Landscape Ecology & Aftercare Strategic Procurement Strategy

Executive Summary
- Executive Summary
- Engagement Matrix
- Key Aims
- Delivery to Business Objectives
- Our Ask/Request

Category Profile
- Category & Product
- Snapshot on Future Vision
- High Level Plan
- Rollout of Solutions
- Next Steps
- Carbon Net Zero

Business Need
- Category Profile
- Statement of Need
- Historical Spend
- Future Forecast Spend
- Product Descriptions & Innovations

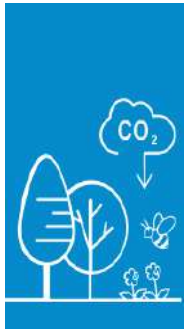
Market Intelligence
- Supply Chain Mapping
- Market Insight & Landscape
- Supplier Capability & Capacity
- Key Supplier Risks
- Risk Map

Strategic Approach
- Category Opportunities
- Recommendation
- Summary of Savings
- Our Ask/Request

Annexes
- Supporting Evidence

Executive Summary – Landscape Ecology & Aftercare

Summary:
NH has a soft estate of around 30,000 hectares of land, equivalent to the size of the Isle of Wight. Running adjacent to our roads are diverse landscapes, home to a wide range of plants, species and habitats, which all contribute to the biodiversity of our estates.
It is essential we carry out aftercare, maintain and enhance our soft estates, protect habitats and allow ecosystems to flourish and create positive impacts on the environment.
All Major Projects schemes are managed by Tier 1 contractors, when the schemes are completed, maintenance is handed over to Asset Delivery to manage and maintain.



Challenges

- **Carbon** *On construction sites we face many ecological footprint challenges in conservation activities and natural resource management*
- **Aftercare:** *Schemes have varying aftercare periods which have been significantly reduced over the last 10 years, there is a need to ensure new planted areas successfully establish for the long term and mitigate against planting failures as they occur. As seen on A14 scheme* ***(see slide 37)***
- **Safety:** *Reduction in aftercare periods lead to quicker deterioration of the soft estate and in some cases, escalation of safety risks e.g. A49 Avonmouth grassland retaining walls resulted in large volumes of soil falling in to the carriageway* ***(see slide 38)***
- **Performance:** *Landscape and Ecology is currently not specified as a standalone asset class within Asset Delivery, meaning there are no defined performance metrics or KPIs to incentivise the proactive management of our soft estates*
- **Opex Funding**: *A year on year reduction in annual maintenance funding has led to the de-prioritisation of our soft estates as other activities compete for allocation of budget funding e.g. 45% reduction in funding from 2009 to 2021 (£486m to £267m)* ***(Shown on slide 40)***
- **Supply Chain:** *Dominance of supply market by major players results in high barriers to entry and increased competition for regional SMEs* ***(see slide 26)***
- **MP/OD Transition**: *Difficult transition of soft estate from Major Projects to Operations due to lack of engagement during the design phase and misalignment of expectations* ***(see slide 41)***

To fully address the challenges and to align with our imperatives the strategy recommendations are as follows:

- **Funding:** *Review Opex budget funding allocation process to better understand the reasons for soft estate de-prioritisation*
- **Aftercare:** *A minimum 5 year aftercare period standard to be introduced across all MP schemes to ensure effective and sustainable establishment of newly planted areas as well as a reduction in planting failures following transition to Operations*
- **Accountability:** *Introduction of environmental KPIs and SLAs to incentivise supply partners to report and deliver against defined performance metrics for soft estate condition*
- **Supply Market:** *Proactively support the development of local/regional SMEs to become the supply chain partners for the future*
- **Green Agenda:** *Alignment with AD and SES Land use Strategy to capitalise on untapped opportunity for Investment in carbon reducing technology such as solar power generation on our soft estate as well as incentivisation to increase biodiversity through more diverse landscapes*
- **MP/OD Transition**: *Review process to identify & implement improvements and enable early engagement of OD prior to transition from MP*
- **Social Value:** *Investment in social value through industry development , growth of SME's and review our land to help support local communities*

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Engagement Matrix for Strategy & Approach

Stakeholder Engagement – http://share/Share/llisapi.dll?func=ll&objaction=overviewversion&objid=91984919&vernum=2

Operations

Peter Williams- Environmental Manager (SWAD)

Gareth Wilson- Environmental Manager(EMAD)

Dan Palmer- Landscape Manager (EMAD)

Major Projects-CIP

Derek Parody- Project Director CIP A303

LTC

Eve Herrington- LTC Project Manager

Shirley Henderson - LTC Environment Director

SES

Ivan LeFevre - Group Manager

Henry Penner- Policy Advisor

Sheena Crombie- Environment Advisor & Biodiversity Lead (North)

Stuart Wilson- Mids and SW Environmental Team Leader

C&P Procurement

Gavin Cooper- RIP Framework Manager

Steven Cooper –CPD Procurement CIP

Christian Birkett Procurement Officer CIP

C&P Commercial

Michael Steele- Senior Commercial Modelling Manager

Nikki Brown - Head of Commercial Delivery (North)

Robert Baker - Head of Commercial Delivery (South)

C&P Strategic Procurement

Claudia Elliott- Head of Category Mgt- Civils & Enabling

Chris Bethel – Head of Supply Chain Intelligence

Jen Ebanks- Group Head of Category Mgt &SRM

Sanyalax Morrison- SPD Director

Business Area/Investment Programme:	Individual & Role:	Review:	Date:
Executive Team – Panel Chair	Malcolm Dare - Executive Director C&P	Approval meeting	
MP – CIP	Derek Parody – Senior Responsible Officer (SRO)	Approval meeting	
C&P Leadership Team	Sanyalax Morrison- Strategic Procurement Director	Approval meeting	
C&P Leadership Team	Andrew Stephenson - Procurement Director	TBC	29.11.21
C&P Leadership Team	Martyn Gannicott – Commercial Services Director	TBC	29.11.21
C&P Leadership Team	David O'Neil – Supply Chain Director	TBC	29.11.21
C&P Leadership Team	Mark Ollerton – MP Commercial Director	TBC	29.11.21
C&P Leadership Team	Richard Cerruti – Operations Commercial Director	TBC	29.11.21
C&P Leadership Team	John Farley – Improvement Director	TBC	29.11.21

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Key aims of the Strategy Landscape Ecology Aftercare

Carbon : NH's reputational enhancement through successful delivery of net carbon zero targets. Achieved through alignment with tree planting strategy and promoting the full potential of our soft estate to deliver to biodiversity and achieve net zero gains

Aftercare: Implement consistent long term aftercare periods across all delivery programmes as standard. Enable newly planted areas to establish successfully, ensuring sustainable planting outcomes and increased biodiversity

OPEX Funding: Review of the OPEX funding model to ensure funds are dedicated to soft estate and cyclical maintenance to ensure effective delivery to biodiversity and environmental targets to create carbon net gains

Alignment: Define stakeholder accountability and responsibility within MP/OD to create smoother transition process from MP to Operations

Accountability: Alignment with SES to develop and implement KPI's to measure the performance of our delivery partners in relation to the condition of the soft estate

Shape the Market: Embed Category Management within the supply chain to ensure continuous improvement and collaboration for better performance. Review SDF award to understand capacity and capability needs of the wider supply market as well opportunities to promote social value working with SME's and local communities

Category Synergy: Ensure alignment of interdependencies with Tree Procurement Strategy and group together related ideas and create end to end collaboration from early OD input in design phase through to installation of trees and maintenance management

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How will this deliver to the Business Objectives

The problem statements/challenges that are addressed within the Landscape, Ecology and Aftercare strategy can be summarised into the following key themes;
Aftercare Period Long term consistent aftercare period across all regions and programmes; aligned to NH's environmental obligations; and the journey towards biodiversity net gain by 2040.
New OPEX Funding Allocation New regional funding model to support soft estate and maintenance management; consistent funding across all of Operational areas; to align to our environmental commitment.
MP transition to Operations Business process improvement that ensures end to end alignment from design, construction through to handover to maintenance management
Asset Management KPI Performance measurement and Carbon Reduction Alignment with SES to implementation soft estate KPI's performance measuring and carbon reduction technology

Directorate	Benefit/Objectives	Short	Medium	Long term
Operations	***Dedicated OPEX funding for Cyclical Maintenance:*** ***Benefit****: Defined Asset Class for soft estate to ensure prioritisation of funding for maintenance on a cyclical basis. This will allow work to be carried out consistently therefore preventing overgrowth & a reduction in new capex business cases for landscape regeneration* ***Increase Supplier Competition:*** *single supplier dominates Midlands, North and Eastern areas within CWF. Low interest in tenders A13 & A14 only receiving one tender* ***Benefit:*** *Support the development of Tier 2/3 supply base for greater market competition, stronger regional footprint & more flexible, responsive service as well as promoting social value through SMEs*	▪ *Review current environmental funding allocation process & seek solutions to ensure suitable dedicated funding for soft estate & maintenance management* ▪ *Undertake supplier capacity & capability analysis to identify local & regional SME supply partners for future development. Review SDF contract award & assess the contribution towards this objective.* ▪ Review SDF contract award & assess the contribution towards this objective	▪ *Establish dedicated Asset Class for Landscape within Asset Delivery* ▪ *Seek solutions for a suitable regional funding approach which is consistent across all operational areas* ▪ *Alignment with Trees Strategic Procurement Strategy for greater synergy (SPS)*	▪ *Implementation of dedicated Opex funding for soft estate cyclical maintenance management* ▪ *Review reporting against performance metrics for continuous supplier improvement* ▪ *Supply chain development plan for regional SMEs.*
Major Projects	***Minimum Aftercare Period Standard:*** ***Benefit:*** *consistent long term aftercare period standard which ensures successful establishment of newly planted areas, with effective mitigation measures in event of establishment failures.* **Transition Process:** *review & assess the current MP to OD transition process to identify improvements & enable early engagement to prevent misalignment of objectives for aftercare in to cyclical maintenance* ***Benefit:*** *Ensures Major Projects DIPs meet environmental obligations & Environmental Plan expectations and further achieve a smooth & aligned handover to maintenance management*	▪ *Total Cost impact analysis of current aftercare periods of 1-2 years versus aftercare period of 5 years* ▪ *Value stream mapping for MP to OD process to identify key steps & explore potential opportunities to add value*	▪ *Benefit assessment of potential Aftercare Category Management Framework versus current centralised NH self delivery model for end to end aftercare activity* ▪ *Defining a clear accountability & responsibility RACI assignment matrix*	▪ *Ongoing review of new long term aftercare period to quantify cost benefit analysis versus previous operating model* ▪ *Ongoing review of transition process to ensure best practice & continuous improvement*
SES	***Accountability through Performance Measurement*** ***Benefit:*** *drives prioritisation of soft estate maintenance & incentivises adherence to a minimum maintenance standard through KPIs & SLAs* ***Biodiversity & Net Zero Carbon*** ***Benefit:*** *increase in establishment of biodiverse landscapes supports the achievement of Net Zero Carbon through trapped emissions. Utilisation of landscape for carbon offset technology*	▪ *Alignment with Asset Delivery to ensure implementation of an asset class strategy for soft estates for RP3* ▪ *Development of KPI & SLAs for accountability in soft estate management* ▪ *Alignment with Mott MacD on land use strategy to make use of land to increase biodiversity and investment in technology such as solar power*	▪ *Implementation of KPIs & SLAs within MP schemes* ▪ *Collaboration & alignment with SES to explore areas to achieve carbon reduction; new technology which improve carbon sequestration* ▪ *Investment in social value and industry sector development delivering against carbon targets*	▪ *Continuous improvement to ensure achievement of corporate environmental targets for 2030,2040,2050*

How will this deliver to the Business Objectives

The problem statements/challenges that are addressed within the Landscape, Ecology and Aftercare strategy can be summarised into the following key themes;
Aftercare Period Long term consistent aftercare period across all regions and programmes; aligned to NH's environmental obligations; and the journey towards biodiversity net gain by 2040.
New OPEX Funding Allocation New regional funding model to support soft estate and maintenance management; consistent funding across all of Operational areas; to align to our environmental commitment.
MP transition to Operations Business process improvement that ensures end to end alignment from design, construction through to handover to maintenance management
Asset Management KPI Performance measurement and Carbon Reduction Alignment with SES to implementation soft estate KPI's performance measuring and carbon reduction technology

Directorate	Benefit/Objectives	Short	Medium	Long term
LTC	***Minimum Aftercare Period Standard:*** ***Benefit:*** *consistent long term aftercare period standard which ensures successful establishment of newly planted areas, with effective mitigation measures in event of establishment failures* **Transition Process:** *review & assess the current LTC to OD transition process to identify improvements & enable early engagement to prevent misalignment of objectives for aftercare in to cyclical maintenance* **Benefit:** *Ensures DIPs meet environmental obligations & Environmental Plan expectations to further achieve a smooth & aligned handover to maintenance*	▪ *Review of LTC contractual Aftercare period* ▪ *Review existing KPI & SLAs in place for accountability in soft estate management* ▪ *Total Cost impact analysis of current aftercare periods of 1-2 years versus aftercare period of 5 years (if applicable)* ▪ *Value stream mapping for LTC to OD process to identify key steps & explore potential opportunities to add value*	▪ *Ongoing review of Aftercare activities on LTC* ▪ *Ongoing review of processes as LTC scheme progresses*	▪ *Ongoing review* ▪ *Ongoing review of transition process to ensure best practice & continuous improvement*

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Our Ask/Request

Area	Requirement and Accountability
MP	Support for and implementation of an extended Aftercare Period, as well as support to review and improve transition process to OD. Replication of best practice across RIP/CIP & LTC (A&R)
OD	Support our strategy for the prioritisation of dedicated OPEX funding for all soft estate work and general maintenance management across all Operational areas (A&R)
SES	Support the introduction of a standalone asset class strategy for soft estates, driving the business to recognise NH's soft estate as a maintainable 'asset' with associated performance metrics (A&R)
C&P	Responsible to ensure these strategies and improvements are implemented to support the business (R)
LTC	Ensure Operational Environmental teams are consulted at design phase through to end of construction and into operational maintenance management (R)

Note: A = accountable, R= Responsible, I = Informed, C = Consulted

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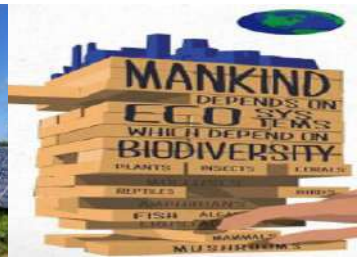
Landscape Ecology and Aftercare

- Landscaping and Ecology can be described as a focus of attention and quality based on aesthetics and spatial aspects an entity with structural elements of patch, mosaic and corridor, with a mix of ecosystems and habitants. Many ecologists consider ‘landscape’ to be any unit of the earth that contains diversity: in vegetation structure, habitat type, soil type or any other attributes meaning organisms can react differently to different parts. Landscapes can be divided into corridors, barriers and edges the scales are different and spatially complex.
- Landscaping aftercare is providing maintenance in order to ensure longevity of the landscapes. Horticulture is fundamental aspect which should be an integral to the design phase of all projects.
  - Maintenance management includes multitude of activities from cutting vegetation, removing invasive weeds, shrub control, woodland thinning, wildflower grass cut, arboriculture work (limb pruning, crown lifting) to rabbit and badger control
  - Road verges provide habitats for grassland species
  - As well as benefits for wildlife, verges can provide commuters contact with nature and serve as buffers against noise and air pollution



Snapshot on our future vision

Short-Medium Term

Collaborative Planning

impacts

Shaping the market

- Review current environmental funding allocation process and seek solutions to ensure suitable dedicated funding for soft estate and maintenance management
- Undertake supplier capacity and capability analysis to identify local and regional SME supply partners for future development. Review SDF contract award and assess the contribution towards this objective
- Total Cost impact analysis of current aftercare periods of 1-2 years versus aftercare period of 5 year
- Alignment with Asset Delivery to ensure implementation of an asset class strategy for soft estates for RP3
- Development of KPI and SLAs for accountability for soft estate management (condition of soft estate)

Medium-Long Term

Improve Procurement Approach

impacts

Shaping the future

- Establish dedicated Asset Class for Landscape within Asset Delivery (currently soft estate not recognised as a asset type)
- Seek solutions for a suitable regional funding approach which is consistent across all operational areas
- Alignment with Trees Strategic Procurement Strategy for greater synergy (SPS)
- Benefit assessment of potential Aftercare Category Management Framework versus current centralised NH self delivery model for end to end aftercare activity
- Defining a clear accountability and responsibility RACI assignment matrix
- Implementation of KPIs and SLAs within MP schemes
- Collaboration & alignment with SES to explore areas to achieve carbon reduction; new technology which improve carbon sequestration

This is a high level overview. Key objectives will be delivered working with stakeholders across all solutions working with key focus groups.

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High-level Plan to deliver Landscape, Ecology and Aftercare Goals

Short-term
(Now)

- Review current environmental funding allocation
- Total Cost impact analysis of aftercare periods of 1-2 years V aftercare period of 5 years
- Value stream mapping for MP to OD process to identify key steps
- Undertake supplier capacity & capability analysis to identify local & regional SME supply partners
- Review SDF & MP contract award & assess the contribution towards this objective

Greater engagement with stakeholders to achieve understanding of funding allocation in RP2 and allocation planning for RP3
Determine cost associated with planting failures with reduced aftercare against longer aftercare terms with reduced risk of failures occurring
Engagement with business to understand current transition process and identify areas to improve process

Mid-term
(RP2, Years 2-3)

Phase 1:

- Seek solutions to ensure suitable dedicated funding for soft estate & maintenance management

Phase 2:

- Alignment with Trees Strategic Procurement Strategy for greater synergy (SPS)

Greater engagement with internal stakeholder to develop business case to accelerate change to current allocations in OPEX
Collaboration with tree working group to put together related ideas to maximise on potential long term effective solutions

Long-term
(Beyond RP2, Years 4-5+)

- Implementation of dedicated OPEX funding
- Establish dedicated Asset Class for Landscape within Asset Delivery
- Clear accountability & responsibility RACI assignment matrix
- Implementation of KPIs & SLAs within MP schemes

Stakeholder dialogue to capture and develop solution based outcomes for these areas. Collaboration with cross functional teams to create alignment to achieve better business wide outcomes

Rollout of Short to Medium Term Solutions

Landscape Ecology & Aftercare
01 .Traffic Management
(Currently analysis with SWAD only)

- Engagement with Environmental teams and programme stakeholders to identify potential opportunities to combine workstreams with cyclical maintenance programmes to reduce TM services

- **See Slide 36 showing calculated cost reduction in the SWAD area only**

Benefits:

- Cost savings
- Increased safety
- Reduced interventions
- Reduced need in TM to achieve cost reduction

Landscape Ecology & Aftercare
02.Call off for professional services i.e ecologists, tree inspector etc

- Potential for National Highways to source professional services on a call off basis as part of a framework agreement, providing commercial and contact assurance

Benefits:

- Cost savings
- Greater commitment to NH's, teamwork & collaboration, greater flexibility and use of resource
- Reduced risk

Next Steps – Landscape Ecology and Aftercare

Actions	Timeline
Look at short term aims prioritise and develop a implementation plan for short/medium term goals	Nov-Dec 2021
Work with SES and AD to develop a business case for dedicated OPEX funding for soft estate and maintenance	Jan-Mar 2022
Work with cross functional teams to gather data and work on value stream mapping for MP to OD transition processes	Jan 2022 Onwards
Continue to work with SES and Operations to collaborate and ensure alignment to our goals	Ongoing

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Category Strategy – Carbon Net Zero (Further investigation required)

Key drivers of carbon emissions in category	Corporate emission	Maintenance & construction emission	Road user emission	Carbon emissions per year associated with key driver [tons of CO2]
Installation and maintenance of soft estate i.e. Plant and equipment used to carry out activities (e.g. Albach Large chipper)		x		Co2 emission data under investigation

Identified measures to address key drivers in category	Expected impact / CO2 reductions [tons of CO2]	Timescale [by MM/YYYY]	What is needed to implement measure (investment/support, etc)?
1. Alternative to plastic tree guards https://www.woodlandtrust.org.uk/about-us/what-we-do/research-and-evidence/plastic-tree-guards/	It takes half a kilo of carbon to produce a single plastic tree guard	TBA	Review product investigations with Woodland trust for deployment with delivery partners
2. Peat free material https://www.ceh.ac.uk/sites/default/files/Peatland%20factsheet.pdf	Peatland 'lockup' 3.2 billion tonnes in the UK alone	TBA	Investment and support for alternative to peat use and deployment across Soft estate/SRN
3. Use of renewable energy i.e. solar panels https://www.nfuonline.com/assets/69296	Floating (medium panels) save 103,000kg of Co2 per year	TBA	Alignment with SES on existing research and investment on NH estates

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Landscaping, Ecology & Aftercare Strategy

Category Profile

Vision: A sustainable environmental approach for a cleaner and greener soft estate to enhance provision of wildlife and reverse the negative impact in biodiversity. A vison for greener roads; for road users –roads that are safer and aesthetically pleasing and for communities a network that enhances their experience leading to greater customer satisfaction

Goals:

- Alignment to the Strategic Business plan to deliver better environmental outcomes by the end of RP2
- Contribute to Biodiversity target of no net loss across all NH activities by 2025
- Alignment to NH carbon target of net zero by 2030, 2040, 2050
- Support Government wider carbon initiatives

Business Need

Scope: The installation, aftercare and maintenance of all existing and future soft estates, habitation and ecosystems across MP and OD programmes

Opportunities:

- to mitigate the risk of planting failures by increasing the current aftercare term, with appropriate funding to support
- Business improvement reengineering to improve environmental teams alignment across Major Projects (MP) and Operational Directorate (OD) from design phase, construction through to handover to Ops
- Alignment with tree procurement strategy; a strategic move for inhouse planting, aftercare management

Market Analysis

Landscape: Tier 1 companies provide landscaping and ecology services as part of a broad portfolio of construction/architectural and related services. The Tier 1 suppliers subcontract landscaping and ecology works to tier 2 or 3 supply base. Tier 2 companies are specialist landscaping and ecology service providers, these companies are midsized firms with presence across the UK and typically self-perform most the works. Tier 3 companies are specialist and are usually smaller to micro companies. Most of these companies typically do not bid for business directly for large, complex organisations such as National Highways, and work via tier 1 or tier 2 companies.

The UK landscaping and ecology market is fragmented. Currently there is a strong established presence of Ground Control, followed by Idverde within AD areas.

Strategic Approach

Objectives	Year 1-2	Year 2-3	Year 4+
New OD funding model	Review current funding model and allocation	Potential development of new model	On going evaluation of cost model
Business alignment development MP/OD	Review current process	Develop of improved aligned processes	Implementation: Greater visibility and transparency of outcomes
Aftercare and strategic direction in-house soft estate operations	Develop the concept	Implement structure	End to end operational management

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Statement of Need

A Safer Network

A safer soft estate

Improving Customer Satisfaction

Beatifying NH's SRN and surrounds for the travelling customer and local communities

Delivering the RIS

A strategy that aligns to the Strategic Business Plan to deliver better environmental outcomes by RP2

The Requirements

- Appropriate aftercare and maintenance to ensure the conditions of trees are safe on and around SRN and to local communities and increase safety for protected species, wildlife and natural habitats.
- Increase safety for personnel working road side and on the NH estates

The Objectives

- For the road customers - roads which are safe and aesthetically pleasing results in enhanced customer satisfaction
- For communities - a soft estate which is well maintained and is litter free improves the visual impact that meets customer expectations

The Challenges

- Current aftercare period which is insufficient to allow successful establishment of tree planting
- Soft Estate funding allocations within Operations affecting project delivery
- Significant number of tree installation challenges leading unsustainable delivery to biodiversity

The Outcomes

- NH's reputation for improving customer satisfaction
- NH meeting/ exceeding environmental targets for no net loss, biodiversity net gains and carbon offset
- Consideration for Aftercare requirements early in the works; effective mitigation against planting failures.
- NH contributing to delivering ~~to~~ biodiversity targets of no net loss across all activities by 2025 & journey toward biodiversity net gain by 2040. Supporting Governments carbon reduction/offsetting initiatives by 2050

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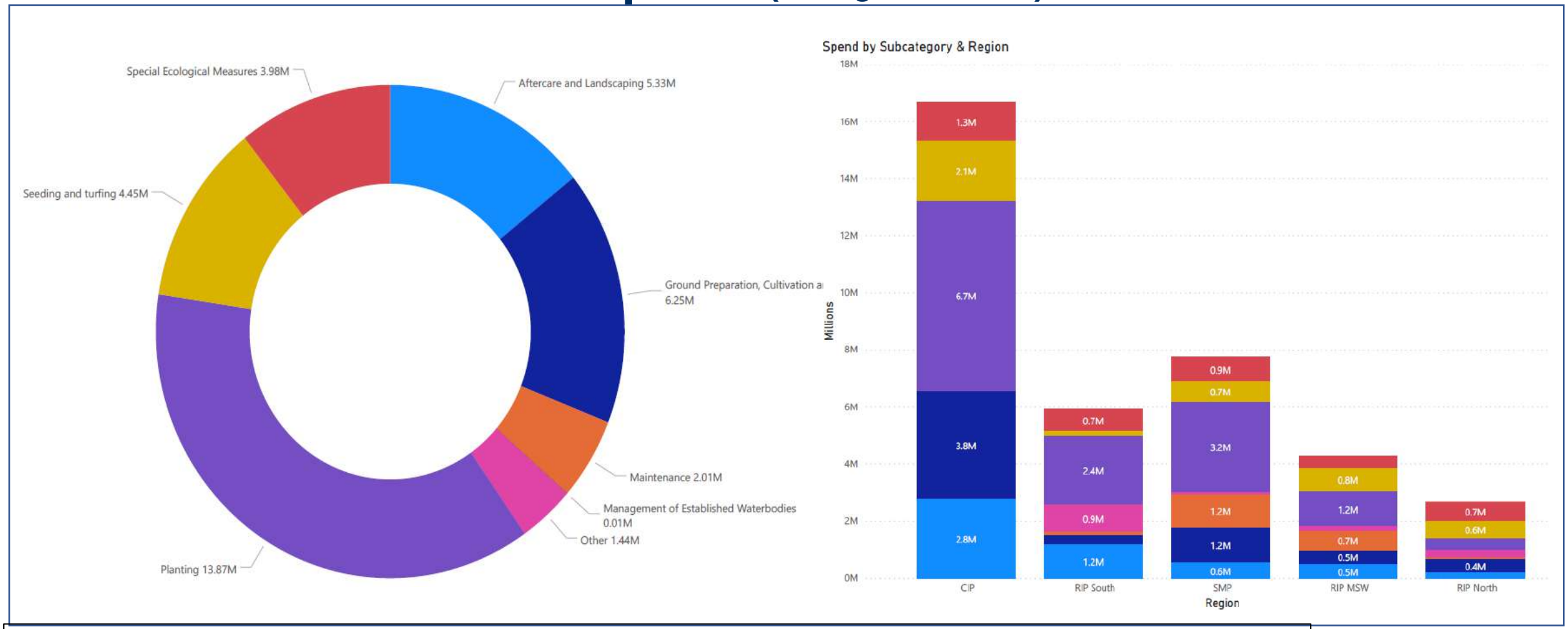
Category and Product – Landscaping and Ecology breakdown –Historical spend (MP Agreed Price*)



Conclusion:
The above analysis is based on agreed Major Project pricing at the start of RP 1 adjusted for inflation
Owing to there being no previous category Management approach, there is little to no direct spend data by supplier available for Landscaping and Ecology category.
CIP is the largest area of spend and this is attributed to A14 upgrade, a significant proportion of spend was on planting to provide environmental benefits for the scheme and the local area.

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Historical Spend- RP1 (based on target prices with inflation adjustment)

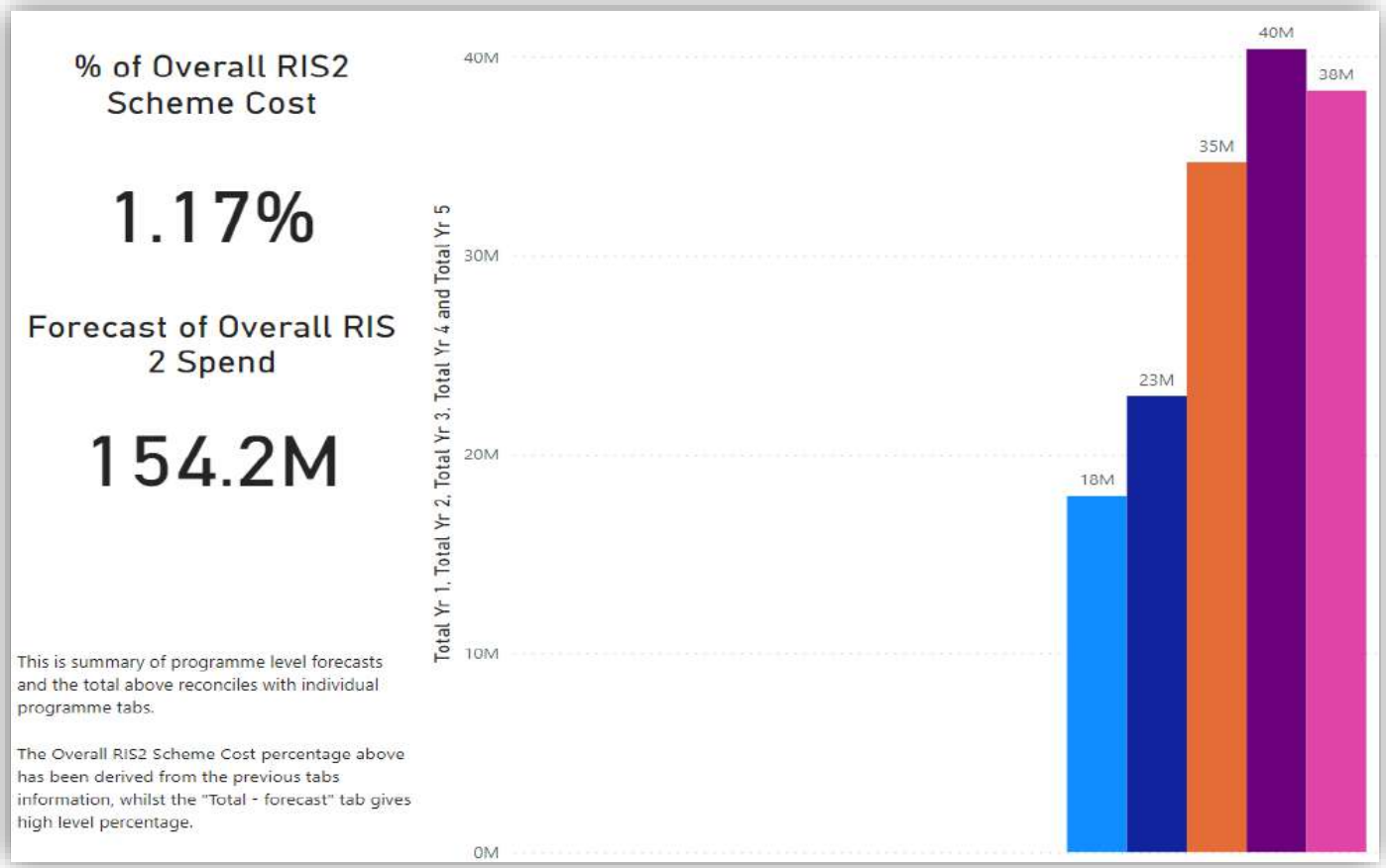
Conclusion:

- Spend data based on NH payment directly to Landscaping and ecology suppliers per scheme

Future Forecast Spend – Landscaping and Ecology

Major Projects Total Forecast Spend

Total Yr 1 Total Yr 2 Total Yr 3 Total Yr 4 Total Yr 5



Conclusion:
The charts above show MP's forecast spend in RIS 2 circa £110.4M (between April 2020 to March 2025) landscaping and ecology category spend representation is just under 1% (0.84%) of the overall capital investment budget.
The future forecast spend is for Major Projects (MP) only and includes the following programmes LTC, RIP, CIP and SMA
The largest spend is within LTC (£54.54M) followed by RIP (£46.54M), RIP (£46.54M) and the least requirement in SMA at (£8.69M)
* The forecasted figures are based on RIS1 actual cost data spend, the percentages are then modelled as equivalents for RIS2

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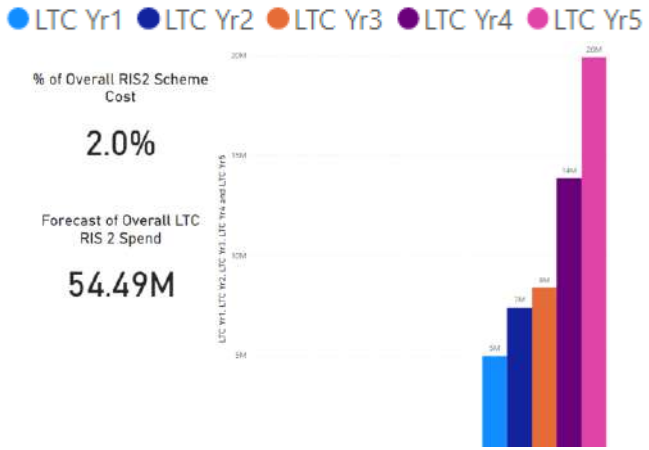
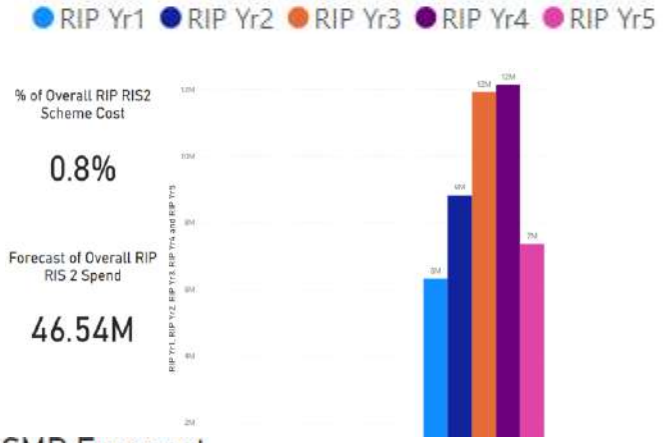
Future Forecast Spend- Landscaping and Ecology

1
Statement of Need
Define the outcome needed by the business and what is needed to deliver it

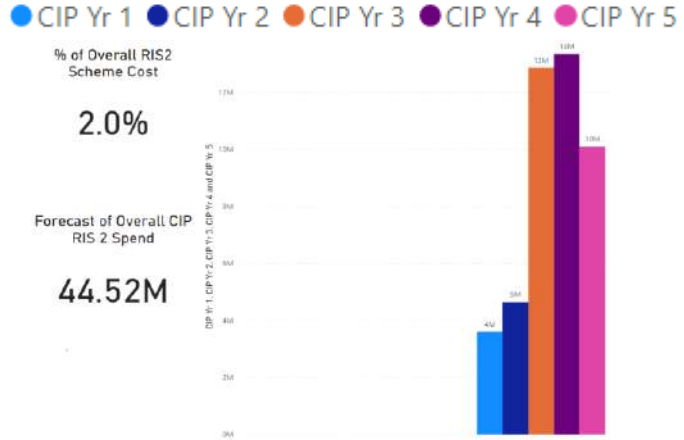
Lower Thames Crossing Forecast



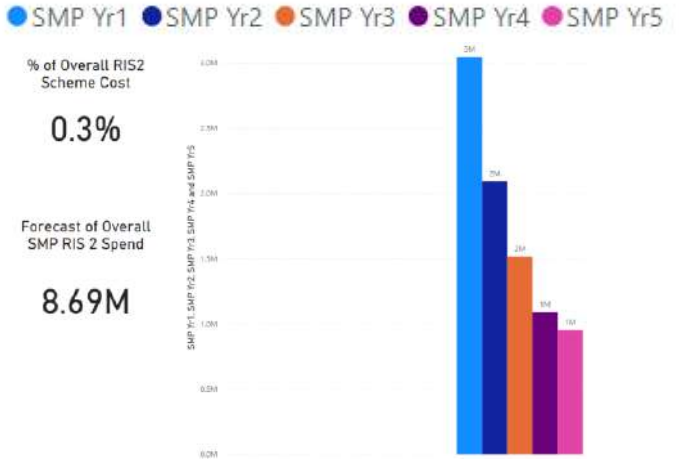
RIP Forecast Spend



CIP Forecast



SMP Forecast



Conclusion:
LTC forecasted spend shows Landscaping and Ecology scheme requirements gradually increases from £5M in Year 1 to £20M in the latter stages of the infrastructure project. RIP data shows steady requirement for L& E scheme work and rise in Year 3 and 4
CIP reflection of spend per year indicates Landscaping and Ecology work would expect to ramps up in Year 3 and Tear 4 and Year 5 requirements fairly high

SMA spend and activity is the lowest across all Directorates with the majority of work and spend likely to be carried out in the first year

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Future Forecast Spend – Operations (SDF)

Lot structure and spend on Scheme Delivery Framework (SDF) inclusive of RP2 and into RP3. OPS projected spend is **£65m** for duration of framework

Lot Code	Lot Name	Area											
		7	9	10	13	12	14	6	8	1	2	3	4
C1	Landscape and Ecology	£6m £4m		£2m £1m	£2m £1m	£9m £6m	£2m £1m	£1m £<1m		£5m £3m		£6m £4m	£5m £3m

Conclusion: The above table shows the lot structure for the Scheme Delivery Framework (SDF). Spend is for RP 2 and also goes into RP 3, there is a assumed static spend for RP 3.The expiry dates for the current CWF transition into SDF contract varies from area to area

Area 1&2 CWF expires 30th June 2021
Area 7 expires December 2020
Area 13 expires 31st March 2022
Area 14 expires 31st March 2022
Area 10 expires 2023
Area 6&8 expires 2024
Areas 3&4 info n/a

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Product Description

Name	Appearance	Description
Roadside Landscaping		The aesthetic quality of a road and its design in relation to the places through which it passes, is integral to its function and the experience of those that use it. Good road design demonstrates sensitivity to the landscape, heritage and local community, seeking to enhance the place while being true to structural necessities. It builds a legacy for the future. Functional, but responding positively and elegantly to the context, good road design allows for the expression of the character and identity of the places and communities through which a road passes. Good road design can enhance a sense of place and add to what we have inherited, particularly through the use of appropriate materials and traditions, but does not make unnecessary superficial or superfluous visual statements. Making an important contribution to the conservation and enhancement of the natural, built and historic environment, good road design seeks to achieve net environmental gain. It is multi-functional, resilient and sustainable, allowing for future adaptation and technical requirements, while minimising waste and the need for new materials
Grass Cutting		All verges adjacent to the public highway are cut for safety purposes to maintain visibility at junctions, and to ensure that road and pavement widths are not reduced, however, appropriate management needed in ecological areas (wildflower areas). In areas where there are no pavements, there may be a need to provide a safe refuge on the highway verge for pedestrians, particularly near busy roads
Tree, Shrub Planting and Aftercare		Trees and shrubs can make a positive visual impact and maintenance requirements are lower than for herbaceous ornamental plantings. The roadside environment is harsh. Sites usually have been drastically disturbed during construction, resulting in shallow, compacted soils with little or no topsoil unless properly managed. Roadside plants are exposed to vehicle emissions, and salt spray in the winter as well as water stresses during the summer
Control of water levels and quality		In order to manage a waterbody appropriately, it is necessary to control water levels, vegetation, silt and debris. These aspects are closely interrelated. Landscape Managers are primarily concerned with the management of waterbodies for nature conservation. However the prime functions are normally engineering related and there will need to be close liaison between both disciplines to provide a combined and integrated approach to management
Ecology		Ecology is concerned with understanding the relationship of organisms with their environment, whereas biodiversity is a concept that concludes that the variety of species present currently and in the future matches the opportunity provided by that ecological niche. Legislation, policy and National Highways Licence sets out the need to protect and enhance the biodiversity of our soft estate and its wider setting. Ecologists are responsible for constructing an understanding of the ecological opportunities and constraints associated with the scheme as well as the process of securing licences for the works and specification of the mitigation and management measures. This frequently includes constraints on how the works are to be delivered. The road network contains a range of protected habitats including species rich grasslands, woodlands and wetlands; and supports and impacts upon a number of rare and protected animals and plants including barn owls, peregrine falcons, dormice, rare orchids and other wild plants

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Innovation in the Category

Innovation Theme	Description	Examples of Active Players	Product Examples
Immersive Technologies for Landscape Designing	Immersive technologies, such as augmented reality (AR) and virtual reality (VR), are gaining traction in the industry, as they have a greater potential than traditional visualisation technologies; while VR is primarily being used as a tool for design review in the late stages of the design process, it is being touted to be equally useful in earlier stages, such as analysis and concept development, and for the visual impact assessment (VIA) process ***Case Example**: SCAPE – a landscape architecture and urban design firm – used VR for its client The Governor's Office of Storm Recovery for the State of New York; the technology was used to design the project Living Breakwaters that intended to grow the beach over time and provide substrate for new aquatic habitats around the Lower New York Harbour/Staten Island Raritan Bay (Link)*	Idea Spectrum IRISVR VIRTUALIST AECOM RPS	Lands Design PRO Landscape iScape
Smart Irrigation Management	Digital, sensor-based devices are being used to monitor soil's moisture and nutritional needs, control the irrigation system and determine fertilisation schedules; smart systems, including these devices and cloud-based technology, detect weather conditions and adjust the water flow depending on plant types and soil conditions, and automatically shut it off when needed ***Case Example:** An irrigation and borehole drilling contracting business in the UK implemented NETAFIM's precision automatic irrigation system to ensure every plant gets exactly the amount of water it needs (Link)*	NETAFIM Scotscape IF	Climate FieldView Weathermatic Water with Purpose
Automation Through Robotic Mowers and Drones	Landscaping service providers are looking to leverage advanced equipment, such as automatic mowers and drones, for streamlining their operations, increasing efficiency and reducing downtime using predictive maintenance ***Case Example:** idverde has been using robotic mowers in closed London parks and drones to acquire an aerial view of parks to judge ideal routes to take and identify areas to manage (Link)*	idverde	 Husqvarna Automower 450X

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Innovation in the Category

Innovation Theme	Description	Key Innovators	Exemplary Products
Biomes Project	The Royal Garden Edinburgh (RBGE) has contracted Balfour Beatty to undertake the first phase of construction work as part of the £70m Edinburgh Biomes project. The Scottish Government has committed a total of £58m,rest of the funding will be generated through fundraising. The Biomes project addresses the biodiversity crisis. Dedicated horticulturists are carefully collecting plants that are endangered or extinct in their native habitat. The teams decanting and protecting plants by lifting specimens from their established bed and transferring them to temporary homes and provide a safe bio-secure propagation environment https://www.rbge.org.uk/news/edinburgh-biomes/	Royal Botanic Garden Edinburgh	
Husqvarna CEORA	Data collection can improve turf quality on golf sites, using drone intelligence, soil sensors, thermal imaging and autonomous robotic mowers. CEORA targets large areas, a low weight machine, safety is increased due to the reduced need for human interaction, better for the environment due to its low energy, reduced noise levels and low C02 emissions https://www.husqvarnagroup.com/en/press/husqvarna-transforming-commercial-turf-care-new-50-000-m2-robotic-solution-1868921	Husqvarna Group	
Dyson Farming/glass house	Dyson Farming have developed a new hi-tech glasshouse in Carrington, Lincolnshire. This means growing season now runs for 9 months, from mid-March to end of November. The glasshouse powered with renewable electricity and heat from adjacent anaerobic digester, the Dyson Farming glasshouse covers six-hectare. Berry Gardens distributes profit back allowing Dyson Farming to continue to reinvest in infrastructure and technology https://dysonfarming.com/article/fruity-future/	Dyson Farming	
Peat Free by 2025	RHS has committed to being 100% peat free by 2025, the company is trialling sphagnum moss from sphagnum farming. RHS stopped selling peat-based bagged compost after the 2019 season https://www.rhs.org.uk/advice/peat?gclid=EAIaIQobChMImfHvpvPS7wIVxbHtCh15NwzbEAAYASAAEgLLPfD_BwE&gclsrc=aw.ds	Royal Horticultural Society	

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Innovation in the Category

Innovation Theme	Description	Examples of Active Players	Product Examples
Biocontrol of Invasive Species	Many companies are increasingly leveraging biological control methods, i.e., using living organisms (such as insects and pathogens) to control pest infestation; the technology is garnering popularity, as it is a natural method that does not require chemicals, which can negatively impact the environment, and is economical and sustainable ***Case Example:*** *Greenhouse growers who supply ornamental crops (e.g., Poinsettia, African violet and Stephanotis) are increasingly relying on solutions such as Biobest's ABS mini-sachet, which releases protective amounts of the thrips predator Amblyseius cucumeris, for plant protection (Link)*	CABI dragonfli biobest SUSTAINABLE CROP MANAGEMENT	 
Advanced Geospatial Technologies	Advancement in geospatial technologies, such as geographic information system (GIS) and high-resolution satellite imagery, is enabling gathering of useful data that help map the ecosystem with high accuracy ***Case Example:*** *Network Rail has collaborated with The UK Centre for Ecology & Hydrology (UKCEH) to produce a detailed map of all the habitats found alongside Britain's 20,000-mile rail network for sustainable vegetation management using high-resolution imagery from satellites and aircraft; UKCEH has combined this information with records of species to enable Network Rail to take appropriate conservation measures for increasing biodiversity (Link)*	Environment SYSTEMS evidence and insight GREATecology	POLYSCAPE (Multiple Criteria GIS Toolbox) Natural Resources Wales' SCCAN (Natural Resource Planning Support System in Welsh)

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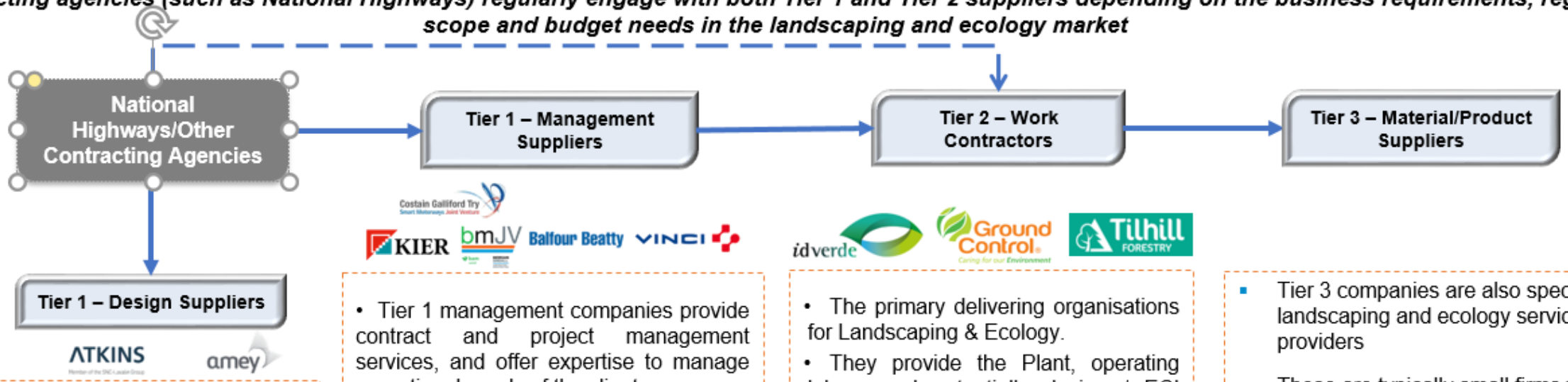
Supply Chain Mapping – value and objectives

1 Statement of Need
Define the outcome needed by the business and what is needed to deliver it

Contracting agencies (such as National Highways) regularly engage with both Tier 1 and Tier 2 suppliers depending on the business requirements, regional scope and budget needs in the landscaping and ecology market



- Such companies mainly offer project design and engineering services; **they can be leveraged to incorporate Landscaping & Ecology design knowledge** from specialist contractors to improve works efficiencies.
- Efficiencies may include ECI and early site investigation to determine the most effective requirement.

- Tier 1 management companies provide contract and project management services, and offer expertise to manage operational needs of the client.
- They primarily work as integrators, where they receive contracts from government/ contracting agencies, manage the project from scratch and sub-contract construction work to Tier 2 suppliers.
- Primary works contractors / suppliers will also act directly as management if the contract adopts this mechanism / practice.

- The primary delivering organisations for Landscaping & Ecology.
- They provide the Plant, operating labour and potentially design / ECI input.
- Their service offering includes the provision of trees, plants and shrubs. This strongly overlaps with the Trees Category.
- Landscaping can be separated into two linked types of works; the professional services element e.g. surveying, designing and the plant & labour required to perform the works.

- Tier 3 companies are also specialist landscaping and ecology service providers
- These are typically small firms with limited geographical coverage (usually in 1 or 2 regions)
- Most of these companies typically do not bid for business directly from large clients such as National Highways, and work via tier 1 or tier 2 companies

National Highways can engage with both Tier 1 and Tier 2 suppliers for its needs; however, Tier 2 suppliers with relevant past experience of handling large project with an established company can be preferred as they have both the skills and the flexibility needed

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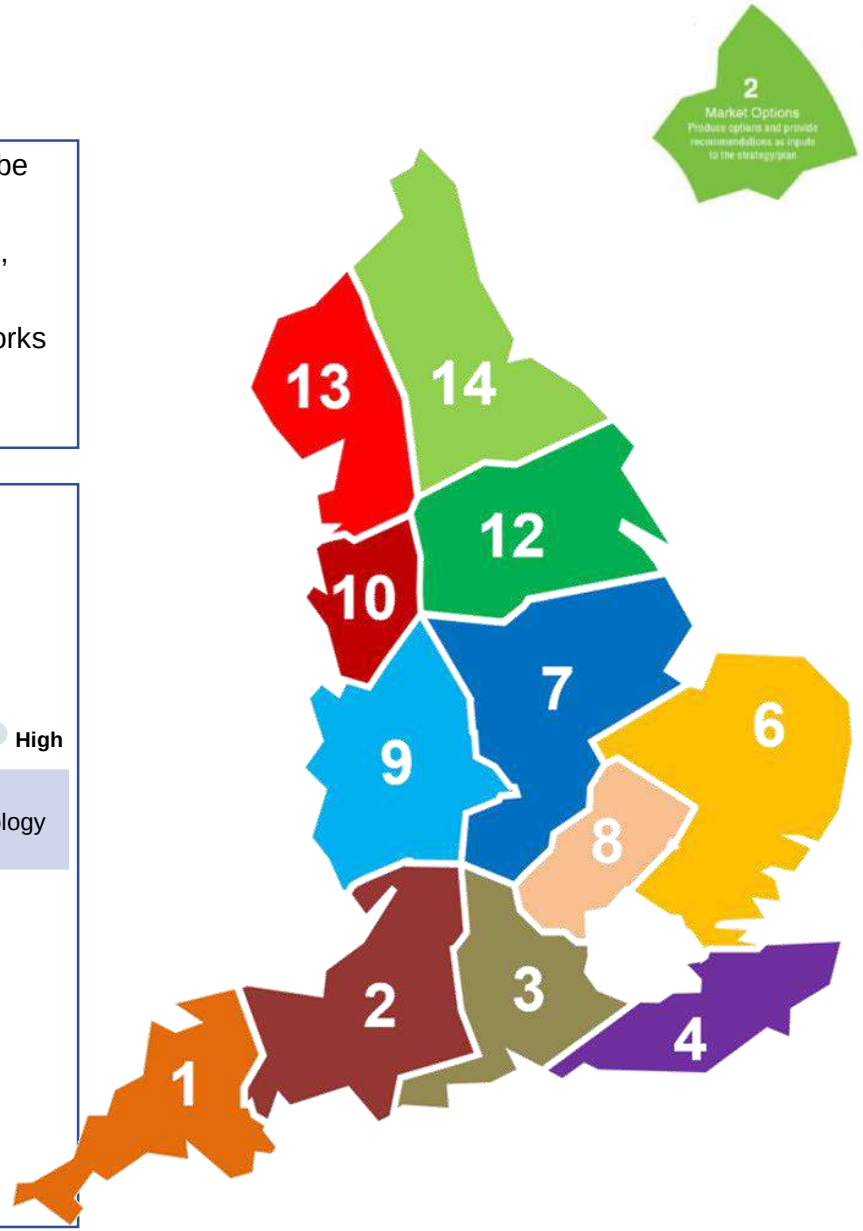
Market Insight and Landscape

- The UK landscaping and ecology market is fragmented with presence of a large number of players, which can be classified into Tier 1, Tier 2 and Tier 3 suppliers
- Tier 2 suppliers are mainly midsized specialist companies that offer a variety of services including tree services, arboriculture consultancy, surveying, horticulture and maintenance services
- Most Tier 2 suppliers have regional/national presence, with vendors usually self-performing a majority of the works
- The structure of the UK landscaping and ecology market is characterised as perfect competition, where all suppliers tend to maximise their profit and market identical services

Threat of New Entrants	Bargaining Power of Suppliers	Rivalry in the Industry	Bargaining Power of Buyers	Threat of Substitutes
Low ◯ High	Low ◯ High	Low ◯ High	Low ◯ High	Low ◯ High
Low degree of product and service differentiation (+)	Rising labour cost and shortage of skilled labour (+)	Fragmented market with presence of many Tier 2 and Tier 3 suppliers (+)	Contracting agencies directly dealing with Tier 2 and Tier 3 suppliers (+)	No substitute of landscaping and ecology services (-)
Low entry barriers and regulatory requirements (+)	Commoditised nature of raw material, such as plants/trees, chemicals and equipment (-)	Relatively low service differentiation (+)	Consolidated buyer base (+)	
Price-competitive and fragmented market (+)		Innovations being leveraged in service delivery methods to develop points of differentiation (-)	High switching costs for large-scale projects (-)	
Presence of well-established companies with good reputation (-)			Limited number of specialist companies that can deliver services across the UK (-)	
Labour shortage (-)				



Conclusion: The UK landscaping and ecology market is fragmented; however, large players with the ability to win public sector contracts have witnessed higher growth and dominate the overall market. Low interest in CWF, low interest A13 &A14 only receiving one tender. Overall, the strong & established Highways presence of Ground Control followed by the large presence of Idverde suggest that supplier power remains high when it comes to sourcing a large national or regional requirement. Procuring Trees separately may further reduce interest in providing a L&E service.

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Supplier Capability and Capacity – including industry accreditations

The information is not exhaustive, please see the embedded spreadsheet and supplier websites.

Supplier Name	Website	Key Service Offerings	Accreditations
TILHILL FORESTRY LIMITED	https://www.tilhill.com/	▪ Forestry & Logging ▪ Fencing ▪ Landscaping ▪ Woodland management ▪ Habitat restoration	▪ ISO 9001 - Quality Management ▪ ISO 14001 - Environmental Management ▪ OHSAS 18001 - Health and Safety ▪ FSC® and PEFC™ - Chain of Custody Certificates ▪ NHSS Sector Scheme 18
GROUND CONTROL LIMITED	https://www.ground-control.co.uk/	▪ Asset management e.g. pole tagging ▪ Commercial Landscaping ▪ Ecology advice ▪ Hard & soft landscaping ▪ Highway Soft Verge Maintenance	▪ ISO 9001 ▪ ISO 14001 ▪ OSHA 18001 ▪ ROSPA ▪ SafeContractor
IDVERDE LIMITED	https://www.idverde.co.uk/	▪ Civil engineering e.g. Deep excavations, bulk earthworks and drainage systems ▪ Culvert installation, concrete bund walls and gabion baskets ▪ Grounds maintenance ▪ Street cleaning ▪ Traffic management	▪ ARB approved ▪ Bali ▪ ISO 9001 ▪ ISO 14001 ▪ OHSAS 18001 ▪ ROSPA
BLU 3 (UK) LIMITED	https://www.blu-3.co.uk/	▪ Walls, retaining walls ▪ Remediation ▪ Bollards, barriers ▪ Tree Planting ▪ Hedgerows	▪ Fleet Operator Recognition Scheme – Gold ▪ British Safety Council ▪ SC - UKAS – 9001 ▪ Achilles – Building Confidence
Nurture Landscape Holdings Limited	https://www.nurturelandscapes.co.uk/	▪ Design, installation and ongoing maintenance of external amenity areas with particular expertise in courtyards, hospitality areas and car parks through our sister company Gavin Jones. ▪ Plant displays ▪ Winter gritting	

Other suppliers include:

Microsoft Excel Worksheet

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Key Supplier Risks

Risk type	Risk Description	Impact	Priority	Mitigation/Action
Supply Chain	▪ Overlap with Trees category. Should the provision of plant life be a sufficiently profitable to the supplier, the removal of this revenue stream may reduce interest in providing other services. ▪ Reduction in soft estates due to Covid / WFH expansion reduces work availability.	▪ Reduced tenderers for National Highways works ▪ Key L&E suppliers becoming unstable & going out of business.	▪ Medium ▪ Medium	▪ Consider whether any benefit gained by procuring Trees separately is outweighed by losses in the complimentary category of Landscaping & Ecology. ▪ Monitor the whole supply chain in terms of financial capability to anticipate potential supply chain threats.
Innovation	▪ Opportunities to engage early at design stage are minimal, landscaping e.g. tree rooting systems could play a part in the maintenance requirements of retaining walls or similar. ▪ Suppliers persist in offering plant selection that offer greater profitability rather than considering biodiversity, carbon or maintenance requirements.	▪ Lack of combined understanding maintenance of roadside vegetation ▪ Inefficient utilization of National Highways purchasing power to effect it's wider environmental strategies	▪ Medium ▪ Medium	▪ Include L&E supply chain in early design considerations in order that landscaping aspects are factored into key decisions. ▪ Engage with the supply chain on wider issues to gauge interest in supporting National Highways beyond contractual requirements. Seek evidence of solution offered to other clients that meet National Highways objectives.
Capacity	▪ The supply chain appears to lack interest in bidding for National Highways' regional Lots. Capacity can be limited to geographical areas.	▪ Reduced tenderers for National Highways works	▪ Medium	▪ Engage with emerging suppliers e.g. Ideverde to understand market appetite and attractive contractual routes.

Conclusion: Landscaping & Ecology requirements can be factored into larger strategies e.g. carbon reduction or off-setting. Category approaches to complimentary services must be aligned to that benefits gained in one area are not outweighed by losses in another.

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Risk Map

RAG	Title	Risk Description	Mitigation - Action
	Regional capacity	Capacity limited to regional requirements	Engage with emerging suppliers
	Tree category overlap	If the tree strategy is to source internally may impact on profitability of supply chain	Align with tree category strategy to asses any impact
	Design influence	Minimum opportunity to influence at design stage	Include L&E supply chain in early design considerations
	Demand Planning	Limited demand planning	Establish robust demand profile process
	Supplier dominance	Supplier power/dominance high in Midlands, NE and NW (AD)	Expand and engage with potential supply chain providers
	Environmental Metrics	Failure to meet green policies and biodiversity, sustainability and environmental metrics	Formal supply chain KPIs and deliverables
	Financial management	Addressing cost and financial management	Clarity of cost and service

Category Opportunities

Strategic Themes	Opportunities	Benefits	Obstacles
Supplier Relationship Management	▪ Development of NH's direct relationship with Tier 2/3 suppliers	▪ Tap into key innovations within the sector ▪ Increased efficiencies ▪ Reduced costs ▪ Continual improvement of operations	▪ Tied to SDF contractors when tenders are awarded
Sourcing Strategy	▪ Alignment with the tree procurement strategy to source with long term commitments to secure local provenance plant stock	▪ Security of supply ▪ End to end supply chain management ▪ Synergy with tree strategic sourcing strategy	▪ NH responsibility and accountability ▪ Change in strategic management and route to market
Continuous Improvement	▪ Ensure ongoing efforts to processes and product enhancements internally with enhanced alignment between divisions	▪ Enable objectives and systematic evaluations, clear understanding of the desired outputs and creating a	▪ Resistance to change, customs and norms can hinder progress. ▪ Behavioural routine linked with historical ways of working
Innovation	▪ Investment in technology and innovation such automatic mowers and drones	▪ Use across all programmes within NH and enabling streamlining operations, increasing productivity efficiency	▪ Cost of investment
Carbon net zero	▪ Tree planting ▪ Solar power generation on our soft estate ▪ Commitment to Peat Free ▪ Zero emission	▪ Deliver environmental and carbon neutral targets	▪ Lack of knowledge and expertise to implement

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Recommendation

Benefits Strategy	Description	Recommendation
See Recommendation Summery slide	▪ See Executive Summery Slide	▪ Approval of strategic Procurement Strategy

Our Ask/Request – Landscape Ecology and Aftercare Strategic Procurement Strategy

Area	What we require from you
MP Commercial	Review/comment/feedback on proposed Landscape Ecology & Aftercare SPS – for support & buy-in
OD Commercial	Review/comment/feedback on proposed Landscape Ecology & Aftercare SPS – for support & buy-in
Commercial Services	Review/comment/feedback on proposed Landscape Ecology & Aftercare SPS – for support & buy-in
Supply Chain Development/Delivery	Review/comment/feedback on proposed Landscape Ecology & Aftercare SPS – for support & buy-in
Strategic Procurement	Review/comment/feedback on proposed Landscape Ecology & Aftercare SPS – for support & buy-in
Procurement Delivery	Review/comment/feedback on proposed Landscape Ecology & Aftercare SPS – for support & buy-in
Improvement Division	Review/comment/feedback on proposed Landscape Ecology & Aftercare SPS – for support & buy-in

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Supporting information (extracted from online news)

Links: https://www.bbc.co.uk/news/uk-england-cambridgeshire-56254842
https://www.elystandard.co.uk/news/nearly-a-million-trees-die-7802976

Nearly a million trees planted alongside A14 die and need replacing.
A “large proportion” of the nearly one million trees planted as part of the A14 upgrade in Cambridgeshire have died. A “large proportion” of the nearly one million trees planted as part of the A14 upgrade in Cambridgeshire have died. The tree planting accompanied the £1.5 billion roadworks scheme which increased capacity on the A14 between Cambridge and Huntingdon.
Highways England says that for every plant that has “failed” it will be planting a new indigenous species
Around 400,000 trees and shrubs when carrying out the A14 roadworks.
It said it then replanted 866,000 trees from a range of native species, “replacing the trees removed for the roadworks at a ratio of approximately two to one”.

****The accuracy of the article was confirmed accurate by NH SE Press Office****

Supporting Information

Pictures taken at A49 Avonmouth, a scheme which only had a 2 year aftercare period. Shows the reinforced grass wall failed and was not fit for purpose and safety was compromised when large volumes of spoil fell onto the carriageway

A49 Avonmouth, picture showing trees planted too closely to each other. Additionally when the trees reach maturity access to carryout any maintenance would be extremely difficult to get to. Operational teams will need to re-scheme to rectify the situation using further funding (by putting together a business case to utilise CAPEX budgets); with early design consultation re-intervention may not have been needed.

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Supporting Information – Challenges around Handover process

The below information aim to raise awareness of past issues experienced from scheme handovers, whether from Major Projects or the Local Highways Authority. They also set out how the handover could be made smoother for all parties and with intention to meet the programmed handover date.

In the past our operational Environment team has often been invited too late in the five year maintenance period to review environmental handover information (typically in the autumn of Year 4) and found various overlooked or unaddressed issues related to access and H&S for landscape maintenance, the quality of horticultural aftercare which has been variable to non-existent in places. Engagement at the design stage is an opportunity to prevent some problems arising in the first place. Late involvement in the handover process is something to avoid in future.

<u>Some common problems encountered at handover</u>:

- Planted areas / plant numbers not consistent with planting plans.
- Planting too close to barriers and structures.
- Inappropriate planting (species types).
- Planting / grassland aftercare not done in some plots due to no available access for maintenance.
- Planting / grassland aftercare not done or done to a poor standard, particularly in plots out of view from the main carriageway.
- Environmental fencing (otter/badger) used as boundary fence and being damaged by adjacent owners livestock.
- No access or easement to maintain vegetation on adjacent land owners side of environmental fencing.
- Ongoing legal issues with land ownership, compensation and access for maintenance.
- Lack of clarity on boundary responsibility (with Local Authority / third parties).
- Inaccurate handover plans of scheme boundaries and extents of environmental fencing.
- Lack of gates through fencing (pedestrian / field) to facilitate maintenance (see attached photo Plots 5.3, 5.4).
- Steepness of embankments, with unprotected tops and toes (see attached photos Plots 2.7, 2.8; Plots 3.30, 3.31).
- VRS preventing maintenance vehicles and plant (chippers etc) from gaining access to soft estate.
- Planting contractor not replanting failures until final year when their commitment to ensure establishment is about to expire.

Plots 2,7, 2.8

Plots 3.30, 3.32

Plots 5.3 5.4

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Supporting Information

Maintenance Spend

Below table shows spend data from 09/10 of £486 + budget drops after 11/12 as we increase our schemes the budgets have stayed flat lined

Row Labels	Sum of 09/10	Sum of 10/11	Sum of 11/12	Sum of 12/13	Sum of 13/14	Sum of 14/15	Sum of 15/16	Sum of 16/17	Sum of 17/18	Sum of 18/19	Sum of 19/20	Sum of 20/21
OD EAST	42,550,022	38,414,286	46,634,228	29,147,504	33,840,347	20,275,141	31,358,547	32,506,315	41,902,470	34,258,024	32,413,129	37,429,595
OD MIDLANDS	82,250,099	75,484,196	84,766,476	63,399,747	63,961,527	62,887,820	69,287,194	46,071,604	55,554,004	66,265,304	69,166,037	67,498,083
OD NORTH WEST	90,870,482	64,410,460	61,284,964	35,299,744	27,232,602	39,398,289	30,790,785	41,844,557	43,406,033	37,732,649	39,509,969	52,160,526
OD SOUTH EAST	117,054,077	74,037,474	85,299,179	57,517,807	50,817,618	46,478,121	45,552,676	38,297,165	33,562,998	39,193,054	38,068,704	50,689,513
OD SOUTH WEST	66,603,925	54,177,034	61,240,818	37,364,022	25,402,316	33,134,177	29,614,152	36,369,517	25,022,705	24,401,349	24,525,424	28,878,661
OD YORKSHIRE & NORTH EAST	87,539,982	51,389,150	47,487,921	29,562,100	35,860,007	36,611,146	33,954,500	31,685,974	29,048,213	35,839,609	30,963,415	31,235,250
Grand Total	**486,868,586**	**357,912,600**	**386,713,586**	**252,290,924**	**237,114,416**	**238,784,694**	**240,557,854**	**226,775,133**	**228,496,423**	**237,689,990**	**234,646,678**	**267,891,628**

Soft Estates

*There is currently no data/ difficult to show how soft estate funding is allocated

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Supporting Information

Cost of tree defects

To rectify dangerous tree defects (from tree inspections) requires funding form OPEX. A study was undertaken by the East Mids team to ascertain the cost per tree on reactive tree work. They were unable to identify and analyse the number of tree, however the table below shows the approximate cost for remedial works per tree.

Approx. cost of reactive tree work operations per tree	
Financial year 2017-2018	Financial year 2020-2021
£1700	£2410

The figure is for the cost of undertaking the work only, it does not include the cost of resourcing cyclical inspection programme (circa £82,00 for approximately 50% of the SRN in the East Midlands area) or the internal costs/staff hours in managing and administrating the programme and works.

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