

ICC Tree Plan

2020

Contents - Pukapuka

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Preface - Aoraki and Tū Te Rakiwhanoa

According to Ngāi Tahu tradition, the South Island is formed from the wreckage of Te Waka o Aoraki – the canoe of Aoraki.

Aoraki and his brothers came down from the heavens where they lived with their father Raki (Sky father) in their waka to visit their step mother Papatūānuku (earth mother). After all their tasks had been performed, they wished to return to their home in the sky. A karakia (prayer) was performed to return them safely but unfortunately an error was made and the waka crashed back to earth.

Aoraki and his brothers climbed onto the upturned waka where they turned to stone. They can now be seen as the Principle Mountains of the Southern Alps, of which Aoraki (Mt Cook) is the greatest.

After the incident, Raki sent a number of his mokopuna (offspring) from the heavens to transform the waka into a beautiful landscape that would sustain life and mankind. Among these were Tū Te Rakiwhanoa, whose job was to carve the keel of the upturned waka into mountains and valleys, Kahukura had the job to forest bare landscape and fill it with animals, and Marokura carved the bays, inlets and estuaries and populated them with fish of many varieties.

Proceeding south, Tū te Rakiwhanoa found the taurapa (Stern) sitting up in an awkward position. He saw that water had flooded into the stern of the waka, the area that we now call Bluff Hill and Awarua. The great swampland was formed.

Te Taurapa o te waka a Aoraki

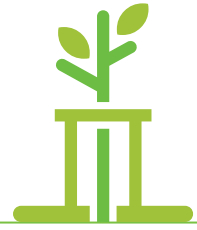
Some say the most tapu or sacred part of the waka is the Taurapa or carved stern post. This is where the chiefs steer the waka from.

Today the District of Invercargill city from Bluff to Waihopai sits on the taurapa of this ancient waka. The gods who planned and undertook the great task of clothing Papatūānuku must have been extremely pleased with what they had accomplished. For such a sacred part of the waka the planning and application must be at its best.

When humans laid their eyes on this landscape, they too must have marvelled at what they saw, the great achievements of the Atua (gods). The Oreti estuary filled with flounders, Oreti beach and Omaui to Bluff peninsula teeming with sea life, and the forest filled with insects, reptiles and wondrous plants.

Tāne Mahuta (The Maori origin of trees)

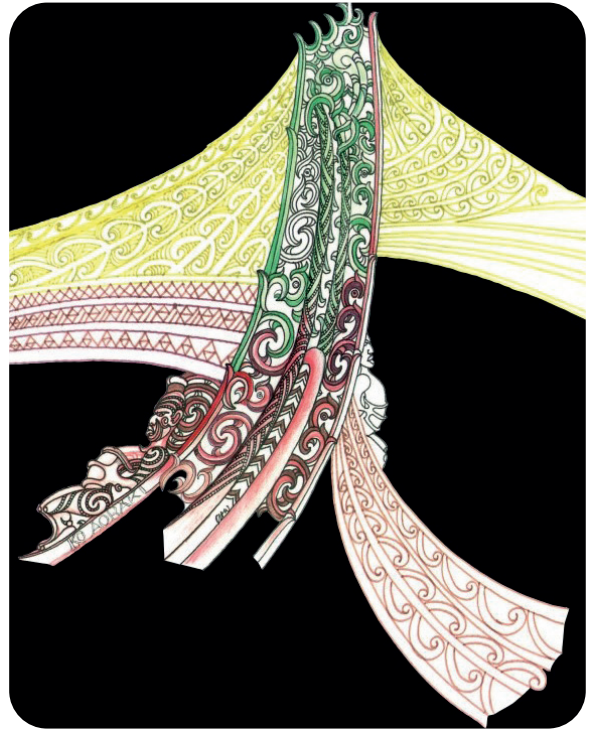
Tāne Mahuta is the Maori god of the forest and creatures. He is symbolised in the great forest of Tāne, Te wao whānui a Tāne, as our great tree. Tāne, wishing to find a wife for himself, searched high and low and, coupled with many female elements, some of which had offspring like the totara, Tāne, after separating his parents Rangi and Papa, used trees to prop up and hold them apart.



A truly well designed and implemented plan

The Maori gods created a great space for their children. Through planning and hard labour the task was achieved. Tane fought his brothers of the wind, war and sea. He then created his realm, the great forests and trees. Then he created man and allowed them to gather and consume the fruits and resources of his domain. Tane's plan was a great plan.

Today humans find ourselves with fewer trees, we want and need more, and we need the services that trees provide. The oxygen, the carbon and air cleaning properties, the properties that Tane used to keep his parents separated and the atmosphere.



Artist: Cliff Whiting

1.0 The Strategy/ Te Rautaki

1.1 Vision/statement

A tree network that inspires the vision of Tane!

*He whatunga rakau e whakaaweoho
ana i te tirohanga a Tane!*

**Connectivity to earth, sky and everything
surrounding them.**

*Te hono ki te whenua, te rangi me nga
mea katoa e karapoti ana ia ratou.*

1.2 Purpose of the Tree Plan

Invercargill City Council (ICC) looks after more than 5000 trees across the City and located in approximately 3000ha across our parks and cemeteries. These trees are some of Southland's most important natural assets. They are crucial to creating and maintaining high quality public spaces and the liveability of our neighbourhoods.

ICC's long term priority is to have an appealing and sustainable network of diverse tree species and tree ages and stages documented for current and future management. This will ensure tree maintenance and replacement programmes are consistent and that the tree network is best equipped in the event of significant environmental challenges and changes. Tree diversity also provides a range of habitats for wildlife and can support a greater number of fauna species.

ICC has developed a Tree Plan which includes Parks, Cemeteries and Street Trees to help achieve this vision. The Tree Plan is in the following four parts:

Part 1 The Strategy – Provides a clear direction on where ICC wants to be with trees as a City (strategic direction).

Part 2 Inventory – Paints a clear picture of what trees ICC has and how ICC looks after them. This is intended as a live database.

Part 3 Policy Guidance – Provides policy guidance and a consistent approach to the propagation, planting, maintenance, protection and removal of trees on Council owned land. It shows how ICC's own tree stock should be sustainably and responsibly managed. It also provides guidance on how to inform the public on tree related matters and on their rights and responsibilities.

Part 4 The Programme and Action Plan This part sets out actions, timelines and responsibilities with regards to implementing Council's Tree Plan. It advises ICC's commitment to trees through a programme of works.

1.3 Scope

This Tree Plan considers the propagation, planting, maintenance, protection and removal of trees in Invercargill on Council land that ICC has the responsibility to manage. This includes trees on road reserves and other parks and cemetery areas (see Appendix 1 for a list of ICC managed Parks and Cemeteries which are separated into their relevant categories).

The Tree Plan also provides guidance for others managing trees on other land.



In scope	Out of scope
All ICC parks, reserves and cemetery trees	Shrubs ¹
Street trees on road reserve (includes roads and highways)	Annuals
Shelter trees/hedges	Perennials
Encroachments from reserves onto private property and vice versa	Private trees not protected
Production of community trees, e.g. fruit and nut	Acknowledge 'billion trees' contribution of other organisations / initiatives to mass planting
Propagation/maintenance and removal	Carbon credits acknowledgement
Sourcing of trees, eco-sourcing	Road reserve – roading approved for their purpose on road reserve land
Subdivision guidance	Unapproved trees planted on council land, or that ICC were unaware of and are considered by council as undesirable (unapproved trees)
Response to climate change	Ash plots (covered by Cemeteries and Crematorium Plan)
Ornamental trees ²	Identification and protection of trees suitable to be selected for notable/protected status (such trees will go through the District Plan review)
Donated trees (guided by Donations Guidelines document)	Commercial forestry (covered by Forestry Management Plan)

Trees on private property are not ICC's responsibility and are only covered in this Plan to the extent that they encroach (intrude) on Council land. Notable trees that are on private land are out of scope of this document and are also not ICC's responsibility.

Community tree planting initiatives are included in the plan with regard to what is acceptable for use of trees and how communities can be involved with tree planting and maintenance.

1 A woody plant which is smaller than a tree and has several main stems growing from the ground.

2 Refers to the overall look of the tree including flower, texture, shape, form, size and other aesthetic characteristics and value.

1.4 Context

Through this Tree Plan, the District will continue to build on the existing network and maintain a diverse park, cemetery and street tree network which will enhance our urban environment today and become a legacy for future generations.

ICC has limited documentation recorded of its tree network with knowledge limited to that held by ICC Parks and Recreation Officers and some condition assessment work. Furthermore, there are no notable or protected trees listed in the District Plan as they are outside of the scope of this plan. There is an opportunity to better understand the network so that in the future, trees are well managed and presented in accordance with best practise.

A good understanding of the tree network is essential to maintaining and planning for our current and future tree diversity. This will ensure that the trees remain safe and maintenance is prioritised where it is most needed.

As more trees are planted and trees mature there is an increasing associated cost with good maintenance and upkeep. This reinforces the need for good planning for new and replacement tree planting and removal.

1.5 Monitoring and review

The Tree Plan shall be kept under continuous review and shall be operative from when it is adopted by Council for at least five years.

Parts 2 and 4 are under continuous review and refinement.

1.6 Responses to trends and changes

Climate Change

Research suggests that trees can help the City to adapt to some of the adverse effects of climate change.

Canopy cover helps trees cool the surrounding air and shades the footpath, while roots help soak up water after storms and hold up to 40% of the rainwater that hits them³.

Adaptation benefits include direct and indirect cooling effects, reduction of the urban heat island effect, and shelter from harmful radiation, improving urban air quality, reduction of energy consumption from urban buildings, increasing soil water storage, absorption of atmospheric carbon and storm water management.

Changing climate presents both benefits and risks to trees themselves. Increase in carbon dioxide and warmer temperatures may lead to improved growth rates and longer growing seasons.

Conversely, an increase in storm frequencies and summer drought will lead to tree losses.

Ageing trees are likely to be the least tolerant of environmental changes. Management plans should focus on providing a stable environment. Failure to provide a stable environment and physical structure will lead to weakened defence systems, reduced health and vigour resulting in reduced lifespan, decreased amenity value, and fewer environmental and ecological benefits.

Safety needs considered where climate change is more severe.

Diversifying tree species and age structure, as well as planting the right trees in the right spaces, protecting trees through feed/fertilising, pruning and mulching may help to mitigate these risks noted above.



Generations

Tree values change for different people generations over time and will subsequently cause diversity of demand for use of trees.

Ageing Trees

ICC currently manages its population of ageing trees reactively and undertakes spot checks. ICC recognises the need to ensure staff resources are adequate in order to meet maintenance requirements and sustain trees. This includes regular auditing assessments to determine which (hazardous) trees increase risk to public. Assessors then determine what trees are to be treated or removed and ensure they are added to the programme of works to take place according to priority.

Renewal may not just be replacing trees like for like but by identifying the most resilient and appropriate through the replacement plan.

Culture

Different cultures experience different identity, values and activities through the provision of trees which may lead to variations in tree requests over the years.

Government and Legislation

Changes in Government decisions and legislation may have subsequent effects on this plan and therefore a review may be required to align with these changes.

1.7 Our environment, challenges / risks and opportunities

Trees also may pose a risk to the public (e.g. property damage) particularly if they are not well maintained and this risk factor needs to be balanced against the benefits (pages 12-15).

In achieving the vision, ICC is primarily faced with the following main challenges / risks (see Appendix 2 for elaboration of these points):

- Tree health, habitat destruction, pollution, damage to roots, branches and tree trunks, and poor cultural practises.
- Public expectations of ICC's management of trees and different views on what "pretty" looks like.
- To fit the right tree in the right place for the right purpose.

3 www.gca.org/global-commission-on-adaptation/solutions/how-trees-can-help-us-adapt-to-the-effects-of-climate-change

Challenges

In achieving the vision the Council is primarily faced with the following main challenges/risks:



Opportunities





1.8 Tree Plan Objectives and Key Moves

ICC's objectives and key moves for its tree network to achieve the vision are:

1. A healthy functioning tree network that is interconnected, contributing to spiritual and physical wellbeing for all.

Key moves:

- Prioritise use of tikanga principles (traditional practices) to achieve a healthy tree network.
- Identify trees of cultural significance and those that have associations/tell stories of people, times and places.
- Part 4 of the Iwi Management Plan will be a key goal of ICC when considering cultural views of importance to work with iwi.

2. A network of safe, healthy thriving trees that showcase Invercargill/Murihiku.

Key moves:

- Understand ICC's tree network through an accurate, up to date tree inventory.
- Retain a forward programme of tree inspections and maintenance works.

3. The right trees in the right place for the right purpose.

Key moves:

- Prior to tree planting when planning, consider the direction set by site specific reserve management plans and overall site development plans, future master plans or ensure a suitably qualified professional has considered the proposed works.
- Ensure the policy guidance in section 3 is well understood and executed for those to which it relates.

- Raise awareness of the Tree Plan so people beyond Council can have the opportunity to align with it.

4. A sustainable tree network.

Key moves:

- Ongoing upkeep of the inventory to understand trends in tree growth or tree performance (e.g. what is thriving or declining).
- Ongoing maintenance and tree planting programme.
- Adequate budgets to enable maintenance and tree planting to continue supporting trees.
- Pursuing maintenance efficiencies through partnerships and combining resources.
- Continue to be aware and keep abreast of sustainable development guided by national and global trends (e.g. threats, initiatives, connections).
- Agreed ecological zones or corridors in streets.
- Proactive approach to pest, disease and climate change and biosecurity risks, as well as issues (eg leaves, berries and safety).
- The Environmental Planting Plan will be produced in parallel with the Tree Plan. Ensure philosophy behind both plans align so Environmental Planting Plan continues to be implemented.
- Opportunity to partner with agencies where they are driving initiatives/schemes and promote and achieve sustainability.



5. Ensure ICC's infrastructure assets and other network providers are not at undue risk from the effects of trees on Council property.

Key moves:

- Retain inventory on a mapping software that enables visibility of infrastructure and associated forward planning.
- Early engagement with infrastructure managers and service providers on any new tree plantings where it is in close proximity to services.
- Ongoing maintenance and tree planting programme.
- Proactively manage key risk trees.

6. Ecological corridors and networks are strengthened.

Key moves:

- Identify zones or corridors in streets that provide opportunities for improved ecological linkages, habitats and community trees .
- Promote further ecological connection opportunities through future planning (e.g. reserve management plans, overall site development plans, future master plans) or ensure a suitably qualified professional has considered the proposed works particularly if a proposal might offer ecological connectivity.
- Work with ICC departments, agencies, community groups, developers and private land owners to achieve improved ecological connections across the District.

7. Proactively manage our trees in a systematic and cost-effective manner ensuring that community values are preserved and enhanced.

Key moves:

- Ongoing upkeep of the inventory to monitor and understand trends in tree growth, health and performance.
- Consider use of trees as alternatives to hard infrastructure (e.g. trees as shade and shelter).

8. Consistent process for considering public applications or requests.

Key move:

- Clear and consistent executed policy guidance that is documented.

1.9 Benefits

Trees have multiple benefits and ways in which they contribute to improving the condition of our environment including environmental and ecological, economic and social and cultural factors.

Trees also pose a risk to the public particularly if they are not well maintained and this risk factor needs to be balanced against the benefits shown

Environmental and Ecological

- Ecological health and sustainability of our urban built environments.
 - Reduce carbon footprints.
 - Processes are fundamental to human existence and the continuity of the food web.
 - Reduce the build-up of greenhouse gases.
 - Tree canopy moderates extremes of environmental temperature and slows the rate at which water reaches the ground.
- Healthy tree network.
 - Moderate effects of wind, alter air temperature and filter sunlight
 - Ecological corridor and habitats for our indigenous and exotic fauna.
 - Natural and cultural heritage values.
 - Reduce energy needs and material consumption of the town.



Social and Cultural

- Lighting of trees, pleasant environments, discourages antisocial activities.
 - Local identity and character of a place, provide visual unity, pleasant urban experience.
 - Trees people love and are proud of.
 - Health benefits.
 - Enjoyment and amenity.
 - Wellbeing and education.
- Enhance our beautiful city through embracing wind, climate and coast.
 - Shade and wind shelter for people visiting and playing.
 - Streetscapes and livable streets.
 - Improves safety.



Economic

- Reduced temperature and energy use, in surrounding buildings, by shading and wind impact reduction.
- Healthy nature, healthy people, healthy community = reduce health care costs.
- Trees are shown to increase property values.
- Reduces impacts of water quality losses, erosion and flooding impacts.





Legislative Links:

The following legislation and documents (including subsequent versions) will inform the direction of this Plan (see Appendix 3 for a figure on the connections between internal documents):

External	Internal
Resource Management Act 1991 (part 2, purpose and principles)	Invercargill City District Plan 2019
Iwi Management Plan 2008: Wāhi Rākau – areas of important trees	ICC Environmental Health Bylaw 2017
Reserves Act 1977	ICC Long Term Plan
Biosecurity Act 1993	ICC Environmental Health Bylaw 2017
New Zealand Biodiversity Strategy 2000: pest control and habitat provisions, opportunities to restore or grow more	ICC Rooding and Traffic Bylaw 2015
	ICC Spatial Plan – The Big Picture Document 2012
	ICC Parks and Recreation Strategy (under development at the time of writing this Plan)
	ICC Reserve Management Plans
	ICC Activity Management Plans
	Code of Practice for Land Development and Subdivision Infrastructure Bylaw 2016
	Donations Guidelines
	Cemeteries and Crematorium Plan 2019
	Street Trees and Amenity Gardens Plan (under development at time of developing this Plan)

In the following sections: the inventory, policy guidance and programme and action plan have been developed with the primary purpose of achieving these objectives and key moves.

2.0 Inventory/ Raupapa



There is little record of what tree stock is managed and maintained. Work is currently being undertaken to update current tree stock records to capture all trees on parks, cemeteries and streets, beginning with those identified as hazardous, and adding them to the inventory.

At the time of preparing this Tree Plan, various options were being considered regarding the best methods for tree data capture. Once captured, this data will be available on a GIS Platform for the staff and the general public to view.

Information to be included on the GIS mapping tool includes, but is not limited to, the following⁴:

Tree

Tree ID # - (If any)

Height

Status – (Live, dead, dying, decaying etc.)

Health (Good , poor, average)

Crown spread

Age Class (mature, semi- mature, juvenile)

Botanical Name

Common Name

Location

Date Planted

Job

Job #

Date Started

Date Completed

Status

Incident #

WO #

Task (Work undertaken)

This section remains a work in progress.

⁴ ICC does not currently have this information and will need to collect over time as resources allow.

3.0 Policies/ Ngā Kaupapahere

The following policies provide guidance and a consistent approach to the propagation, planting, maintenance, protection and removal of trees on Council owned land.

They show how ICC's own tree stock should be sustainably and responsibly managed.

They also provide guidance on how to inform the public on tree related matters and on their rights and responsibilities. See Appendix 4 for more policy information on specific sections.

3.1 Council Tree Inventory

Objectives:

- To provide tree asset data for the effective management of Council's tree resources.
- To ensure maintenance works are implemented for long term management.*

Policies:

3.1.1 Council (or Council approved contractor) will compile and maintain a current inventory of the trees on its land that will provide asset information to enable the effective management of Council's tree resources.

3.1.2 The asset data will include the following:

- Hazardous trees
- Individual and grouped trees
- Tree location
- Species
- Size at planting and expected mature height
- Arboricultural work history
- Work programmes
- Whether the tree was planted to commemorate a special occasion or person and if it has a plaque with it - what the plaque says.

3.1.3 Cyclic works inspections will be undertaken for maintenance and tree risk.

The database information will be used to determine maintenance schedules and for advanced planning, projected work programming and budgeting purposes.

* This will be properly implemented.

3.2 Trees in Parks, Reserves and Cemeteries

The primary purpose of tree planting in parks, reserves, streets and cemeteries is for the enjoyment and amenity of the general public.

Objectives:

- To ensure and encourage diversity of tree species and ages by managing, maintaining and recording the tree stock.
- To enhance the visual quality of a neighbourhood.

Policies:

3.2.1 Right Tree, Right Place, Right Purpose

3.2.1.1 When choosing the right tree, factors including soil type, climate, and the amount of space the tree requires underground and overhead will be considered.

3.2.1.2 Tree planting within parks will be guided by individual reserve management plans and future streetscape, vegetation and landscape plans as required.

3.2.1.3 Plant locations must comply with the legal overhead and underground clearance requirements of the network operators, with allowance made for the natural growth of the plants to maturity.

3.2.1.4 Indigenous plantings will be carried out in locations that are considered appropriate and of a sufficient size to function effectively as an ecosystem or as part of a corridor to other such areas.



3.2.2 Basis of plant species selection

3.2.2.1 As far as practicable, trees will be selected from the existing species list contained in Appendix 5 of this policy.

3.2.2.2 The selection of trees, shrubs and groundcover plants must be appropriate for the conditions at the planting site, such as soil type, drainage and local climate, to ensure healthy, attractive, well-formed, mature plants.

3.2.2.3 In addition to this, the selection of trees for planting will be based on the following characteristics:

- Known ability to establish and withstand the climatic conditions (shade, wind) of the particular area.
- Ecological connections.
- Ability to grow to the required ultimate size in existing conditions.
- Good resistance to common pests and diseases.
- Low littering effect (near adjacent properties and on paths and roads).
- Low allergenic pollen effect (near adjacent properties).
- Produce any required summer or autumn foliage colour.
- The production of flowers and pollen to attract bees, birds and insects.
- Dense foliage, evergreen trees are not to be planted where heavy shade (or winter icing) may present a problem to adjacent properties, roads, footpaths or reserve use (figure 2).

3.2.2.4 Planting for re-vegetation is to be eco-sourced so it is in keeping with the natural and surrounding vegetation most appropriate to the park's ecological zone and character of the area.

3.2.2.5 The Council nursery may provide eco-sourced native plantings for re-vegetation as required.

3.2.3 Cemetery Plantings

3.2.3.1 In addition to policies above, the following matters will also need taken into consideration when planting trees in cemeteries:

- Good access to the graveside for funeral vehicles and maintenance including when the plantings are mature.
- Good shelter for those visiting the cemetery.
- Large growing trees will not be planted within eight (8.0) metres of burial sites to avoid roots disrupting graves and damaging headstones etc. as well as the risk of damage from falling branches.
- Tree species planted in the vicinity of graves should be selected for their low litter deposits and resistance to insects that secrete sticky honey dew that will lead to headstones, plaques etc. being covered with unsightly black mould.
- All other vegetation should be clear of the graves that it will not encroach over them when mature.
- Natural burial area should have trees.
- Plantings shall not be established in locations that will create a visibility and safety hazard for road users, including pedestrians and cyclists.

3.2.3.2 Planting under trees at the cemeteries and crematorium is to be undertaken by Council or Council approved contractors only. Ash interments will be regulated and managed through the ICC Cemeteries and Crematorium Plan.

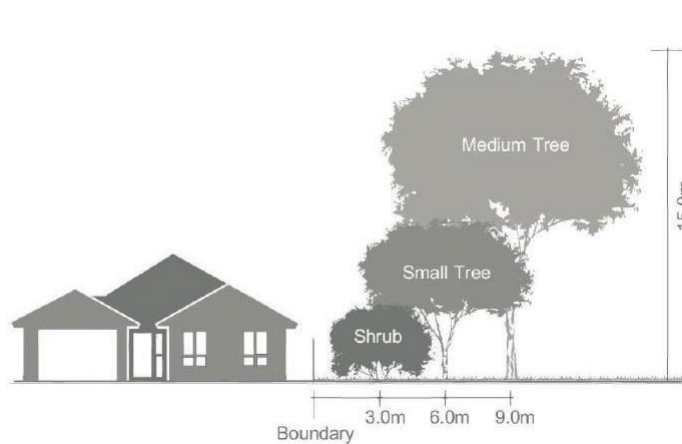


Figure 1: Reserve planting setback distances from private property boundaries in relation to potential tree size

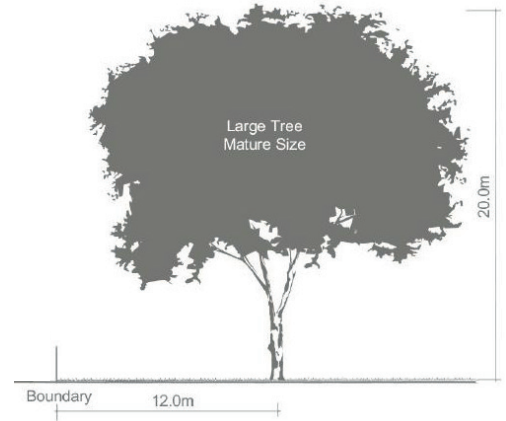


Figure 2: Reserve planting setback distance from private property boundaries in relation to large trees

3.2.4 Memorial tree plantings

3.2.4.1 Prior approval from the relevant Manager is required for commemorative tree planting in parks, reserves and road reserves which will be subject to the Donations Guidelines.

3.2.4.2 Cemetery and Crematorium memorial trees will be regulated and managed through the ICC Cemeteries and Crematorium Plan.

3.3 Trees Near Waterbodies And Watercourse (General)

Objective:

- To ensure new and existing plant species are considered by benefits they contribute to water bodies and water courses.

Policies:

3.3.1 Plant species selection for waterways

3.3.1.1 In planning to plant trees near waterways Council will take into account the following:

- Whether the plantings are also required to perform any engineering, erosion or flood control function.

- The general amenity and environmental values of the waterbody/watercourse as set or identified through legislation, Regional and City Councils.
- Whether some shading of the waterway is desirable to control water weed growth and moderate high water temperature levels and provide habitat for aquatic fauna.
- Whether tree planting is to be based on ecological and biodiversity principles and therefore should consist purely of (locally sourced) native plants.
- Whether the site has any strong links or character intrinsically associated with historic buildings or events, or early settler plantings of exotic trees that needs to be preserved or enhanced.
- The potential for the trees to cause an obstruction to the waterbody/watercourse.
- Access required for maintenance personnel and machinery.



- Potential impacts from planting trees close to water edges e.g. destabilising along riparian edging on the water courses.
- Potential impacts on stop banks.

3.3.1.2 The above considerations notwithstanding, any plants to be used around watercourses will not consist of any of the plants with the characteristics listed in section 3.17 - Undesirable Trees of this Plan.

3.4 Trees On Council Leased or Rented Land

Objective:

- To ensure conditions are met through lease and rental agreements with requests for tree work.

Policies:

3.4.1 Control of tree and plant pest species

3.4.1.1 In entering into lease and rental agreements involving Council land, Council may impose conditions as to the control of any of the desirable tree and plant pest species mentioned in section 3.17 - Undesirable Trees of this Plan.

3.4.1.2 Where Council land is proposed to be leased or rented, Council will include in the lease or rental agreement conditions that prevent trees or vegetation being removed or pruned to the extent that their values are destroyed, unless that work has first been approved in writing by Council.

3.5 Street Tree⁵ Planting

Diagrams and planting spacing distances relating to Street Tree Planting is proposed to be referenced by the Roding and Traffic Bylaw when it is next reviewed. Please refer to Appendix 6 to see the proposed information.

Objective:

- To ensure Council best practice and plans of good trees are met when approvals are sought regarding plantings on streets.

Policies:

3.5.1 Street Tree Planting Process

3.5.1.1 In considering new plantings in established streets ICC will have regard for:

- The amount of time remaining before the road needs to be reconstructed.
- Any proposals to install overhead services underground.
- Current damage.
- Replacement of sewer /storm water and water reticulation.
- Any alternations to carriageway width.
- Alterations to footpaths and kerb channels.
- Changes to road levels in cross section.
- Any changes to the function of the street.
- Other network services.
- Street place and form.
- Traffic movement.
- Refuge and recycle collection bin placement consideration along the street to allow for a 4.2 metre height clearance under the canopy of trees.

⁵ Tree on road berm corridor

3.5.1.2 The ICC Roading Manager will consider views of adjacent property owners when plantings across frontages are proposed. The ICC Roading Manager will make the final decision as Council is the owner of the frontage.

3.5.2 Street Tree Planting Plans to be approved by Council

3.5.2.1 As a part of the streetscape activity/ considerations of Council it should require that landscape planting plans are submitted for approval with Council works and the subdivision/ development application plans. The plans should include:

- Planting design.
- Plant species (type of tree).
- Ownership.
- Maintenance .
- Location and spacing distances from services, utilities and structures (some may be noted in Roading and Traffic Bylaw) .
- Means of irrigation where necessary.
- Plant support/staking.
- Rubbish collection bin placement consideration along the street to allow for a 4.2 metre height clearance under the canopy of trees.

3.5.2.2 Council may also require that root control barriers are to be installed. Plans should show all existing and proposed services, both above and below ground.

3.5.2.3 Public are discouraged from planting or spraying around the bases of street trees as per the Roading and Traffic Bylaw and other Roading Operational Plans.

3.5.2.4 As far as practicable, street trees should be selected from the existing species list contained in Appendix 5 of this plan.

3.5.3 What to do if you want to plant on the road reserve

3.5.3.1 Write to Council seeking trees with supporting property owners. Council will review (please see Section 13 of the Roading and Traffic Bylaw).

3.5.4 Planting in the CBD

3.5.4.1 When planting new trees in the CBD (particularly in front of shops) ICC will look to plant trees that are aesthetically pleasing. ICC will consider Crime Prevention Through Environmental Design (CPTED), climate control, shelter from sun, wind and rain, air quality as part of the approval process before planting.

3.5.4.2 Trees suited to being planted amongst footpaths and minimal litter deposits will be selected from the list in Appendix 5. Tree grates and other structures may be required to protect trees.

3.5.4.3 Businesses are encouraged to maintain footpaths where trees are planted in front of them from tree litter.

3.5.4.4 Council should develop a long term plan/ Master Plan which sets the direction for plantings in the CBD.



3.5.5 Undesirable tree characteristics for street tree planting

3.5.5.1 In addition to the above, trees with the following characteristics will not be approved for street tree planting (See Appendix 7):

- Dense, shrub-like trees or plants that will obscure traffic or pedestrian sightlines (except in safe locations specifically designed for these).
- Trees with litter eg silver birch, strawberry tree, rowan.
- Trees with long tough leaves that will wrap round mower or street sweeping machinery eg cabbage trees are to be avoided in mown grass or swept paved areas.
- Evergreen trees will not be planted in street situations where the following will occur:
 - Excessive shading of residential properties, particularly during winter.
 - Roads and footpaths shaded during winter where moisture will condense on paved/tar-sealed areas causing icy patches to form.
 - Where street lights will be badly obstructed, particularly during the winter months.
 - Where the form of the tree is such they cannot be pruned satisfactorily to maintain good sightlines for pedestrians and road traffic.

3.5.6 Planting spacing distances

3.5.6.1 In designing street tree planting, closely planted groups of trees will only be approved for suitable road reserve areas or where footpaths or landscape plots have been specifically designed to satisfactorily accommodate a closely spaced tree group effect.

3.5.6.2 Parks and Recreation recommends no undergrowth that blocks driver sightlines should be planted in centre plots to allow for better visibility.

3.5.6.3 In standard linear footpath designs, trees may be in straight lines, staggered or sinuous but will have enough space between them to develop full crown forms in maturity and be a sufficient distance apart to provide good pedestrian and vehicle sightlines between the stems. The Roading Manager will give final approval.

3.5.6.4 Trees will not be planted in numbers, planting distances or positions that will create an undue amount of shade for residents or result in high maintenance costs for the Council and clear from all road operations.

3.5.6.5 In selecting tree species for street planting, consideration will be given to the following size and growth characteristics and distances noted in the Roading and Traffic Bylaw:

- The diameter of the base of the trunk at maturity and whether it is likely to cause damage to footpaths, kerb channels or services.
- Whether the tree has the potential to grow to a height clear of pedestrian and tall road vehicles and the natural crown form and branch structure is such it can be satisfactorily pruned to clear them without the appearance of the tree being rendered unstable, unshapely or ugly.
- In footpath planting situations where the grass berm is very narrow and only suitable for smaller trees, trees with smaller diameter trunks and narrow, columnar or fastigiated crown forms are to be planted.
- Narrow grass footpath berms will not be planted with trees if outside the distance provided in Roading and Traffic Bylaw.

3.5.7 Other street planting locations

3.5.7.1 Trees may be planted in the following street locations provided they do not inhibit or obstruct pedestrian movement or vehicular traffic, block sightlines, or create a safety hazard, now or into the future:

- Raised planter boxes and containers.
- Road medians and islands.
- Edges of drainage swales.
- Grassed road carriageway shoulders (older streets).
- Wide sealed/paved areas and forecourts.
- Road reserves.
- Landscape plots.
- Kerb build-outs.
- Ends of parking bays.

3.5.8 Planting in sealed/paved carriageway shoulder

3.5.8.1 Council's Roding and Traffic Bylaw does not permit tree planting in the sealed/paved shoulders of road carriageways (without prior permission from the ICC Roding Manager). Exceptions may be considered such as streets that have been specifically designed as a cul-de-sac.

3.5.8.2 National Roding Guidelines for place making and form will be utilised and considered by the Roding Manager when tree planting is requested. Streets with slower speeds are likely to be more desirable. Arterials and Primary collectors (OWRC) are less likely to have trees unless for a specific roding plan. Streets on thoroughfares specifically designed as esplanades or boulevards with slow traffic speeds of 20-30kph may also be considered suitable for road shoulder planting.

3.5.9 Planting in State Highway

3.5.9.1 For all State Highway landscape projects, State Highway NZTA P39 Standard Specification for Highway Landscape Treatments document will be followed by NZTA.

3.6 Public may/may not carry out certain street tree work

Objective:

- To work with members of the public to discuss ways which they can contribute to street tree works.

Policies:

3.6.1 The public is encouraged to assist with the maintenance of trees by watering plants near them in times of drought. The public may also assist by hand cultivating and maintaining the ground below the base of trees, picking up berries and leaf litter.

3.6.2 The planting of low growing plants or spraying around the base of trees in streets is not permitted. Pruning trees is also not permitted by members of the public.

3.7 Rural roads – tree planting

Objective:

- To ensure tree planting on rural roads meets the Roding Department requirements.

Policies:

3.7.1 Tree planting on a normal 20-metre wide rural road reserve is generally not supported by ICC Roding for reasons of road safety and the maintenance costs involved. The Roding Manager may in certain circumstances approve rural road planting having regard to the following:



- Whether the roads and surroundings are lacking in trees and vegetation, particularly on the approaches to townships and need to be visually improved.
- Whether the road is an important tourist route.
- The cost in relation to the amount of people likely to benefit from the plantings.
- Whether safe planting distance from street structures and structures on other land are maintained (section 3.5 – street tree planting).
- The ongoing maintenance costs.
- Whether the plantings will prevent or restrict machinery access for the maintenance of hedges, shelterbelts, drains, water-race services etc.
- Whether there is sufficient space to allow vehicles to pull off the carriageway.
- Whether the planting would cause icy patches to form.
- The provision of sufficient room for the droving of farm animals.
- Wind shelter for specific human activities (eg riding for the disabled).

3.7.2 The establishment of new shelter belts on road reserve will not be permitted.

3.8 Unformed legal roads/paper roads

Objective:

- To ensure plantings on unformed legal roads and paper roads are managed through the Roding and Traffic Bylaw or approved by the Roding Manager.

Policies:

3.8.1 Council may approve the planting of trees on unformed legal roads subject to the following provisions/considerations and the Roding and Traffic Bylaw:

- “Paper roads” although unformed are still in every other respect a legal road and must still be able to function as such.
- Reasonable access for vehicles and pedestrians must be maintained over the whole length of the road.
- Adjacent landowners still have the legal right of access over paper roads to their properties and to maintain boundary shelterbelts areas etc. Any planting must allow for this and machinery access to maintain boundary assets.
- At some time in the future a paper road may be required to be fully constructed as a normal public road, particularly those in the vicinity of townships.
- Any establishment and ongoing maintenance costs to be met by Council.
- Any opportunities to carry out indigenous/ biodiversity plantings without jeopardizing the above functions.

3.9 District Plan rules

Objective:

- To ensure the Tree Plan and the Invercargill City District Plan complement each other and are considered in future reviews.

Policies:

3.9.1 The Tree Plan and the Invercargill City District Plan complement each other and should be considered together. Referencing the Tree Plan in the Invercargill City District Plan may be considered in future reviews of the District Plan.

3.10 Acquisition of new reserve land containing trees

Objective:

- To ensure plantings on new reserve land meets Council good practice.

Policies:

3.10.1 Planting of trees in newly acquired reserve land

3.10.1.1 When acquiring vested reserve land for any Council purpose or use as part of a subdivision of land development process, Council will endeavor to preserve, in a good condition, such existing trees that it considers are of significant amenity or functional value to the general public for reasons of:

- Enhancing the landscape values of the site and surrounding land.
- Providing shelter and the moderation of extreme climatic events.
- Screening unsightly views.
- Atmospheric purification effects and capture of airborne particles.
- Soil/ground stabilisation or moderating storm water run-off or treatment.
- The historical, cultural or scientific values of the trees and the site itself.
- The desirability of preserving areas of indigenous vegetation and to encourage biodiversity.
- Providing a habitat for wildlife.
- Reducing noise.
- Any need to compartmentalise reserves into areas relating to particular public use and purpose.

3.10.1.2 Where land is to be acquired by Council for any reserve purpose, Council may require all trees and plants listed by Ministry for Primary Industries and/or Environment Southland as noxious or pest plants to be removed from the land before date of possession.

3.10.1.3 Generally, planting of newly acquired parks and cemeteries will be carried out in accordance with a landscape plan prepared for the whole site, using approved species.

3.10.1.4 Council requires that landscape planting plans are submitted for approval with the application plans. The plans should include the planting design, plant species/type, location and means of irrigation.

3.10.1.5 All proposed landscape and planting plans will be reviewed by the Parks and Recreation Team as part of the process.

3.11 Preservation of Existing Hedges, Live Fences⁶ and Shelterbelts

Objectives:

- To implement relevant information surrounding the preservation of existing hedges, live fences and shelterbelts through a review of the Invercargill City Council Bylaw 2016/1 Code of Land Development and Subdivision Infrastructure.

Policies:

3.11.1 ICC may require certain existing hedges, live fences and shelterbelts to be preserved as a condition of subdivision consent by way of a covenant registered on the computer freehold register of the land. In considering any such preservation, ICC will have regard for the following:

- Whether any hedge, live fence or shelterbelt consists of a species classed as undesirable as stated in Section 3.17 – Undesirable Trees.

⁶ A fence made out of living shrubs or trees.



- Whether any hedge, live fence or shelterbelt and its location comply with the rules in the Invercargill City Council District Plan.
- The access and feasibility of trimming and generally maintaining the hedge, live fence or shelterbelt, satisfactorily once the site has been developed taking into account that there may be different properties and owners along its length.
- In the case of residential land, whether the hedge, live fence or shelterbelt would create any undue interference with the use or enjoyment of the property it is situated on or neighbouring land.
- Any sheltering effect of the hedge, live fence or noise amelioration.
- Any screening or unsightly views or noise amelioration.
- The need to maintain safe distances from street structures (refer to Section 3.5 – Street Tree Planting).

3.11.2 All information relating to subdivision processes and trees is proposed to be considered as part of the Invercargill City Council Bylaw 2016/1 Code of Land Development and Subdivision Infrastructure (including subsequent versions) when it is next reviewed. Please refer to Appendix 8 to see the proposed information.

3.12 Permitted Uses of Trees

Objective:

- To consider the different uses of trees when the need arises or requests are made with surplus trees.

Policies:

3.12.1 The following activities are permitted on Council land subject to prior ICC approval:

- Fruit and nut trees.

- Use to assist lighting features .
- Sculptured trees.
- Fallen trees as furniture.
- As play features.
- Taking of small amounts of material for Maori medicine.
- Taking of small amounts of material for educational purposes.

3.13 Community Cropping Trees on Parks and Reserves

Objective:

- To work with communities who wish to plant on Council land.

Policies:

3.13.1 In urban or rural areas, particularly where built sections have limited space to grow fruit, nut or other tree crops, and where conditions are suitable, consideration will be given to the planting of crop trees that can be harvested by the local community.

3.13.2 This will be subject to the provision that such plantings will not require excessive maintenance or pest control, and therefore will not be approved for planting.

3.14 Tree Planting on Council Land by the Public

Objective:

- To support individuals or groups in the community that are permitted by ICC to plant trees on Council land under the set requirements in accordance with the Tree Plan.

Policies:

3.14.1 Individual members of the public or community groups are not permitted to plant trees or vegetation on any Council land without first obtaining ICC approval and in accordance with the Tree Plan.

3.14.2 ICC will support members of the public and community groups who wish to be actively involved in tree and vegetation plantings on Council roads and reserve land, provided this is carried out in accordance with the following process:

- Applicants are to submit a brief application statement together with a (simple) drawing or plan indicating where the trees are proposed to be planted.
- In street planting situations, planting will only be considered if the application is to plant the whole or a major part of the street. This may be specifically designed to accommodate planting as part of road reconstruction work or upgrade project. The majority of residents on the street will have to be in support of the planting and ICC will need some confirmation of this with the application.
- ICC will carry out an inspection of the site noting the location of services, structures, width of footpath berms and any other site features that may present an impediment to planting.
- If found to be suitable for planting, ICC will have a planting plan prepared showing the planting positions and tree species in relation to the adjacent properties, street structures and services.
- The landscape plan will be forwarded to affected residents for approval.

- If agreed to proceed and funding is available, the delegated ICC Manager (Roading Manager for roads and verges, and Parks and Recreation Manager for parks and cemeteries) will provide a formal memorandum of understanding with members or groups, schedule the operation and either provide advice on or arrange for the supply of suitable plants and planting materials.
- Immediately prior to the planting taking place ICC will mark the planting positions in readiness for the resident's planting operation under ICC supervision.
- Plantings outside individual applicant properties on a one off basis will not be approved.
- Replacement plantings in streets will be of the same species shown on the landscape plans for the street or, in the bases of a plan, consist of similar species to the existing trees provided they have not proved to be unsuitable or problematic in any way.

3.15 Health and Safety Requirements for Volunteer Workers

Objectives:

- To comply with legislation when engaging anyone working on Council land.
- To ensure agreements are in place and pre-approval is given as per the ICC Voluntary Unpaid Work Agreement (and subsequent versions) when working with volunteering groups or individuals.

Policies:

3.15.1 ICC supports and recognises the important work that volunteers do to maintain, improve and develop areas of Council land and encourage the conservation of native species.



3.15.2 ICC will provide the volunteer with information on site-specific hazards known to ICC relating to the work covered by the voluntary agreement.

3.15.3 The volunteer shall comply with the requirements of the Health and Safety at Work Act 2015 and all appropriate Acts, regulations, Bylaws, Standards and Codes of Practice, in particular to take all practicable steps to ensure the employees own fitness for work and safety and the safety of others in the place of work (e.g. contractors to carry out tree and vegetation operations on any Council land) according to the Health and Safety policy and manual.

3.15.4 The volunteer is required to ensure they maintain their ability to perform their duties safely. The employee must advise the employer of any medical condition (including stress related symptoms) or personal circumstances which may impact on the employee's ability to perform their duties safely, or which may be adversely affecting the employee's health.

3.15.5 All voluntary workers carrying out Council tree work on Council land (including pest control groups where Parks and Recreation will have an MOU with school groups, work groups and community groups) shall read and complete Council's Volunteer Site Induction checklist and agree to comply with any safety precautions or conditions ICC deems to be necessary.

3.15.6 The volunteer shall indemnify ICC against:

3.15.6.1 Any loss suffered by ICC which may arise out of or in consequence of any breach by the volunteer of the Health and Safety at Work Act 2015.

3.15.6.2 Any liability incurred by ICC in respect of injuries to persons or damage to property which may arise out of or in consequence of any breach by the volunteer of the Health and Safety at Work Act 2015.

3.15.6.3 The volunteer shall comply with all health and safety work site procedures, practices and reporting policies required by ICC.

3.16 Unauthorised Tree Work on Council Land

Objective:

- To ensure only pre-approved contractors and members of the public are permitted to work on Council land, following the correct procedures and legislation requirements.

Policy:

3.16.1 There is no situation where a member of the public can undertake tree work without prior permission from ICC to do so.

3.17 Undesirable Trees

Objective:

- To ensure undesirable trees are not included when planting on Council land.

Policies:

3.17.1 Undesirable trees

3.17.1.1 Various plant species must not be planted in Invercargill streets or reserves due to undesirable characteristics such as their:

- Known potential to become weeds.
- Invasive root systems and potential to sucker.
- Heavy production of seeds and quick germination.
- Heavy production of pollen and / or allergenic pollen.
- Poor form and weak branch structure.
- Susceptibility to disease and pests.
- Poisonous bark, leaves, seeds or fruit. See Appendix 7 for a list.

3.17.2 Poisonous plants (external by contact)

3.17.2.1 Council will not plant trees or other vegetation on its land that consists of the species listed in the Landcare Research document "Poisonous plants in New Zealand – External poisons (skin irritants)".

(www.landcareresearch.co.nz/_data/assets/pdf_file/0010/42013/Poisonous_plants_nz.pdf)

3.17.3 Poisonous plants (if eaten)

3.17.3.1 In planting and managing trees and vegetation on its land, Council will be guided by the Landcare Research document, "Poisonous Plants in New Zealand – Poisonous if Eaten". In the case of certain species that are otherwise ornamentally or environmentally desirable, care will be taken to locate them clear of playgrounds or other areas where children are likely to congregate.

3.17.4 Allergy friendly plant selection for council administered land

3.17.4.1 There will generally be no active removal of highly allergenic* tree but rather natural attrition of such species will occur through non-replacement.

3.17.4.2 Requests for specific tree removal may be considered using the criteria listed in Section 3.22.3 Considerations relating to tree and vegetation removal / trimming. ICC will consider the following matter when selecting trees to be planted on Council administered land:

- Council tree and shrub plantings will be selected from species known to be low risk* in generating allergic effects as well as female individuals of dioecious plants.
- Plantings of highly* allergenic species may be considered but only where there is minimal exposure of residents to pollen, e.g. outside of residential areas.
- Raise public awareness of the allergic effects of various plant pollens and those tree species that are highly allergenic so less of these are planted.
- Endorse landscape plans submitted with resource consents for land development which utilise low risk allergenic species.

* www.asthmafoundation.org.nz/your-health/living-with-asthma/common-asthma-triggers/pollen-and-plants



3.17.5 Noxious surveillance, and weed species or pest plants

3.17.5.1 Tree species and other plants officially categorised as being noxious, surveillance or weed species shall not be planted in parks or reserves.

3.17.5.2 In planting and managing trees and vegetation on its land, ICC will not plant and will endeavor to eradicate all noxious or pest plants documented or listed as such by the Ministry for Primary Industries, Environment Southland and Council's Environmental Health Bylaw.

3.17.6 Invasive trees

3.17.6.1 In addition to any trees that are listed by Ministry for Primary Industries as noxious or pest plants, the following trees have prolific, viable seeding or suckering habits that are known to be invasive or too prolific in woodland areas or other naturalistic sites and should not be planted:

- Sycamore: problem seedling production.
- Holly: problem seedling production.
- Elderberry: problem invasive seedling production.
- Rowan: problem seedling production.
- Cotoneaster: problem seedling production.
- Embotrimum: problem suckering.

3.17.7 Hazardous Trees

3.17.7.1 A hazardous tree list should be developed to encompass higher risk status trees and trees ICC staff intends to remove in the long term. This may be outsourced as funding allows.

3.18 Pests / Diseases Potentially of Importance to Invercargill City

Objectives:

- To manage and mitigate any new pests and diseases that emerge within Invercargill City and that procedures are in line with internal and external strategies and plans.

- To work with iwi and other Councils and agencies to utilise processes for mitigating and managing new pests and diseases that emerge in the area.

Policies:

3.18.1 Pests / Diseases of national importance that could eventually threaten trees and have a large scale impact on the landscape of the City are:

- Armillaria spp has in the past caused mortality at Sandy Point. This will always be present at some level in this forest but if stress on the trees is minimised, then the disease is unlikely to cause major areas of mortality.
- Myrtle rust – potential significant impact on members of the Myrtaceae family.
- Kauri dieback.
- Marmorated stink bug – future concern.
- Cordylines sudden decline – threat to cabbage trees, likely to have recently arrived in Southland.
- Diseases such as Dothistroma can sometimes cause problems with radiata pine. There is no evidence to suggest that diseases such as this are excessive in this region, however forests may be inspected on a regular basis and, where appropriate, action will be taken.

3.18.2 ICC will monitor and inspect trees for potential pest damage as per monitoring procedures. Anything new will be recorded and noted with the appropriate authority for further investigation if required.

3.18.3 Response measures will be followed in alignment with Council procedures and Section 3.26 – Biosecurity Measures, if relevant. Public will be warned through appropriate forms of communication where it may potentially affect animals and humans.

3.18.4 Hares and rabbits have caused problems and there is a considerable number of opossums. It is essential that regular animal control is carried out to prevent damage to young seedlings and adult trees.

3.18.5 ICC should collaborate with iwi, Environment Southland, Biosecurity NZ, Department of Conservation and other groups to work on processes in mitigating and managing any new pest / diseases that emerge in the area.

3.19 Planting and Maintenance – Operations Standard Specifications

Objective:

- To ensure trees on Council owned land are maintained to the required operations standard specifications set by Council.

Policies:

3.19.a ICC is responsible for maintaining vegetation on Council owned land and in public places, including Invercargill's roads and roadside vegetation.

3.19.b Property owners are responsible for the upkeep of their own property, which includes land and dwellings. The Property Law Amendment Act 1975 states that property owners are responsible for any nuisance or damage that their vegetation causes to neighbouring properties.

3.19.c Where trees are included as part of subdivision the developer is to provide a tree maintenance specification for tree maintenance period.

3.19.d ICC has the opportunity to create a long term programme or plan to proactively plant, maintain and remove trees.

3.19.1 Maintenance considerations for trees by waterbodies and water courses

3.19.1.1 The lower branches of trees will be progressively pruned to a height above the high water mark of any waterways to avoid waterborne debris collecting in them and obstructing the flow.

3.19.2 Pruning trees near waterbodies and water courses

3.19.2.1 Watercourse trees will be pruned in a manner that will leave them in an attractive, healthy and safe condition while also taking into account the need to create and maintain vistas and sightlines for the public across waterways.

3.19.3 Tree roots near waterbodies and water courses

3.19.3.1 Tree roots growing along vertical waterway banks will not be cut off or removed unless they are causing a significant obstruction to the waterway. Major root loss will detrimentally affect the health and stability of the trees which could leave the banks more prone to erosion and slumping.

3.19.3.2 Tree roots growing along vertical waterway banks will not be cut off or removed unless they are causing a significant obstruction to the waterway. Major root loss will detrimentally affect the health and stability of the trees which could leave the banks more prone to erosion and slumping.

3.19.4 Replacement Planting

3.19.4.1 As far as practicable, replacement planting will be in accordance with the planting design of the original landscape management plan; unless approved changes have been made to the plan or a particular species has been found to be unsuitable.



3.20 Trees Affecting Public Services, Utilities or Structures

Diagrams and spacing requirements relating to Street Tree Plantings on roads and any trees near structures is proposed to be referenced by the Roading and Traffic Bylaw when it is next reviewed. Please refer to Appendix 6 to see the proposed information.

Objective:

- To ensure Council complies with the relevant legislation when working with planting or maintenance of trees in relation to public services, utilities or structures for the safety of the public.

Policies:

ICC will plant and maintain the trees on its land in a manner that gives effect to the following:

3.20.1 Trees near power lines

3.20.1.1 ICC has a legal obligation to comply with the Electricity (hazards from trees) Regulations 2003 and accordingly will, when planning and undertaking new plantings in and around electricity lines, ensure that the location and species selection for trees and vegetation will ensure that the vegetation at mature height will comply with relevant growth limit zones as specified in those regulations (including recognition of both vertical and horizontal separation distances for electrical line spans over 150m) and therefore avoid the need for trimming.

3.20.1.2 For existing vegetation ICC will manage trees and vegetation to give effect to the regulations.

3.20.1.3 ICC will ensure that wherever possible good specimen trees are retained and pruned as attractively as possible given the safety considerations and requirements of the line clearance work.

3.20.1.4 The Electricity (Hazards from Trees) Regulations 2003 (Tree Regulations) impose restrictions on tree trimming within 4m of network lines. In situations where a Council specimen tree encroaches within the regulatory "notice zone" (but not the "growth limit zone") from the power lines and to prune clear of the "notice zone" would result in its destruction or disfigurement; ICC may apply to the owner of the lines for a dispensation to allow the tree to encroach into the "notice zone". Suggested plantings can be found here:

www.thelinescompany.co.nz/site/uploads/2019/09/Species-Selection_Planting-Tips_September-2019.pdf

3.20.1.5 If a dispensation is granted, it will be ICC's responsibility to ensure that the tree does not encroach into the "growth limit zone" (beyond the "notice zone").

3.20.2 Trees endangering telecommunication lines

3.20.2.1 ICC recognises the importance of protecting telecommunication lines from damage and service breakdown. In planting and managing trees on Council land, ICC will plant trees a safe distance from underground and overhead lines in line with the planting rules and procedures outlined in the Tree Plan.

3.20.2.2 Existing trees will be pruned at timely intervals to ensure they are kept at a legal and safe separation distance from the lines (no person or piece of equipment is permitted within 4m of lines: www.thelinescompany.co.nz/our-network/electricity-safety/).

3.20.2.3 In pruning trees, the work will be carried out in a manner that preserves as much of the natural attractive form of the tree as possible and provides a visual balance.

3.20.3 Trees and drainage systems

3.20.3.1 Sewer and storm water systems are damaged by tree root intrusion, particularly older ceramic pipe structures and pipelines with damaged / defective jointing seals. In dealing with damage to pipes by trees, ICC will explore all reasonable solutions to abate the problem avoiding removing good quality specimen trees wherever practicable.

3.20.3.2 In planting trees in the vicinity of existing drainage systems, water mains pipe system core infrastructure, sewer, storm water and other utilities publicly or privately owned, ICC will have regard to the location of pipes as shown on service plans and plant a safe distance from them (refer to Section 3.5.6 – Planting spacing distances).

3.20.3.3 Root guards should be considered to minimise effects when planting close to infrastructure.

3.20.3.4 ICC Managers should collaborate to share information on locations of pipes so as to avoid trees being planted on top of drains.

3.20.4 Trees and lights

Having adequately lit areas is important for traffic and pedestrian safety, and for providing a sense of security for residents.

3.20.4.1 Trees will be planted so mature height and canopy should be 10m away from lights and pruned at timely intervals to minimise light obstruction.

3.20.4.2 All pruning will be carried out in a manner that preserves as much of the natural attractive form of the tree as possible.

3.20.5 Obstruction of traffic and street signs

Traffic and pedestrian sightlines is a key road safety issue and it is important that traffic signs and signals are not obstructed and that the signs can be clearly seen from a safe reaction and stopping distance away.

3.20.5.1 Trees will be inspected by Parks and Recreation Staff for sightline obstruction at regular intervals with priority given to removing any obstructing foliage.

3.20.5.2 In planting new trees, ICC will ensure that they are planted at a distance and in a position that obstruction of traffic signs / signals does not become a problem.

3.20.5.3 Trees planted in the vicinity of traffic and street signs will be of a species, form and structure that can easily be pruned to clear traffic signage without spoiling the appearance of the tree.

3.20.6 Trees and Rail Corridors

Refer to Appendix 9 for more information on KiwiRail guidelines for vegetation standards for off track zones.

3.20.7 Tree damage to structures and street furniture

3.20.7.1 In planting trees near fixed structures, ICC will allow sufficient space for the tree to grow to a mature size without causing damage to a structure or object (or the structure or object causing damage to the tree).

3.20.7.2 Before proceeding to remove any tree, whether causing damage to public or private property, ICC will firstly assess whether there is a cost effective arboricultural or engineering solution to the problem. Failure in this respect may mean that the tree has to be removed.



3.21 Construction Operations near Council Trees

Objective:

- To ensure construction operations are Council approved and qualified when carrying out tree works on Council owned land.

Policies:

Contractors intending to carry out any construction or excavation work in the vicinity of trees on any Council owned land are required to comply with the following:

3.21.1 Protected trees on Council land

3.21.1.1 Protection of other Council trees from any damage that may result from construction operations shall be in accordance with any Council related documentation, except where specifically prescribed in Section 3.22 – Removal of Council Trees and Section 3.21.2 – Pruning of Trees (below).

3.21.2 Pruning of trees

3.21.2.1 Any tree pruning required during the construction operation will require the prior approval of the engineer and be carried out by qualified / competent arborists or horticulturists to established industry standards.

3.21.3 Oversized loads – trees

3.21.3.1 Where trees have been identified as being likely to cause an obstruction to the transport of oversized loads, it will be at the ICC manager's discretion (Roading Manager for street trees, and Parks and Recreation Manager for Parks and Cemeteries) as to whether removal of trimming can be carried out to provide sufficient clearance for the load.

3.21.3.2 Any tree work required to provide clear passage or provide access to properties shall be carried out by Council approved contractors.

3.21.3.3 The cost of any trimming or felling work or restoration may be at the applicant's expense.

3.21.4 Tree roots

3.21.4.1 Caution must be taken when digging near trees, to ensure roots are not damaged. Parks and Recreation must be notified if there is potential for any harm to the tree before digging is undertaken. Parks and Recreation will be compensated for any tree root damages.

3.22 Removal of Council Trees

Objective:

- To follow good management principles when removing trees on Council land, while considering benefits, allergenic specimens and legal requirements.

Policies:

Contractors intending to carry out any construction or excavation work in the vicinity of trees on any Council owned land are required to comply with the following:

3.22.1 Removal of trees

3.22.1.1 ICC may remove trees in accordance with good tree management principles or where the following has been established:

- The tree/s is/are dead, dying, severely diseased or immediately dangerous because of a serious structural defect.
- The tree/s is/are causing serious damage to public or private property that cannot reasonably be remedied except by removal.
- The tree/s is/are causing an undue interference with the use or loss of enjoyment on neighbouring land in a manner described in the Property Law Act 2008 Section 335.

- Where tree/s is/are proven (e.g. medical certificate) to be seriously affecting the health of a particular person (refer to Section 3.22.2 – Removal of allergenic plant specimens from Council administered land).
- To benefit adjacent trees that are better specimens or more desirable in some way.
- As part of the implementation of landscape or reserve management plans adopted following community consultation.
- As part of the normal management of shelter belt plantings.
- The trees are listed as noxious, surveillance or poisonous plants.
- The trees are creating a road hazard or safety concern to road users including cyclists and pedestrians and pruning does not solve this.
- Where the community may request it, subject to the approval of the relevant ICC Manager (Roading Manager for roads and verges, and Parks and Recreation for parks and cemeteries).
- As part of the scheduled removal noted in this plan and subsequent plans.
- The tree is conflicting with a sewer drain.
- The tree is in the way of a driveway that is to be constructed.

3.22.1.2 In all other cases, trees will not be removed. Those that are removed will be replaced unless the ICC Parks and Recreation Manager decides otherwise.

3.22.1.3 No trees shall be removed or relocated unless they have been identified and shown on the construction plans, or have been identified and marked for removal during a joint inspection by the qualified staff, engineer and / or contractor.

3.22.1.4 Trees found to be conflicting with the works when an operation is in progress shall not be removed without the consent of the ICC Parks and Recreation Manager.

3.22.1.5 The procedures to enable removal or relocation shall be determined by the ICC Parks and Recreation Manager.

3.22.1.6 Trees identified as needing to be removed as part of a vehicle crossing shall be determined by both the ICC Roading, and Parks and Recreation Managers.

3.22.1.7 Where tree removal is needed (including removal of stumps) an archaeological authority may be required.

3.22.2 Removal of allergenic plant specimens from Council administered land

3.22.2.1 Tree removal on reserves and streets will primarily be for reasons of poor tree health, major public works, significant impact on neighbours (e.g. new driveway being installed causing the need to remove / relocate tree) or possibly damage to Council or privately owned property.

3.22.2.2 If discretionary tree removal is requested due to a resident's poor health, these may be assessed on a case by case basis with due consideration to the following matters:

- Proof of allergic reaction to specific tree species, e.g. doctor's certificate.
- Likely effects of tree removal on resident's health.
- Distance from property that trees have been requested to be removed.
- Other possible source of allergenic pollen in vicinity of resident's property.
- Whether the trees in question were planted prior to the resident purchasing their property.



- Whether the tree is a notable tree as listed in the District Plan.
- Resident to contribute 50% of costs of removal and replacement.

3.22.3 Considerations relating to tree removal / trimming

3.22.3.1 In dealing with applications from the public for trees to be removed or trimmed, Council will assess and discuss the situation with the applicant / complainant on site and give full consideration to the following in making a decision:

- Any statutory / regulatory requirements of service authorities and safety issues involved (e.g. 'Before you Dig').
- Whether the tree(s) is/are dead, dying, severely diseased or immediately dangerous because of a serious structural defect.
- The tree(s) is/are currently causing, or has the potential to grow to a size likely to cause serious damage to private property that cannot be remedied by works other than removal.
- Whether the tree is creating a "nuisance" under common law.
- Whether in Council's opinion, the tree(s) is/are causing an undue interference with the use or loss of enjoyment of neighbouring land.
- The impact of pruning on the health, stability and appearance of the tree(s) and vegetation.
- Whether the trees have been proven to be seriously affecting the health of any person(s).
- The Biodiversity Strategy for the Southland Region.
- Whether the tree(s) fail to comply with any relevant rules in the ICC District Plan.
- Any other related policies and guidelines set down in the document.

- Whether the trees are creating a road hazard or safety concern to road users including cyclists and pedestrians.
- Street trees should be planned for their lifecycle as they are crucial to local infrastructure.

3.22.4 Benefits of trees to be considered

3.22.4.1 In dealing with any application to remove or trim any trees Council will also have regard to the following benefits provided by the trees:

- The approved management plan for the reserve in question and the purpose for which it is classified.
- The value of the tree(s) to the street landscape.
- The importance of tree(s) for wildlife conservation.
- The interests of the public in the maintenance of an aesthetically pleasing environment.
- The desirability of protecting public reserves containing trees.
- The value of trees as a public amenity.
- Any historical, cultural or scientific significance of the trees.
- Any likely effect of the removal or trimming of the trees on ground stability, the water table or storm water run-off.

3.22.5 Legal considerations

3.22.5.1 In dealing with applications from the general public to remove trees on Council land, Council will also have regard to and be guided by the provisions of the following:

- The Reserves Act 1977 (section 42).
- The Property Law Act 2008 (section 335).
- The common law relating to "nuisance" and "duty of care".

- The Electricity (Hazards from Trees) Regulations 2003.
- Local Government Act 1974 and 2002.
- Resource Management Act 1991 and ICC District Plan.
- Iwi Management Plan 2008.
- Operational Guidelines ISA.
- Other Council Bylaws, Policies and Legislation (Traffic Bylaw and Subdivision Bylaw).

3.22.6 Applicants may bear cost of work

3.22.6.1 Where ICC has decided to agree to applications for trimming or removing trees on Council land, ICC may, having regard to the circumstances, require the applicant to pay a specified share of the costs of the work. The amount to be paid shall be agreed between the applicant and Council before work commences.

3.23 Operational Guidelines and Standards for Tree Work

Objective:

- Tree planting, aftercare, maintenance of mature trees and tree felling operations on Council land will be carried out, or supervised by competent / qualified operators in accordance with established arboricultural/horticultural work practices and industry standards.

Policies:

3.23.1 Emergencies on Council owned land

3.23.1.1 If a tree emergency occurs due to reasons outside of Council staffs control (e.g. storms, high winds, flooding) the following tasks could be considered:

- A report may come through from a member of the public, or a staff member has come across the incident and reported it.

- Risk Management - Immediate assessment of trees and the best approach to take to remove or save trees in the cluster. There is a clear and defined safety responsibility to have trees removed and all consideration on leaving them is taken seriously.
- All emergency services and Council staff may be required to set up a temporary traffic management site and close off portions off road or other services if required.
- Health and safety process for all those who are required to assist are to be undertaken with a hazard form to be signed before proceeding onto the site.
- Assessment will be required for those trees directly affected and immediate surrounding trees.
- If the works are too large a task, or further resources are required for Council staff to undertake alone, contractors will be required to help.
- Any insurance claims to be made will go through Council's insurance process.

3.23.2 Access

3.23.2.1 Staff require safe and easy access to be able to assess, maintain, plant or remove trees. This may also include plant and machinery access.

3.23.3 Auditing and Monitoring of Trees

3.23.3.1 Street Tree audits should be undertaken by a qualified assessor annually.

3.23.3.2 Any maintenance or removal will be timed into a programme of works to be undertaken. See Appendix 10 for the beginnings of a maintenance programme Parks and Recreation staff are currently developing.



3.23.3.3 Trends and changes should continuously be monitored and reviewed to ensure improvement when auditing and maintaining tree stock.

3.23.4 Qualification

3.23.4.1 Any person dealing with Council owned trees is to be a suitably qualified Council approved person (e.g. arborist).

3.23.5 Contract specifications

3.23.5.1 In drawing up contract specifications for Council tree work, ICC may require that the work is generally to be carried out in accordance with best industry practice.

3.23.6 Health and Safety

3.23.6.1 All contractors and Council staff shall comply with the provisions of the Health and Safety at Work Act 2015 and any approved codes of practice or regulations relating to the particular operation concerned.

3.23.6.2 Contractors must have gone through Council's pre-approval application and be approved prior to undertaking works on Council land.

3.24 Restoration of Council Owned Destroyed or Damaged Shelter Belts / Plantation Trees

Objective:

- To contribute to the long term sustainability of shelter belts through restoration (if viable) to benefit the community.

Policies:

3.24.1 Where shelterbelts or plantation blocks have been destroyed or substantially damaged by fire, severe climatic events, or biological factors on Council land, consideration will be given to the following:

- Any revenue value to be gained from the salvage of the damaged trees.

- Whether it is desirable to reinstate trees on the land to provide some sort of sheltering or commercial plantation function.
- Having regard for the climatic, soil conditions and risk potential factors of the site, whether replanting with tree species with the same or similar characteristics is likely to be financially viable or sustainable.
- Whether it would be of greater benefit to the community that the land be planted with trees of amenity or landscape values, given any current or potential changes to land use in the vicinity.
- Any other public recreational use opportunities, environmental or biodiversity benefits afforded by changing the tree / vegetation cover on the site.
- Whether the shelterbelt or plantation trees also had the functions or controlling storm water run-off or soils stabilisation.
- Whether the shelterbelt or plantation trees use of the land also provided some significant recreational value to the public.
- Whether the land would be better used for purposes other than growing trees or wood production.
- Any relevant master or management plans.

3.25 Use of Agricultural Chemicals / Pesticides

Objective:

- To consider the environmental and social implications of using pesticides in accordance with legislation relating to general wellbeing.

Policies:

3.25.1 In the application of agricultural chemicals or pesticides on its land, ICC and its contractors will ensure that the selection and use of any products shall be based on the principle of minimising any risk or hazard within and beyond the contact areas to people, property, livestock and the environment in general. Public will be warned through appropriate forms of communication where it may potentially affect animals and humans.

3.25.2 Wherever practicable, non-chemical means of controlling unwanted trees / vegetation or pests will be used.

3.25.3 The use and application of all chemicals shall be in accordance with all relevant acts, regulations and bylaws including NZS 8409:2004 Code of Practice for the Management of Agrichemicals.

3.25.4 Agricultural chemicals / pesticides shall only be applied by a Growsafe certified applicator or person under the control of a certified applicator.

3.26 Biosecurity Measures

Objectives:

- To comply with relevant legislation around biosecurity.
- To manage suspect organisms accordingly for the long term sustainability of Council land.

Policies:

3.26.1 ICC will ensure that noxious or undesirable plants or animals are controlled on its land and do not spread to neighbouring properties.

3.26.2 In managing its tree assets, Council will be vigilant in looking out for new introduced problem plants and tree pests and diseases; particularly any that are noted as spreading rapidly. Council will take timely action if any are discovered.

3.26.3 Samples of suspect organisms will be sent to the Ministry of Primary Industries Plant Health and Environment Laboratory for diagnosis or Biosecurity New Zealand will be contacted on their hotline on 0800 80 99 66.

3.26.4 The implementation of any required control of pests and diseases will be carried out in accordance with the provisions of the Biosecurity Act 1993 which is administered by the Ministry for Primary Industries.

3.26.5 Compliance may also be required with any regional pest management strategy that may be administered by the territorial authority, Environment Southland, or by complying with any National Pest Management Strategy (NPMS) that may have been notified by an 'affected' or responsible Minister (MP).

3.26.6 Public will be warned through appropriate forms of communication where it may potentially affect animals and humans.

3.27 Conservation Covenants

Objective:

- To preserve the long term management of land of value.

Policy:

3.27.1 Council may enter into an agreement with a private landowner, sub divider or developer to create a conservation covenant to preserve any area of land containing trees considered to be of exceptional landscape amenity, historical, botanical or ecological value to the general public (See Reserves Act 1977, Section 77 – conservation covenants).



3.28 QEII National Trust Act 1977

Objective:

- To aid conservation on private land.

Policy:

3.28.1 ICC may enter into a covenant under the QEII National Trust Act 1977, to secure the long term protection, preservation and enhancement of open space (including areas containing trees and vegetation) and the preservation of natural and cultural features.

3.29 Private Ownership Trees – Powers of Council

Objective:

- To ensure Council requirements are met with regards to private property.

Policies:

3.29.1 Tree disputes between neighbours

3.29.1.1 Council has no authority or responsibility in law to become involved in disputes between neighbours about trees on private land. This is entirely a matter for the respective property owners to resolve in accordance with the legal remedies available to them.

The powers of ICC to deal with issues related to trees on private land are limited to those defined below:

3.29.2 Protected trees

3.29.2.1 Certain work to individually protect trees on private land is currently not documented in the ICC District Plan, unless the trees are mapped as significant indigenous vegetation, then the District Plan rules apply. One may therefore require an application to be made to ICC for resource consent regardless of any other laws or regulations that may also be relevant.

3.29.3 Private trees encroaching over legal road boundaries

3.29.3.1 It is the responsibility of the owners of private trees growing over / overhanging legal road boundaries to carry out trimming or removal following the spacing distances set by the Roding and Traffic Bylaw.

3.29.4 Trees on private land obstructing drains or watercourses

3.29.4.1 Where trees on private land are obstructing drains, drainage channels or watercourses on private land, Council may, by notice in writing, require the tree owner to remove the obstruction (Local Government Act, Section 468 and 511).

3.29.5 Obstructions or damage caused by private trees – encroaching over road reserve

3.29.5.1 ICC will notify owners in writing of the obstructions their trees are causing requiring them to carry out whatever remedial work is deemed necessary, including not leaving aftermath of the remedial work on Council land.

3.29.5.2 In the event of the remedial work not being carried out to ICC's satisfaction, Council may, after giving verbal notice, carry out the work itself at the owner's expense.

3.29.5.3 Where a tree owner fails to carry out remedial tree work for any reason and Council decides to carry out the work itself, Council may, having regard to the circumstances, charge the tree owner for the costs of any preventative, remedial or damage repair work required.

3.29.5.4 Council will not enter upon private land or property to carry out non urgent tree work unless a notice in writing has been served or this has been previously agreed with the tree / vegetation owner.

3.29.5.5 Council is authorised to deal with situations involving – encroaching private trees by the provisions of sections 173, 355 and 511 of the Local Government Act 2002.

3.29.6 Emergency situations – Council’s power to enter private property

3.29.6.1 In the case of sudden emergency situations that involve private trees, in accordance with Section 173 of the Local Government Act 2002, Council may enter occupied land or buildings to carry out any necessary safety related work to prevent:

- Loss of life or injury to a person.
- Damage to property.
- Damage to the environment.
- Damage to Council infrastructure.
- A danger to any work or adjoining property.

3.29.6.2 Where such emergency action has to be taken and the owner has been unable to be contacted beforehand, as soon as practicable afterwards, Council must inform the owner of the works and the reason for them.

3.29.7 Council authorised persons – trees on private land

3.29.7.1 Where the removal or trimming of overhanging trees obstructing public right of way is required to clear footpaths and road carriageway according to distances set in the Roding and Traffic Bylaw above the public right of way, certain named persons, whilst they are the employee of ICC, are delegated the powers and authority vested in the principal administration officer by Section 335 of the LGA 1974 and Section 5.3 of the Environmental Health Bylaw, to deal with and prescribe action to be taken with such problems.

3.29.8 Authority for rural plantations, amenity plantings and shelterbelts

3.29.8.1 Compliance with any activity involving the planting, management or felling of trees on Council land may be the subject of any rural provisions and rules set in the Roding and Traffic Bylaw and is under the authority of ICC delegated officers.



3.30 Council Tree Applications and Requests

Objectives:

- To ensure requests are streamlined through the same process as other requests for service.
- To ensure a process is in place for applications and reaches the relevant Council department to follow up.

Policies:

3.30.1 Requests for services of Council trees

3.30.1.1 All requests for services on Council trees will be managed through Council customer services by phone 2111 777 or via the online request form: www.icc.govt.nz/online-services/.

3.30.1.2 Any applications will be assessed and documented by ICC staff who will respond to the request after consideration (refer to Appendix 11 for decision making process flow chart). Special cases may be escalated to Council for permissions required.

4.0 Programme and Action Plan

Mahere Whakaaturanga Me Te Mahere Mahi

The strategy has noted that

“Humans find ourselves with fewer trees, we want and need more, and we need the services that trees provide. The oxygen, the carbon and air cleaning properties, the properties that Tane used to keep his parents separated and atmosphere.”

Policy Guidance has set how Council’s own tree stock should be sustainable and responsibly managed and how to inform the public on tree related matters and on their rights and responsibilities.

The Programme and Action Plan now sets out the following actions, timescales and responsibilities with regards to achieving the vision set through the Tree Plan:



Action/Process	Priority (1-4 with 1 being most important)	Responsibility	Resources	Date of completion	Budget/Cost	Operational or strategic
Programming and Online Mapping						
Proactively manage key risk trees through development of a clear and defined auditing programme. Show prescriptive direction on what monitoring will include and by whom. Develop a hazardous tree list to encompass higher risk status trees and trees ICC intends to remove.	1	Parks Operations Manager / Team Leader Arboriculture and Nursery	Staff/computer Time	2021	\$\$	Strategic
Understand ICC's tree network through an accurate, up to date full tree inventory to capture data for future management. Develop and implement an online mapping and database system for tree monitoring and audits. Mapping should show where trees are and link to inventory categories.	1	Planning/ Parks Operations Manager/ IT	Qualified contractors Database GIS Staff/computer Time	2020 - 2025	\$\$\$	Operational/ Strategic
Adequate budgets by LTP planning and funding to enable maintenance and tree planting to continue.	1	Parks Operations Manager/Parks and Recreation Manager	Staff/computer Time	2021	\$\$\$	Strategic
Undertake Ornamental tree evaluations to obtain a tree value.	2	Parks Operations Manager/ Team Leader Arboriculture and Nursery	Staff/computer Time	2021	\$\$	Operational
Develop and implement a planting/renewal programme (forward programme of tree inspections and maintenance works). - identify trees and tree value/what's hazardous - document tree stock (individual and grouped)	2	Planning/ Parks Operations Manager / Team Leader Arboriculture and Nursery	Database Staff/computer GIS Time	2020 - 2025	Officer time \$\$	Strategic
Ongoing analysis of the inventory to monitor and understand trends in tree growth, health and performance (eg what is thriving or declining) based on Part 2 of the Tree Plan.	3	Parks Operations Manager/ Team Leader Arboriculture and Nursery	Staff/computer Time	2025	\$\$	Strategic

Action/Process	Priority (1-4 with 1 being most important)	Responsibility	Resources	Date of completion	Budget/Cost	Operational or strategic
Cultural Significance						
On an ongoing basis collaborate with iwi to strengthen knowledge of tree network outcomes and historic significance.	1	Planning/ Parks Operations Manager	Staff/computer Time	Ongoing	\$	Strategic
Collaborate with iwi using key resources such as part 4 of the Iwi Management Plan when planning to plant, re-vegetate or remove trees.	2	Planning/ Performance/ Parks Operations Manager	Staff/computer Time Iwi MP	Ongoing	Officer time	Strategic
Identify existing and plant trees of cultural significance including those that have associations/tell stories of peoples, times and places. Use those stories to educate the community through resources such as information panels, signage, and other forms of communication.	3	Planning/ Performance/ Parks Operations Manager	Staff/computer Time	2021	Officer time	Strategic



Action/Process	Priority (1-4 with 1 being most important)	Responsibility	Resources	Date of completion	Budget/Cost	Operational or strategic
Legislation and Planning Documents						
Ensure Operational Guidelines and standards (eg street trees, trees removal, maintenance and planning) align with this Plan.	1	Planning/ Performance/ Parks Operations Manager	Staff Time	2020	\$	Strategic
When planning tree plantings, consider the direction set by site specific reserve management plans and development plans, master plans or ensure a suitably qualified professional has considered ICC guidance documentation.	1	Planning/ Performance/ Parks Operations Manager	Staff/ Time Plan research Contractor	2020-2025	Officer time	Strategic
Clear and consistent executed policy guidance that is documented.	1	Planning	Staff/Time Documentation	2020	Officer time	Strategic
All tree practices are undertaken in accordance with legislation and industry standards.	1	Planning/ Parks Operations Manager/ Team Leader Arboriculture and Nursery	Staff/Time Documentation	2020-2025	Officer time	Strategic
Review, Design and Implement a vehicle crossing process to include Parks and Recreation Management approval when proposing to removing trees on driveways as part of consent process.	1	Roading/ Parks and Recreation Manager/ Parks Operations Manager/ Engineering Services Manager	Staff/Time Documentation	2021	Officer Time	Strategic
Design and implement an approval process for trees in subdivisions.	2	Planning/ Parks Operations Manager/ Engineering Services Manager	Staff/Time Computer	2021	Officer time	Strategic
Ensure future Tree Plan reviews align and complement (eg decision processes) other Council Documentation, Bylaws and Policies (eg Engineering Code of Practice, District Plan and Rooding and Traffic Bylaw) through their reviews.	3	Planning/ Performance/ Parks Operations Manager	Staff/Time Council Documentation	2021 - 2025	Officer time	Strategic
Further ecological connections are considered in future provision planning (eg reserve management plans, overall site development plans, future master plans) or ensure a suitably qualified professional has considered the proposed works particularly as a proposal might offer ecological connectivity.	3	Planning	Staff/ Time Plan research Contractor	2025	Officer time	Strategic/ Operational

Action/Process	Priority (1-4 with 1 being most important)	Responsibility	Resources	Date of completion	Budget/Cost	Operational or strategic
Training						
Appropriate tree qualifications are identified and people working on the tree maintenance remain upskilled accordingly.	1	Parks Operations Manager / Team Leader Arboriculture and Nursery	Staff/Time Contractor	2020-2025	\$\$\$	Operational
Staff Qualifications and Training to remain up to date	1	Parks Operations Manager/Team Leaders	Staff/Time Contractor	2020-2025	Officer time/ \$\$	Operational



Action/Process	Priority (1-4 with 1 being most important)	Responsibility	Resources	Date of completion	Budget/Cost	Operational or strategic
Partnership and Collaboration						
Early engagement with infrastructure managers and service providers on any new tree plantings where it is in close proximity to services..	1	Parks and Rec Manager/ Parks Operations Manager	Staff/ Time Travel	2020-2025	Officer time	Strategic
Work with Council departments, agencies, community groups, developers and private land owners to achieve improved ecological connections across the District.	1	Parks and Rec Staff	Staff/Time Communications Computer	2020-2025	Officer time	Strategic
Raise awareness of Tree Plan so people beyond Council can have the opportunity to align with it.	2	Parks and Rec Staff	Staff/Time Communications Computer	2020-2025	Officer time	Operational
Opportunity to partner with agencies where they are driving initiatives/schemes and promote and achieve sustainability.	2	Parks Operations Manager / Team Leader Arboriculture and Nursery	Staff/Time Contractor	2020-2025	Officer time	Strategic
Pursuing maintenance efficiencies through partnerships and combining resources.	3	Parks Operations Manager/Team Leaders	Staff/Time Contractor	2020-2025	Officer time	Strategic

Action/Process	Priority (1-4 with 1 being most important)	Responsibility	Resources	Date of completion	Budget/Cost	Operational or strategic
Sustainability						
Proactive approach to pest, disease and climate change and biosecurity risks, as well as issues (eg leaves berries and safety).	1	Staff/ Time Documentation	Staff/ Time Travel	2020 – 2025	Officer time	Strategic
Continue to be aware and keep well-informed of sustainable development guided by national and global trends (eg threats, initiatives, connections) and issues.	2	Planning/ Parks Operations Manager/ Team Leader Arboriculture and Nursery	Staff/Time Computer research	2021	Officer time	Strategic
Consider use of trees as alternatives to hard infrastructure eg trees as shade and shelter.	3	Parks and Rec Staff	Staff/Time Computer research	2022	Officer time \$	Strategic

Appendices - Paerewa



APPENDIX 1 – List Of Parks, Reserves and Cemeteries (As At 2019)

PARK NAME	ADDRESS	LOCATION
Amenity Parks		
Awarua Bay Recreation Reserves	Awarua Bay Road	Awarua Bay
Bond Street Reserve - East	Bond and Tweed Street	Invercargill
Donovan Park (Part)	Bainfield and Mclvor Road	Invercargill
JG Ward Reserve	Gore Street	Bluff
Main Street Reserve	Gore Street	Bluff
Myers Reserve	Myers Street, Hoffman Court	Invercargill
Northwood Recreation Reserve	Northwood Avenue	Invercargill
Ocean Beach Reserve (Part)	Kirk Crescent	Bluff
Queens Drive Planting Strip	Queens Drive	Invercargill
Shannon Street Reserve	Blackwater Street	Bluff
Stead Street Beautification Strip	Stead Street	Invercargill
Stirrat Street Reserve	Stirrat Street	Invercargill
Town Belt - Appleby (Part)	Balmoral Drive	Invercargill
Town Belt - Elles Road and Queens Drive (Part)	Elles Road/Queens Drive	Invercargill
Town Belt - Otepunu Gardens (Part)	Forth Street	Invercargill
Waihopai Bridge Reserve	Queens Drive	Invercargill
Waikiwi Domain (Part)	Moa and Fraser Street	Invercargill

APPENDIX 1 – List Of Parks, Reserves and Cemeteries (As At 2019)

PARK NAME	ADDRESS	LOCATION
Environmental Reserves		
Anderson Park (Part)	Mclvor Road	Invercargill
Bluff Hill Area	Flagstaff Road, McDougall Street, Shannon Street, Lagan Street, Walker and Pearce Streets.	Bluff
Bluff Hill Reserve	Shannon Street	Bluff
Bluff Road Quarry Reserve	Bluff Highway	Bluff
Grant Road Reserve	Grant Road	Otatara
Greenpoint Recreation Reserve	Bluff Highway	Greenpoint
Joeys Island	Joeys Island	Awarua Bay
John Street Reserve	John Street	Otatara
Lake Hawkins Wetland Reserve	Airport Avenue	Invercargill
Matua Road Reserve	Matua Road	Otatara
McMillan Street Reserve	McQuarrie Street	Invercargill
Metcalf Bush Reserve	McKellar and Mason Road	Invercargill
Omaui Reserve	Mokomoko Road	Omaui
Otatara Scenic Reserve	Dunns Road	Otatara
Parnell Reserve	Ariki Avenue	Otatara
Paterson Reserve	Spence Avenue	Otatara
Red Tussock Reserve	Rockdale Road	Invercargill
Sandy Point Domain (Part)	Dunns Road	Otatara
Seaward Bush	Mason Road	Invercargill
Stirling Point Reserve	Ward Parade	Bluff
Taiepa Dune Reserve (Part)	Taiepa and Grant Road, and Raeburn Avenue	Otatara
Thomsons Bush	Queens Drive, Gimblett and Preston Streets	Invercargill
Tikore Island	Tikore Island	Greenpoint
Tiwai Point Reserve	Tiwai Road	Tiwai Point



PARK NAME	ADDRESS	LOCATION
Linkage Parks		
Ball Street Reserve	Corner Ball and Tweed Street and Ascot Terrace	Invercargill
Bluff Foreshore Reserve	Foreshore Road	Bluff
Boat Ramp - Awarua Bay	Awarua Bay	Awarua Bay
Boat Ramp - Tiwai Point	Tiwai Road	Tiwai Point
Bond Street Reserve - West	Bond and Stead Streets	Invercargill
Elston Lea Reserve	McQuarrie Street	Invercargill
Esplanade Reserve - Beaconsfield Road	Beaconsfield Road	Invercargill
Esplanade Reserve - Colyers Island	Colyers Island Road	Greenhills
Esplanade Reserve - Forde Road	Forde Road	Invercargill
Esplanade Reserve - Liddel Street	Liddel Street	Invercargill
Esplanade Reserve - Mclvor Road	Mclvor Road	Invercargill
Esplanade Reserve - Mersey Street	Mersey Street	Invercargill
Esplanade Reserve - Mill Road	Mill Road	Invercargill
Esplanade Reserve - Ocean Beach	Ocean Beach Road	Bluff
Esplanade Reserve - Oteramika Road	Oteramika Road	Oteramika
Esplanade Reserve - Racecourse Road	Waihopai River	Invercargill
Esplanade Reserve - Short Road	Renfrew Street	Invercargill
Esplanade Reserve - Stirling Point Pilot Station	Ward Parade	Bluff
Esplanade Reserve - Waihopai River	Waihopai River	Invercargill
Hollywood Terrace Playground	Hollywood Terrace	Invercargill
Mavora Reserves	Mavora Place and Mavora Crescent	Invercargill
Northwood Local Purpose Reserves	Northwood Avenue	Invercargill
Otepunui Creek	Inglewood Road, Otepunui Ave, Rockdale Road	Invercargill
Southern Greenway	Ness Street, Bluff Highway, Elles Road, Moulson Street, Brown Street, Scott Street, Chesney Street	Invercargill
Stead Street Reserve	Stead Street	Invercargill
Talbot Street Reserve	Talbot Street, Racecourse Road, Salford Street	Invercargill
Turnbull Thomson Park (Part)	Lindisfarne Street, Elles Road, Mary Street, Islington, Tay	Invercargill
West Bank Reserve	Stead Street	Invercargill

APPENDIX 1 – List Of Parks, Reserves and Cemeteries (As At 2019)

PARK NAME	ADDRESS	LOCATION
Neighbourhood Parks		
Arun Crescent Playground	Arun Crescent	Invercargill
Arundel Crescent Playground	Arundel Crescent	Invercargill
Ascot Terrace Playground	Ascot Terrace	Invercargill
Avon Road Playground	Avon Road	Invercargill
Baxter Street Playground	Baxter Street and Paterson Street	Invercargill
Bluff Skate Park	Gore Street	Bluff
Centre Street Playground	Centre Street	Invercargill
Chelmsford Street Playground	Chelmsford Street	Invercargill
Chesney Street Playground	Chesney Street	Invercargill
Conway Crescent Playground	Conway Crescent	Invercargill
Crawford Street Playground	Crawford Street	Invercargill
Cruickshank Crescent Playground	Cruickshank Crescent	Invercargill
Cunningham Street Playground	Cunningham Street	Invercargill
Dart Street Playground	Dart and Lune Street	Invercargill
Derwent Crescent Playground	Derwent Crescent	Invercargill
Dipton Street Playground	Dipton Street	Invercargill
Dome Street Playground	Dome Street	Invercargill
Dumbarton Place Playground	Dumbarton Place	Invercargill
Dunbeath Crescent Playground	Dunbeath Crescent	Invercargill
Edinburgh Crescent Playground	Edinburgh Crescent	Invercargill
Elizabeth Street Playground	Elizabeth Street	Invercargill
Elizabeth Street Reserve	Elizabeth Street	Invercargill
Ettrick Street Reserve (Part)	Ettrick and Bowmont Street	Invercargill
Forfar Crescent Playground	Forfar Crescent	Invercargill
Frome Street Playground	Frome Street	Invercargill
Fulton Street Playground	Fulton Street	Invercargill
Galway Street Playground	Galway Street	Invercargill
Glengarry Crescent Reserves	Glengarry Crescent	Invercargill
Gore Street Playground	Gore Street	Bluff
Herriot Street Playground	Herriot Street	Invercargill
High Street Playground	High Street	Invercargill
Iona Playground	Iona Street and Iona Court	Invercargill



PARK NAME	ADDRESS	LOCATION
Neighbourhood Parks		
Kennington Recreation Reserve	Rimu Road	Kennington
Kildare Street Playground	Kildare Drive	Invercargill
Kinmont Crescent Playground	Kinmont Crescent	Invercargill
Moray Crescent Playground	Moray Crescent	Invercargill
Nelson Street Playground	Nelson Street	Invercargill
Ness Street Playground	Ness Street	Invercargill
Newbie Street Playground	Newbie Street	Invercargill
O'Byrne Street Playground	O'Byrne Street	Invercargill
Ottrey Street Playground	Ottrey Street	Invercargill
Palmer Street Playground	Palmer Street	Invercargill
Panton Street Playground	Panton Street	Invercargill
Pine Crescent Playground	Pine Crescent	Invercargill
Pomona Street Playground	Pomona Street	Invercargill
Rockdale Park (Part)	Centre Street	Invercargill
Seddon Place Playground	Seddon Place	Invercargill
Skye Street Playground	Skye Street	Invercargill
Slaney Street Reserve	Slaney Street	Bluff
Stuart Street Playground	Stuart Street	Invercargill
Taiepa Dune Reserve (Part)	Taiepa and Grant Road, Raeburn Avenue	Otatara
Tanner Street Playground	Tanner Street	Invercargill
Town Belt – Elles Road and Queens Drive (Part)	Elles Road and Queens Drive	Invercargill
Tweed Street Playground	Tweed Street	Invercargill
Wagner Street Playground	Wagner Street	Invercargill
Waiau Crescent Playground	Waiau Crescent	Invercargill
Waikiwi Domain (Part)	Moa and Fraser Street	Invercargill
West Street Reserve	West Street	Invercargill
Wicklow Street Playground	Wicklow Street	Invercargill
Woodend Hall Reserve	Sommerville Street	Woodend
Premier Parks		
Anderson Park (Part)	Mclvor Road	Invercargill
Queens Park (Part)	Queens Drive	Invercargill
Town Belt - Gala Street (Part)	Gala Street	Invercargill
Town Belt - Otepuni Gardens (Part)	Forth Street	Invercargill

APPENDIX 1 – List Of Parks, Reserves and Cemeteries (As At 2019)

PARK NAME	ADDRESS	LOCATION
Sports Fields Reserves		
Argyle Park	Gregory Street	Bluff
Teviot Street Reserve	Ettrick and Teviot Street	Invercargill
Bain Park	Corner John and Saturn Streets	Invercargill
Donovan Park (Part)	Bainfield and Mclvor Road	Invercargill
Foyle Street Reserve	Foyle Street	Bluff
Makarewa Domain	Flora Road East	Makarewa
McQuarrie Park	McQuarrie Street	Invercargill
Myross Bush Domain	Mill Road North and Drysdale Road	Myross Bush
Newfield Park	Wilfrid Street	Invercargill
Ocean Beach Reserve (Part)	Kirk Crescent	Bluff
Queens Park (Part)	Queens Drive	Invercargill
Robinson Park	McGorlick Street	Bluff
Sandy Point Domain (Part)	Dunns Road	Otatara
Surrey Park	Tay, Yarrow, Isabella and Lithgow Streets	Invercargill
Town Belt - Appleby (Part)	Balmoral Drive	Invercargill
Town Belt - Elles Road and Queens Drive (Part)	Elles Road and Queens Drive	Invercargill
Turnbull Thomson Park (Part)	Lindisfarne Street, Elles Road, Mary Street, Islington, Tay Streets	Invercargill
Waikiwi Domain (Part)	Moa and Fraser Street	Invercargill
Waverley Park	King, St Andrew and Ward Streets	Invercargill
Woodend - Blyth Reserve	Blyth Street	Woodend
Premier Parks		
Anderson Park (Part)	Mclvor Road	Invercargill
Queens Park (Part)	Queens Drive	Invercargill
Town Belt - Gala Street (Part)	Gala Street	Invercargill
Town Belt - Otepuni Gardens (Part)	Forth Street	Invercargill
Special Purpose Sites: Civic Space		
Celtic Wall Reserve	Dee Street	Invercargill
Henderson House	Corner Leet and Kelvin Streets	Invercargill
Town Belt – Gala Street (Part)	Gala Street	Invercargill
Wachner Place	Dee Street	Invercargill



PARK NAME	ADDRESS	LOCATION
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Special Purpose Sites: Civic Space

Cemetery Bluff (closed)	Lagan Street	Bluff
Cemetery Eastern and Southland Crematorium (open)	224 Lagan Street	Invercargill
Cemetery Greenpoint (open)	10 East Road	Greenpoint
Cemetery St Johns (closed)	Durham Street	Invercargill
Cemetery William Stirling Reserve (closed/historic)	Tiwai Point – South Coast, Tiwai Road	Tiwai Point

Special Purpose:

Bluff Harbour Land	Foreshore Road, Rons Place	Bluff
Donovan Park Nursery	Mclvor Road	Invercargill
Ettrick Street Reserve (Part)	Ettrick and Bowmont Street	Invercargill
Kew Park	McQuarrie Street	Invercargill
Makarewa Playcentre	Flora Road East	Makarewa
Queens Park (Part)	Queens Drive	Invercargill
Racecourse Road Reserve	Racecourse Road	Invercargill
Town Belt - Elles Road and Queens Drive (Part)	Elles Road and Queens Drive	Invercargill
Town Belt - Otepunu Gardens (Part)	Forth Street	Invercargill
Waihopai Sports Association	Duke and Park Street	Invercargill
Waikiwi Domain (Part)	Moa and Fraser Street	Invercargill

Undeveloped:

Grasmere Domain	Palmer Street	Invercargill
Greenhills Quarry Reserve	Old Bluff Highway, Walker Road	Greenhills
Mokomoko Road Reserve	Mokomoko Road	Omaui
Rockdale Park (Part)	Centre Street	Invercargill
Tisbury Reserve	Rockdale Road	Invercargill
Vernon Street Reserve	Vernon Street	Invercargill

Non Reserve Land:

Bowmans Bush	Ruru Avenue	Otatara
Brown Street Playground	Ball Street	Invercargill
Otatara Community Playground	Oreti Road	Otatara
Windsor Playground	Corner Windsor and George Streets	Invercargill

APPENDIX 2 – Benefits, Risks and Opportunities

Benefits

Trees have multiple benefits and ways in which they contribute to improving the condition of our environment including environmental and ecological, economic and social and cultural factors.

Environmental and Ecological

- The air, water and nutrient exchange processes undertaken by trees are fundamental to human existence and the continuity of the food web which supports all life on earth.
- Climate change: Tree canopy decreases environmental temperature and slows the rate at which water reaches the ground.
- Trees absorb carbon dioxide from the atmosphere, helping to reduce the build-up of greenhouse gases.
- Reducing carbon footprints by providing a long term renewable energy resource (carbon sequestration).
- Provide benefits to ecological health and sustainability of our urban built environments by assisting in modifying and ameliorating some of the less desirable aspects of urban environments such as air pollution, traffic sounds, degraded water quality, water run-off, convected or reflected heat and wind exposure, and erosion.
- Trees moderate effects of wind, alter air temperature and filter sunlight⁷.
- Connecting with nature by providing an ecological corridor and habitats for our indigenous and exotic fauna.
- Natural and cultural heritage values of significant mature trees.
- Reduce energy needs and material consumption of the town.
- Provide a healthy tree network.

Social and Cultural

- Trees our people love and are proud of.
- Trees are provided for the enjoyment and amenity of the general public.
- Trees enhance our beautiful city through embracing wind, climate and coast.
- Trees have been known to improve safety by having a positive impact on crime reduction (e.g. can see through trees easier than shrubs)⁸.
- Lighting of trees along pathways creates pleasant environments which extends the use of a space throughout the day, and can discourage antisocial activities. Well-designed lighting increases the opportunity for surveillance at night, sends positive messages about the management of an area, and enhances the aesthetics of the night-time environment. (Lighting should not be provided in areas not intended for night-time use, therefore avoiding a false impression of safety)⁹.
- Trees re-enforce the local identity and character of a place and provide visual unity. Trees and vegetation, along with active building edges, landmarks, quality materials, and a clear place of identity are foundations of a pleasant urban experience.
- Trees contribute to streetscapes and livable streets. Streets constitute one of the most significant public assets in an urban environment and cater for a wide variety of activities including the movement of vehicles and pedestrians (on foot / active transport), the exchange of goods and services, social interaction, and recreational activities. Planting must be carefully considered and fit with the activities that surrounds them, as well as establish a setting to encourage desirable activity.



- Trees help to provide shade and wind shelter for people visiting and playing in reserves and streets.
- The health benefits of trees – trees reduce negative emotions and improve positive feelings, people recuperate faster when viewing tree-filled images, hospital stays are shorter and less pain medication required¹⁰.
- Recreation and contact with nature for some of the community is limited to their local park or green area, for noticing natural cycles, seasons, sounds, etc. Trees are critical in this context for wellbeing¹¹ and educational purposes.

Economic

- Healthy nature, healthy people, healthy community = reduce health care costs¹².
- Well matured and appropriate trees are shown to increase property values¹³.
- Reduced temperature and energy use in surrounding buildings, by shading and wind impact reduction¹⁴.
- Reduces impacts of water quality losses, erosion and flooding impacts¹⁵.

Our environment, challenges / risks and opportunities

Trees also pose a risk to the public (e.g. property damage) particularly if they are not well maintained and this risk factor needs to be balanced against the benefits listed above.

In achieving the vision the Council is primarily faced with the following main challenges / risks:

- Tree health is affected by causes such as non-biological (abiotic), human, natural or biological

(biotic). Examples include habitat destruction, pollution, damage to roots, branches and tree trunks, and poor cultural practises.

- Public expectations of the Council's management of trees (shading on properties, leaves in gutters, leaf fall in autumn and time/cost of removal, cabbage tree leaves, berries, aphids and sooty mould) and different views on what "pretty" looks like.
- How trees fit in to our future development – It is of key importance to fit the right tree in the right place for the right purpose so as not to cause a nuisance / negative impacts in the future (e.g. safety issues).
- A current challenge in ecology is to determine the processes influencing species distributions, so shifts in distributions under climate change can be predicted. Climate can directly affect species distributions through variations in rainfall and temperature patterns (Gworek et al. 2007).
- Flooding, as the result of heavy rainfall overwhelming drainage systems, also from King Tides and climate change.
- Urban development – loss of mature tree canopy due to infill development and impacts of higher residential density areas. Invercargill has many ageing trees, with many over 50 years old or approaching the end of their useful life. The older the tree becomes, the less tolerant it is to change (storms, droughts, urbanisation and changing cultural trends).
- Salt laden cold winds limit tree choices and affect tree form.

- Changing generations, demographics and cultures (ethnic groups) are expected to change over the years which will subsequently affect identity links, values and activities with trees.
- Loss of wetland habitats nationally in which trees play a key role.
- Damage to footpath, drains.
- Blocking lights for public safety.
- Limiting asset location.
- Leaves in sumps and gutters.
- More trees could cause more leaf litter and subsequently, more management and cost to alleviate this impact unless the right species are planted in the right spaces.
- Develop hazardous tree list to encompass higher risk status trees and trees Council intends to remove.
- Ornamental tree evaluations could be undertaken to get a cost of tree value as part of the renewal programme.
- A tree appraisal may help property owners recapture a storm loss, substantiate (provide evidence to support) real estate transaction, or justify saving trees during construction.
- The right species are planted in the right spaces

Opportunities

- Eco-sourcing tree species.
- Embracing what trees ICC has and work on it.
- Developing proactive plans and processes to manage challenges (e.g. mirror societal changes, shade and shelter).
- Update tree inventory.
- Identify Council owned trees and develop a monitoring system.
- Develop a renewal programme for parks, cemeteries and streets, including shelter belts.
- Improve staff knowledge (including health and safety) when working with trees.
- Collaborate with iwi and Councils to manage a safe and healthy network of trees through peer review of this Plan and other legislation.
- Tree canopies ensure a slower rate at which water hits the ground and reduces local environmental temperature.

7 www.bookstore.ksre.ksu.edu/pubs/MF632.pdf

8 Crime Prevention through Environmental Design (CPTED)

9 www.justice.govt.nz/assets/Documents/Publications/cpted-part-1.pdf

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www.urbanreleaf.org/get-educated/benefits-of-trees

11 www.sportsouthland.co.nz/Programmes/Green-Prescription/Green-Prescription-1

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13 Wolf, K, 1998(c) Urban Forest Values: Economic Benefits of Trees in Cities, University of Washington College of Forest Resources, Factsheet #29.

14 Abdel-Aziz, Dania & Shboul, Abdulsalam & Al-Kurdi, Nabeel. (2015). Effects of Tree Shading on Building's Energy Consumption -The Case of Residential Buildings in a Mediterranean Climate. 2015. 131-140. 10.5923/j.ajee.20150505.01.

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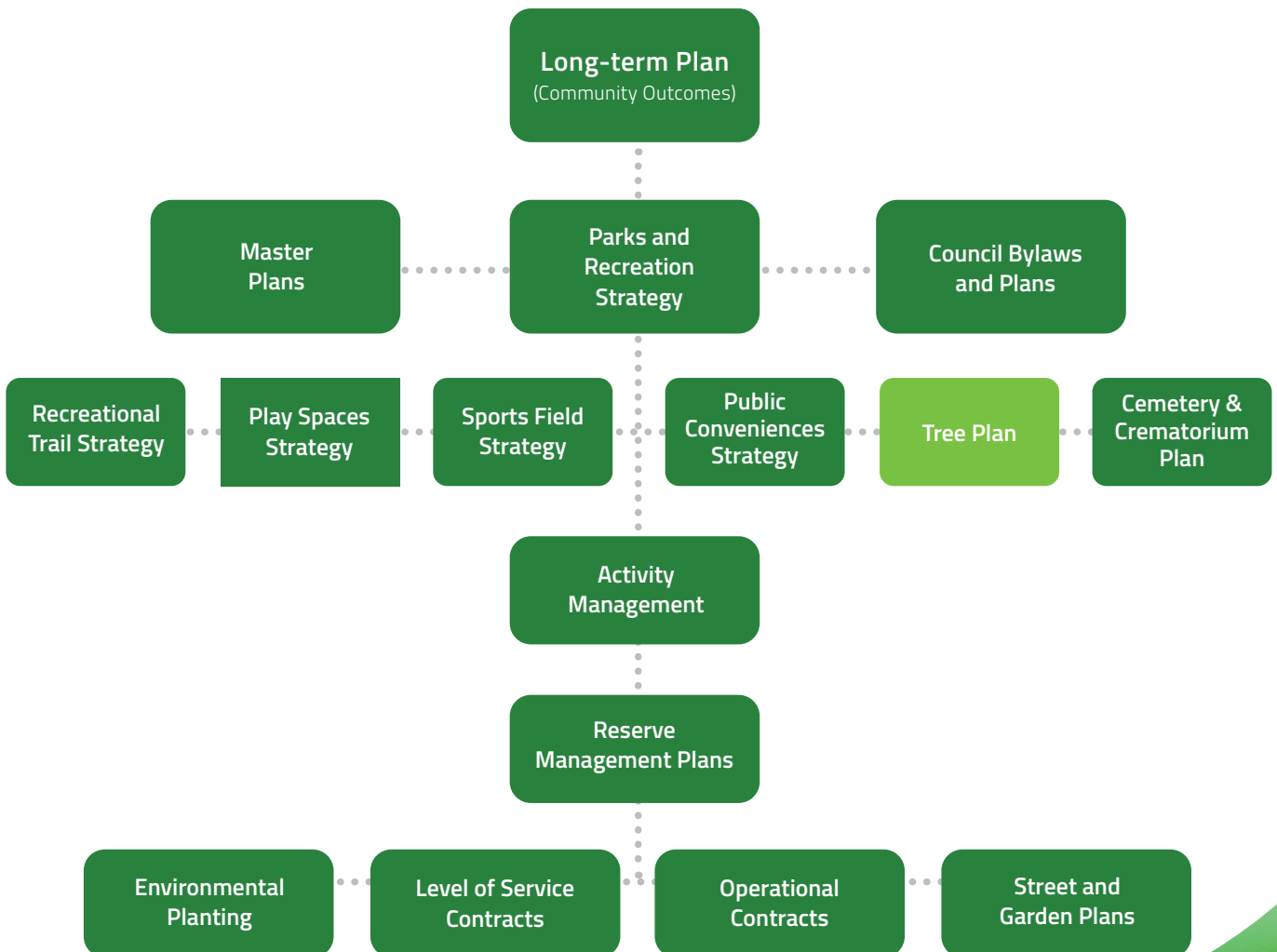


APPENDIX 3 – Strategy Framework

External to Council :



Council/Parks and Recreation Planning Structure:



APPENDIX 4 – Policy Information

3.2 Trees in Parks, Reserves and Cemeteries

The conditions of many of the City's existing mature trees are declining due to ageing and environmental factors, as well as increased urban development. This decline contributes to the loss of biodiversity through habitat loss and places increased pressures on the City's natural ecosystems. Good age diversity is essential to maximise the benefits of urban trees. Diversity of age also provides a greater ability to normalise budgetary requirements.

3.5 Street Tree Planting

Street trees are the City's green connections with Parks and provide many benefits to residents such as screening, and shade over footpaths and car parking. The choice of tree species helps reinforce the character of each suburb.

As a part of the streetscape activity / considerations of Council, generally most street planting and landscape works in road reserves take place as part of the construction or reconstruction of roads in areas undergoing subdivision and land development.

Planting and landscaping opportunities should also be considered as part of road reconstruction works as this is the most opportune time to do so.

Tree size and form in relation to footpath and berm width

The height a tree may grow to is not necessarily an indication of whether it is suitable for planting in footpath berms. For example, many low growing trees also have low, wide spreading crowns that create significant maintenance problems in the repeated pruning required to clear road traffic and pedestrians. Usually the tree form is compromised by pruning and is therefore reduced to something of an eyesore in the process.

3.19 Planting and Maintenance – Operations Standard Specifications

There is no plan or programme in place currently for the replacement of old trees and the only resemblance of a planting plan is after the street tree survey is carried out. That is when Council staff identify plants for removal or replacement. See Appendix 10 for the beginnings of a maintenance programme Parks and Recreation is currently developing.

Other planting, maintenance or removal requirements are driven by public requests for service, e.g. shading, leaves, berries, etc.

3.20 Trees Affecting Public Services, Utilities or Structures

The regulations define the safe distances between the trees and the overhead lines, and specify who is responsible for ensuring these distances are maintained.

Where any tree in Council land encroaches within the specified safe distances, Council as the owner is responsible for ensuring the necessary lines clearance work is carried out.

In failing to do so Council may be considered liable if any damage or accident occurs (see worksafe.govt.nz).

Trees are relatively dynamic structures that have the potential to cause damage to any fixed object near them by way of root and branch growth and the continuing expansion of the trunk and root crown.

Tree parts also move under wind loading exacerbating any damaging effects on adjacent objects.



3.23 Operational guidelines and standards for tree work

A monitoring system for all trees covered in this Plan is currently being formed to enable a suitably qualified Council approved person to physically identify and monitor trees for various stages of decay / age or leaning to justify a proactive approach of removing before they become a safety issue.

This includes GIS of trees (beginning with hazardous trees) and identifying tree characteristics and features, including condition rating.

3.25 Use of Agricultural Chemicals / Pesticides

The application of chemical herbicides is often required to control weeds and noxious plants. Undesirable trees may harm desirable plants and vegetation, and detract from the enjoyment, aesthetics and function of a particular area. Insect and animal pests also need to be controlled from time to time.

3.26 Biosecurity Measures

These organisms can be formed into three main groups:

- Plants that are pests themselves.
- Pests (insects) that can damage or destroy trees or vegetation.
- Diseases (pathogenic fungi, bacteria) that may debilitate or destroy trees or vegetation.

APPENDIX 5 – Current List Of Species and Area Locations Of Street Trees 2019

*Please note: some trees on current list are also planned for removal – see **Appendix 7**

Species	Common Name	Area Name	Tree Count
Acer negundo	Box Maple	HAWTHORNDALE	2
Acer platanoides	Norway maple	ROCKDALE	2
Acer pseudoplatanus	Sycamore	GLADSTONE	66
Acer sp.	Maple	CENTRAL	1
Aesculus hippocastanum	Horse Chestnut	AVENAL	47
Aesculus sp.	Chestnut	WINDSOR	47
Alder	Alder	NEWFIELD, HEILDELBERG	7
Alder cordata	Alder	WINDSOR	13
Alnus	Alder	WINDSOR	2
Alnus cordata	Alder	RICHMOND	92
Alnus glutinosa	Alder	GRASMERE	275
Alnus incana	Alder	HAWTHORNDALE	103
Amelanchier canadensis	Amelanchier	NEWFIELD, HEILDELBERG	279
Arbutus	Strawberry Tree	WINDSOR	1
Arbutus unedo	Strawberry Tree	HAWTHORNDALE	28
Arbutus unedo.	Strawberry Tree	GRASMERE	333
Atherospermum	Sassafras	GRASMERE	64
Atherospermum moschatum	Sassafras	ROSEDALE	4
Azara microphylla	Vanilla Tree	WAVERLEY	20
Beech	Beech	CENTRAL	1
Berberis	Barberry	WINDSOR	2
Betula	Silver Birch	HAWTHORNDALE	1



Species	Common Name	Area Name	Tree Count
Betula alba	Silver Birch	GEORGETOWN	47
Betula jacquemontii	Himalayan Birch	NEWFIELD, HEILDELBERG	173
Betula papyrifera	Paper Birch	NEWBIE	12
Betula pendula	Silver Birch	GRASMERE	166
Betula.	Silver Birch	GRASMERE	17
Callistemon rigidus	Bottlebrush	GLADSTONE	4
Camellia	Camellia	HAWTHORNDALE	1
Carpinus betulinus	European Hornbeam	APPLEBY	1
Chamaecyparis lawsoniana "Silver Queen"	Lawson Cypress	GEORGETOWN	57
Cordyline australis	Cabbage Tree	NEWFIELD, HEILDELBERG	36
Crataegus	Hawthorn	KEW	9
Embothrium	Chilean Firebush	NEWBIE	9
Eucalyptus	Gum	DUNBEATH	21
Eucalyptus cordata	Gum	GRASMERE	7
Eucryphia moorei	Gum	GRASMERE	5
Euonymus	Spindle Tree	GLADSTONE	1
Fagus purpurea	English Beech	WINDSOR	1
Fagus sylvatica	English Beech	RICHMOND	33
Fagus sylvatica purpurea	English Beech	HAWTHORNDALE	4
Forsythia	Forstia	APPLEBY	16
Fraxinus	Ash	GEORGETOWN	68
Fraxinus americana	White Ash	NEWFIELD, HEILDELBERG	9
Fraxinus excelsior	European Ash	KEW	144
Fraxinus ornus	Manna Ash	NEWBIE	697
Fraxinus Raywoodii	Claret Ash	DUNBEATH	9

Species	Common Name	Area Name	Tree Count
Fraxinus.	Ash	GRASMERE	1
Garrya elliptica	Silk Tassel Bush	GRASMERE	1
Griselinia	Broadleaf	ROSEDALE	113
Griselinia littoralis	Broadleaf	CENTRAL	163
Griselinia littoralis 'Green Jewel'	Broadleaf	GLADSTONE	3
Griselinia littoralis 'variegata'	Broadleaf	GRASMERE	72
Hoheria sexstylosa	Ribbonwood	WINDSOR	4
Ilex	Holly	GRASMERE	3
Ilex aquifolium	Holly	GLADSTONE	21
Ilex sp.	Holly	ROSEDALE	12
Juniperus chinensis kaizuka	Juniper	WAVERLEY	54
Laburnum	Laburnum	WINDSOR	10
Laburnum alpinum	Laburnum	RICHMOND	3
Laburnum waterii	Laburnum	HAWTHORNDALE	2
Liriodendron aureomarginatum	Tulip Tree	GEORGETOWN	1
Malus	Apple	NEWFIELD, HEILDELBERG	21
Malus strathmore	Crab Apple	KEW	3
Malus 'Van Eseltine'	Crab Apple	DUNBEATH	1
Nothofagus	Beech	GLADSTONE	2
Nothofagus fusca	Red Beech	ROSEDALE	5
Nothofagus oblique	Roble Beech	WINDSOR	1
Olearia Dartonii	Tree Daisy	RICHMOND	31
Olearia macrodonta	Mountain Holly	GEORGETOWN	11
Olearia paniculata	Akiraho	ROSEDALE	7
Olearia traversii	Chatham Island Ake Ake	RICHMOND	44
Phebalium	Phebalium	GRASMERE	62



Species	Common Name	Area Name	Tree Count
Phebalium squameum	Phebalium	NEWFIELD, HEILDELBERG	9
Photinia	Photina	ROSEDALE	1
Pittosporum	Waihao	NEWFIELD, HEILDELBERG	14
Pittosporum crassifolium	Karo	KEW	6
Pittosporum ICC	Pitto	GRASMERE	7
Pittosporum Stephens Island	Pitto	ROSEDALE	22
Pittosporum tenuifolium	Kohuhu	CENTRAL	9
Plagianthus betulinus	Ribbonwood	GLENGARRY	2
Plagianthus regius	Ribbonwood	CENTRAL	1
Populus sp.	Poplar	HAWTHORNDALE	1
Populus tremuloides	Aspen	DUNBEATH	6
Prunus	Cherry	ROSEDALE	36
Prunus accolade	Flowering Cherry	GRASMERE	371
Prunus blireana	Flowering Plum	ROSEDALE	6
Prunus hillieri spire	Flowering Cherry	WINDSOR	24
Prunus kanzan	Flowering Cherry	GRASMERE	199
Prunus Mountain Haze	Flowering Cherry	GRASMERE	1
Prunus nigra	Flowering Cherry	GLADSTONE	17
Prunus 'seaview beauty'	Flowering Cherry	ROSEDALE	2
Prunus sp.	Flowering Cherry	WAVERLEY	3
Prunus x hillieri 'spire'	Flowering Cherry	CENTRAL	1
Prunus yedoensis	Flowering Cherry	GLENGARRY	655
Prunus yedoensis 'Awanui'	Flowering Cherry	RICHMOND	41
Prunus yedoensis hillieri 'spire'	Flowering Cherry	HAWTHORNDALE	2
Pseudopanax crassifolius	Lancewood	GEORGETOWN	11
Quercus fastigiata	Oak	NEWFIELD, HEILDELBERG	59
Quercus palustris	Oak	ROCKDALE	30
Quercus robur	Oak	KEW	7

Species	Common Name	Area Name	Tree Count
<i>Quercus robur Fastigiata</i>	Oak	DUNBEATH	47
<i>Sophora</i>	Kowhai	HAWTHORNDALE	18
<i>Sophora microphylla</i>	Kowhai	GLADSTONE	89
<i>Sorbus</i>	Rowan	ROSEDALE	21
<i>Sorbus aria</i>	Rowan	WAVERLEY	251
<i>Sorbus Aria</i>	Rowan	CENTRAL	2
<i>Sorbus aucuparia</i>	Rowan	WINDSOR	28
<i>Sorbus hupehensis</i>	Rowan	RICHMOND	11
<i>Taxus baccata</i>	English Yew	HAWTHORNDALE	1
<i>Telopea oreades</i>	Waratah	GEORGETOWN	32
<i>Tilia</i>	Lime	NEWFIELD, HEILDELBERG	16
<i>Tilia</i>	Lime	GLADSTONE	2
<i>Ulmus glabra</i>	Elm	ROSEDALE	15
<i>Ulmus parvifolia</i>	Elm	WAVERLEY	12
<i>Ulmus procera Louis</i>	Elm	GEORGETOWN	4
<i>Zelkova serrata</i>	Zelkova	NEWFIELD, HEILDELBERG	7



APPENDIX 6 – Proposed Information To Be Referenced By Roading and Traffic Bylaw Review

Invercargill City Council strongly supports the establishment of tree planting in streets in urban and rural areas throughout the City, provided the street design, planting locations and proposed tree species are considered suitable.

3.5 Street Tree Planting



Figure 3: Small street tree with wide crown form showing obstruction of footpath and road carriageway and unsightly clearance pruning required.

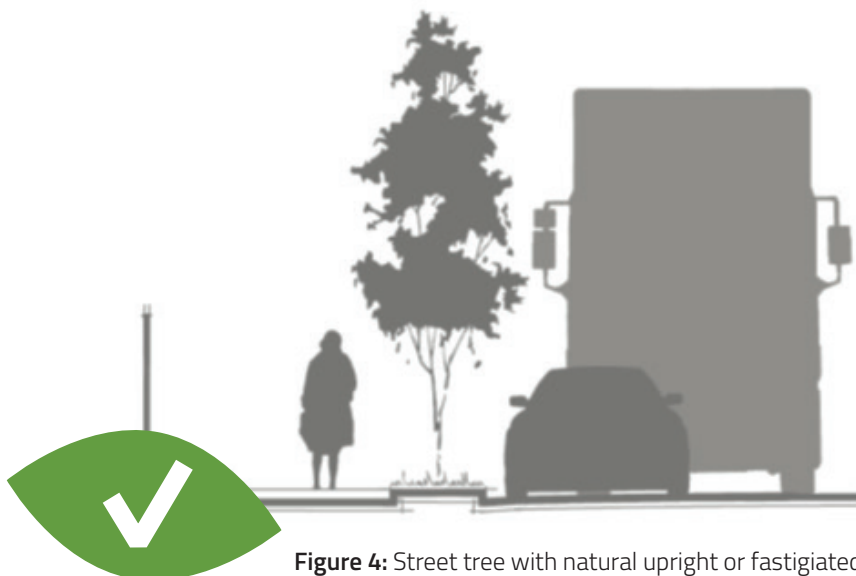


Figure 4: Street tree with natural upright or fastigiated crown form growing in narrow footpath berm or centre plot.



Figure 5: Large trees progressively pruned to clear footpath and a carriageway but natural attractive crown form preserved. Crown should be clear of bin arm with a 4m height clearance.

3.5.1 Street Tree Planting Process

3.5.1.1 In considering new plantings in established streets ICC will have regard for:

- The amount of time remaining before the road needs to be reconstructed.
- Any proposals to install overhead services underground.
- Current damage.
- Replacement of sewer / storm water and water reticulation.
- Any alternations to carriageway width.
- Alterations to footpaths and kerb channels.
- Changes to road levels in cross section.
- Any changes to the function of the street.
- Other network services.
- Street place and form.
- Traffic movement.
- Refuge and recycle collection bin placement consideration along the street to allow for a 4.2m height clearance under the canopy of trees.

3.5.1.2 The ICC Roding Manager will consider views of adjacent property owners when plantings across frontages are proposed. The ICC Roding Manager will make the final decision as Council is the owner of the frontage.



3.5.2 Street Tree Planting Plans to be approved by Council

3.5.2.1 As a part of the streetscape activity / considerations of Council it should require that landscape planting plans are submitted for approval with Council works and the subdivision / development application plans. The plans should include:

- Planting design
- Plant species (type of tree)
- Ownership
- Maintenance
- Location and spacing distances from services, utilities and structures (some may be noted in Rooding and Traffic Bylaw)
- Means of irrigation where necessary
- Plant support / staking
- Rubbish collection bin placement consideration along the street to allow for a 4.2m height clearance under the canopy of trees

3.5.2.2 Council may also require that root control barriers are to be installed. Plans should show all existing and proposed services, both above and below ground.

3.5.2.3 Public is discouraged from planting or spraying around the bases of street trees as per the Rooding and Traffic Bylaw, and other Rooding Operational Plans.

3.5.2.4 As far as practicable, street trees should be selected from the existing species list contained in Appendix 5 of this plan.

3.5.2.5 The proposed plan will be required to be signed off by the Rooding Manager but approved by the Parks and Recreation Manager, stating what trees will be planted or landscape plan proposed. Developers will be required to maintain the proposed trees for 1 -2 years after which then ICC takes over responsibility, including maintenance, replacements and inspections.

3.5.6 Safe planting distances of street trees from other structures

Trees or other tall growing vegetation shall meet the following minimum distances from the structures listed below:

Structure	Tree Planting Distance	Figure
Power poles	5.0 meters (expected maturity to be no closer than 4 meters)	
Back from kerb	1.0 meters	
Street light poles	10.0 meters	Figure 10
Traffic signals and sign posts	7.0 meters	Figure 11
Pedestrian crossings	6.0 meters	Figure 12
Bus stops	No planting (on the approach side) closer than 3.0 meters	
Water infrastructure, wastewater, sewer and storm water lines, mains and laterals	Minimum 1.5 - 3.0 meters	
Over carriageways (road)	4.25 meters (NZTA recommends advisory signage for structure clearances below 4.4)	
Driveways	distance in both directions – 3.0 meters	
Over public footpaths	2.4 meters (NZTA pedestrian guidelines)	
Traffic sightlines distances at intersections	20 meters from any give way sign	Figure 14
Traffic sightlines distances at intersections	80 meters in both directions	Figure 14

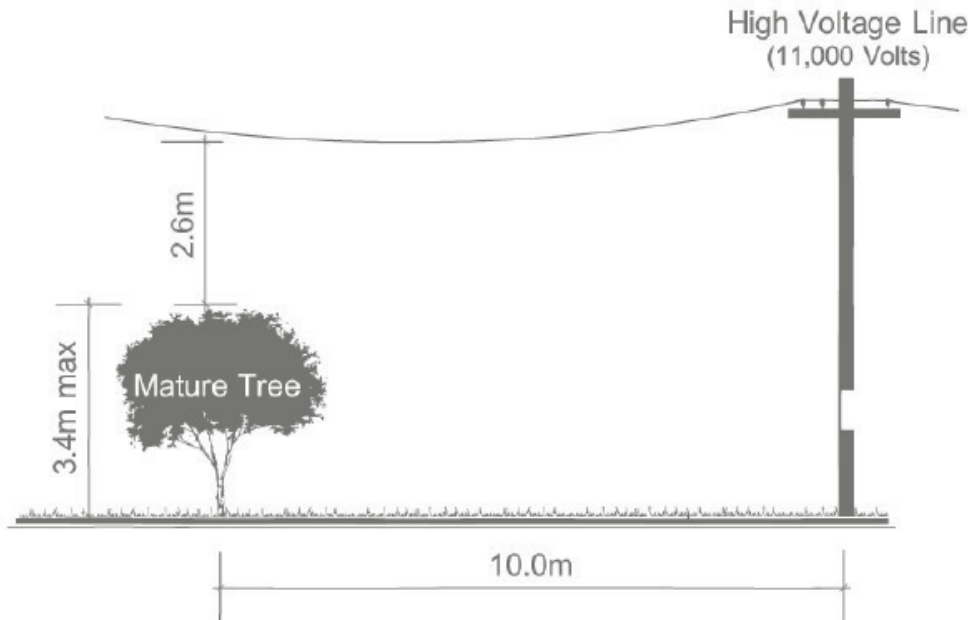


Figure 6: Low voltage lines – maximum potential tree height and minimum planting distance from power poles.

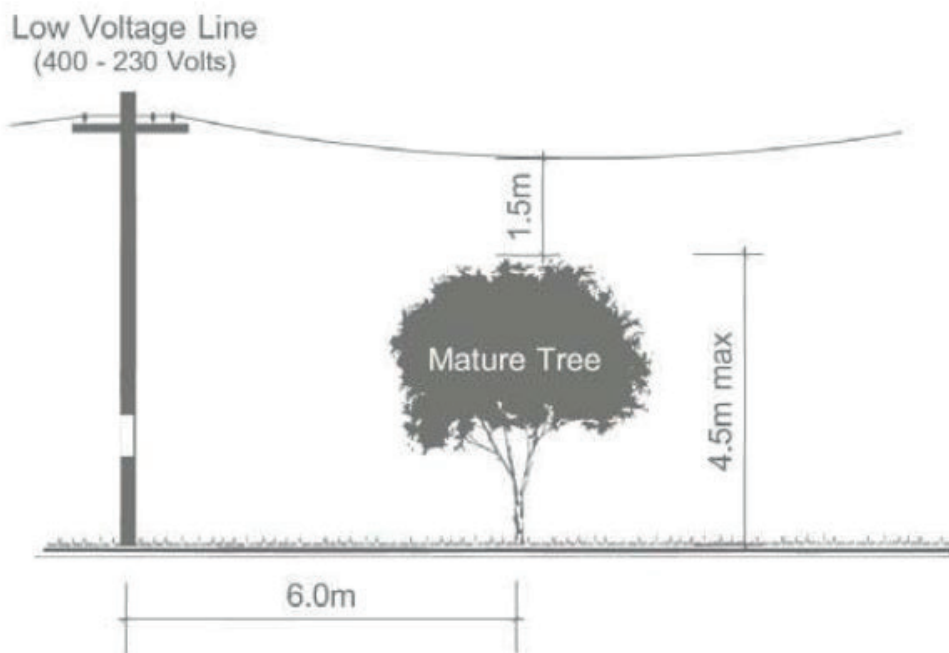


Figure 7: High voltage lines – maximum potential tree height and minimum planting distance from power poles

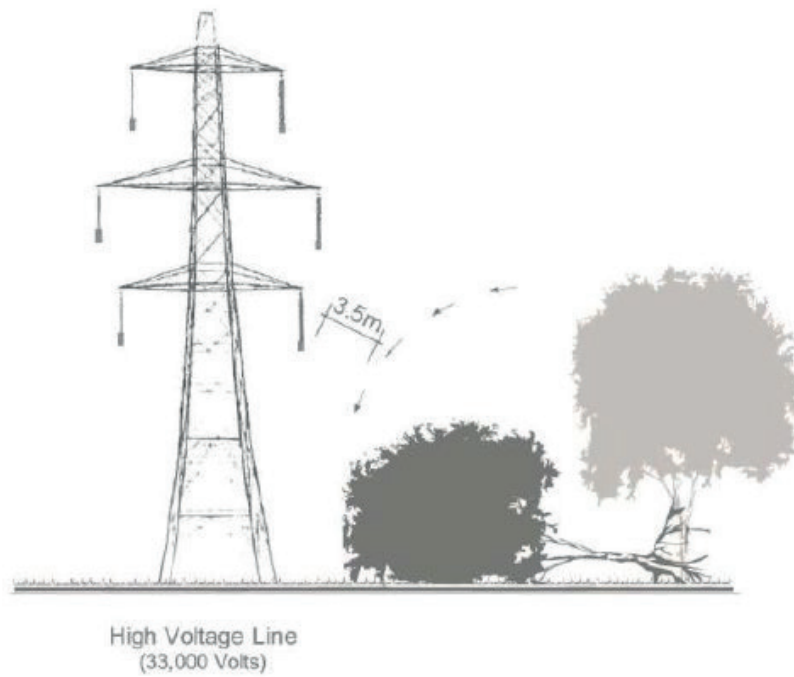


Figure 8: High voltage lines / pylons – trees should not be planted within illustrated distance of power lines and pylons.

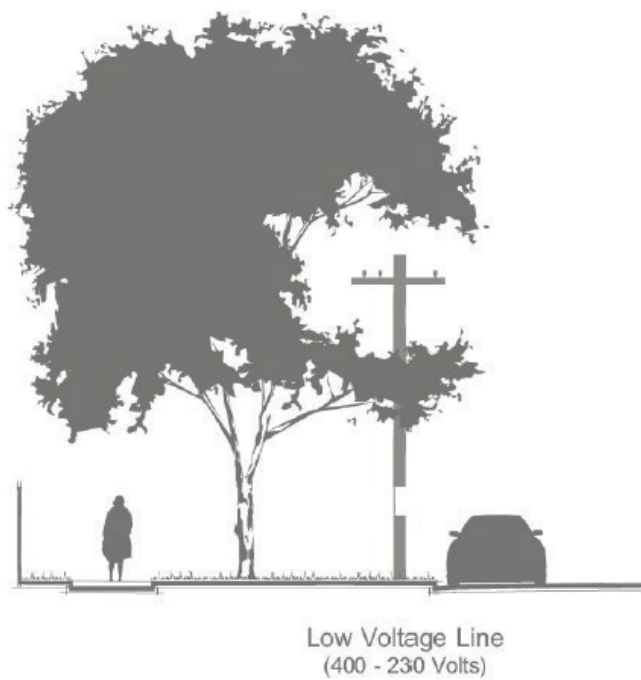


Figure 9: Large growing tree in maturity planted to side of power lines, showing pruning method to clear lines.

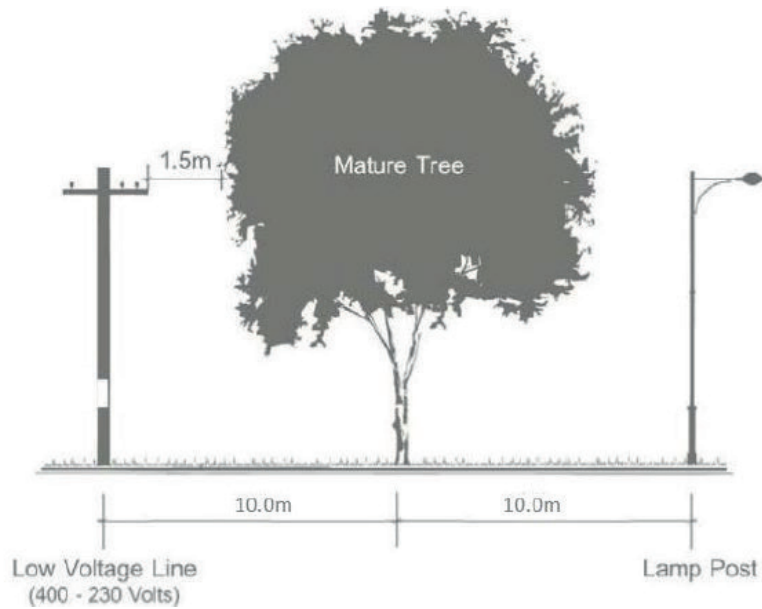


Figure 10: Minimum planting distance from power poles and street lamp posts.

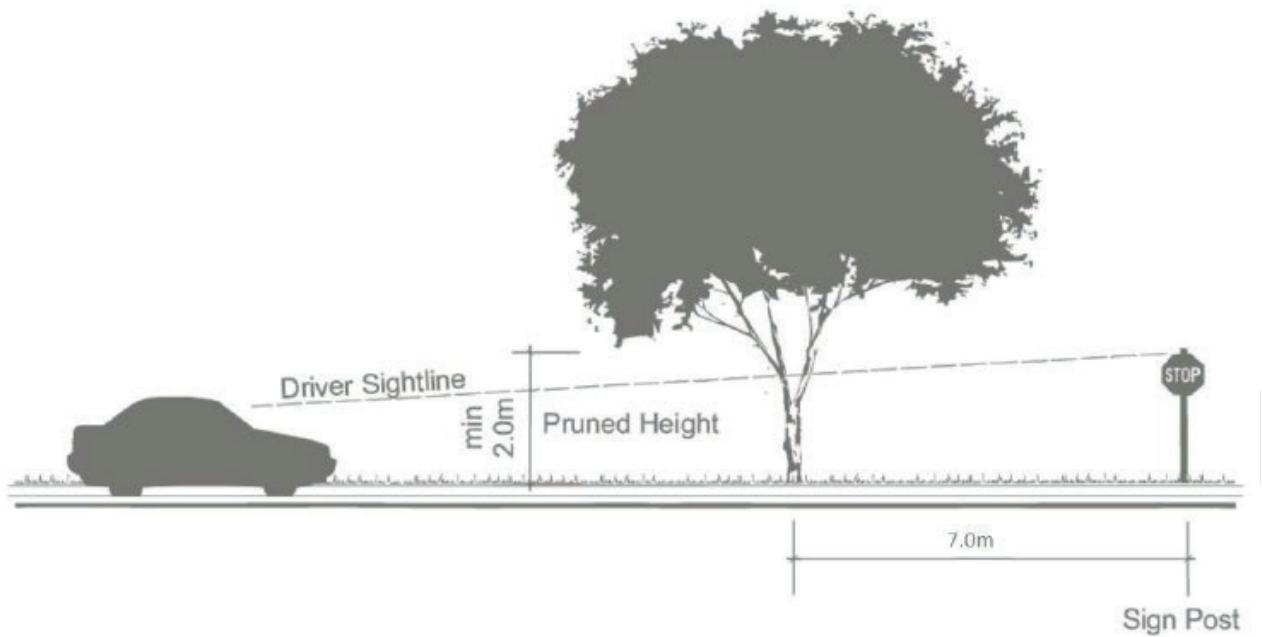


Figure 11: Minimum planting distance from street signs and signals showing drivers sightlines. Low branches pruned on tree to achieve required height.

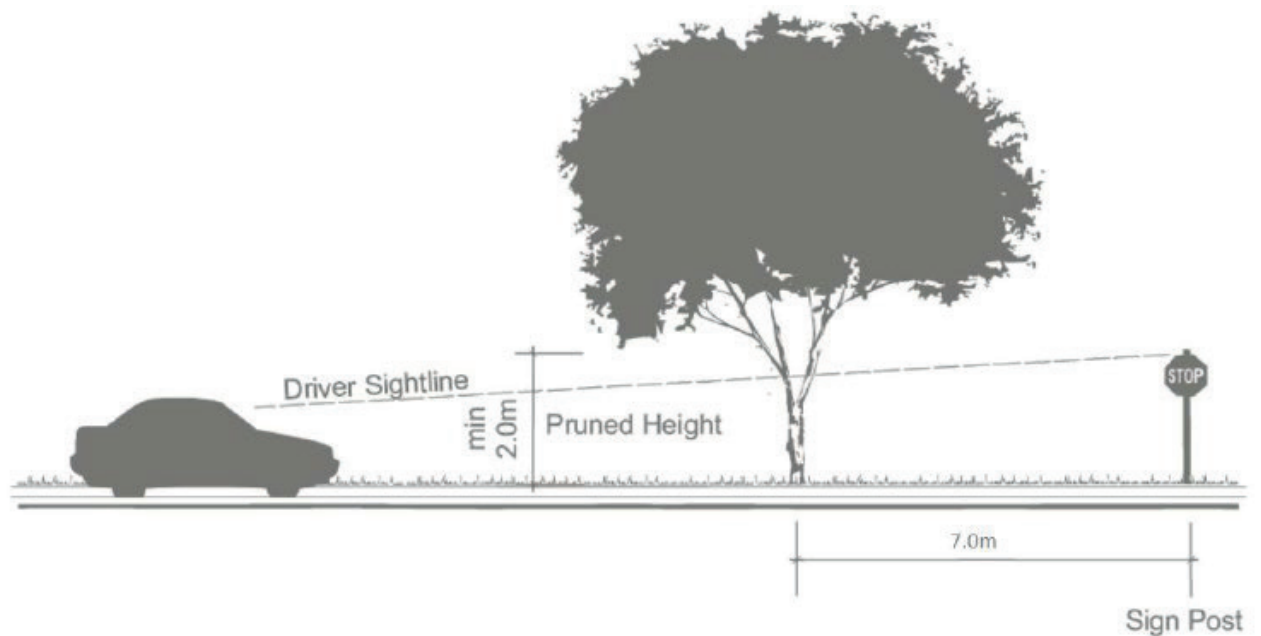


Figure 12: Minimum planting distance from street signs and signals showing drivers sightlines. Low branches pruned on tree to achieve required height.

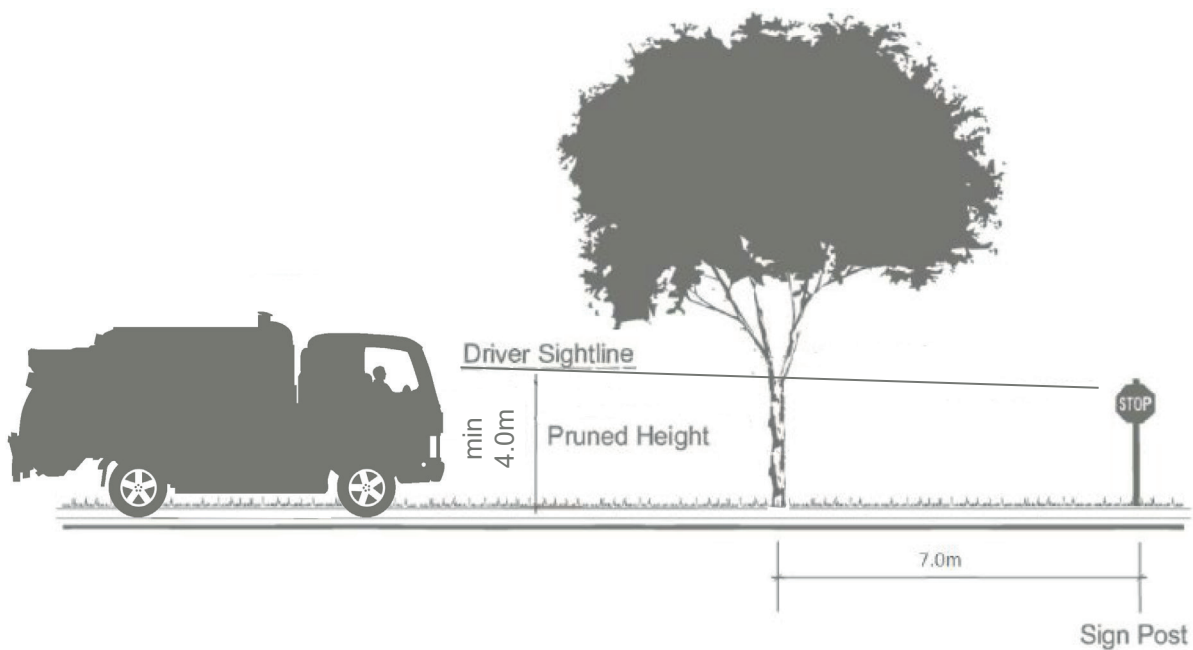
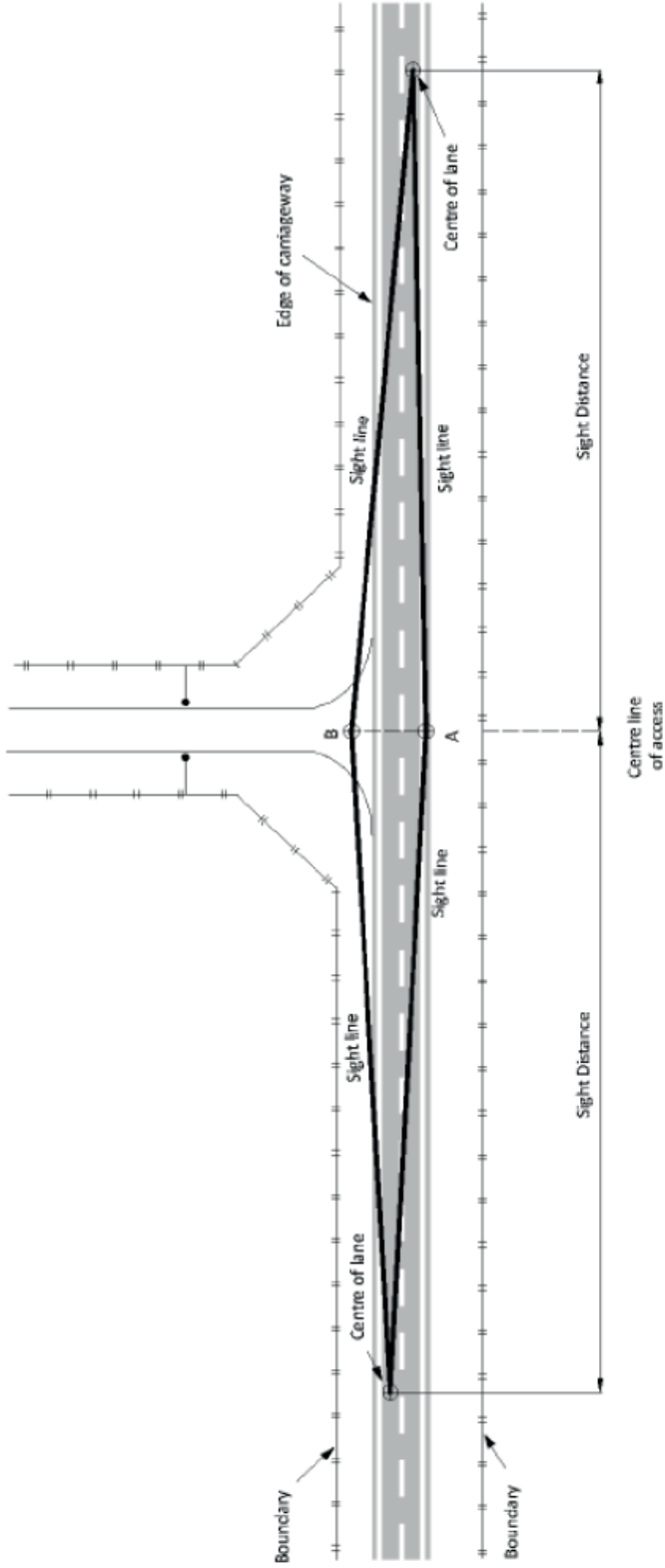


Figure 13: Narrative for graphic.

Only shrubs that will grow to no more than 60 centimeters in height or single trees that can be satisfactorily pruned to clear driver sightlines (see above) are to be planted within the sight distances shown. Note: truck drivers sit higher than passenger vehicles.



Point A Edge of carriageway

Point B 3.5 metres from edge of carriageway

Notes

Sight distances shall be measured from a point 1.15 metres (motorists eye level) above the finished surface of the access crossing place and 1.15m above the highway surface. There shall be no obstructions to visibility inside the area bounded by the sight lines.

Posted legal speed limit (km/h)	Minimum sight distance (m):		
	Local roads	Collector roads	District/strategic roads
50	65	75	73
60	85	90	92
70	105	115	114
80	125	140	139
90	150	165	165
100	195	195	193

Figure 14: Safe intersections sight distances (SISD).

3.20 Street Trees Affecting Public Services, Utilities Or Structures

Street trees should be planned for their lifecycle as such are crucial to local infrastructure.

3.20.1 Street Trees near power lines

If a dispensation is granted, it will be Council's responsibility to ensure that the tree does not encroach into the "growth limit zone" (beyond the "notice zone") – refer to figure 15.

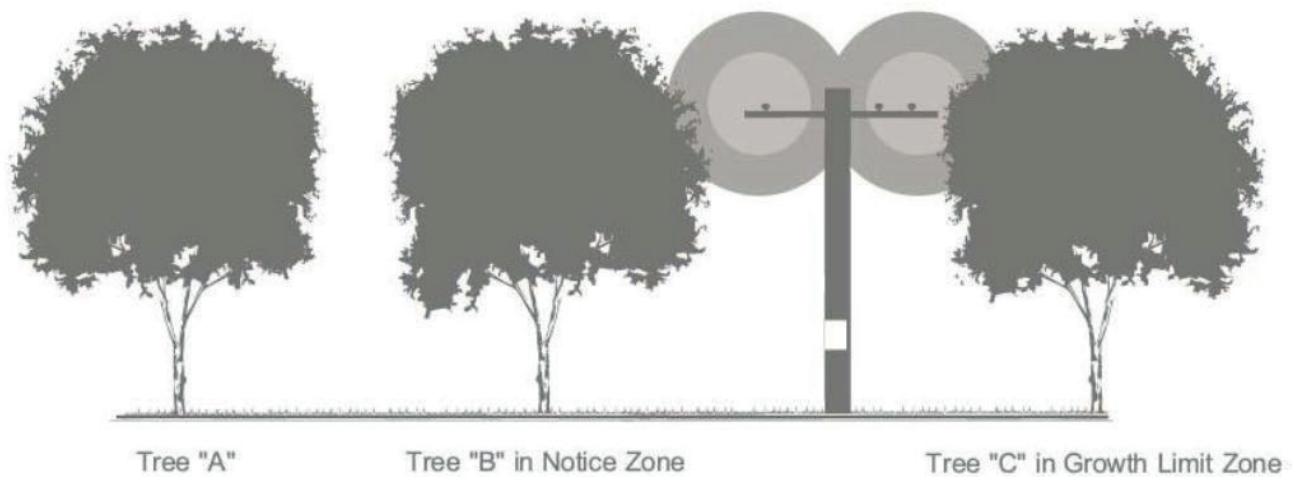


Figure 15: Notice zone and growth limit zone



For spans less than or equal to 150 meters:

Voltage of conductors other than aerial bundled conductors or conductors insulated by other means	Distance in any direction from any point on conductor (metres)
66 kV or greater	5.0 meters (expected maturity to be no closer than 4 meters)
50 kV to 66 kV	4
33 kV	3
11 kV	2.5
400/230 v	L1.6
Voltage of aerial bundled conductors or conductors insulated by other means	Distance in any direction from any point on conductor (metres)
Any voltage where the conductor is an aerial bundled conductor or is otherwise insulated	0.5

Key: kV = kilo
v = volts

For spans greater than 150 meters:

Overhead Line (high voltage span lengths)	Vertical Distance	Horizontal Distance	Note: 1. Add on another metre to identify the notice zone distance. 2. D1 = distance for the first 15% at each end of span at either end of span. 3. D2 = distance from the centre 70% of each span.
150 to 300	4.0 metres	D1 = 4.0 metres D2 = 8.0 metres	
310 to 500	4.0 metres	D1 = 7.50 metres D2 = 15.0 metres	
510 to 700	4.0 metres	D1 = 15.0 metres D2 = 30.0 metres	
Greater than or equal to 710	4.0 metres	D1 = 25.0 metres D2 = 50.0 metres	



Figure 16 : Small trees planted under low and high voltage power lines



Figure 17 : Large trees planted too close to high voltage power lines



3.20.4 Street trees and street lights

In planting new trees in streets, Council will ensure they will not cause serious obstruction of the street lights in the future by planting the trees not less than 10m from the light poles (refer to Section 3.5 – Street tree planting and figure 10. Distance may vary depending on the tree size or width.

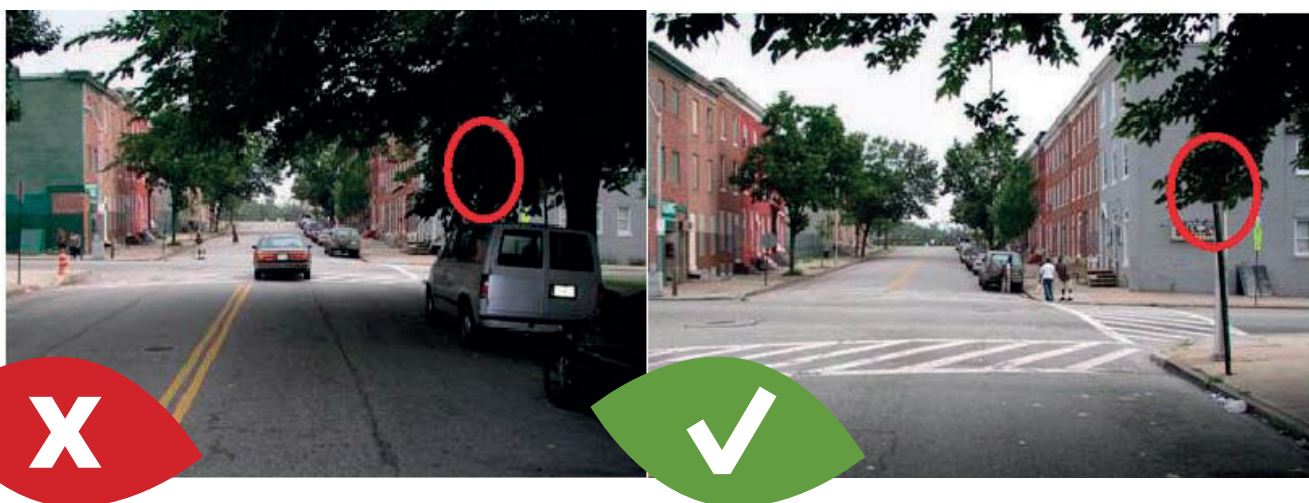


Figure 18 : Left shows the incorrect way and right shows the correct location of the tree relative to the street light so as not to obstruct it.

3.29.3 Private trees / vegetation encroaching over legal road boundaries

- Any road safety hazard such as obscuring sightlines at intersections of immediate hazard from falling trees or branches.
- Obstruction of road vehicles (trees / vegetation growing lower than 4.25m over road carriageway). Refer to figure 19.
- Where a road or street may be part of a defined over dimension vehicle route where larger clearances may be stipulated by Council.
- Obstruction of pedestrians using public footpaths (trees / vegetation growing lower than 2m over a formed sealed / paved footpath). See figure 20.
- Obscuring road traffic and pedestrian signs, signals and directional information.
- Obscuring streetlights.
- Damaging Council street furniture / structures.
- Damaging Council services or assets above or below ground.
- The roots from trees growing on private land abutting any Council road are causing or likely to cause damage to any part of the structure of the road.

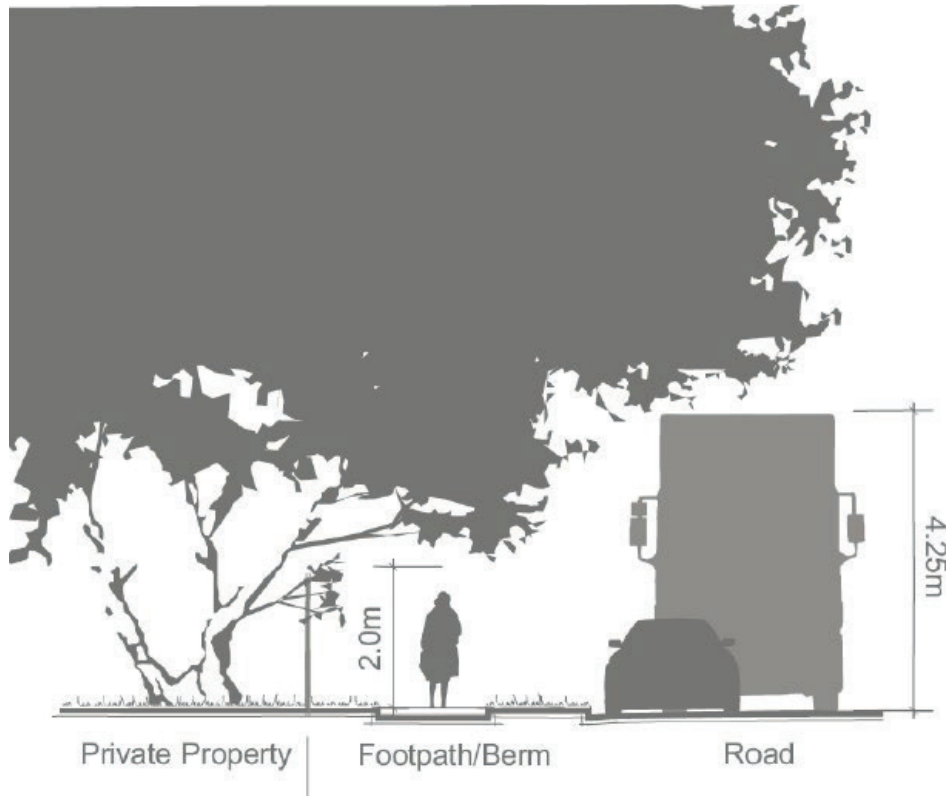


Figure 19: Private tree owner is required to maintain tree clearance over footpaths and road carriageways.

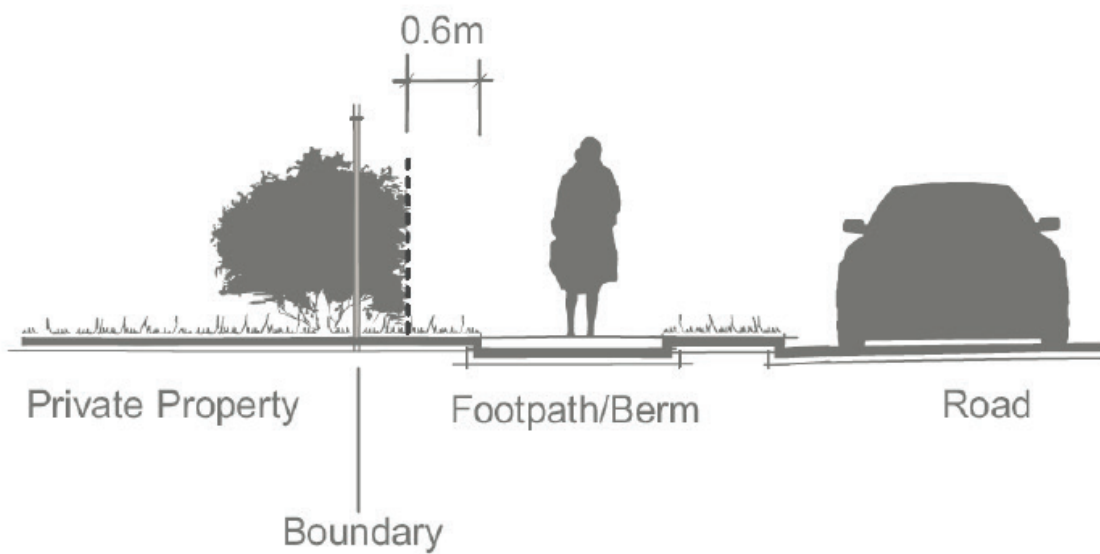


Figure 20: Private tree owner is required to maintain tree clearance over footpaths and road carriageways.



APPENDIX 7 – Street Tree Species Planned For Future Removal Or Planting

Tree Species planned for removal or not planting on streets in the future (may still be considered in other Council areas):

- Alders
- Berry trees
- Bottlebrush
- Brachyglottis
- Cabbage Trees
- Eucalyptus/Gum
- Euonymus/Spindle Tree
- Forsythia
- Hoheria sexstylosa
- Ilex/Holly
- Irish strawberry tree (berries)
- Macrocarpa
- Pine
- Poplar
- Rowan
- Silver birch (allergies, aphids, mould)
- Sorbus (berries)

Tree Species planned for planting on streets in the future:

- Acer
- Aesculus
- Carpinus
- Eucryphia
- Fagus (English Beech)
- Fraxinus ornus
- Gingko (Maidenhair Tree)
- Griselinia
- Liquidambar
- Magnolia grandiflora
- Phebalium
- Quercus
- Rata
- Sophora microphylla
- Tilia
- Ulmus
- Pseudopanax
- Zelkova

APPENDIX 8 – Proposed Information To Be Considered As Part Of The Subdivision Bylaw Review

Responsibility for aftercare of new tree plantings including post planting maintenance period by subdivider / developer

When the planting / landscape work has been completed, there will be a minimum 24-month period of maintenance by the subdivider / developer of all the trees and other landscape features in the subdivision. A 150% cash bond will be taken to ensure that landscape planting is maintained.

End of maintenance period

At the end of the maintenance period, Council will inspect the work to ensure the condition of the plants and all other aspects of the landscape design as originally approved, is entirely satisfactory for the cash bond to be refunded.

Council responsible for future maintenance

From the time the maintenance bond is refunded, the on-going maintenance of plants and the other reserve assets will become the responsibility of Council.

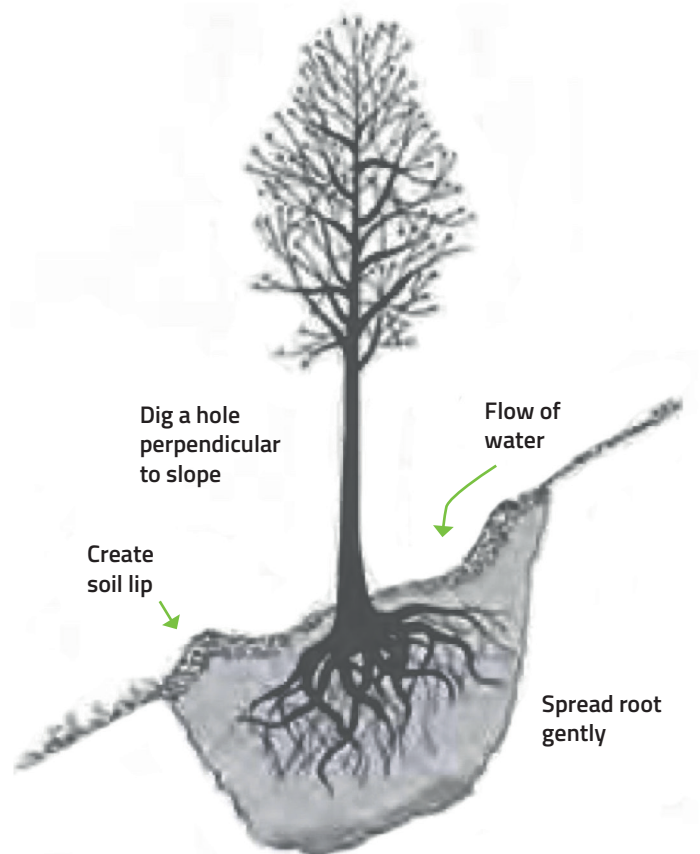
Tree Planting Process in subdivisions

New tree establishment covers preparation of planting pits, planting of trees, establishment of tree protection systems and initial watering into position. Aftercare of planted trees is included in the specification for Juvenile trees (2.2 of the Recreation Aotearoa Standards).

Tree establishment applies to specimen trees planted in parks, street spaces and other open spaces. The specification may also be applicable to large specimen shrubs, particularly where these are established in open areas rather than gardens.

Customer Outcomes

- New trees avoid the creation of future hazards or nuisance.
- New trees are well planted to ensure strong growth and development.
- New trees are well protected from damage.
- New trees are even and well-formed.



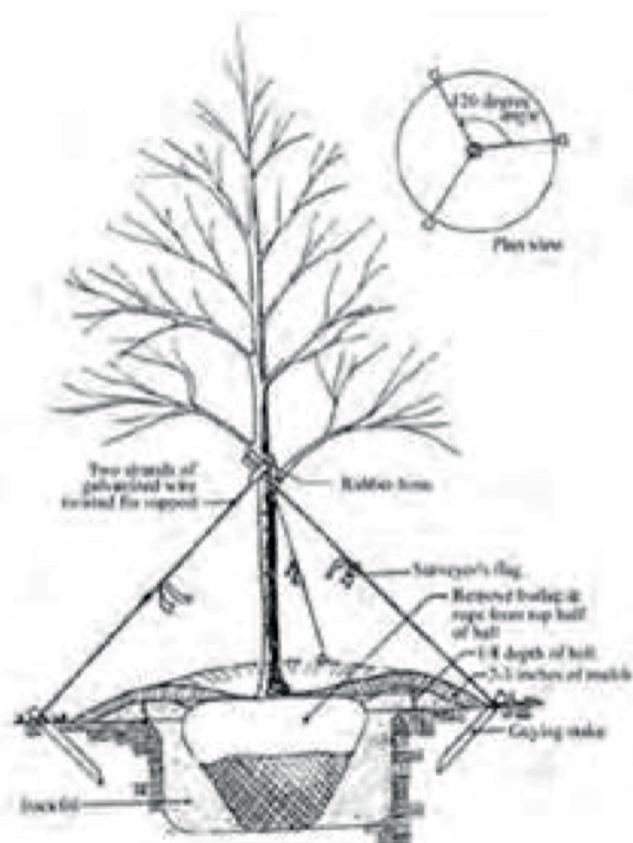
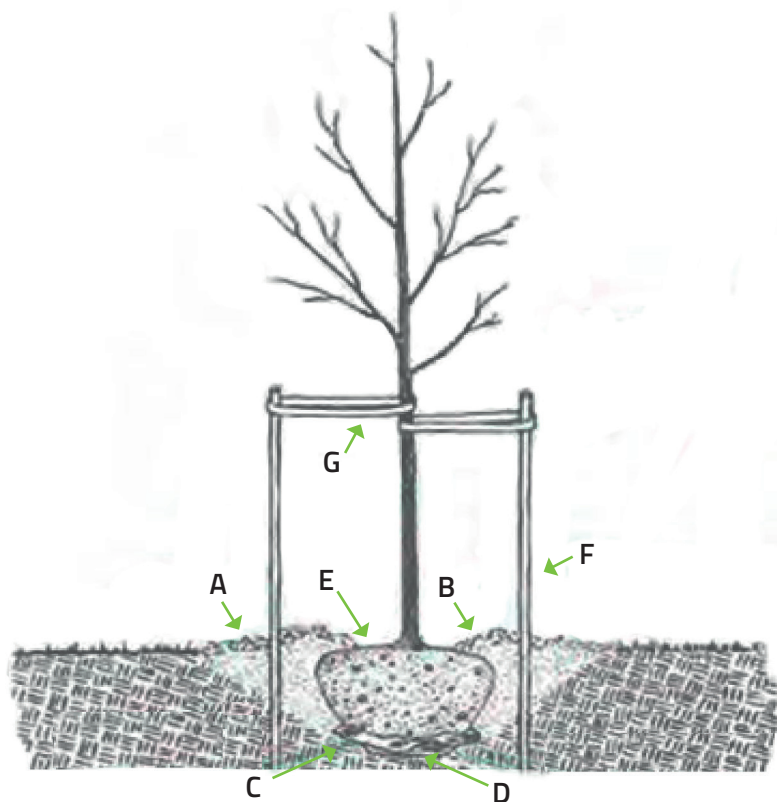
Planting detail for a tree on a slope showing:

- A soil lip downslope of the tree to hold moisture.
- The angle of the hole in relation to the slope.



Planting detail showing:

- A) Mulch over the backfilled soil to 50mm to 100mm depth.
- B) Mulch kept back from tree trunk.
- C) Tree pit at least three times wider than deep
- D) Root ball on firm soil to prevent settling.
- E) Soil backfilled to the same height as the top of the rootball.
- F) Tree stakes are well clear of the rootball and into unexcavated soil.
- G) Trees are supported with loose flexible ties.



Planting detail showing an alternative method of guying the tree to pegs. This is a useful method for supporting large trees where two wooden stakes would not provide enough support. Guy ropes or wires and pegs can be a hazard so need to be flagged, and should be removed as soon as the tree is stable.

APPENDIX 9 – Kiwirail Vegetation Management and Standards For On and Off Track Zones

Vegetation hazard management within the on-track and off track zones includes the clearance area within the rail corridor from fence to fence. This includes the areas containing the following railway infrastructure components:

Planting detail for a tree on a slope showing:

- A soil lip downslope of the tree to hold moisture.
- The angle of the hole in relation to the slope.
- track
- ballast section
- ballast shoulders and toe
- any structures (including cuttings and embankments, bridge abutments, retaining walls, shotcreted faces and other structures)
- yards
- wayside signs
- power lines within the corridor
- vegetation near the fence

Vegetation hazard management in the on-track and off track zones is necessary for the following:

- improving sight distance visibility of trains and maintenance vehicles
- maintaining visibility of signals, speed signs and kilometre posts
- preventing service interruptions
- reducing fire hazards by the encouragement of less fire prone plants
- maintaining efficient drainage, including within the cess strip on each side of the track
- keeping the space vertically above the ballasted and cess pit areas clear of all vegetation

- controlling soil erosion
- allowing safe walkways and machinery (off track) access ways for proper inspection
- facilitating maintenance of structures
- preventing any clearance hazards within and adjacent to right of way
- allowing proper inspections for cuttings and other civil structures

Key points to consider when selecting tree or shrub species for planting on land located in the vicinity of rail corridors are:

- Select genera and species that are not heavily deciduous as leaf fall on the track can be a major problem in winter and can cause traction issues through making tracks slippery, e.g. Quercus, Platanus
- Those species that cast heavy shade and promote damp areas where moss will grow also can cause traction issues
- Large trees and palms, bamboo and vigorous climbers are not appropriate as they can pose a significant risk to the rail network
- Tree species that “shed” limbs or are prone to uprooting, e.g. poplars, oak, Salix and eucalypts are not good options for planting on land adjacent to the rail corridor for obvious reasons; fire prone species are not a wise choice
- Choose species that do not self-seed heavily so as not to create infestations of rogue seedlings and wildings, e.g. pine



- Know the mature height of the tree you are going to plant, e.g. if this is 5 metres you should be planting it at least 5 metres away from the outside edge of the on-track zone which is another 4 metres from the railway track, therefore, for this example allow a total of 9–10 metres planting distance away from the track edge

Vegetation Standards for off track zones:

The basic premise of integrated vegetation management is that all vegetation management activities are to be planned and conducted in such a way that discourages or eliminates unwanted vegetation and promotes desirable vegetation.

The goals and objectives in the KiwiRail Integrated Vegetation Management Plan include:

- Reduce the prevalence of pest weeds
- Ensure new ballast material is weed free
- Lower the maintenance costs of vegetation management in the long term
- Replace pest weeds with low growing native plants and grasses
- Stabilise banks and cuttings with suitable vegetation
- Establish more "Greenway" type planting initiatives (there are 45 sites so far)
- An improvement in the amenity value and quality of the track asset
- Maintain a stable, self-sustaining, plant community that is compatible with railway safety and health requirements
- To improve relationships and work in partnership with communities of interest (e.g. Regional Councils, adjoining owners, NZTA)
- Reduce the reliance on chemical control and vegetation clearance

- To plant species that are suitable to site conditions (physical and operational)

In the Off Track Area vegetation must be managed in order to:

- Maintain visibility (i.e. sight lines) at road and pedestrian crossings
- Maintain sight line visibility at curves
- Provide clear visibility of railway signs and signals
- Maintain the integrity of railway communication and electrical distribution lines
- Reduce physical hazards to train crews and track maintenance personnel
- Reduce the fire hazard potential
- Reduce the prevalence of pest weeds in Regional Pest Management Plans / good neighbour requirements
- Stabilise banks and cuttings
- Removing vegetation that is impacting railway security fences
- Removing trees that block the line of sight between radio repeaters
- Keep vegetation clear of drains and culverts

The Off Track zone is subdivided into an Operational Zone that extends 1.5 metres from the toe of the ballast formation and a Buffer Zone which is the area that remains out to the legal boundary.

The Operational Zone provides for safe foot access, visibility of signs and the location of cess drains at the toe of the ballast. This zone is maintained through periodic mulching and spraying to keep the height of vegetation below 0.5 metres.

The Buffer Zone is the transitional area between the track operation and adjacent land uses. This area is maintained to the greatest degree possible as a self-sustaining plant community, to minimise erosion as well as the growth of weeds and undesirable trees. In urban areas, additional maintenance is required on fence lines and buildings to minimise property damage and graffiti.

Remaining Lines

Progressively remove priority 1 and 2 trees (as opposed to side trimming of trees) from the corridor. Encourage suitable grasses on Off Track areas to suppress weed growth. Remove high risk fall zone trees.

Level and Pedestrian crossings

Vegetation within the desirable sight line distances (from ALCAM) will be maintained by regular spraying with residual chemicals or by establishing grass swards or low growth plants that require minimum mowing and maintenance.

Improving the amenity value of the rail corridor

Removing pest weeds and unwanted vegetation will over time significantly improve the amenity value for the following reasons:

- It will mean that unattractive and overgrown sections of the corridor will be easier to lease to neighbours and local authorities
- It will make the rail passenger experience more pleasant and commercially viable on scenic routes as well as making the open viewing carriages safer for passengers
- It will reduce the fire hazard
- Presenting a tidy and weed free rail corridor will reduce litter and graffiti levels
- There will be more interest from Councils to contribute to graffiti removal and planting initiatives

- It will make the rail corridor a safer and more pleasant environment for staff and contractors to work in (refer NZTA Guidelines for Highway Landscaping for further information and specifications)

Slope Stability

The vegetation management of banks and cuttings requires special attention to ensure slope stability is maintained or enhanced. Instability has the potential to create land slips or erosion that can obstruct drains and culverts and destabilise the track infrastructure. Vegetation can have a positive role in assisting with slope stability. There is improved knowledge and best practice in the engineering performance and ecological character of vegetation management on slopes. These range from mechanical re-enforcement and restraint by the roots to modification of slope hydrology as a result of rain drop interception by the foliage and soil moisture extraction by the process of evapo-transpiration. A tight, dense cover of grass or herbaceous vegetation provides one of the best protections against erosion. Conversely, deep rooted, woody vegetation is more effective for mitigating or preventing shallow, mass stability failures.

Removal of woody vegetation can cause increases in the rates of erosion and slips can be on average five times greater than on undisturbed, vegetated slopes. Selective herbicides will only be used on steep cuttings (if at all) to minimise killing non target vegetation.



Overall Goal

The overall goal of the vegetation standards and the integrated vegetation management plan is to ensure effective vegetation management while considering and incorporating environmental and human health values. KiwiRail and Treescape are committed to ensuring that worker, public safety and environmental protection considerations are in balance with the safe and efficient operation of the national railway network.

Typical cross sections

Cross sections are attached for Metro vegetation less than 20 metre corridor, Metro vegetation wider than 20 metres, rural lines with boundary planting, and rural lines with grass.

APPENDIX 10 – Hazardous Trees Tree Maintenance Programme (As At July, 2019)

Species: Pine, Mac, Eucalypt, Poplar, Willow

Date Entered	RFS / Works Order	Tree Id Number	Singular / group	Tree	Numbers	Age if Known
11/04/2019	11/04/2019		Group 1	Pine / various	20	
11/04/2019	Chris		Group 2	Mac/ Pine	12	
11/04/2019	Chris/Lyn Jack		Single	Mac/ Pine	1	
17/04/2019	Franklin Trees		Single	Pine	1	
17/04/2019	Franklin Trees		Single	Cypress	1	
17/04/2019	Franklin Trees		Single	Mac	1	
17/04/2019	Franklin Trees		Single	Mac	1	
17/04/2019	Franklin Trees		Single	Mac	1	
24/04/2019		QP 1947	Single	Eucalyptus nitens	1	80



Customer Details (internal use only)	Address/ Site	Note	Risk 1-5	Programmed for	Waiting Approval	Completed
	Ness /Etrick	Remove group 1 so that group 2 can be removed at a later date	5		Yes	
	Ness /Etrick	Remove group 1 so that group 2 can be removed at a later date	3		Yes	
	Newfield Park	Removal/ Shading Property	5	Nov-19	Yes	
	Tree 6 - Southern Boundary, QP	Trunk failure from buckling	1		Yes	
	Tree 12 - Southern Boundary, QP	Included leaders	1		Yes	
	Tree 25 - Southern Boundary, QP	Leader failure from cavity	1		Yes	
	Tree 28 - Southern Boundary, QP	Dead Pole	1		Yes	
	Tree 30 - Southern Boundary, QP	Trunk failure from cavity	1		Yes	
Y	Alice St - North boundary QP	Leaning North to South over golf green	3	Monitoring	Yes	

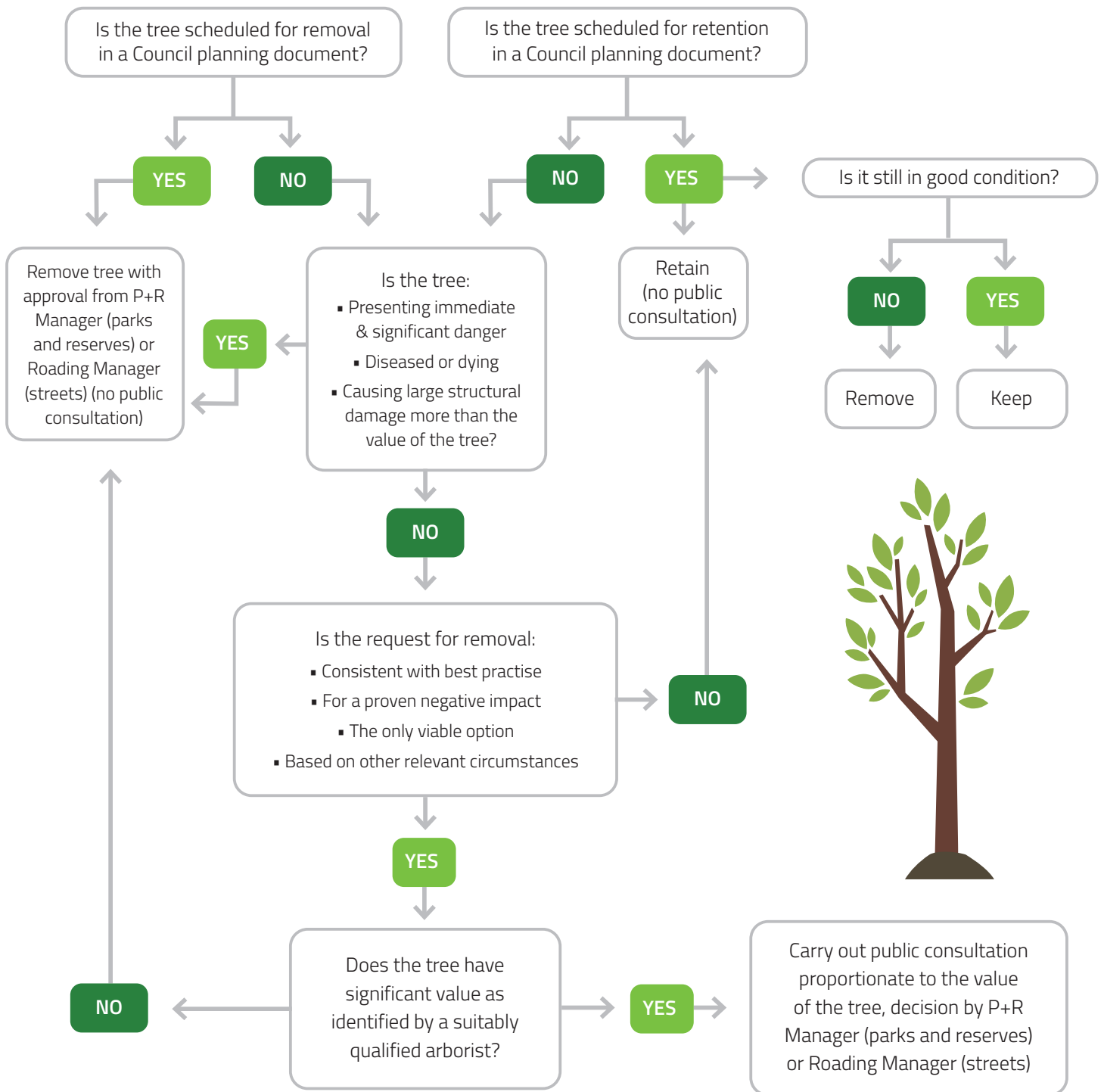
Date Entered	RFS / Works Order	Tree Id Number	Singular / group	Tree	Numbers	Age if Known
2/05/2019			Single	Silver Birch	1	80
7/05/2019			Single	Eucalyptus nitens	1	
21/06/2019	Ken		Single	Maytenis	1	
25/06/2019		Q.P 0680	Single	Gum	1	69
13/06/2019			Group	Eucalyptus nitens	2	
30/05/2019			Group	Pine	3	40
24/04/2019		QP 1931	Group	Ulmus procera	2	60
11/04/2019			Group	Poplar	20	
			Single		1	

²⁶This may be added to in future as a working programme



Customer Details (internal use only)	Address/ Site	Note	Risk 1-5	Programmed for	Waiting Approval	Completed
Drainage	Melbourne St	Storm water pipe renewal		3/05/2019		5/05/2019
	Cree - Glengarry Cres	Tree on corner of Cree and Glengarry Crescent seems to be dropping big sections off the ends and is concerned that it may be dying	3	1/11/2019	Yes	
Croquet Green - QP	Queens Park	To be removed	3	Oct-19	yes	
Bog - Compost Bin	Queens Park	To be removed	4	Nov-19	Yes	
Y	Yarrow Street	Gums to be removed	3	Nov-19		
Y		Leaning/Shading	2	Nov-19		
Y	Alice St - North boundary QP	Root growth into private property	5	Nov-19	Yes	
Y		Palmer Street Playground, Nth Boundary	Group	Sep-19		
	Newfield Park	Mac Tree - Removal		Sep-19		

APPENDIX 11 – Decision Making Process For Tree Retention/Removal







ICC Tree Plan