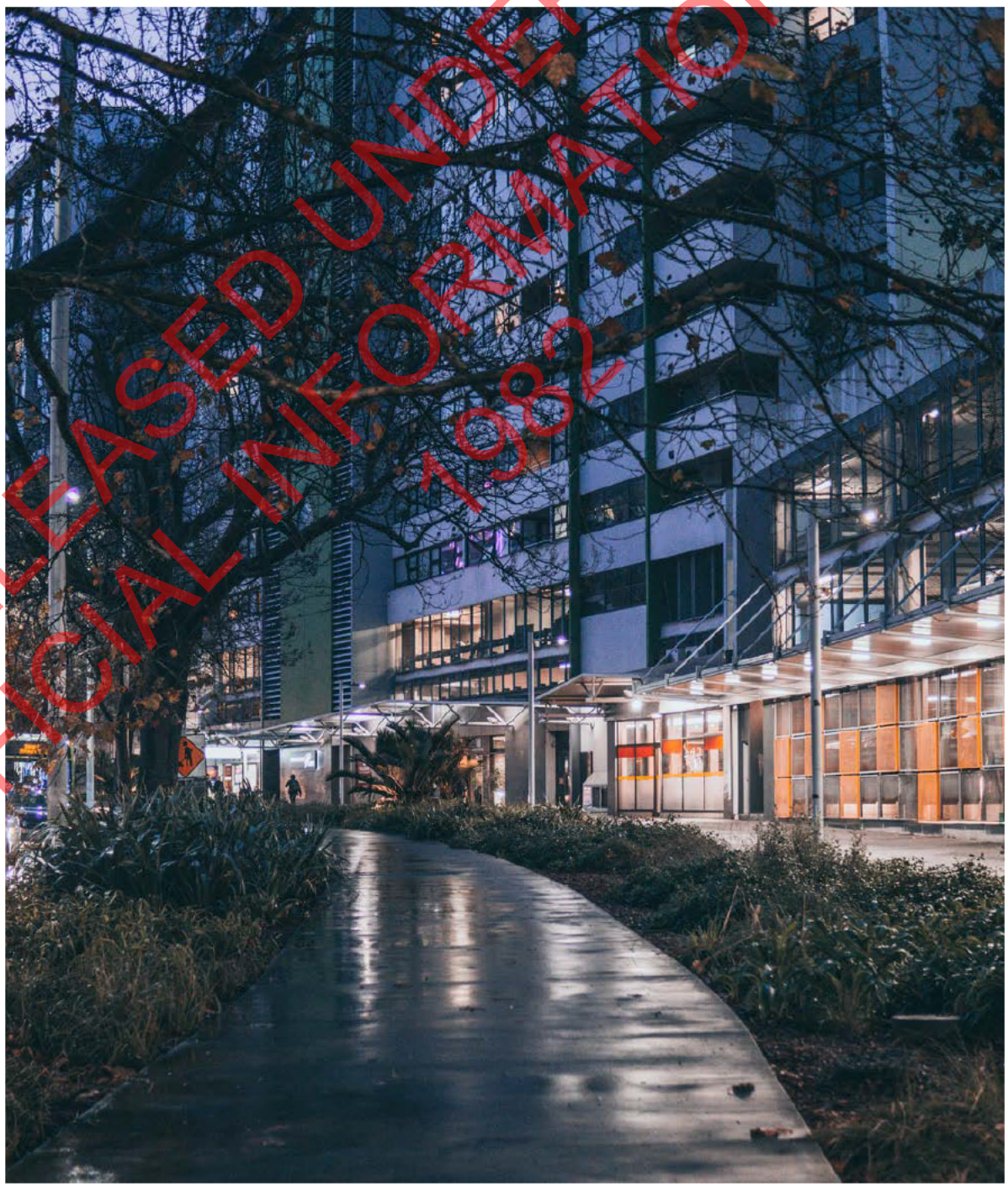
Boffa Miskell

Urban Tree Management

Options and Analysis for the New Planning System
Prepared for Ministry for the Environment – Urban Team

13 December 2021



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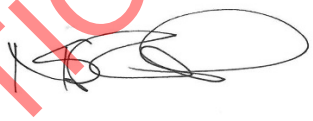
Reviewed by:	Nick Pollard Planner / Associated Partner Boffa Miskell Limited	
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Executive Summary

The Resource Management Act 1991 (RMA) is the primary legislation governing resource use in Aotearoa / New Zealand. The Act is currently being reformed. Feedback on the Exposure Draft for the reform and engagement with stakeholders has identified a need for any new resource management system to improve the ability for district councils to manage urban trees.

The purpose of this report is to investigate issues within the RMA and identify a framework of potential management tools for a new system. This information will be used by the Ministry for the Environment and decision-makers in developing an appropriate framework within the reform process.

Trees have an important role in the urban environment providing a range of social, environmental, cultural, and economic benefits. Some of the things trees contribute to include:

- enhancing biodiversity,
- improving water quality through minimising stormwater run-off,
- engineering nature-based solutions to avoiding and mitigating environmental effects of development,
- building resilience to climate change and natural hazards,
- good urban form,
- social and cultural associations.

Trees have an important function within Aotearoa's urban environment. However, if protected bluntly they have the potential to frustrate the attainment of key objectives for urban development.

Changes made to the RMA in 2009 and 2013 sought to remove the ability for District Council's to impose rules based on categorisation (of height and girth). This responded to the volume of consents required to manage tree works and consequential high transaction costs that had on communities.

Those changes limited the scope of rules that could be imposed in District Plans within urban areas. The principal method for protection of specific trees in District Plans is through scheduling – specifically identifying trees or groups of trees on specific sites and recording this in District Plan schedules. That process however is proved to be complex and costly to administer by District Councils and based on evidence available it is understood that tree cover in urban areas is decreasing. This report identifies that there are opportunities to better provide for trees in ways that will also align with other strategic outcomes and obligations for district councils.

Urban tree canopy cover is commonly used as an indicator of the extent to which trees are contributing to biodiversity, resilience to climate change and natural hazards and good urban form. Some councils in Aotearoa are experiencing changes in canopy coverage, including perceived reductions and quantifiable changes in the structure or quality of coverage.

Significantly, the reduction in structure or quality stems from the loss of mature trees which are not scheduled in district plans. This is significant given many of the values and services attributed to trees are not realised until maturity (35 – 40 years old).

The analysis finds that there is a need for tools that can provide for urban tree protection in a way that enables outcomes and obligations to be met and whilst providing for urban development. It is not an either, or, approach but a way of facilitating the integration of tree protection within provisions for urban development.

The key criteria to consider in identifying possible tools to address this balance include:

- Whether the tool contributes to increasing urban canopy and coverage (as indicators of biodiversity, resilience to natural hazards and climate change, and community participation (social and cultural values));
- Whether the tool is growth supporting – does it recognise urban tree values while enabling growth;
- Whether the tool provides a more active and structured approach to recognising and providing for trees within urban development;
- Whether the costs of implementing a tool is proportional to the gains achieved.

Case studies of four different cities are presented including Auckland Council, Lower Hutt City Council, City of Sydney and City of Seattle. The case studies demonstrate the range of tools that can be applied to urban tree management and ascertain how urban tree protection mechanisms in Aotearoa differ from those elsewhere.

The case studies show that the tools applied in Aotearoa are similar to those commonly applied internationally. The key differences are that international case studies provide integrated management tools to recognise values trees contribute too, while providing for development:

- Those tools that regulate general tree works provide exclusions for urban development in certain circumstance,
- More complex approaches to landscaping standards are applied that actively recognise and provide for trees within urban development.

A range of tool types, both regulatory and non-regulatory have been considered against the key outcomes (with an additional criterion of whether the tools are certain/predictable). Table 1 below provides a high-level summary of the options analysis, recognising that further investigation of each method or similar and a consideration of their potential implementation in developing a package of integrated tree protection that achieves the objectives.

A key take-out from the analysis is that there is no single tool that resolves the issue of integrating/balancing tree protection and urban development. Rather, it is a range of tools and the process of implementation that contributes to a more integrated, balanced approach. Different tools are

appropriate to the different values associated with urban trees and the circumstance in which urban development interacts with those trees.

The key challenges to be addressed in the formation of a new resource management system will include:

- How to provide for urban development and intensification, while recognising the values that urban vegetation, including trees, provide to urban development through contributions to good urban form, biodiversity, resilience to climate change and natural hazards and community cohesion (social and cultural values).
- The extent of national direction required to enable a range of tools where necessary. A degree of flexibility will be required in the construction of that direction to account for different demands for urban growth and tree protection across the country.
- How to provide for plan development and maintenance processes that minimise costs to both councils and communities and enable adaptive responses where environmental outcomes are not being achieved – while still providing for adequate community engagement in the plan development process.
- How to provide for a simplified approval process for development applications involving trees, without diminishing the integrity of regulatory plans or impacting the ability to achieve the purpose and outcomes of the new system.

Table 1: Summary of tree protection tools - options analysis

Tool	Increasing / enhancing urban canopy	Proportional	Growth Supporting	Certain and predictable	Active provision for trees	Effectiveness and relevance in achieving outcome
Targets	Likely through policy and tool development to encourage planting and retain trees	**Unlikely** if applied at a broad national level / **likely** if available to use where Councils consider them necessary.	**Likely** if target is set at the right level or applied where it is needed.	**Risk** if target is not set at the right level or applied too broadly.	**Yes** as encourages planting and retention	**Low** if not set at the right level or applied at a broad national level / **High** if optional for councils and is applied to fit local context
Minimum standards for general tree regulation – with development exclusions	**Likely** to increase canopy through retention of trees that meet criteria and may provide opportunity to offset in response to exclusions.	**Unlikely** if applied at a broad national level / **likely** if available to use where Councils consider them necessary.	**Likely** to be compatible with growth supporting objectives.	**Risks** if applied at a broad national level / **Risks** if Councils do not have strong directives regarding the design of the regulation.	**Yes** if development exclusions are required to offset	**Low** if applied at a broad national level / **High** if optional for councils and is applied to fit local context
Protection for specific trees	**Likely** to increase canopy through retention of trees that meet criteria	**Likely** if streamlined process is developed for implementation.	**Likely** to be compatible with growth supporting objectives.	**Low risk** can be specific, targeted, and certain.	**Yes** as protects significant values	**High** as can be tailored depending on values being protected and constructed to provide for balance.
Specific landscape development standards	**Likely** as standards include requirements pertaining to planting of trees.	**Likely** as protect / incentivise tree protection where this is appropriate.	**Likely** to be compatible with growth supporting objectives.	**Risk** as this relies on appropriate implementation.	**Yes** as this actively provides for inclusion of trees within development.	**High** if optional for councils to apply and applied to fit local context.
Enforcement	**Likely** if applied consistently.	**Likely** as these are only triggered where trees are inappropriately damaged.	**Likely** to be compatible with growth supporting objectives.	**Low risk** can be specific, targeted, and certain.	**Yes** will promote retention of trees.	**Moderate** a support mechanism to ensure rules are adhered to.

Tool	Increasing / enhancing urban canopy	Proportional	Growth Supporting	Certain and predictable	Active provision for trees	Effectiveness and relevance in achieving outcome
Strategic policies and plans for tree management both in the public and private realm	**Likely** as will identify opportunities for tree provision on public land.	**Likely** as advocates tree protection where this is appropriate.	**Likely** to be compatible with growth supporting objectives.	**Low risk** as this is an advocacy tool.	**Yes** promotes retention and assists in achieving other outcomes.	**High** as allows for appropriate selection tools and assessment of the issue within the local context
Tree bonds	**Likely** if applied consistently and appropriately.	**Likely** as this would only impact a developer.	**May not** be compatible with growth supporting objectives if bond is set too high and acts as dis-incentive.	**Low risk** as this is an incentivisation tool that can be certain.	**Yes** promotes retention and assists in achieving other outcomes.	**High** enables development to occur while providing for and protecting tree values.
Rebates	**Likely** if applied consistently and with a streamlined process for implementation.	**Likely** as this would have direct benefits to a developer and indirect benefits to the community.	**May not** be compatible with growth supporting objectives if (unlikely though) rebate incentivises tree protection over urban growth.	**Low risk** as this is an incentivisation tool that can be certain.	**Yes** promotes retention.	**High** enables development to occur while providing for and protecting tree values.
Community grants	**Likely** as directly results in tree planting.	**Neutral** Would directly benefit a community group and would have indirect benefits for the community.	**May not** be compatible with growth supporting objectives – grants for works need to be prepared and balanced to recognise growth supporting outcomes.	**Low risk** as this is an advocacy tool that can be certain.	**Yes** directly promotes and encourages retention of trees.	**High** encourages planting on land not suitable for development.

Tool	Increasing / enhancing urban canopy	Proportional	Growth Supporting	Certain and predictable	Active provision for trees	Effectiveness and relevance in achieving outcome
Education programs	**Moderate** dependent on individual	**Neutral** Would directly benefit a community group and would have indirect benefits for the community.	**May not** be compatible with growth supporting objectives - programs need to be prepared and balanced to recognise growth supporting outcomes.	**Low risk** as this is an advocacy tool that can be certain.	**Moderate** can provide promotion and retention of trees.	**High** Advocacy tool to encourage community to implement the policy direction.

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1.0 Introduction

The Resource Management Act 1991 (RMA) is the primary legislation governing resource use in Aotearoa / New Zealand. The RMA is in the process of being reformed. The reform process is being led by central government department the Ministry for the Environment (MfE). Feedback on an Exposure Draft of the reform and stakeholder engagement identified the management of urban trees as a matter that needed addressing in the reform process. In particular, feedback sought that the new resource management system improves the ability for district councils to manage urban trees.

The primary purpose of this report is to identify opportunities for urban tree management, that does not unduly constrain urban environments to deliver appropriate levels of urban development. This includes investigating issues within the current system and identifying a framework of potential management tools for a new system.

The report identifies that an integrated approach to urban tree management is necessary to address the issues raised. This includes enabling a range of regulatory and non-regulatory tools, as well as flexibility to integrate tools to achieve both urban development and effective urban tree management.

An analysis of potential tools considers the effectiveness and relevance of each in achieving an integrated approach to urban tree management. The report concludes with a summary of findings, including key challenges for the reform process in delivering an integrated approach.

The information and findings will assist MfE and decision-makers in developing an appropriate framework as part of the reform.

2.0 Current Urban Tree Protection Issues in Aotearoa / New Zealand

This section provides an overview on the role of trees in urban environments, in enhancing biodiversity and meeting climate change commitments, and the current legislative framework in Aotearoa.

2.1 Balancing the Value of Trees with the Need for Urban Development

Trees form a critical part of urban ecosystems. Those ecosystems consist of a broad range of flora and fauna, as well the soil, water and air that support them. [1] As part of that wider ecosystem, trees provide a number of critical environmental services and social, cultural and economic benefits:

[1] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 10

Social

- Visual and physical access to trees and green spaces is important for physical and mental health (social wellbeing).[2] [3]
- Streets lined with trees have been shown to encourage walking.[4]
- They contribute to associations of identity and character which can assist social cohesion and pride.[5] [6]

Environmental Services

- Trees are critical to enhancing biodiversity. Urban trees provide habitat and food sources for many species and provide linkages between significant indigenous habitats and areas of vegetation. Native trees, in particular, represent a unique flora and enable the survival of many native birds, reptiles, and insects within urban areas.[7] Exotic species also play an important role in Aotearoa's current urban ecosystems, providing the same ecosystem services and other benefits as native species, and assisting to fill gaps in vegetation networks.
- Trees are one means of responding to climate change effects through cooling effects, provision of shade, reducing flood risk (see bullet points below), contributing to carbon sequestration.[8] [9] **[10]**
- Trees are used to stabilise slopes, minimising erosion, and increasing resilience to natural disasters.
- Trees play a role in improving water quality through canopy interception of rainfall minimising overflows of waterways and run-off of pollutants into stormwater systems and watercourses.
- For these reasons detailed above, urban trees provide nature-based solutions for managing environmental effects of urban development such as stormwater run-off. This type of nature-based solution is commonly referred to as "green infrastructure" which

[2] See Urban Design Forum submission on The Natural and Built Environments Bill – Exposure draft, refer: https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_111944_EN5387/a93accfc5f3cb7d63caf69a72084e77ee0421025

[3] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 20 refer: https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/topic-based-plans-strategies/environmental-plans-strategies/Documents/urban-ngahere-forest-strategy.pdf

[4] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 16.

[5] See Urban Design Forum submission on The Natural and Built Environments Bill – Exposure draft.

[6] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 41.

[7] See Pest Free Kaipatiki submission on The Natural and Built Environments Bill – Exposure draft refer: https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_111944_EN3799/5fc759622f746ba2edd7ac5fe721959e05863c16

[8] See The Tree Council submission on The Natural and Built Environments Bill – Exposure Draft refer: https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_111944_EN7231/5002560bb5c218a308b7ff2f812a0764af58b195

[9] See Pest Free Kaipatiki submission on The Natural and Built Environments Bill – Exposure draft.

[10] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 16.

Auckland Council describes as broadly referring to "any system that fuses natural and built environments to reduce the environmental impact of…the built environment".[11]

- Mature trees gain significantly more benefits than smaller, younger trees:[12]
    - larger canopy areas provide more shade,
    - larger leaf areas and root systems better intercept stormwater, and
    - they absorb more pollutants and have higher carbon sequestration rates.

  Many of these values are not recognised until a tree reaches maturity, at around 35 – 40 years of age.
- High environmental quality is an attribute of good urban design[13] [14]. Urban trees are therefore an indicator of the quality of the urban environment.

Cultural

- Native forest is important to Mātauranga Māori (knowledge and understanding), and trees create a cultural connection to place and history.[15]
- Trees assist in recognising and providing for tikanga (customary rights, values, and practices). Even in the urban environment, there is gathering of kai and traditional medicine.[16]
- Trees are often associated with places and moments in history.
    - Trees may be associated or commemorate historic events (such as events that occurred pre-European settlement, Maori legends or war memorials), or be associated with historic or notable figures, or form part of a historic feature.
    - Trees may provide a landmark for local communities or may have some symbolic, spiritual, commemorative or other cultural value that contributes to defining community identity. [17]

Economic

- A number of cities have calculated the economic value of trees. Melbourne has calculated benefits from trees on public land to be worth over A$700m and Greater London trees are valued at NZ$275m per year.[18] New York City estimates trees to

[11] See Auckland Council (2018) Auckland Plan 2050, Outcome: Environment and Cultural Heritage, Green infrastructure, refer: https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/environment-cultural-heritage/Pages/green-infrastructure.aspx

[12] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 29

[13] See Ministry for the Environment (2005) Urban Design Protocol, page 15, refer: https://environment.govt.nz/assets/Publications/Files/urban-design-protocol-colour.pdf

[14] See Urban Design Forum submission on The Natural and Built Environments Bill – Exposure draft.

[15] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 17.

[16] Ibid.

[17] See Auckland Council Guidelines for Nominating a Notable Tree for Evaluation, refer: https://www.aucklandcouncil.govt.nz/building-and-consents/working-on-around-trees/Documents/guidance-for-nominating-notable-trees.pdf

[18] See The Tree Council submission on The Natural and Built Environments Bill – Exposure Draft.

provide US$5.60 in benefits for every US$1 spent on tree planting and care.[19] These economic benefits come from the range of services 1x afforded from trees such as reductions in energy costs from shade and cooling; reductions in healthcare costs through enhancements to health and wellbeing; reductions in flood risk; increased property values from mature street trees.[20]

However, the mechanisms applied to recognise the value of urban trees can limit the extent to which land may be developed and cause undue delay to development. In the case of Auckland City Council, prior to 2013, general tree protection rules based on girth and height were reported to represent up to 50-percent of all consents processed at the time. One district council undertook a study on a sample of 102 consents between 2005 – 2006 (comprising 10% of total consents) to ascertain the impact of tree rules. The study found that 40% of the sample related to tree works. Of those applications relating to tree works, 85% were impacted by general tree rules.

Increasing pressure to further develop urban areas for housing and business, also increases pressure to remove trees and vegetation. Opportunities for development are increased through identification of new land (greenfield development converting rural land to urban) and intensification of existing urban environments (for instance from single housing to town houses or apartments).

A balance is required to enable development, while adequately recognising and providing for values of urban trees.

2.2 2009 and 2013 Changes to Urban Tree Protection Measures

A range of urban tree protection measures are available in the legislative toolbox. The RMA is the most common means of managing trees private land.

The amendments in 2009 and 2013 resulted in changes to the RMA that removed the ability for district councils to include rules in District Plans that, through general categorisation (based on height and girth), established a resource consent requirement for tree works on private urban properties. The background to those changes was intended to reduce the high transaction costs that were generated by the large number of resource consents that were required in urban environments[21].

Instead, management of trees on urban properties was limited to a scheduling process where individual or groups of trees are required to be listed along with the property location. The amendments specifically require district plans to list trees on private urban properties regardless of whether tree or property are identified on a planning map or are part of a larger area of bush or vegetation.

District councils are obligated to recognise and provide for areas of significant indigenous vegetation, outstanding landscapes and natural features, Maori culture, traditions and customary rights, the coastal environment, historic heritage and management of risk from natural hazards. Where these matters interface with trees on private land, scheduling is the only tool available for district councils to meet those obligations. As discussed in relation to canopy

[19] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 14.

[20] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 17.

[21] See Ministry for the Environment Guidance Note (2013) Tree protection in urban environments

cover, there is concern that the 2009 and 2013 amendments have now resulted in insufficient regulation or protection for urban trees.

2.3 Reductions in Urban Tree Canopy Cover

Tree canopy coverage is the total area of tree crown (the layers of leaves, branches and stems) that extends over the ground. [22] It is commonly used as an indicator of biodiversity, resilience to climate change and natural hazards and good urban form. The quantity and quality of canopy coverage indicates how well a locality is performing in regard to those values. Quantity is measured by number and area (m2 or ha). Quality (often referred to as the "structure" of the canopy coverage) is impacted by a range of factors such as weed and pest management, species (the prevalence of indigenous versus exotics) and the proportion of different height classes within the canopy (for example, the number of trees measuring between 3m – 5m, compared to 20m-30m or over 30m). This latter factor is a key measure for quality given that larger, mature trees disproportionally account for the range of benefits and services attributed to urban ecosystems. A range of heights is important for ecosystem diversity and to ensure the succession of mature trees for future generations. [23] [24] [25]

Many international cities are now including canopy cover targets and/or monitoring canopy coverage to assist in maximising benefits and services from urban trees and vegetation. For instance, Brisbane has a coverage of 44%, Melborne is at 22% with a target of 40% by 2040, New York City is at 21%, London is at 21% with a target of 31% by 2050.[26]

A study of tree loss in the Waitematā local board area from 2006-2016 found there had been a total loss of 61.23 hectares of tree canopy. Key findings explaining the tree loss included:

- 65% of total reported canopy loss was on private land
- 75% of all cleared trees on private land had no statutory protection
- 33% of tree removal was undertaken for development, improvements, or extensions to existing buildings[27].

At a regional scale, Auckland currently has an average of 18% urban canopy cover. This cover is across private land and public land such as parks, open spaces and street trees, noting that 61% of coverage is contained on private land). Since the 2013 RMA reforms (2013 - 2018) there has been no net loss to urban tree canopy cover, however, there has been a change in the structure of urban tree canopy. Most significant changes are noted in the height of trees with a decrease in mature trees (less than 5% over 20m in height, a decrease of 1% since 2013) and

[22] See

[23] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, pages 16, 17, 29.

[24] See The Tree Council submission on The Natural and Built Environments Bill – Exposure Draft.

[25] See Camilo Ordonez-Barona et al, *International approaches to protecting and retaining trees on private land*, May 2021, Journal of Environmental Management 285(2):112081, DOI:10.1016/j.jenvman.2021.112081

[26] See The Tree Council submission on The Natural and Built Environments Bill – Exposure Draft

[27] See Auckland Council (2018) Tree Loss in the Waitematā Local Board Over 10 Years, 2006-2016https://www.aucklandcouncil.govt.nz/about-auckland-council/how-auckland-council-works/local-boards/all-local-boards/waitemata-local-board/Documents/tree-loss-waitemata-local-board-2006-2016.pdf

an increase in younger trees (over 70% below 10m in height, a 6% increase since 2013). [28] These increases in canopy occurred on public land (mainly parks), while canopy on private land reduced. [29] The changes in structure indicate a reduction in the quality of the vegetation cover and suggests the Auckland area is receiving fewer of the benefits that trees contribute too.

Christchurch City Council is still finalising analysis of canopy survey data, but initial results indicate there has been a reduction from the 15% canopy cover in 2015. Conversely, Wellington City Council has never applied tree protection rules based on general categories (such as height or girth), yet has an urban canopy cover of around 30% (over public and private land).[30]

There are a range of reasons why some cities have higher urban canopy coverage than others. This could include historic town-planning dedicating green belt areas for planting, typography rendering large areas of land unsuitable for development and rates of urbanisation.

Trees on private property are deemed to be at greater risk to damage and removal than those on public property. Accordingly, some professionals have associated losses, or lack of canopy, with changes in the RMA as district councils are unable to fully protect and recognise the value of trees on private property.

Changes in site preparation practices may also impact the ability to increase or enhance canopy coverage on private land. Works undertaken at the time of subdivision often involve vegetation clearance, stripping of topsoil (to remove contaminated soils), and earthworks resulting in land compaction. Land compaction reduces soil volume. Sufficient soil depth is critical to enabling root growth to maturity.

Trees need sufficient space on a site in order to grow to maturity, including underground space for root growth. Changes in preference for 'slab on ground' foundations over pole foundations and increases in permitted standards for, and rates of infringement to, building coverage and impermeable surfaces also limit the retention, planting and growth of larger mature trees.

The Auckland Unitary Plan (AUP) permits building coverages of 35 – 50% of net site area depending on the residential zone. This is a significant increase from the 35% permitted in many legacy plans.

Auckland Council is undertaking monitoring research assessing how the AUP meets the quality built environment objectives set out in Auckland's Regional Policy Statement. To date, the research identifies that on average, 30% of residential development in urban residential zones infringe building coverage controls.35% infringed the standard in the Mixed Housing Suburban Zone, 30% infringed the standard in the Mixed Housing Urban Zone and 35% infringed the standard in Terraced Housing and Apartment Zone. The rate of infringement increases significantly at subdivision stage. In residential zones, the AUP calculates building coverage based on the net site area of the parent site. On average 76.6% of subdivisions had at least one new site infringing building coverage standards. Comparatively, nearly 30% of all residential developments infringe landscaping standards.[31] The cumulative effects of these infringements may also be hindering the ability to enhance urban canopy coverage.

Both Auckland Council and Christchurch City Council report that there are significant limitations to the use of public land as a means to increase canopy cover. Parks and open spaces also provide a range of values and services and planting out these spaces would result in

[28] See Auckland's urban canopy forest cover: State and change (2013 – 2016/2018) Revised April 2018. https://www.knowledgeauckland.org.nz/media/2066/tr2020-009-2-aucklands-urban-forest-canopy-cover-2013-2016-2018-revised-april-2021.pdf

[29] Ibid.

[30] file:///C:/Users/LucyD/Downloads/FORE1265_Tree_Canopy_Wgtn_Report.pdf

unintended social, cultural and environmental consequences. The ability to provide for street trees is also increasingly limited due to the need to provide for increasing numbers of driveways following intensification, alternative modes of transport such as bus and cycling lanes, on-street parking, under-ground services and street lights.

2.4 Costs Associated with Protected Trees

There is the potential for considerable costs to arise in implementing rules that manage works on scheduled trees. These costs fall both to the landowners and district councils.

The process required for identification of trees for scheduling includes supporting documentation proving eligibility (such as ecology or landscape reports) and inclusion within district plans through a plan change, or plan review, process. This process includes legislative analysis of protecting items, public consultation, submissions, hearings and evidence (including from arborists, planners and others depending on the value associated with the tree such as heritage or tikanga māori).

In addition to the costs to add nominated trees to the schedule, there are also costs that arise in relation to maintaining the schedule overtime, removing trees that have died, removed for being dangerous or under emergency works. These require statutory processes under the first schedule of the RMA, requiring assessments of effects, notification and expert reports considered by decision makers in order for them to be removed.

A report[32] to the Auckland Council Planning Committee has estimated costs to maintain its schedule, adding trees nominated since the Auckland Unitary Plan was notified and to resolve known errors and inconsistencies. 587 trees have been nominated since 2016, and the current schedule includes 3000 individual line items representing 6,000 – 7,000 trees or groups of trees across Auckland which needs to be reviewed and updated. Councillors were presented with four options plus status quo to address this matter. The costs ranged from $871,000 to an estimate in excess of $3m with the latter being an option to include a call for public nominations.

Rather than undertake a plan change every time a tree is nominated, many councils have chosen to delay updating schedules and lump nominations together in order to improve efficiency. However, given the same level of analysis is required significant costs are still incurred.

Once a tree is scheduled, there are standards relating to trimming/pruning the tree, works within the dripline of the tree and tree removal. Auckland Council waivers fees for lodgement and processing of applications for pruning or works within the protected root zone of scheduled trees. This provides incentive to landowners to retain and maintain the health of those trees. Between 2000 – 2006, one council calculated the average cost of processing a tree consent to be $739. However, applications for tree works will require arborist assessment which will incur costs for landowners and developers which are not absorbed by council. Depending on the scale of works proposed, it is estimated this could cost a minimum of $650 - $1000 for a site inspection and preparation and lodgement of an application for works to a single tree.

Other costs arise where Councils have protected trees on public land (roads and in parks) through rules in a plan. Where development has the potential to affect these trees, resource consents are required. This incurs cost for individuals where they are undertaking works on the road reserve associated with development but also costs to the council itself, which can be substantial. One council advised budget for maintenance of trees in local parks to be

[32] Refer Agenda to the Auckland Council Planning Committee, dated 5 November 2020, Item 10, page 55, paragraph 30 – 55.

approximately $12 million. This does not include maintenance of trees in regional parks, or those on other council-owned land such as libraries and community centres.

2.5 National Direction – National Policy Statements

The Draft National Policy Statement on Indigenous Biodiversity (PNPSIB) seeks to maintain indigenous biodiversity generally. Indigenous biodiversity is defined as being:

"…biodiversity that is naturally occurring anywhere in New Zealand. It includes all New Zealand's ecosystems, indigenous vegetation, indigenous fauna and the habitats of indigenous vegetation and fauna"

The draft NPSIB directs that district councils must identify and manage effects on Significant Natural Areas (SNAs) which are areas of significant indigenous vegetation or habitat of indigenous fauna. The NPSIB directs that specific effects to be avoided include:

- loss of ecosystem representation and extent:
- disruption to sequences, mosaics or ecosystem function:
- fragmentation or loss of buffering or connectivity within the SNA and between other indigenous habitats and ecosystems:
- a reduction in population size or occupancy of threatened species using the SNA for any part of their life cycle

The policy statements and plans of regional and district councils are directed to manage subdivision, land use and development outside Significant Natural Areas as necessary to maintain indigenous biodiversity (which includes indigenous trees) This will have implications for urban properties containing individual, or groups of, indigenous trees, regardless of whether the tree has significant values that would normally trigger the need for scheduling (for example historic, cultural or significant ecological values).

Scheduling is currently the only tool available to district councils to implement the NPSIB as it relates to indigenous trees on privately owned urban land. Given the associated costs with scheduling and undertaking plan changes, this tool may not be the most cost efficient, or effective means of achieving the draft NPSIB outcomes.

3.0 Available Tree Protection Tools in Aotearoa

The Resource Management Act (RMA), the Reserves Act 1977, and land covenants on titles are the primary means of protecting urban trees in Aotearoa. While the Reserves Act does have provision to protect private land, this is voluntary, and the purpose of the Act applies to public land. Land covenants and the RMA both provide opportunities for protection of trees on private land. Covenants can only be applied to land with land owner consent. The RMA does not require land owner consent, although there is the opportunity for land owner participation through a public consultation process.

3.1.1 The Resource Management Act 1991

Part 2 of the RMA sets out the purpose of the Act and a range of matters which both regional and district councils must consider whether undertaking functions to meet the purpose of the Act. This includes:

- s6 Matters of national importance which a council must either recognise and provide for;
- s7 Other Matters which a council shall have particular regard to;
- s8 Treaty of Waitangi of which a council shall take into account the principles of the Treaty of Waitangi[33]

Many of the matters provided for in these sections relate to the benefits and values associated with trees in section 1 above.

Sections 30 and 31 of the RMA outline the functions of regional and district councils (respectively) for the purpose of giving effect to the Act (Appendix 1). These functions also give rise to matters that integrate with the management of trees. For instance, ensuring sufficient development capacity for expected housing and business development, control of land use and development (district function) and planting (regional function) that may impact natural hazards, soil conservation and water quality and quantity (the latter three being regional functions), and maintaining indigenous biological diversity.

The RMA also sets out requirements relating to the purpose, preparation and contents of regional (ss63 – 70) and district plans (ss72 – 77).[34] The purpose of the plans is to assist councils in carrying out functions to achieve the purpose of the Act. The plans must state the objectives for the locality and the policies to implement those objectives. Additionally, a regional council is required to prepare a regional policy statement which provides an overview of resource management issues and the policies and methods to achieve integrated management of natural and physical resources (s59).[35] District councils are required to have a district plan (s73) which must give effect to a regional policy statement and must not be inconsistent with a regional plan (s75)[36]. Both regional and district plans are to include objectives and policies but rules, as methods for implementing policies are not mandatory.

However, where a district council chooses to utilise rules, s76 sets out parameters for how rules may be applied. This includes restrictions on the application of rules for prohibiting or restricting the felling, trimming, damaging or removal of trees on urban allotments.

Ss76(4A) and (4B) provide for restrictions on tree works, only where those trees are scheduled in the district plan. Tree's must be described either individually or as a group, and the address of location must be specified. S76(4D) clarifies that this applies regardless of whether those trees and properties are already mapped or are clad in bush.[37]

Many council's apply zones and mapping overlays as a means to identify and apply rules to address s6 matters. For example, areas of significant indigenous vegetation, coastal character, or historic heritage and character. Trees often contribute to the values that are being protected or recognised in those zones and overlays. However, in the case of district councils, where

[33] See Appendix 1 Sections from the Resource Management Act 1991 Part 2 and s76(4)

[34] See the Resource Management Act 1991, https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html

[35] Ibid

[36] Ibid

[37] See Appendix 1

these zones and overlays apply to urban properties, tree works cannot be regulated unless the subject trees are listed in a schedule.

There are no such restrictions on regional councils, however regional councils may only apply regulation to those issues identified in the RPS and which relate to the functions set out in s30 of the RMA. Note that unitary authorities, which have combined functions of district and regional councils, are able to apply rules to trees within zones and overlays on private urban land. However, they are not able to apply general tree rules on private urban land.

There is a question as to how representative the district plan schedules are of significant trees. Auckland Council has identified that only 1% of significant trees are scheduled due to the cost of undertaking the process.[38] While another 587 trees had been nominated to include on the schedule, due to staffing and financial resources, staff recommended that not updating the schedule was the only viable option.[39]

Christchurch City Council last reviewed the District Plan's significant trees schedule in 2016, at which point 400 trees were removed and none added. This was due to the cost of addition trees to the schedule and decisions of the Independent Hearings Panel.

However, s76(4) is only one component of a wider planning framework which includes objectives and policies of both regional and district plans, regional policy statements and other strategic policies and plans to achieve higher order objectives and obligations.

The issue with the current approach in the RMA is that limitations on the management tools available, and the cost and time associated with scheduling, are preventing councils from maximising the benefits that trees contribute to such as:

- enhancing biodiversity;
- improving water quality through minimising stormwater run-off,
- engineering nature-based solutions to avoiding and mitigating environmental effects of development,
- building resilience to climate change and natural hazards,
- good urban form,
- social and cultural associations.

Providing flexibility also presents opportunities for a more integrated approach to achieving strategic outcomes, such as those set out in Part 2 of the RMA or within National Policy Statements. As demonstrated in the international case studies below, urban tree management not only requires a range of regulatory and non-regulatory mechanisms, but an integration of the tools themselves.

Currently, the application of scheduling (and historic general tree rules) tend to focus on limiting the extent of development that can occur to protect and retain trees. Conversely, tools such as the Green Factor Score (City of Seattle) or the Landscape Codes (City of Sydney) enable development while providing for retention and planting of trees. These tools set minimum standards for provision of trees and other vegetation much like minimum standards for development such as height and setbacks. For example, some minimum standards used overseas include:

[38] See Agenda to the Auckland Council Planning Committee, dated 5 November 2020, Item 10, page 55, paragraph 24.

[39] Ibid paragraphs 30 – 56.

- requirements to plant replacement and new trees; and/or
- specifications for on-site provision of a physical area appropriate for tree planting with associated standards around soil depth, volume and quality. The concept of landscaping is more complex in these integrated frameworks. As seen in the case studies, landscaping is considered more than shrubs and grass and includes trees and more engineered features such as green roofs.

It is important to note, these integrated tools sit alongside more liner tools that focus more on tree protection, such as scheduling of significant trees.

3.1.2 The Reserves Act 1977

The purpose of this Act is to preserve and manage land that has value for public benefit. A wide range of values are identified including, recreational, scenic, historic, cultural, historical, archaeological, biological, geological, community or the presence of indigenous flora and fauna. While private land may be afforded protection, the primary focus is on publicly owned national, regional, and local parks and open spaces.

Land classified as reserve must have a reserve management plan. The purpose of the management plan is to "provide for and ensure the use, enjoyment, maintenance, protection and preservation, as the case may require". It is not uncommon for these plans to contain direction around the protection and management of trees including specifications around planting, removal, pruning and other works. Trees in parks do not necessarily have to have a significant value. They may be afforded protection purely through being present in a vested reserve.

The classification and preparation of management plans can be a costly process in terms of resource and time. The reserve management plan for Waikaraka Park in Auckland took two years to complete and cost around $30,000. Costs come from preparation of supporting documentation and legal fees of gazetting and costs associated with consultation on draft management plans. Draft plans are required to be publicly notified with the opportunity for submissions to be heard.

There are over 3,000 local parks, 26 regional parks and 241 sports parks in Auckland region[40]. Undertaking reserve management plans for each of those parks is likely to be a costly process both in terms of time and finances. Auckland Council is currently in the process of creating combined (or omnibus) reserve management plans for each of the 21 Local Board areas in an attempt to streamline the process.

3.1.3 Land Covenants

Placing covenants on certificates of titles is another means of protecting urban trees on private land. As an enduring legal agreement between two parties, a land covenant has the effect of a rule and has the ability to over-ride a rule in a regulatory plan. Generally, it requires an agreement between the parties to either cancel the covenant or amend it.

Land covenants can be done voluntarily, or through a condition of consent at the time of subdivision or development. The process includes preparation and signing of legal documents

[40] Refer Open Space Provision Policy 2014, Auckland Council, https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-policies/Documents/open-space-provision-policy.pdf

followed by a process by Land Information New Zealand to place the covenant on the title. Costs will vary depending on the level of detail in the covenant.

3.1.4 Non-regulatory Mechanisms in Aotearoa

There are a range of non-regulatory mechanisms for urban tree protection including providing:

- information on the benefits of trees and ways to protect tree – such as Auckland Council's "Working on or around trees" webpage which provides information on the benefits of trees and links to other pages providing information on tree works, including how to nominate a tree for protection. [41]
- planting programs (such as One Million Trees by Auckland Council or Two Million Trees by Wellington City Council. These programs focus on council-owned land)
- grants for conservation projects – such as the direct grants from the One Billion Trees Fund (Ministry of Primary Industries or Wellington City Council which has a number of funding options for groups or individuals undertaking sustainable environment focused projects, such as the Natural Environment Fund.[42] These are typically associated with existing regionally significant areas or around waterways, so are less likely to occur on urbanised private land.

The Standard Tree Evaluation Method (STEM):

The Standard Tree Evaluation Method (STEM) is a standardised means of evaluating the significance of a tree. It is not an official New Zealand Standard but is commonly used by councils and experts to support decision-making in the scheduling process. . It identifies a score based on 3 key criterion being Condition (Form, Occurrence, Vigour/Vitality, Function, Age), Amenity (Stature (m), Visibility (km), Proximity, Role, Climate), and Notable (based on a local to International scale including its Stature and Historic value and where is rare or endangered).

While this is a good determination of whether an individual tree should be protected or not, it doesn't consider the wider context of the tree and its contribution to for example, Significant Natural Areas, and whether the tree provides a connection or a buffer.

4.0 Problem Definition

There is a need for balance between providing for urban trees in a way that enables strategic outcomes and obligations to be met, (including biodiversity, resilience to climate change and natural hazards, community participation (social and cultural values) and good urban form) whilst providing for urban development and intensification. It is not an either, or, approach but a way of facilitating the integration of tree and vegetation management within provisions for urban development.

[41] See Auckland Council, Working on or around trees, https://www.aucklandcouncil.govt.nz/building-and-consents/working-on-around-trees/Pages/default.aspx

[42] See Wellington City Council, Funding and support for environmental projects. https://wellington.govt.nz/climate-change-sustainability-environment/environment/what-you-can-do-for-the-environment/funding-and-support-for-environmental-projects

Due to s76 of the RMA, scheduling of trees is the predominant tool for protecting and recognising the values of trees. While scheduling may be a valid tool for managing specific urban trees, it is limited in the values that are recognisedand tends to focus on restricting development by requiring consent for removal of and certain works on trees. Implementation and maintenance of schedules also incurs significant time and financial costs.

In order to address the issue of balance and integration, a wider range of tools is necessary. Considering the issues identified in section 2, the following criteria would be appropriate in identifying and constructing appropriate tools:

- Contribution to **urban canopy** coverage and structure (meaning quality) as indicators of biodiversity, good urban form, community participation (social and cultural values) and resilience to natural hazards and climate change;
- Whether the tool is **growth supporting** – does it recognise urban tree values while enabling growth;
- Does the tool provide a more **active approach to providing for and recognising the values of** trees? For instance, is there an incentive or a direct requirement to retain or provide vegetation, or standards relating to green infrastructure to mitigate effects of development?
- Whether the costs of implementing a tool is **proportional** to the gains achieved. For instance, there may be little gained in implementing certain tools for those places not expecting significant increases in urban demand, or places where canopy cover and tree provision are already well catered for;
- Whether the outcomes associated with using the tool are **certain/predictable**. This criterion is considered a critical principle for evaluating effectiveness of regulatory tools[43] and is relevant in this analysis given the numerous changes to tree protection regulation in the recent past.

5.0 Case Studies

This section seeks to summarise the similarities and differences in how urban tree protection is currently provided within Aotearoa and two international cities. The international case studies chosen are the City of Sydney and City of Seattle. These were identified as case studies due to the application of specific tools that are unique from Aotearoa. This approach was taken to ascertain whether those tools may be of assistance in addressing the balance and integration of tree protection within urban development.

An overview of the approaches of each case study are presented first, followed by a comparison analysis.

5.1 Aotearoa / New Zealand

5.1.1 Auckland

Auckland Council utilises a framework of regulatory and non-regulatory mechanisms to address urban tree management and protection within the region. The Auckland Unitary Plan is the only regulatory mechanism to manage tree protection on private land.

The overarching strategic direction for urban trees is set within the Urban Ngahere (Forest) Strategy. The strategy sets the objectives and principles for maintaining and enhancing the urban ngahere of Auckland, across public and private land, while managing anticipated growth. A key outcome of the strategy is to increase average urban canopy cover from 18% to 30%, with no urban local board having less than 15% canopy cover. Actions to increase canopy are largely directed on public land. However, the need for new regulatory tools to protect trees on private properties is also identified as a key action to support protection of existing canopy. There is no timeframe provided for when the 30% target is to be achieved.

This strategy sits within a wider policy framework[44] (refer Figure 1 below) which contributes to urban tree management.

[44] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 20 refer: https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/topic-based-plans-strategies/environmental-plans-strategies/Documents/urban-ngahere-forest-strategy.pdf

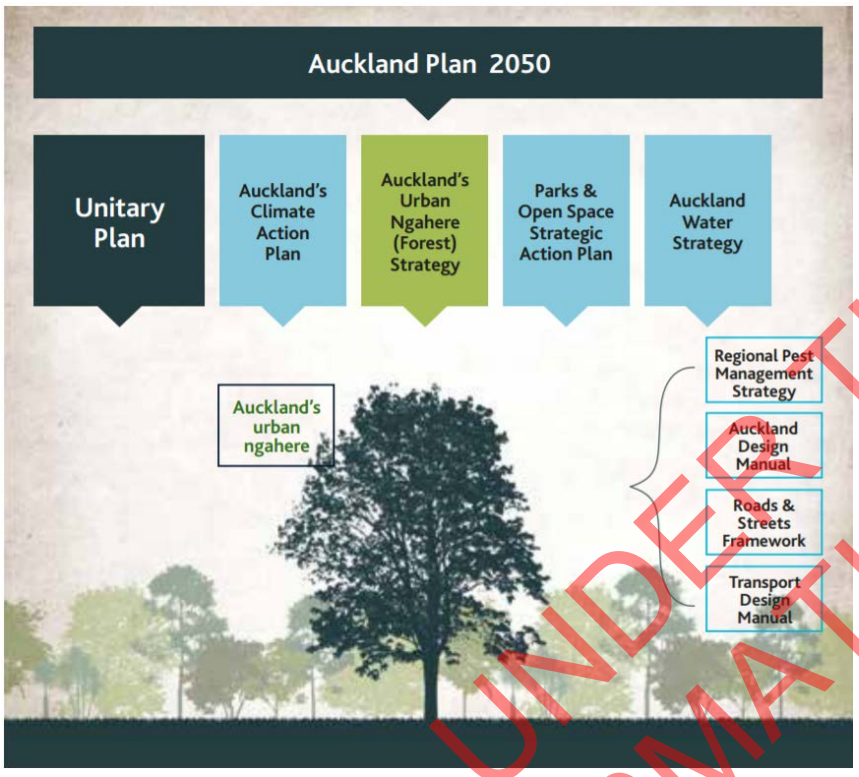

Figure 1: Excerpt from the Auckland Council Urban Ngahere (Forest) Strategy depicting the framework of policy documents and how these relate to other Council strategic policy documents

The Auckland Unitary Plan

This provides the regulatory framework for resource management. It addresses both regional and district functions under the RMA and therefore has access to a broader range of urban tree protection mechanisms than a district council. In particular, many of the overlays and zones that address matters provided for under Part 2 of the RMA include rules relating to tree works (trimming and removal) and apply to both public and private land.

For instance, the Significant Ecological Areas (SEAs) are overlays responding to s6(c) of the RMA and make up one-third of Auckland's total urban forest. This overlay provides the highest level of protection for vegetation in the plan. There are a range of standards and rules relating to the removal or alteration of vegetation (which includes trees) in this overlay including permitted activity standards for general trimming of trees and requiring consent for clearance of vegetation to provide for a building platform and one accessway per site and for any other vegetation alternation or removal. A much stricter approval process is applied for clearance that is either not related to, or goes beyond one building platform and accessway,

Other key regulatory mechanisms within the Unitary Plan include:

- Overlays and zones
    - other overlays and zones with tree protection (that are relevant to urban areas) include open space conservation zones, coastal yards, riparian yards, open space informal recreation zones and road corridors. The coastal and riparian yards are relevant to privately owned urban environments.
    - Any works to a tree not scheduled or not in an overlay or special zone, and within the Rural-Urban Boundary, are permitted.

- A schedule of Notable Trees - specific rules around removal and alteration apply. The schedule currently protects 6,000 – 7,000 trees or groups of trees, representing only 1% of Auckland's significant trees[45].

The plan does set out landscaping standards which vary depending on the zone. The standards consist of one element being a minimum percentage of net site area to be landscaped. The thresholds are 40% in the Mixed House Suburban Zone, 35% in the Mixed House Urban Zone and 40% in the Terraced Housing and Apartment Zone. The standards stipulate the purpose of landscaping to be:

- in the Residential Mixed House Suburban Zone is to achieve "*quality living environments*" and "*maintain landscaped character*" of the streetscape
- in the Residential Terraced Housing and Apartment Zone, the purpose is to achieve "*quality living environments*" and "*create a landscaped urban streetscape*".

There is no specification on the type of landscaping and no guidance on what defines "quality living environments" or "landscaped character". The 2021 draft s35 monitoring report found that 35% of all developments in all zones infringed the landscaping standards. The majority infringed standards by between 1% - 5% in each zone. The report found that the cumulative effect of these infringements was not likely to achieve the purpose of the standard.[46]

Reserve management plans.

Council has an omnibus management plan for regional parks. This applies standardised policies to all regional parks and identifies specific policies for specific parks where necessary. This enables preparation, consultation and hearings for all regional parks to be undertaken in one process rather than separate processes for each park. This approach meets the requirements of the Reserves Act 1977. While the plan does apply an activity status to certain land use and development, tree management is addressed more broadly through policies around enhancing biodiversity and seeking to retain trees where appropriate. Council is currently undertaking extensive consultation across the 21 local boards to establish omnibus management plans for local parks in those areas.

Key non-regulatory mechanisms:

- providing landowner advice and assistance on tree care and planting and
- community education programs on the value and benefits of urban trees.

5.1.2 Lower Hutt City Council

Lower Hutt City Council also applies a framework of regulatory and non-regulatory mechanisms to protect urban trees. This includes strategic policy on climate change, and management of trees in parks and open spaces (public land).

The Lower Hutt District Plan is the primary regulatory tool for tree protection. Similar tools are used as in Auckland including a schedule of notable trees, zones, and overlays. Specific rules apply for trees on public land. Pursuant to s76 of the RMA, as a district authority, the council

[45] See Auckland Council Agenda to the Auckland Council Planning Committee, dated 5 November 2020, Item 10, page 55, paragraph 30 – 55, refer:
mailto:http://infocouncil.aucklandcouncil.govt.nz/Open/2020/11/PLA_20201105_AGN_9800_AT_WEB.htm

[46] Auckland Council, Draft Auckland Unitary Plan Section 35 Monitoring: B2.3 Quality built environment, 2021

cannot place restrictions on the management of trees on private urban properties, even where these are already included in a map, unless the tree is scheduled.

The Lower Hutt District Plan adheres to this requirement and permits removal of trees on Urban Environment Allotments (which has the same definition as the RMA) in all residential zones (including heritage and special landscape residential zones). However, the rules in the residential zones also include standards for removal of "vegetation". The plan provides separate definitions for tree and vegetation:

- Tree means *for the purpose of Rules 4A 4.1.11(c), 4B 2.1(h), 4D 2.1(l) and 4E 2.1(i), a perennial woody plant species that is at least 3 metres in height or 300mm diameter at breast height.*
- Vegetation means *exotic and/or indigenous* vegetation.

Rule 4A 4.1.11 Vegetation removal demonstrates how this is applied in the General Residential Zone:

(a) The removal of indigenous vegetation:

(i) That was planted within a domestic garden for amenity purposes and/or the use of amenity or screening,

(ii) Within 5 metres of a lawfully established dwelling,

(iii)Within 3 metres of a lawfully established accessory building with a gross floor area greater than 10m²,

(iv) To maintain existing open areas, tracks, accessways, fences and onsite services,

(v) To maintain existing network utilities,

(vi) To prevent loss of life, injury or damage to property,

(vii)To remove dead or diseased vegetation, or

(viii) In accordance with Tikanga Maori,

is a permitted activity.

(b) The removal of exotic vegetation is a permitted activity if:

(i) The area from which vegetation was removed must be stabilised against erosion by vegetation cover or other methods.

(c) The removal of trees on an Urban Environment Allotment is a permitted activity.

(d) The trimming of vegetation is a permitted activity.

Therefore, in the case of the Urban Environment Allotments, removal of trees less than 3m would have to meet the standards specified in the rule, or obtain consent.

At first it appears this rule may contravene s76 of the RMA. However, the RMA does not provide any direction around the definition of a tree. Furthermore, the Lower Hutt District Plan does not yet fully address s6 of the RMA, matters of national importance. The Council is currently preparing to undertake a plan change to address this. Accordingly, 4A 4.1.11(a) and (b) address potential gaps in providing for:

- 6(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:
- 6(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

- 6(g) the protection of protected customary rights:
- 6(h) the management of significant risks from natural hazards.

5.2 International

5.2.1 Australia, City of Sydney

Australia is a federation of six states, which have their own constitutions, governments and laws. The City of Sydney is located within the state of New South Wales (NSW). The NSW state government provides a Land Management and Biodiversity Conservation Framework which includes:

- The State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP),
- the Biodiversity Conservation Act 2016 and
- the Local Land Services Act 2013.

In particular, the Vegetation SEPP sets rules for the clearing of native vegetation on land zoned for urban and environmental purposes that is not linked to a development application. The Vegetation SEPP also enables local authorities to provide rules managing removal of any vegetation (native or exotic) in non-rural areas and includes a threshold on what can be permitted[47].

NSW state government also provides a Climate Change Policy Framework which sets out aspirational objectives relating to carbon emission reductions and climate change resilience.[48]

These frameworks provide the direction for City of Sydney's tree management framework. This includes a suite of policy and operational plans to achieve strategic urban forest outcomes. The diagram below demonstrates the overall framework.

[47] See NSW Government legislation, State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017, State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 - NSW Legislation

[48] See NSW Government, NSW Climate Change Policy Framework, NSW Government action on climate change

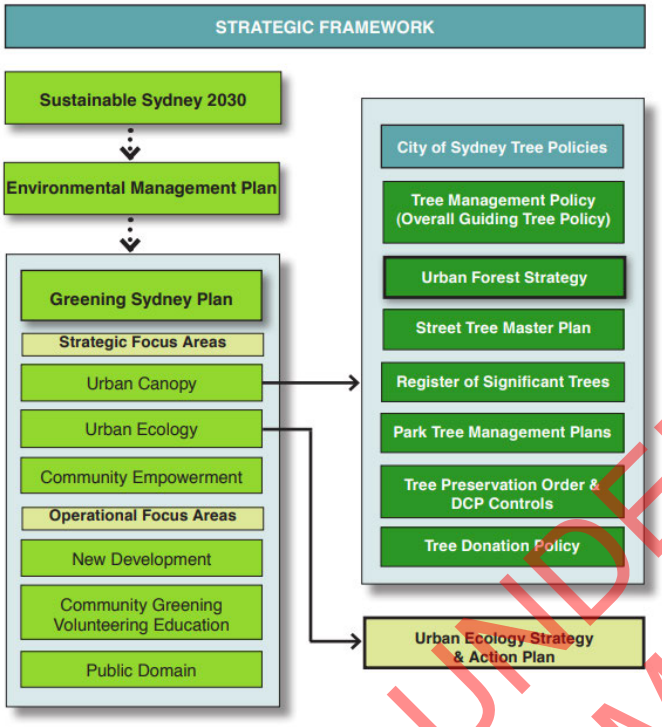

Figure 2: Excerpt from the City of Sydney Urban Forest Strategy 2013, https://www.cityofsydney.nsw.gov.au/strategies-action-plans/urban-forest-strategy

The Urban Forest Strategy is a supporting document to the Environmental Strategy and Action Plan 2016 – 2021. This latter document included targets for increasing tree canopy coverage from 15.5% to 23.25% by 2030. The draft Environmental Strategy and Action Plan 2021 – 2025 notes that by 2020, canopy coverage had increased to 19.2%. The draft strategy updates the tree canopy target to 27% by 2015. This will contribute to a newly identified target to increase "green cover" to 40% by 2050. Green cover is identified to include shrubs and grass in parks and streets, rain gardens, street trees, canopy cover and park assets.[49]

[49] See, City of Sydney draft Environmental Strategy 2021 – 2025, https://www.cityofsydney.nsw.gov.au/strategies-action-plans/environmental-strategy

Key regulatory tools:

The Local Environmental Plan (LEP) sets out regulations relating to trees in heritage zones and the Development Control Plan (DCP) sets out regulations for trees generally. Both regulatory frameworks contain rules that apply to a register of significant trees.

This case study focuses on those tools within these plans that are unique from those in Aotearoa.

Minimum standards with development exclusions:

The regulatory plans include standards for pruning and removal of significant and general trees. These standards include exemptions for works on specific species or where applying regulations would render a site undevelopable. A permit is still required to demonstrate that a site is undevelopable. The application must show that even if infringements to other standards are approved, it would not be possible to meet the standards.

Landscape codes

Development applications are required to demonstrate compliance with landscaping codes relevant to the type of development. Landscape Code – Volume 1 Single Dwelling provides more stringent requirements / standards to be met with a focus on retaining trees and requiring replacement of those that need removal. This includes requirements:

- for a 15% urban canopy coverage within 10 years of development completion,
- on the volume, depth and quality of soil and flow of stormwater drainage to trees planted or retained.

Below is a diagram from the Landscape Code – Volume 1 Single Dwelling that demonstrates some of the details and standards required to be applied.

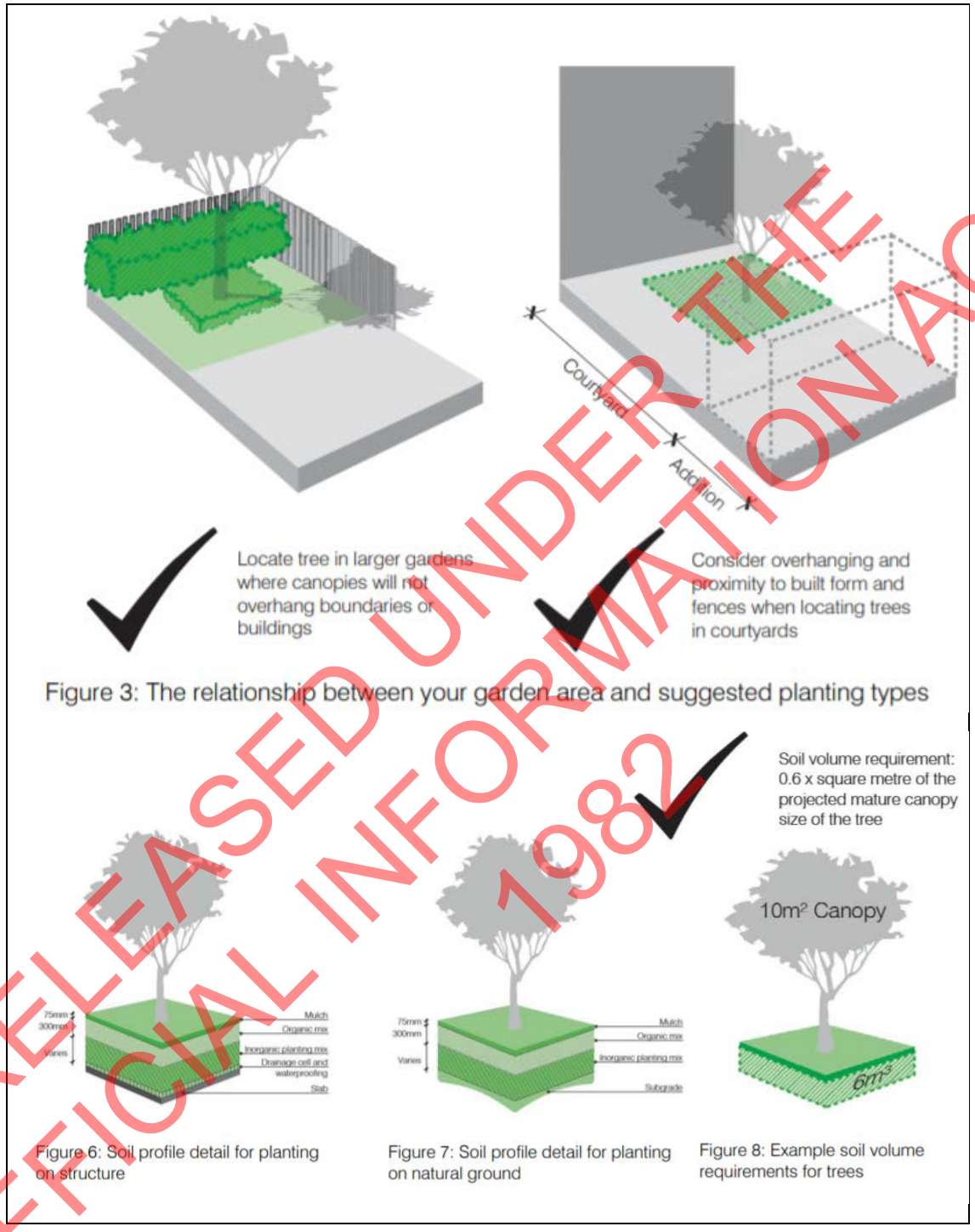

Figure 3: Exert from the City of Sydney Landscape Code Volume 1 Single Dwelling
https://www.cityofsydney.nsw.gov.au/development-guidelines-policies/landscape-code

The Landscape Code – Volume 2: All development except single dwellings (higher density developments, commercial or industrial) takes a different approach by outlining high level principles for a range of matters, such as landscape design, urban ecology, and urban canopy. The application must demonstrate how proposed landscaping achieves those principles.

5.2.2 United States of America, Seattle

The City of Seattle is located within the State of Washington, United States of America. The Washington State has its own government and laws which direct the roles and responsibilities of local authorities.

The Washington State provides direction on urban tree protection through legislation and strategic policies. The Revised Code of Washington is a compilation of laws currently in force. Chapter 76.15 Urban Forest Management sets out the functions and expectations of local authorities (referred to as departments) in managing urban forests. This includes s76.15.060 which directs that departments:

> *"must encourage urban planting and care through establishment and long-term management of trees, encouraging varieties that are site-appropriate and provide the best combination of energy and water conservation, fire safety and other safety, wildlife habitat, stormwater management, and aesthetic value. The department may provide technical assistance in developing programs in tree planting for energy conservation in areas of the state where such programs are most cost-effective. The department must conduct analyses and prioritize target regions for delivery of programs, policies, and activities that include criteria related to human health and salmon recovery data as provided in RCW 76.15.100."* [50]

Additionally, the Washington Biodiversity and Conservation Strategy provides that local governments contribute to biodiversity and conservation by creating and enforcing policies on land use, growth management and zoning.

Accordingly, the City of Seattle applies both strategic policy and a range of regulatory mechanisms to manage urban trees, including an Urban Forest Management Plan (amongst others). Seattle has a canopy target of 30% by 2037 and in 2016 had a coverage of 28%. 2016 data indicated that 72% of Seattle's canopy coverage was located in residential areas.[51]

Key regulatory tools:

The Tree Ordinance includes similar provisions as City of Sydney including minimum standards for trees that meet certain criteria (height and girth) and tree replacement requirements. Similar to Aotearoa, there are separate rules for:

- trees on private land, street trees and tree in parks
- those trees included on an "exceptional" trees schedule and
- tree works within overlays relating to natural hazards such as slope and stability.

The Green Factor Score:

This is a regulatory tool contained within the Tree Ordinance but which is unique from those tools applied in Aotearoa or City of Sydney. This is described as "a score-based code requirement that increases the amount of and improves the quality of landscaping in new development". [52] The tool sets a minimum standard for landscaping/vegetation requirements and green infrastructure provision. The higher the score, the greater ability to off-set other

[50] See, Washington State Legislature, Chapter 76.15 RCW Urban Forest Management Chapter 76.15 RCW: URBAN FOREST MANAGEMENT (wa.gov)

[51] See, City of Seattle Urban Forest Management Plan 2020, https://www.seattle.gov/Documents/Departments/Trees/Mangement/UrbanForestManagementPlanFinal.pdf

[52] See Seattle Department of Construction and Inspections Seattle Green Factor - SDCI | seattle.gov

factors. Minimum scores differ dependent on zones, with some zones not requiring a Green Factor Score.

A range of landscape elements are listed in a table, each with an assigned score. Landscape elements include specified soil depths for planted and permeable areas, listing different tree/shrub sizes, retention of existing trees, green roofs, vegetated walls, drought resistant plants, harvested rainwater and food cultivation.

An applicant would multiply the square footage[53] of each element by the assigned score. All the products are added together, and then divided by the lot size. The final number is the green factor score.[54]

Central to this tool, is that trees, shrubs and vegetation are identified as green infrastructure that contribute to well-functioning urban environments.

5.3 Case Study Comparisons

5.3.1 Comparisons within Aotearoa

The primary difference between the national case studies is the way in which trees are defined and how rules are structured. As discussed within the case studies, many of the tools applied are the same including strategic policies and regulation (zones, overlays and schedules).

For both council's vegetation is defined as including trees. However, Lower Hutt District Council then goes on to define trees separately which presents the opportunity to provide a level of protection for younger growth within residential areas. It also recognises the value of vegetation more broadly, including exotic species, and contributions to managing natural hazards.

Conversely, Auckland Council, trees are not defined separately from vegetation and the plan permits removal and alteration of all vegetation within urban environments that are not subject to a relevant overlay or listed zone. Auckland Council as Unitary Authority utilises both regional and district methods in its tree management regime and despite seemingly to be a broadly robust framework of regulation there are areas subject to low levels of tree cover (refer Figure 1Figure 2) [55] and evidence that there is an overall decline in tree cover.

5.3.2 Comparisons between Aotearoa and International Case Studies

All the case studies apply a broad framework of regulatory and non-regulatory tools to assist in managing urban trees. Generally, the range of tools are very similar such as zoning, overlays and scheduling of significant trees and applying standards for trimming and removal of trees within those areas, or that are identified as significant.

The most prominent differences between Aotearoa and international case studies are:

[53] Or equivalent – the plan identified different calculation methods for different elements such as trees, large shrubs and perennials

[54] See Seattle Municipal Code (SMC) 23.86.019 Green Factor Score https://library.municode.com/wa/seattle/codes/municipal_code?nodeId=TIT23LAUSCO_SUBTITLE_IVAD_CH23.86ME_23.86.019GRFAME

[55] See Auckland Council (2019) Urban Ngahere (Forest) Strategy, page 22

- those tools that regulate tree works provide exclusions for urban development in certain circumstance,
- more complex approaches to landscaping standards are applied that actively recognise and provide for trees within urban development.

It is important to note that these tools do not operate in isolation. Where an exclusion for development is granted, that development must still meet landscape requirements specific to trees. This may also offer the opportunity for offsetting of tree works effects, particularly where a tree is removed.

Exclusions for urban development within general tree protection rules:

Both Sydney and Seattle apply general tree protection rules for trees that meet identified criteria such as height and girth. In both instances, the removal of a tree, or trimming that does not meet the permitted standards, is enabled where a site would otherwise be rendered undevelopable. A permit must still be obtained through an application process with supporting documentation and assessment. Where it is proven that the site would be undevelopable, the tree works are granted.

Section 76 of the RMA specifically precludes local authorities in Aotearoa from applying a categorized general approachHowever, international approaches demonstrate a generalised approach may still have benefits where exclusions are provided where application of the rule would render a site undevelopable.

Landscaping requirements specific to trees:

Both Sydney and Seattle apply a complex approach to landscaping requirements within urban developments which specifically address trees.

- ***City of Sydney*** – consent applications are required to demonstrate how development complies with landscape codes. The codes include specific criteria to be met or assessed in relation to trees, as well as contribution to local urban ecology and urban canopy.
- ***City of Seattle*** – development applications must meet a minimum green factor score (which varies depending on development type). The score sets a minimum standard for landscaping/vegetation requirements and green infrastructure provision.

Comparatively, in the case studies from Aotearoa, minimal emphasis is placed on landscaping requirements. Auckland applies a minimum per centage of net site area to be landscaped, with no specification on what might constitute landscaping. Lower Hutt City Council has no specific landscaping requirements in the General Residential Activity Area. There are standards pertaining to yard setbacks, permeable surface area and outdoor living area, but none of these have any specifications around vegetation requirements.

The more complex approaches applied by Sydney and Seattle set a high expectation for landscaping requirements, including tree planting and retention, within urban development. This applies regulated direction to support better integration of natural and built environments.

6.0 Options Analysis

The focus of this report is to identify a range of tools that address the need for a balanced approach to urban tree management within provisions for urban development. Research undertaken to prepare this report identified a broad range of regulatory and non-regulatory tools commonly applied to protect trees within the urban environment. Each tool has strengths and limitations/costs which need to be considered when determining the most appropriate tool, or suite of tools for any urban environment.

Table 1 below provides an overview of each tool.

Table 2 below considers the effectiveness and relevance of those tools in achieving an integrated approach to urban tree management. Below are the criteria used for assessing effectiveness and relevance.

Contribution to **urban canopy** coverage and structure (meaning quality) as indicators of the extent to which trees provide for biodiversity, good urban form, community (social and cultural values) and resilience to natural hazards and climate change;

- Whether the tool is **growth supporting** – does it recognise urban tree values while enabling growth;
- Does the tool provide a more **active approach to providing for and recognising the values of** trees? For instance, is there an incentive or a direct requirement to retain or provide vegetation, or standards relating to green infrastructure to mitigate effects of development?
- Whether the costs of implementing a tool is **proportional** to the gains achieved. For instance, there may be little gained in implementing certain tools for those places not expecting significant increases in urban demand, or places where canopy cover and tree provision are already well catered for;
- Whether the outcomes associated with using the tool are **certain/predictable**. This criterion is considered a critical principle for evaluating effectiveness of regulatory tools[56] and is relevant in this analysis given the numerous changes to tree protection regulation in the recent past.

A rating system is applied in assessing tools against criteria. For each criterion a score is applied between -1 (unlikely to achieve desired outcomes), 0 (neutral or risk as outcome relies on other processes), +1 (likely to achieve desired outcomes). The rating and accompanying commentary assists in analysis on whether the tool achieves the overall outcome of a balanced/integrated approach to protecting and providing for trees within urban development. Based on these assessments, a final evaluation is made on the effectiveness and relevance of the tool in achieving the outcome. This is reflected as a 'High', 'Moderate' or 'Low' level of effectiveness and relevance.

[56] See Best Practice Regulation: Principles and Assessments, February 2015, The Treasury https://www.treasury.govt.nz/sites/default/files/2012-08/bpregpa-feb15.pdf

Table 2: A range of tools for achieving urban tree protection outcomes

TOOLS	FEATURES
Targets	Targets are commonly applied to assist in defining and monitoring strategic outcomes. Methods can then be identified which are most likely to achieve the target. Targets for tree canopy coverage (as a per centage) are often applied as an indicator for environmental outcomes. Given that the structure or quality of canopy coverage is also a critical component, a tree canopy target should consider applying additional 'sub-targets' relating to diversity of size and species. Alternatively, a broader biodiversity target could be set, of which trees form part of the calculation.
Minimum standards for general tree regulation – with development exclusions	Regulatory plans apply minimum standards for management of trees or vegetation that meet specified categories. Guidelines / standards on routine pruning are specified to minimise regulation of this activity. Minimum standards could be applied to specified areas and could be tailored to recognise values applicable to the local context. Exclusions from minimum standards may be provided such as certain tree species, those trees proven to be dead, dying, or hazardous, or where application of standards would render a site undevelopable. The tool could provide for infringements to other development standards (such as bulk and scale) to encourage meeting minimum general standards for trees. The degree of allowable infringements to other standards could be assessed on a case-by-case basis.
Protection for specific trees	Minimum or tailored standards can be applied to a) specific trees or groups of trees that are identified as having significant value and b) trees in a localised area that contribute to a common value associated with that area. This tool could be applied as standards/requirements within a plan or as requirements that support development obtained through a plan (such as conditions or covenants).
Specified landscape/green infrastructure development standards	Different types of development could be required to meet landscaping or green infrastructure standards that include specific requirements relating to trees. The standards could be based on criteria (provision of a tree court or tree replacement criteria) or principles (such as contribution to local urban ecology, or the 3:30:300 principle for greenfield development. This principle seeks development to ensure at least 3 trees can be seen from every dwelling, 30% canopy coverage and a 300m walk to the nearest park or green open space[57]). Examples of landscape/green infrastructure development standards are City of Sydney's Landscape Codes or City of Seattle's Green Factor Score.
Enforcement	A supporting tool, enabling the ability to apply and extract fines for illegal tree works.
Strategic policies and plans for tree management both in the public and private realm	A framework of policies for managing the local urban forest. Such as an overarching policy direction for biodiversity, may also include an urban forest policy. For regions with larger areas of urban development, or those anticipating significant increase in urban development, a separate urban forest policy may be necessary. Policies or plans for tree management on private land, streets, in parks and other land managed by the local authority
Tree bonds	Based on economic value of trees. No standard formula – varies globally. Bond paid per tree in advance of construction works starting. Any damage or destruction results in bond being lost. Funds reallocated back to urban tree strategy. Bonds could be linked to regulatory tools, or could be utilised as a stand alone tool supported by a policy to guide implementation.
Rebates	Developers / applicants are eligible for rebates for retention of trees or high contribution to urban canopy / ecology / high green factor score. Could use metrics from tools such as the green factor score. Where development meets identified parameters, rebates could be provided on fees and levies charged by councils.
Community grants	Tool to fund support for community restoration and planting projects specific to trees
Education programs	Tools to educate landowners and communities on benefits of trees and appropriate tree management

[57] https://iucnurbanalliance.org/promoting-health-and-wellbeing-through-urban-forests-introducing-the-3-30-300-rule/

Table 3: Evaluation of urban tree protection against the issues / outcomes and criteria

Tools	Implementation	Contribution to urban canopy	Is it proportional in its impacts?	Is it compatible with growth supporting objectives?	Is it certain/predictable	Does it promote an active approach for urban tree provision?	Alignment with achieving the outcome of addressing the issue of a balanced/integrated approach?	Overall effectiveness and relevance
Targets	National Level	+1 Can increase tree canopy cover and impact canopy structure depending on how targets are set.	-1 If mandated for all Plans will introduce targets and standards where there currently are none.	-1 It is more the methods for achieving the target that relate to compatibility with growth. However, if the target is set too high, or applied where none is required, it will restrict growth.	0 A target is a quantifiable outcome, however if set or applied inappropriately (too high or in areas where none is required) there is the potential for unintended consequences.	+1 Can provide an active means for providing for trees.	The target can provide a level of protection, however there is a risk it will not achieve a balanced/integrated approach if the target is set at an inappropriate level, or if one target is applied nationally.	**Low**
	Regional / local level	+1 Can increase tree canopy cover and impact canopy structure depending on how targets are set.	+1 If provided as an option for use will enable targets to be introduced where required.	-1 It is more the methods for achieving the target that relate to compatibility with growth. However, if the target is set too high, or applied consistently across the region instead of based on development expectations of different zones, it will restrict growth.	0 A target is a quantifiable outcome, however if set or applied inappropriately (too high or in areas where none is required) there is the potential for unintended consequences.	+1 Can provide an active means for providing for trees.	If provided as an option, there is the ability to construct the target to fit the local context and achieve a balanced/integrated approach.	**High**
Minimum standards for general tree regulation – with development exclusions	National Level	+1 Can increase tree canopy cover and enhance canopy structure.	-1 If mandated for all Plans will introduce standards where there currently are none.	+1 Can be constructed to balance tree protection and be growth supporting	0 If implemented at the national level has the potential to be either too high level to be effective or result in unintended consequences.	+1 Can provide an active means for providing for trees	Standards can provide a level of protection and set clear expectations. However, if stringent standards are applied consistently across the nation, balance will not be achieved. Similarly, an approach that is too high level will be ineffective.	**Low**
	Regional / local level	+1 Can increase tree canopy cover and enhance canopy structure.	+1 If provided as an option for use will enable standards to be introduced where there is a requirement to do so.	+1 Can be constructed to balance tree protection and be growth supporting.	0 The tool can be targeted to provide a clear directive set of controls; however, this relies on appropriate implementation.	+1 Can provide an active means for providing for trees	Where the tool is provided as an option for implementation and can be tailored to local context, there is a greater potential to achieve a balanced/integrated approach than if standards are applied nationally	**High**
Protection for specific trees	Through plans	+1 Will only contribute modestly to tree canopy cover but can contribute significantly to enhancing the canopy structure.	0 If provided as an option for use will enable standards to be introduced where there is a requirement to do so. Used in isolation, the system is inflexible and costs as disproportionate given limited, localised values. If the process is applied in conjunction with a range of other tools, including exclusions for certain development, it could address many of cost imbalances and avoid the inflexibility of the current system.	+1 The tool will establish limitations on sites that constrain their ability to contain development, but this needs to be considered in the context that it can only be applied to a tree or trees with significant value.	+1 The tool can be specific, targeted, and certain.	+1 Can provide an active means to provide for the identified tree(s).	The tool can be tailored depending on the values being protected and can be constructed to provide for a balanced/integrated approach.	**High**

Tools	Implementation	Contribution to urban canopy	Is it proportional in its impacts?	Is it compatible with growth supporting objectives?	Is it certain/predictable	Does it promote an active approach for urban tree provision?	Alignment with achieving the outcome of addressing the issue of a balanced/integrated approach?	Overall effectiveness and relevance
Specified landscape / green infrastructure development standards	Through plans	+1 Can increase tree canopy cover and enhance canopy structure.	+1 If provided as an option for use will enable standards that protect / incentivise trees where this is appropriate.	+1 Can be constructed to balance tree protection and be growth supporting.	0 The tool can be targeted to provide a clear directive set of controls; however, this relies on appropriate implementation.	+1 Can provide an active means to provide for trees.	Where the tool is provided as an option for implementation and can be tailored to local context, there is significant potential to achieve a balanced/integrated approach and positively contribute to outcomes relating to biodiversity, growth and community resilience.	**High**
Enforcement	Through enforcement powers	+1 Necessary to support other outcomes being achieved.	+1 Achieves proportionality by enabling disciplinary proceedings where trees are inappropriately damaged.	+1 Is compatible in ensure that if tree rules are in place, they are adhered to	+1 Provides a certain and predictable incentive to comply with rules	+1 Necessary to support other outcomes being achieved.	This tool is a disciplinary process to ensure rules are adhered to. It depends on the implementation of other tools and so accordingly can only address part of the issue.	**Moderate**
Strategic policies and plans for tree management both in the public and private realm	Council plans and strategies	+1 Can increase tree canopy cover.	+ 1 Largely achieves proportionality as it relates to all trees and is an advocacy tool. Some disproportionate costs incurred by Councils implementing the plans strategies.	+1 The tool needs to be prepared and balanced to recognise growth supporting outcomes.	0 As an advocacy tool, outcomes are not necessarily certain and it depends on the quality of implementation.	+1 Can provide a means to promote and encourage the retention of trees.	Achieving the outcome will depend on implementation. If strategies are actioned/implemented, it provides an advocacy and decision-making tool to encourage policy development and ensure appropriate tools are identified and constructed. May also include an urban forest policy with canopy targets. Has limitations due to its nature as a non-regulatory method so cannot be enforced.	**High**
Tree bonds	Financial method	+1 Can increase tree canopy cover and assist in maintaining canopy structure.	+1 Would only impact a developer and administrative costs could be recovered through that process	+1 Needs to be prepared and balanced appropriately but the tool enables development to progress.	+1 As an incentivisation tool outcomes are certain however depending on the implementation, the process could become unwieldy.	+1 Can provide a means to promote and encourage the retention of trees.	This tool is part of an incentivisation strategy. It enables development to take place while monitoring and protecting the values of trees. There is a risk that larger developers may not be incentivised by tree bonds where the financial value of the tree is insignificant in relation to the associated development project costs.	**High**
Rebates	Financial method	+1 Can increase tree canopy cover.	+1 Would directly benefit a developer and would have indirect benefits for the community. Administrative costs could be recovered through the process	+1 Needs to be prepared and balanced appropriately but the tool enables development to progress.	+1 As an incentivisation tool outcomes are certain however depending on the implementation, the process could become unwieldy.	+1 Can provide a means to promote and encourage the retention of trees.	This tool is part of an incentivisation strategy. It enables development to take place while protecting trees and associated values.	**High**

Tools	Implementation	Contribution to urban canopy	Is it proportional in its impacts?	Is it compatible with growth supporting objectives?	Is it certain/predictable	Does it promote an active approach for urban tree provision?	Alignment with achieving the outcome of addressing the issue of a balanced/integrated approach?	Overall effectiveness and relevance
Community grants	Council activity	+1 Can increase tree canopy cover.	0 Would directly benefit a community group and would have indirect benefits for the community and administrative costs would be borne by Council, however these could be offset through the benefits of planting.	+1 The tool needs to be prepared and balanced to recognise growth supporting outcomes. There is the potential to reduce pressure on developable land by increasing and enhancing canopy elsewhere.	0 As an advocacy tool outcomes are not necessarily certain and it depends on the quality of implementation.	+1 Can provide a means to promote and encourage the retention of trees.	The tool has the potential to reduce pressure on developable land by encouraging communities to increase and enhance canopy.	**High**
Education programs	Council activity	+1 Can increase tree canopy cover.	0 Would have benefits for the community. Administrative costs would be borne by Council; however, these could be offset through the benefits of the program.	+1 The tool needs to be prepared and balanced to recognise growth supporting outcomes.	0 As an advocacy tool outcomes are not necessarily certain and it depends on the quality of implementation.	+1 Can provide a means to promote and encourage the retention of trees.	Provides an advocacy tool to build understanding and interest and encourage the community to implement the policy direction for tree protection and encouraging tree cover. Can only address part of the issue.	**High**

7.0 Implementation Challenges

All of the tools presented in Table 2 above have a degree of alignment with the criteria and overall outcome of achieving an integrated approach. However, alignment is dependent on the way in which some tools are implemented and the effectiveness of some is dependent on external processes. Many of the tools inter-relate and effectiveness depends on the implementation of other tools (such as enforcement and rebates requiring implementation of standards/rules).

Workshops were held with staff from a number of councils for feedback on the issues and options presented in the report.[58] Key messages that were consistent between councils and workshops included:

- Trees are a critical component of urban ecosystems and provide an extensive range of benefits and ecosystem services.
- There is a need for national direction to enable councils more jurisdiction to manage trees on urban environment allotments to maximise and maintain benefits from urban trees.
- There is a need for a range of regulatory and non-regulatory tools to manage urban trees.

Following workshops, staff from Auckland Council prepared an example of how some of the tools presented in Table 2 above might be applied at a local level.[59] The example also identifies some of the external processes necessary to implement those tools. The example does not address relationships between every tool and is not intended as a standardised approach that would be applied nationally. It was then peer reviewed by those who attended the workshops. The feedback identified challenges with implementing some of the tools and commented on alternative approaches in designing tools[60].

The key challenges to be addressed in the formation of a new resource management system:

- How to provide for urban development and intensification, while recognising the value of urban vegetation, including trees, to urban development through contributions to good urban form, biodiversity, resilience to climate change and natural hazards and cultural/community participation.
- National direction would be required for the implementation of tools identified in Table 2 or the Auckland example. A degree of flexibility will be required in the construction of that direction to account for different demands for urban growth and tree protection across the country.
- How to provide for plan development and maintenance processes that minimise costs to both councils and communities and enable adaptive responses where environmental outcomes are not being achieved – while still providing for adequate community engagement in the plan development process.

[58] See Appendix 2 – workshop minutes.

[59] See Appendix 3 – Auckland Council potential urban tree tools

[60] Ibid

- How to provide for a simplified approval process for development applications involving trees, without diminishing the integrity of regulatory plans or impacting the ability to achieve the purpose and outcomes of the new system.

Appendix 1: Sections of the Resource Management Act 1991 – Part 2 and s76(4)

Part 2
Purpose and principles

5 Purpose

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, **sustainable management** means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) the protection of historic heritage from inappropriate subdivision, use, and development:

(g) the protection of protected customary rights:

(h) the management of significant risks from natural hazards.

7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

(a) kaitiakitanga:

(aa) the ethic of stewardship:

(b) the efficient use and development of natural and physical resources:

(ba) the efficiency of the end use of energy:

(c) the maintenance and enhancement of amenity values:

(d) intrinsic values of ecosystems:

(e) *[Repealed]*

(f) maintenance and enhancement of the quality of the environment:

(g) any finite characteristics of natural and physical resources:

(h) the protection of the habitat of trout and salmon:

(i) the effects of climate change:

(j) the benefits to be derived from the use and development of renewable energy.

76 District rules

(4) A rule may—

(a) apply throughout a district or a part of a district:

(b) make different provision for—

(i) different parts of the district; or

(ii) different classes of effects arising from an activity:

(c) apply all the time or for stated periods or seasons:

(d) be specific or general in its application:

(e) require a resource consent to be obtained for an activity causing, or likely to cause, adverse effects not covered by the plan.

(4A) A rule may prohibit or restrict the felling, trimming, damaging, or removal of a tree or trees on a single urban environment allotment only if, in a schedule to the plan,—

(a) the tree or trees are described; and

(b) the allotment is specifically identified by street address or legal description of the land, or both.

(4B) A rule may prohibit or restrict the felling, trimming, damaging, or removal of trees on 2 or more urban environment allotments only if—

(a) the allotments are adjacent to each other; and

(b) the trees on the allotments together form a group of trees; and

(c) in a schedule to the plan,—

(i) the group of trees is described; and

(ii) the allotments are specifically identified by street address or legal description of the land, or both.

(4C) In subsections (4A) and (4B),—

group of trees means a cluster, grove, or line of trees

urban environment allotment or **allotment** means an allotment within the meaning of section 218—

(a) that is no greater than 4 000 m^2; and

(b) that is connected to a reticulated water supply system and a reticulated sewerage system; and

(c) on which there is a building used for industrial or commercial purposes or as a dwellinghouse; and

(d) that is not reserve (within the meaning of section 2(1) of the Reserves Act 1977) or subject to a conservation management plan or conservation management strategy prepared in accordance with the Conservation Act 1987 or the Reserves Act 1977.

(4D) To avoid doubt, subsections (4A) and (4B) apply—

(a) regardless of whether the tree, trees, or group of trees is, or the allotment or allotments are, also identified on a map in the plan; and

(b) regardless of whether the allotment or allotments are also clad with bush or other vegetation.

Appendix 2: Council Workshop Notes

Workshops were held with nominated staff from a number of councils for feedback on the issues and options presented in the report. An invitation to attend the workshops was sent to a wide range of councils. Four councils attended representing both regional and district functions.

A draft copy of this report was circulated in advance. The purpose of the workshops was to receive feedback on, and further develop, the issues and options presented in the report. The report was updated in response to the feedback and information provided.

The following is an overview of commentary from those workshops.

Discussions on the values of trees

- Environmental values should be reflected as ecosystem services, which are a measurable unit. There are a range of international methods for calculating the number of trees to replace loss of ecosystem values (such as i-Tree).
- It is important to note there are many tools also for calculating ecosystem value, of which trees are a component.
- There needs to be a pathway for remedying tree loss, rather than a reliance on mitigation.
- The BM report does not acknowledge that trees, groups or individual, play a significant role within the wider ecosystem.
- The BM report focuses on increasing canopy but does not evaluate the importance/value of retaining existing trees.
- Trees do contribute to quality urban environments:
    - International research demonstrates the benefits of including trees within urban development.
    - Data from s35 monitoring indicates that infringements to site coverage and small private outdoor space requirements do impact the ability to plant trees that could grow to maturity.
- In an ecological context, there is no difference between exotic and indigenous species as exotics are a critical part of the wider canopy structure, contributing to the range of ecosystem services and other values associated with vegetation. In a regulatory context, there may be some justification for differentiating between protection of exotics on public versus private land.

Discussions on Issues with Urban Tree Management

- Oppose any loss of regional council powers to impose rules on private land through overlays such as significant indigenous vegetation.
- s35 monitoring data has identified that intensification of urban development is consistently reducing areas for planting trees through constraining areas for landscaping and room for large trees.
- Already a limited range of tools available for trees outside areas of significance:

    - Risk to those trees that still provide an ecological service but are not within an overlay
    - Will not be able to meet the obligations of the NPS-IB to manage biodiversity outside areas of significance.
- Increasing tree canopy on public land is not a viable solution because:
    - Provision on public land only is not sufficient to maximise the value/role of trees in creating well-functioning urban environment
    - Provision on public land won't adequately compensate for the loss of ecosystem on private land or loss to the wider ecological network
    - Parks have a range of different functions and associated values, which would be lost or diminished if planted out with trees
    - Inequality of available public land in areas of greater deprivation that also accords with lower levels of tree cover.
- The BM report could be more nuanced when discussing changes in tree canopy.
- In considering the costs of protecting trees, the BM report should also consider the expense of not protecting/providing for trees.
- Tensions are not only associated with new urban development, or additions/alterations. Consenting for tree works also results from works to address leaking drains, foundations, property boundary issues and views/amenity issues.
- Smaller developments are the biggest risk to urban trees on private property. More comprehensive developments normally provide the opportunity to negotiate room for tree provision or retention. However, this does not apply to smaller developments, such as additions/alterations/single lot development.
- Issues relating to a reliance on scheduling as the primary tool for tree protection:
    - Too costly for lower socio-economic communities to initiate – demonstrated in the inequality of Auckland's tree canopy cover.
    - Results in larger schedules which impacts integrity as diminishes value.
    - Immediate legal effect does not apply to scheduled trees in a proposed plan which increases risk to those trees.
- Agreement on issue of inequity in canopy coverage across different suburbs reflecting socio-economic inequity.
- Other factors impacting canopy coverage:
    - Historic town planning: setting aside large areas dedicated for vegetation/tree planting (i.e. the green belt in wellington)
    - Land formation: steep gullies that are not suitable for development are easier/cheaper to dedicate for planting compared to flatter areas which are prime for development.
    - Site preparation works: Land compaction from earthworks and preferred building foundations diminish soil depth and quality such that there is insufficient space underground for root growth/survival. Also, clearance of all vegetation and trees

prior to development contributes to loss of mature, quality coverage, biodiversity and carbon sequestration.

- Problem definition in the BM report focuses on quantity, but quality is important to maximising benefits of trees.
- Agree that current landscaping requirements in regulatory plans are insufficient and do not incentivise or require planting of trees. Infill developments tend to remove all trees and rely on shrub hedges and grass to fulfil landscaping requirements rather than trees.
- Trees on private land are at greater risk to removal (compared to trees on public land) and therefore need additional protection.
- There is support for councils to be given a stronger mandate for provision of trees/vegetation that contribute to outcomes rather just landscape for amenity. They felt like their hands were tied with the current restrictions.

Discussion on Options for Urban Tree Management

- Waiving consenting costs associated with pruning or maintaining scheduled trees to incentivise landowners. However, regulatory tools are critical in addition to non-regulatory tools.
- Support a suite of tools for protecting both regional/areas of significance, and specific trees. Noting that different tools have different functions.
- A combination of tools is necessary. There is only so much that can be achieved through regulation
- Support for a general tree option as this is important to succession planning for the replacement of scheduled trees. Trees would need to be planted and rescheduled continuously to assure urban canopy remain at same percentage
- Discussion of a spatial planning approach that includes identifying mechanisms for protecting existing trees (noting that new trees take a long time to mature) and locations and details for tree planting (number of trees in each location and species).
- Discussion of a process where for minor works, instead of permitted activity standards, there is a requirement for certification/approval of works from an experienced arborist.
- Tree Protection Orders as an example of a tree management tool in the United Kingdom.
- Discussion on simplifying the Schedule 1 process through the RM reform or considering a separate process for scheduling
- Minimum standards with exclusions:
    - There are existing industry standards around pruning (non-regulatory)
    - Thresholds need to be clear and enforceable (e,g the Lower Hutt City Council example permits removal of vegetation that was planted for amenity reasons – however the reason for planting is not easily proven).
    - Tree canopy targets could be a means of enabling exclusions where removal is necessary for development. An appropriate target could be 30%. Targets for cities around the world generally vary between 25% - 40%.

- Scheduling:
    - Important to protect specific trees but potentially could list criteria for selection within the plan, and the list of trees outside of the plan. This could reduce costs.
    - Protecting areas of vegetation has limited opportunities for increasing canopy.
- Covenants are expensive.
- Tree bonds – question the effectiveness of these, given that damage to a tree may not be visible for 6-8years following the incident.
- Landscaping standards:
    - Need mechanisms for requiring tree planting. However, any specific tree standards need to extend beyond quantity targets and require assessment of site layout to provide space for mature trees (including root growth)
    - Different standards could be required for infill compare to greenfield due to limitations and opportunities associated with available space.
    - Standards need flexibility to ensure maximum benefits from trees – tree/landscaping outcomes need to be appropriate to the specific street and site environment.
    - Need to have standards/engineering solutions for managing the effects of site preparation that impact soil volume. Not just focusing on managing development / post-development effects.
    - Aotearoa Urban Street Guide by Waka Kotahi is a good example but needs to be enforceable and needs to allow flexibility to address local context.
    - Need to recognise potential for tree provision on business land, not just residential – business provides opportunities through traffic calming solutions and surface water quality management.
- Specific reference to urban trees at a national level is necessary. Noting the definition of "environment" in the NBA exposure draft. Tree protection would be relevant to a number of National Planning Frameworks. Preference from the workshop attendees is to strengthen wording in the NBA outcomes and NPFs around ecosystem services to provide a stronger mandate for vegetation/trees but allowing local areas to tailor responses appropriately.
- Alternative processes:
    - Suggestion of using a process similar to the dispute resolution pathway rather than consenting (with on-site approvals)
    - Need to recognise the role of non-statutory area plans which identify green outcomes which are actioned through LTP funding.
    - Need to recognise connections with other legislative processes such as regional pest management plans and neighbour disputes that impact maintaining trees.
- CCC raised concerns around the impact of the latest draft Resource Management (Enabling Housing Supply) Amendment Bill and ability to provide space for trees. This comment is noted, but the submission process is the recommended approach to have these views recognised.

Appendix 3: Auckland Council – Potential Urban Tree Tools

Auckland Council prepared the following examples to demonstrate how certain tools presented in Table 2 of Section 6 could be applied. Feedback on the example tools was provided by those who attended previous workshops.

Diagram 1 provides an overview of the chosen tools. It depicts the relationship between tools and how they are intended to operate. Table 1 provides a description of the tools as they have been applied in this context and specific feedback from participating councils.

Diagram 1: Auckland Council - an urban tree protection process

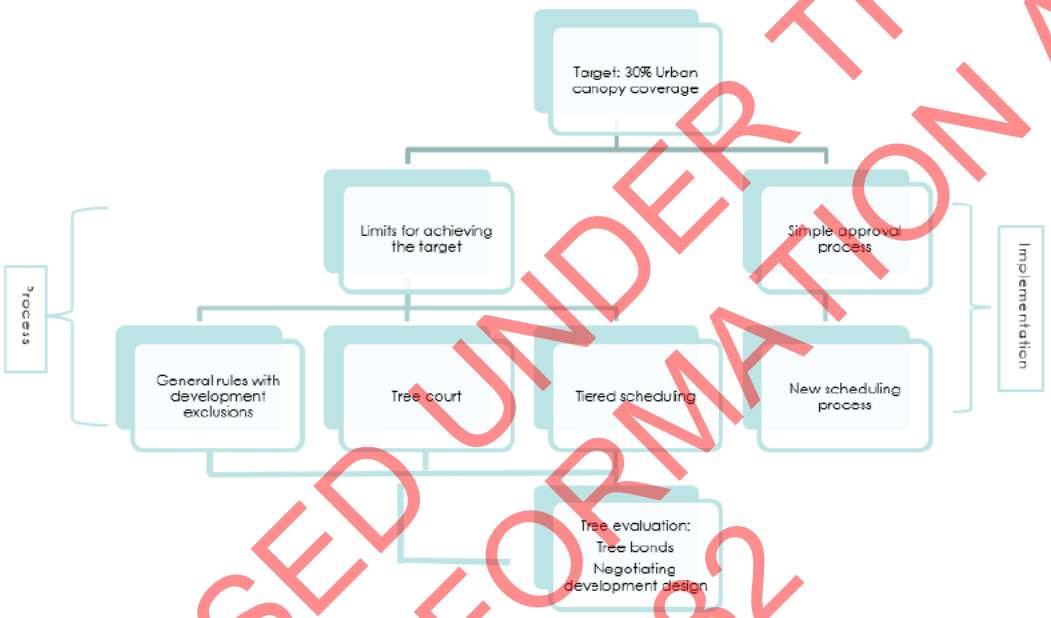

Table 1: Auckland Council – Potential Urban Tree Tools

Auckland Council Tools	Feedback
Urban Tree Canopy Target	
• A minimum urban canopy coverage target is set at a regional level	• Guidance will be required on how to define a target • Targets should be applied to zones not cities/regions • Need to understand how a zone or regional target is translated on a development site. • Canopy targets will be useful and should be required. Land use provisions can then be developed to work out how to give effect to these targets using public and private land resource. • Suggest the 3-30-300 rule as a means of applying the target.

Regulatory Methods for Achieving Targets and Urban Development		
Tree Court – landscaping standard	• The purpose of the tree court is to ensure sufficient space on site for tree planting, or retention of existing trees. The space accounts for root growth to ensure on-going maintenance of planted or existing trees. • The provision would need to identify standards or guidance on appropriate locations, soil depth and quality and species/size. • The tree court standards would need to be tailored to be applied to different development types, including residential, business and street design.	• Standards will need to be crafted carefully to ensure balanced outcomes for tree protection and residents i.e. excessive shading, damage to building façade, roof, services or foundations. It can be challenging to remove a tree that is protected if it out grows the location. • Difficulties arise when privately owned protected trees affect surrounding neighbours (not the tree owner) and Council can be drawn into neighbourhood disputes. Need to ensure that any tree court standards are appropriate for their location and proximity to development.
Specific tree protection	• Protection is provided for significant trees, trees that may be significant in the future and replacement trees. • Replacement trees are to be protected through covenants of titles, rather than through the regulatory plan. The covenant would need to protect the tree and space for tree growth. • A two tiered approach could be applied to scheduling, for trees of current significance and future potential.	• Covenants on a title are also expensive. • Additional identification of future trees will require expertise, monitoring and clear criteria.
General rules for trees meeting certain criteria	• Rules are applied for works on, or removal of, trees that meet certain criteria (such as height or girth). However, infringements to those rules are enabled where adherence would render a site undevelopable. This could be supported through a simplified on-site approval process.	• Support increase in building heights to allow more of the site area to be used for trees and their mature canopy. • General tree rules should not be applied without development exclusions. Careful in application as can be restrictive.
Regulatory Implementation		
New scheduling process	• The list of significant trees is held outside the plan, but trees are noted on planning maps. The criteria for identifying significance and the relevant rules are contained in the plan.	• Unsure of the implications of having the trees outside of the plan. A new system would need to ensure protection over these trees is enforceable. • New system would need to enable the map to be updated without the need for a plan change. • Rules can be complex and hard to comprehend. Listing trees outside of the plan may not be easy for people to identify which trees fit the criteria to be protected in the Plan and increased risk these are removed

		without Council knowledge. Difficulty monitoring this type of framework if it is only criteria based. Although recognise it would make amending any list easier.
Simplified approval process for tree works	• On-site approvals, certified by council arborist, for proposed tree works or removal that does not meet permitted standards.	• Christchurch City Council have a similar process existing – Tree Removal Certificate. This could be expanded to include more activities. Currently these generally cost the client a few hundred dollar and is completed by an external professional (not council) so this would allow the market to expand to meet demand.
Dynamic adaptive management response	• The plan includes tiers of rules. Some are activated, or operative, and some that are non-activated. Non-activated rules are inserted at the time of plan development. Where there is evidence that targets are not being achieved through s35 (or equivalent) monitoring, either due to, for example, development preferences or climate change emergencies, Council can change the activation status of rules through a notification process.	• A new notification process would be necessary in a new resource management system.
Non-regulatory Methods		
Tree evaluation models	• Models such as i-Tree assist in estimating the value of a tree to the urban area (not an individual site). The tool can be used to justify funding for trees to the public in Long-term Plan (or equivalent) and to calculate compensation for tree removal/damage to support regulatory methods. • When evaluating tree removal, the model accounts for the loss of future ecosystem services, previous investment in planting and maintaining the tree and cost of replacing the tree. Funds can be allocated to future tree planting/replacement. • Significant trees or trees on public land can have significant replacement costs. This may also encourage redesign of proposed development to retain trees. • For use in tree bonds, a suitable time period can be applied to capture delayed impacts to tree health resulting from damage at the time of development. A release of funds can be staged over that time period if the tree health is maintained.	• Release of funds from a tree bond should require a compliance report to be provided by a suitably qualified arborist (which will need to be defined).

Feedback also included an example of how tree targets could be incorporated at the development level:

There is real chance to implement substantial tree planting in new greenfield subdivisions where there are sufficiently large plots and where high intensity developments, e.g. blocks of apartments (3-5 storeys of 20-50 apartments), could be separated by communal green spaces, as is often done in Europe, and where no trees are allowed to be cut down. Provision for higher tree cover could be incorporated into the rules in such areas. This would in most cases not work in infill/intensification redevelopments due to limited section sizes.

About Boffa Miskell

Boffa Miskell is a leading New Zealand professional services consultancy with offices in Auckland, Hamilton, Tauranga, Wellington, Christchurch, Dunedin and Queenstown. We work with a wide range of local and international private and public sector clients in the areas of planning, urban design, landscape architecture, landscape planning, ecology, biosecurity, cultural heritage, graphics and mapping. Over the past four decades we have built a reputation for professionalism, innovation and excellence. During this time we have been associated with a significant number of projects that have shaped New Zealand's environment.

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