,000	
Valuations/sales	$230,000	$3,079,000	$207,000	$2,776,000
Funding and Insurance				
Financial services	$754,000		$766,000	
Facility set up	$379,000		$385,000	
Interest and fees	$2,938,000		$2,624,000	
Insurance	$299,000	$4,370,000	$303,000	$4,078,000
Contingency				
Contingency		$3,033,000		$2,762,000
		$154,867,000		$143,512,029
Impact _difference				
Original Cost per unit				$559,087
Cost per unit reduced number of units				$574,048
Additional cost per unit				$14,961

* Sub-totals and totals are included on the right hand side of each column.

High Rise Apartment Development Costs	Base Case	Scenario 1	Scenario 2	Scenario 3*
	Base Costs	***Height limit reducing the no. of floors***	***Increasing floor to ceiling height (2.4m to 2.7m)***	***No decks with 1 extra apartment per floor***
		With 4 fewer floors & a reduction of 32 apartments	*Same building height with a reduction of 22 apartments*	29 additional apartments with no decks
Land Costs	$14,490,000	$14,490,000	$14,490,000	$14,490,000
Fees				
Consultants	$4,720,000	$4,720,000	$4,720,000	$4,720,000
Council Costs				
Development contributions & Watercare	$3,570,000	$3,060,000	$3,180,000	$3,990,000
Consent costs etc.	$380,000	$380,000	$380,000	$380,000
	$3,950,000	$3,440,000	$3,560,000	$4,370,000
Construction Costs				
Demolition	$400,000	$400,000	$400,000	$400,000
Construction costs	$49,760,000	$43,870,000	$48,510,000	$50,195,000
Total	$50,160,000	$44,270,000	$48,910,000	$50,595,000
Finance Costs				
Interest & fees	$1,540,000	$1,370,000	$1,470,000	$1,530,000
Other costs (insurance, setup etc.)	$580,000	$580,000	$580,000	$580,000
	$2,120,000	$1,950,000	$2,050,000	$2,110,000
Contingency	$1,100,000	$1,050,000	$1,150,000	$1,200,000
Sale Costs	$2,380,000	$2,260,000	$2,290,000	$2,660,000
Total costs excluding GST & margin	$78,920,000	$72,180,000	$77,170,000	$80,145,000
Number of apartments	244	212	222	273
Costs excl GST and developer's margin				
Cost per apartment	$323,000	$340,000	$348,000	$294,000
Cost ($psm)	$5,873	$6,182	$6,382	$5,880
Cost implication against base scenario	0%	5%	9%	-9%
Costs incl GST and developer's margin				
Cost per apartment	$464,000	$489,000	$498,000	$423,000
Cost ($psm)	$8,400	$8,900	$9,200	$8,500
Difference ($psm)	$0	$500	$800	$100
Difference per unit	$0	$25,000	$34,000	-$41,000

* Scenario 3 models a relaxation of an existing constraint, so the modelled result is shown as a cost saving rather than as the imposition of an extra cost as for the increased constraints in scenarios 1 and 2.

Appendix 2: Representative Developers' Comments

Intensification – height limits

Developers commented:

- *"Height limits have been imposed without consideration of development feasibility. For example the optimal heights for CBD apartment complexes range between 20 and 25 levels while the optimal height in suburban locations is likely to be between 5 and 8 levels;*

- *"Council have increased the number of view shafts across the CBD from 7 to 40. This has a significant impact on the development capacity of some sites within the CBD";*

- *"Little consideration is given to the actual impact of building height within a development and the focus is on imposing the rules. This is a strongly held view particularly in larger developments where higher buildings are sited away from boundaries to minimise the impact of bulk on surroundings and shading of adjoining properties";*

- *"A clear conflict exists between the stated overall goal of providing a compact urban environment and providing the opportunity for developers to undertake economically viable developments in locations where people want to live";*

- *"Council struggles to cope with allowing apartment developments in suburban areas when they attract considerable criticism from existing residents who are concerned about the impact on their neighbourhood";*

- *"If the city is to intensify, Council and their officers need to stand up to a few outspoken individuals who are resisting change at the expense of the wider community. If Auckland is to evolve into a regional city it must provide affordable accommodation where people want to live. Apartments and terraced houses are one mechanism to achieve this. If Council is not prepared to create the zones to allow this to happen perhaps the zoning should be imposed by central government";*

- *"Council officers seem to be risk averse and want to notify multi-storey developments rather than considering the level of impacts on the surrounding community"; and*

- *"Consenting authorities and the Environment Court process do not seem to appreciate the impact of their decisions on development feasibility. A decision to compromise height between what the developer wants and Council officers consider appropriate leads to suboptimal outcomes".*

Floor to ceiling heights

Apartment developers commented:

- *"Floor to ceiling height limits do not impact on developments targeting the mid to upper end of the market as these typically already include 2.7 metre gaps. These purchasers expect the higher stud heights";*

- *"Increasing floor to ceiling heights from 2.4 metres to 2.55 metres or 2.7 metres makes it difficult to develop affordable apartments and maintain developer's margins. It also means in some locations a level of apartments is lost if the building needs to stay under Council imposed height limits";*

- *"Development strategies are based on the bulk/number of apartments that can be achieved on a site relative to its price. When offered a site, the bulk/number of apartments that can be achieved on the site complying with Council rules is estimated and the quantum of land cost per apartment is calculated. If this fits our feasibility parameters the potential of the site is further investigated. If the minimum floor to ceiling height increases, fewer apartments can be built within the allowable building envelope. Fewer apartments mean a reduction in the number of sites that can be profitably developed."*

Non-apartment developers commented:

- *"We have included units with a range of stud heights in our developments in the past. The units have been priced to reflect the*

different costs. Potential purchasers typically prefer the higher stud until they realise the price implications. They then opt to buy units with the lower stud."

- *"Council officers, particularly urban designers, are trying to socially engineer development outcomes. They know nothing about the economics of developing property. Do they expect the developers to absorb the costs or are they just trying to making housing less affordable?"*

Mix of units within an apartment building

Apartment developers' comments on the Council officers' requirements to include a certain mix of units within their developments include:

- *"Council officers should stick to the planning rules and not try to socially engineer the outcomes from building design. They know little about what will sell and try to get developers to include typologies that there is limited or no market for";*

- *"Urban designers are moving beyond their remit. Their focus should be on the building street interface rather than the design within the building";*

- *"The mix of units should be market driven rather than dictated by Council staff. These officials have no idea about the market and what will sell and what will not. They should focus on their job rather than directing developers how to do theirs";*

Retirement village developers commented:

- *"Retirement village developers struggle with Council's internal urban designers. They appear to want to tell developers how to design their villages including the configuration of units. Council's urban designers have no experience in retirement village development and should not try and dictate the typology and number of bedrooms dwellings should have. This just increases the time and costs associated with the consent."*

Balcony sizes

Apartment developers commented:

- *"The rules are too inflexible and need to consider how to make the space more useable rather than just prescribing sizes. For example, occupants may prefer slightly larger living areas, and smaller deeper decks"; and*
- *"The proposed unitary plan is also trying to incorporate balcony dimensions as well as sizes. Restrictions like this are a cost. Developers need flexibility to design good outcomes rather than just following rules."*

Floor area requirements and room sizes

Apartment developers commented:

- *"Smaller units would be developed if possible. For example, there would be strong demand for 20 square metre studio units from investors which could sell for $180,000 to $200,000 a unit. These would rent well for $270 to $280 per week and give investors a 10% net return"; and*
- *"Reducing the minimum size of a one bedroom apartment by five square metres would reduce the price by 8% to 10%. More flexibility on room size restrictions would be required to achieve this."*

Green star ratings

Apartment and standalone dwelling developers commented:

- *"There is no standardised green star rating programmes for apartments which makes it hard to comply".*
- *"In today's market, adding sustainability features such as the use of grey water all sound good but they do not increase the value of the unit and what's more there is no compensation from Watercare's infrastructure charges to offset the costs. Features like this just make apartments less affordable to purchasers"; and*

- *"Purchasers do not appreciate sustainability features that can be built into a building and are not prepared to pay any extra. They are more concerned about the here and now".*

Infrastructure contributions (reserve, development and Watercare)

Standalone dwelling developers commented:

- *"Watercare is behaving in a monopolistic manner. They can charge what they like and developers have to pay. They are now charging $2,500 to have a $180 water meter installed. If we don't pay, Council will not issue a section 224(c) certificate and the sale cannot settle. Developers don't have a choice, these guys are a bunch of robbers";*

- *"Watercare cause us a lot of problems. Their administration is a shambles particularly when it comes to developments with more than one dwelling. They always seem to have problems linking the water meter to the right property in their billing systems. Despite multiple follow ups we had one case that took over a year to resolve whilst at the same time they were threatening to cut off the dwelling's water supply. How could they pay if they did not get the invoice";*

- *"Watercare behaves in a monopolistic way charging what they like. It's not value for money and we could provide onsite solutions cheaper than their costs particularly with the level of over specification they require on their systems";*

- *"Our development requires us to provide storm water catchment ponds/treatment within our development. We are required to provide sufficient capacity for the whole catchment even though we do not own all the land within the catchment. There is no compensation available for the capacity over and above what is required for our land. What makes this even more inequitable is that if an adjoining owner now develops their land they can make use of our storm water systems at no cost other than the standard development costs and Watercare contributions which we have to pay as well";*

- *"We have always had to make contributions to upgrade the roads around our developments. This is now getting out of hand. Auckland Transport appears to have no money to upgrade roads in areas zoned for residential development. They appear to think the developers should fund everything. When you approach them they just say that the upgrade of the roading infrastructure is not in their 10 year plan. If you want the development to proceed you have to pay for it yourself with no or little offset in development contributions."*

Section sizes

Greenfield developers commented:

- *"Council imposed section sizes are forcing me to subdivide sections which are too small for the market. We can still sell them - it just takes a lot longer increasing our overall risk";*

- *"The proposed unitary plan has actually increased the minimum section sizes in our location. Our development is included in a special housing area (SHA), however, if we tried to utilise the planning process under the SHA we would have to develop larger sections"; and*

- *"In our consent, Council imposed a requirement that we include a number of large sections in our subdivision which has reduced our profitability. We cannot understand the logic associated with their decision other than the contour of the land was slightly steeper in the rear of our subdivision".*

Site coverage and green space

Greenfield and suburban developers commented:

- *"The proposed unitary plan now requires 20 square metres of private open space per unit. This is okay but decreases the yield and increases the cost of doing the development";*

- *"Road layouts within a development have also been significantly impacted by urban design input. Requirements to have road frontages along the edge of reserves increases costs. This means that you can only have dwellings along one side of the road which increases roading and infrastructure costs. Rear sections are also increasingly excluded from developments again increasing roading costs per lot;" and*

- *"Council are too focused on their rules rather than the project's outcomes. For example what is wrong with redeveloping a site (or a number of sites amalgamated together) into a low rise multi storey building (two to three storeys) if there is limited or no shading of the adjoining properties, and the amount of onsite open green space is increased compared to a more traditional town house development. You can more than double the density (number of units from the site) and achieve a more affordable product. The challenge with non-complying developments like this is it takes two or more years to get consent and there is considerable uncertainty over what will eventually be approved."*

Other urban design considerations

Apartment and non-apartment developers commented:

- *"Council's urban design team are all too inexperienced and very naïve. They have no commercial experience and add no value. Typically they quote text book driven solutions at you and are very subjective in promoting their personal likes and dislikes. From an urban design point of view it's all about how lucky or unlucky you are in terms of who your consent is allocated to*." This view was expressed by over 90% of the developers interviewed;

- *"Although we do not always agree with the outcomes, the Council's external urban design panel generally adds value and sticks to their remit. However, Council urban design officers add little value and they try and impose their individual preferences on a development without consideration of their impact on the overall development";*

- *"Quite often we end up changing our designs to suit the whims of Council's urban designers. This does not improve the design. We employ good quality architects and designers. Council staff lack the expertise required to add value. However, sometimes we just change the design to smooth the consenting process";*

- *"Best practice is a continually evolving concept which increasingly lifts the bar and cost on what is required within a development, particularly around earthworks and aspects of urban design";*

- *"Urban design should be about the street/building interface – the interface between the public and private realms. However, they are going beyond their remit and trying to influence what is happening within the private space with no knowledge of the market and what will or will not sell";*

- *"Urban design principles are often in conflict with the requirements of other parts of Council. For example in one development the urban designers wanted us to narrow the road and put traffic lights in an intersection whereas Auckland Transport wanted a wide road and a roundabout to improve traffic flow. These guys do not talk to each other and the developer is left to resolve the differences. This all adds to the time required to achieve resource consent and adds to our frustration in dealing with Council".*

Car parking requirements

Suburban apartment developers commented:

- *"Suburban apartment buildings need to provide their residents with car parks. We need to provide more car parking than Council would prefer to make these units saleable. Council wants people to use* public *transport which is fine however without car parks the units are very difficult to sell";*

- *"The optimal number of car parks in a suburban apartment development targeting the mid to upper end of the market is 2 to 3 per unit with additional common parking for guests";*

- *"The number of car parks you can provide onsite will determine the number of apartments in a suburban apartment development".*

Heritage controls and tree protection

Suburban developers commented:

- *"Council is inflexible. We proposed removing one protected tree which was located in the middle of our site and replacing it with a number of other trees (same species). These were not seedlings but big trees specially grown in a nursery. This had a significant impact on how we could design our development reducing the overall yield."*

Length of the planning process

Apartment and non-apartment developers commented:

- *"The amount of information required to get resource consent continues to increase. It is also becoming increasingly front end loaded. That is, we need to supply more detailed concept designs and plans much earlier in the planning process. This means we incur the cost earlier in the planning process. This can in some cases reduce our flexibility to adapt the development's design as market demand evolves over a cycle";*

- *"Council officers seem to focus on the fine detail rather than the big issues associated with the development. They get tied up in detail rather than considering the impact the development has on the surrounding neighbourhood";*

- *"Council is going beyond their remit in terms of the planning process and trying to socially engineer outcomes. They also engage in planning by personal preference rather than process consents as per the operative rules and regulations";*

- *"There appears to be a power play underway between the various parts of Council (planners, urban design, engineers, Auckland Transport, parks and reserves, and Watercare) as to whose views are dominant. Developers get caught in the middle and as a consequence this adds to the uncertainty of the planning process";*

- *"Council staff seem to lack urgency when processing consents. They lack the appreciation or an understanding of the importance of getting consents processed in a timely manner. For example, it is critical we do not miss an earthworks season. If our consent is held up and we cannot get the earthworks done on time, this can put our development back for a year";*

- "*Lack of urgency within Council around the consenting process and the earthworks season. If we miss an earthworks season it's a big cost to the business. Effectively we now need to plan an additional 12 months in advance compared to what we use to have to do to reduce risk. For example we have already completed the internal consenting process for the 2015/16 earth works season;"*

- *"The housing office part of the special housing area team have been good at assisting the resolution of internal Council conflicts";*

- *"We recently had one resource consent application where Council outsourced the processing to a private consultant. It was amazing, the consent was processed in six weeks, the feedback focused on the major issues";*

- *"The way in which the feedback from different Council agencies is collated and fed back to the developers is not good. The planners collate all the feedback from the different areas of Council and just forward it to developers. The advice from different areas of Council always conflicts. We, the developers, are left to resolve these conceptual issues between the different areas of Council. This all takes time and money";*

- *"Our developments are typically non-complying. Consequently, although we engage with Council and seek their feedback, at the same time we prepare our resource consent applications with the expectation of going to the Environment Court to achieve the outcomes we require".*

Retirement village developers

Retirement village developers' commented:

- *"We know our business better than anyone else, what will sell and what will not. Our target market is well defined and our product is focused on their needs in terms of unit typology number of bedrooms etc.";*

- *"When we get offered a potential development site we approach Council to test what could be achievable on the site in terms of bulk. This drives our initial decision on whether to gain control over the property";*

- *"We are long term holders of our properties and need to sell our units multiple times and consequently design our buildings with this in mind";*

- *"Council imposed height limits are an issue. They reduce the number of units we can achieve and mean that we need larger sites to achieve the optimal number of units for our villages. Council seems to lack the flexibility to consider the impact a building has on surrounding properties and instead just focus on its height. What is wrong with having increased building height on large sites where the taller buildings are located in such a way that their impact is minimal? For example, they do not overlook adjoining properties and will not shade them because of their position relative to the site's boundaries";*

- *"We know what will work within our villages and what will not. One of our key concerns is Council employed urban designers who have limited experience with developing retirement villages are trying to tell us how to design our villages, what the mix of typologies should be. They have no idea or consideration of the impact this may have on the profitability of the development. Why should we have to include typologies which we*

will have trouble selling or altering the mix of villas versus apartments to meet their whim when it will provide an unbalanced mix of units within the complex";

- *"Consequently, although we have some flexibility in our design to incorporate Council officers' suggestions, we prepare our consent applications with the expectation that we are going to go to the Environment Court. We have good internal staff and contract the best external experts. We are not unreasonable in terms of what we want to develop, however Council knows that our resources are better than theirs and we will generally win (albeit with some compromises) if we go to the Environment Court."*

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