



**FULL COUNCIL - TUESDAY, 7 DECEMBER 2021**

**Documents being circulated with the County Council agenda**

<b>Document</b>	<b>Report in County Council agenda to which it is related</b>
Appointment of External Auditor - Public Sector Auditor Appointments Prospectus (Appendix 1 of the Cabinet report) (page 3)	Cabinet report, paragraph 1
Motion and Supporting information submitted by Councillor Maples (Appendix 1 of the Lead Member for Transport and Environment's report) (page 21)	Lead Member for Transport and Environment report, paragraph 1
Risk Assessment (Appendix 2 of the Lead Member for Transport and Environment's report) (page 35)	Lead Member for Transport and Environment report, paragraph 1
Alternative Weed Maintenance Solutions (Appendix 3 of the Lead Member for Transport and Environment's report) (page 47)	Lead Member for Transport and Environment report, paragraph 1
Potential trials for highways in 2022 (Appendix 4 of the Lead Member for Transport and Environment's report) (page 51)	Lead Member for Transport and Environment report, paragraph 1

PHILIP BAKER  
Assistant Chief Executive

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# PROSPECTUS

## The national scheme for local auditor appointments

All eligible bodies

September 2021

[www.psaa.co.uk](http://www.psaa.co.uk)

## About PSAA

Public Sector Audit Appointments Limited (PSAA) is an independent company limited by guarantee incorporated by the Local Government Association in August 2014.

In July 2016, the Secretary of State specified PSAA as an appointing person for principal local government and police bodies for audits from 2018/19, under the provisions of the Local Audit and Accountability Act 2014 and the Local Audit (Appointing Person) Regulations 2015. Acting in accordance with this role PSAA is responsible for appointing auditors and setting scales of fees for relevant principal authorities that have chosen to opt into its national scheme, overseeing issues of auditor independence and monitoring compliance by the auditor with the contracts we enter into with the audit firms.

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## Introduction

PSAA has issued its formal invitation to all eligible bodies to opt into the national scheme for local auditor appointments for the second appointing period, which will provide external audit arrangements for the period commencing from the financial year 2023/24.

This prospectus is published to provide details of the national scheme and to assist eligible bodies in deciding whether or not to accept PSAA's invitation. The scheme has been shaped by [your feedback to the June 2021 consultation](#) on our draft prospectus. The key areas of our approach that have been refined in response to consultation feedback are set out later in this prospectus.

In relation to appointing auditors, eligible bodies have options to arrange their own procurement and make the appointment themselves or in conjunction with other bodies, or they can join and take advantage of the national collective scheme administered by PSAA.

A decision to become an opted-in authority must be taken in accordance with the Regulations, that is by the members of an authority meeting as a whole, i.e. in Full Council, except where the authority is a corporation sole, such as a police and crime commissioner, in which case this decision must be taken by the holder of that office.

An eligible body that has decided to join the scheme must inform PSAA by returning the Form of Acceptance Notice (issued with the opt-in invitation) **no later than midnight on Friday 11 March 2022**.

An eligible body that does not accept the opt-in invitation but subsequently wishes to join the scheme may apply to opt in only after the appointing period has commenced, that is on or after 1 April 2023. In accordance with the regulations, as the appointing person, PSAA must: consider a request to join its scheme; agree to the request unless it has reasonable grounds for refusing it; and notify the eligible body within four weeks of its decision with an explanation if the request is refused. Where the request is accepted, PSAA may recover its reasonable costs for making arrangements to appoint a local auditor from the opted-in body.

## Audit does matter

The purpose of audit is to provide an independent opinion on the truth and fairness of the financial statements, whether they have been properly prepared and to report on certain other requirements. In relation to local audit the auditor has a number of distinctive duties including assessing the arrangements in place to deliver value for money, and dealing with electors' objections and issuing public interest reports.

Good quality independent audit is one of the cornerstones of public accountability. It gives assurance that taxpayers' money has been well managed and properly expended. It helps to inspire trust and confidence in the organisations and people responsible for managing public money.

*“The LGA set up PSAA to provide a way for councils to meet the legislative requirements of audit procurement without unnecessary bureaucracy and to provide leverage for councils by collaborating in a difficult market. It is now more important than ever that councils work together to ensure we get what we need from the audit market.”*

*James Jamieson. Chairman of the Local Government Association*

## Context: changes in the audit market

In 2014 when the Local Audit and Accountability Act received Royal Assent the audit market was relatively stable. In 2017 PSAA benefitted from that continuing stability. Our initial procurement on behalf of more than 480 bodies (98% of those eligible to join the national scheme) was very successful, attracting very competitive bids from firms. As a result, we were able to enter into long term contracts with five experienced and respected firms and to make auditor appointments to all bodies. However, although we did not know it at the time, this was the calm before the storm.

2018 proved to be a very significant turning point for the audit industry. A series of financial crises and failures in the private sector gave rise to questioning about the role of auditors and the focus and value of their work. In rapid succession the Government commissioned four independent reviews, all of which have subsequently reported:

- Sir John Kingman's review of the Financial Reporting Council (FRC), the audit regulator;
- the Competition and Markets Authority review of the audit market;
- Sir Donald Brydon's review of the quality and effectiveness of audit; and
- Sir Tony Redmond's review of local authority financial reporting and external audit.

In total the four reviews set out more than 170 recommendations which are now at various stages of consideration by Government with the clear implication that a series of significant reforms could follow. Indeed, in some cases where new legislation is not required, significant change is already underway. A particular case in point concerns the FRC, where the Kingman Review has inspired an urgent drive to deliver rapid, measurable improvements in audit quality. This has already created a major pressure for firms and an imperative to ensure full compliance with regulatory requirements and expectations in every audit they undertake.

By the time firms were conducting 2018/19 local audits, the measures which they were putting in place were clearly visible in response to a more focused regulator that was determined to achieve change. In order to deliver the necessary improvements in audit quality, firms were requiring their audit teams to undertake additional work to gain higher levels of assurance. However, additional work requires more time, posing a threat to firms' ability to complete all of their audits by the target date for publication of audited accounts (then 31 July) - a threat accentuated by growing recruitment and retention challenges, the complexity of local government financial statements, and increasing levels of technical challenges as bodies explored innovative ways of developing new or enhanced income streams to help fund services for local people.

This risk to the delivery of timely audit opinions first emerged in April 2019 when one of PSAA's contracted firms flagged the possible delayed completion of approximately 20 audits. Less than four months later, all firms were reporting similar difficulties, resulting in more than 200 delayed audit opinions.

2019/20 audits have presented even greater challenges. With Covid-19 in the mix both finance and audit teams have found themselves in uncharted waters. Even with the benefit of an extended timetable targeting publication of audited accounts by 30 November, more than 260 opinions remained outstanding. The timeliness problem is extremely troubling. It creates disruption and reputational damage for affected parties. There are no easy solutions, and so it is vital that co-ordinated action is taken across the system by all involved in the accounts and audit process to address the current position and achieve sustainable improvement without compromising audit quality. PSAA is fully committed to do all it can to contribute to achieving that goal.

Delayed opinions are not the only consequence of the regulatory drive to improve audit quality. Additional audit work must also be paid for. As a result, many more fee variation claims have been received than in prior years and audit costs have increased.

None of these problems are unique to local government audit. Similar challenges have played out throughout other sectors where, for example, increased fees and disappointing responses to tender invitations have been experienced during the past two years.

All of this paints a picture of an audit industry under enormous pressure, and of a local audit system which is experiencing its share of the strain and instability as impacts cascade down to the frontline of individual audits. We highlight some of the initiatives which we have taken to try to manage through this troubled post-2018 audit era in this prospectus.

We look forward to the challenge of getting beyond managing serial problems within a fragile system and working with other local audit stakeholders to help design and implement a system which is more stable, more resilient, and more sustainable.

## Responding to the post-2018 pressures

MHCLG's<sup>1</sup> Spring statement proposes changes to the current arrangements. At the time of writing, a formal consultation on the proposals in the Spring statement is underway and is due to close on 22 September 2021. The significant work to reform audit in the wake of the four independent reviews is underway. Further wide-ranging change is almost certain to occur during the next few years, and is very likely to have an impact during the appointing period that will commence in April 2023. Organisations attempting to procure audit services of an appropriate quality during this period are likely to experience markedly greater challenges than pre-2018.

Local government audit will not be immune from these difficulties. However, we do believe that PSAA's national scheme will be the best option to enable local bodies to secure audit services in a very challenging market. Firms are more likely to make positive decisions to bid for larger, long term contracts, offering secure income streams, than they are to invest in bidding for a multitude of individual opportunities.

We believe that the national scheme already offers a range of benefits for its members:

- transparent and independent auditor appointment via a third party;
- the best opportunity to secure the appointment of a qualified, registered auditor;
- appointment, if possible, of the same auditors to bodies involved in significant collaboration/joint working initiatives, if the parties believe that it will enhance efficiency and value for money;
- on-going management of any independence issues which may arise;
- access to a dedicated team with significant experience of working within the context of the relevant regulations to appoint auditors, managing contracts with audit firms, and setting and determining audit fees;
- a value for money offer based on minimising PSAA costs and distribution of any surpluses to scheme members;
- collective savings for the sector through undertaking one major procurement as opposed to a multiplicity of smaller procurements;
- a sector-led collaborative scheme supported by an established advisory panel of sector representatives to help inform the design and operation of the scheme;

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<sup>1</sup> Immediately prior to the publication of this document it was announced that MHCLG has been renamed to Department for Levelling Up, Housing and Communities (DLUHC). The document refers to the department as MHCLG.

- avoiding the necessity for local bodies to establish an auditor panel and undertake an auditor procurement, enabling time and resources to be deployed on other pressing priorities;
- providing regular updates to Section 151 officers on a range of local audit related matters and our work, to inform and support effective auditor-audited body relationships; and
- concerted efforts to develop a more sustainable local audit market.

The national scheme from 2023/24 will build on the current scheme having listened to the feedback from scheme members, suppliers and other stakeholders and learning from the collective post-2018 experience.

Since 2018 we have taken a number of initiatives to improve the operation of the scheme for the benefit of all parties including:

- commissioning an independent review undertaken by Cardiff Business School of the design of the scheme and implementation of our appointing person role to help shape our thinking about future arrangements;
- commissioning an independent review by consultancy firm Touchstone Renard of the sustainability of the local government audit market, which identified a number of distinctive challenges in the current local audit market. We published the report to inform debate and support ongoing work to strengthen the system and help to deliver long term sustainability;
- proactively and constructively engaging with the various independent reviews, including the significant Redmond Review into Local Authority Financial Reporting and External Audit;
- working with MHCLG to identify ways to address concerns about fees by developing a new approach to fee variations which would seek wherever possible to determine additional fees at a national level where changes in audit work apply to all or most opted-in bodies;
- establishing the Local Audit Quality Forum, which has to date held five well attended events on relevant topics, to strengthen engagement with Audit Committee Chairs and Chief Finance Officers;
- using our advisory panel and attending meetings of the various Treasurers' Societies and S151 officer meetings to share updates on our work, discuss audit-related developments, and listen to feedback;
- maintaining contact with those registered audit firms that are not currently contracted with us, to build relationships and understand their thinking on working within the local audit market;
- undertaking research to enable a better understanding of the outcomes of electors' objections and statements of reasons issued since our establishment in April 2015; and
- sharing our experiences with and learning from other organisations that commission local audit services such as Audit Scotland, the NAO, and Crown Commercial Services.

As a member of the newly formed Local Audit Liaison Committee (established by MHCLG as outlined in its Spring statement), we are working closely with a range of local audit stakeholders including MHCLG, FRC, NAO, ICAEW, CIPFA and the LGA to help identify and develop further initiatives to strengthen local audit. In many cases desirable improvements are not within PSAA's sole gift and, accordingly, it is essential that this work is undertaken collaboratively with a common aim to ensure that local bodies continue to be served by an audit market which is able to meet the sector's needs and which is attractive to a range of well-equipped suppliers.

One of PSAA's most important obligations is to make an appropriate auditor appointment to each and every opted-in body. Prior to making appointments for the second appointing period, commencing on 1 April 2023, we plan to undertake a major procurement enabling suppliers to enter into new long term contracts with PSAA.

In the event that the procurement fails to attract sufficient capacity to enable auditor appointments to every opted-in body or realistic market prices, we have fallback options to extend one or more existing contracts for 2023/24 and also 2024/25.

We are very conscious of the value represented by these contract extension options, particularly given the current challenging market conditions. However, rather than simply extending existing contracts for two years (with significant uncertainty attaching to the likely success of a further procurement to take effect from 1 April 2025), we believe that it is preferable, if possible, to enter into new long term contracts with suppliers at realistic market prices to coincide with the commencement of the next appointing period.

MHCLG has recently undertaken a consultation proposing amendments to the Appointing Person Regulations. We have set the length of the next compulsory appointing period to cover the audits of the five consecutive financial years commencing 1 April 2023.

## **PSAA is well placed to lead the national scheme**

As outlined earlier, the past few years have posed unprecedented challenges for the UK audit market. Alongside other stakeholders PSAA has learned a great deal as we have tried to address the difficulties and problems arising and mitigate risks. It has been a steep learning curve but nevertheless one which places us in a strong position to continue to lead the national scheme going forward. MHCLG's Spring statement confirmed Government's confidence in us to continue as appointing person, citing our strong technical expertise and the proactive work we have done to help to identify improvements that can be made to the process.

The company is staffed by a team with significant experience of working within the context of the regulations to appoint auditors, managing contracts with audit firms, and setting and determining audit fees. All of these roles are undertaken with a detailed, ongoing, and up-to-date understanding of the distinctive context and challenges facing

both the sector and a highly regulated service and profession which is subject to dynamic pressures for change. Where appropriate we have worked with MHCLG to change our regulations where they are preventing efficiency.

We believe that the national collective, sector-led scheme stands out as the best option for all eligible bodies - especially in the current challenging market conditions. It offers excellent value for money and assures the independence of the auditor appointment.

Membership of the scheme will save time and resources for local bodies - time and resources which can be deployed to address other pressing priorities. Bodies can avoid the necessity to establish an auditor panel (required by the Local Audit & Accountability Act, 2014) and the need to manage their own auditor procurement. Assuming a high level of participation, the scheme can make a significant contribution to supporting market sustainability and encouraging realistic prices in a challenging market.

The scope of a local audit is fixed. It is determined by the Code of Audit Practice (currently published by the NAO<sup>2</sup>), the format of the financial statements (specified by CIPFA/LASAAC) and the application of auditing standards regulated by the FRC. These factors apply to all local audits irrespective of whether an eligible body decides to opt into PSAA's national scheme or chooses to make its own separate arrangements.

The scope of public audit is wider than for private sector organisations. For example, for 2020/21 onwards it involves providing a new commentary on the body's arrangements for securing value for money, as well as dealing with electors' enquiries and objections, and in some circumstances issuing public interest reports.

Auditors must be independent of the bodies they audit to enable them to carry out their work with objectivity and credibility, and to do so in a way that commands public confidence. We will continue to make every effort to ensure that auditors meet the relevant independence criteria at the point at which they are appointed, and to address any identified threats to independence which arise from time to time. We will also monitor any significant proposals for auditors to carry out consultancy or other non-audit work with the aim of ensuring that these do not undermine independence and public confidence.

The scheme will also endeavour to appoint the same auditor to bodies involved in formal collaboration/joint working initiatives, if the parties consider that a common auditor will enhance efficiency and value for money.

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<sup>2</sup> MHCLG's Spring statement proposes that overarching responsibility for the Code will in due course transfer to the system leader, namely ARGA, the new regulator being established to replace the FRC.

## PSAA's commitments

### PSAA will contract with appropriately qualified suppliers

In accordance with the 2014 Act, audit firms must be registered with one of the chartered accountancy institutes - currently the Institute of Chartered Accountants in England and Wales (ICAEW) - acting in the capacity of a Recognised Supervisory Body (RSB). The quality of their work will then be subject to inspection by either or potentially both the RSB and the FRC. Currently there are fewer than ten firms registered to carry out local audit work.

We will take a close interest in the results of RSB and FRC inspections and the subsequent plans that firms develop to address any areas in which inspectors highlight the need for improvement. We will also focus on the rigour and effectiveness of firms' own internal quality assurance arrangements, recognising that these represent some of the earliest and most important safety nets for identifying and remedying any problems arising. To help inform our scrutiny of both external inspections and internal quality assurance processes, we will invite regular feedback from both audit committee chairs and chief finance officers of audited bodies.

### PSAA will support market sustainability

We are very conscious that our next procurement will take place at a very difficult time given all of the fragility and uncertainties within the external audit market.

Throughout our work we will be alert to new and relevant developments that may emerge from the Government's response to the Kingman, CMA and Brydon Reviews, as well as its response to the issues relating specifically to local audit highlighted by the Redmond Review. We will adjust or tailor our approach as necessary to maximise the achievement of our procurement objectives.

A top priority must be to encourage market sustainability. Firms will be able to bid for a variety of differently sized contracts so that they can match their available resources and risk appetite to the contract for which they bid. They will be required to meet appropriate quality standards and to reflect realistic market prices in their tenders, informed by the scale fees and the supporting information provided about each audit. Where regulatory changes are in train which affect the amount of audit work which suppliers must undertake, firms will be informed as to which developments should be priced into their bids. Other regulatory changes will be addressed through the fee variation process, where appropriate in the form of national variations.

### PSAA will offer value for money

Audit fees must ultimately be met by individual audited bodies. The prices submitted by bidders through the procurement will be the key determinant of the value of audit fees paid by opted-in bodies.

We believe that the most likely way to secure competitive arrangements in a suppliers' market is to work collectively together as a sector.

We will seek to encourage realistic fee levels and to benefit from the economies of scale associated with procuring on behalf of a significant number of bodies. We will also continue to seek to minimise our own costs (which represent approximately 4% of overall scheme costs). We are a not-for-profit company and any surplus funds will be returned to scheme members. For example, in 2019 we returned a total £3.5million to relevant bodies and, more recently, we announced a further distribution of £5.6m in August 2021.

We will continue to pool scheme costs and charge fees to opted-in bodies in accordance with our published fee scale as amended from time to time following consultations with scheme members and other interested parties. Pooling is a key tenet of the national collective scheme.

Additional fees (fee variations) are part of the statutory framework. They only occur if auditors are required to do substantially more work than anticipated, for example, if local circumstances or the Code of Audit Practice change or the regulator (the FRC) increases its requirement on auditors.

Audit developments since 2018 have focused considerable attention on audit fees. The drive to improve audit quality has created significant fee pressures as auditors have needed to extend their work to ensure compliance with increased regulatory requirements. Changes in audit scope and technical standards, such as the requirement in the new Code of Audit Practice 2020 for the auditor to provide a VFM arrangements commentary, have also had an impact. Fees are rising in response to the volume of additional audit work now required.

The outcome is awaited of MHCLG's recent consultation on changes to the regulations, designed to provide the appointing person with greater flexibility to allow a fee scale to be set during the audit year (rather than before it starts). If implemented, these changes will enable approved recurring fee variations to be baked into the scale fee at an earlier date so the scale fees are more accurate and the volume of fee variations is reduced.

It is important to emphasise that by opting into the national scheme you have the reassurance that we review and robustly assess each fee variation proposal in line with statutory requirements. We draw on our technical knowledge and extensive experience in order to assess each submission, comparing with similar submissions in respect of other bodies/auditors before reaching a decision.

## Procurement Strategy

Our [procurement strategy](#) sets out the detail and scope of the procurement to deliver contracts from which the auditor appointments will be made for eligible bodies that decide to accept the invitation to opt into PSAA's scheme.

Our primary aim is to secure the delivery of an audit service of the required quality for every opted-in body at a realistic market price and to support the drive towards a long term competitive and more sustainable market for local public audit services.

We expect to initiate a new procurement for audit services in February 2022 and, subject to a satisfactory outcome, to award contracts in August 2022. Subject to consultations with opted-in bodies and audit firms, we plan to make auditor appointments by 31 December 2022 (as required by the regulations).

## Response to consultation feedback

PSAA consulted with eligible bodies and other stakeholders on our draft prospectus for the national scheme for local auditor arrangements from April 2023, and with the audit services market on important features of its procurement strategy. The insight provided from both these important consultations has helped to shape the arrangements that PSAA will implement from 2023/24. Key areas are highlighted below.

### Evolution of the Local Audit Framework

The consultation responses highlight the need for system-wide change. In many areas it is not within PSAA's remit to effect the significant change required.

The newly formed Local Audit Liaison Committee (as outlined in MHCLG's Spring statement), has enabled PSAA to highlight the need for a range of actions to tackle the identified issues that are essential to support a more stable, more resilient, and more sustainable local audit system. Sometimes the actions can be taken by individual organisations, but more frequently responsibility lies collectively across the system. The Liaison Committee and its members are now taking actions forward, including:

- All stakeholders to communicate the importance of audit timeliness as a consistent message to audit firms;
- PSAA to work with the FRC to develop the approach to quality evaluation of tenders;
- MHCLG and other stakeholders to understand the extent of potential increased audit costs for all eligible bodies and to consider how these might be met;
- All stakeholders to consider ways in which to attract new entrants (firms and Key Audit Partners) into the market;
- Central government departments to provide clarity on the direction of local audit policy to inform firms' consideration ahead of next procurement;
- The NAO and FRC to work together to consider how they can provide clarity about the future direction of the Code of Audit Practice to firms ahead of the next procurement; and
- MHCLG, CIPFA and the LGA to consider how to support finance departments with accounting and audit requirements.

In the vast majority of the areas consulted on which were within PSAA's remit, responses were supportive of our proposals for the national scheme from 2023/24 which is very encouraging. Areas where we have revisited and evolved our approach are highlighted below.

## **Minimum Audit Fees**

Audit fees are rising in all sectors in response to increased regulatory requirements for audit quality and changes in audit scope and technical standards. Striving to ensure realistic fee levels is a vital prerequisite to achieving a more sustainable and stable local audit market.

Where individual audits currently attract scale fees that do not cover the basic costs of the audit work needed for a Code-compliant audit, we propose to implement a minimum fee level at the start of the next appointing period, for the audit of the 2023/24 accounts. Our independent research indicates a minimum fee level of £31,000 should apply, based on the 2020/21 scope of audit work, to any opted-in body (a police and crime commissioner and a chief constable constitute one body for this purpose).

We cannot anticipate scale fees for the next appointing period at this stage, because they will depend on the prices achieved in the procurement and any changes in audit requirements. Where any price increase means that the scale fee for a body does not reach the floor set by the minimum fee, the fee for that body would increase to reach the minimum level. It is likely, given current expectations, that the introduction of a minimum fee specifically would lead to an increase in fees for a relatively small number of local bodies. PSAA consults each year on the fee scale and will consult in 2023 on the 2023/24 fee scale.

Introducing a minimum fee is a one-off exercise designed to improve the accuracy of the fee scale for the next appointing period. Fee variations would continue to apply where the local circumstances of an audited body require additional audit work that was not expected at the time the fee scale was set.

## **Standardised fee variations**

Current local audit regulations allow PSAA to approve fee variation requests only at individual bodies, for additional audit requirements that become apparent during the course of an audit year. MHCLG has announced the intention to amend the regulations, following a consultation, to provide more flexibility. This would include the ability for PSAA to approve standardised fee variations to apply to all or groupings of bodies where it may be possible to determine additional fees for some new requirements nationally rather than for each opted-in body individually. Where it is possible to do this, it would have the effect of reducing the need for local fee variations.

## **Approach to social value in the evaluation of tenders**

We plan to retain our original proposal of a 5% weighting but to broaden the criteria by asking bidders to describe the additional social value they will deliver from the contract, which could include the creation of audit apprenticeships and meaningful training opportunities. Bidders will also be asked to describe how their delivery of social value will be measured and evidenced.

## Contract Management

The quality of the audit services received by opted-in bodies is very important to both the bodies themselves and to PSAA. Our intention is therefore to focus a significant majority of the quality assessment of tender submissions on resourcing, capacity and capability (including sector knowledge) and on client relationship management and communication. Correspondingly, we intend to apply a lesser weighting to those criteria that are regularly assessed by the regulator. We will seek the views of the regulator in developing the detail of our approach.

We will also review the contract terms used in 2017 ahead of the next procurement of audit services. In particular we will consider the potential to introduce enhanced performance management arrangements aligned to the greater emphasis on quality within the tender evaluation process. Any such revision must ensure continued compliance with the FRC's Ethical Standard which prevents audit fees from being "*calculated on a predetermined basis relating to the outcome or result of a transaction, or other event, or the result of the work performed*".

## Information and Communication

Following the success of the webinars held to support the recent consultation, PSAA will be running a series of webinars starting in October 2021. The webinars will provide eligible bodies with the opportunity to hear and ask questions about specific areas of scheme arrangements and PSAA's work, and our progress to prepare for the second appointing period. Details of the [webinar series](#) can be found on our website.

## Eligible Principal Bodies in England

The following bodies are eligible to join the proposed national scheme for appointment of auditors to local bodies:

- county councils
- metropolitan borough councils
- London borough councils
- unitary councils
- combined authorities
- passenger transport executives
- police and crime commissioners for a police area
- chief constables for an area
- national park authorities for a national park
- conservation boards
- fire and rescue authorities
- waste authorities
- the Greater London Authority and its functional bodies
- any smaller bodies whose expenditure in any year exceeds £6.5m (e.g. Internal Drainage Boards) or who have chosen to be a full audit authority (Regulation 8 of Local Audit (Smaller Authorities) Regulations 2015).

## Board Members

Steve Freer (Chairman)

Keith House

Caroline Gardner CBE

Marta Phillips OBE

Stephen Sellers

PSAA Board members bring a wealth of executive and non-executive experience to the company. Areas of particularly relevant expertise include public governance, management and leadership; local government and contract law; and public audit and financial management.

Further information about PSAA's Board can be found at <https://www.psaa.co.uk/about-us/who-we-are/board-members/>

## Senior Executive Team

Tony Crawley, Chief Executive

Sandy Parbhoo, Chief Finance Officer

Andrew Chappell, Senior Quality Manager

Julie Schofield, Senior Manager Business & Procurement

Within the PSAA senior executive team there is extensive and detailed knowledge and experience of public audit, developed through long standing careers either as auditors or in senior finance and business management roles in relevant organisations.

Further information about PSAA's senior team can be found at <https://www.psaa.co.uk/about-us/who-we-are/executive-team/>

# Annex - Procurement Options

## Our Preferred Option

A 5 year contract with the fallback of the right to extend one or more of the current contracts if there are insufficient or unaffordable bids.

## Other Options Considered and Rejected

### Option 1

Extending the existing contracts for 2 years and deferring the procurement. We want to secure 5 year contracts if we can because we believe this option is more attractive to the market.

### Option 2

A 5 year contract with a commitment not to extend the existing contracts. We need the back stop of the right to extend the existing contracts if there are insufficient bids to allow us to make auditor appointments to all opted in bodies or if any of the bids received propose unacceptable prices.

### Option 3

A 5 year contract with pre-determined prices for years 1 and 2 thereby avoiding the need for firms to price in the value of the right to extend the existing contracts. We believe such an arrangement will be unattractive to the market. Firms should be able to offer their own prices for years 1 and 2.

## Appendix 1

### NOTICE OF MOTION

#### **Motion to eliminate use of glyphosate herbicide formulation in ESCC/Highways' weed control.**

It is recognised that there has been reduction in ESCC's use of glyphosate (herbicide) in ESCC green spaces, increased collaboration with local environmentally-concerned groups and coordination with other local authorities, in accord with the County's 2020 Environmental Strategy. However, as has been made excessively clear in the recent IPCC Report, and as the Strategy notes, 'the pace and scale of action needs to be far greater'.<sup>1</sup>

#### **MOTION: East Sussex County Council agrees to request the Cabinet to:**

**ban the spraying of glyphosate formulation herbicide and other toxic herbicides in its treatment of unwanted foliage on all council owned land and land managed by the County Council from 01 January 2022.**

#### **Instead:**

1. Where safe<sup>2</sup> to do so, plants will be left to grow and die in their natural cycle, supporting wildlife, addressing the Council's particular concern to support pollinators and other invertebrates and in accord with the Council's and the Government's commitment to bio-diversity net gain. This will further enhance East Sussex Highway's agreement to leave agreed wildflower verges uncut/unmown until the end of the flowering season to improve food sources for pollinators in accord with ESCC's well-publicised Environmental Strategy and Sussex Local Nature Partnership.<sup>3</sup>

Natural Capital Investment Strategy  
Strategic work themes



<sup>1</sup> <https://www.eastsussex.gov.uk/media/15587/east-sussex-environment-strategy-2020.pdf>, p. 4.

<sup>2</sup> Safe in this context means: not causing trip hazards, not leading to building or pavement degradation.

<sup>3</sup> <http://sussexlnp.org.uk/natures-recovery-and-net-gain/>



## Main messages



1. Formal commitment to the use of the natural capital approach only where this results in a positive result for nature, and in particular a 'net gain' for biodiversity.
2. **Protect** existing natural capital assets – particularly assets 'at risk'
3. **Enhance** what we have.....improve its condition!
4. **Expand and connect** – enhance natural capital assets via nature recovery network
5. **Invest in natural solutions** – to deliver key benefits/services

2. Where plants cause a trip hazard for pedestrians, or weaken built structures, alternative prevention and removal processes will be used, to include, as appropriate:
  - a. manual and mechanical removal, including lifting at the roots and removal of embedded soil to be replaced where appropriate with low-growth foliage or a growth resistant medium, such as clean sand
  - b. mechanical brushing/sweeping, especially to remove unwanted plant seeds and thereby reduce new growth
  - c. hot-foam spray application
  - d. electrical treatment
  - e. strimming.

**Proposer:**  
**Councillor Maples**

**Secunder:**  
**Councillor Hilton**

**Dated: 20 September 2021**

### **Background**

**Glyphosate is a chemical herbicide (a type of pesticide) used to kill unwanted plants. The use of glyphosate and other toxic herbicide formulae compound the biodiversity crisis, brings significant economic and environmental costs.**

**Glyphosate has been linked to damage to and death of invertebrate species including bees and other important pollinators. It remains in soil and leaches into waterways where it poisons plants and animals. It has been linked to cancer in humans, with its manufacturer Monsanto (now owned by Bayer) subject to now innumerable lawsuits, for which over \$11 billion has been set aside for anticipated pay-outs. Its efficacy (in killing**

plants) significantly diminishes over time (average 5-7 years), requiring other methods of weed removal.

**In other words: Glyphosate is toxic and disruptive to animal, plant, soil, waterway and human health. It is potentially very expensive should residents or operatives decide to take ESCC to court. Current spraying practices will likely soon become ineffective. There is already evidence in rapid regrowth along treated areas that this is already the case.**

#### **Pollinator impact – recent studies**

- Flying insects, many of which are pollinators we rely upon to ensure our own food supplies, have reduced by more than 75% over 27 years, even in protected areas.<sup>4</sup>
- Exacerbating biodiversity loss, particularly of pollinators, will be at humans' as well as nature's expense. More than three out of four crops producing seeds or fruits used for human food depend on pollinators.

Graziano da Silva, director-general of the Food and Agriculture Organization from 2012 to 2019 notes,

*'The absence of bees and other pollinators would wipe out coffee, apples, almonds, tomatoes, and cocoa, to name just a few of the crops that rely on pollination.'*

In South East England's arable farms, the impact of herbicides on pollinators risks lower yields and potential loss of apples, strawberries, raspberries, cherries, and all vine fruits including grapes in our surging viniculture businesses.

- Peer-reviewed scientific research demonstrates that glyphosate has significant negative effects on our most potent pollinators, bees:
  - weakening their gut bacteria leading to 'greater susceptibility to pathogens and malnutrition' and higher bee mortality rate<sup>5</sup>
  - affecting individual bee neuro-pathways, reducing foraging ability
  - reducing water up-take which has a wider effect on the hive: reduced water up-take leads to poor larvae development.<sup>6</sup>
- Peer-reviewed scientific research demonstrates that even where glyphosate does not lead to the immediate death of individual bees, the co-formulants (such as surfactants)

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<sup>4</sup> Caspar A. Hallmann et al, Oct 2017, <https://doi.org/10.1371/journal.pone.0185809>

<sup>5</sup> Writing in the international, peer-reviewed journal, *Insects*, Farina et al (2019) suggest that honeybees suffer considerable and longterm effects of glyphosate exposure, even where application of glyphosate is not on a primary food source (suggesting application drift) – for instance, studies on organic honey find glyphosate traces. As noted, effects include damage to gut microbiota; in addition, 'GLY negatively affects associative learning processes of foragers, cognitive and sensory abilities of young hive bees and promotes delays in brood development'. Importantly, authors note that due to honeybees' social habits, it is essential to analyse longer-term effects of exposure in situ (i.e. in the hive, not just clinical trials on individual bees).

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6835870/>

<sup>6</sup> See also footnote 5 (above): Farina et al (2019)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6835870/>

used in standard commercial and domestic glyphosate products have serious adverse effects, with marked reductions in foraging ability, from climbing, to proboscis motility, to the basic ability to locate food sources.<sup>7</sup>

According to very recent research (Smith, Carmacho and Thakur, 2021), over time,

*glyphosate's environmental accumulation could render insects more susceptible to microbial pathogens due to melanin inhibition, immune impairment, and [as noted above] perturbations in microbiota composition.*<sup>8</sup>

- There is further evidence that glyphosate is toxic to earthworms, another species we rely on to support food production through soil improvement.
- Further evidence still indicates that glyphosate inhibits mycorrhizal fungi. Recent research shows the importance of mycorrhizal fungi to soil health and plant productivity: they are essential for tree health, collecting nutrients and water to feed their host plant and protecting tree roots from harmful fungi and root rot diseases.

**We are facing increasing toxicity in our environment, including our food and bodies.**

- Glyphosate residues have been found even in organic honey, as pollinators may forage in glyphosate-treated verges, or in nearby non-organic farms.
- A study commissioned by Friends of the Earth, testing across 18 countries found glyphosate in between 10% (Macedonia) and 90% (Malta) of human urine samples. In Great Britain, 70% of human urine samples contained glyphosate.<sup>9</sup>

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<sup>7</sup> Recent research – albeit a single trial in closed, non-typical environment and application (direct spraying of a single bee species) – suggests that other ingredients in glyphosate-based herbicides are responsible for high levels of immediate/short-term morbidity in bee populations (trial resulted in morbidity of 30% to 94% with use of variations of commercially-available ‘Round-Up’). Where the ‘active’ ingredient of glyphosate was removed, a significantly high morbidity from direct application remained. The study concludes that the bees died from the surfactants and/or other undisclosed proprietary co-formulants in the herbicide. Accepting that this is only one study, with an atypical testing regime, used on one species of bee, the trial authors nevertheless argue that until such time as all ingredients are listed, Round-Up and similar herbicide applications should be withdrawn from use in any area likely to be foraged by bees (and by extension other pollinators). It should also be noted that the study was short term and, as the mortality of the bees in the study was so high, longer-term effects to individual bees, or to hives, etc. was not observed.

<https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.13867>.

<sup>8</sup> Smith, Carmacho and Thakur (2021)

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001182>

<sup>9</sup> Friends of the Earth study results released in June 2013 <https://friendsoftheearth.eu/press-release/weed-killer-found-in-human-urine-across-europe/>. The press release from Friends of the Earth notes that: ‘Volunteers were all city-dwellers and included vegetarian and non-vegetarian diets. No two samples were tested from the same household. The samples were analysed by Dr Hoppe at Medical Laboratory Bremen in Germany.’

- A larger study with 2000 volunteers in Germany, found traces of glyphosate in 99.6% of urine samples, 3/4 of which were above safety limits, with the highest levels found in children.<sup>10</sup>
- The now famous IARC International Agency for Research on Cancer (IARC) of the World Health Organisation (WHO) *Monograph 112* which declares that human indicators and results of animal testing suggest that glyphosate is a probable carcinogen and that, on the precautionary principle, it should be banned.

### **Continuing use increases wider financial risks as well as baseline costs**

- Monsanto (now owned by Bayer) has made a number of pay-outs to individuals whose cancer has been linked to glyphosate exposure. It is worth noting that in the first three of these cases, the plaintiffs were a groundskeeper, a home gardener and two landscape gardeners.<sup>11</sup>
- In February 2021, Bayer set aside \$2 billion (USD) to manage known upcoming lawsuits, with estimated pay-outs up to \$200,000 each over the next four years.<sup>12</sup> This is in addition to a previous \$9.6 billion (USD) settlement in June 2020 to address 100,000 existing Round-Up related lawsuits in the US.<sup>13</sup>
- As the public's awareness of the risks of glyphosate herbicide exposure increases, it may be only a matter of time before those councils and contractors who persist in using glyphosate may be sued for negligence.
- Where glyphosate is the only or virtually only weed treatment, resistance builds up naturally (see below for details). Over the course of three years or so, particularly where roots and seed are left behind (as per current practice), East Sussex Highways will have created weed specimens that will set down longer, stronger root systems and will have selected for plants that are increasingly glyphosate tolerant. In a few short years, increasing amounts of herbicide, applied more often, will be needed to kill weeds along the same lengths of roads and pavements, thereby increasing both labour and materials costs and, where weeds remain unaffected by herbicide treatment, further damaging built structures and pavements.
- ESCC has to balance demands from residents who believe weeds to be an eyesore, and those who would wish to see a more pollinator-friendly approach. Current

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<sup>10</sup> Reporting on a 2016 study conducted by the Heinrich Böll Foundation: <https://www.euractiv.com/section/agriculture-food/news/overwhelming-majority-of-germans-contaminated-by-glyphosate/>

<sup>11</sup> Pesticide Action Network, citing US court rulings: [Glyphosate%20Myth%20Buster%20-%20updated%20July%202019.pdf](#)

<sup>12</sup> \$2 billion settlement for non-Hodgkin's lymphoma cases: <https://www.reuters.com/article/us-bayer-glyphosate-idUSKBN2A32MX>

<sup>13</sup> \$9.6 billion settlement for pending US lawsuits: <https://www.reuters.com/article/us-bayer-glyphosate-idUSKBN2A32MX>

practice provides the worst of both worlds, with glyphosate spray damaging plants and pollinators, and sprayed plants left to go brown and not removed, resulting in continued complaints from residents who would wish for tidier streets and pavements as well as from those preferring ESCC not use herbicide sprays.

### What are the options and costs?

With costs of alternative weed-reduction programmes reducing alongside their increased availability, the number of chemical-free local authorities is increasing.

While there are different parameters to be considered in the County, a recent cost analysis by Glastonbury Council suggests – perhaps surprisingly – that, once hot foam equipment is purchased, hot foam becomes the cheapest option:<sup>14</sup>

### Results of Glastonbury Council's cost analysis of weed control options

	Cost per linear metre
Hand Weeding by contractor	£00.32
Hot water treatment by contractor	£00.26
Glyphosate treatment by contractor	£00.23
Foamstream factoring in costs of diesel, foam, in-house application, van and water. Excluding initial cost of equipment	£00.07

In addition, evidence has accrued of longer-term improved performance, notably of hot water and hot foam.

However, despite apparently high costs, mechanical and manual weeding may prove to be the most effective and, in the longer term, most cost-efficient practices for East Sussex/ES Highways:

1. Across the larger road gutter infrastructure, additional road sweeping with more robust ‘weeding’ brushes may be the most efficient practice in terms of labour costs; with the added benefits of:
  - a. reducing waterway toxins
  - b. reducing the number of seeds left to germinate
  - c. not selecting for more resistant weeds
  - d. not causing potential illnesses – including non-Hodgkins lymphoma – amongst equipment operators.
2. Hand weeding (including pulling, and the use of hoes and angled scrapers) ensures that visible parts of the weed and, where possible, the roots are removed completely. Where root removal is not possible, the weed is nevertheless weakened (due to lack of sunlight), reducing the need for more regular intervention. Unlike current herbicide treatment practice:
  - a. Seeds are not left to germinate
  - b. Nor are more resistant weeds selected for (see chart below).
  - c. Full removal is longer lasting and reduces building and pavement damage.
  - d. Complaints about ‘unsightly’ weeds, including those left to go brown, is reduced.

<sup>14</sup> <https://www.pan-uk.org/site/wp-content/uploads/Alternatives-to-herbicides-a-guide-for-the-amenity-sector.pdf>

3. PA6A and PA6WA certification are not required (though non-chemical weed management training would be encouraged), improving the ability of contractors to recruit staff.
4. Where manual/mechanical weeding is the best option, essential equipment such as hoes, strimmers, hedge-trimmers and mechanical brushes are at the lower end of cost.
5. With minimal training, 'accidental' damage to valuable wildflower species should not occur, with plants that provide food for native wildlife species being consumed in a natural cycle (see the Toadflax example below).

### Comparison table of alternative approaches to weed control

	Hot foam	Hot water	Brushing	Electricides	Hand weeding
<b>Initial cost</b>	High – for the cost of the machinery if purchasing outright	High – for the cost of the machinery if purchasing outright	Medium – depending on the size of the brushing machine	Medium – one off purchase of Rootwave machine	Low – almost nothing required
<b>Ongoing cost</b>	Medium	Medium	Low	Low	Low
<b>Efficacy</b>	Good	Good	Good	Good	Good
<b>Ease of use</b>	Small amount of initial training required but no certification necessary	Small amount of initial training required but no certification necessary	Small amount of initial training required but no certification necessary	Small amount of initial training required but no certification necessary	Small amount of initial training required but no certification necessary
<b>Noise</b>	High	High	High	Low	Low
<b>Versatility</b>	High – can be used for other purposes such as moss and chewing gum removal. Not always suitable for use in restricted access areas.	High - can be used for other purposes such as moss and chewing gum removal. Not always suitable for use in restricted access areas.	High – can be used for general cleaning of areas as well as weed removal. Different size machines allow access to a wide variety of areas.	Low – really only suited to weed removal, but can be very effective with invasive species and woodier species of plant. Limited to use where a suitable grounding point can be accessed.	Low – really only aimed at weed removal. However, with proper training desirable species can be left to grow while species considered to be 'weeds' can be effectively removed.
<b>Operator Safety</b>	High	High	High	High	High
<b>Environment</b>	Medium – concerns about the use of diesel for powering the machine. Safe to use around aquatic environments.	Medium – concerns about the use of diesel for powering the machine. Safe to use around aquatic environments.	Medium – concerns about the use of petrol for powering some machines. Possibility of damage to particular surfaces with some brush types.	High – safe to use in all environments	High – safe to use in all environments

In short, over the near medium and longer term, using methods other than sprayed herbicide treatment will cost the County *less* than continuing the use of glyphosate spraying.

The following section details reasons why glyphosate may in any case soon be ineffective: to understand this, it is necessary to understand how it is intended to work, in context.

#### How does glyphosate work, cause problems and fail?

Glyphosate is predominantly used as part of a system of weed-control used by commercial growers who invest in genetically modified (GM) seeds that are glyphosate resistant. Because of this resistance, glyphosate can be widely sprayed across a crop, with the result that only the non-GM plants will be killed (until they too develop resistance).

The recent peer-reviewed study by Johns Hopkins molecular biology researchers, DFQ Smith, et al. (May 2021)<sup>15</sup>, explains:

*'Glyphosate is commonly applied at concentrations of approximately 28 to 57 mM [33] or in formulations of 360 g/L (2 M), with 720 g (4 mol) per hectare [34]. Glyphosate-based herbicides are sprayed onto crops where the glyphosate is taken up by plant leaves and translocated to growing tissues throughout the plant [35]. Glyphosate is translocated to the roots where it is released into the soil [34]. In total, about 88% of the sprayed glyphosate ends up in the topsoil [36–38]. Less than 1% of [agricultural-use] glyphosate has been shown to enter water bodies, typically following heavy rain, snowmelt, ploughing, or erosion [37], but concentrations from <1 nM to approximately 30 μ M in nearby water have been reported [39]. Further, glyphosate has been shown to enter the air through wind erosion and deposit via rain [40].*

*Glyphosate is remarkably stable, with half-life ranging from weeks to years depending on the surrounding microbial populations, which provide the primary mechanism of glyphosate degradation, while temperature, light, acidity, and salinity also play roles in the degradation process. Microbes mostly break down glyphosate into aminomethylphosphonic acid (AMPA), which persists up to 20 times longer than glyphosate and is often found in higher concentrations in topsoil and water [41–45].'<sup>16</sup>*

In other words: glyphosate is persistent, working its way through plants, fungi and bacteria, some of which help with degradation (breaking down glyphosate toxicity). Glyphosate nevertheless remains in the soil for weeks or years in its original form and as AMPA, as well as leaching into water (water run-off at the point of application and into ground water as it is absorbed into the soil) and air.

Glyphosate is used prolifically in commercial agriculture, e.g. where GM soy, etc. are bred to be Round-Up (the commercial formulation created by Monsanto) resistant. The non-preferred plants will be killed while the GM soy, hops, grapes, etc. survive. It is important to be clear: crops are still tainted with glyphosate and co-formulants, they just don't die. Eventually, as noted above, 'target' weeds themselves build up tolerance for glyphosate. This leads to farmers increasing the amounts of herbicide used.

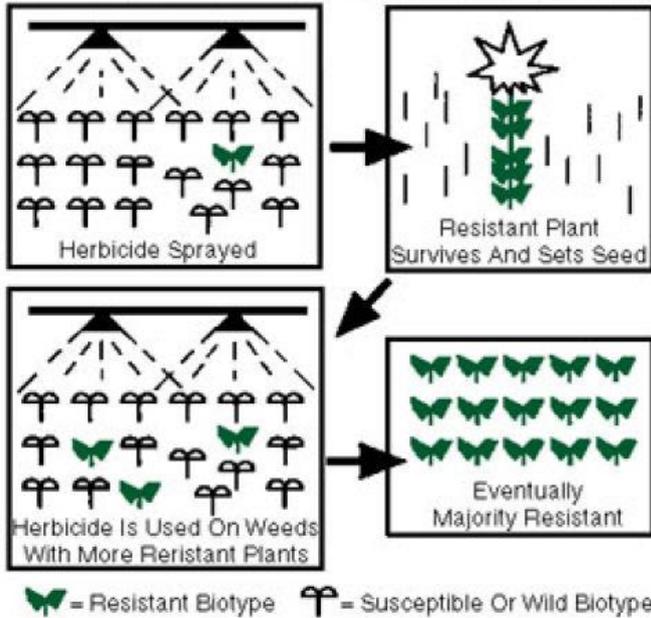
This simple chart from a University of Minnesota land managers' programme explains:

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<sup>15</sup> <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001182>

<sup>16</sup> NB, I have left the author's footnotes in the text as live, should you wish to go to the claim source.

How Does Selection For Herbicide Resistance Occur?

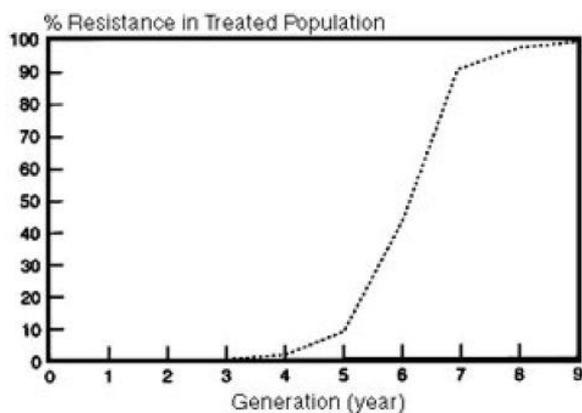


According to UofM, a ‘herbicide-resistance problem could develop after repeatedly using a product for more than two years, depending on the proportion of the population initially resistant to an herbicide.’

According to UofM, 17 glyphosate resistant weeds were already identified in the USA as of 2018.<sup>17</sup> With wider application of glyphosate treatment worldwide, resistance will increase.

UofM explains that with repeated use of the same herbicide,

*‘It’s very common to go from excellent control of a particular weed species to very poor control within a growing season. A gradual performance decline is rarely seen.’*



<sup>17</sup> <https://extension.umn.edu/herbicide-resistance-management/herbicide-resistant-weeds#selection-intensity%3A-the-key-to-prevention-92896>

Figure 5: Simulated progression: Assumes a 1 in 10 million chance of resistant biotypes, 90 percent weed control and 100,000 seeds per sq. meter.<sup>18</sup> Less effective herbicides, poor application practices, poor post-application removal of seeds and higher incidence of wild resistance will, of course, result in earlier increases in herbicide tolerance.

The recommended practice for weed management is to ‘only use herbicides when necessary’, to rotate practices and to include mechanical weed control (such as hoeing). Importantly, UofM advises its land managers to,

*‘Encourage railroads, public utilities, highway departments and similar organizations ... to use vegetation management systems that don’t lead to the selection of herbicide-resistant weeds.’<sup>19</sup>*

In other words, not to use the same herbicide repeatedly and, wherever possible, to seek alternative – *non-chemical* – means of weed management. There are two reasons for this:

1. This will reduce the burden of resistant weeds on the public utility (over time);
2. Where there is nearby farmland, using more effective measures will eliminate glyphosate-resistant weed-creep (increasing costs to farmers).

### **Glyphosate myths and facts**

There is an abundance of myths about glyphosate, the most unhelpful being that it is ‘safe’.

As far back as 1996, however, Monsanto was ordered by a New York state judge to retract Round-Up advertising that claimed the herbicide was ‘practically non-toxic’, ‘biodegradable’ and ‘environmentally-friendly’. Monsanto also paid \$50,000 plaintiff’s case costs.<sup>20</sup>

Since then, the evidence of glyphosate’s damage to the environment and to individual and human and animal species has mounted.

Crucially, for ESCC, which in correspondence with residents complaining about the use of glyphosate states that the chemical is ‘deemed safe’, the EU’s 2017 relicensing directive (on which UK government policy is based) did *not* state that glyphosate is ‘safe’. Indeed, the relicensing directive was cautious, only permitting glyphosate’s use with the condition that Member States ‘*Minimise the use in public spaces...*’<sup>21</sup> due to concerns about its safety.

Round-Up’s own website warns home gardeners that children and animals should be kept out of the garden during use because of safety concerns. Of course, where glyphosate is sprayed

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<sup>18</sup> <https://extension.umn.edu/herbicide-resistance-management/herbicide-resistant-weeds#selection-intensity%3A-the-key-to-prevention-92896>

<sup>19</sup> <https://extension.umn.edu/herbicide-resistance-management/herbicide-resistant-weeds#selection-intensity%3A-the-key-to-prevention-92896>

<sup>20</sup> <https://apnews.com/article/d196b9a5bb54637a7b281760b0f7a966>

<sup>21</sup> Pesticide Action Network, citing EU relicensing agreement: Glyphosate%20Myth%20Buster%20-%20updated%20July%202019.pdf

on neighbourhood streets and pavements, there is no forewarning to keep children and pets indoors. A further warning on the Round-Up website:

*'...If you have treated your garden weeds with a glyphosate-based weedkiller and your pets have escaped into the garden before it has dried, or perhaps a neighbour's cat has popped into your yard at the wrong time (accidents happen), check for any abnormal behaviour or symptoms and contact a veterinarian if need be.'*<sup>22</sup>

Abnormal behaviour includes: vomiting, diarrhoea, hyper-salivation, shaking, convulsions. Smaller and more vulnerable animals may die.

Home-gardeners are warned to wear gloves when applying Round-Up and to wash hands afterwards. Of course slow worms, beetles and bees are not able to access soap and water to remove the substance should accidental spraying occur.

Glyphosate spray is considered 'easy to use', but it is less easy to use correctly and safely. This is why operatives are required to undertake PA6A and PA6WA training – for their own safety and to reduce other risks. Other risks include:

- Rain-related mis-timing. Glyphosate is not only less effective if rain occurs within 48 hours of its application; it also leaches into nearby soils and washes off into drains and waterways, posing a threat to soil-based and aquatic life;
- In windy conditions, 'misting' onto nearby foliage;
- Accidental spraying of non-targetted plants;
- Accidental spraying of hidden invertebrates;
- Accidental spraying of animals such as hedgehogs and slow worms;
- Spraying at the 'wrong' time of year, particularly at peak flowering, when insects seeking food will alight on treated plants, due to county-wide schedules.

Despite training (all operatives should have PA6A and PA6WA certificates, updated every three to five years), as the Round-Up website itself notes, 'accidents happen'. Correct and optimum use of glyphosate is actually quite difficult to achieve in the UK where weather conditions are rarely consistently warm, dry and still for the average 48 hours specified post-application best practice.

Then there is cost. Glyphosate is presented by advocates as the most 'cost-effective' system. As the grids above show, however, there are cost-effective alternatives.

Lewes District has banned glyphosate in all but the most extreme cases of invasive species (and even then seeks alternative treatments). This resulted in their contractor purchasing a hot foam system, which is used for Lewes District work 30 days a year and on other contracts the rest of the time. There are fewer weather – and related safety – restrictions for hot foam, so it is a more flexible system than glyphosate.

While hand and mechanical removal are certainly more expensive in the short term, in the longer term, removal of weeds and seeds will reduce their re-establishment. Even where roots are difficult to lift, repeated weeding of stems and leaves weakens the plants.

### **Ensuring policy coherence, applied in the new Highways maintenance contract**

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<sup>22</sup> <https://rug.hrocdigital.co.uk/news/can-i-use-a-weedkiller-if-i-have-dogs-or-cats>

ESCC has committed to reducing the mowing and strimming of verges as a step towards reducing biodiversity loss, and yet continues to use a herbicide that kills the same insects on paths and kerb edges that it seeks to save on proximate verges. ESCC's Environment Strategy notes that our water is contaminated 'mostly' due to 'historic farming practices' – in other words, the heavy use of chemical fertiliser, pesticides and herbicides:

*the quality of some ground waters, which provide about 70% of drinking water, has decreased due to rising nitrate levels, mostly due to historic farming practices.* <sup>23</sup>

This motion will ensure there is coherence between policy and practice.

ES Highways explain that they follow the guidance for application of the product. Unfortunately, this guidance may include phrases such as: 'Treat established perennial weeds at the start of flowering to give best results' (Roundup® Ready-To-Use Label, cited in BES study by Straw, Carpentier and Brown (April 2021)).<sup>24</sup> This is, of course, exactly the point at which plants have a high level of attractiveness to pollinators, thereby causing the greatest likelihood of individual poisoning and, in the case of social pollinators such as honeybees, taking toxin-laden pollen back to the hive.

Our unified County should not be pitting town aesthetics against the survival of arable farms, vineyards and orchards. In our towns, insect foraging areas are likely to be road and pavement verges and other 'corridor' grass and wildflower areas. Where there is intentional planting of pollinator-friendly plant species, and accompanying or following spraying of edges, we are effectively luring to their death the very pollinators we are desperate to save.

This latter point is made plainly in correspondence and photos sent in by Lewes resident, Peter Heslip:

*We were recently taking small pleasure at the way that highways respected our new wildflower verges. Also how the allotment behind Highdown road has gone pesticide free. But using roundup within the pollinator cachement would seem to undermine all this good work. From the photos below you will observe: 1) the spray is within a foot of many flowers attracting bees who will undoubtedly be exposed to the poison. 2) the spray is not being 'targeted' but rather blanket sprayed right down the road.*

*For our town is there an option of using the foamstream machine we own more widely across the town? Presumably the two complications are administrative responsibility and cost. But surely with a bit of focussed energy these are not insurmountable?*



ESCC is soon to establish a new contract for Highways maintenance, with 'Option B' – a contract that includes all aspects of Highway maintenance provision, including management of pavements, kerbs, gutters and verges – the likely outcome. This is the perfect opportunity to adopt a fit-for-future approach and to proactively seek contractors offering herbicide-free provision. Such provision would reduce the need for PA6A and PA6AW qualified (although these are lifelong qualifications, operatives are legally obliged to retrain every three to five years) and would increase the need for staff trained in wildflower recognition and best soil, water and plant sustainability practice. A number of local organisations might provide training, with ESCC/Highways contractor thus investing in the local economy.

#### **A small but important example of bad practice**

Officers and some Members will know Lesley Healey as secretary of Wildflower Lewes. She and the Wildflower Lewes group, in coordination with East Sussex Highways have worked incredibly hard to expand the pollinator friendly areas in Lewes and has collaborated with other wildflower groups across the County. She is enormously generous with her time and knowledge. I was mortified to receive an email from her, having that very day publicly noted ES Highways' more pollinator friendly verge-trimming practices.

Lesley Healey says:

*On 24th June, Highways' contractor sprayed glyphosate along Nevill estate pavement margins, including quite large groups of wildflowers that the verge mowers had deliberately left uncut elsewhere.*

*Today, I discovered these Toadflax Brocade moth caterpillars [image below] clinging to the very ends of dying purple toadflax, looking for food. I rehomed them, of course, onto purple toadflax plants in uncut verges, but these are just a small number of the thousands of animals that have died or will die because you have killed their food plants.*

*Ironically these are the very animals that would reduce the plants for you, had you left them alone.*



### **Addressing a crisis requires clear leadership and consistent policy**

- Increasing numbers of Councils and government bodies at all levels and around the world, have banned or heavily restricted the use of glyphosate, including Lewes District Council. Other weed control practices are being used across the District and LDC's contractor has invested in a hot foam system.
- ESCC has indicated concern regarding the use of glyphosate herbicide treatment, having committed to reducing its use, particularly in green spaces. That reduction is welcome: however, where it continues to be used, it still poses a hazard for animals and people. To ensure consistent environment and biodiversity policy and practice, and to be seen to be coherent, the leadership that decided to decrease glyphosate spraying should simply ban its use altogether.

### **Where can you find out more?**

I am very happy to talk about the different aspects of this Motion with Members, Officers and Staff.

Links for all the articles, chapters and studies cited are provided in the footnotes.

**Cllr Dr Wendy E Maples**

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Phone: 07769838698

**SRL Environmental Maintenance**

**Risk Assessment**

**TASK: Specialist Vehicle/Compact Mini Tractor/Knapsack** **APPENDIX 2**

**CLIENT: COSTAIN CONTRACT: Highway Weed-control. SITE: Highway hard surfaces- kerb edges, kerb channels, footways, & associates obstacles**

	HAZARD TYPES & CLASSIFICATION OF RISK	Without Controls			EXISTING CONTROL MEASURES/GUIDANCE	With Controls		
		L	C	Total		L	C	Total
1	<p><b>Poor storage of herbicides</b></p> <p>Contamination of operator, other employees, client staff, members of the public, pets, other herbicide, vehicles, plant and PPE.</p> <p>Personal injury, pollution</p>	4	3	12	British Standards Inspection Scheme (BASIS) registered & certificate herbicide store under the control of BASIS Storekeepers. Vehicle storage to BASIS standards and ONLY to be used by National Proficiency Test Council (NPTC) certificate competent operators (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground CropSprayer Module).	2	3	6
2	<p><b>Poor transportation and handling of herbicide</b></p> <p>Contamination of operator, other employees, client staff, members of the public, pets, other herbicide, vehicles, plant and PPE.</p> <p>Personal injury, pollution</p>	3	4	12	<p>Vehicles with herbicide storage conforming to BASIS requirements. Specialist herbicide bins secured to vehicle body within goods compartment.</p> <p>ONLY to be used by NPTC certificate competent operators, (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module).</p> <p>Vehicles with bulkhead (vapour, liquid proof screen) between driver and goods compartment.</p> <p>All vehicles to be locked when unattended.</p> <p>Training, briefings and tool box talks</p>	2	4	8
3	<p><b>Movement of tractor within support vehicle while in transit</b></p> <p>Tractor ejection through goods compartment rear doors or crashing in to or through front bulkhead.</p> <p>Personal injury to employees, client staff, members of the public.</p>	5	5	25	<p>Prior to vehicle transit tractor always to be secured by the utilisation of the high load capacity webbing straps that are permanently attached to vehicle framework.</p> <p>Training, briefings and tool box talks</p>	2	5	10

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		L	C	Total		L	C	Total
4	<p><b>The loading &amp; unloading of tractor from support vehicle.</b></p> <p>Tractor wheels coming off ramps when driving out of or reversing in to the support vehicle.                      Personal injury to operator, other employees, client staff, members of the public.</p>	5	4	20	<p>When driving the tractor from or in to support vehicle the operator shall utilize purpose built wheel guiding, high edged ramps c/w solid fixed mounting points for attachment to the vehicle body floor.</p> <p>Training, briefings and tool box talks</p>	2	4	8
5	<p><b>The incorrect setting up and preparation for spray operations.</b></p> <p>Over/under dosing of target with herbicide.                      Personal injury, contamination. Pollution                      Person at risk - Operator</p>	5	3	15	<p>ONLY to be carried out by NPTC certificate competent operators, (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module). Follow appropriate calibration procedures.</p> <p>Spill kits are to be carried at all times on support vehicles for fuel/herbicide spillage</p> <p>Training, briefings and tool box talks</p>	2	3	6
6	<p><b>The herbicide application operation.</b></p> <p>Contamination of operator, other employees, client staff, members of the public and pets. Contact with equipment, vehicle, and street-furniture.                      Personal injury, contamination, impacts</p>	5	4	20	<p>Utilisation of ONLY NPTC certificate competent operators, (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module).</p> <p><b>HOLD POINT</b></p> <p>Operator to be continually aware of their immediate environs, looking ahead to monitor, interrupt and make judgment on the safest and best method of application to satisfy the contract specification.</p> <p>Training, briefings and tool box talks</p>	2	4	8

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	HAZARD TYPES & CLASSIFICATION OF RISK	Without Controls			EXISTING CONTROL MEASURES/GUIDANCE	With Controls		
		L	C	Total		L	C	Total
7	<p><b>The use of tractor hand-lance</b></p> <p>Un safe control of tractor.</p> <p>Personal injury to operator, other employees, client staff, members of the public</p>	3	4	12	<p>ONLY experienced NPTC certificate competent operator (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module) apply herbicide following NPTC protocols/procedures. Hand-lance use should preferably be when the machine is stationary but may be used in certain situations while in motion where a visual risk assessment shows that it is safe to do so.</p> <p><b>HOLD POINT</b> Check wind strength, public activity</p> <p>The Plant Operator to be continually aware of their immediate environs, looking ahead to monitor, interrupt and make judgment on the safest and best method of application to satisfy the contract specification.</p> <p>The hand lance will only be used to spray around obstacles on the pavement and in the channel while the tractor is moving when the other fixed nozzles are not appropriate. Such obstacles could include parked cars and also when the targeted weed growth within the channel is being shadowed/missed when being treated by a fixed boom nozzle from the pavement.</p> <p>Kerb channel weed growth should preferably be treated by a targeted boom nozzle application from the carriageway. A visual risk assessment must be carried out initially to ascertain plant operator safety from working in live/open traffic before this method of application is adopted. If deemed unsafe treatment to be carried out from the pavement.</p> <p>For a hand-lance to be used safely in motion the situation must comply with the following criteria</p> <ul style="list-style-type: none"> <li>Utilisation of engineering controls for single hand operation. The fixed ball spinning knob on the steering wheel <b>MUST</b> be used when undertaking hand lance application to maintain safe control of plant whilst in motion.</li> <li>Use <b>ONLY</b> when the operational public safety distance on footpaths is maintained at 5m (spray operation to cease until footpath clear).</li> </ul> <p>All large obstacles to be treated while the tractor is stationary e.g. Letter boxes, telephone boxes</p> <p>Staff awareness training, briefings and tool box talks.</p>	2	4	8

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		L	C	Total		L	C	Total
8	<p><b>Terrain</b></p> <p>Overturning on slopes, herbicide movement in spray tank, unbalanced unit.</p> <p>Impacts. Personal injury. Contamination to Operatives</p>	4	4	16	<p>Tractor speed on footpath NEVER to exceed 8kph.</p> <p>Tractor speed on highways NEVER to exceed 12 kph.</p> <p>Tractors ONLY to be operated on flat surfaces. Tractors NEVER to transit across slopes in excess of 1:6. Tractors ONLY to utilise drop down kerb edges to access/egress footways. All pavements WITHOUT DROP DOWN KERBS TO BE LEFT and recorded to be treated at a later date by knapsack.</p> <p>Tractors are restricted to spraying on flat surfaces. Tractor operation under this risk mitigation measure is risk assessed as 'low risk' of overturn. Tractors working under this risk mitigation measure the provision of Roll over Protection/ROPS and the retrospective fitting of lap belts are not fitted.</p> <p>Experienced NPTC certificate competent operators, (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module).</p> <p>Staff awareness training, briefings and tool box talks.</p>	2	4	8
9	<p><b>Traffic</b></p> <p>Impacts-being struck by other vehicles on the road, being struck by vehicles exiting driveways across the pavements. Personal injury to Operatives</p>	4	4	16	<p>Hi-Viz PPE clothing (As specified by client).</p> <p>2 x Flashing Yellow LED Xenon warning 360-degree Beacon Lightbar Strobe (24 bulbs) and mandatory blue directional arrow and hazard warning signage "weed spraying" fitted to tractors.</p> <p>Illuminated tractor Headlights.</p> <p><b>HOLD POINT</b> Suitable TM to be in place</p> <p>The Plant Operator to be continually aware of their immediate environs, looking ahead to monitor, interrupt and make judgment on the safest and best method of application to satisfy the contract specification and comply with risk mitigation.</p> <p>Experienced NPTC certificate competent operators, (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module).</p> <p>Follow Chapter 8 principles</p>	2	4	8

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	HAZARD TYPES & CLASSIFICATION OF RISK	Without Controls			EXISTING CONTROL MEASURES/GUIDANCE	With Controls		
		L	C	Total		L	C	Total
10	<p><b>Disposal of surplus concentrate or diluted spray mixture</b></p> <p>Pollution to the environment.</p>	4	2	8	<p>Never mix up more dilute herbicide than you will use up that day, better to be short and finish off with an individual knapsack mix. Any surplus tank mix to be used on the next job All empty containers must be returned back to the depot along with any packaging and disposed of in the skip(s) provided. Any concentrate herbicide not used on a job, must be returned back to the store and booked back on to store stock register All empty containers are to be triple rinsed and returned to depot for the correct disposal.</p> <p>Follow NPTC, (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module) protocols</p>	2	2	4

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		L	C	Total		L	C	Total
12	<p><b>Public Interface</b></p> <p>Potential/perceived spray drift</p> <p>Contamination to general public</p>	4	3	12	<p>Treatment to high sensitivity areas, high foot traffic areas, environs of school etc. to be carried out in accordance with SRL Guidelines Herbicide Application Neighbouring Areas. Treatments to be undertaken early morning/weekends/school holidays etc. If necessary re schedule timing of treatment.</p> <p>Operational public safety distance on footpaths to be maintained at 5m</p> <p><b>HOLD POINT</b></p> <p>Operator to be continually aware of their immediate environs, looking ahead to monitor, interrupt and make judgments on the safest and best method of application to satisfy the contract specification. Keep road/footpath accesses as open &amp; clear, stop operations and allow passage of pedestrians.</p> <p>All operatives shall at all times be courteous to all members of the public regardless of their attitudes. If questioned operators should stop, turn off their tractor and provide the main office number for any queries to be answered.</p>	2	3	6

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13	<b>Adverse Weather Conditions</b> Sun burn, dehydration, overheating, cold and wet Herbicide drift, wash off  Personal injury to Operative	5	3	15	Sun protection creams must be worn. Staff awareness training, tool box talks. Spraying does not continue in extreme weather. PPE and water is provided (free of charge) and water breaks to be programmed in to the Schedule of Works.  Operators to cease application in wet weather and high winds to avoid drift. Follow NPTC guidelines.  <b>HOLD POINT</b>  To minimise spray drift, low drift nozzles are set at the lowest optimum height and a vegetable oil is added as an approved adjuvant to the formulation to increase droplet size, which also reduces the likelihood of drift. (Avoid spraying in unsuitable weather conditions e.g. When wind speed at nozzle height is greater than scale 2.5 (15km/hour) on the Beaufort scale).  Staff awareness training, briefings and tool box talks	2	3	6		
		<b>Without Controls</b>		<b>EXISTING CONTROL MEASURES/GUIDANCE</b>			<b>With Controls</b>			
<b>HAZARD TYPES &amp; CLASSIFICATION OF RISK</b>		<b>L</b>	<b>C</b>	<b>Total</b>				<b>L</b>	<b>C</b>	<b>Total</b>

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14	<b>Safety of herbicide and area of use</b>  Incorrect choice of herbicide  Failure to fulfill contract obligation  Potential environmental damage, pollution, injury to operator, other employees, client staff, members of the public and pets	4	3	12	SRL only use BASIS certificate advice on herbicide selection.  <b>For COSTAIN</b> <b>Herbicide:</b> Gallup Amenity. Application rate as per label Max. 5 ltr per 10000m2 (360g/ltr Glyphosate) <b>Adjuvant:</b> Green Oil. Rate 2% of diluted solution (950g/ltr Rape Seed oil)  NPTC certificate competent operators, (Pa1, Foundation Module, Pa6a, Knapsack Module, Pa2a, Ground Crop Sprayer Module). Herbicide application in accordance with product label and compliance with EU sustainable use directive 2009/128/EC, Regulatory Update 42/201. Tractors to spot and sectional spray only. Blanket spraying is NOT acceptable, apart from odd areas where weed growth is overall, for example: Slab/brick set areas with a high percentage of weed growth in cracks  Staff awareness training, tool box talks  MHSDS and COSHH Assessments are held in vehicle safety file	2	3	6		
									15	<b>Poor maintenance and checking spray equipment</b>  Under/over dosing of target. Contamination and pollution to the environment.  Personal injury.
<b>HAZARD TYPES &amp; CLASSIFICATION OF RISK</b>		<b>Without Controls</b>			<b>EXISTING CONTROL MEASURES/GUIDANCE</b>			<b>With Controls</b>		
		<b>L</b>	<b>C</b>	<b>Total</b>				<b>L</b>	<b>C</b>	<b>Total</b>

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16	<p><b>Site hazards, slips and trips</b></p> <p>Personal injury to Operative</p>	3	4	12	<p>Staff awareness induction, training &amp; tool box talks Environmental &amp; H&amp;S Toolbox Talks Directory, S 128 Slips, Trips, Falls and Voids GH02 Underfoot conditions, keep walkways clear.</p>	2	4	8
17	<p><b>Noise</b></p> <p>Personal injury, hearing loss to Operative</p>	3	3	9	<p>Ear defenders must be worn as the operation of the tractor has noise levels of between 82 and 84 dB Ear protection provided free of charge Staff awareness training, tool box talks</p>	2	3	6
18	<p><b>Access Egress: Vehicle and Tractor</b></p> <p>Personal injury to Operator</p>	3	4	12	<p>Maintain three-point contact at all times while boarding or alighting.</p> <p>A three-point contact means that two hands and one foot are used to position the body for safe boarding or alighting. Two hands are gripping secure hand-holds or handles while one foot is safely supporting the body's weight during boarding or alighting. The three-point contact should be broken only after reaching the desired destination: ground, vehicle cab, stable platform, exit from operational machine to be in a backward motion maintaining the three point contact.</p> <p>Do not enter and exit or ascend and descend moving equipment.</p> <p>While entering or exiting, movement should be slow and steady to avoid injury from slips, falls, and striking other objects.</p>	2	4	8

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19	Manual Handling	3	4	12	Staff Induction, awareness training and tool box talks	2	4	8
	Personal Injury to Operator				Environmental & H&S Toolbox Talks Directory. S003 Manual Handling, SRL Employee Operators Induction Manual HSQE AWARENESS Introduction to Manual Handling <ul style="list-style-type: none"> <li>• Mechanical Lifting and Safe Lifting Procedures, if in doubt, stop work and consult appropriate appointed person or Supervisor.</li> <li>• Safe Lifting Procedure, always undertake a test lift to assess capability.</li> </ul>			

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## Appendix 3 - Alternative weed maintenance solutions

### Foam Stream

Foam Stream is a low-pressure process, combining heat with biodegradable foam. The highest output for Foam Stream is 700m<sup>2</sup> per hour. This equvalates to 5,600m<sup>2</sup> per day compared to 35,200m<sup>2</sup> with Gallup.

One of the main issues the Highways Service would have with Foam Stream is the frequency the device needs to refill with water. And that either a tanker will need to follow the machine, or it will need to go back to a depot to refill.

Negatives	Positives
<ul style="list-style-type: none"> <li>• Frequent need to refill water</li> <li>• The machine is expensive</li> <li>• It is diesel operated (although LPG versions are possibly available)</li> <li>• The machine is large – meaning it is difficult to access some areas. It comes with a 60m hose</li> <li>• It is quite noisy – not appropriate around housing areas</li> <li>• It is quite slow to use and set up</li> </ul>	<ul style="list-style-type: none"> <li>• It does not use chemicals</li> <li>• It can be used all year round</li> <li>• It can also be used for graffiti removal</li> <li>• It is great for killing moss etc on hard surfaces / play area surfacing</li> </ul>

### Hand Weeding

Hand weeding is an option which requires an increased amount of resource for a slower process. It is also important the whole plant is pulled, if the area is dry it is more likely the plant could snap resulting in the root being left and the weed re-growing quickly.

It can also result in grout being removed, in turn causing trip hazards on the highway.

Negatives	Positives
<ul style="list-style-type: none"> <li>• Increased cost</li> <li>• Increased resource</li> <li>• Slower process</li> <li>• Quicker regrowth</li> <li>• Potential trip hazard</li> </ul>	<ul style="list-style-type: none"> <li>• It does not use chemicals</li> <li>• It can be done all year round</li> <li>• Immediate results</li> </ul>

## Acetic Acid (Vinegar)

Acetic acid causes rapid breakdown/desiccation of foliage tissue on contact. The acetic herbicides usually consist of between 10-20% vinegar.

Acetic acid (Vinegar) has been tested in a railway environment. It was seen to be effective at 12% concentration but required more treatment and higher doses compared to herbicide use.

From discussions with Kent County Council who trialled the method, they highlighted that it was not a success as it only treated the top growth with several visits, although they found it worked well on moss.

Negatives	Positives
<ul style="list-style-type: none"> <li>• Will kill or damage any plants they touch.</li> <li>• Weeds must be small (timing is important – within 2 weeks of germination)</li> <li>• Roots are not killed; repeat applications are needed for larger weeds and perennial weeds</li> <li>• Sharp vinegar odour may be unpleasant</li> <li>• Corrosion of equipment.</li> <li>• Spray drift may damage desirable plants.</li> <li>• Should not be applied to reactive metals.</li> <li>• Spraying masonry sidewalks and structures can cause these surfaces to stain, mottle, harm the finishes or surfaces.</li> <li>• Treatments must be delayed 24-48 hours or more after rain and should not be done any more than every two weeks.</li> <li>• Severe eye / skin irritation, burns, and possible irreversible damage potential. Vinegars with acetic acid concentrations of 11% or greater can burn the skin and cause severe eye injury, including blindness. Prolonged or repeated exposure may cause dermatitis, chronic bronchitis, and erosion of teeth</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent control when contacting very small annual broadleaf weeds</li> <li>• Rapid kill rate (Over 90% of treated plants should die within 24hours).</li> <li>• Acetic acid products break down quickly in the environment</li> <li>• Most useful for managing weeds in gravel and on patios/sidewalks.</li> <li>• These contact herbicides fit into an integrated pest management program, although weeds require monitoring for best control timing.</li> <li>• Nonselective, but mainly kill broadleaf weeds. Burns back grasses temporarily.</li> </ul>

## Thermal

Infra-red and Flame treatment heats up the vegetative parts of the plant rapidly and mainly destroy the surface parts of the weed but not affecting the roots. These methods do not require a pesticide specified certificate as listed on the HSE website. However, operatives would need to be trained and competent in the use of these methods and equipment and in particular the health and safety implications.

Weeds vary in their response to such heat control, with newly emerged or small weeds, or weeds with small root reserves, being more likely to be killed by heat, but well-established weeds, perennial weeds and weeds with substantial root systems being less affected.

For the highways service, this method is not something that could be used around parked cars and would not be appropriate in populated urban areas.

Negatives	Positives
<ul style="list-style-type: none"><li>• Tap rooted weeds can re-emerge after approximately two weeks.</li><li>• Repeated treatments necessary.</li><li>• Well established weeds less affected.</li><li>• Not able to treat all areas, e.g., around parked vehicles</li></ul>	<ul style="list-style-type: none"><li>• No pesticide used.</li></ul>

## Mechanical

Mechanical methods consist of either brushing/weed ripping, mowing and strimming, can remove the root along with it, but requires cleaning up and sweeping once the work is done. Wire brushes are the most common mechanical method used; however, this requires access which might be challenging in urban areas.

Negatives	Positives
<ul style="list-style-type: none"><li>• Tap rooted weeds can re-emerge after approximately two weeks.</li><li>• Access to weeds</li></ul>	<ul style="list-style-type: none"><li>• It does not use chemicals</li><li>• It can be done all year round</li></ul>

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## Appendix 4 – Potential Trials for Highways in 2022

ESCC Highways are currently reviewing the following alternative weed maintenance techniques with the potential to trial in select areas for 2022:

- Foam Stream - Although this will not work as a wider approach, the trial would be undertaken on specific areas where this technique will be most efficient.
- The opt out approach
  - The opt out approach would give streets the option to 'opt out' of weed spraying. This would be done with the expectation that all members of that street agree and that they would in place undertake some sort of weed maintenance. An agreement, or guidance would be included outlining safety and expectations. This would only be an option on cul-de-sacs or residential roads with low-speed limits. This approach is already being used by Manchester City Council and Exeter City Council.
- Reactive Weeding
  - Another option is reactive weed maintenance, rather than programmed works. This would work on the same principle as other highways reactive services, such as potholes, whereby ESCC would only attend to weed control when areas are identified by a highway steward inspection or by customer report. This would require defining when an area becomes a safety issues due to amount or size of weeds. The method of control would vary depending on location.

Note: moving to a reactive approach would lead to a deterioration in asset condition if regular treatment is not undertaken.

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