



# AGENDA

## ENVIRONMENT COMMITTEE / WORKSHOP MEETING

**Tuesday, 27 February 2018**

Commencing at 1:00 pm

**Tauranga City Council**

Council Chambers, 91 Willow Street, Tauranga

*Please note that this meeting will be audio recorded. The recording will be publicly available on Tauranga City Council's website: [www.tauranga.govt.nz](http://www.tauranga.govt.nz).*

### NOTICE OF MEETING

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I hereby give notice that a meeting of Council will be held in the Council Chambers, 91 Willow Street, Tauranga (access off the Library Arcade), Tauranga to consider the business as set out herein.

s 7(2)(f)(ii)

**Chief Executive**

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## Common Responsibilities and Delegations

The following common responsibilities and delegations apply to all standing committees.

### Responsibilities of Standing Committees

- Establish priorities and guidance on programmes relevant to the Role and Scope of the committee.
- Provide guidance to staff on the development of investment options to inform the Long Term Plan and Annual Plans.
- Report to Council on matters of strategic importance.
- Recommend to Council investment priorities and lead Council considerations of relevant strategic and high significance decisions.
- Provide guidance to staff on levels of service relevant to the role and scope of the committee.
- Establish and participate in relevant task forces and working groups.
- Engage in dialogue with strategic partners, such as Smart Growth partners, to ensure alignment of objectives and implementation of agreed actions.
- Confirmation Committee minutes.

### Delegations to Standing Committees

- To make recommendations to Council relevant to the Role and Scope of the Committee.
- To develop and consider, receive submissions on and adopt strategies, policies and plans relevant to the role and scope of the committee, except where these may only be legally adopted by Council.
- To consider, consult on, hear and make determinations on relevant strategies, policies and bylaws (including adoption of drafts), making recommendations to Council on adoption, rescinding and modification, where these must be legally adopted by Council.
- To approve relevant submissions to central government, its agencies and other bodies.
- To develop expectation documents and comment on Statement of Intents for CCOs (and alternative delivery models), where the activity that the CCO undertakes is relevant to the role and scope of the committee.
- Engage external parties as required.

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## Environment Committee Terms of Reference

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### Membership

**CHAIRPERSON**

Cr Steve Morris

**DEPUTY CHAIRPERSON**

s 7(2)(f)(i)

**MEMBERS**

Cr Rick Curach

s 7(2)(f)(ii)

s 7(2)(f)(i)

**NON VOTING MEMBER**

s 7(2)(f)(ii)

- BOPRC

**QUORUM**

Half of the members physically present, where the number of members (including vacancies) is even; and a majority of the members physically present, where the number of members (including vacancies) is odd.

**MEETING FREQUENCY**

Monthly

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### Role

- To ensure Tauranga's environment and the services it provides are protected and enhanced.
- To ensure water quality and availability are efficiently, equitably and sustainably managed.
- To ensure resilience to and appropriate management of environmental risks.
- To enable an efficient and sustainable approach to resource management and recovery.

### Scope

- Consideration of strategic environmental and resource management issues.
- Development of climate change and environmental resilience strategies.
- Development of strategies, plans and programmes for efficient and sustainable waste minimisation and resource recovery.
- Development of efficient and sustainable approaches to the management of the 'three waters'.
- Development of council's approach to air quality.
- Developing understanding and partnerships in respect of Tangata Whenua environmental interests.

### Power to Act

- To make all decisions necessary to fulfil the role and scope of the Committee subject to the limitations imposed.

- To establish subcommittees, working parties and forums as required.
- To co-opt non-voting members, including Tangata Whenua or other representatives, to the Committee.

**Power to Recommend**

- To Council and/or any standing committee as it deems appropriate.

DRAFT

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DRAFT

1. **Apologies**
2. **Public Forum**
3. **Chairperson's Report**
4. **Leader Officer's Report**

The Lead Officer to provide a verbal update.

5. **Acceptance of Late Items**
6. **Change to the Order of Business**
7. **Confirmation of Minutes, Matters Arising and Adoption of Recommendations**

*Suggested Recommendation*

*That it be Resolved*

*That the Environment Committee:*

*Confirms the minutes of the Environment Committee (M17/109) dated 28 November 2017 as a true and correct record (and the recommendations contained therein be adopted [if relevant]) (includes the confidential section of the minutes which pertains to receipt of minutes only).*

**7.1 Minutes - Environment - 28 November 2017 (M17-109) - Open**

DRAFT

M17/109

**TAURANGA CITY COUNCIL**

**MINUTES OF THE ENVIRONMENT COMMITTEE**

**DATE/TIME: TUESDAY, 28 NOVEMBER 2017: 1.00 P.M.**  
**VENUE: TAURANGA CITY COUNCIL CHAMBERS**

**OPEN SECTION**

**Members Present:**

Cr Steve Morris (Chairperson)

§ 7(2)(f)(ii)

Cr Rick Curach  
Cr Bill Grainger

§ 7(2)(f)(ii)

**Also Present:**

§ 7(2)(f)(ii)

As listed in the minutes

**Apologies:**

§ 7(2)(f)(ii)

**In Attendance:**

§ 7(2)(f)(ii)

M17/109.1

**APOLOGIES**

Moved § 7(2)(f)(ii)

**That it be Resolved**

***That the Environment Committee:***

***Receive apologies for absence from*** § 7(2)(f)(ii) ***and for lateness from*** § 7(2)(f)(ii)

**CARRIED** unanimously

**THESE MINUTES ARE YET TO BE CONFIRMED**

Open Section

To be confirmed by \_\_\_\_\_ on:

M17/109.2

**PUBLIC FORUM**(a) **s 7(2)(a) - Privacy**, **Greenfingers Garden Bags - Greenwaste**

**s 7(2)(a) - Privacy**, Earthcare, Greenfingers Garden Bags provided **PowerPoint Presentation A** outlining the following:

Key Points

- Context / Background to Earthcare/Greenfingers
- Case studies demonstrating what happened in reality
- Good system design, service configuration - maximising performance, minimising cost
- Conclusions based on figures from TCC website and Waste Assessment
- Modelling of other options
- Recommendations:
  - Supported the broad concept of civic-led service delivery for waste and recycling. Industry would respond to demand but would not drive significant change unless incentivised or directed
  - Civic-led services - could be expected to reduce costs to householders on average
  - However, system design was crucial
  - Optimal system would have:
    - Constrained rubbish (small bin, fortnightly)
    - Large capacity for recycling (fortnightly to save cost)
    - Control recycling contamination
    - Collect food on its own
    - Reduce garden waste by small residual bin size, bans, home composting
- Eager to work with Council / share knowledge.

Points Raised by Elected Members

- Proposal to introduce a rates-funded curbside waste, recycling and compostables collection for all households, recommended to Council to be included in the draft 2018/28 Long Term Plan, would afford the public an opportunity to provide input during the consultation period and enable staff to further investigate all options.

M17/109.3

**CHAIRPERSON'S REPORT**Key Points

- Noted letter sent to ratepayers regarding changes to glass recycling: from 1 March 2018, glass would no longer be accepted in kerbside mixed recycling. As an alternative, specially designed bins would be available at strategic points to enable depositing of glass.

**THESE MINUTES ARE YET TO BE CONFIRMED**

Open Section

To be confirmed by \_\_\_\_\_ on:

M17/109.4

**LEAD OFFICER'S REPORT**Key Points

- 'Climate Change and opportunities for collaboration' meeting held on 13<sup>th</sup> November 2017 in Rotorua, jointly hosted by Bay of Plenty Regional Council (BOPRC) and Rotorua Lakes Council:
  - Representative of the United Nations Cities Programme shared a Model/Framework used with other cities to overcome complex urban challenges using cross-sectoral collaboration
  - A paper prepared by BOPRC would be submitted to the Bay of Plenty Triennial meeting scheduled for 4 December 2017 to present:
    - Current status around climate change – national and local context
    - Highlighting the issue of action planning under the Local Government Leaders declaration
    - Present a discussion topic on whether any collective approach was worth considering
- Verbal update on the action taken by TCC staff in respect of silt management and enforcement:
  - Staff were utilising an educational approach with construction companies and had been successful with the larger building companies
  - No enforcement was currently being undertaken to address silt management on construction sites
- Maranui Stormwater Floating Wetland Installation site visit was scheduled for 29 November 2017 at 10:00 am.

Items for Staff Follow-up

- Committee Lead to provide an update on the outcome of the paper on Climate Change prepared by BOPRC to be submitted to the Bay of Plenty Triennial Meeting on 4 December 2017
- Report on Council's use of agrichemicals / outcome of trials with alternative weed control methods to be submitted to the Environment Committee at its meeting in February 2018 – report to provide a balanced view
- NZ Green Building Council Workshop to be undertaken during the Environment Committee's meeting scheduled for 20 December 2017, all Elected Members welcome to attend.

**CONFIRMATION OF MINUTES, MATTERS ARISING AND ADOPTION OF RECOMMENDATIONS**

M17/109.5

**CONFIRMATION OF MINUTES**Moved [REDACTED] s 7(2)(f)(ii)**That it be Resolved*****That the Environment Committee:***

- (a) *Confirms the minutes of the Environment Committee (M17/94) dated 24 October 2017 as a true and correct record***

**THESE MINUTES ARE YET TO BE CONFIRMED**

Open Section

To be confirmed by \_\_\_\_\_ on:

*(and the recommendations contained therein be adopted [if relevant]).*

**CARRIED** unanimously

**BUSINESS**

**M17/109.6 STORMWATER LEVEL OF SERVICE PROGRESS UPDATE (DC 318)**

§ 7(2)(f)(ii), Stormwater Programme Leader and Christine Jones, General Manager: Growth & Infrastructure presented the report and responded to questions.

Moved Cr Curach § 7(2)(f)(ii)

**That it be Resolved**

**That the Environment Committee:**

- (a) Receives report DC318 Stormwater Level of Service Progress Update.**

**CARRIED** unanimously

**M17/109.7 REVIEW OF STORMWATER LEVEL OF SERVICE (DC 86)**

§ 7(2)(f)(ii), Stormwater Programme Leader and Christine Jones, General Manager: Growth & Infrastructure presented the report and responded to questions on the report, supported by **PowerPoint Presentation B** outlining the following:

Key Points

- Current adopted level of service
- ‘Depth x velocity’ thresholds for intervention
- Exclusion of river-flooding for Infrastructure interventions
- Flood history
- Intervention framework.

Moved Cr Curach § 7(2)(f)(ii)

**That it be Resolved**

**That the Environment Committee:**

- 1. Approves amendments to the current Level of Service (LoS) as per Attachment A, specifically:**
  - (a) To allow for non-infrastructure interventions in addition to infrastructure interventions;**

**THESE MINUTES ARE YET TO BE CONFIRMED**

Open Section

To be confirmed by \_\_\_\_\_ on:

- 5 -

Environment Committee 28.11.17

- (b) *To allow for non-infrastructure interventions even if the threshold of 'having a documented history of flooding of at least once in the past ten years cannot be met'.*
  - (c) *Endorses 'recorded history of flooding' encompassing 'staff knowledge' in addition to 'documented/historical records' to more accurately ascertain the flood history of a property/property grouping.*
2. *Approves the recommendation to include Fluvial (River/Stream) Flooding in the LoS for non-infrastructure intervention only (i.e. education and advisory), but continue to require Council consideration and decision making on a case-by-case basis for physical intervention.*
  3. *Endorse the 'Depth x Velocity Intervention Framework' as depicted in Attachment B to DC86 report.*

**CARRIED** unanimously

M17/109.8

**SEVENTEENTH AVENUE FLOOD BUND UPGRADE (DC317)**

§ 7(2)(f)(ii), Manager: Asset & Infrastructure Planning and Christine Jones, General Manager: Growth & Infrastructure presented the report and responded to questions.

**Tabled item 1** was provided, displaying figures 1, 2 and 3 of report DC317, "Seventeenth Avenue Flood Bund Upgrade."

Moved § 7(2)(f)(ii)

**That it be Resolved*****That the Environment Committee:***

- (a) *Receives the report DC317 - Seventeenth Avenue Flood Bund Upgrade*
- (b) *Approves utilisation of the 2017/2018 allocation to the Stormwater Bulk Fund for the upgrade of an existing earth bund to mitigate the effects of river flooding of the Historic Village, commercial properties and St John Ambulance base, noting that this intervention is outside the current stormwater Level of Service (LoS).*

**CARRIED** unanimously2:23 p.m. The meeting **adjourned**.2:35 p.m. The meeting **reconvened**.**THESE MINUTES ARE YET TO BE CONFIRMED**

Open Section

To be confirmed by \_\_\_\_\_ on:

M17/109.9

**PRESENTATIONS**

(a) **s 7(2)(a) - Privacy - Solar Park Concept**

**s 7(2)(f)(ii)** Chairperson, Energy Democracy, provided **PowerPoint Presentation C**, outlining the following:

3:00 p.m. **s 7(2)(f)(ii)** **entered** the meeting.

Key Points

- Energy Democracy Co-operatives were currently assisting numerous communities around Australia and New Zealand to offer community ownership in renewable energy generation and storage projects
- Building co-operatively-owned renewable energy parks
- Creating Energy Democracy co-operatives/Key features/Benefits
- Land suitable for a renewable energy park / available to lease
- Merits of becoming a member of the Energy Democracy Bay of Plenty co-operative
- <http://www.ed-co-op.com/nz/>

Items for Staff Follow-up

- Staff to follow-up conversation/facilitate ongoing dialogue on possible renewable energy projects.

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The meeting closed at 3:06 p.m.

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Confirmed by resolution of Environment Committee  
passed the day of 2017

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CHAIRPERSON

**THESE MINUTES ARE YET TO BE CONFIRMED**

Open Section

To be confirmed by \_\_\_\_\_ on:

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Record of a meeting of an  
**OPEN Workshop of the**  
**Environment Committee**  
held on Tuesday, 28 November 2017 at 3:06 pm

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**Members Present:**

Cr Steve Morris (Chairperson)

§ 7(2)(f)(ii)

Cr Rick Curach

§ 7(2)(f)(ii)

**Also Present:**

As listed in the minutes

**Apologies:**

§ 7(2)(f)(ii)

**In Attendance:**

§ 7(2)(f)(ii)

Christine Jones, General Manager: Growth & Infrastructure

§ 7(2)(f)(ii)

1. **Environment Strategy Update (DCW 275)**

§ 7(2)(f)(ii) Committee Lead, provided **PowerPoint Presentation D**, outlining the following:

**Key Points**

- Workshop Outcomes:
  - To highlight findings from the research undertaken as part of Phase 1 of the Strategy Development
  - To share key aspects of the “Background information for the Tauranga Environment Strategy” document prior to finalising
- Background to the project
- Four main steps of the project
  - Step 1 – Understand (July 2017 to December 2017)
  - Step 2 – Create a Strategy (January 2018 – April 2018)
  - Step 3 – Develop Action Plans (April 18 to July 18 )
  - Step 4 – Implement and Review Progress (July 2018 onwards).

§ 7(2)(f)(ii) AECOM, provided **PowerPoint Presentation E**, outlining the results of the recent investigation into Tauranga’s Carbon Footprint.

3:42 p.m. § 7(2)(f)(ii) **withdrew** from the meeting.

- 2 -

Environment Committee Workshop  
(Open) 28.11.17

Environment Strategy - Next steps

- Insights to be used to develop the strategy
- Draft summary document to be finalised
- To share information document with community
- Commence Phase 2 – developing the strategy
- Partners and key stakeholders to develop the draft strategy together
- To share information with Tangata Whenua Collective.

Points Raised by Elected Members

- Environment Strategy to address issues relating to air quality, in particular use of sprays/ agrichemicals
- Environment Strategy/Action plan to provide practical outcomes
- Transport seen as an important area that needed to be addressed as priority.

Items for Staff Follow-up

- Copies of the following documents to be circulated to the Environment Committee:
  - “Background information for the Tauranga Environment Strategy”
  - Final Community Carbon Footprint – Tauranga City 2015/2016 report compiled by AECOM.

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The Workshop closed at 4:03 p.m.

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- 8. Declaration of Conflicts of Interest**
- 10. Presentations**
- 11. Business**
- 11.1 DC09 - Annual Agrichemical Update Report - Environment Committee 27 February 2018**

DRAFT

## Review of Council's Use of Toxic Agrichemicals Policy (DC9)

Environment Committee

27 February 2018

Objective ID No: A8456332



Tauranga City

### Executive summary

Recommendation	<p>That the Environment Committee:</p> <ol style="list-style-type: none"> <li>(a) Recieves Report (DC9) – Review of Council's Use of Toxic Agrichemicals.</li> <li>(b) Amend Schedule 1 of the Policy to enable Amistar Fungicide to be used to control fungal diseases on grass cricket wicket blocks, subject to its use being prohibited within 25 metres of waterways.</li> <li>(c) Amend Schedule 1 of the Policy to enable Image to be used on turf to control broadleaf weeds only, subject to its use being prohibited within 25 metres of waterways.</li> <li>(d) Amend Schedule 1 of the Policy to enable the use of Escort to control bushy asparagus in the coastal dunes, beyond the trial period and subject to its use incorporating methods that minimise quantity of chemical applied, where practicable.</li> <li>(e) Decline the application to Amend Schedule 1 of the Policy to enable the use of Thiram to control fungal diseases on grass cricket wicket blocks.</li> </ol>
Summary of issue	<p>Council's Use of Toxic Agrichemicals for Vegetation Management Policy, requires Council staff to report annually on the use of toxic agrichemicals on Council maintained land. Schedule 1 of the Policy provides for the use of specific agrichemicals only. Amendments to this schedule must be made by resolution of the Environment Committee. This report provides an annual assessment on the use of agrichemicals on Council maintained land, and recommends amendments to Schedule 1 of the Policy.</p>
Broader benefit / impact	<p>The broader benefit associated with the recommended additions to Schedule 1 includes:</p> <ul style="list-style-type: none"> <li>• Provision of effective vegetation management</li> <li>• Fit-for-purpose use of Council land and infrastructure</li> <li>• Continued reductions in the use of toxic agrichemicals</li> </ul> <p>Potential negative implications associated with the recommended additions to Schedule 1 are as follows:</p> <ul style="list-style-type: none"> <li>• Community perception that providing for additional agrichemicals will increase the risk of harm to human health and the environment</li> </ul>

Strategic context	<p>The recommendations in this report align with Council’s aspiration to become an internationally competitive city.</p> <p>Recommendations provide for effective vegetation management on Council-maintained land (including cricket pitches used for international games) and protection of our coastal natural environment.</p>
Next steps	<p>Amend Schedule 1 of the Policy in accordance with the recommendations and continue to work within this policy.</p> <p>Continue to proactively seek to reduce the use of toxic agrichemicals on Council maintained land and keep Committee members informed of progress.</p>

## Introduction

1. The purpose of this report is to provide an annual update on the application of Tauranga City Council’s ‘Use of Toxic Agrichemicals for Vegetation Management Policy’ (**‘the Policy’**), and to seek approval for changes to Schedule 1 of the Policy.
2. The primary objective of the Policy is to protect public health. Other objectives are the protection of the wider environment from undue harm, and the provision of effective vegetation management on Council-maintained land.
3. The Policy also contains a number of principles to achieve these objectives, including:
  - A preference to use non-agrchemical methods of vegetation control where practical;
  - Acknowledgement of Council’s responsibilities to manage plant pests and to allow fit-for-purpose use of land;
  - A proactive approach to reducing the use of toxic agrichemicals on Council-maintained land; and
  - Adoption of a “prudent avoidance” approach when considering the use of specific toxic agrichemicals.
4. The Policy requires annual reporting on its application to monitor progress towards the goal of reducing the use of toxic agrichemicals on Council-maintained land. This report sets out information applicable to the last 12 months, including:
  - A background into agrichemicals, their regulation and recent research with a particular focus on glyphosate, as included at **Attachment A**.
  - A description of agrichemical use undertaken by Tauranga City Council;
  - A discussion of the initiatives and opportunities undertaken or investigated by Tauranga City Council to ensure ongoing compliance with the principles and objectives of the Policy;
  - An assessment of requests for additional toxic agrichemicals to be approved for use on Council-maintained land and added to Schedule 1 of the Policy.
5. The Policy is included at **Attachment B**.

## Agrichemical Use

6. Tauranga City Council use agrichemicals to manage and control vegetation on Council owned and maintained land. The use of agrichemicals enables Council to deliver fit for purpose assets that benefit those that live within, and visit Tauranga City.
7. Council's use of agrichemicals is primarily undertaken by contractors and applied agrichemicals in the following locations:
  - Sportsfields;
  - Parks and neighbourhood reserves;
  - Street gardens;
  - Coastal dunes;
  - Revegetation and restoration planting sites;
  - Road kerb and channel;
  - Carparks and pedestrian/cycle pathways;
  - Stormwater assets, including riparian margins and drains;
  - Wastewater treatment ponds and pump stations;
  - Other Council owned and operated facilities such as the Historic Village, elder housing, and Mount Beachside Holiday Park.
8. The table included as **Attachment C**, sets out the quantities of agrichemical concentrate used from 2009 to 2017. The most used active ingredient in 2017 was Glyphosate (shown as RoundUp). The data from 2009 to December 2017, shows that its use has trended downwards. In 2017, there was a significant drop in RoundUp use with the total volume decreasing by over 50 percent. This reduction was partially offset by the increase in use of other agrichemicals, such as Picloram/Triclopyr formulations, Gallant, and Escourt. The total volume of all agrichemicals used in 2017 was 1223 litres, compared to 1776.9 litres in 2016. Overall, this represents a 31 percent reduction in the use of agrichemicals on Council maintained land.
9. It is important to understand why some agrichemicals have increased in use. The agrichemical monitoring data reflects Council's efforts in implementing the Policy, and in particular, taking a prudent avoidance approach to the use of glyphosate. The shift away from glyphosate based herbicides has required additional agrichemicals to be added to Schedule 1 of the Policy and is reflective of why other agrichemicals have increased in use. When introducing new agrichemicals or using an alternative agrichemical to achieve vegetation control, vegetation generally responds well as there is little agrichemical resistance. This means that lower quantities of alternative agrichemicals are equally as effective in controlling vegetation that has become resistance to larger volumes of commonly used agrichemicals.
10. Tauranga City has experienced significant growth since 2009. The volume of agrichemical use on Council maintained land has continued to decrease despite this growth. The representative reduction in agrichemical use is more significant when the area of Council maintained land is taken into consideration. It will be important for Council staff and TAAF to identify initiatives and opportunities, and to carefully review Schedule 1 of the Policy, to further reduce agrichemical use on Council maintained land.

## Initiatives and Opportunities

11. TCC proactively seek to reduce the use of toxic agrichemicals on Council-maintained land. To ensure that agrichemical use does not increase, and to assist in reducing agrichemical use, Council have undertaken the following:
- Use technology to assist in reducing the volume of agrichemicals used. For example, the use of weed-detecting technology to spot spray weeds through chlorophyll recognition, ensuring only the weed is treated with chemical;
  - Mechanical weeding as much as practicable. For example, mowing, scrub bars, weed eating, mechanical excavations;
  - Hand weeding as much as practicable, including all street and reserve gardens which are hand weeded unless approval is given by the contract manager for exceptional circumstances;
  - Engaging Periodic Detention Workers to manually remove weeds on coastal reserves, Koupererua Valley and McLaren Falls Park;
  - Annual mulching of all street and reserve gardens to maintain moisture and suppress weeds;
  - Intensive planting to maintain canopy cover and suppress weeds;
  - Using Koi Carp to control aquatic weeds in stormwater ponds;
  - Grazing sheep at McLaren Falls Park and Mauao;
  - Designing assets to reduce the likely need for agrichemical weed control. For instance, installing mowing strips, and dry stormwater ponds that can be mown or mechanically maintained;
  - A spray-free register of individuals or organisations who request not to have agrichemicals used close to their property. Registration of a property on this register means that agrichemicals will not be used by, or on behalf of Council on registered property street frontages;
  - Incorporating KPI's into contracts that require Contractor's to undertake spray applications in accordance with the correct procedures;
  - Allocation of a spray free reserve and ongoing progress monitoring;
  - Allocation of glyphosate free reserves and ongoing progress monitoring;
  - Investigations into alternatives to agrichemical methods control.
12. The Policy requires Council to report on the spray free and glyphosate free reserves, and to investigate alternatives to agrichemicals. These initiatives are discussed in more detail, below.
- Berescourt Reserve (Spray Free)**
13. Action B20 of the Vegetation Strategy guides Council to identify a specific reserve to be maintained using techniques other than agrichemical use. In accordance with this direction, all agrichemical use at Berescourt Reserve ceased from the 1<sup>st</sup> of April 2011 and a non-agrchemical maintenance regime was established. The success of the agrichemical free maintenance regime at Berescourt Reserve is measured predominantly from the feedback of contractors and the public. **Table 1** below, details the maintenance undertaken at Berescourt Reserve and the feedback received from Council contractors.

**Table 1:** Berescourt Reserve maintenance report

<b>Date</b>	<b>Method</b>	<b>Contractors comments</b>
<b>October 2016</b>  <b>May 2017</b>  <b>November 2017</b>	Manual grubbing of Cape Daisy.	Produces unsightly and potentially dangerous surface holes and divots in the turf and only treated a proportion of the cape daisy weeds present. Manual grubbing often snaps the plant at the tap root, rather than completely removing the bulb of the plant. In this instance, the Cape Daisy plant returns more vigorous in the following growth period. The approximate cost of manual grubbing of Cape daisy is \$600+gst per event. The annual projected cost is approximately \$10,000+gst to achieve effective control. It is estimated that the same level of control can be achieved with agrichemicals at 10 percent of this cost.
<b>December 2016</b>  <b>May 2017</b>  <b>November 2017</b>	Use of vinegar/salt/dishwashing liquid solution as a contact weed killer for use on cape daisy.	Moderately successful in controlling Cape Daisy. The treatment was approximately 75 percent effective in killing Cape Daisy weeds. It is non-selective and will damage turf, so care is required in its application and use. The cost to treat the reserve was \$600+gst. Multiple treatments would be required per year to achieve effective control. The projected yearly spend is \$2000+gst, which is approximately three times the cost of agrichemical use. Agrichemical use is also more effective and achieves a higher level of Cape Daisy control, when compared to the salt and vinegar mixture.
<b>September 2017</b>	Contractors instructed to increase the mowed length of the turf from 50mm to no lower than 70mm, as a trial to determine what affect this would have on turf weed suppression.	Contractors are yet to observe whether this will have any effect in controlling weeds through suppression. Should the increase in grass length not lead to any adverse effects that require remediation, then this will reduce the costs associated with mowing the reserve.
<b>December 2017</b>	Demonstration of electricity as a contact weed killer.	This proved to be moderately successful. However, it is approximately twice as expensive as the vinegar solution with similar results, and five times the price of agrichemical use which proved to be more effective. It is noted that these observations are limited to the single demonstration undertaken in December and further investigations are needed to determine the cost and effectivity of this method with more certainty.

14. Public feedback regarding Berescourt Reserve has been limited. In 2017 only one complaint was received. The primary concern of this complainant is the presence of Onehunga Weed and Cape Daisy within the Reserve. Council staff and TAAF visited Berescourt Reserve on a spate occasion and were approached by a member of the public who praised the spray free status. Given the limited amount of public feedback received, it is evident there is a need to better understand the public perception and preference regarding agrichemical use at Berescourt Reserve.
15. Council staff intend to survey the Berescourt Reserve residents to gain an understating of the community's aspirations regarding agrichemical use. The results of this survey will be reported back to the community and discussed with TAAF, alongside a progress report on the agrichemical research at Berescourt Reserve. It is anticipated that engagement with the community will enable Council to make informed and balanced decisions regarding agrichemical use.

#### **Glyphosate Free Reserves**

16. On 8 August 2016 it was resolved by way of Council resolution (M16/51 – Ob:A7261728) to maintain a number of neighbourhood reserves without the use of glyphosate based herbicides. Staff were instructed to monitor contractor and public feedback on these Parks and Reserves assets, and report back to Council on the findings of this maintenance regime. In accordance with this resolution, Council staff selected a total of 20 neighbourhood reserves (as set out in **Table 2** below) to maintain without the use of glyphosate. Contractors were instructed of these locations and advised to stop all glyphosate use on these reserves effective from the 16 December 2016.

**Table 2:** Glyphosate free neighbourhood reserves

Reserve	Address
Anzac Park	11B Anzac Road, Gate Pa
Bennett Street Reserve	436 Otumoetai Roaad
Carlisle Reserve	6 Carlisle Street, Greeton
Doncaster Drive Reserve	Longview Drive, Papamoa Beach
Emerald Shores Reserve	177 Emerald Shores Reserves
Epsom Reserve	77 Links Avenue, Mount Maunganui
Hall Road Reserve	40 Hall Road, Matua
Heron Avenue East Reserve	51 Heron Avenue East, Matua
Holcombrooke Reserve	22 Holcombrooke Lane, Welcome Bay
Ihakara Reserve	2 Scoria Close, Pyes Pa
Kohekohe Reserve	25 Kanono Close, Papamoa Beach
Kopu Drive Reserve	30 Kopu Drive, Pyes Pa
Palm Springs Reserve	28 Santa Maria Key, Papamoa Beach
Parewaitai Reserve	42 Pirika Place, Papamoa Beach
Pitau Reserve	24 and 26 Pitau Road, Mount Maunganui
Solomon Street Reserve	28 Solomon Street, Judea
Spinifex Reserve	34 Spinifex Reserve, Papamoa Beach
Tahara Reserve	15 Mahina Place, Mount Maunganui
Tuihana Reserve	40 Matemuri Drive, Papamoa Drive
Waterside Drive Reserve	2 Formosa Place, Pyes Pa

17. Comments from Council's contractors are generally positive. The removal of glyphosate agrichemicals from these reserves has not resulted in any major operational issues. Onehunga weed is able to be controlled through agrichemicals that do not contain glyphosate, and subsequently, the presence of prickly weed is not an issue in these reserves. There has been

no increase in the use of agrichemicals (not containing glyphosate) on these reserves for other vegetation management purposes. The only noted maintenance difference is that weed eating around boundaries has increased.

18. Council has not received any public feedback on the quality of vegetation management associated with the glyphosate free reserves.
19. It is acknowledged that this maintenance regime has only been in effect for a year. It marks a shift to an increase in mechanical vegetation management practices in replace of agrichemicals that is worth celebrating under the Policy. However, there may be implications associated with removing glyphosate from neighbourhood reserves that are not yet fully understood. At this point, Council staff will look to identify a number of additional neighbourhood reserves where it is appropriate to remove the use of glyphosate. The preference is to reduce the rate of glyphosate use in neighbourhood reserves incrementally, so that the effects and community opinions associated with removing glyphosate use are better understood.

#### **Investigations into non-chemical alternatives**

20. Over the last year, Council have identified two alternatives to agrichemical methods of vegetation control. The first of these is a product offered by 'MetroCare' that uses a combination of hot water and biodegradable foam to kill weeds. Council staff previously investigated the use of steam to control weeds. The foam system is different. It is made from natural plant oils and sugars, and works by applying heat to the weed, with the foam retaining the heat in the hot water to kill vegetation. The benefit of foam over thermal alternatives such as water or steam, is its ability to retain heat, using less energy and more effectively controlling weeds. The hot foam is applied using a pressurised applicator, which connects to a larger system that contains the foam and hot water mixture. Typically, between two and three treatments are required to treat weeds. The product is currently used in areas of Auckland for vegetation management and cleaning. It is not readily available for lease in other areas. However, initial discussion with MetroCare suggest that there is potential to trial Hot Foam in Tauranga.
21. The second agrichemical alternative is offered by a company known as 'Hot Grass'. Hot Grass have developed a system called 'RootWave Pro', which uses electricides to kill weeds without chemical use. It leaves no residue and is allowed under organic certification. The product has been trailed in New Zealand to provide information on best practice for different weed species. According to the results of these trials, the RootWave Pro system is effective in managing a wide range of weeds including Agapanthus, Gorse, Wild Ginger, Wild Asparagus and Onehunga weed. In most cases, the target weed is effectively killed in a single treatment. Safety training and certification is compulsory before use, and operator refresher courses are offered to ensure user protection. The system is available for lease from Hot Grass for a minimum 3-month hire at \$400 per week, plus GST.
22. Council staff consider that the products offered by MetroCare and Hot Grass require further investigation in reducing agrichemical use. It is noted that the HotFoam System is not readily available for lease and as such, Council staff will continue to work with MetroCare to determine whether there are any options to undertake a trial in Tauranga. Alternatively, the RootWave Pro system is readily available for lease. Supported by TAAF, Council staff intend to enter into a lease to trial RootWave Pro on an ongoing basis. The parameters of this trial are still to be determined. However, it is anticipated that the trial will be designed to provide information on the efficacy and cost of RootWave Pro, compared to the use of agrichemical methods in controlling a variety of weed species.

## Schedule 1 Review

23. Schedule 1 of the Policy sets out the toxic agrichemicals approved for use on Council administered land. The Policy allows for amendments to Schedule 1 by resolution of Council Committee and following consideration of information from staff and TAAF.
24. Three applications to add additional agrichemicals to Schedule 1 were received this year. A summary of these applications is provided in **Table 3** below.

**Table 3:** Summary of Schedule 1 applications

Product Name	Amistar Fungicide	Image	Thiram 40F
Active Ingredient	Azoxystrobin	Mecoprop-P, Bromoxynil and Ioxynil	Thiram
Proposed Use	For treatment of fungal diseases. Applied by spray application. Used as needed to control fungal diseases on grass cricket wicket blocks only. Required to combat agrichemical resistance.	For use on broadleaf weeds on turf surfaces. Applied by spray application. Used seasonally, primarily in spring and early summer. Required to combat agrichemical resistance.	For treatment of fungal diseases. Applied by spray application. Used as needed to control fungal diseases on grass cricket wicket blocks only. Required to combat agrichemical resistance.
Alternatives	Repeat applications of Flint and/or Yield. The only manual method of control for fungal diseases is to re-sow and seed. This is costly and impractical where treatment is required part way through a playing season.	Repeat applications (and therefore higher volumes) of Versatile and/or Tordon Brush Killer. Manual and mechanical methods are impractical and inefficient when addressing weed on turf surfaces, which require a specific level of service.	Repeat applications of Flint and/or Yield. The only manual method of control for fungal diseases is to re-sow and seed. This is costly and impractical where treatment is required part way through a playing season.
Policy Assessment	Consistent	Consistent	Inconsistent
TAAF Comments	Support	Support on use of sports fields only	Do not support
Recommendation	Include in Schedule 1 subject to the following: <i>'For use on grass cricket wicket blocks to control fungal disease only. Not to be used within 25 metres of waterways.'</i>	Include in Schedule 1 subject to the following: <i>'For use on turf to control broadleaf weeds only. Not to be used within 25 metres of waterways.'</i>	Decline application

25. Staff's full assessment of these agrichemical applications is included at **Attachment D**.
26. TAAF's full assessment of these agrichemical applications is included at **Attachment E**.
27. In addition to these applications, Council staff seek amendments to Schedule 1 of the Policy to enable the use of Escort to control bushy asparagus in the coastal dunes in perpetuity. The Policy currently allows for the use of Escort in the coastal dune area on a trial basis from September 2016 until September 2017.

28. On 8 August 2016 the Strategy and Policy Committee resolved to amend Schedule 1 of the Policy to enable the use of Escort (metsulfuron-methyl ester) on a trial basis. In line with this resolution, Escort was trialled in the coastal dunes to ascertain its ability to control bushy asparagus. The trial involved comparing Escort to present methods of control, such as glyphosate based herbicides and Vigilant. The advantages and disadvantages of each method of control are summarised in **Table 4** below.

**Table 4:** Summary of Escort Trials

Method	Advantages	Disadvantages
<b>Manual weeding hand</b>	<ul style="list-style-type: none"> <li>• Non-chemical method of control</li> <li>• Only target species damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Labour intensive/costly</li> <li>• Plant fragments which allows for regrowth</li> </ul>
<b>Glyphosate based herbicides spray applications</b>	<ul style="list-style-type: none"> <li>• Cost effective</li> </ul>	<ul style="list-style-type: none"> <li>• Non-specific and will kill or damage non-target species where contact occurs</li> <li>• Damages but does not kill Bushy Asparagus in one application. Repeat and continued chemical applications required to achieve control of targeted species</li> </ul>
<b>Glyphosate based herbicide cut and swab applications</b>	<ul style="list-style-type: none"> <li>• Specific application means only targeted species damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Labour intensive</li> <li>• Higher cost than spray application</li> <li>• Damages but does not kill Bushy Asparagus in one application. Repeat and continued chemical applications required to achieve control of targeted species</li> </ul>
<b>Escort Spray application</b>	<ul style="list-style-type: none"> <li>• Cost effective</li> <li>• One or two applications required to achieve control</li> <li>• Effective die-off observed in all instances</li> </ul>	<ul style="list-style-type: none"> <li>• Non-selective herbicide, meaning non-targeted species are damaged where spray contact occurs.</li> </ul>
<b>Escort cut and swab application</b>	<ul style="list-style-type: none"> <li>• Only target species killed</li> <li>• One or two applications required to achieve control</li> <li>• Effective die-off observed in all instances</li> </ul>	<ul style="list-style-type: none"> <li>• Labour intensive</li> <li>• High cost than spray application</li> </ul>

29. On the basis of this trial, it is evident that Escort provides the most effective and cost efficient form of control for bushy asparagus.
30. TAAF recommends a two year approval for the continued use of Escort to control bushy asparagus in the coastal dunes. TAAF consider it appropriate to impose this time restriction on the basis of the HotGrass electric weed control system, which may offer an alternative method of weed control for bushy asparagus.
31. Given the findings of the trial undertaken and the feedback received from TAAF, I recommend that Schedule 1 of the Policy be amended to enable the use of Escort to control bushy asparagus in the coastal dune areas in perpetuity. There is scope to remove this agrichemical from Schedule 1 of the Policy should alternative methods of control become available.

## Options

**Option 1a: Amend Schedule 1 of the Policy to enable Amistar Fungicide to be used to control fungal diseases on grass cricket wicket blocks, subject to its use being prohibited within 25 metres of waterways.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Consistent with the principle of reducing the volumes of agrichemicals used by combating agrichemical resistance;</li> <li>• Lower toxicity than other approved chemicals that would otherwise be used as a method of control;</li> <li>• Will enable fit-for-purpose use of land.</li> </ul>	<ul style="list-style-type: none"> <li>• Adds an additional agrichemical to Schedule 1, which may be perceived as inconsistent with the Policy, in that the Policy is about reducing agrichemicals, whereas this recommendations allows for an additional agrichemical to be used on Council maintained land;</li> </ul>

**Option 1b: Do not amend Schedule 1 of the Policy to enable the use of Amistar Fungicide.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Consistent with the policy principle of prudent avoidance.</li> </ul>	<ul style="list-style-type: none"> <li>• Chemicals with a higher toxicity used to achieve control;</li> <li>• Greater quantities of alternative agrichemicals used;</li> <li>• Higher cost associated repeat agrichemical applications;</li> <li>• Potential additional renewal costs if cricket pitches require re-sowing where agrichemical resistance leads to uncontrollable disease.</li> <li>• Inconsistent with the Policy direction.</li> </ul>

**Option 2a: Amend Schedule 1 of the Policy to enable Thiram to be used to control fungal diseases on grass cricket wicket blocks, subject to its use being prohibited within 25 metres of waterways.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Will enable fit-for-purpose use of land;</li> <li>• Cost effective method of control.</li> </ul>	<ul style="list-style-type: none"> <li>• Inconsistent with the Policy objectives of protecting public health and the wider environment;</li> <li>• Inconsistent with the principle of reducing agrichemicals use;</li> <li>• Inconsistent with the policy principle of prudent avoidance;</li> </ul>

**Option 2b: Do not amend Schedule 1 of the Policy to enable the use of Thiram.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Consistent with the Policy objectives of protecting public health and the wider environment;</li> <li>• Consistent with the principle of reducing the volumes of agrichemicals used;</li> <li>• Consistent with the policy principle of prudent avoidance;</li> <li>• Encourages the use of less toxic alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of higher quantities of approved agrichemical use to achieve control;</li> <li>• Risk that the fit-for-purpose use of land is not enabled.</li> </ul>

**Option 3a: Amend Schedule 1 of the Policy to enable Image to be used on turf to control broadleaf weeds only, subject to its use being prohibited within 25 metres of waterways.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Consistent with the principle of reducing the volumes of agrichemicals used by combating agrichemical resistance;</li> <li>• Lower toxicity than other approved chemicals that would otherwise be used as a method of control</li> <li>• Will enable fit-for-purpose use of land.</li> </ul>	<ul style="list-style-type: none"> <li>• Adds an additional agrichemical to Schedule 1, which may be perceived as inconsistent with the Policy;</li> <li>• May have an adverse effect on some people in the community.</li> </ul>

**Option 3b: Do not amend Schedule 1 of the Policy to enable the use of Image.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Consistent with the policy principle of prudent avoidance.</li> </ul>	<ul style="list-style-type: none"> <li>• Chemicals with a higher toxicity used to achieve control;</li> <li>• Greater quantities of alternative agrichemicals used;</li> <li>• Higher cost associated repeat agrichemical applications;</li> <li>• Inconsistent with the Policy direction.</li> </ul>

**Option 4a: Amend Schedule 1 of the Policy to enable the use of Escort to control bushy asparagus in the coastal dunes, beyond the trial period and subject to its use incorporating methods that minimise quantity of chemical applied, where practicable.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Consistent with the principle of reducing the volumes of agrichemicals used by combating agrichemical resistance;</li> <li>• Lower toxicity than other approved chemicals that would otherwise be used as a method of control;</li> <li>• Will enable fit-for-purpose use of land.</li> </ul>	<ul style="list-style-type: none"> <li>• Adds an additional agrichemical to Schedule 1, which may be perceived as inconsistent with the Policy;</li> <li>• May have an adverse effect on some people in the community.</li> </ul>

**Option 4b: Do not amend Schedule 1 of the Policy to enable the use of Escort to control bushy asparagus beyond the trial period.**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Consistent with the policy principle of prudent avoidance.</li> </ul>	<ul style="list-style-type: none"> <li>• Chemicals with a higher toxicity used to achieve control;</li> <li>• Greater quantities of alternative agrichemicals used;</li> <li>• Higher cost associated repeat agrichemical applications;</li> <li>• Risk of pest proliferation where effective control is not achieved;</li> <li>• Inconsistent with the Policy direction.</li> </ul>

<b>Budget - Capex</b>	No capex requirement
<b>Budget - Opex</b>	No capex requirement

<b>Key risks</b>	The key risks relate to the health of people and the environment, and balancing the need for infrastructure that is fit-for-purpose, providing places for people and communities to enjoy, and protecting against pests.
<b>Recommended</b>	<p>The <b>recommended</b> options include:</p> <ul style="list-style-type: none"> <li>• Option 1a – Amend Schedule 1 of the Policy to enable Amistar Fungicide to be used to control fungal diseases on grass cricket wicket blocks, subject to its use being prohibited within 25 metres of waterways.</li> <li>• Option 2b – Do not amend Schedule 1 of the Policy to enable the use of Thiram.</li> <li>• Option 3a – Amend Schedule 1 of the Policy to enable Image to be used on turf to control broadleaf weeds only, subject to its use being prohibited within 25 metres of waterways.</li> <li>• Option 4a – Amend Schedule 1 of the Policy to enable the use of Escort to control bushy asparagus in the coastal dunes, beyond the trial period and subject to its use incorporating methods that minimise quantity of chemical applied, where practicable.</li> </ul>

## Significance and engagement

32. Under the Significance and Engagement Policy 2014, these decisions are of medium significance as the decision will be of interest to some people in the community. The decisions will affect all members of the community who use Council-maintained land. The recommended changes to Schedule 1 of the Policy will be notified on Council's website.


## Next steps

33. Implementation of any changes to schedule 1 of the Policy will occur immediately to enable agrichemical use in accordance with these Decisions effective from March 2018.

## Appendices

No.	Title
A	Background <i>Objective: ID: A8484557</i>
B	Use of Toxic Agrichemicals for Vegetation Management Policy <i>Objective: ID: A8484558</i>
C	Summary of the quantities of agrichemical concentrate used from 2009 to December 2017 <i>Objective: ID: A8484559</i>
D	Assessment of Applications to Add Agrichemicals to Schedule 1 of the Use of Toxic Agrichemicals for Vegetation Management <i>Objective: ID: A8484560</i>
E	TAAF Agrichemical Report <i>Objective: ID: A8485050</i>

**Signatories**

Authors	
Committee Lead Review	
Authorisers	

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**11.1.1 DC09 - Appendix A - Background - Environment Committee 27 Febraury 2018**

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## Appendix A – Background

### Review of Council’s Use of Toxic Agrichemicals Policy (DC9)

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#### Environment Committee

27 February 2018

Objective ID No: A8484557

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1. Agrichemicals are chemical products commonly used in agriculture to control vegetation. In most cases, an agrichemical is a form of pesticide, including insecticides, herbicides, fungicides and nematicides. Agrichemicals also include synthetic fertilisers, hormones and other chemical growth used for agriculture purposes.
2. The New Zealand Environmental Protection Authority (**‘NZ EPA’**) and the Ministry of Primary Industries (**‘MPI’**) are responsible for regulating the use of agrichemicals in New Zealand. These responsibilities are mandated under the Hazardous Substances and New Organisms Act 1996 (**‘HSNO’**) and the Agricultural Compounds and Veterinary Medicines Act 1997 (**‘ACVM’**).
3. Under the HSNO Act, all hazardous substances require approval by the NZ EPA before they can be used. Once approval under the HSNO is granted, a product can be registered under the ACVM. This registration enables products containing the approved substance to be imported, manufactured, sold and used in the agricultural and horticultural industries.
4. The EPA has approved a number of agrichemical substances under the HSNO, including approximately 60 substances that contain glyphosate. Glyphosate is a broad-spectrum herbicide used to control weeds. It works by preventing plants from making certain proteins that are needed for plant growth. Under the ACVM there are 94 registered products that contain glyphosate as the active ingredient.
5. Despite glyphosate being approved for use in New Zealand, concerns have been publicised about its effect on humans and the environment. In August 2016, the EPA commissioned Dr Wayne Temple, a toxicologist and former Director of the New Zealand National Poisons Centre, to undertake a scientific review of glyphosate and carcinogenicity. This review assesses research undertaken by the International Agency for Research on Cancer (**‘IARC’**) and the United States Environmental Protection Agency (**‘US EPA’**), and other relevant data on glyphosate. The conclusion of the EPA (EPA, 2016<sup>1</sup>), based on a weight of evidence approach, is that glyphosate is unlikely to be genotoxic or carcinogenic to humans, and does not require classification under HSNO as a carcinogen or mutagen.
6. It is noted that the IARC (a specialised cancer agency of the World Health Organisation (**‘WHO’**)) classifies glyphosate in a group of chemicals that is ‘probably carcinogenic to humans’

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<sup>1</sup> Environmental Protection Authority. (2016). *Review of the Evidence Relating to Glyphosate and Carcinogenicity* (Prepared for the Environmental Protection Authority by Dr Wayne Temple). Retrieved from <https://www.epa.govt.nz/assets/Uploads/Documents/Everyday-Environment/Publications/EPA-glyphosate-review.pdf>

(IARC, 2015<sup>2</sup>). This classification was based on 'limited evidence' from human data (regarding non-Hodgkin lymphoma), but 'sufficient evidence' in animal experiments. An earlier study undertaken by the WHO Joint Meeting on Pesticide Residues assessment group ('JMPR'), determines that glyphosate does not pose a cancer risk to humans from pesticide residues in food (JMPR, 2004<sup>3</sup>).

7. Since the publication of the IARC report, a joint task force was established comprising scientists from the WHO, national governments and universities to review the information considered by IARC and to determine whether there is a need to update the previous assessment undertaken by the JMPR. The task force noted that the IARC report included information not previously reviewed by the JMPR and recommended a re-evaluation of glyphosate. This re-evaluation was undertaken by the JMPR in 2016 and it was concluded that 'glyphosate is unlikely to pose a carcinogenic risk to humans from exposure through diet' (JMPR, 2016<sup>4</sup>).
8. It is important to recognise that the studies undertaken by the JMPR are based on a 'risk assessment approach' to glyphosate exposure, whereas the research undertaken by the IARC is based on 'hazard identification' only. Hazard identification is the first step in a risk assessment. It allows a hazardous substance to be classified according to potential health effects. For example, a hazard may be classified as carcinogenic, meaning it could result in an increase risk of cancer. However, the same hazard may have different effects at different doses, depending on how much of the chemical a person is exposed to and the route by which exposure occurs. A risk assessment takes this into account. On this basis, the assessment undertaken by the JMPR is not contradictory to the IARC hazard classification published in 2015. The work undertaken by the JMPR and IARC is different, yet complimentary. Their respective roles can be seen as part of a continuum where potential hazards to public health are identified and the level of risk associated with that hazard subsequently assessed.
9. The NZ EPA 2016 report employs a risk assessment process. Bruning, who is the chair of Council's TAAF, considers that the EPA's report is flawed. According to Bruning, a risk assessment approach gives limited weighting to the precautionary principle in the assessment of agricultural use. The precautionary principle requires a responsibility to protect the public and environment from exposure to harm when scientific investigations are either lacking or found plausible risk. In a risk assessment approach, this principle is not overriding. Bruning highlights the HSNO requirement under section 7 for a precautionary approach to be taken into account when exercising functions under this Act. In Bruning's opinion the risk assessment approach employed by the EPA is inconsistent with the HSNO.
10. Despite the recent literature, the NZ EPA has not changed its position on the use of glyphosate based herbicides. Council's approach is to adopt the position of the NZ EPA as the national agency responsible for regulating the use of agricultural chemicals in New Zealand. On this basis, the

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<sup>2</sup> International Agency for Research on Cancer. (2015). *Some organophosphate insecticides and herbicides*. IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. Lyon: 3-10 March 2015. Retrieved from <http://monographs.iarc.fr/ENG/Monographs/vol112/mono112.pdf>

<sup>3</sup> Joint Meeting on Pesticide Residues. (2004). *Pesticide residues in food – 2004*. Report on the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group. FAO Plant Production and Protection Paper, 278, 2004. Retrieved from WHO database.

<sup>4</sup> Joint Meeting on Pesticide Residues. (2016). *Pesticide residues in food – 2016*. Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues. FAO Plant Production and Protection Paper, 227, 2016. Retrieved from WHO database.

position of Council with respect to the use of glyphosate based herbicides should remain unchanged.

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**11.1.2 DC09 - Appendix B - Use of Toxic Agrichemicals for Vegetation Management Policy - Environment Committee 27 February 2018**

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## COUNCIL SUPPORTING POLICY

<b>POLICY TITLE:</b>	<b>USE OF TOXIC AGRICHEMICALS FOR VEGETATION MANAGEMENT</b>
<b>Lead Policy:</b>	<b>Vegetation and Tree Management</b>
<b>Minute Ref:</b>	<b>M08/131 Amended M10/29.3; M11/86.3; M12/74.5; M15/64.5; M16/51.4</b>
<b>Date of Adoption</b>	<b>17<sup>th</sup> November 2008. Amended 27 April 2010; 22 November 2011; 13 November 2012; 14 September 2015, 8 August 2016</b>
<b>Effective Date:</b>	<b>1<sup>st</sup> February 2009</b>

### 1. POLICY OBJECTIVES

The primary objective of this policy is to protect public health.

Other objectives include:

- the protection of the wider environment from undue harm (including the protection of domestic pets and bird-life from harm), and
- the provision of effective vegetation management on Council-maintained land.

### 2. PRINCIPLES

Council recognises that some toxic agrichemicals have a significant adverse effect on some people within the community.

Council also recognises that some toxic agrichemicals may have a significant impact on the wider environment.

Council's preference is to use non-chemical methods of vegetation control whenever practical.

Council has responsibilities for the management of plant pests on Council-maintained property. Council also has responsibilities to allow fit-for-purpose use of land that it maintains.

To meet these responsibilities, Council accepts that some use of toxic agrichemicals for vegetation management will be necessary.

In accepting some use of toxic agrichemicals, Council will take a "prudent avoidance" approach when considering the use of specific toxic agrichemicals.

Council will proactively seek to reduce the use of toxic agrichemicals on Council-maintained land.

### 3. DEFINITIONS

**Agrichemicals** are any substance, whether inorganic or organic, man-made or naturally occurring, modified or in their original state, that are used in any

agriculture, horticulture or related activity, to eradicate, modify or control flora and fauna. For the purposes of this policy, this definition excludes any fertiliser.<sup>1</sup>

**Council** means the Tauranga City Council.

**Council-maintained land** means land that is maintained by, or on behalf of, Council. It does not include land that is owned by Council but which has been leased to another organisation.

**Prudent avoidance** means avoiding the use of products newly-approved for commercial use, and removing from use products where experts have major reservations over the safety of the product.

**Strategy and Policy Committee** means the Strategy and Policy Committee of the Tauranga City Council or another Committee of Council with similar terms of reference.

**Toxic** means capable of causing ill-health in, or injury to, human beings.<sup>2</sup>

**Toxic Agrichemicals Advisory Forum** is as established in section 5.4 of this policy.

#### 4. **BACKGROUND**

The Health Act 1956 states that it is “...*the duty of every local authority to improve, promote and protect public health within its district...*”.

The Health and Safety in Employment Act 1992, the Hazardous Substances and New Organisms Act 1996, the Regional Air Plan and the Regional Water and Land Plan all include requirements that relate to the safe use of toxic chemicals.

The Biosecurity Act 1996, the National Plant Pest Accord and the Regional Pest Management Strategy detail Council’s responsibilities regarding the management of plant pests.

#### 5. **POLICY STATEMENT**

##### 5.1 **Scope**

This policy applies to all Council-maintained land. It does not apply to land that is owned by Council but leased to another organisation.

Where a piece of land is maintained jointly with another local authority (for example, sub-regional parks), the policy approach to vegetation management and the use of toxic agrichemicals shall be that of the lead agency.

Those applying toxic agrichemicals on behalf of Council are bound by this policy.

##### 5.2 **Use of toxic agrichemicals**

Council’s preference is to not use toxic agrichemicals for the purposes of vegetation management.

However, in order to carry out effective vegetation management Council recognises that the use of toxic agrichemicals will occur in some circumstances.

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<sup>1</sup> Source: Bay of Plenty Regional Air Plan.

<sup>2</sup> Source: Hazardous Substances and New Organisms Act 1996

### **5.3 Determining acceptable toxic agrichemicals and circumstances of use**

Toxic agrichemicals that Council has approved for use on Council-maintained land are listed in Schedule 1 to this policy.

Amendments to Schedule 1 will be made by resolution of the Strategy and Policy Committee following consideration of information from staff and from the Toxic Agrichemicals Advisory Forum.

In considering potential amendments to Schedule 1, the Strategy and Policy Committee may consider any or all of the following:

- The toxicity of the agrichemical and the potential for harm to public health (with preference given to lower toxicity agrichemicals)
- The potential effects on the wider environment both negative and positive (for example the removal of invasive weeds)
- The intended use of the chemical (for example, general vegetation management, as a precursor to restoration projects, specific removal of plant pests, etc)
- The intended location of that use (for example, close to playgrounds, on sportsfields, in hard-to-get-to gullies, etc)
- The way the chemical is to be used (for example, spraying, swabbing, drill-and-pour, etc)
- The effectiveness of the agrichemical, particularly as compared to alternative approaches
- The cost of the agrichemical, particularly as compared to alternative approaches.

The above considerations and any subsequent amendments to Schedule 1 may result in a toxic agrichemical being approved for use:

- On an individual job-by-job or project-by-project basis, and/or
- On a particular type of land, for example for use on sports fields, and/or
- For a particular intended use, for example for the removal of a specific plant pest, and/or
- For a combination of land-type and use, or
- For general use, or
- For general use with specific restrictions, for example a restriction on use near waterways, or
- With any other specifications or restrictions as determined by the Strategy and Policy Committee.

### **5.4 Toxic Agrichemicals Advisory Forum**

The Toxic Agrichemicals Advisory Forum (the Forum) is a forum of interested and knowledgeable people who can assist the Strategy and Policy Committee in its determination of acceptable toxic agrichemicals and their circumstances of use.

Where appropriate the Forum will raise issues of concern or respond to issues raised by other parties (for example a proposal to add or delete a toxic agrichemical from Schedule 1).

The Forum is not a formally-constituted committee of Council and there will be no Councillor membership on the Forum.

## **5.5 Operational procedures**

### **5.5.1 Standards**

All applications of toxic agrichemicals on Council-maintained land by or on behalf of Council will comply with New Zealand Standard 8409 : 2004 Management of Agrichemicals (or subsequent updates).

### **5.5.2 Spray-free register**

Council will maintain a spray-free register of individuals or organisations who wish not to have toxic agrichemicals used by or on behalf of Council close to their property.

With regards to the application of toxic agrichemicals to a property's street frontage, registration of that property on the spray-free register means that toxic agrichemicals will not be used by or on behalf of Council on that street frontage.

With regards to the application of toxic agrichemicals on other Council-maintained land adjacent to, or in the vicinity of, a particular property, registration of that property on the spray-free register means that registered individuals or organisations will be specifically informed in advance of the application of any toxic agrichemicals taking place if requested

Individuals and organisations who are included on the register will be informed by email of all proposed spraying in the city.

### **5.5.3 Notification of the application of agrichemicals**

Council will comply with the specific notification requirements included in the operative Regional Air Plan.

Compliance with these requirements will occur through public notices in the Bay of Plenty Times.

Additional notification may also occur in free newspapers, on Council's website, and in Council's own publications.

### **5.5.4 Signage**

Council will comply with the specific signage requirements included in the operative Regional Air Plan.

In addition to those requirements, Council will ensure that signs stating that toxic agrichemicals have been applied will remain in place for 48 hours after the time of application.

Such signs will be erected at all reasonably-identifiable entrances to the location<sup>3</sup> where the toxic agrichemicals have been applied.

## **5.6 Monitoring and reporting**

Council will collect, collate, monitor and report information on the use of toxic agrichemicals on Council-maintained land. This information will be made publicly available in appropriate formats.

Such information will, on an annual basis, be used by Council to consider progress made towards its goal of reducing the use of toxic agrichemicals on Council-maintained land.

## **6. RELEVANT DELEGATIONS**

The Chief Executive has delegated authority and the authority to sub-delegate in respect to all other provisions within this policy.

## **7. REFERENCES AND RELEVANT LEGISLATION**

Biosecurity Act 1993

Hazardous Substances and New Organisms Act 1996

Health and Safety in Employment Act 1992

Health Act 1956

Local Government Act 2002

National Plant Pest Accord

NZS 8409:2004 Management of Agrichemicals

Regional Air Plan – Environment Bay of Plenty

Regional Pest Management Strategy – Environment Bay of Plenty

Regional Water and Land Plan – Environment Bay of Plenty

*Growing Tauranga Green* - Vegetation Strategy – Tauranga City Council

*(Note that this strategy includes an action to identify a specific reserve to be maintained using techniques other than the use of chemicals.*

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<sup>3</sup> For small reserves, the “location” will be the entire reserve. However, for large reserves such as Kopurererua Valley or Carmichael Reserve, “location” is the part of the reserve where agrichemicals have been applied.

# Schedule 1

## List of toxic agrichemicals approved for use for the time being

Effective date: 1st February 2009

Product name <sup>4</sup>	Active Ingredient(s) <sup>5</sup>	Notes(in accordance with Section 5.3)
AGPRO BIO-Safe	Fatty acids	For control of weeds in the road corridor
Acelepryn <sup>6</sup>	Chlorantraniliprole	For use within active reserves <sup>7</sup> to control pest insects in turf. Not to be used within 25 metres of waterways. Effective 13/11/12.
Activated Amitrole	Amitrole Ammonium thiocyanate Sulphamic acid	For bamboo control
Banvine	2,4-D acid Dicamba	For vine control, only as a precursor for restoration sites. Location restricted to bush areas, gullies, banks, and wild areas with limited public access. Not to be used within 25 metres of waterways. Additional signage required advising public not to enter the site
Bestseller	Alpha - Cypermethrin	For use within active reserves <sup>7</sup> to control pest insects in turf. Effective 27/4/10
Biobit	Bacillus thuringiensis	For control of fungus on annuals
Codacide oil	Emulsifiable vegetable oils Polyethoxylated esters	Used in conjunction with other toxic agrichemicals to reduce spray drift
Confidor	Imidacloprid	For control of fungus on annuals
Conquest (previously known as Tordon Gold)	Picloram Triclopyr	For use on turf to kill Onehunga weed
Copper hydroxide	Copper	For control of fungus
Eco-Oil	Canola oil	For control of black spot and viruses on roses

<sup>4</sup> For ease of comprehension, agrichemicals are listed by their most popular trade names. Similar products with different trade names but the same active ingredients may be used if operational circumstances require it.

<sup>5</sup> Source: New Zealand novachem Agrichemical Manual 2012 (published by Agri Media Ltd) unless otherwise stated.

<sup>6</sup> To be reassessed every three years for up-to-date toxicity date – resolution 13-11-12.

<sup>7</sup> Active Reserve sites are identified as 'Active Open Space' within the current City/District Plan.

# Schedule 1

Product name <sup>4</sup>	Active Ingredient(s) <sup>5</sup>	Notes(in accordance with Section 5.3)
Escort	Metsulfuron-methyl ester	For use on wild ginger and gorse in any location, and on agapanthus in the coastal dunes.  For use on bushy asparagus in the coastal dunes on a trial basis from 1 September 2016 until 1 September 2017.  For all locations, application will be by methods that minimise the quantity of chemical used e.g. using direct, limited application methods like weed wiping, stump swabbing and spot spraying where it is practicable
Flint <sup>7</sup>	Trifloxystrobin	For use on grass cricket wickets to control fungus. Not to be used within 25 metres of waterways. Effective 13/11/12.
Gallant	Haloxypop Diethylene glycole	For use on pest grass species such as kikuyu and African feather grass
Grazon	Triclopyr	For use on climbing plant pests including, but not restricted to, blackberry, honeysuckle, convolvulus
Katana <sup>7</sup>	Flazasulfuron	For use within active reserves <sup>7</sup> to control weeds in couch grass turf. Not to be used within 25 metres of waterways. The contractor shall document all use of Katana over the 12 months from 13 November 2012 (date, area sprayed, application rate, comments of effectiveness at two week and six week intervals after application). Effective 13/11/12.
Kerb (previously known as Kerb-Flo)	Propyzamide Ethylene glycol	For control of weeds in couch grass turf
Moddus	Trinexapac-ethyl	For use within Active Reserves <sup>7</sup> to regulate turf growth. Effective 27/4/10.
Neem (previously known as Neem 900EC)	Neem Seed Extract	For general use to control insect pests. Effective 13/11/12.
Nortron	Ethofumesate Ethylene glycol	For use within Active Reserves <sup>7</sup> to control annual grasses. Effective 27/4/10
Organic Interceptor	Pine oil	For general maintenance use
Organic Weedfree and Weedenz	Pine oil and fatty acids Capric/caprylic acid	For general maintenance use

# Schedule 1

Product name <sup>4</sup>	Active Ingredient(s) <sup>5</sup>	Notes(in accordance with Section 5.3)
Pasture-Kleen	2,4-D ethylhexyl ester	For control of thistles and broadleaf weeds in large pastures
Pulse Penetrant	Organo-silicone modified polydimethylsiloxane	Used in conjunction with other toxic agrichemicals to enhance penetration
Pyrethrum	Pyrethrins <sup>8</sup>	For general use to control insect pests. Schedule-1 rejects the additive Piperonyl butoxide. Effective 13/11/12.
Ridomil Gold <sup>7</sup>	Metalaxyl-M	For use on grass cricket wickets to control fungus. Not to be used within 25 metres of waterways. Effective 13/11/12.
RoundUp	Glyphosate	For general maintenance use
Saprol	Triforine <sup>9</sup>	For control of rust on roses
Super Shield	Myclobutanil Tau-fluvalinate <sup>9</sup>	For use in controlling black spot, aphids and other insect pests
Tordon Brush Killer	Picloram Triclopyr	For gorse and honeysuckle control, and for stump-swabbing of hard-to-kill plant pests such as morning glory. And for use on turf to kill Onehunga weed.
Velpar Granules	Hexazinone	For use in controlling pampas in estuarine areas
Versatil	Clopyralid	For use on turf to kill Onehunga weed and other broad-leafed weeds
Vigilant	Picloram	For stump-swabbing of hard-to-kill plant pests
Yield	Benzalkonium chloride	For use within Active Reserves <sup>6</sup> to control of fungus and algae. Effective 27/4/10

<sup>8</sup> [http://www.mgk.com/Crop-Protection/PyGanic\\_1\\_4.aspx](http://www.mgk.com/Crop-Protection/PyGanic_1_4.aspx)

<sup>9</sup> [www.ermanz.govt.nz](http://www.ermanz.govt.nz)

**11.1.3 DC09 - Appendix C - Summary of the quantities of agrichemical concentrate used from 2009 to December 2017**

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## Appendix C – Summary of the Quantities of Agrichemical Concentrate Used from 2009 to December 2017

### Review of Council's Use of Toxic Agrichemical Policy (DC9)

Environment Committee

27 February 2018

Objective ID No: A8484559



Tauranga City

### Total Agrichemical Volumes 2009 – December 2017

	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL
Roundup	1916	1924	2027	1685	1707	1321	1029	1193.8	560.9	13364
Picloram/Tri Form	313	694	1096	838	511	195	102	93.9	126.8	3969
Pulse Penetrant	198	177	103	162	93	90	115	34.7	41	1013
Codacide oil	102	450	18	261	43	32	27	21.9	12.5	968
Gallant	37	15	46	139	102	82	84	70.4	109.8	686
Grazon	13	31	20	30	70	128	211	60.7	74	637
Versatil	43	34	45	80	62	120	40	226.8	136.8	788
Vigilant	13	34	3	14	14	50	6	0	0.2	135
AGPRO BIO-Safe	96	21	0	0	2	0	0	0.3	0	117
Escourt	3	4	26	58	1	2	0	1.8	13.2	112
Activated Amitrole	5	10	14	7	10	8	11	0.5	1.2	56
Kerb-Flo	6	0	21	7	0	5	5	6	0	60
Organic Weed Free	0	0	0	0	0	0	31	15	11	57
Velpar Granules	0	0	10	0	6	1	0	0	0	18
Super Shield	0	1	2	3	1	2	1	1.2	0.3	12
Eco-Oil	4	0	0	4	1	1	0	0.8	0.1	11
Acelepryn	0	0	0	0	0	0	10	3.8	0	14
Norton	0	0	0	0	5	1	0	0	0	6
Mancozeb	0	0	0	5	1	0	0	0	0	6
Confidor	0	0	1	0	0	1	0	0	0.2	3
Katana	0	0	0	1	1	0	1	2	1.6	6
Moddus	0	0	0	1	2	0	0	0	0	2
Copper Hydroxide	0	0	0	1	0	1	0	0.3	0.1	2
Banvine	0	0	0	0	0	0	2	0	48.8	50
Ridomil Gold	0	0	0	0	2	0	0	0	0	2
Weedenz	0	0	0	0	0	0	2	2	0	4
Pasture-Kleen	0	0	0	1	0	0	0	0	0	2
Suscon Green	1	0	0	0	0	0	0	0	0	1
Break-thru Gold	0	0	0	0	1	0	0	0	0	1
Bestseller	0	0	1	0	0	0	0	11.5	3	15
Yield	0	0	0	0	1	0	0	0	0	1
Pyrethrum	0	0	0	0	0	0	0	0	0	0
Saprol	0	0	0	0	0	0	0	0	1.4	2
Flint	0	0	0	0	0	0	0	0.04	0	0
Tordon Gold	0	0	0	0	0	0	0	29.4	80.0	110
Biobit	0	0	0	0	0	0	0	0	0	0
Nortron	0	0	0	0	0	0	0	0.3	0	0
<b>TOTAL</b>	<b>2751</b>	<b>3394</b>	<b>3434</b>	<b>3296</b>	<b>2635</b>	<b>2044</b>	<b>1677</b>	<b>1776.9</b>	<b>1223.0</b>	<b>22230</b>

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- 11.1.4 DC09 - Appendix D - Application to Add Agrichemicals - Environment Committee 27 February 2018 copy**

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## **Appendix D – Assessment of Applications to Add Agrichemicals to Schedule 1 of the Policy – February 2017**

### **Review of Councils Use of Toxic Agrichemicals Policy (DC9)**

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#### **Environment Committee**

**27 February 2018**

Objective ID No: A8484560

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### **Introduction**

1. The Use of Toxic Agrichemicals for Vegetation Management Policy (**'the Policy'**) allows for amendments to be made to Schedule 1 of the Policy by resolution of Council committee, following consideration of information from staff and the Toxic Agrichemical Advisory Forum (**'TAAF'**).
2. As a result of the 2014 Policy review, a Council procedure was adopted in January 2015 that outlines the process for reviewing Schedule 1 of the Policy. The procedure aims to enable a more objective assessment of adding or removing agrichemicals from Schedule 1, in what is inherently an emotive environment.
3. On the 7 March 2017, applications for additions/changes/deletions to Schedule 1 were invited from Council staff, the contractor's that they manage, and TAAF.
4. The application process closed on 4 April 2017. Three requests were received from Council staff for additional agrichemicals to be added to Schedule 1 of the Policy. The product names of these agrichemicals are Image, Amistar Fungicide, and Thiram 40F. This report provides an assessment of each of these proposed additions to Schedule 1 of the Policy and makes recommendations as to the products inclusion in Schedule 1.

### **Assessment Methodology**

5. The agrichemical applications received have been assessed in accordance with the following:
  - The specific criteria set out in section 5.3 of the Policy;
  - The objectives and principles of the Policy;
  - The Vegetation and Tree Management Policy;
  - The Active Reserve Level of Service Policy;
  - The Open Space Level of Service Policy;
  - The City Plan;
  - The Bay of Plenty Regional Air Plan
  - The Bay of Plenty Regional Pest Management Plan.
6. **Section 5.3 of the Policy**  
Section 5.3 of the Policy enables amendments to be made to Schedule 1 by resolution of the Strategy and Policy Committee (now within the role/scope of the Environment Committee), and following consideration of information from staff and TAAF. In considering potential

amendments to Schedule 1, the Strategy and Policy Committee (now within the role/scope of the Environment Committee), may consider the following:

- The intended use of the chemical (for example, general vegetation management, as a precursor to restoration projects, specific removal of plant pests, etc);
- The intended location of that use (for example, close to playgrounds, on sportsfields, in hard-to-get-to gullies, etc);
- The way the chemical is to be used (for example, spraying, swabbing, drill-and-pour);
- The effectiveness of the agrichemical, particularly as compared to alternative approaches;
- The cost of the agrichemical, particularly as compared to alternative approaches;
- The toxicity of the agrichemical and the potential for harm to public health (with preference given to lower toxicity agrichemicals); and
- The potential effects on the wider environment both negative and positive (for example the removal of invasive weeds).

## Proposed Agrichemical Additions

7. **Table 1** sets out background information on the proposed agrichemical additions. This information lists the active ingredients in each product, and describes the need for the additional agrichemical, how and where the agrichemical will be used, its effectiveness, cost and alternatives approaches to achieve control.

**Table 1:** Use, location, cost and alternative assessment

<b>Image</b>	<b>Active Ingredient</b>	Mecoprop-P, Bromoxynil and Ioxynil
	<b>Proposed Use</b>	For use on broadleaf weeds as an alternative to Versatile and/or Tordon Brush Killer. The product is applied by spray application. It is used seasonally primarily in spring and early summer, and it's use would be prohibited near waterways.  The addition of this agrichemical would assist in controlling broadleaf weeds using reduced volumes of agrichemicals. The existing agrichemicals used to control broadleaf weeds are becoming increasingly ineffective, requiring repeat applications to achieve control. The proposed addition to Schedule 1 will assist in combatting the observed agrichemical resistance, assisting in the overall reduction of agrichemical use.
	<b>Alternatives to Achieve the Same Outcome</b>	Increase use of existing agrichemicals permitted under Schedule 1, including repeated applications of Versatile and/or Tordon Brush Killer.  Manual or mechanical removal of broadleaf weeds on sports turfs is impracticable due to the level of service these reserves require. It is also inefficient to use manual and mechanical methods over larger areas of reserve, and ineffective in controlling Onehunga weed.  Similar cost to Versatile and Tordon Brush Killer. Costs less when compared to manual and mechanical removal of weeds.
	<b>Proposed Amendment to Schedule 1</b>	Addition of agrichemical to Schedule 1 of the Policy. Proposed notes to read:  <i>For use on turf to control broadleaf weeds. Not to be used within 25 metres of waterways or waterbodies.</i>

<b>Amistar Fungicide</b>	<b>Active Ingredient</b>	Azoxystrobin
	<b>Proposed Use</b>	<p>Amistar Fungicide is a fungicide used to control fungal diseases. The use of Amistar Fungicide would be restricted to grass cricket wicket blocks. These areas are often covered for weather protection, which makes them susceptible to fungal disease. Amistar Fungicide is applied as a spray and its use would be prohibited near waterways. Each contractor will be limited to storing no more than 5 litres of Amistar Fungicide at any one time.</p> <p>Contractors have identified that fungal diseases quickly build resistance to agrichemicals. Schedule 1 of the Policy is limited in that only one fungicide is permitted for use on Council maintained land. This fungicide is known as Flint. Contractors have found they are using increasing quantities of this product to achieve effective control. Consequently, approval is sought to add an Amistar Fungicide to Schedule 1 of the Policy.</p>
	<b>Alternatives to Achieve the Same Outcome</b>	<p>An alternative to the use of Amistar Fungicide to control fungal disease on cricket pitches is to increase the use of Flint. Schedule 1 of the Policy also enables the use of 'Yield', which can be effective at controlling fungal disease. However, this has a much higher toxicity than Flint and Amistar Fungicide, which are similar in toxicity levels. For this reason, contractors are generally reluctant to use Yield. The only manual method of effectively controlling fungal disease on cricket pitches is to re-sow, seed and fertiliser. This comes at a greater cost to Council when compared to the use of fungicides, and is often unpractical where control is required part way through the cricket season.</p> <p>The price of Amistar Fungicide is similar to Flint, but to achieve effective control, less applications will be required. Significantly cheaper than re-sowing cricket pitch.</p>
	<b>Proposed Amendment to Schedule 1</b>	<p>Addition of agrichemical to Schedule 1 of the Policy. Proposed notes to read:</p> <p><i>For use on grass cricket wicket blocks to control fungal disease only. Not to be used within 25 metres of waterways.</i></p>
<b>Thiram 40F</b>	<b>Active Ingredient</b>	Thiram
	<b>Proposed Use</b>	<p>Thiram 40F is a fungicide used to control fungal diseases. It is particularly effective on slime. The use of Thiram 40F would be restricted to grass cricket wicket blocks. These areas are often covered for weather protection, which makes them susceptible to fungal disease. Thiram 40F is applied as a spray and its use would be prohibited near waterways. Each contractor will be limited to storing no more than 5 litres of Thiram 40F at any one time.</p> <p>Contractors have identified that fungal diseases quickly build resistance to agrichemicals. Schedule 1 of the Policy is limited in that only one fungicide is permitted for use on Council maintained land. This fungicide is known as Flint. Contractors have found they are using increasing quantities of this product to achieve effective control. Consequently, approval is sought to add an Amistar Fungicide to Schedule 1 of the Policy.</p>
	<b>Alternatives to Achieve</b>	<p>An alternative to the use of Thiram 40F to control fungal disease on cricket pitches is to increase the use of Flint. Schedule 1 of the Policy also enables the use of 'Yield', which can be effective at controlling fungal disease.</p>

	<b>the Same Outcome</b>	<p>However, this has a much higher toxicity than Flint and contractors are generally reluctant to use this product. The only manual method of effectively controlling fungal disease on cricket pitches is to re-sow, seed and fertiliser. This comes at a greater cost to Council when compared to the use of fungicides, and is often unpractical where control is required part way through the cricket season.</p> <p>The price of Thiram 40F is similar to Flint, but to achieve effective control, less applications will be required. Significantly cheaper than re-sowing cricket pitch.</p>
	<b>Proposed Amendment to Schedule 1</b>	<p>Addition of agrichemical to Schedule 1 of the Policy. Proposed notes to read:</p> <p><i>For use on grass cricket wicket blocks to control fungal disease only. Not to be used within 25 metres of waterways.</i></p>

8. A key part of the analysis of the proposed use of the agrichemical is its toxicity, to both human health and the wider environment. To assess the toxicity of the proposed agrichemical additions, the following sources of information have been used:

- Hazardous Substances and New Organisms Act ('**HSNO**') Hazard Classification;
- Safety Data Sheets ('**SDS**') - The safety data sheet is a detailed information bulletin prepared by the manufacturer or importer of a hazardous substance providing information on the hazards of the substance. It is a requirement of New Zealand legislation that safety data sheets are available for agrichemicals used in the workplace;
- Product Labels; and
- Pesticide Action Network North America ('**PANNA**') Pesticide Database<sup>1</sup> – this is a database of current published and peer reviewed international scientific information about the toxicity of agrichemicals. It is considered to be a reliable source for published information on agrichemical toxicity.

9. **Table 2**, sets out information regarding the toxicity of the proposed agrichemical additions.

**Table 2:** Toxicity assessment

	Source	Human Health	Wider Environment
<b>Image</b>	<b>HSNO Hazard Classification</b>	6.1D – Harmful acute toxicant 6.4A – Eye irritant 6.5B – Contact sensitiser 6.8B – Suspected human reproductive or developmental toxicants 6.9B – Harmful to human target organs or systems	9.1A – Very ecotoxic in the aquatic environment 9.2A – very ecotoxic in the soil environment 9.3C – Harmful to terrestrial vertebrates
	<b>SDS/Product Label</b>	May cause eye irritation and possibly corneal opacity May cause liver, kidney and other target organ damage from repeated oral exposure at high doses Possible risk of harm to the unborn child	Not rapidly degradable Not bioaccumulative Acute toxicity to fish – LC50(96hr): 0.12mg/l Acute toxicity daphnia – EC50(48hr) 73 mg/L Acute toxicity algae – EbC50(72hr): 0.35 mg/L

<sup>1</sup> <http://www.pesticideinfo.org/>

		<p>May cause sensitisation from prolonged skin contact                  Acute toxicity oral – LD50/Rat: 687 mg/kg                  Acute toxicity dermal – LD50/Rat: &gt;2000 mg/kg</p>	<p>Acute toxicity plants – EC25(7 days)/Tomato: 0.005mg/kg soil for bromoxynil octanoate                  Acute toxicity birds – LD50(10 days)/Japanese Quail: 100 mg/kg for bromoxynil octanoate</p>
	<b>PANNA</b>	<p><u>Mecoprop-P, butoxyethylester</u>                  Not listed as an acute toxin                  Possible carcinogen (US EPA Category C - data shows limited evidence of carcinogenicity)                  Not a cholinesterase inhibitor                  Not listed as a developmental or reproductive toxin                  Not listed as an endocrine disruptor  <u>Bromoxynil octanoate</u>                  Moderate acute toxicity                  Possible carcinogen (US EPA Category C - data shows limited evidence of carcinogenicity)                  Not a cholinesterase inhibitor                  Known developmental and reproductive toxin                  Not listed as an endocrine disruptor  <u>Ioxnil octanoate</u>                  Moderate acute toxicity                  Not listed as a caaarcinogen                  Not a cholinesterase inhibitor                  Not listed as a development of reproductive toxin                  Not listed as an endocrine disruptor</p>	<p><u>Mecoprop-P, butoxyethylester</u>                  Not listed as a ground water contaminant                  Not listed as an aquatic or terrestrial toxin  <u>Bromoxynil octanoate</u>                  Potential ground water contaminant                  Fish – Highly toxic                  Zooplankton – Very highly toxic                  Honeybees – Slightly toxic  <u>Ioxnil octanoate</u>                  Not listed as an aquatic or terrestrial toxin</p>
<b>Amistar Fungicide</b>	<b>HSNO Hazard Classification</b>	<p>6.1D – Harmful acute toxicant                  6.4A – Eye irritant</p>	<p>9.1B – Ecotoxic in the aquatic environment</p>
	<b>SDS/Product Label</b>	<p>Eye irritant                  Acute toxicity oral – LD50/Rat: &gt;2000 mg/kg                  Acute toxicity dermal – LD50/Rat: &gt;2000 mg/kg                  Acute toxicity inhalation – LD50/Rats: &gt;6.32 mg/l                  Animal testing did not show any carcinogenic, teratogenic or mutagenic effects.</p>	<p>Toxic to aquatic organisms                  Acute toxicity to birds – LD50/Mallard ducks and bobwhite quail: &gt;2000 mg/kg                  Acute toxicity to fish – LC50(96h)/Rainbow trout: 1.2 mg/L                  LC50(96h)/Carp: 2.8 mg/L                  Growth inhibition, Algae – ErC50(72h)/green algae: 2.2 mg/L                  Toxicity to aquatic invertebrates – LC50(48h)/Water Flea: 0.83 mg/L                  Toxicity to soil dwelling organisms – LD50(14 days)/Earthworms: 283 mg/kg                  Toxicity to honey bees: LD50(14 days): &gt;283/bee                  Medium bioaccumulation potential</p>

<b>Thiram 40F</b>	<b>PANNA</b>	Not acutely toxic Not likely carcinogen Not a cholinesterase inhibitor Not a listed developmental or reproductive toxin Not a listed endocrine disruptor	Potential ground water contaminant Fish – slightly toxic Zooplankton – Highly toxic Honeybees – Not acutely toxic
	<b>HSNO Hazard Classification</b>	6.1D – Harmful acute toxicant 6.3B – Mild skin irritant 6.4A – Eye irritant 6.5B – Contact sensitizer 6.9B – Harmful to human target organs or systems	9.1A – Very ecotoxic in the aquatic environment 9.3C – Harmful to terrestrial vertebrates
	<b>SDS/Product Label</b>	Harmful if swallowed Skin irritant Eye irritant May cause damage to the heart, kidneys and cardiovascular system from repeated oral exposure at high doses Acute toxicity oral – LD50/Rat: 1800 mg/kg LD50/Rabbit: 210mg/kg Acute toxicity dermal – LD50/Rat: >1000 mg/kg Acute toxicity inhalation – Lc50/Rat: 4hr 0.5 mg/L	Not rapidly degradable Small potential to bioaccumulate in aquatic species Acute toxicity to fish – LC50(96hr)/Carp: 0.3mg/L Acute toxicity algae – EC50(5 days)/Selenastrum capricornutum: 0.045 ppm Not toxic to bees Non phytotoxic
	<b>PANNA</b>	Moderately acutely toxic Unclassifiable carcinogen Not a cholinesterase inhibitor Known developmental and reproductive toxin Suspected endocrine disrupter	Not a listed ground water contaminant Amphibians – Very highly toxic Annelida – Highly toxic Crustaceans – Not acutely toxic Fish – Very highly toxic Insects – Highly toxic Nematodes and flatworms – Highly toxic Zooplankton – Highly toxic Honeybees – Slightly toxic

## Assessment of Proposed Agrichemicals

### Objectives and Principles of the Policy

- The Policy sets out objectives and principles that guide the use of toxic agrichemicals on Council maintained land. The primary objective of the Policy is to protect public health, with the protection of the wider environment and the provision of effective vegetation management being secondary objectives. To give effect to these objectives, the Policy includes seven principles that relate to agrichemical use and vegetation management. **Table 3**, which follows, assesses the proposed agrichemical additions against these objectives and principles.

**Table 3:** Objective and principle assessment

Objectives and Principles	Image	Amistar Fungicide	Thiram 40F
OBJ: Protection of public health	Low	Medium	Low
OBJ: Protection of the wider environment from undue harm	Low	Medium	Low
OBJ: Provision of effective vegetation management	High	High	High
PRI: Recognition that some toxic agrichemicals have a significant adverse effect on some people within the community	Low	Medium	Low
PRI: Recognition that some toxic agrichemicals may have a significant impact on the wider environment	Low	Medium	Low
PRI: Preference to use non-agrchemical methods of vegetation control whenever practical	Low	Low	Low
PRI: Recognition of Councils responsibilities to manage plant pests and allow for the fit-for-purpose use of Council maintained land	High	High	High
PRI: acceptance that some use of toxic agrichemicals will be necessary for vegetation management	Medium	Medium	Medium
PRI: Council will take a prudent avoidance approach when considering the use of specific toxic agrichemicals	Low	Medium	Low
PRI: Proactively seek to reduce the use of toxic agrichemicals on Council-maintained land	High	High	Medium

**Low** – inconsistent with the objective or principle assessed.

**Medium** – neither completely consistent nor inconsistent with the objective or principle assessed.

**High** – consistent with the objective or principle assessed.

11. On the basis of the Table above, I consider that the addition of Amistar Fungicide to Schedule 1 is generally consistent with the Policy. The application to add Aminstar Fungicide to Schedule 1 of the Policy is for the purpose of controlling fungal diseases on grass cricket wicket blocks. Amistar Fungicide presents a moderate risk to public health and the wider environment. It is noted that Aminstar Fungicide has a similar toxicity to Flint, which is the only fungicide presently included in Schedule 1 of the Policy. The addition of Amistar Fungicide will assist in reducing the use of Flint required to control fungal disease by limiting agrichemical resistance. Amistar Fungicide is currently used by Hamilton City Council, Rotorua District Council and Auckland City Council. Aminstar Fungicide offers an effective weed management tool. It is cheaper than hand and mechanical weed removal, and will provide fit-for-purpose infrastructure. To reduce any potential harm, it is recommended that the Schedule 1 notes limit the use of Aminstar Fungicide to use of grass cricket wicket blocks and not within 25 metres of a water body.
12. Likewise, it is my opinion that the addition of Image to Schedule 1 of the Policy will assist Council in meeting the Policy objectives and principles. The addition of Image is proposed for the purpose of controlling broadleaf weeds on turf surfaces. The active ingredients in Image are known to be toxic to human health and the wider environment. Alternative agrichemicals include 'Versatill' and 'Tordon Brush Killer', as already approved under Schedule 1. When compared to these products, Image has a higher toxicity than Versatill and a similar toxicity level to Tordon Brush Killer. Versatill and Tordon Brush Killer are non-selective agrichemicals and cause damage to non-target weed species. Image has the added benefit of selectivity and will only kill or harm broadleaf weeds. Its introduction will assist in combating agrichemical resistance and reducing the total volume of agrichemicals used on Council maintained land. Image is currently used by Rotorua District Council, Hamilton City Council, Auckland Council, and Whangarei Council to control broadleaf species. It will assist in effective weed management as it is more effective and efficient than alternatives such as Versatill and Tordon Brush Killer where agrichemical resistance is occurring, mechanical methods of weed control, and hand weeding. Given the potential for harm to occur to human health and the environment, it is recommended that the use of Image be restricted to the control of broadleaf species on turf surfaces and prohibited near waterways.
13. The application to add Thiram 40F to Schedule 1 of the Policy was made for the same purpose as Amistar Fungicide, being to control fungal diseases on grass cricket wicket blocks. I consider that this application is inconsistent with the objectives and principles of the Policy. Thiram is known to be highly toxic to both humans and the environment. There are alternative agrichemicals that are less toxic and will equally assist to reduce agrichemical resistance. Amistar Fungicide is one of these alternatives, and this report makes the recommendation to approve the use of this agrichemical to control fungal diseases on grass cricket wicket blocks. This demonstrates that Council accepts that some use of toxic agrichemicals is necessary, and that the addition of new agrichemicals can assist in reducing the overall use of toxic agrichemicals on Council-maintained land. Declining the application to add Thiram to Schedule 1 of the Policy is therefore, considered consistent with the objectives to protect human health and the wider environment, while also providing for effective vegetation management.
- The Vegetation and Tree Management Policy**
14. The Vegetation and Tree Management Policy relates to all vegetation and trees on Council owned or administered land. It was developed to support Council's Vegetation Management

Strategy 'Growing Tauranga Green', which recognises that vegetation has an important contribution to the look and feel of a city's character, identify and the wellbeing of its residents. The relevant objectives and principles of the Vegetation and Tree Management Policy that have been used in the assessment of the proposed agrichemical additions are:

- *To actively strike a balance between the public benefit and amenity of high quality vegetation and the potential negative impact on the individual.*
- *Recognise the importance of high quality vegetation that contributes towards the sustainable development of our environment.*
- *The community's wellbeing is influenced by the vegetative landscape and the benefit it provides.*
- *Vegetation on council owned or administered land is considered a long term asset requiring active management to ensure effective enhancement of the amenity, ecology and environment of the City.*

15. The addition of Amistar Fungicide and Image to Schedule 1 is consistent with the Vegetation and Tree Management Policy. Alternatively, the application to add Thiram to Schedule 1 of the Agrichemical Policy is considered inconsistent with the objectives and principles outlined above. Paragraphs 11 to 14 of this report provide detail used in this determination, which is applicable to the objectives and principles of the Vegetation and Tree Management Policy.

**Active Reserve Level of Service Policy**

16. The Active Reserve Level of Service Policy recognises that the provision of fit-for-purpose active reserves is important to the health and wellbeing of individuals, and community identity and cohesion. The following objectives and principles of the active Reserve level of Service Policy are applicable to the assessment of the proposed agrichemical additions:

- *To recognise that specific levels of service are required for active reserves due to the type of use that occurs.*
- *The level of service will be established, as far as practicable, to meet the needs of both current and future sporting codes in Tauranga.*
- *Council will try and achieve a balance between cost of achieving a level of service and user needs both now and into the future, constantly looking at best value solutions.*

17. The addition of Amistar Fungicide and Thiram to Schedule 1 aligns with the Active Reserve Level of Service Policy. It is noted that Amistar Fungicide and Thiram will be used to control fungal diseases on grass cricket wicket blocks. These areas require a specific level of service to enable cricket use to occur. The use of Amistar Fungicide and Thiram recognises the specific level of service required for cricket and aims to meet the needs of both current and future sporting codes.

18. Equally the addition of Image is sought to control broadleaf weeds on turf surfaces. The majority of sports fields comprise turf surfaces that require a specific level of service to enable sporting activities to occur. On this basis, the use of Amistar Fungicide, Thiram and Image is considered consistent with the objectives and principles in the Active Reserve Level of Service Policy.

**The Open Space Level of Service Policy**

19. The Open Space Level of Service Policy recognises the important role that the open space network plays within the urban environment through providing places for recreation, community use, social gathering places, culture and heritage protection, amenity, landscape protection and ecological benefits. The Open Space Policy sets objectives and principles that are relevant in the assessment of agrichemical applications, including the following:

- *To outline how Council is responding to the different growth needs of the city through addressing the quantity, quality, accessibility and function of the open space network.*
- *Focus on access to and use of the open space network.*
- *Focus on making the most of the open space network.*

20. The objectives set out above are connected to the broader purpose of enhancing communities and the environment through the management of the open space network. On this basis, the protection of human health and the wider environment is implied through the Open Space Level of Service Policy. The assessment undertaken in paragraphs 11 to 14 of this report is relevant to the consideration of the agrichemical applications against the Open Space Level of Service Policy direction.

#### **City Plan**

21. The Tauranga City Plan enables Council to carry out its functions under the Resource Management Act 1991. The Plan includes provisions relating to open space and hazardous substances. The following provisions of the City Plan are applicable to the agrichemical applications assessed in this report:

- *Objective 13A.4.1 – The maintenance, enhancement and development of Open Space provides for a wide range of recreational, community and active living opportunities.*
- *Policy 13A.4.1.1 – By providing for the maintenance, enhancement and development of Open Space through:*
  - a) *Identifying open space areas that cater to the needs of:*
    - i) *Local neighbourhood reserves (Passive Open Space);*
    - ii) *The City (Active Open Space);*
    - iii) *The subregion (Active Open Space (Major));*
    - iv) *Special Uses (Scheduled Sites);*
  - b) *Identifying areas with natural character, ecological and conservation values;*
  - c) *Enabling a wide range of recreational, community and active living opportunities that caters to the needs of users to occur across each zone;*
- *Objective 9A.1.1 – Adverse environmental effects and/or risks to human health, property and/or the receiving environment associated with facilities and activities involving the manufacture, storage, use, transportation and/or disposal of hazardous substances are prevented or mitigated.*
- *Policy 9A.1.1.4 – By ensuring that the storage or use of hazardous substances does not result in cumulative adverse effects, particularly through increased risk to the natural or physical environment, or to the safety, health or wellbeing of people and communities.*

22. The City Plan provisions recognise that there is a need to maintain and enhance open space areas, while also acknowledging that the use of hazardous substance can have adverse environmental effects and present a risk to human health. A balanced approach is required in the use of agrichemicals to maintain open space areas. The assessment set out in paragraphs 11 to 14 of this report is applicable the provisions of the City Plan.

#### **The Bay of Plenty Regional Air Plan**

23. The Bay of Plenty Regional Air Plan provides for the sustainable management of discharges of contaminants into air. The Plan is currently under review and it is anticipated that a Plan Change will occur that integrates the Air Plan with the Bay of Plenty Natural Resources Plan. Until this time, the objectives and policies of the Air Plan remain operative. The provisions of the Air Plan considered most relevant to the agrichemical applications are set out below:

- *Objective 1 – Maintain and protect high air quality in the Bay of Plenty region and in instances or areas where air quality is degraded, to enhance it by specifically addressing discharges into air of gases, particulates, chemicals, agrichemicals, combustion and odour.*

- *Objective 2 – Avoid, remedy or mitigate the adverse effects of all discharges of contaminants into air on the environment which includes the effects on: ecosystems, human health and safety, crops and livestock, amenity values, cultural values, the mauri of natural and physical resources and the global environment.*
- *Policy 1(a) – Significant adverse effects of discharges into air should be avoided.*
- *Policy 3 – Discharges into air of contaminants identified as hazardous air pollutants or carcinogens (Schedule 3 – Hazardous Air Pollutants) are to be avoided, or where avoidance is not possible, the quantity of discharge is to be reduced using best management practice to acceptable levels, which are relevant national or international standards or guidelines.*

24. The Regional Air Plan provisions seek to control effects on human health and the environment. It is noted that neither Amistar Fungicide, Image, nor Thiram are listed in schedule 3 of the Regional Air Plan. I consider that the addition of Amistar Fungicide and Image align with the Regional Air Plan, whereas Thiram is inconsistent with this Policy direction. These considerations are largely made on the basis of the human health and wider environmental toxicity of the agrichemicals, and as assessed in paragraphs 11 to 14 of this report.

**The Bay of Plenty Regional Pest Management Plan**

25. The Bay of Plenty Regional Pest Management plan provides direction on the management of pest plants and pest animals in the Bay of Plenty Region. The Plan defines pests as unwanted plants or animals that have significant impacts on our environment, economy and our people. The following outcome identified in the Plan is relevant to the assessment of the agrichemical applications:

- *Our people, economy and ecosystems are protected from harmful pests.*

26. The agrichemical applications aim to control broadleaf weeds and fungal diseases that present an obstacle to delivering the specified level of service and fit-for-purpose open space areas. In this respect, the addition of Amistar Fungicide, Image and Thiram are consistent with the outcome to protect our people, economy and ecosystems from harmful pests. However, the reverse can be applied, being that the use of these agrichemicals exposes people and the environment to risk of harm that may be more significant than the pest itself. I have assessed the addition of these agrichemicals under paragraphs 11 to 14 of this report. Given this assessment, I consider that the addition of Amistar Fungicide and Image to Schedule 1 of the Policy is consistent with the Bay of Plenty Regional Pest Management Plan. Alternatively, the addition of Thiram presents an unnecessary level of risk to human health and the environment. An assessment of Thiram against the Bay of Plenty Regional Pest Management Plan is not supported.

**Summary**

27. Paragraphs 6 to 27 of this report have assessed the agrichemical applications against the relevant policy documents to check for consistency. Table 4 below, provides a summary of this assessment.

**Table 4:** Summary of policy and plan consistency assessment

	Amistar Fungicide	Image	Thiram
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Use of Toxic Agrichemicals for Vegetation Management Policy	YES	YES	NO
The Vegetation and Tree Management Policy	YES	YES	NO
The Active Reserve Level of Service Policy	YES	YES	YES
The Open Space Level of Service Policy	YES	YES	NO
The City Plan	YES	YES	NO
The Bay of Plenty Regional Air Plan	YES	YES	NO
The Bay of Plenty Regional Pest Management Plan	YES	YES	NO

28. This summary shows that the applications to add Aminstar Fungicide and Image to Schedule 1 of the Policy, are consistent with the policies and plans assessed. Alternatively, the addition of Thiram was considered inconsistent with the policy direction, with the exception of the Active Reserve Level of Service Policy.

### TAAF Assessment of Agrichemical Applications

29. TAAF have assessed the agrichemical applications, and have provided an assessment report that is attached at **Attachment D** to the Annual Agrichemical Assessment Report.
30. TAAF recommend adding Amistar Fungicide and Image, subject to conditions, to Schedule 1 of the Policy.
31. TAAF recommend refusing the application to add Thiram 40F to Schedule 1 of the Policy.
32. The reasons for these recommendations are set out in the report provided by TAAF at **Attachment D**.

### Recommendation

33. On the basis of the assessment set out above, I recommend that Amistar and Image be included in Schedule 1 of the Policy. It is recommended that notes be applied to the use of each of these agrichemicals as follows:
- Aminstar Fungicide:  
*'For use on grass cricket wicket blocks to control fungal disease only. Not to be used within 25 metres of waterways, and no more than 5 litres to be stored at any one time'.*
  - Image:  
*'For use on turf to control broadleaf weeds only. Not to be used within 25 metres of waterways'.*

34. I have considered the application to add Thiram to Schedule 1 of the Policy. The assessment of this agrichemical against the relevant policies and plans concludes that its addition would be inconsistent with Council's policy direction. TAAF do not support the inclusion of Thiram and, consequently staff recommend that the application to add Thiram to Schedule 1 of the Policy be declined in this instance.

DRAFT

- 11.1.5 DC09 - Appendix E - TAAF Assessment of Agrichemical Use - Environment Committee 27 February 2018 copy (A8485050)**

DRAFT

## ANNUAL REPORT ON COUNCIL'S USE OF TOXIC AGRICHEMICALS FOR VEGETATION MANAGEMENT POLICY (DC9)

**Report authored by:**

**The Toxic Agrichemical Advisory Forum of the Tauranga City Council (TAAF), comprising** s 7(2)(a) - Privacy

s 7(2)(a) - Privacy

**Tauranga, February 2018**

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## Executive Summary

### Public Health

The specific policy relating to agrichemical use by the Tauranga City Council (TCC) is the Council Supporting Policy *Use of Toxic Agrichemicals for Vegetation Management*. The primary objective of this policy is to protect public health. This is consistent with the Health Act 1956, which states that it is *the 'duty of every local authority to improve, promote, and protect public health within its district.'*<sup>1</sup>

In making recommendations, the Toxic Agrichemical Advisory Forum (TAAF) acts with a primary purpose or default that *the protection of public health is at the core of the functioning of the policy under which it acts*. This protection is important whether the exposure results in immediate toxicity (is acute) or results in risk of long term (chronic) exposures that may, in particular, risk adverse harm to pregnant women or young children.

It is particularly important that children are protected from agrichemicals. In 2016, the United Nations Special Rapporteur on human rights and hazardous substances and wastes urged governments and businesses to prevent childhood exposure to toxics, advising that there is a 'silent pandemic' of childhood disease and disability, and that many children are born 'pre-polluted'.

'States have a human rights obligation and businesses a corresponding responsibility to prevent childhood exposure to toxic chemicals and pollution.....Children are arguably the most vulnerable to toxics and pollution. For years, they are completely defenseless. They are impacted in ways in which adults are not. They are exposed at higher levels than adults, including to toxic chemicals found in their mother's body.'<sup>2</sup>

As per TCC policy, it remains in the public interest that Council takes the approach of 'prudent avoidance' regarding toxic agrichemicals.

### Chemical resistance: Changing our vegetation management culture

As chemicals develop patterns of resistance to herbicides and fungicides, and more toxic mixtures act as temporary solutions, a race against resistance. Tauranga City Councilors may find themselves recognising that deeper structural changes to the Tauranga City Plan are required, and in tandem, communication to the public to facilitate understanding.

Council contractors are restricted by policies and guidelines that lie under the Plan, this is reflected in their 'contract specifications' which contain the expected levels of service required by TCC staff.

Onhunga weed and other turf weed species are developing resistance to the current broadleaf sprays Versatil (Clopyralid) and/or Tordon Brush Killer (Picloram and Triclopyr). As a result, Image has been requested as an alternative to Versatil and Tordon. However, it is more toxic, and the chemicals used in the Image formulation may remain on vegetation and soil for longer than the day it is applied.

<sup>1</sup> Part 2 Sn. 23 Duty of every local authority to improve, promote, and protect public health  
health<http://www.legislation.govt.nz/act/public/1956/0065/118.0/whole.html#DLM305840>

<sup>2</sup> <http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=20546&LangID=E>

This is a public health concern. TAAF consider it is timely that council understand that creeping toxicity and the risk this involves is not in the public interest.

This is why TAAF are recommending that all passive reserves, including key 'destinations' (for example, Memorial Park) transition to spray-free reserves.

TAAF are also requesting that active reserves, with a more intensive spray regime, including onehunga spray, will have signage recommending that footwear is used at all times, and links (Q code) to the TCC webpage advising of the agrichemicals used seasonally.

The success of spray-free Berescourt Reserve, (sprayfree since 2011); its ability to act as the 'control' in the case of the Norfolk pine pesticide poisoning; the degree of apparent community support for its spray-free status (to be confirmed by a survey), and the relative low cost of implementation and maintenance, are all solid reasons to transition Tauranga Open Spaces (other than intensive sports reserves) away from herbicide turf applications.

The key to this transition is effective communications, over a range of months, to aid the public with this transition.

### TAAF 2018 Recommendations

- Recommend adding Amistar to Schedule 1 of the Vegetation Management policy with restrictions on frequency of application
- Recommend adding Image to Schedule 1 of the Vegetation Management policy with restrictions (for use on active reserves only, signage required)
- Recommend NOT adding Thiram to Schedule 1 of the Vegetation Management policy
- Recommend further restrictions to be added to schedule 1 for existing agrichemicals to restrict use on passive reserves (including passive open spaces on destination reserves) & roadside/verges.
- Request that contractors confirm the requirement to differentiate use of Tordon Gold and Tordon Brushkiller, which are specified in Schedule 1 of the policy for different pest control activities and should not be viewed or used as equivalent alternatives
- Recommend all glyphosate free reserves transition to agrichemical free reserves
- Recommend Council add a label to each reserve sign specifying whether the reserve is sprayed or spray free, with a Q code to enable users to view information about what sprays are being used
- Recommend that sprayed reserves (active) have signage recommending footwear at all times
- Recommend levels of service policy be reviewed and amended as a priority to be consistent with whether a reserve is active (chemical maintenance) or passive (spray-free).

## 1.0 Agrichemicals: applications and recommendations

## 1.1 Amistar Fungicide

An application to add Amistar to Schedule 1 of the Use of Toxic Agrichemicals for Vegetation Management Policy was received By TAAF in January 2018. Amistar is a fungicide for the control of a wide range of diseases, such as slime and fungal disease on grass cricket wickets. Proposed use is for cricket blocks only, where fungal diseases are present.

### 1.1.1 Amistar Fungicide - Product Description

Amistar fungicide is formulated from azoxystrobin. It is a post-emergent broad-spectrum preventative fungicide used on food crops, turf and ornamental plants.

Control examples include rusts; powdery mildew; black rot; scab; white mould; blight; leaf spot; botrytis.

Used commercially, predominantly on cereal crops, grapes, potatoes and tomatoes. First introduced in the US in 1997, it is used to treat diseases from four main groups of fungal groups.

The currently approved Flint, as with Amistar is a strobilurin fungicide, (recognised as the QoI family of fungicides). They are highly specific, and if a fungicide-resistant strain occurs, repeated application of QoI fungicides can lead to buildup of a fungicide-resistant pathogen subpopulation. Fungicides tend to develop resistance more quickly than some other herbicides.<sup>3</sup>

### 1.1.2 Amistar Fungicide - Human health

Amistar may be irritating to the eyes and harmful if swallowed. It has low mammalian toxicity but may bioaccumulate via metabolites. Amistar metabolises to several known compounds, three of which are significant however very little research has been done on any possible effects of these on humans or the environment.

Amistar has low acute and chronic toxicity to humans, birds, mammals, bees, but is highly toxic to fish and invertebrates.

Amistar is not listed as a PAN bad actor, it is assessed as not acutely toxic and not likely to be carcinogen. It has potential to be a water contaminant and it is unknown whether it could have any impact on reproduction, development, nervous system, organs or the endocrine system.

### 1.1.3 Amistar Fungicide - Eco-toxicity

Amistar is toxic to fish invertebrates in fresh and salt water ecosystems.

### 1.1.4 Amistar Fungicide – Summary / Recommendations

Amistar is suited for preventative use but this application has been lodged for fungal disease control only. Proposed use is on a small but significant area where turf managers, cricket players and children may experience direct skin contact with treated grass.

It is recommended that Amistar be added to Schedule 1 of Approved Chemicals with the following restrictions:

1. For use on cricket wickets only
2. For use where fungal disease is present only

<sup>3</sup> [frac.info/working-group/qol-fungicides/introduction-and-general-information](http://frac.info/working-group/qol-fungicides/introduction-and-general-information)

3. Not to be applied within 48 hours of scheduled use by children.
4. Signage at cricket grounds must be present and easily visible for anyone accessing the area within 48 hours to advise application has occurred and shoes should be worn.

#### 1.1.5 Amistar Fungicide - References

1. Pesticide Properties Database: Agriculture & Environment Research Unit (AERU) at the University of Hertfordshire; <https://sitem.herts.ac.uk/aeru/ppdb/en/>
2. Pesticide Database: Pesticide Action Network North America; <http://www.pesticideinfo.org/>
3. Beyond Pesticides: <https://www.beyondpesticides.org>
4. Extension Toxicology Network: Joint project of University of California-Davis, Oregon State University, Michigan State University, Cornell University, and the University of Idaho; <http://pmep.cce.cornell.edu/profiles/index.html>
5. Chemspider: Royal Society of Chemistry; <http://www.chemspider.com/>

## 1.2 Thiram Fungicide

An Application to add Thiram to Schedule 1 of the Use of Toxic Agrichemicals for Vegetation Management Policy was received By TAAF in January 2018. Thiram is a curative fungicide for the control of a wide range of disease including *Melting Out* which affects cricket blocks. Proposed use is for cricket blocks only.

### 1.2.1 Thiram Fungicide - Product Description

The full chemical name for thiram is tetramethylthiuram disulfide. It is a multi-use carbamate fungicide which is also used as a mammal repellent and pesticide transformation product.

Control examples include:

- As a fungicide: Seed decay; Seedling blight; Damping-off; Kernel smut; Smuts; Bunts
- As a repellent: Rabbits; Deer

Used commercially on horticultural food crops and fruit trees. First introduced in the US in 1945, it has been used in the treatment of human scabies, as a sun screen and as a bactericide applied directly to the skin or incorporated into soap. Thiram is available as dust, flowable, wettable powder, water dispersible granules, and water suspension formulations and in mixtures with other fungicides.

### 1.2.2 Thiram Fungicide Human health

Thiram is moderately toxic by ingestion, but it is highly toxic if inhaled. Acute exposure in humans may cause headaches, dizziness, fatigue, nausea, diarrhea and other gastrointestinal complaints.

Thiram is irritating to the eyes, skin and respiratory tract. It is a skin sensitizer. Symptoms of acute inhalation exposure to thiram include itching, scratchy throat, hoarseness, sneezing, coughing, inflammation of the nose or throat, bronchitis, dizziness, headaches, fatigue, nausea, diarrhoea and other gastro-intestinal complaints. Persons with chronic respiratory or skin disease are at increased risk from exposure to Thiram.

Thiram belongs to the ethylene bisdithiocarbamate (EBDC) chemical class.(6) Ingestion of some EBDCs (ethylene bisdithiocarbamate) and alcohol together have been found to cause symptoms of stomach pains, nausea, vomiting, headache, and slight fever. Workers exposed to thiram during application or mixing operations within 24-hours of moderate alcohol consumption have been hospitalized with symptoms. Exposure to EBDCs in combination with alcohol can also cause dermatitis.

EBDCs are partially chemically broken down, or metabolized, to carbon disulfide, a neurotoxin capable of damaging nerve tissue. EBDC residues in or on foods convert readily to ethylenethiourea (ETU) during commercial processing or home cooking.(1) ETU has been found to be a reproductive toxin, carcinogen and mutagen (1, 2, 4)

Thiram is a PAN Bad Actor but not on the “dirty dozen” list. (3)

#### *Thiram Fungicide: Carcinogen*

- Thiram is listed as a possible carcinogen by Pesticide Properties Database(4)

#### *Thiram Fungicide: Endocrine Disrupter*

- Listed as a possible endocrine disruptor by Pesticide Properties Database(4)
- Listed as suspected by PAN(3)
- Listed as confirmed by GPHSPM – Beyond Pesticides(5)
- Listed as a possible endocrine disruptor by Pesticide Properties Database(4)

#### *Thiram Fungicide: Reproductive Development Toxin*

- Listed as high toxicity by PAN(3)
- Listed as confirmed by Gateway on Pesticide Hazards and Safe Pest Management – Beyond Pesticides(5)
- Listed as a RPD by Exttoxnet(6)

### 1.2.3 Thiram Fungicide Eco-toxicity

Thiram is moderately to highly toxic to fish and toxic to some birds and mammals (1)

Thiram has not yet been researched adequately to establish safe levels or standards for water quality, however there are criteria for related chemicals (3)

Thiram has been found to be toxic to birds and fish/aquatic organisms but is not expected to bioconcentrate in aquatic organisms (5, 6)

#### 1.2.4 Thiram Fungicide Summary

Thiram can affect human health, particularly to those applying it. Thiram has some potential for water contamination.

Proposed use is on a small but significant area where turf managers, cricket players and children may experience direct skin contact with treated grass.

It is recommended that TAAF agree to do not add Thiram to Schedule 1 of Approved Chemicals for use on cricket wickets.

#### 1.2.5 Thiram Fungicide References

1. US Environmental Protection Authority – USA, federal government appointed authority
2. Chemspider – Royal Society of Chemistry
3. Pesticide Action Network North America
4. Pesticide Properties Database - Agriculture & Environment Research Unit (AERU) at the University of Hertfordshire
5. <https://www.beyondpesticides.org>
6. Extension Toxicology Network. A Pesticide Information Project of Cooperative Extension Offices of Cornell University, Michigan State University, Oregon State University, and University of California at Davis

### 1.3 Image Herbicide

#### 1.3.1 The burden of onehunga weed & herbicide resistance

Current chemicals for controlling onehunga are approved under Schedule 1 as the trade-names:

- Conquest/Tordon Gold (picloram and triclopyr);
- Tordon Brush Killer (picloram and triclopyr); and
- Versatil (clopyralid).

Herbicide resistance in onehunga weed (and others) is the reason that Image has been recommended.

Onehunga, also known as prickleweed or by its latin name *Soliva sessilis*. The uncomfortable prickle is present for around 8 weeks per year, around January and February. Complaints are received by council staff and contractors, when the weed is present.

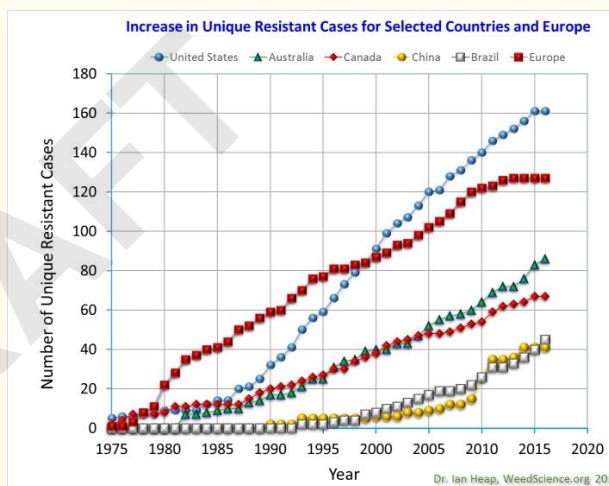
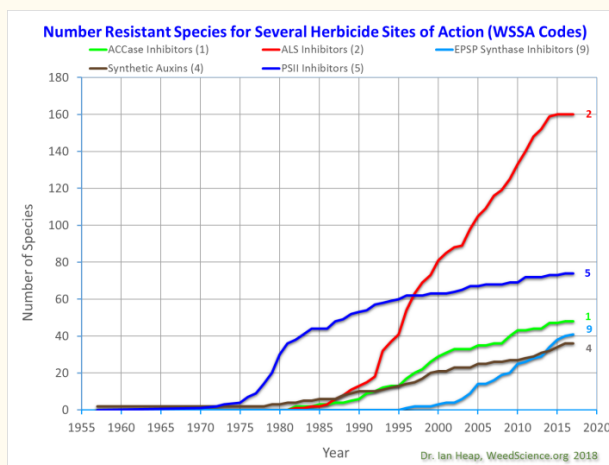
However, onehunga is increasingly resistant to synthetic auxins. Picloram, clopyralid and triclopyr belong to the pyridine carboxylic acids sub-group of synthetic auxins.

Cross-resistance occurs.<sup>4</sup> At this stage, the resistant strain can be distinguished from the non-resistant strain.<sup>5</sup>

A 2001 paper reported resistance to a 2,4-D picloram mixture, but also to clopyralid, triclopyr and a triclopyr/picloram mixture, so this is not a new problem.<sup>6</sup>

Scientists find that once resistance develops in one plant, there will be an increase in other plants becoming resistant. No new herbicide sites of action have been introduced for over 30 years, and overreliance on these traits can result in multiple resistance. (See: glyphosate)

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<sup>4</sup> <https://resistance.nzpps.org/index.php?p=herbicides/picolinic>

<sup>5</sup> <http://www.massey.ac.nz/massey/learning/colleges/college-of-sciences/clinics-and-services/weeds-database/onehunga-weed.cfm>

<sup>6</sup> Harrington KC, Ward AJ, Wells DM 2001. Herbicide resistance in black nightshade and Onehunga weed. New Zealand Plant Protection 54: 152-156. [http://nzpps.org/journal/54/nzpp\\_541520.pdf](http://nzpps.org/journal/54/nzpp_541520.pdf)

### 1.3.2 Image Herbicide – Product description

The herbicide Image contains the active ingredients 120g/L Bromoxynil (CAS no.1689-84-5), 120g/L Ioxynil (CAS no.1689-83-4, approval no. HSR003310) and 360g/L Mecoprop-p (CAS no. 16484-77-8, approval no. HSR003313).

It is recognised that chemical mixtures exhibit synergistic effects, and indeed, and the *Image* product is marketed as a 'premium triple mix.' The NZ EPA has not assessed the full toxicity of the trademarked mixture that would be applied in public spaces. This results in uncertainty about overall toxicity, and requires additional precaution.<sup>7</sup>

### 1.3.3 Image Herbicide – Human Health

Ioxynil is not approved in Europe and toxic to human reproduction and development, it is understood to be tumorigenic.<sup>8</sup>

Mecoprop-p may also be a developmental toxicant, and recent 2017 European data, while recommending operators wear gloves, does not consider risk to public exposure from applications in parks and reserves.<sup>9</sup> Bromoxynil, also assessed in 2017 by European regulators and thus the most up to date assessment, is shown to be highly absorbable, harmful to the thyroid; toxic to reproduction (Category 2), may damage the unborn child and is a potential endocrine disruptor. It is also shown to have carcinogenic potential.<sup>10</sup>

The hazard classification (as stated on the label) of the herbicide mixture :

- 6.1D – Harmful acute toxicant
- 6.4A – Eye irritant
- 6.5B – Contact sensitizer
- 6.8B – Suspected human reproductive or developmental toxicants
- 6.9B – Harmful to human target organs or systems

### 1.3.4 Image Herbicide – Eco-toxicity and persistence

The NZ EPA<sup>11</sup> hazard classification (as stated on the label) of the herbicide mixture:

- 9.1A – Very ecotoxic in the aquatic environment
- 9.2A – very ecotoxic in the soil environment
- 9.3C – Harmful to terrestrial vertebrates

<sup>7</sup> UNESCO. Precautionary Principle: When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm.

<sup>8</sup> 04/58/ECReg. (EU) No 540/2011. Review report for the active substance Ioxynil Finalised in the Standing Committee on the Food Chain and Animal Health at its meeting on 13 February 2004 in view of the inclusion of Ioxynil in Annex I of Directive 91/414/EEC

<sup>9</sup> Peer review of the pesticide risk assessment of the active substance Mecoprop-P 2017

<http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2017.4832/full>

<sup>10</sup> Peer review of the pesticide risk assessment of the active substance Bromoxynil (variant evaluated Bromoxynil octanoate) 2017

<http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2017.4790/full>

<sup>11</sup> Thresholds and Classifications under the HSNO Act 1996. 2012 EPA0109.

Mecoprop-p and Bromoxynil<sup>12</sup> can easily persist in soil/vegetation of 7 days or more. For example, the US EPA states 'A half-life of 7 days was used to estimate the degradation of bromoxynil octanoate on vegetation.'<sup>13</sup>

There is currently no method of restricting parks and reserves from the public in the seven days following the application. Humid environments slow evaporation, and Tauranga's sub-tropical environment may lead to longer than anticipated persistence.

1.3.5 Image herbicide – risk of resistance

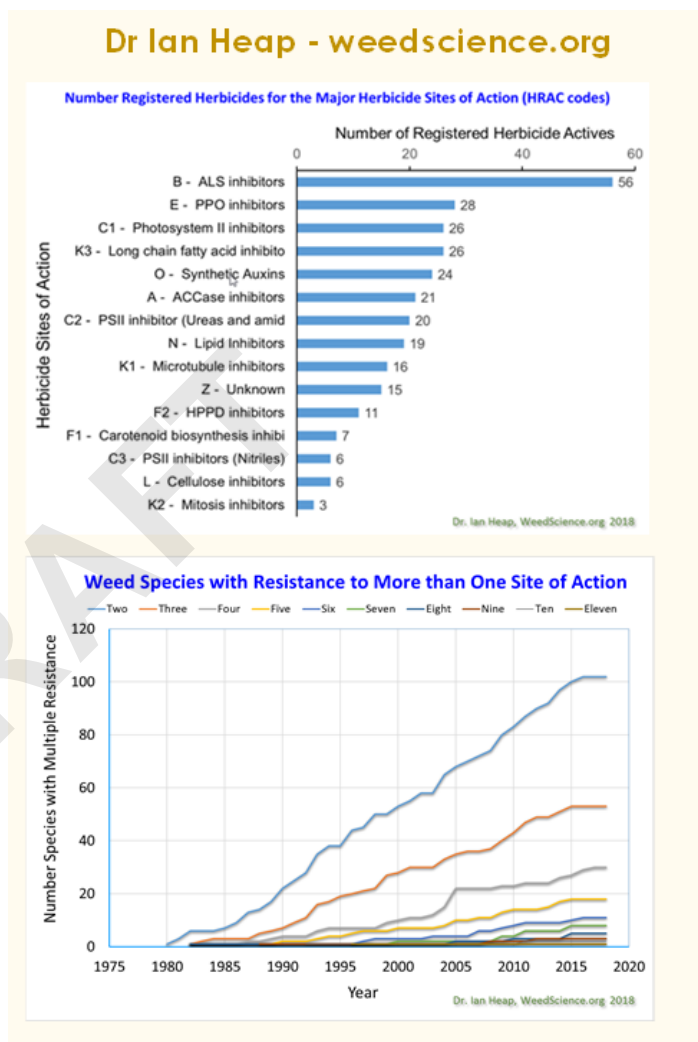
The application to introduce the herbicide *Image* (containing the active ingredients 120g/L Bromoxynil, 120g/L Ioxynil and 360g/L Mecoprop-p), is first and foremost an effort to counter growing broadleaf resistance.

The combination of modes of action helps to kill the target plant.

The synthetic auxin (belonging to the sub-group phenoxy-carboxylic-acids) Mecoprop-p has the same mode of action as the demonstrably toxic herbicides 2,4-D and dicamba. These herbicides mimic the naturally occurring plant hormone indole-3-acetic acid (IAA or auxin). The synthetic auxin plant hormones disrupt normal growth patterns, leading to the death of the plant.

Bromoxynil inhibits photosynthesis at photosystem II having the same mode of action as triazines (known to be developmental toxicants). Bromoxynil resistant weeds have been reported since 1991.<sup>14</sup> Ioxynil also acts by inhibiting photosynthesis at Photosystem II.

When responsible TCC decision-makers consider the likelihood of weed resistance to the herbicide Image in the next few years, appears this is a zero-sum game.



<sup>12</sup> <http://pmep.cce.cornell.edu/profiles/extoxnet/24d-captan/bromoxynil-ext.html>

<sup>13</sup> Also In two terrestrial field dissipation studies, the observed half-life of bromoxynil octanoate was approximately 14 days in California and 1 day in North Carolina.' <https://archive.epa.gov/pesticides/reregistration/web/pdf/2070red.pdf>

<sup>14</sup> Herbicide-Resistant Field Crops Jack Dekker1, Stephen O. Duke2, in Advances in Agronomy, 1995

The requirement that open space turf consist only of grass species comes at a cost, the economic cost of ongoing chemical application, but clearly, there is also a risk to public health.

#### 1.3.6 Image Herbicide - Summary / Recommendations

As such, given the potential for harm to occur to human health and the environment, and council's policy on prudent avoidance, it is recommended that the use of Image be restricted to the control of broadleaf species solely on dedicated active reserves (and in particular, sportsfields).

Due to the above mentioned problems; the toxicity of these herbicides; likelihood of resistance; uncertainty regarding toxic synergies; persistence and inability to control traffic and public exposures; it is recommended TCC contractors cease broadleaf spraying on passive reserves and on roadside/verges.

#### 1.4 New Zealand data gaps - Synergies from multiple active chemicals

It follows that exposure to acutely toxic substances should be avoided. The NZ EPA describes these as substances of class 6 toxicity. However, it must be noted that the NZ EPA does not:

- Assess the toxicity of the full formulation
- Assess the toxicity of combined formulations, nor the adjuvants<sup>15</sup> applied with the formulation

The scientific literature recognises that the patented/trademarked formulations<sup>16 17</sup> can be more toxic than the single ingredient included in the formulation. This can apply whether an insecticide, fungicide or herbicide. At times, an ingredient in a pesticide formulation may exhibit more toxicity than the active ingredient (e.g. POEA in glyphosate formulations<sup>18</sup>).

As such, the current risk assessment practices of the NZ EPA are outdated; subject to criticism; may be considered ineffective in respect of the capacity to protect public health when twenty-first scientific knowledge is considered.

There is also increasing evidence that pesticides contribute to our disease burden (cancer, neurotoxicity, endocrine disruption) – *making protection a more critical function of responsible governance* - this information can be fleshed out should Council require more data.<sup>19</sup>

<sup>15</sup> R Mesnage & M Antoniou. Ignoring Adjuvant Toxicity Falsifies the Safety Profile of Commercial Pesticides. *Front Public Health*. 2018 Jan 22;5:361. doi: 10.3389/fpubh.2017.00361. eCollection 2017.

<sup>16</sup> Mesnage and Antoniou 2017 Ignoring Adjuvant Toxicity Falsifies the Safety Profile of Commercial Pesticides. *Front. Public Health*, 22 January 2018 | <https://doi.org/10.3389/fpubh.2017.00361>

<sup>17</sup> Mesnage R., Defarge N., Vendomois, J. S., Seralini G-E. (2014) Major Pesticides Are More Toxic to Human Cells Than Their Declared Active Principles. *BioMed Research International*. Vol 2014, Article ID 179691.

<sup>18</sup> Lee H-L, Kan C-D, Tsai C-L, Liou M-J, Guo H-R. Comparative effects of the formulation of glyphosate-surfactant herbicides on hemodynamics in swine. *Clin Toxicol Phila Pa*. 2009;47(7):651-658. doi:10.1080/15563650903158862.

Adam A, Marzuki A, Abdul Rahman H, Abdul Aziz M. The oral and intratracheal toxicities of ROUNDUP and its components to rats. *Vet Hum Toxicol*. 1997;39(3):147-151.

<sup>19</sup> P Grandjean & M Bellanger 2017. Calculation of the disease burden associated with environmental chemical exposures: Application of toxicological information in health economic estimation. *Environmental Health*. <https://doi.org/10.1186/s12940-017-0340-3>

As such, with these obligations in mind, TAAF recommends that the Environment Committee considers the toxicological risk of commonly used herbicides used for broadleaf and onehunga control in open spaces represents an unwarranted risk to the general public.

### 1.5 Escort - Bushy Asparagus - *Asparagus aethiopicus*

Metsulfuron methyl (Trade name Escort) belongs to the herbicide group which act as inhibitors of acetolactate synthase (ALS inhibitors). The risk of resistance is high.

Use on Schedule 1 is restricted to agapanthus, bushy asparagus, tradescantia, blue morning glory only.

Over the longer term, TAAF considers that bushy asparagus might best be controlled using Hot Grass electrothermal technology. Hot Grass (electrothermal) can kill bushy asparagus and does not have resistance issues.

### 1.6 Treated 'systemic' seeds – Neonicotinoid insecticide avoidance

TAAF would not normally require that a product that is not approved for Schedule 1, be included with comment on Schedule 1. However, neonicotinoids are treated differently by the NZ EPA than pesticides, rather, they are referred to as 'plant protection products.' They are not required to be labelled, which make it difficult when purchasing seeds. The label may not list the active ingredient.

Therefore, in an effort to encourage pollinators in the Tauranga region, TAAF proposes that 'systemic pesticides' is the label contractors are required to avoid.

This proposed restriction extends to all neonicotinoid pesticides, which include the active ingredients acetamiprid, clothianidin, imidacloprid, nitenpyram, nithiazine, thiacloprid and thiamethoxam.

Neonicotinoid insecticides are directly connected to pollinator decline. Scientists now understand that extremely low (environmentally relevant) levels of neonicotinoids impact honey bees health. Pollinators do not die, the exposures were sub-lethal - but their ability to maintain healthy colonies, known as 'hive fitness,' is reduced.<sup>20</sup>

In 2014 The Worldwide Integrated Assessment of the Impact of Systemic Pesticides on Biodiversity and Ecosystems (WIA)<sup>21</sup> was published. It reviewed 1,121 published peer-reviewed studies and is the single most comprehensive study of neonicotinoids ever undertaken. It is peer reviewed, and published as open access. The WIA documents that neonicotinoids are persistent, they accumulate, they are highly mobile, and that neonicotinoids cause adverse harm to birds and mammals.

<sup>20</sup> Country-specific effects of neonicotinoid pesticides on honey bees and wild bees. Woodcock et al 2016. Science 30 Jun 2017: Vol. 356, Issue 6345, pp. 1393-1395 DOI: 10.1126/science.aaa1190

<sup>21</sup> Maarten Bijleveld van Lexmond & Jean-Marc Bonmatin & Dave Goulson & Dominique A. Noome 2015 Worldwide integrated assessment on systemic pesticides Global collapse of the entomofauna: exploring the role of systemic insecticides. Environ Sci Pollut Res (2015) 22:1–4 DOI 10.1007/s11356-014-3220-1

It is important to recognise that the neonicotinoid formulation applied to the treated seed, or used as a spray, is much more toxic than the single active ingredient considered in risk assessment by regulators. Studies indicate regulatory agencies are failing to appreciate the true toxicity of these insecticides.<sup>22</sup>

### 1.7 Establishing signage / recommending shoes are worn & providing Q codes.

TAAF recommend that TCC introduce a labelling system for all reserve signs – stickers could inexpensively be added retrospectively to existing reserve signs for a cost of approx. \$7 per sign.

The stickers could inform users whether the reserve is spray free or treated with agrichemicals, and the use of Q codes would enable users to browse council records detailing what agrichemical applications have or may occur in the reserve. Stickers could be placed on reserve signs by contractors when contractors are working.

It is recommended that TCC's agrichemical page<sup>23</sup> detail the expected applications over a year. These rarely change and so will not create an undue cost – more the information will encourage transparency.

For example:

- Active reserves (shoes are recommended to be worn):
  - Seasonal applications Summer -
  - Autumn -
  - Winter -
  - Spring -
- Cricket pitches (shoes are recommended to be worn):
  - Seasonal applications Summer – etc

## 2.0 Proposed changes to schedule 1

The following changes and/or restrictions to Schedule 1 of Use of Toxic Agrichemicals for Vegetation Management are proposed:

1. Tordon Gold: Once per year in any location, not used in conjunction with any other Tordon product, Versatil or Image within that 12 month period.
2. Tordon Brushkiller: Once per year in any location, not used in conjunction with any other Tordon product, Versatil or Image within that 12 month period.
3. Versatil: Once per year in any location. (As above)
4. Image: Use restricted to sportsfields in active reserves. Once per year in any location, not used in conjunction with any other Tordon product or Versatil within that 12 month period.

<sup>22</sup> Major Pesticides Are More Toxic to Human Cells Than Their Declared Active Principles. Mesnage et al 2014. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3955666/>

<sup>23</sup> <https://www.tauranga.govt.nz/exploring/parks-and-reserves/trees-and-vegetation/agrichemicals>

5. Neonicotinoid insecticides as a seed treatment<sup>24</sup> expressly forbidden: Treated seeds used, may not be treated with 'systemic pesticides.'
6. Reserves that have agrichemicals applied to include a. signage a recommendation that shoes should be warn; and b. 'Q codes', links to the TCC site detailing agrichemical usage.

## 2.1 Adherence to policy

A recent summary of agrichemical volumes (received by TAAF and submitted by TCC as an appendix to their annual report) indicate Tordon Gold, Tordon Brushkiller (and potentially other Tordon products) may not be adequately differentiated by contractors. These products are not identical or substitutable for safety reasons, and Schedule 1 of the policy does address them individually and separately, however the absence of specific data in the summary TAAF received indicates users and TCC staff may not be sufficiently aware of this. TAAF proposes TCC staff need to review Schedule 1 requirements with all contractors, to ensure correct use as stipulated in the Schedule.

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<sup>24</sup> <https://en.wikipedia.org/wiki/Neonicotinoid>

### 3.0 Glyphosate free reserves

#### 3.1 Berescourt Reserve

Agrichemical sprays (including for onehunga weed) to Berescourt Reserve ceased from the 1st of April 2011 and a non-agrichemical maintenance regime was established. This is further discussed in [6.1].

#### 3.2 Glyphosate free reserves

TCC staff modified their management of a number of reserves in 2017, nominating them 'glyphosate free reserves', as detailed in the TCC annual report and listed on the TCC website.<sup>25</sup>

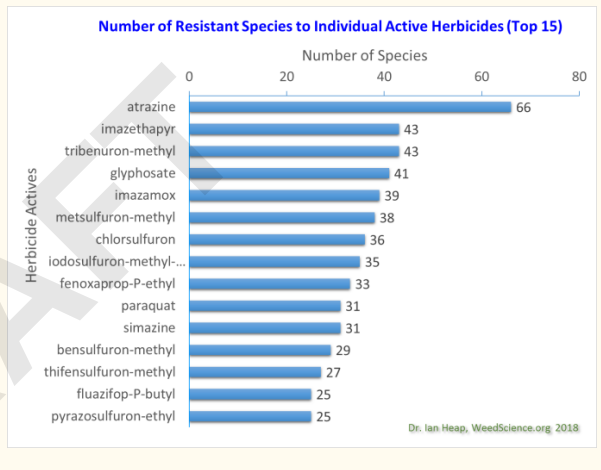
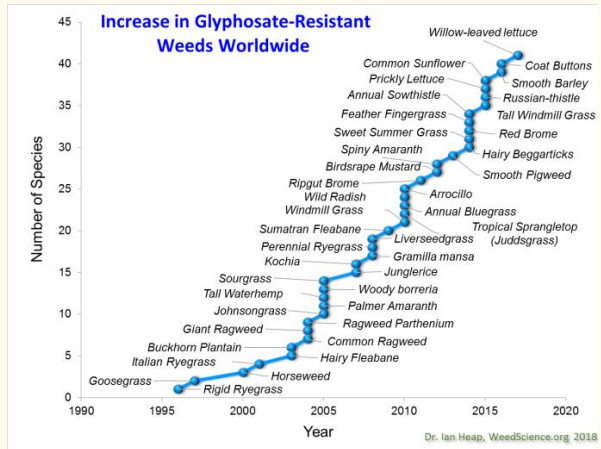
Council staff have confirmed to TAAF that glyphosate free reserves are free from agrichemical applications with the exception of sprays which attempt to control prickleweed.

This is a significantly positive step. TAAF are aware more reserves will be nominated to transition to glyphosate free status at the February 27<sup>th</sup> 2018 Environment Committee meeting.

Transition from glyphosate dependence, is not just important from a public health perspective.

It is particularly important that councilors are aware of the increasing problem of glyphosate resistant weeds. Thus, these resistance challenges will extend to other areas beyond urban reserves, e.g. impacting broader regional operations to control invasive weeds. Weed resistance to glyphosate did not happen for many years, then it spiked with resistance traits occurring in multiple weed species over a reasonably short time period.<sup>26</sup>

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<sup>25</sup> <https://www.tauranga.govt.nz/exploring/parks-and-reserves/trees-and-vegetation/agrichemicals>

<sup>26</sup> See chart 'Increase in glyphosate resistant species world wide. Also see work by Dr Ian Heap. <http://weedscience.org/Summary/MOA.aspx?MOAID=12>

## 4.0 TCC: Legal Obligation to protect public health

Tauranga City Council works to enhance communities and the environment through the management of the open space network. Whether this involves recreation, community use, social gathering places, culture and heritage protection, amenity, landscape protection or ecological management – running through these activities is the responsibility to protect public health.

Councilors are frequently confronted with a conundrum of policies with which council must comply. Of course, all lower order guidelines or policies, must be consistent with the overarching legislation that gives councils their power to create these guidelines and policies.

### 4.1 TCC: 'Improve promote and protect public health'

The obligation for local authorities, in their decision-making, to protect human health and the wider environment is enshrined in New Zealand law. The Health Act 1956 explicitly states that 'it shall be the duty of every local authority to improve, promote, and protect public health within its district.'

### 4.2 Tauranga City Plan – 'health & safety'

The purpose of the Tauranga City Plan is a little different. It is designed to 'enable the Council to carry out its functions under the Resource Management Act 1991 (RMA); promoting the sustainable management of natural and physical resources. The Plan meets the Council's functions under the RMA.' Section 31 of the RMA relates to management of natural and physical resources, relating to use development or protection of land. It also covers management of natural hazards; hazardous substances; maintenance of indigenous biodiversity; noise management; and activities on rivers and lakes.

The Tauranga City Plan for example, has the purpose of fulfilling obligations under the Resource Management Act (RMA), and specifically, the Tauranga City Plan must always be consistent with the purpose of the RMA.<sup>27</sup> The RMA does make mention that all operations must manage resources in such a way that enables people and communities provide for 'for their health and safety.' Thus, activities under the Tauranga City Plan must not *impede* the health and safety of residents.

Tauranga City Plan: Section 9 - objectives stated under the HSNO Act:

Objective 9A.1.1 – Adverse environmental effects and/or risks to human health, property and/or the receiving environment associated with facilities and activities involving the manufacture, storage, use, transportation and/or disposal of hazardous substances are prevented or mitigated.

<sup>27</sup> Purpose Part 2 Sn 5 (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.  
(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while— (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and  
(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.  
[http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM231905.html?search=qs\\_act%40bill%40regulation%40deemedreg\\_resource+management+act\\_resel\\_25\\_h&p=1](http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM231905.html?search=qs_act%40bill%40regulation%40deemedreg_resource+management+act_resel_25_h&p=1)

Policy 9A.1.1.4 – By ensuring that the storage or use of hazardous substances does not result in cumulative adverse effects, particularly through increased risk to the natural or physical environment, or to the safety, health or wellbeing of people and communities.

The Bay of Plenty air plan requires that discharges into the air of category 1, 2A and 2B carcinogens are to be avoided.

#### 4.3 Important new considerations: Herbicidal activity & Antibiotic Resistance

Glyphosate affects bacteria that have the potential to cause disease, and it also reduces the effectiveness of antibiotics.

In 2012 Dr Monica Kruger, Univ. Leipzig, documented that high levels of beneficial microbes (intestinal commensal bacteria enterococcus) suppress pathogens like Clostridium. Whereas very low (0.1ppm) glyphosate in feed encourages the Clostridium difficile microbes which produce the botulinum neurotoxin.<sup>28</sup>

In 2015 scientists concluded that antibiotics are less effective in people exposed to both antibiotics and herbicides.<sup>29</sup>

Antibiotic, or antimicrobial resistance (AMR) is a significant threat. A 2016 report estimated that without strategic action to stop the spread of AMR, there will be 10 million deaths annually due to drug-resistant infections by 2050, and at a cost per world citizen of USD10,000.<sup>30</sup>

Dr Jack Heinemann (Canterbury University) and colleagues took further steps to identify the links between agrichemical exposure and antibiotic resistance.<sup>31</sup> Their 2017 study<sup>32</sup> demonstrated that when human pathogens Salmonella enterica and Escherichia coli were exposed separately to 2,4-D, dicamba and glyphosate herbicides at recommended residue levels, and currently used antibiotics, the bacteria cells produced more 'efflux pumps' effectively acting to resist the antibiotic. These efflux pump genes treated both herbicides and antibiotics as toxins. When flowing into a bacteria cell together, the cell would then immediately push the toxin out.<sup>33</sup> This cellular pump effectively neutralized the antibiotic. The study demonstrated that co-formulants in herbicide formulations and processed foods can also contribute to antibiotic resistance, at environmentally relevant levels.

<sup>28</sup> Kruger et al 2012 Glyphosate suppresses the antagonistic effect of Enterococcus spp. On Clostridium botulinum

<sup>29</sup> Kurenbach B, Marjoshi D, Amábile-Cuevas CF, Ferguson GC, Godsoe W, Gibson P, Heinemann JA. 2015. Sublethal exposure to commercial formulations of the herbicides dicamba, 2,4-dichlorophenoxyacetic acid, and glyphosate cause changes in antibiotic susceptibility in Escherichia coli and Salmonella enterica serovar Typhimurium. mBio 6(2):e00009-15. doi:10.1128/mBio.00009-15.

<sup>30</sup> TACKLING DRUG-RESISTANT INFECTIONS GLOBALLY: FINAL REPORT AND RECOMMENDATIONS THE REVIEW ON ANTIMICROBIAL RESISTANCE CHAIRED BY JIM O'NEILLMAY 2016. [https://amr-review.org/sites/default/files/160525\\_Final%20paper\\_with%20cover.pdf](https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf)

<sup>31</sup> University of Canterbury. Nov 20, 2017 <http://www.canterbury.ac.nz/news/2017/new-research-finds-common-herbicides-cause-antibiotic-resistance.html>

<sup>32</sup> Kurenbach et al 2017 Herbicide ingredients change Salmonella enterica sv. Typhimurium and Escherichia coli antibiotic responses. Microbiology DOI 10.1099/mic.0.000573. <http://mic.microbiologyresearch.org/content/journal/micro/10.1099/mic.0.000573> PDF <https://static.politico.com/53/55/a826dbcd41a9877f32685eda3708/heinemann-microbiology-ms-final.pdf>

<sup>33</sup> P.23 <https://www.boprc.govt.nz/media/699927/2017-12-14-tabled-document-1-chemical-drains-nz-freshwater-policy-is-not-watertight-j-bruning-2018.pdf>

Glyphosate is patented<sup>34</sup> as both a broad-spectrum antibiotic and an anti-microbial agent. The scientific literature now clearly recognises this chemical has a very real capability to contribute to AMR.

In November 20 Canterbury University press release, Dr. Heinemann noted that regulators do not consider the sub-lethal effects of herbicides on bacteria.

## 5.0 Healthy Tauranga Environment – fostering healthy community attitudes

With the exception of Berescourt Reserve, Tauranga City Council (TCC) applies broadleaf sprays to open space turf to prevent unsightly broadleaf plant species from establishing, and to reduce weed invasion when plants die back in winter.

In the glyphosate free reserves, and at Berescourt Reserve, TCC staff have shifted to mechanical management of areas around bollards, trees and signposts, reducing potential for herbicide exposure, and reducing potential for lower level divots created by long term herbicide use.

### 5.1 Berescourt Survey

A meeting with staff, contract managers and TAAF at Berescourt Reserve was held November 1, 2017, following a complaint concerning onehunga/prickle-weed in the spray-free reserve.

During this meeting the group was approached by Mr Max Lewis. Mr. Lewis congratulated staff on the spray-free status of the reserve, stating that the significant majority of the residents were proud of the spray-free status. He noted 'I tell mothers that if their child drops an apple they can pick it up and keep eating – there are no chemical sprays hear.'

This was a positive response, as a week or so earlier, a complaint had been received by TCC regarding the high level of onehunga prickles.

Following these positive comments, during the meeting TAAF member Jodie Bruning, observed a mother with two pre-schoolers and asked if they approved of the spray-free status, which the mother did. Ms Bruning then asked what the mother thought of the prickle-weed, considering there had been a recent complaint. She responded 'They don't worry us. We keep our shoes on in case of dog poo so the prickles are not a problem.'

As a result, TAAF drew up a short survey in November, which has been forwarded to council staff with the request that it be distributed to Berescourt residents. It has yet to be actioned. [See Appendix.]

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<sup>34</sup> Patented as a broad-spectrum antibiotic (US patent number 7771736) and then again as an "antimicrobial agent" (US patent number 20040077608 A1. PAN Germany. PAN Germany: Comments on EChA's CLH-Report regarding Genotoxicity. July 2016

Understanding the attitudes of Berescourt residents may provide key insights to use for justifying transition away from broadleaf/onehunga prickle-spraying (due to increased resistance, and the public health concerns with the toxic replacements).

## 5.2 'Disruptive' non-chemical technologies - 'Metrocare' and 'Hot Grass'

Council staff consider that the produces offered by MetroCare and Hot Grass require further investigation in reducing agrichemical use. However, TAAF consider introduction of these non-chemical alternatives offers several benefits:

- Less reliant on weather (Hot Grass can be applied immediately before or after rain)
- Less residual agrichemicals left on turf surfaces and in public spaces
- No risk of resistance build-up
- Fulfils the primary policy objective of prudent avoidance

These methods do not require trials if council contractors are content to use the product. However, it is recommended that comparative financial assessments are undertaken.

Plant pests, as listed by the Bay of Plenty Regional Council, are predominantly perennial plants. Treatment by Hot Grass (electrothermal) may in the long run prove to be the most effective kill weapon for these plants. In comparison to many herbicides, development of resistance to electrothermal weed management is extremely unlikely.

## 5.3 Further considerations – Sustainability & Composting

The Environment Committee recommended in 2017 to include in the Long Term Plan a proposal to establish rates funded kerbside recycling systems, to commence in 2020/21 – including compostable collections.

Reducing herbicides in the compost collection is essential for good compost development. In Auckland, Versatil herbicide damaged tomato plants grown from compost tainted with residual levels of the active ingredient, clopyralid:

'Auckland compost maker Living Earth says traces as low as five parts a billion of the weedkiller clopyralid in composted grass clippings were enough to cause deformities in tomato plants.'

Establishing transparent chain practices in compost management will reduce risk of complaints and possible action, which can become protracted and soak up staff resources.

Prevention of agrichemical use on all but active reserves will increase the amount of vegetation sent to compost.

#### 5.4 Essential for change: Altered levels of service

Levels of service should be adjusted to deal with a shift towards reduced chemical use. There are no direct non-chemical replacements for broad spectrum systemic herbicides. Future planning can create opportunities to 'design in weeds' and create hybrid environments where plants and hard surfaces can co-exist.<sup>35</sup>

Berescourt Reserve, as the spray-free control, provided evidence to Paul Kenny & Gerald Collett that chemical treatment correlated with distorted leaves and decline in 117 Norfolk pines.<sup>36</sup>

Papers have been produced to help transition away from agrichemical use.<sup>37</sup>

Dr Charles Merfield<sup>38</sup> has intensively studied non-chemical agricultural management systems and is working with Kazel Cass to trial Hot Grass may be well positioned with practical and environmental knowledge required for this. (Possibly Envirohub could look at securing funding to cover costs for any presentation).

TAAF urges a 'round table' with contractors, to help shift levels of service to keep costs contained, while facilitating an environment that is healthier for residents and council contractors.

An adjustment of levels of service might add value in other ways, such as avoidance of more disasters like the Norfolk pine event. The change will require significant adjustment in attitudes and expectations, but the evidence from Berescourt is that the majority of the public are likely to get behind the shift, so long as they understand it.



#### 5.6 Essential for change: Communicating new knowledge to the Media

While the scientific literature is very clear on the toxicity of herbicides, the public is less aware of the new scientific knowledge that illustrates that pesticides can be chronically toxic at environmentally relevant levels – they are more toxic than previously considered, at lower levels.

<sup>35</sup> Presentation. Creating agricultural systems to minimise weeds Dr.C.Merfield. Melbourne 2014

<sup>36</sup> Investigation of ailing Norfolk pines at Mt Maunganui. Paul Kenny and Gerald Collett 31 August 2014.

[http://econtent.tauranga.govt.nz/data/news/files/norfolk\\_pines\\_mount\\_maunganui.pdf](http://econtent.tauranga.govt.nz/data/news/files/norfolk_pines_mount_maunganui.pdf)

<sup>37</sup> <https://www.greens-efa.eu/files/doc/docs/ab61fee42c3217963d3a43bd1c4b1e09.pdf>

<sup>38</sup> <https://www.bhu.org.nz/future-farming-centre/staff-and-associates>

Scientists are documenting the costs of environmental toxicity, from cancer,<sup>39</sup> to neurotoxicity<sup>40</sup> to endocrine disruption. Crucially, scientists are without doubt that children are most at risk from these low-level exposures.<sup>41 42 43</sup>

However, the public is largely not aware of these exposure issues. Focus on acute risk (prickle-weed) over the two month period that prickles occur, can easily 'drown out' low-level chronic risk (cancer or neurotoxicity). In the public interest, it is the duty of the public sector to adopt as part of its policy mix, strategies and techniques to communicate this new information to help with behaviour change.<sup>44</sup>

Moreover, a shift in levels of service could engender more backlash to TCC. Yet it is well recognised that good publicity is required to balance and inform policy change. As an example, when seat-belts were introduced, and tobacco laws introduced, there were public campaigns aimed at informing the public of the risk to help deliver policy outcomes.

In a Tauranga-wide context, perhaps 3 well placed newspaper editorials over a 6 month period may help facilitate change. These could then be posted on the TCC site, shared on social media (e.g. <https://www.facebook.com/Papamoa.NewZealand/>); and with key targeted influencers (Grey Power, Kindergarden association).

Such actions might help shift expectation, influence behavior, and make the job much easier for council contractors on the front line.

## 6.0 Conclusion

Tauranga City Council is commended for taking meaningful steps to reduce dependence on agrichemicals. The adoption of glyphosate-free reserves, ongoing successful management of Berescourt Reserve, reduction in overall chemical use, and trials of disruptive new technology such as the electrothermal Hot Grass equipment, are all evidence of a shift towards weed management methods that will protect public health.

The science is now clear that common agrichemicals in use by councils are significantly toxic at environmentally relevant levels and that the formulations, and indeed, many of the co-formulants are much more toxic than previously considered.

This knowledge is expanding in parallel with the rise in herbicide resistance. The herbicide that is selected in 2018 to replace the herbicides that weeds such as onehunga (prickle-weed) have grown

<sup>39</sup> Chen et al 2015. Residential Exposure to Pesticide During Childhood and Childhood Cancers: A Meta-Analysis. *Pediatrics*. <http://pediatrics.aappublications.org/content/early/2015/09/08/peds.2015-0006?sid=b7090daa-bc95-45df-87f5-a64529d4ef3f>

<sup>40</sup> Chemtrust 2017 Report: No Brainer: The impact of chemicals on children's brain development: a cause for concern and a need for action <http://www.chemtrust.org.uk/wp-content/uploads/chemtrust-nobrainier-mar17.pdf>

<sup>41</sup> Poisoning our Future: Children & Pesticides 2013 Pesticides Action Network Aotearoa Meriel Watts PhD. <http://www.pananz.net/wp-content/uploads/2013/04/2013-PAN-AP-POISONING-OUR-FUTURE-Children-and-Pesticides-Book-v8-WEB-lo-res.pdf>

<sup>42</sup> Pesticide exposure in children. Roberts JR, Karr CJ *Pediatrics*. 2012 Dec;130(6):e1765-88. doi: 10.1542/peds.2012-2758. Epub 2012 Nov 26. Council On Environmental Health. <http://pediatrics.aappublications.org/content/pediatrics/130/6/e1765.full.pdf>

<sup>43</sup> Kids on the Frontline <http://www.panna.org/sites/default/files/KOF-report-final.pdf>

<sup>44</sup> Changing behaviour: A public policy perspective. Australian Government. <http://www.apsc.gov.au/publications-and-media/archive/publications-archive/changing-behaviour>

resistant to, is more toxic than previous herbicides and can persist for longer than the warning signs are kept out for. There is all likelihood, that resistance to the new more toxic Image herbicide, will also occur.

Moving forward – how will Tauranga City Council respond?

TAAF's primary responsibility is to protect the public health. Many legislative instruments also provide Tauranga City Council with an obligation to protect public health and a key purpose of the Environment Committee is to protect and enhance the natural environment

It is increasingly apparent that Councils throughout New Zealand are at a crossroads. Do they keep fighting resistance with increasingly toxic chemicals, or do they restructure policy, educate the public and take clear but definite steps to remove toxic chemicals from public exposure?

This does not leave Councils toothless and without tools to deal with perennial invasive species, particularly in those areas that the public does not have direct access to.

However, this increased understanding of toxicity, can, in the public interest, realistically give Council the confidence to cease herbicide applications in passive open spaces where the general public, particularly children, are exposed. Aligned with a change in service levels to help contractors, and a positive media environment to help the public transition to a healthier spray-free environment – this would be a positive, responsible step to reducing public exposures to toxic agrichemicals.

'Delay and denial have been endemic in the history of environmental law...what the world is suffering is not a lack of science or law, but a lack of environmental urgency'

Professor Klaus Bosselmann, Centre for Environmental Law, University of Auckland

## 7.0 Appendix

*Proposed questionnaire to be circulated residents living in close proximity to Berescourt Reserve.*

Berescourt Reserve has been an Agrichemical-Free Trial Site since 2011. This means that agrichemicals used for prevention of weed infestation (for example around trees, bollards and playgrounds) have not been used, but also agrichemicals that prevent invasive broadleaf weeds in grassed areas (eg. daisies), and prickleweed (onehunga weed) has not been used.

This has resulted in a changing profile that may or may not be desirable to local inhabitants.

The purpose of this questionnaire is to understand the attitudes of *frequent park users* to the changing profile of Berescourt Reserve.

How frequently do you spend time at Berescourt Reserve:

- a. Many times a week
- b. Daily
- c. Once a week
- d. Every fortnight or so
- e. Other

What best describes you:

- a. No children, working
- b. Young family
- c. Family with older kids
- d. Retired empty nester
- e. Live alone or with flatmates

When you visit Berescourt Reserve, do you mainly:

- a. Short visit: Walk through for exercise
- b. Meet friends and play at the playground
- c. Have a bbq or picnic
- d. Other

When you look around Berescourt Reserve, what do you think of the vegetation environment:

- a. It looks fine to me
- b. I don't have any opinion
- c. It looks messy from too many weeds

What do you think of the chemical free trial:

- a. I think it can stop now and chemicals like herbicides help keep the environment neat
- b. I don't have any opinion
- c. I am proud of it because less chemicals in our environment make it safer

Because there has been no chemical spray to get rid of prickleweed, there is lots of it in the grassed areas. Which best describes your opinion of this:

- a. We should recommence prickle spraying immediately as my family want to wear bare feet at our local reserve
- b. I don't have any opinion
- c. There are patches in shade where there are no prickleweed so I can take my shoes off there
- d. Our family wears shoes anyway (for example because of dog poo) so it makes no difference

How often do you think the grass should be mown?

- a. Less – (letting grass grow a little longer means less prickleweed)
- b. The same as now
- c. More

What do think should happen to Berescourt Reserve:

- a. Stop the Agrichemical-Free Trial
- b. Continue it as a Trial
- c. Make it a permanent policy in Tauranga and encourage other parks to do the same.

Do you have any comments about the Agrichemical-Free Trial Site?

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**12. Discussion of Late Items**

**13. Workshop Session**

**13.1 DCW32-Environment Strategy Update February 2018**

DRAFT

## Environment Committee

### Workshop Brief (DCW32)

Objective ID No: A8467604

**Topic:** Environment Strategy Update

**Date:** 27<sup>th</sup> February 2018

**Presenter:** s 7(2)(f)(ii)

#### Summary:

1. Earlier this year the Environment Committee directed staff to develop an environment strategy for Tauranga City (DC81).
  2. The project has four main steps:
    - a. Step 1 – Understand (now complete)
    - b. Step 2 – Create a Strategy
    - c. Step 3 – Develop Action Plans
    - d. Step 4 – Implement and Review Progress
  3. Step 1 – Understand, has now been completed. As part of this step we have undertaken research to understand more about the environment in Tauranga City, and the views of partners and key stakeholders, before embarking on developing a strategy. This has included completing a scientific assessment of the State of the Environment, a Community Carbon Footprint (emissions inventory), and understanding the views of our community through an online survey and meeting key partners and stakeholders.
  4. This culminated in the preparation of the “Background information for the Tauranga Environment Strategy”(Appendix 1), which was shared with the community on 24<sup>th</sup> January 2018. The ‘launch’ of this document also included updating the information on our website and making the supporting documents publically available.
  5. We are now embarking on Step 2 – Create a Strategy. We propose to co-develop the strategy with partners and stakeholders, using the insights gained from Step 1. This will include a series of workshops which are currently being designed.
  6. Our proposed engagement approach will be shared for discussion during the presentation to the Committee. The proposed engagement approach will be in accordance with Council’s Significance and Engagement Policy.
  7. In planning Step 2 staff have given consideration to LTP consultation timeframes and modified the Environment Strategy Project Plan and timeframes accordingly (Appendix 2).
- Desired Outcome:**
8. For the committee to understand the current status of the project.
  9. For the committee to understand and input into the proposed approach and timeframes for Step 2 – Strategy Development.

**Appendices:**

Appendix A - Background information for the Tauranga Environment Strategy

Appendix B – Environment Strategy Project Plan and Timeframes (to be provided as a handout at the meeting)

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**13.1.1 DCW32 Appendix 1 -TES Summary Document (A8485237)**

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# Background information for the Tauranga Environment Strategy



**Toitū te marae o Tane,  
toitū te marae o Tangaroa,  
toitū te whenua.**

**Care for the realms of Tane Mahuta (guardian of the forest)  
and Tangaroa (guardian of the sea)  
and they will sustain and protect the people.**

Our environment is the foundation of our city, the pride of our community and a key asset that attracts people to Tauranga to live, do business and play. It is the right time for us, council, tangata whenua, strategic partners and community, to review the state of our environment and create a city-wide environment strategy.

First step – define what we know about the state of our environment, and our community’s aspirations for our city’s environmental future.

## The national context:

New Zealand’s environment is feeling the pressure from human activity

### Fresh water – a precious resource

Our rivers, lakes and wetlands support our unique native animals and plants. Water is also vital to our health and wellbeing, our livelihoods, and our way of life as New Zealanders and visitors (manuhiri) to our country.

Nationally, our fresh water environment is feeling the pressure of a growing population and changes in the way we use the land. There are issues we need to address, which are the subject of current national debate and action through the National Policy Statement for Freshwater Management:

- The quantity of water we take from the environment and its impact on river flows/ecology
- The quality of freshwater (e.g. nutrients, urban contaminants and bacteria)
- The health and mauri (life force) of freshwater ecosystems, and impact on biodiversity.

### Plants and animals - our indigenous biodiversity

The decrease in the extent of indigenous forests, wetlands, and other habitats since human settlement has reduced the area where indigenous plants and animals can live. This, in addition to pressures from introduced plants and animals, has led to a significant number of species becoming extinct, and many species continue to face this risk.

While the loss of indigenous habitats has slowed, pests continue to pose a serious threat to our indigenous animals, plants and habitats.

### The climate is changing

The Ministry for the Environment tells us that around the world, greenhouse gas emissions from human activity are changing the atmosphere and climate. New Zealand is experiencing the effects of this, on the environment and human systems.

Effects include pressures on our native flora and fauna, threats to our marine life, drier soils, decreasing volumes of our glaciers along with rising sea levels threatening public and private coastal communities, infrastructure, cultural sites and marine habitats.

If global greenhouse gas emissions continue unabated, we face further warming, with far-reaching implications for New Zealand.

#### Fresh water facts

- Nitrogen levels worsening in 55% of monitored river sites
- Phosphorus levels improving in 42% of monitored river sites
- E. coli levels: 22 times higher in urban areas and 9.5 times higher in pastoral rivers than in rivers in native forest areas

*Our fresh water 2017, MfE*

#### Plants and animal facts

- Widespread pests: possums, rats and stoats are across 94% of the country
- Indigenous forests extent: ↓66% since human settlement; wetlands extent: ↓90%
- Extinction risk: 81% of resident bird species, 72% of freshwater fish, 88% of reptiles, 100% of frogs, and 27% of resident marine mammal species

*Environment Aotearoa 2015, MfE*

#### Climate facts

- Annual average temperature: ↑1°C since 1909
- Gross greenhouse gas emissions: ↑24% since 1990
- Transport emissions: ↑78% since 1990
- Coastal sea levels: ↑ up to 22cm over the past century

*Our atmosphere and climate 2017, MfE*

# Tauranga focus:

Insights from scientific research and community engagement

Let's take a closer look at Tauranga. We undertook an assessment of the state of our environment and a greenhouse gas emissions inventory for the city. We also collected insights (lots of them) from our partners, our stakeholders and our community. Here's what we found.

## Our community is deeply connected to our environment

People really care about our environment, and want to help protect it.

- 78% say protecting Tauranga's environment is very important to them
- 60% have participated in a community environmental project in the past year, e.g. beach clean-up or community planting

### Perception of the current state of our environment

- 43% of people think it's good or very good, and 35% adequate
  - Almost half think it has got worse over the last 5 years
  - Only 6% think that it's on the right track for the future
- 2017 Environment Survey, TCC*

*"We came here for the environment, we stay here for the environment"*

*"The Rena was a fantastic example of the community caring and working together"*



**Oranga taiao  
oranga tangata -  
if the environment  
is healthy, so are  
the people**

**The health of our environment has a direct impact on the physical health of our community. For example, creating a connection with nature through accessible natural environments and city green space has an impact on both mental and physical health.**

## Our environmental future: people's main concerns

**1.** Water pollution

**2.** Loss of biodiversity, both flora and fauna

**3.** Long-term effects of climate change, including sea level rise

**4.** City growth and urban sprawl

# Water – wai

## Rivers, streams and harbour water quality

Tauranga Harbour is the emotional centre of our city, and its health is linked with the health of the whole harbour catchment – from the Kaimai Ranges to the coast.

A lot of people told us they think the condition of the rivers and streams and Tauranga Harbour is bad or very bad. In addition, water pollution came up as the highest ranking environmental issue of concern. Sustainable management of our water quality and allocation was recommended as a top idea to improve our environmental future.

The science tells us that as a region, our water quality is under increasing pressure and needs improvement in some locations.

### BOP Regional Council NERMIN programme 2010-2015 results – Tauranga rivers and streams

<b>Nitrogen:</b>	55% of samples above trigger value
<b>Phosphorus:</b>	60% samples above trigger values
<b>E.coli status:</b>	fair to poor
<b>Ecology status:</b>	fair to poor

As a requirement of the National Policy Statement for Freshwater Management, as a community we will shortly be setting objectives and limits for the freshwater bodies in Tauranga. This work will be led by Bay of Plenty Regional Council under their Freshwater Futures Programme.

## Stormwater quality

In urban areas, stormwater runoff can have a negative effect on freshwater environments because of the contaminants it may contain.

Tauranga City Council complies with its consents for stormwater discharges from urban areas into the receiving environment. However, we recognize that we can do better, and that at some locations additional monitoring and contaminant source investigations are required. Additional funding for this is being sought through the Long Term Plan 2018-2028 process.



**Each body of water has its own mana (spiritual power) and mauri (life force). These cultural principles need to work alongside western measurements to give a full picture of the health our waterways. Understanding how our different activities can affect the mauri of our waterways is critical to preserving and enhancing the cultural heritage and environmental condition of the Tauranga Harbour.**

*“Ko au te moana,  
ko te moana au.  
I am the harbour,  
the harbour is me.”*

*“In general, the  
waterways in the  
city aren’t flash”*

*“Water quality starts  
with the Kaimai –  
it’s a chain and we  
need to start at the  
beginning”*

# Land – whenua

## Growing pains

Tauranga has a long history of changing land use and our urban footprint continues to expand as our population grows. Tauranga's growth is not expected to stop anytime soon.

People view the way Tauranga is growing as a key concern for our environmental future. People associate growth with a number of negative impacts such as transportation issues, reduction in greenspace and biodiversity, urban sprawl with repetitious and uniform developments, and health and wellbeing impacts on people.

People told us they want growth to be focused on community and connection.

*"Sprawl is causing many issues with connecting people in the city"*



Through whakapapa, our genealogy and the connectedness of people, plants, land and water we understand that our world is the product of those who came before us. We in turn are guardians (kaitiakitanga) of the environment that has been left to us.

### Tauranga's growth is not expected to stop anytime soon



*"We need housing developments that are healthy, for people and the environment"*

## Biodiversity

Biodiversity is the number and variety of biological life e.g. plants, animals, fungi etc.

People flagged the loss of biodiversity as a major environmental area of concern to them, and they perceived of the state of native animals (birds) to be bad. On the other hand, they assessed the condition of native forest as good.

Biodiversity is an area which requires further investigation and data collection.

*"The city needs to ensure it has sufficient public greenspace as it grows"*

### INDIGENOUS VEGETATION

Our city has a range of natural environments that contain indigenous plants and animals. These include native bush, wetlands, the estuary and the coast.

Our land cover is only 3% indigenous vegetation

Tauranga has 875 hectares of Special Ecological Areas

### URBAN GREEN SPACE

The city's parks, reserves and street trees also contribute to our urban green space, bringing community and environmental benefits. As our city has grown, there has been increased pressure on our urban green space.

43% of our land cover is 'urban impervious' meaning it doesn't let water through - e.g. pavement

89% of households live within 500m of urban green space, compared to a target of 95%

Research also found that the more people can see, touch, feel and experience our natural environment, the more they engage with maintaining and improving the health of these ecosystems. Improving access will increase care.

Developments should be planned for people, for communities, supporting manaakitanga – how we support, help and care for others.

For Māori, native plants and trees have many purposes such as food, medicine, or weaving. It is important that Papatūānuku (Mother Earth) be clothed in her indigenous land cover, as exotic species often compromise the growth of useful native species.

### BEACHES AND COAST

People feel very strongly about our beaches and coastal environments. They told us that they are very important to protect into the future, but also that they are in good condition.

## Resource recovery and waste

Waste management is more than just disposal of waste – it's also about using our natural resources more efficiently.

We have a significant opportunity for improvement, and people seem to agree.

People told us that reducing waste and increasing reuse and recycling is one of the most important initiatives and that we should prioritise resource recovery and waste minimisation.

We have a vision and an action plan to minimize waste to landfill and are currently investigating solutions. We will be discussing potential solutions with the community through the Long Term Plan 2018-2028.

In 2014/15 Tauranga and the Western Bay sent nearly 90,000 tonnes of waste to landfill – equivalent to 630kg per person

Over 68% of our kerbside collected waste (household waste) could have been diverted away from landfill – mainly food waste that could be composted, and green waste



**Recycling and composting have always been a part of life on the marae. To reinforce this, the Para Kore programme works with marae to increase the reuse, recycling and composting of materials. The aim is to reduce the extraction of natural resources and raw materials from Papatūānuku, and ensure all waste is a resource for another process.**

## Atmosphere – kōhauhau

### Climate change

People told us that climate change is one of their biggest areas of concern for our future. There are two ways in which we can take action on climate change. Adaptation: to minimise or prevent the negative impacts. Mitigation: to reduce the emissions that contribute to climate change.

#### ADAPTATION

Climate change could affect Tauranga with sea level rise, increased rainfall intensity, rising groundwater table, droughts and increased risk from invasive pests and weeds. We need to know more to understand the full consequences of these changes and how we should adapt. We have a natural hazards and resilience project underway to do that.

Estimated sea level rise in NZ: approx. 0.3m by 2050 and 1m by 2100 (MfE)

*“Changes to transport are the biggest opportunity we have to reduce emissions”*

*“We need to focus on the co-benefits of responding to climate change”*

#### MITIGATION

This is how we contribute to climate change:

- As a city we generate 5.93 tonnes of carbon dioxide emissions equivalent per person (Wellington: 5.7t/person in 2014/15)
- Most greenhouse gas emissions in Tauranga are related to transport, followed by our electricity consumption

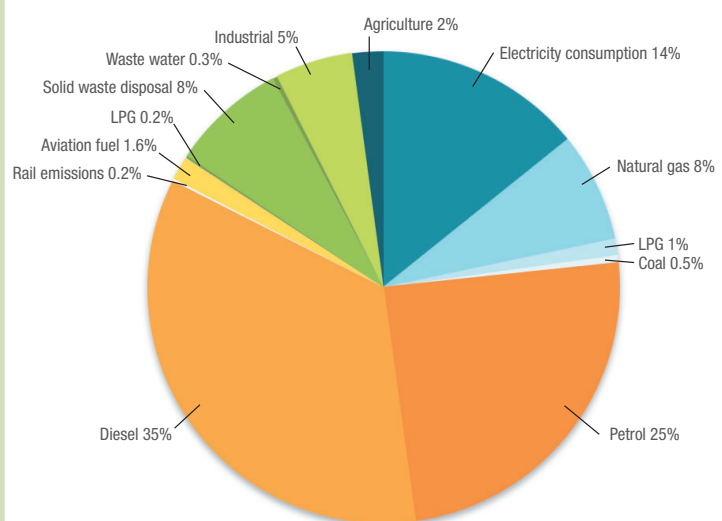
This seemed like no surprise to people, who identified investment in comprehensive public transport and alternative modes of transport as one of the top ideas to deliver positive environmental outcomes to the city.

People also told us that effectively tackling climate change must focus on the co-benefits of positive actions like being able to live cleaner, healthier and more connected lives.

### Air quality

Air quality in Tauranga is generally considered to be good, based on community perceptions and current Bay of Plenty Regional Council monitoring. Monitoring is also being increased, particularly around the port area, which will improve our understanding in the future.

**Where do Tauranga's greenhouse gas emissions come from?**



## What needs to be done: people's top ideas for positive change

1. Invest in comprehensive public transport and alternative modes of transport
2. Prioritise resource recovery and waste minimisation
3. Sustainable management of our water quality and allocation
4. Pursue greening development, urban forests and environmental restoration

## Words of wisdom:

some important insights that should guide the way we develop the strategy and action plans.

### Leadership drives change

There is a strong groundswell of support within Tauranga's community for our council to take a bold environmental stance.

### People are at the centre

Protecting the environment is about improving people's lives, and cannot be achieved without the commitment of all to make changes to how we live.

### Bring Māori and western knowledge systems closer together

As the personification of nature, with spirit and life force, there is much to be gained from integrating Mātauranga Māori into the development of the strategy.

### Everything we do is connected

It's not just about environmental wellbeing. Social, environmental, cultural and economic wellbeing – everything is connected. It's about achieving the right balance to deliver positive outcomes across the board.



Tauranga City

**13.2 DCW29\_Workshop brief template - Reece Irving BOPRC Air Quality Update to Environment Committee November 2017**

DRAFT

## Environment Committee

### Workshop Brief (DCW#)

<b>Topic:</b>	<b>Bay of Plenty Regional Council update on progress to mitigate dust and other air discharges from the Port of Tauranga and Mount Maunganui Industrial area.</b>
<b>Date:</b>	<b>27 February 2018</b>
<b>Presenter:</b>	<b>s 7(2)(f)(ii) (Environment Committee Member – Co-opted)</b>
<b>External presenter:</b>	<b>s 7(2)(f)(ii) (BoPRC)</b>

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**Summary:** 1. The Port of Tauranga (the Port) and surrounding Mount Maunganui industrial area are locations of a number of activities and industries that cause the discharge of contaminants (particulates and gases) to air. This presentation summarises the key air quality issues resulting from industrial activity, and the actions being undertaken by the Regional Council to reduce environmental and human health impacts of air emissions.

**Desired Outcome:** 2. The outcome sought is that all discharges to air from Port related activities and surrounding industries are controlled to the degree that monitored air quality meets nationally recognised environmental and human health parameters.

**Considerations:** 3. BoPRC are working closely with the Port and a large number of businesses who operate on Port owned land to ensure through better business practice, investment in more effective technology, and enhanced environmental awareness, dust and other air discharges are controlled.

One approach is to get businesses which contribute to air pollution to meet emission standards through the resource consent process. We also encourage ongoing investment in new infrastructure and technology. An additional sweeper truck is currently working on the port, and foggers are being used during the unloading of some bulk cargo.

In the past 6 months, BoPRC have issued abatement and infringement notices on 7 separate businesses in the Mount industrial area, including the Port of Tauranga. The notices all require business to cease a discharge that is in breach of a National Environmental Standard, the RMA or a Regional Plan rule. Subsequent to issuing an abatement or infringement notice, businesses can be spurred into major capital works investment, process or systems changes to address the issues that have led to the abatement or infringement notice.

4. A BoPRC funded independent dust audit undertaken by Emission

BoPRC ID: A8367175

Impossible at the Port of Tauranga, published in April 2017 contained several recommendations. The Regional Council and the Port have been working co-operatively at implementing some of the key recommendations with the effect that there is significantly increased awareness of dusty activities and dust discharges, and efforts to control them. The Regional Council will continue to work with the Port to further reduce the wider environmental issues associated with dust emissions.

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**13.3 DCW30\_Environment Committee workshop brief template - Green Building Council Presentation - December 2017**

DRAFT

## Environment Committee

### Workshop Brief (DCW30)

Objective ID No: [A2761265]

**Topic:** Green Building Council NZ Presentation

**Date:** 27 February 2018

**Presenter:** N/A

**External presenter:** s 7(2)(f)(ii)

- 
- Summary:** 1. The New Zealand Green Building Council would like the opportunity to present to Elected Members and staff. They will be providing an overview of Green Star buildings, their benefits and the rating tools available.
- Desired Outcome:** 2. Elected members and staff understand the benefits of Green Star buildings, how the Green Star rating tool works and how it could be applied to future TCC infrastructure/buildings.
- Considerations:** 3. This presentation is provided in the context of recent conversations with elected members on the level of 'environmental credentials' our new council buildings should have (HoC projects). As an organisation, we need to consider what level of green star rated buildings we should be delivering. This presentation will provide further context and information to help guide this decision.