

Specialist Surface Treatments - Strategic Procurement Strategy

Specialist Surface Treatments (SST)



- The treatments (and/or processes) that can be laid on the pavement (road) surface to protect, preserve or elongate life – asphalt and/or concrete – includes the likes of:
 - *Retexturing,*
 - *Preservatives,*
 - *Cold Applied Ultra Thin Surfacing (CAUTS)*
 - *Geosynthetics*



Executive Summary


"Specialist Surface Treatments are treatments (and/or processes) that can be laid on the pavement (road) surface to protect, preserve or elongate life"

Current Status:

- Need for change in National Highways (NH) approach to maintaining the pavement asset – a preventative maintenance approach and intelligence lead decisions based on the right intervention at the right time, to maximise the life of the asset.
- Surface Treatments predominantly delivered through Tier 1 main contractor arrangements, resulting in a lack of credible spend data, performance measurement or common metrics/terminology of treatments.
- Trials have been ongoing for a number of years to demonstrate the **whole life benefit (WLB)** of SST, particularly preservatives, however, obtaining evidence of the trial outcomes can be challenging and takes a number of years to ascertain the longer term performance of the treated pavement area.
- Be the 'Client of Choice' by driving Social Value within the industry, eradicating modern slavery and raising the bar on well-being, inclusive of region specific localised strategies.




Challenges:

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- **Implementation:** Lack of spend data, evidence and current understanding of potential. Recognising quality, safety and customer impact are all factors.
 - **Supply:** Opportunities not capitalised on and thinking as a collective (National Highways and supply chain) requires a change in approach with a longer term whole life benefit vision.
 - **Demand:** Currently demand planning is weak offering limited information to the business or our partners. Funding for SST within the programme budgets, particularly for preventative treatments is challenging, constraining the opportunity to demonstrate benefits.
 - **Carbon Targets:** Risk of not achieving targets unless proactive measures and opportunities to utilise SST's are prioritised.
 - **Early Engagement:** Early engagement with programme & project management & key stakeholders to endorse and promote alternative pavement solutions.



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

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- **Drive implementation and innovation** to realise potential benefits through SST Trial scheme data and future application opportunities, Pavement Optimisation Group (POG) workstream to support (workstream is - Preventative Maintenance, WG5).
 - **Collaborative working**, NH together with Industry, **drive effective demand** planning to unlock market opportunities and benefit all investment programmes in delivery of objectives/imperatives.
 - Increased focus on introducing low **carbon** technology/materials and techniques.
 - **Early engagement** and development with Tier 1 contractors/designers during the options/design phase of schemes is needed, providing real opportunities to influence design, promoting the use of SST (preservatives/geosynthetics/CAUTS etc) where appropriate to drive cost efficiencies.
 - **Standardisation** of data, metrics, definitions and methodology. Work with Industry, through synergy of objectives and update/challenge current standards/restrictions.
 - Alignment with working groups focussing on social value.

Key aims of the Strategy SST



Build Change through early supplier engagement, collaborative planning and driving improvements working with the SST community, wider NH improvement projects and SES, to support realisation of **NH Net Zero Carbon**.



Drive Innovation by optimising supply chain experience and expertise to identify optimum pavement solutions and facilitate design and efficiency opportunities. ECI and collaboration with SES and other innovation/improvement working groups.



Incentivise supply chain to drive change and improvements to safety and customer experience/satisfaction. Drive efficiencies through cost savings and **Improve Safety**. Aim to reduce roadworker hours on the SRN with reduced number of interventions needed and the use of alternative treatments which require less application time/roadworker exposure on SRN to traditional resurfacing methods. Alignment with working groups focussing on social value.



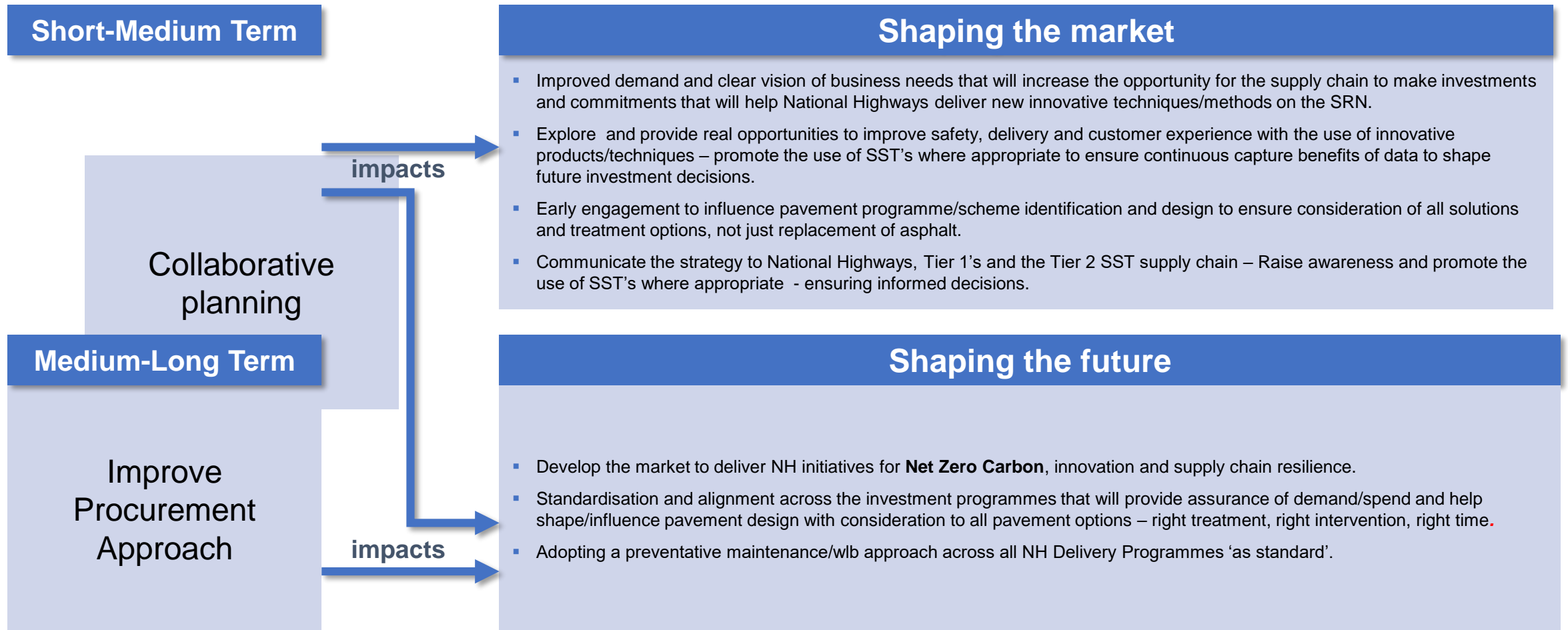
Standardisation of design options across the business and supply chain through engagement with SES and internal stakeholders. Utilising skill set from SST community, Pavement Optimisation Group (POG), innovation reapplied and sector improvement projects.



Shape the Market increasing and challenging the supply chain, all pavement treatments and methods. Engagement/embed category management within the supply chain and MP/OD communities to ensure continuous improvement/innovation is applied and improve measures around performance KPIs.

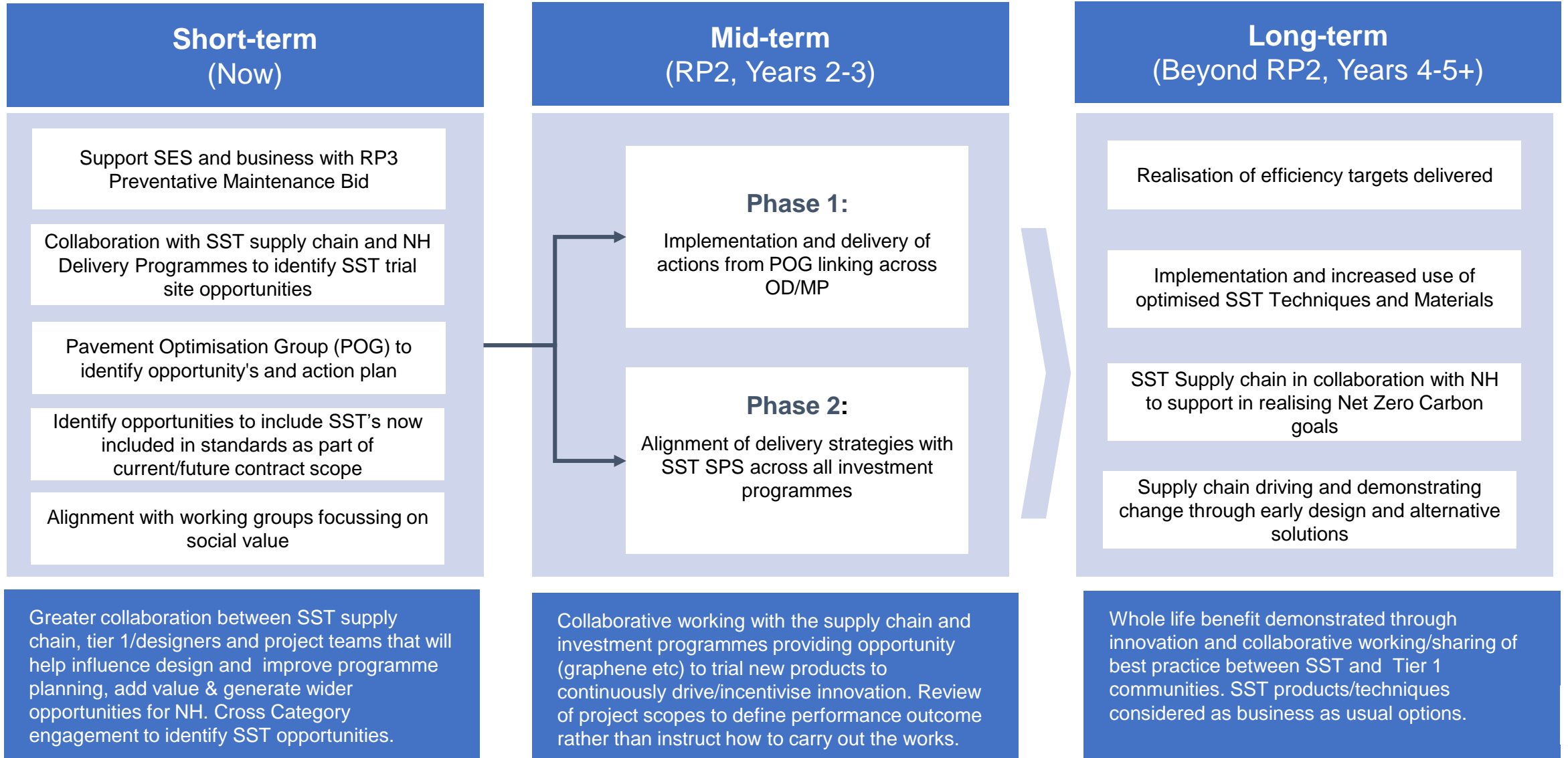
- Our proposal, in collaboration with MP/OD investment programmes and SES is to deliver through several strategic themes, that will enable us to increase safety, productivity, environmental improvements and cost reduction from the remaining RP2 spend, and continue into RP3 with opportunity to develop/promote a Preventative Maintenance approach, right intervention, right time = Greater Whole Life Benefit. This work is ongoing as part of POG workstream group (Preventative Maintenance, WG5).

Snapshot on our future vision SST



This is a high level overview. Key objectives will be delivered working with stakeholders across all solutions working with key focus groups like - Pavement Optimisation Group (POG).

High-level Plan to deliver SST Goals



Rollout of Short to Medium Term Solutions SST

SST01: SST Supplier Community



- Engaged supply chain to deliver longer lasting innovative pavement surface solutions.
- Enabling of early engagement (ECI) and increasing opportunity to utilise SST's and encourage continuous innovations.

- **Other benefits:** Direct access and opportunity to build collaborative relationships with experienced specialist suppliers to enable innovation and intelligence capture.

SST 02: Align Strategies Investment Programmes



- Inclusion of CAUTS into the new OD Pavement Delivery Framework scope.
- Align SST with SMPA/LTC/MP and Ops strategies to maximise opportunity to gather intelligence/ evidence and realisation of SST benefits. Apply lessons learned and collaborative approach to deliver increased efficiency to meet NH targets.

- **Other benefits:** Alignment with NH main header contracts/strategies.

SST 03: SST Stakeholder/POG Working Group



- Internal stakeholders working collaboratively as part of SST Stakeholder Working Group.
- Testing of opportunities and efficiencies and aligning with outcomes of POG WG5 preventative maintenance approach.
- Alignment with working groups focussing on social value.

- **Other benefits:** Collaboration working with suppliers and trade bodies (RSTA) to drive WLB, share best practice, improve safety, the customer experience and drive long term efficiencies

Rollout of Medium to Long Term Solutions SST

SST 04: Implement Cost Reduction Process



- Demonstrate cost reduction and better VfM of whole life benefits through monitoring of results.
- Work with all suppliers and stakeholders to drive innovations of products/kit that will help deliver to NH efficiency targets.

- **Other benefits:** potential efficiency savings for using asphalt preservatives as part of an asset management strategy.

SST 05: Safety & Innovation



- Review / challenge standards to support a safer network and safer customer experience.
- New materials and technology promote carbon reduction, increased productivity and efficiency.
- Engage and deliver via innovation reapplied.

- **Other benefits:** Sharing of safety initiatives, improving quality and health & safety experience for the customer.
- Driving safety & innovation through collaboration with Industry

SST 06: Carbon Reduction



- Working with SES and SST supply chain/wider industry body (RSTA) to reduce negative environmental practices and wastes.
- Working with supply chain to support realisation of NH Net Zero Carbon.

- **Other benefits:** Delivery through lean practices will enable us to achieve our outputs & efficiency targets.

Category Profile

Vision:

To create a strategy that provides a sector leading service for delivery areas and programmes. Improving safety, the customer experience, as well as enabling efficiencies and encouraging innovation. Utilising technology to improve products/processes and reduce carbon emissions and environmental impacts

Goals:

- Improve safety via innovative solutions, new products and noise reducing products
- Improve road users/workers safety by reducing roadworks/ minimising failure to the pavement
- Enhanced delivery methods and longer lasting products for pavement surface
- VfM/efficiency savings through maintaining the pavement at a lower cost, to extend performance life and using more cost-effective products in place of the re-lay of asphalt
- Improve ride quality and customer experience by keeping the network better maintained
- Alignment with working groups focussing on social value

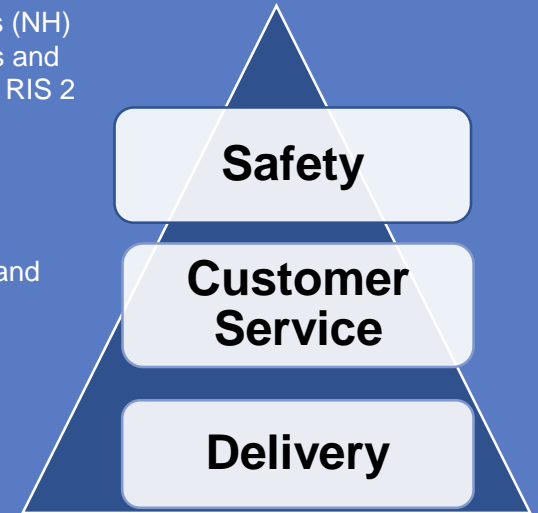
Scope:

To explore the types and benefits of the application of Specialist Surface Treatments on National Highways (NH) Strategic Road network, its Trunk Roads, Motorways and other road types which will support NH to deliver the RIS 2 and meet specified performance targets

Opportunities:

- Link in with the Pavement Strategy
- Support SES on innovation, sustainable solutions and new products to aid the development of enhanced standards which will improve safety, identify environmental benefits and produce a longer life expectancy of the surface on the SRN
- Drive commitment from suppliers to reduce carbon emissions in line with the Net Zero agenda

Business Need



Specialist Surface Treatments Category Strategy Executive Summary

Landscape & Market Analysis

- The market is well represented.
- Retexturing is a more limited market
- CAUTS and a series of Preservatives **and Geosynthetics** currently have NH specifications/standards
- The Road Surface Treatments Association (RSTA) is the focal point for the road surface maintenance industry and SST suppliers. There are over 80 members/suppliers in the UK – we are engaging with RSTA

Objectives	Year 1	Year 2-3	Year 4+
Category Understanding	Explore the benefits of the application of SST to support NH	Advanced	Expert
Supplier Engagement	Present to (RSTA), develop community approach	Community approach developed & demonstrating value	Full collaboration
Commercial & Procurement Strategy	Explore procurement options available (dependent on gaining necessary approvals)	Intelligence & Strategic Input & Full contract management	Improved efficiency and environmental targets

Statement of Need SST



A Safer Network

Safety by fewer man hours on the network and well maintained road surfaces will help minimise traffic accidents and decrease road worker exposure



Improving Customer Satisfaction

Customer experience improved by minimising roadworks and disruption on the network, improved road surface/ride quality and focusing on the Social Value Agenda



Delivering the RIS

Delivering RIS2 & 3 via improved delivery methods and products to allow longer life expectancy. Identify and deliver environmental & efficiency benefits

The Requirements

- Explore the business need for Specialist Surface Treatments and understand routes to market
- Allow for innovative suppliers and assets to enter the market to reshape delivery
- Develop & implement a new SST strategy that underpins National Highway's three imperatives

The Objectives

- Improve Social and environmental behaviours (carbon net zero agenda)
- Extend the life of the pavement asset
- Improve customer service by reducing roadworks/interventions
- Improve ride quality by keeping the network better maintained
- Deliver efficiency and environmental targets

The Challenges

- Lack of visibility of the forecast spend/demand
- Regional needs vary with the different conditions the network is exposed to
- Frustration in the business in procuring/accessing SST supply chain, lack of opportunity to leverage whole life benefit
- Potential lack of demonstrable data/evidence to support benefits or lack of policy to utilise SST

The Outcomes

- Access to reliable/capable and engaged supply chain/market
- Improved safety for roadworkers and road users, with less interventions required
- Commitment from supply chain to help deliver/work towards supporting zero Carbon agenda
- Improved road surface/ride quality giving a better customer experience
- Intelligence led decision making on pavement maintenance – right approach to maximise life of the asset


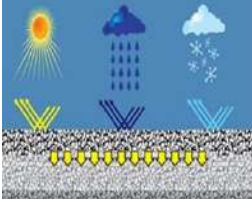


Value Chain Analysis

Value Chain	Value Factors	Current Situation	Changes Needed
<p>Procurement</p> <p>Design</p> <p>Manufacturing</p> <p>Technology</p> <p>Installation</p> <p>Maintenance</p>	<ul style="list-style-type: none"> ▪ Efficiency – savings alternative solutions. ▪ Quality – durable and sustainable materials. ▪ Quality- Growing capability, high quality service right first time approach and defect free. ▪ Alignment with working groups focussing on social value ▪ Safety - reduced time on site & lower accident frequency rates. ▪ Environment –reduce carbon footprint and impact ▪ Efficiency - reduced time through efficient methods (optimising working windows). ▪ Efficiency - improved interfaces with other parties. ▪ Customer satisfaction - familiar and consistent appearance., less disruption ▪ Network condition – Enhance the quality of our roads to meet customer demands. 	<ul style="list-style-type: none"> ▪ Suppliers instructed via outdated project scopes and specifications. ▪ Lack of early supplier engagement. ▪ Suppliers manufacture own materials and vehicles, not open to change so need to push alternative methods. ▪ Suppliers waiting for access to SRN and working within restricted working windows. ▪ Variety of installation method/materials. ▪ No formal process of monitoring/capturing efficiencies between programme delivery/OD to CM. ▪ Restricted demand planning and forecasting. ▪ Lack of high-level data analysis with regards to Specialist Surface Treatment reporting. ▪ Use innovative business tools such as Power BI for future reporting. 	<ul style="list-style-type: none"> ▪ Revise project scopes to define the outcome. ▪ Reduce variation by revising standards and gaining agreement across supply chain on the best solutions to deliver better whole life benefit and performance. ▪ Enable policing of quality through performance monitoring and setting certifications. ▪ Use of standardised or innovative materials to /reduce maintenance interventions. ▪ Improve the return on investment through deploying better cost intelligence and Lean practices. ▪ Optimise network occupancy to balance customer experience and efficient delivery. ▪ Build capability to enable decision making which delivers better whole life benefit and performance ▪ Implement a clear supplier reporting efficiency process on scheme completion. ▪ Investigate potential savings and safety benefits through early design phase.

Conclusion:

The Specialist Surface Treatment Strategic Procurement Strategy (SPS) will ensure working with NH Delivery Programmes, SES, the supply chain establishes revised standards and certifications for materials and technology in order to provide better whole life benefit. Early engagement during scheme/programme development and design stages to influence and enable opportunities to drive WLB and adopt alternative solutions where appropriate and where there is a value in doing so to support NH imperatives.

Product Description – SST Products and Techniques

Name	Description	
CAUTS		<p>CAUTS are low cost surfacing treatments which can act as an interim measure to extend the service life of a pavement by an estimated 7 - 10 years. CAUTS also works to seal the existing surface which prevents water ingress and further deterioration, resulting in reduced pot holes, centre joint failure and other related defects.</p>
Preservatives		<p>Preservation is the proactive maintenance of roads to extend the time at which they are a condition where major rehabilitation or reconstruction is necessary.</p>
Re-texturing		<p>Restores texture to increase frictional skid resistance. The increase in texture depth improves drainage and reduces the likelihood of aquaplaning. Retexturing involves the mechanical reworking of the road surface. This can be done by a variety of methods from shot blasting to hydroblasting.</p>
Geosynthetics		<p>A method of suppressing reflective cracking in composite pavements or overlaid jointed concrete pavements. The existing cracked pavement is normally milled to the depth of cracking before a bond coat and then the Geosynthetic or steel mesh is applied. This is then overlaid with a new binder and surface course before the paving process. The effectiveness of this products is currently under review.</p>

Product Description

Technology	Description	Key Factors for Implementation
<p>Asphalt Preservatives</p>	<p>Asphalt preservatives work by creating a seal on the surface of the asphalt. This prevents the ingress of moisture and reduces the rate of oxidation of bitumen preventing further deterioration.</p>	<ul style="list-style-type: none"> ▪ Dry conditions required for the treatment. ▪ Can affect the grip levels. Application of grit after the asphalt preservative is essential to control grip levels. ▪ Products shall comply with Clause 950 and Product Acceptance Scheme in accordance to Series 100 of the MCHW. ▪ Does not prevent rutting or mitigate pre-existing structural defects.
<p>Cold applied Ultra-Thin Surfacing (CAUTS)</p>	<p>Cold applied ultra-thin surfacing (CAUTS) are surface treatment products which can be used as an alternative to resurfacing to restore surface properties such as skid resistance. CAUTS may also be selected as interim maintenance to extend the service life of a pavement under certain conditions. CAUTS can offer significant program savings offering reduced distribution and up front costs.</p>	<ul style="list-style-type: none"> ▪ The Service life of CAUTS is expected to be shorter than replacing the surface course, which may be balanced by a reduction on up front cost. ▪ Identification of appropriate schemes is required. There is potential risk of early deterioration in high traffic volume schemes.
<p>Pavement Optimisation with Geogrids</p>	<p>This efficiency lever focuses on the design of flexible pavements to allow for reduction in layer thickness (including asphalt layers) while maintaining the pavement life OR extending the pavement life while maintaining its thickness OR a combination of both.</p>	<ul style="list-style-type: none"> ▪ Test sections may be required to establish performance and for benefit quantification. ▪ Departure from standards required.

Supply Chain Risks - SST

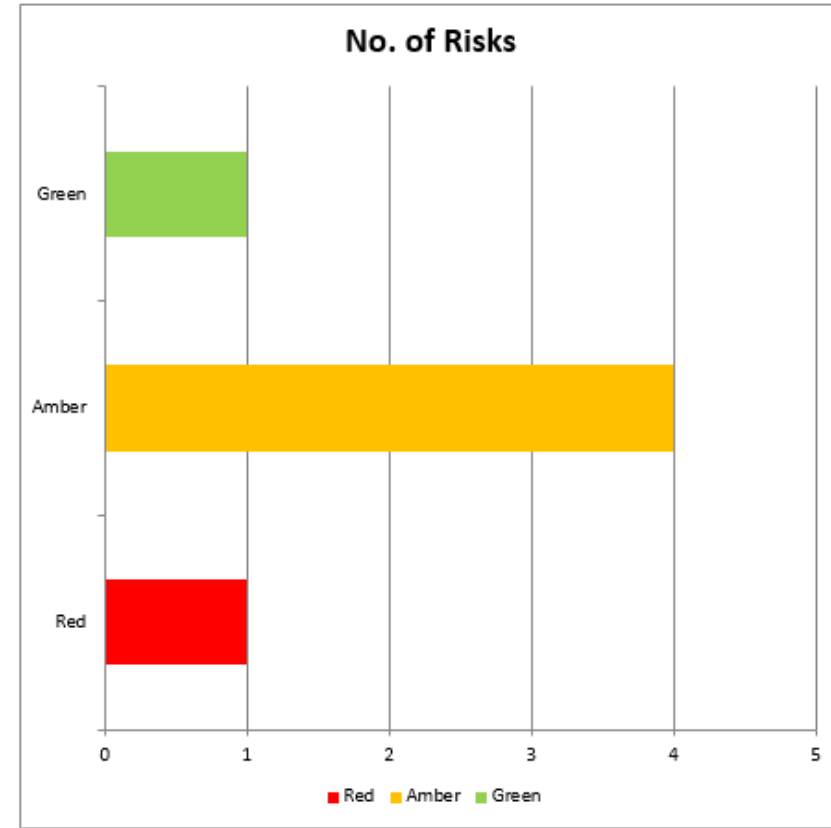
Risk type	Risk Description	Impact	Priority	Mitigation/Action
Supply Chain	<ul style="list-style-type: none"> Limited interest/appetite for SST service/product from NH and Tier 1. Small suppliers are exposed to financial deterioration if Demand reduces via Covid /other reduction in public funds. 	<ul style="list-style-type: none"> Absence of opportunity to explore/encourage innovations and realise benefits. Reducing supplier base. 		<ul style="list-style-type: none"> Consider combining SSTs with other surfacing requirements, where appropriate, to prompt innovations and further establish surfacing life-cycle cost-effectiveness. Raise awareness of SST and encourage usage where appropriate with Tier 1, considering suitable incentivisation linked to performance (carbon reduction/greater efficiency opportunity)
Innovation	<ul style="list-style-type: none"> Limited technical approvals or trial schemes for new products reduces desire to serve the National Highways marketplace in this niche area. 	<ul style="list-style-type: none"> Few suppliers producing new products for use on SRN. SST Suppliers fail to meet capability requirements to tender for works based on those products or high financial thresholds. 		<ul style="list-style-type: none"> Encourage/promote trial schemes across a variety of SRN areas to determine long-term suitability. Work with Local Authorities and other SST customers (including international clients) to understand their use-cases and <u>materialised</u> cost-savings and extrapolate onto the SRN. Progress Category understanding/gain intelligence on SST benefits – linking to preventative maintenance approach, and demonstrate cost-effective means of improving maintenance obligations.
Capacity	<ul style="list-style-type: none"> Limited interconnectivity with other delivery suppliers to find better sequencing of works or programme development activities & shared benefits. 	<ul style="list-style-type: none"> Inefficient deployment adding to time & cost. 		<ul style="list-style-type: none"> Adopt a works 'community' where suppliers on the scheme can actively engage & collaborate as the works progress. ECI/collaboration with SST suppliers to input into scheme/programme design and planning

Conclusion:

Pre-emptive measures by National Highways in actively encouraging the use of, or ensure consideration of SST as part of scheme development with Tier 1 Suppliers to provide opportunity for whole life benefit, innovation, resilience, effective supplier outcomes and greater work efficiency

Risk Map

Risk Map



Conclusion: Given the low level of spend, Specialist Surface Treatments has been a category that has not been prioritised previously - this means that NH's maturity around the category is low. Knowledge of the suppliers, their capabilities and working practices is now being gathered and brought together in order to explore the opportunity to realise the safety/environmental and whole life benefit benefits of SST's which can support NH in delivery of the RP2 and future RP3, minimizing the risk of NH not meeting Specific KPI's/commitments made in these areas. Early involvement at design/scheme development phase is key as this will enable innovation and opportunity to develop alternative pavement solutions.

Category Opportunities

Strategic Themes	Opportunities	Benefits	Obstacles
<p>Supplier Relationship Management</p>	<ul style="list-style-type: none"> ▪ SST Engagement forums & 121s & RSTA ▪ Support & Provide visibility to supply chain to explore innovation & efficiencies <ul style="list-style-type: none"> ▪ Provide link to support engagement between SST supply chain and NH Tier 1 and NH Delivery Programme ▪ H&S - Realise H&S opportunities 	<ul style="list-style-type: none"> ▪ Develop supplier relationships and open conversations around challenge ,innovation/carbon/safety ▪ Visibility of supply chain business models e.g carbon agendas / Tier 1 relationships 	<ul style="list-style-type: none"> ▪ Relationships between tier 1 and pavement supply chain and the SST supply chain ▪ Commercial drivers amongst the supply chain
<p>Sourcing Strategy</p>	<ul style="list-style-type: none"> ▪ Encourage ECI with SST supply chain to the design and option stages ▪ Opportunity to include CAUTS as a standard pavement solution (via PDF) 	<ul style="list-style-type: none"> ▪ Early engagement to help drive innovation & efficiency <ul style="list-style-type: none"> ▪ Cost savings ▪ WLB ▪ Alternative pavement solution accessible to delivery programmes 	<ul style="list-style-type: none"> ▪ . Restrictions/standards ▪ Supply chain commercial drivers
<p>Continuous Improvement</p>	<ul style="list-style-type: none"> ▪ Preventative maintenance approach ▪ Ringfencing a proportion of the pavement renewals budget could help to promote preventative maintenance schemes ▪ Promotion of preventative maintenance schemes would also provide a valuable source of data to further quantify the benefits case for such treatments ▪ CAUTS can offer cost savings – however more needs to be done working with the supply chain to improve application method/plant on SRN/motorways to increase productivity 	<ul style="list-style-type: none"> ▪ Better WLB ▪ Enabling greater data/intelligence gathering on the performance of SST's – moving away from 'anecdotal' <ul style="list-style-type: none"> ▪ Sharing of best practices inclusive of approaches to social value 	<ul style="list-style-type: none"> ▪ Preventative maintenance is difficult to promote within the current pavement renewal processes. ▪ Prioritisation for funding tends to be condition led; “poorer condition first”. ▪ Exacerbated by constrained budgets ▪ Benefits case not fully developed
<p>Innovation</p>	<ul style="list-style-type: none"> ▪ Encourage and promote innovations within the industry and provide opportunities to trial new products. Recent example with A1 scheme with the use of Graphene <ul style="list-style-type: none"> ▪ Understand/learning of innovations internationally 	<ul style="list-style-type: none"> ▪ Extend the life of the asphalt and increase strength/durability over the life of the surface 	<ul style="list-style-type: none"> ▪ Identification of suitable trial sites ▪ New innovation – lack of evidence to support

Recommendation

Benefits Strategy	Description	Recommendation
<p>Safety</p>	<ul style="list-style-type: none"> Reduction in the number of pavement interventions - less hours of roadworker exposure on the network Reduce the number of hours road worker are exposed when working on the network 	<ul style="list-style-type: none"> Use of products to extend the life of the pavement with less labour intensive/lengthy methods Promote the use of SST's preservatives/preventative techniques/products such as Geosynthetics
<p>Customer Service</p>	<ul style="list-style-type: none"> Customer experience improved by minimising roadworks and disruption on the network and improved road surface/ride quality Less disruptive application methods – reduced hours of road closures 	<ul style="list-style-type: none"> Use of products to extend the life of the pavement with less labour intensive/lengthy methods Promote the use of SST's preservatives/preventative techniques/products
<p>Delivery</p>	<ul style="list-style-type: none"> Delivering RIS2 & 3 via improved delivery methods and products to allow longer life expectancy. Identify and deliver environmental & efficiency benefits. Proving a toolbox of alternative surface solutions/products which can offer a cheaper alternative to traditional asphalt resurfacing 	<ul style="list-style-type: none"> Use of products to extend the life of the pavement with less labour intensive/lengthy methods Promote the use of SST's preservatives//techniques/products, Promote CAUTS where appropriate and work with supply chain to drive change in delivery/application to increase productivity
<p>Cross Category Synergy</p>	<p>NH stimulates cross Category workstreams, by:</p> <ul style="list-style-type: none"> Scope PID74 potential. Ensure robust communications to coordinate work rather than allow unproductive silo ventures. Work with pavement/road markings/TTM and all categories to share best practice and Industry intel on new / improved delivery methods and collaborative opportunities. 	<ul style="list-style-type: none"> Align Strategies to optimise efficiencies Use Innovation ReApplied to ensure synergy Continue to engage with Category Managers Share knowledge/findings on innovations within Industry to create opportunities (e.g., graphene)