



Submission on the proposed National Policy Statements on Urban Development and Highly Productive Land

Key points: Proposed National Policy Statement on Urban Development

- The Government's diagnosis of housing affordability and ownership issues focuses on the supply-side of urban land markets and the regulations that serve to hinder the construction of new housing. The discussion document on urban development is largely silent on demand-side factors.
- The primary focus of the proposed National Policy Statement appears to be on increasing housing supply by growing cities outwards rather than upwards.
- Policies should be consciously recalibrated to favour densification over expansion, for both environmental and economic reasons.
- A range of market-based instruments could be implemented under other legislation to incentivise densification, such as a split-rate property rate and road pricing to ensure congestion and other environmental externalities are better accounted for.

Key points: Proposed National Policy Statement for Highly Productive Land

- Some commentators have indicated that there is insufficient evidence that a market failure actually exists to warrant policy intervention on highly productive land.
- A market failure *does* exist, but it is not the one that has been described.
- It is not protecting primary production on highly productive land that we should be focusing on, but rather the soil in-and-of-itself that provides many valuable additional non-market ecosystem services (e.g. flood mitigation).
- Soil is also a non-renewable natural resource that takes thousands of years to form, so that its loss is effectively irreversible. If lost, it risks the ongoing provision of ecosystem services for current and future generations.
- A safe minimum standard or limit can be justified for the protection of our most versatile soils within a region, given that they can be irreversibly lost from *both* unsustainable primary production activities and urban expansion.
- A betterment tax could also be considered to tax the value uplift of land from rezoning and subdivision.



The Parliamentary Commissioner for the Environment

The Parliamentary Commissioner for the Environment was established under the Environment Act 1986. As an independent Officer of Parliament, the Commissioner has broad powers to investigate environmental concerns and is wholly independent of the government of the day.

Introduction

The Government is consulting on and developing two national policy statements that impact on land use: the National Policy Statement on Urban Development and the National Policy Statement for Highly Productive Land. Access to affordable housing lies at the heart of the first of these, while limiting potential urban expansion at the expense of some of Aotearoa New Zealand's most valuable land for food production is the driver behind the second. Given that the impact of these policy proposals may overlap in the same spatial context, this submission provides feedback on both policy proposals; first on urban development and then on highly productive land.

At a high level, I have concerns about both policy proposals. While both have links to the issue of urban development, clearer problem definitions are essential to justify the proposed policy interventions. I have tried in this submission to provide some insight into these problems as I see it.

Another overall concern is that the Government is proposing to use national policy statements rather than policies like market-based instruments to address issues in the land and housing markets. The use of national policy statements all too often creates a longer and longer 'shopping list' of nationally significant matters for councils to consider without clearly explaining how they should be prioritised.

Listing yet further nationally significant matters (e.g. protection of highly productive land) will not provide clarity for either councils or communities about how the inevitable trade-offs should be approached. Further, such policies neither create nor meaningfully alter economic incentives on the ground, so that scarce land resources can be more efficiently allocated.



Proposed National Policy Statement on Urban Development

The Government's diagnosis of the housing problem

The discussion document highlights falling housing affordability and low rates of home ownership as the main rationale for the proposed National Policy Statement for Urban Development. According to the *Message from the Ministers*, “a startling array of indicators in housing and urban development tells us we have a problem: severe housing unaffordability, falling home ownership, increased hardship and homelessness, increased household debt, intergenerational inequality, congestion, poor transport choice and urban pollution.”¹

There is clearly some truth to this. Data published by the Organisation for Economic Co-operation and Development (OECD) indicates that real house prices in New Zealand have more than doubled since 2000 (see figure 1), and have seen some of the highest rates of housing price increases of all OECD countries.

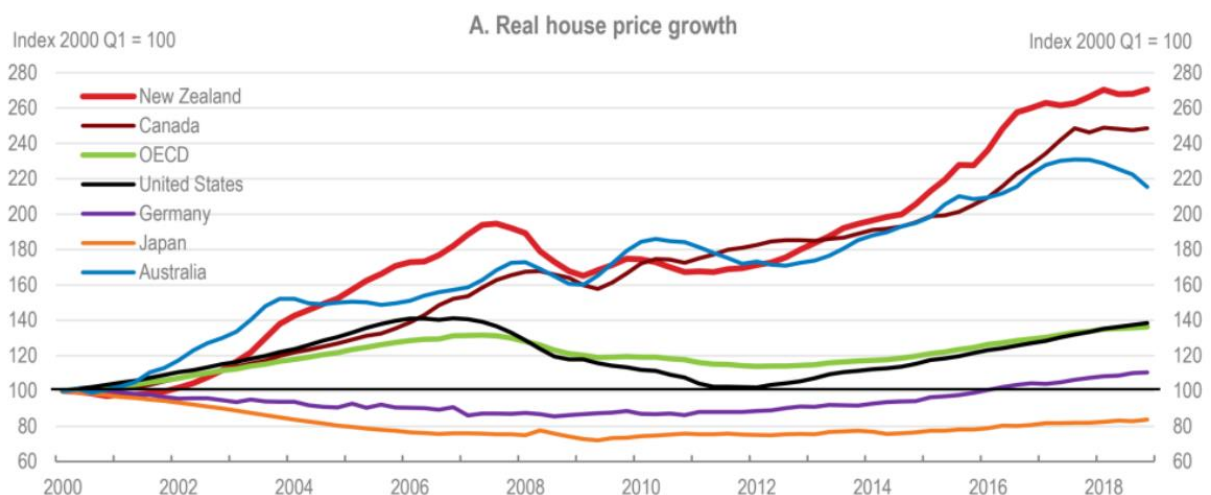


Figure 1: Real house price growth in New Zealand and other OECD countries.²

Home ownership rates have also fallen. In 1991, 74 per cent of New Zealanders either owned their home or were paying off a mortgage. By 2013, this figure had fallen to 65 per cent.³ During the same period, the number of dwellings in New Zealand increased from 1.3 million to 1.76 million.⁴ Taken together, these patterns highlight the increasingly concentrated character of housing ownership in New Zealand during recent decades.

¹ See [MfE, 2019](#). Planning for successful cities: A discussion document on a proposed National Policy Statement on Urban Development.

² See [OECD, 2019](#). OECD Economic Surveys – New Zealand.

³ See [Te Ara, 2019](#). Rates of home ownership.

⁴ See [Stats NZ, 2019](#). Dwelling and Household Estimates.



The Government's diagnosis of the above housing issues focuses almost exclusively on the *supply-side* of urban land markets and the regulations that serve to hinder the construction of new housing. For example, according to the discussion document:

"An underlying problem is that urban land markets are not enabling housing development to keep up with growth, or to ensure land is priced affordably. The individual and cumulative impact of land use and environmental management regulations, and limited infrastructure funding and financing, are holding cities back from growing."

The Government's policy proposals focus on unclear supply-side solutions and provide no serious analysis of the environmental issues at stake

Given the Government's diagnosis of the problem, it is understandable that the proposed course of action is "to remove unnecessary restrictions on development to allow growth 'up' (eg, higher-density housing near existing services and infrastructure) and 'out' (eg, well-connected houses in greenfield areas with good infrastructure)."⁵

The discussion document has relatively little to say about the Government's view of what the appropriate mix of growth *up* versus growth *out* might be. That said, the wider political rhetoric suggests a much greater focus on growing outwards than upwards. For example, in recent interviews, Ministers have strongly emphasised the amount of land available in New Zealand as a rationale for urban expansion.⁶

As it stands, the proposed National Policy Statement supports efforts to allow urban areas to develop both upwards and outwards. But stating that efforts can go in either direction provides no guidance at all. There are very real economic and environmental differences between a sprawling city and a compact city. Councils need to be encouraged to be transparent about the relative importance of these differences, so that the trade-offs inherent in different urban development trajectories can be laid bare. I will return to these in a later section of this submission.

⁵ MfE, 2019. Planning for successful cities.

⁶ See [National Business Review, 2019](#). Another push to make urban development easier. Minister Parker said, "When you have got as many people sleeping on the streets as you have in Auckland it's a disgrace in a country as wealthy as New Zealand – and a country with as much land as it has, come to that."

The proposed National Policy Statement does little to protect the environment from the impacts of urban development. For example, rather than provide for policies that will support clear environmental protections on the ground, the discussion document provides for weak aspirational statements like: “[w]e want our cities to provide affordability, access and quality, while functioning within environmental limits” and “[a]llowing for growth must not be at the expense of well-functioning, vibrant urban and natural environments.” This is verbal sticking plaster. The repeated use of aspirational words is not a substitute for serious policy analysis of the potential environmental risks from urban development.

Demand-side factors are important

Establishing the causes of recent housing market outcomes requires an assessment of *both* the demand and supply sides of the market. After all, as with any market, the price of housing does not reflect supply-side effects alone, but rather the interaction of supply and demand.

The discussion document is largely silent on demand-side factors. Yet at the national level, consents for new dwellings have been granted at as fast a rate as at any time in the last 20 years (see figure 2). Among other things, this fact highlights the role that demand-side factors have played in recent house price appreciation.

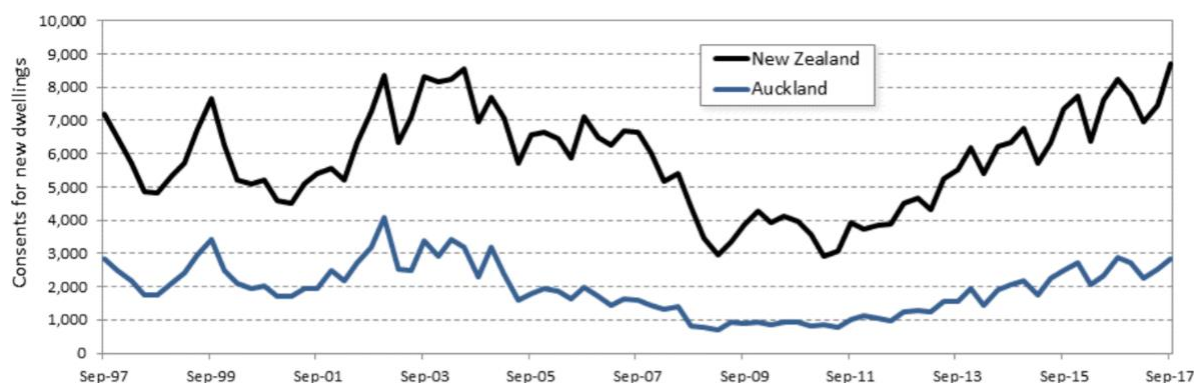


Figure 2: Consents for new dwellings in Auckland and New Zealand – 1997 to 2017.⁷

The OECD and the Reserve Bank have also recognised demand-side factors as a significant driver of recent house price appreciation.⁸ For example, the OECD notes that “strong demand in the presence of weak supply responsiveness has been responsible for rapid price escalation.”⁹ On the demand-side, they identify the following factors as being of importance:

⁷ See [Johnson et al., 2018](#). A Stocktake of New Zealand's Housing.

⁸ See [Reserve Bank New Zealand, 2019](#). The New Zealand Housing Market; and OECD, 2019. OECD Economic Surveys – New Zealand.

⁹ OECD, 2019. OECD Economic Surveys – New Zealand.



- **Migration:** Between 2000 and 2019, the resident population of New Zealand increased from 3.85 million to 4.95 million.¹⁰ Much of this was driven by migration. For the year ended July 2018, net migration to New Zealand was 72,400. These migration rates are around three times higher (in per-capita terms) than in comparable developed countries such as Germany, Ireland and the United Kingdom).
- **Interest rates:** Since the financial crisis, floating interest rates on new mortgages have fluctuated between five and six per cent.¹¹ This is very low by historic standards.
- **Relaxed rules concerning foreign ownership:** Until the recent introduction of restrictions on foreign property ownership, New Zealand had relatively few restrictions on who could own residential property.¹² Prior to the implementation of the Overseas Investment Amendment Act 2018, the share of house transfers to overseas owners was three per cent at the national level, but significantly higher in particular places.^{13,14} This share has fallen significantly since the new rules took effect.¹⁵
- **Tax settings:** The OECD notes that, “the non-taxation of imputed rent on owner-occupied housing and capital gains biases household portfolios towards housing and has contributed to rising house prices.”¹⁶ Furthermore, they note that the ability that housing investors have to use interest expenses to offset rental incomes has served to increase valuations.
- **Subsidies for home ownership:** While well-intentioned home ownership subsidies such as the Kiwisaver Homestart grant and the Welcome Home Loan programme serve to increase demand for housing, the OECD states: “[s]ubsidies can be self-defeating by pushing up the price of houses commonly purchased by first-home buyers, particularly where the supply response is weak.”¹⁷

¹⁰ See [Stats NZ](#), 2019. Population data.

¹¹ See [Reserve Bank New Zealand, 2019](#). Exchange rate and interest rate statistics.

¹² The Overseas Investment Amendment Act 2018 came into force on 22 October 2018 and prevents most people who do not hold New Zealand citizenship or a resident visa from buying residential property in New Zealand

¹³ For example, between June 2017 and June 2018, the share of house transfers to overseas owners in Auckland fluctuated between 4.3% and 7.8%. See [Stats NZ, 2019](#) – Drop in home transfers to overseas buyers.

¹⁴ Also see [Agerholm, 2018](#) – New Zealand bans sale of homes to foreign buyers – where it is reported that the number was as high as 22% in central Auckland.

¹⁵ See [Stats NZ, 2019](#). Drop in home transfers to overseas buyers.

¹⁶ OECD, 2019. OECD Economic Surveys – New Zealand.

¹⁷ OECD, 2019. OECD Economic Surveys – New Zealand.



So demand-side factors have been important contributors to appreciating house prices. In each case, successive New Zealand governments have made decisions (often for perfectly legitimate reasons in pursuit of other objectives) that have served to stimulate housing demand.

There is a need for the Government to consider all policy interventions that act to stimulate housing demand and therefore house price appreciation before promoting unequivocally supply-side solutions. While effort has been made to address some of these demand-side factors, more remains to be done (e.g. tax settings).

Existing policy settings favour urban expansion

If policy settings that influence the demand-side of the housing market remain unchanged, then significant increases in housing supply will be required to arrest house price and ownership trends. As it stands, it appears that the focus of the proposed National Policy Statement is to provide for this supply by growing outwards rather than upwards. That is surprising given that New Zealand's cities already have among the lowest population densities in the developed world.

There are a range of historic reasons that explain these patterns.

Perhaps more than anything, the small population of New Zealand relative to the size of its landmass has meant that easily developable peri-urban land has always been available at relatively low cost. Simply put, there has been little incentive to build upwards. And familiarity with an inherited stock of large standalone houses has created a strong cultural preference for more of the same. Living the quarter-acre dream has deep roots in the New Zealand consciousness.

Low density development may be preferred for various reasons including the closer proximity to environmental amenities, open and quieter space, as well as a sense of greater privacy, safety and comfort. However, all these benefits of low-density urban development are likely to be internalised in property values (while the various environmental externalities of sprawl are not).

But central and local government policy settings have reinforced these existing preferences for urban expansion over densification. For example:

- Transport policy has placed significant emphasis on providing the roading infrastructure required to enable daily commuting into cities. Parking policy has been complementary, providing adequate parking space, probably at prices well below what an alternative use of that space would be likely to generate.
- Not placing a price on the external costs of car dependence (e.g. congestion and emissions).
- Not requiring the ecosystem services (e.g. flood mitigation, amenity value, carbon sequestration) provided by undeveloped land to be incorporated into their market prices.
- The structure of local property taxation (i.e. rates) is based on capital (rather than land) values, with the resulting incentive for housing development on larger sections.



- Restrictions relating to maximum density, maximum building height, minimum floor sizes and minimum car park requirements, all of which serve to reduce the supply of new inner-city housing.

In short, in an environment where land has been relatively cheap, transport has been heavily subsidised, the external costs of congestion and vehicle emissions have been largely ignored, capital gains taxation has been non-existent, and intra-urban planning laws have been highly stringent, urban growth boundaries have probably been the only thing standing in the way of significantly more urban sprawl.

Arguments that easing urban growth boundaries would create significant net benefits (by allowing peri-urban land to be used for its highest value) make some sense. But they also fundamentally miss the point that such boundaries are just one policy setting in a market that is distorted in a whole range of different – and conflicting – ways.

If the policy landscape is to be modified so that the full range of social costs and benefits are incorporated into people's decisions about where to live and work, then it should be done in a non-selective way. In other words, if urban growth boundaries are to be reformed in the name of maximising net benefits, then consistency demands that road pricing, full carbon dioxide emissions pricing and payments for ecosystem services – among other things – are introduced at the same time. Without these environmental policy reforms, urban expansion will be accelerated, which is already seemingly 'hard-wired' through market forces and current policy settings.

Genuine environmental and economic benefits for urban densification

Political reality means that policy reform on the scale mentioned above is unlikely. We start from where we are, and the proposals contained in the proposed National Policy Statement should be assessed in that light.

It is clear that a credible commitment to increasing housing supply could help to end the cycle of house price appreciation. The key question from an environmental perspective is what kind of growth this involves: outwards or upwards? My analysis below indicates that policies should be consciously recalibrated to favour densification over expansion for both environmental and economic reasons.

Urban expansion impinges upon several of the key reasons – landscape amenity and easy access to recreational opportunities – why individuals seek to live near the urban periphery in the first place. These benefits are slowly, but irreversibly, eroded as urban growth boundaries expand – dwellings that were once near the urban growth boundary become part of ever-larger suburbia. Moreover, the increased need for land with expansion will to some extent intersect with versatile soils (a matter dealt with below under the proposed National Policy Statement for Highly Productive Land) and may also harm biodiversity.¹⁸

¹⁸ See [OECD, 2018](#). Rethinking urban sprawl: Moving towards sustainable cities. OECD: Paris.



But perhaps most importantly, the increased car dependence that is likely to result from urban expansion has important implications for congestion and transport-related greenhouse gas and particulate emissions. There is a well-established literature that has examined these relationships.¹⁹ In general, car dependence – and the congestion and emissions that result from it – is far more prevalent in low-rise sprawling cities than in their denser equivalents.

Given that transport accounts for 39 per cent of New Zealand’s fossil carbon dioxide emissions,²⁰ promoting growth outwards seems completely inconsistent with New Zealand’s stated climate objectives under the Paris Agreement and Zero Carbon Bill. It also seems anomalous in a country that is beginning to experience significant levels of traffic congestion in its major cities.

While the proposed National Policy Statement does recognise the risks that car dependency poses, it proposes “investment in modern transport systems” – active and public transport – as the solution. Retrofitting transport solutions to mitigate the congestion of urban expansion is reasonable, but is likely to be problematic in practice for at least two reasons.

¹⁹ Examples of this literature are provided here:

- [Kahn \(2000\)](#) used household level data to assess the environmental consequences of suburbanisation, and controlling for income, found that, “suburban households drive 31 per cent more than their urban counterparts”.
- [Brown et al. \(2008\)](#) found that, “population density is the strongest predictor of partial carbon footprints, after controlling for correlates such as [household] size, income, weather, and electricity prices.” And, “[r]esidents of metro areas have smaller partial carbon footprints than the average American. ... The difference owes primarily to less car travel and residential electricity use, rather than freight travel and residential fuels.”
- [Glaeser and Kahn \(2010\)](#) found that, “holding population and income constant, that the spatial distribution of the population is also an important determinant of greenhouse gas production.” They found that households in suburban areas of cities in the United States typically generate between 1 to 3 tonnes more transport-related emissions per year than households in central city areas.
- [Hankley and Marshall \(2010\)](#) examined “how urban form impacts greenhouse gas (GHG) emissions from passenger-vehicles” in the United States. They found that “comprehensive compact development could reduce 2000–2020 cumulative emissions by up to 3.2 GtCO₂e (15–20% of projected cumulative emissions).”
- [Lee \(2014\)](#) examined how urban form influences household carbon dioxide emissions in the 125 largest urbanised areas in the United States. They find that “doubling population-weighted density is associated with a reduction in CO₂ emissions from household travel and residential energy consumption by 48% and 35%, respectively.”

²⁰ See [Stats NZ, 2019](#). New Zealand’s greenhouse gas emissions.

First, economies of density mean that the per-capita cost of providing transport (and other) public services is significantly higher in sprawling lower-density cities.²¹ Second, even if the cost of that infrastructure provision is accepted, there is no guarantee that it will be widely used. As past experience has shown, as long as the social costs of congestion and greenhouse gas emissions remain under-priced or unpriced, people will often continue to choose private over active or public modes of transport.

An alternative approach would be to promote more environmentally friendly urban forms in the first instance. Incentivising existing urban areas to grow upwards can, as is highlighted in the proposed National Policy Statement, help to provide additional housing supply. And it can do this in a way that avoids many of the environmental pressures outlined with urban expansion.

This is not just conjecture. A recent large-scale modelling exercise undertaken by the OECD on Auckland found that widespread densification could reduce the tripling of house prices expected under business-as-usual (by 2050) to an increase of 57 per cent.²² Furthermore, this densification could reduce transport-related emissions by ten per cent relative to business-as-usual, and significantly more if distant suburban developments were no longer required.

Densification could also have potentially significant economy-wide benefits. When businesses locate in close proximity to one another a variety of tangible economic benefits develop, including labour market pooling. One estimate suggests that when New Zealand businesses locate close together with ten per cent higher effective density they experience a 1.7 per cent gain in economic productivity.²³

Of course, densification is not without issues of its own. For example, it can expose a greater proportion of a city's population to higher levels of particulate pollution. However, any such effect will be at least partially offset by the reduction in transport-related particulate emissions. Further, as noted in the *Our air 2018* report, "New Zealand's air quality profile is different to most of the rest of the world and our air quality is good in most places and at most times of the year."²⁴

One of the most difficult issues to deal with in considering urban densification is the handling of heritage and landscape values. Many inner-city precincts date back to the earliest years of urban development. Densification can be done well, but it can also be done poorly, in a way that sees a heritage cityscape crowded out by cheap-to-build apartments.

²¹ Put differently, more bus routes will be required to provide the same number of individuals access to bus services in a low-density city than a high-density one.

²² See OECD, 2018. Decarbonising urban mobility with land use and transport policies: The case of Auckland. Working Party on Integrating Environmental and Economic Policies, OECD: Paris.

²³ See Maré, D. C. and Graham, D. J., 2009. Agglomeration elasticities in New Zealand. NZ Transport Agency research report 376.

²⁴ See Ministry for the Environment and Stats NZ, 2018. New Zealand's Environmental Reporting Series: *Our air 2018*. Ministry for the Environment and Stats NZ: Wellington.



While it is encouraging to find that there is some evidence of increasing density of population in urban areas in New Zealand,²⁵ there is still a lot New Zealand cities can do. Urban population densities typically vary between 1,000 (Christchurch) and 2,000 (Auckland) inhabitants per square kilometre.²⁶ That level of densification is very low compared to other cities in other OECD countries. For example, population densities in a handful of selected cities are: Vancouver (5,400 inhabitants per square kilometre), Fukuoka (4,600), Stockholm (3,597) and Seattle (2,799).²⁷

The objective should not necessarily be to move to population densities rivalling those of New York (10,100 inhabitants per square kilometre) or Tokyo (6,150), but rather to incrementally increase population density within already developed areas. That would not necessarily require widespread and unsightly high-rise construction, but rather a steadily growing proportion of apartment, townhouse and other in-fill urban development.

Introduce split-rate property taxes, road pricing and effective on-street parking policies

In order to incentivise densification in urban areas, and ensure that this densification is done well, various policies could be adopted.

Above all, the purpose of existing restrictions on intra-urban development – maximum density restrictions, maximum building heights, minimum floor sizes, minimum car park requirements – should be reconsidered, and removed if not required. The proposals contained in the proposed National Policy Statement in this regard are to be welcomed, but more needs to be done under other legislation as well.

In New Zealand, rates are levied on both land and land improvements. This form of taxing property has been argued to be a combination of the least distortionary taxes – the tax of land value – and one of the most distortionary ones, the tax on land improvements.²⁸

A straight tax on land value has the potential to improve the efficiency of land use, as, if improvements are not taxed land owners have the incentive to develop the land to its most profitable use. However, the Tax Working Group recently rejected a proposed land value tax, despite its efficiency improvements, because the Group was concerned about its social acceptability in the New Zealand context. I am also concerned about the environmental impacts of a land value tax if many ecosystem services continue to be left unpriced, which can be expected.

²⁵ See Ministry for the Environment and Stats NZ, 2018. New Zealand's Environmental Reporting Series: Our land 2018. Ministry for the Environment and Stats NZ: Wellington.

²⁶ See Stats NZ, 2019. 2013 Census counts by Urban Rural 2018. Stats N: Wellington.
<https://datafinder.stats.govt.nz/layer/92227-2013-census-counts-by-urban-rural-2018/>

²⁷ Wikipedia, 2019.

²⁸ See Vickery, W. S., 1996. Simplification, progression and a level playing field. Columbia University Discussion Paper Series, 58: 367-388.



However, instead of a land value tax, an alternative, milder policy that would swing the pendulum towards densification, is a split-rate property tax, whereby higher tax rates are set in urban areas on the value of land rather than on the value of buildings and other property improvements.²⁹ Higher rates on land values in urban centres would discourage keeping land undeveloped or under-developed, thereby reducing pressures on development at the rural-urban fringe.

Lower relative tax rates on the value of buildings and other improvements would further incentivise owners to build more intensively or renovate their properties to increase their value. That would enhance the base for property taxation in urban areas and reduce pressures on local finance. Importantly, the effectiveness of a split-rate property tax system in increasing density is also supported by empirical evidence.³⁰

The widespread introduction of road pricing in New Zealand should also be encouraged, which could provide economic incentives for densification, as road pricing is likely to incentivise shorter commuting distances. It is time New Zealand had a well-prepared conversation about the use of market-based instruments to price both congestion and other environmental externalities.

While efforts to promote road pricing are not appropriately addressed in the National Policy Statement, credit needs to be given for the recognition it provides for the adverse impacts car parking can have. An abundant supply of car parks in urban environments not only consumes an enormous amount of land, it reduces the costs of vehicle travel and incentivises driving over alternative modes of transport. However, meaningful car parking reform needs to go well beyond simply requiring councils to remove minimum car park requirements as is currently proposed.

Policy reform that would significantly change the economic incentives to drive would require that car parks are priced to “account for the costs of parking space construction, the opportunity costs of alternative land uses, and the external costs of open space and biodiversity losses and of time losses due to cruising.”³¹ Furthermore, rather than simply removing minimum parking requirements, efforts should be made by councils to stipulate maximum parking requirements.

²⁹ See OECD, 2018, , Rethinking Urban Sprawl: Moving Towards sustainable Cities, OECD: Paris

³⁰ For example, a United States study showed that a split-rate property tax leads to higher urban densities, both in terms of structures and population. See Banzhaf, H. S. and Lavery, N., 2010. Can the land tax help curb urban sprawl? Evidence from growth patterns in Pennsylvania. *Journal of Urban Economics*, 67: 169-179.

³¹ See OECD, 2019. The environmental and welfare implications of parking policies. Environment Working Paper, OECD: Paris.



A number of cities in OECD countries have implemented maximum parking requirements and seen some significant results. For example, London in 2004 replaced its minimum parking requirements with a maximum parking requirement, which has led to a 49 per cent reduction in parking spaces in new developments.³²

In addition to maximum parking requirements, on-street parking should account for all of its external costs, including the costs of lost land used for parking spaces. Today, New Zealand cities are likely to significantly under-price on-street parking, which simply encourages lower-density development and car dependency,³³ which in turn results in congestion and transport-related emissions.

Overall, a focus on densification is not about picking winners (i.e. densification over urban expansion), or for that matter trying to shoehorn New Zealanders into housing that they have not had a strong preference for. Rather, it is about levelling the playing field, so that inner city and suburban developments can compete on their relative environmental and economic merits.

Proposed National Policy Statement for Highly Productive Land

Protect versatile soils not highly productive land

The problem definition outlined in the discussion document indicates that highly productive land for primary production activities is threatened by irreversible land use change towards residential uses, whether via urban sprawl or the fragmentation of land from rural lifestyle development. The discussion document also indicates that highly productive land is not specifically dealt with under the Resource Management Act 1991 (RMA), and that this lack of specificity or clarity provides insufficient protection from the irreversible conversion of highly productive land being used for primary production activities to urban development.

The lack of clarity is evident, it is argued, because there is variation in the protection of highly productive land, as some councils have implemented regional provisions to protect this land while others have not. Hence, national-level policy is required to protect highly productive land from urban development via a proposed National Policy Statement.

³² See Li, F. and Guo, Z., 2014. Do parking standards matter? Evaluating the London parking reform with a matched-pair approach. *Transportation Research Part A: Policy and Practice*, 67: 352-365.

³³ Evidence suggests households with easy access to parking spaces close to their residence and workplace are likely to own more cars than households who do not. See De Groote, J. van Ommeren, J. N. and Koster, H. R. A., 2016. Car ownership and residential parking subsidies: Evidence from Amsterdam. *Economics of Transportation*, 6: 25-37.



The Treasury and various economic commentators, on the other hand, have indicated that there is insufficient evidence that a market failure actually exists to warrant such policy intervention. For example, one economic commentator went as far as to state that: “Rather than regulating whether land is used for housing and food, we can safely rely on markets to provide a solution: Where it is more valuable for housing, we should build on highly productive land and farm on less productive land.”³⁴ These commentators also note that efforts to restrict the conversion of highly productive land for residential use could well inflate prices for existing urban land and, as such, adversely impact the affordability of housing.

I find both the justification offered by the proposed National Policy Statement and some of the responses cited to be equally unsatisfactory. A market failure *does* exist, but it is not the one that has been described. The proposed National Policy Statement identifies ‘highly productive land’ as the appropriate focus for policy intervention. This is all about the *use* to which land is put, not its inherent environmental qualities – its natural capital. Urban development and primary production both make highly productive use of land and both can have significant environmental impacts.

It is not primary production we should be focusing on but soil. Soil provides many valuable non-market ecosystem services (e.g. flood mitigation, water and contaminant filtration, greenhouse gas regulation, soil biodiversity) in addition to the production of food and fibre.³⁵ These services are, to a large extent, not incorporated in land prices. This is the market failure that serves to promote development over existing land use.

Furthermore, soil is a non-renewable natural resource that takes thousands of years to form, so its loss or degradation is effectively irreversible. If lost, it risks the ongoing provision of ecosystem services for current and future generations.³⁶

³⁴ See Partridge, R., 2019. A spoonful of economics helps land use bias go down. <https://nzinitiative.org.nz/reports-and-media/opinion/a-spoonful-of-economics-helps-land-use-bias-go-down/>.

³⁵ See FAO and ITPS. 2015. Status of the World’s Soil Resources (SWSR) – Main Report. Chapter 2 – The role of soils in ecosystem processes. Food and Agriculture Organization of the United Nations and Intergovernmental Technical Panel on Soils, Rome, Italy.

³⁶ The economic value of soil ecosystem services is not insignificant. It has been estimated that the typical economic value of soil ecosystem services for a typical uneroded sheep and beef farming operation is around \$5,000 per hectare per year. The total value of these services drops by 64 per cent following a soil erosion event. See Dominati, E. and Mackay, A., 2013. An ecosystems services approach to the cost of soil erosion and value of soil conservation. Report prepared for Hawke’s Bay Regional Council. AgResearch: Wellington.



While there is a rationale for intervention in land markets, the focus proposed in the discussion document is the wrong one. Protecting highly productive land is ill-conceived given rapidly changing economic and environmental circumstances. A piece of land that is deemed valuable for primary production activities by policymakers today, may not be tomorrow. A focus on highly productive land simply protects primary production activities over urban development, and therefore chooses food production over housing development (despite the ongoing concerns around house price appreciation in New Zealand).

The policy proposed in the discussion document should be re-focused back on highly productive or versatile soils.³⁷ 'Highly productive' in this sense embraces more than just food production, but the production of a wide range of ecosystem services. Importantly, a focus on the protection of versatile soils rather than highly productive land for primary production activities also aligns more clearly with the underlying intention of the RMA, which makes specific reference to safeguarding the life-supporting capacity of our soils.

Environmental economists have long been aware of the problem with the irreversibility of natural resources that provide the means to produce various ecosystem services. If the value of the natural resource to future generations is unknown or uncertain (which is indeed the case with versatile soils), the benefit from protecting it today should also include an *option value*. Accounting for this option value – combined with the recognition of many valuable non-market ecosystems services – provides a better way to weigh the ongoing protection of the natural resource for future generations against its use and development by the current generation.

Continuing to exercise the option of 'sealing over' or unsustainably using these versatile soils today removes the flexibility that the option gave us. If the value of these soils rises sharply over time, their loss could result in severe societal-wide regret.

³⁷ Land Use Capability classification (LUC) offers a good starting point for classification of versatile soils, as 'versatility' (i.e. the ability to support multiple land uses) is a central concept of this classification. Versatile soils have few natural limitations and can support growing a range of crops with minimum inputs. Soil conservation (i.e. minimising sediment loss) is another focus of this classification. However, I note that the LUC classification should only be a starting point, as the classification should be advanced. As the discussion document notes, the LUC was developed in the 1970s and 1980s and has a number of limitations (e.g. coarse mapping scale, a lack of updates since it was developed and a focus only on 'production'). See also Lynn, Manderson, Page, Harmsworth, Eyles, Douglas, Mackay, Newsome. 2009. Land use capability survey handbook – a New Zealand handbook for the classification of land. 3rd addition; and Lilburne, Lynn and Webb. 2016. Issues in using Land Use Capability class to set nitrogen leaching limits in moisture-deficient areas—a South Island case study. *New Zealand Journal of Agricultural Research*, 59: 1-17.



The need to protect versatile soils rather than maintain highly productive land in primary production also recognises that primary production activities have significant adverse impacts on soils that can also lead to their irreversible loss. The report *Our land 2018* highlights that an estimated 84 million tonnes of soil are lost every year from pasture land alone, some which will be from our most productive soils.³⁸ That report also notes that intensive primary production activities through soil compaction can and have resulted in lost soil productivity and reduced soil diversity.

If anything, there is evidence that primary production activities have had more impact on versatile soils than urban expansion. Indeed, between 1990 and 2008 only 0.5 per cent of New Zealand's total versatile soils classed as LUC class 1 and 2 land (i.e. 7,000 hectares of 1,465,000 hectares) was converted into urban development.³⁹

Nonetheless, despite the relatively low levels to date of conversion of versatile soil as a result of urban expansion, one estimate suggests that if trends continue "a large percentage of LUC class 1 and 2 lands could be lost to agricultural production over the next 50-100 years."⁴⁰ Hence, there is a need to protect versatile soils for current and future generations now from *both* unsustainable primary production activities and urban expansion.

The protection of our versatile soils also has potentially significant co-benefits for the environment. Soil-sealing from urban expansion shifts food production towards less productive soils, which may result in greater use of inputs such as fertilisers to maintain food productivity levels, which in turn places pressure on our waterways and climate. Similarly, soil loss from primary production activities may also require greater use of inputs to maintain food productivity levels.

Irreversibility and the difficulties with cost-benefit analysis

Recognition of the irreversibility of natural resources, like soils, has brought with it a concern that policy assessed via cost-benefit analysis can be an inappropriate and unfair assessment of the need to protect such resources. Specifically, cost-benefit analysis can neglect the intergenerational allocation of natural resource endowments, given that the values of future generations are inevitably 'external' to the analysis. This problem is only exacerbated where relatively high positive discount rates are applied in the analysis.

³⁸ See Ministry for the Environment and Stats NZ, 2018. New Zealand's Environmental Reporting Series: *Our land 2018*. Ministry for the Environment and Stats NZ: Wellington. www.mfe.govt.nz

³⁹ See Andrew, R. and Dymond, J. R., 2013. Expansion of lifestyle blocks and urban areas onto high-class land: an update for planning and policy. *Journal of the Royal Society of New Zealand*, 43: 128-140.

⁴⁰ See p.245 in Rutledge, D. T., Price, R., Ross, C., Hewitt, A., Webb, T. and Briggs, C., 2010. Thought for food: Impacts of urbanisation trends on soil resource availability in New Zealand. *Proceedings of the New Zealand Grassland Association*, 72: 241-246.



As such, some environmental economists suggest that the use of cost-benefit analysis should be restricted to the assessment of policies whose impacts can reasonably be defined as ‘reversible’ and do not extend far into the future.⁴¹ Proposed environmental policies to protect versatile soils do not fall into this category.

Given this position on cost-benefit analysis, it was surprising to learn that the cost-benefit analysis developed to assess the Proposed National Policy Statement for Highly Productive Land found a net benefit. However, closer inspection found a notable omission in the analysis in that it did not account for the value of subdividing land.⁴² This is a significant omission. If this factor was accounted for, it could easily tip the scales for the proposed policy to a net cost, which simply reaffirms the likelihood of the irreversible loss of our versatile soils from urban expansion.

Proposed National Environmental Standard for Versatile Soils and Betterment Taxes

Given concerns about cost-benefit analysis for assessing policies impacting on natural resources that could be irreversibly lost, there are reasonable arguments to take positive steps to protect versatile soils even where there is a net cost. For example, some economists have proposed that to avoid severe societal-wide regret from the irreversible loss of non-renewable natural resources, efforts should be made to minimise the maximum possible regret of the ‘wrong’ choice.⁴³

In effect this means that a safe minimum level (or standard) can justifiably be imposed where a natural resource faces irreversible consequences, unless the social and economic costs of doing so are deemed to be ‘excessive’, ‘intolerable’ or ‘unacceptably high’.⁴⁴ Given the potential for versatile soils to be lost irreversibly, I believe it is reasonable to impose a safe minimum standard for this non-renewable resource to ensure that it is sustained over the very long term.

⁴¹ See Wegner, G. and Pascual, U., 2011. Cost-benefit analysis in the context of ecosystem services for human well-being: A multidisciplinary critique. *Global Environmental Change*, 21: 492-504.

⁴² The cost-benefit analysis has a number of other problems. For example, the analysis put in qualitative terms appears to show all highly significant benefits only for the proposed National Policy Statement and all highly significant costs only for the status quo position. This seems unrealistic. Furthermore, the cost-benefit analysis only looks at one proposed option. It would be useful that other policy options were also considered. It is also worth noting that Table 3 in the discussion document misrepresents the cost-benefit analysis undertaken, as the benefits function reads \$51 million, but I suspect should read \$266 million.

⁴³ See Palmini, D., 1999. Uncertainty, risk aversion and the game theoretical foundations of the same minimum standard: A reassessment. *Ecological Economics*, 29: 463-472.

⁴⁴ The determination of what constitutes costs that are deemed ‘excessive’, ‘intolerable’ or ‘unacceptably high’ would be revealed through political processes.



This position appears to be supported by the Productivity Commission in its report *Using Land for Housing*.⁴⁵ That report proposed that regional policy statements should shift towards setting environmental limits or standards within which urban development in the region can occur.

Imposing a safe minimum standard for versatile soils could, for example, be established at the national-level through a national environmental standard. Such a standard could provide for a minimum limit on soil quality (or soil health) to be maintained in perpetuity and a quantity-based limit for versatile soils also to be maintained in perpetuity within a given region.⁴⁶

If increased housing supply via urban expansion is to be part of the solution to housing affordability, the Government could consider alternative ways of ensuring that it does not result in the irreversible loss of versatile soils. An interesting alternative to implementing a national policy statement that regurgitates a shopping list of criteria would be the implementation of a market-based instrument that directly affects economic incentives in land markets.

For example, a betterment tax, which taxes the value uplift of land from rezoning and subdivision, could be imposed with a regionally specific safe minimum standard.⁴⁷ Such a tax would likely reduce windfall land value gains from rezoning of land, which could be expected to both incentivise urban densification, as well as limit rent seeking through the speculative purchase of peri-urban land.⁴⁸

⁴⁵ See New Zealand Productivity Commission, 2015. *Using Land for Housing*. Productivity Commission: Wellington.

⁴⁶ Setting limits for soils should be informed by available data on soils in a region. However, the soil database (S-map) only covers 34 per cent of New Zealand, and soil quality monitoring remains patchy. For example, not all regional councils collect soil quality data. Further, the list of soil quality chemistry analyses for classifying soils varies significantly between councils. So, it is not possible to tell where around the country soils are in good condition and where further attention may need to be focused. For example, see Cavanagh, J., Munir, K., McNeil, S., and Stevenson, B. 2017. *Review of soil quality, including trace elements, state of the environment monitoring programme*. Lincoln: Landcare Research. Prepared for Hawke's Bay Regional Council.

⁴⁷ It is important to note that local authorities in New Zealand once had the legal ability to impose betterment taxes on land value uplift. They are still able to require landowners to pay for any betterment arising from the creation or widening of a road or the covering in of watercourses under the Local Government Act 1974.

⁴⁸ Soil management could also be supported by betterment taxes through some of the tax revenue being hypothecated to the sustainable management and conservation of versatile soils.



A closing observation

New Zealand has recently experienced a period of unusually high population growth and steady economic growth. Neither can be assumed to continue indefinitely and care should be taken to avoid policies that respond to a phenomenon that may even now be slackening. On the other hand, if there is a desire to promote strong population growth through immigration, then the environmental consequences of such policies need to be considered carefully.

Whatever the pressure for urban expansion, it carries with it a significant array of environmental and economic costs. Some of these are felt immediately, others with a lag of decades. The two proposed national policy statements under review do a poor job of analysing the underlying problems. They ignore a wide array of policies including market-based instruments that are likely to have more leverage than extending the already long shopping list of nationally significant matters that councils have to consider under the RMA.