CIHT

Reducing the impact of highway works on road users

September 2025

Disclaimer

CIHT, the authors, and contributors who produced this document have endeavoured to ensure the accuracy of its contents. However, the advice and recommendations given should always be received by the reader "in light of the facts" of their specialist circumstances and specialist advice obtained as necessary. Any references to legislation discussed within this document should be considered in the light of current and any future legislation. No liability for negligence or otherwise in relation to this document and its contents can be accepted by CIHT, the members of the project group, its servants or agents, or the managing editors or contributors.

Acknowledgements

The Chartered Institution of Highways & Transportation (CIHT) would like to thank everyone who has contributed to this report, without whom the document would not have been possible. In particular, we would like to thank the report chair, Steven Carmody, for his support and advice and the organisations that contributed to this report listed in the Appendix.

Recognition is also due to CIHT staff members Robert Pellow, Justin Ward, and Antoneta Horbury.

Published by the:
Chartered Institution of Highways & Transportation

119 Britannia Walk
London N1 7JE
t: +44 (0)20 7336 1555
e: info@ciht.org.uk
www.ciht.org.uk

Registered Charity in England No. 1136896
Registered Charity in Scotland No. SC040873
Registered Charity in Republic of Ireland No. 20103989

Published September 2025.

All rights reserved. No part of this publication shall be reproduced, stored in an electronic retrieval system, or transmitted without the written permission of the publishers.

For any inquiries, please email **technical@ciht.org.uk**

Contents

Forewords

Steven Carmody

Chartered Institution of Highways & Transportation (CIHT)

This report exemplifies CIHT's role as a leading authority in the highways and transportation sector. The issue of utility works disrupting the highway network has long been a concern for the public, industry stakeholders, and government alike. At CIHT, we recognise the significance of this challenge and the opportunity we have to influence meaningful change.

This document sets out a clear and considered pathway, shaped by industry professionals, on how improvements can be delivered. It draws upon best practice from across the sector, including lessons learned from other regions, and considers how these can be applied to improve outcomes in England.

With nearly 30 years of experience in the highways and transport sector, and around two decades of active involvement with CIHT, I've seen first-hand how collaboration and thought leadership can shape policy and practice. This report is another strong example of the important work being done to improve our transport systems for the benefit of all.

The recommendations outlined in the concluding section of the report are vital. They address both the economic and personal impact of utility works on road users and offer a roadmap for mitigating disruption through improved coordination and planning.

As a senior professional in the field, I fully endorse the call for further dialogue and collaboration around these recommendations. By working together across public and private sectors we can deliver better services for our customers. With enhanced coordination, communication, and cooperation, we have a real opportunity to make a positive and lasting difference.

Sue Percy, CBE

Chief Executive, CIHT

This report places people at its centre, with the aim of improving journeys for everybody who use our roads. No one should be prevented from making a journey because of unnecessary and avoidable disruptions.

It emphasises the need for greater collaboration across the sector to improve outcomes. As one of our core values, we know that collaboration is essential for the highways and transportation sector to advance common interest goals and inform and influence policymakers. The willingness of stakeholders across the sector to engage with this report demonstrates there is ambition in the sector to work together to reduce the impact of highway works on road users.

The report calls on government to intervene on an issue of national significance. If implemented, the recommendations can help make collaboration the standard for highway works. The sector must take this opportunity to improve, innovate, and ensure that vital upgrades to infrastructure do not create a barrier to travel for road users.

Executive summary

Disruption caused by street works (works carried out by statutory undertakers like utility companies using equipment and machinery on, or under, the road) and road works (works carried out to repair, improve, or maintain the highway including footways, carriageways, and street lighting) carries significant direct and indirect costs to the economy. Reducing disruption caused by highway works can improve the overall condition and function of the highway network, make significant savings, and ensure that the economic benefits of upgrading road and utility infrastructure are maximised.

This report provides an analysis of the challenges and opportunities in managing road works and street works on England's local highway network. In an already competitive environment for road space, there is likely to be a major demand for highway works over the coming years to ensure road conditions are improved and utility assets are upgraded and repaired. The planned construction of 1.5 million new homes,[1] including new towns, will likely require new road and utility infrastructure to ensure homes are connected to vital services. CIHT has written this report to support those responsible for the delivery of these works.

The report emphasises the need for a collaboration-first approach to street works. Embedding collaboration between all stakeholders involved in the delivery of works from the outset can help treat some of the underlying causes of disruption to road users. By prioritising collaboration, stakeholders can significantly reduce the impact of highway works on road users, improve the efficiency of works delivery, and enhance the overall quality of the local highway network. This is especially important where traffic affected by a road closure on one authority's network is diverted across boundaries onto another authority's network, such as a closure on the strategic road network causing traffic to be diverted onto the local road network and vice versa.

The report highlights the barriers to effective collaboration, such as limitations in legislation, regulatory environment, and knowledge gaps within the sector. Despite these challenges, the report demonstrates successful examples of good practices and innovative solutions that have been implemented in various local authority areas. These examples demonstrate the potential benefits of joint working, data sharing, and the use of advanced technologies and materials.

The report recommends several measures to embed a collaboration-first approach, focusing on government-led changes to formalise collaboration within the legal framework, enhance data monitoring, and strengthen incentives for compliance.

A report published by the House of Commons Transport Committee in July 2025 into "*Managing the impact of street works*" made a series of recommendations similar to those in this report, concluding that more can be done to assist local authorities in managing the deterioration of streets and minimising disruption.[2]

In September 2025, the Government rejected most of the House of Commons Transport Committee recommendations[3] however we believe it is important to reflect the findings from this project as provided by those who participated in it and so continue to call for some actions already rejected by the Government in their response to the House of Commons Transport Committee.

[1] MHCLG (2024) Press release: Planning overhaul to reach 1.5 million new homes, Ministry of Housing, Communities and Local Government

[2] Transport Committee (2025) Managing the impact of street works, second report of session 2024–25, HC 522, House of Commons

[3] Transport Committee (2025) Managing the impact of street works: Government Response, second special report of session 2024–26, HC 1318, House of Commons

Recommendations for government-led change

Independent Works Commissioner in England

The introduction of an independent commissioner in England, similar to the current model adopted in Scotland, to oversee the planning, coordination, and quality of road works and street works. A commissioner would help standardise practices across the sector, create a consistency of approach, and provide a single knowledgeable point of resolution with powers to enforce decisions, helping to mitigate some issues around legal ambiguity. A commissioner would also be able to monitor wider performance trends using data from the government's digital works management tool, Street Manager,[4] help to develop and improve the use of data, and disseminate good practice.

More incentivised fines regime

Thousands of works are carried out each day without comment or complaint, but when they overrun or are not managed appropriately they can cause problems. A more incentivised fines regime that rewards utilities that try to minimise disruption should be established. One possible way of doing this could be a performance-based system, similar to the one established with the inspections regime. As with performance-based inspections, pricing bands could be established, with lower fines applied to promoters that have received a low number of fines, and higher bands applied to promoters that have received a high number of fines, in the past financial year. The definition of "low number" and "high number" could be established based on the average number of fines issued across the industry. A below average number of fines would be classed as a low number and an above average number of fines would be classed as a high number. Alternatively it could be based on a percentile approach, with a number of fines above the xth percentile being classed as a high number.

New immediate-planned permit category

Current definitions of immediate works (emergency and urgent) permit categories, where permit applications are required within two hours of works commencing, do not provide promoters with scope to share advance notice with street authorities if they are aware of any required immediate works earlier than the current notice period. The creation of an immediate-planned permit category would provide a channel between street authorities and promoters to share more advance notice for immediate works.

Mandatory coordination meetings and attendance

Currently, compliance with the duty to cooperate does not always result in meaningful collaboration between works promoters and authorities. It is therefore recommended that the duties to coordinate and cooperate are strengthened by creating a statutory mandate for coordinating authorities to hold local coordination meetings with key stakeholders, and a statutory mandate for works promoters – including highway authorities and statutory undertakers – to attend them. Coordination meetings should include road user group representatives, such as bus operators and vulnerable users, ensuring there remains a focus on reducing the impact of works on road users.

[4] Street Manager is a DfT-developed works management tool used by highway authorities, utility companies, and contractors in England to apply for street and road work permits, assess permits, record inspections, and add reinstatements (after work has been completed).

Framework for collaboration

While collaboration is encouraged in the *Code of practice for coordinating street works and road works*, a more comprehensive framework for collaboration is needed that provides statutory guidance on best practice for collaboration between all stakeholders, including highway authorities, utility companies, contractors, and developers, across the different stages of delivering works, formalising collaboration within the process. As part of this framework, highway authorities will need to be adequately funded to support the transdisciplinary skillset required to fully embed collaboration into working practices.

Improve the planning, monitoring, and evaluation of data

Street Manager can be a platform to improve access and use of data, and it is recommended that the government expands the breadth and types of data being input into the system. Promoting more standardisation of data will support stronger embedding of artificial intelligence (AI) in working practices in the coming years. Government must ensure that data is fit for purpose, recorded in standardised formats, and held in a condition that means it is findable, complete, accessible, interoperable, and reusable, and accords with open data standards where possible. The new National Underground Asset Register should also be integrated into Street Manager.

Review-recommended accessibility measures

The red book should be updated to include descriptions of road user experience to help practitioners understand the lived experience of users navigating sites. Providing practitioners with this knowledge may support making informed decisions around site design and traffic management and help practitioners to adapt and apply guidance to real-world scenarios and locations. Guidance should reinforce the need for sites to be set up and managed so that works take place in the safest and most accessible manner possible. Updates to the red book should also ensure alignment with other documents, such as Chapter 8 of the *Traffic signs manual*.[5]

[5] DfT, Department for Infrastructure, Transport Scotland, Welsh Assembly (2009) Traffic signs manual chapter 8 (parts 1, 2, and 3), Department for Transport

Introduction

Street works (works carried out by statutory undertakers, such as utility companies, using equipment and machinery on, or under, the road) and road works (works carried out to repair or improve the highway including footways, carriageways, and street lighting) both occur on a highways network that is ageing and, generally, in qualitative decline.

Everyone relies on the local highway network, which is why disruptions created by highway works are a strong source of public frustration, for drivers and for people walking, wheeling, and cycling, especially for people with specific mobility and neurological requirements.[6] There is a clear need for a step-change in practices to support better travel experiences for road users.

Road user frustrations are often compounded by inefficiency in maintenance practices, which can create issues around congestion, have a detrimental impact on road and street structural and surface quality, and create accessibility issues for users. All of this creates additional costs for highway authorities in an already limited funding environment.

Intervention is imperative, given the estimated £4 billion a year cost of disruption caused by street works alone.[7] Road works account for around a third of highway works[8] and are not included in the estimated £4 billion a year cost of disruption, so the total cost of disruption caused by both street works and road works is likely to be significantly higher than £4 billion a year. Therefore, even a small percentage reduction in disruption is likely to save millions in economic costs. The key to mitigating disruption is effective and meaningful collaboration. However, this simply is not happening in practice due to a lack of incentives caused by legislative limitations and the regulatory environment and knowledge gaps in the sector.

Local roads are one of the most valuable council assets, worth more than £400 billion, and they require major renewal and maintenance.[9] Beneath the road, there is around 4 million kilometres of pipes, electricity and telecoms cables, and sewers[10] belonging to a large and growing range of utility companies, which are responsible for maintaining and upgrading these assets. The government's plans to build 1.5 million new houses will likely create a demand for new road and utility connections to provide access to services. As new housing is built and public frustrations with deteriorating road conditions intensify, works promoters and coordinating authorities will be under pressure to deliver upgrades and repairs to both road and utility infrastructure, while minimising disruption.

To support the efficient delivery of these works, this report highlights some of the challenges and opportunities for local highway authorities and works promoters and provides a set of recommendations for government in amending and strengthening the regulatory environment around highway works.

Development of this report

This report has been written following a series of stakeholder engagement activities, including an initial online workshop held in February 2025, followed by a second in-person workshop in April 2025. A call for evidence was opened in April 2025, with submissions received from a range of stakeholder groups. A third workshop was held in June 2025 to test the draft findings of the report with members of CIHT's Council.

---

[6] The Disabled Citizens Enquiry (Sustrans, Transport for All) highlights works as a barrier to travel, and the AA has highlighted disruption from works as a source of member complaints.

[7] DfT (2024) Street works: fines and lane rental surplus funds, Department for Transport

[8] According to written evidence submitted by the Department for Transport to the Transport Committee's inquiry, Managing the impact of street works

[9] Asphalt Industry Alliance (2025) Annual local authority road maintenance survey report 2025, Asphalt Industry Alliance

[10] Cabinet Office, Geospatial Commission (2022) Policy paper: National Underground Asset Register project update October 2022, Cabinet Office

Definitions and terminology

In England, highway works occurring on the strategic road network (composed of trunk motorways and A roads) are coordinated by National Highways. Highway works occurring on the local highway network (composed of all other road types) are coordinated by local highway authorities. While highway works occur on both the strategic road network and the local highway network, they involve different systems and processes. This report refers to the local highway network in England, with reference to practices in Scotland.

This report looks at the issues and opportunities around street works and road works. Where this report refers to "highway works" it means areas that relate to road works and street works.[11]

This report follows terminology used by the *Code of practice for the coordination of street works:*

> *"Authorities" means highway authorities, street authorities, transport authorities and/or permit authorities – these are often the same organisation.*
>
> *"Promoters" means organisations promoting works, including utility companies carrying out street works and highway authorities carrying out road works. The report also refers to "contractors", which are often employed by these organisations to carry out works.*
>
> *"Coordination" means the duty of authorities to coordinate the execution of street and road works, as set out in Section 59 of the New Roads and Street Works Act 1991 (NRSWA).*[12]
>
> *"Cooperation" means the duty of promoters to cooperate with the coordination process, as set out in Section 60 of NRSWA.*[13]

While there is no statutory definition of collaboration, Chapter 2 of the *Code of practice for the coordination of street and road works*[14] provides a set of key underlying principles for effective collaboration:

- **The need for the authority to have accurate and timely information, including contact details with each permit.**
- **Details of how works will be undertaken so that the authority can understand the impact.**
- **The authority to consider if any changes are required to the works to help minimise disruption.**
- **All parties must cooperate with the authority to minimise disruption.**
- **All parties should consider opportunities for collaboration.**

[11] DfT (2023) Code of practice for the coordination of street and road works, Department for Transport

[12] New Roads and Street Works Act 1991

[13] New Roads and Street Works Act 1991

[14] DfT (2023) Code of practice for the coordination of street and road works, Department for Transport

1. What do we mean by disruption?

When works take place in the road, users have the right to expect the minimum disruption to their travel. When this does not happen there are major cost, safety, and journey implications, especially for people with specific mobility requirements.

Factsheet 1 highlights some of the headline figures relating to the impact of disruption in the United Kingdom because of street works carried out by utility companies. This does not include the cost and impact of road works carried out by highway authorities.

FACTSHEET 1: Quantifying disruption

£4 billion

The estimated cost of disruption to the economy caused by street works[15]

£66.6 million

The amount spent by local authorities on addressing premature maintenance arising from utility openings in England and Wales 2024/25[16]

Over 4 million

The number of excavations of the road each year[17]

60,000

The number of asset strikes in a year – where accidental damage is caused to underground assets as a result of excavation in the highway[18]

1.1 The road user experience of disruption

Road users may expect a degree of disruption when highway works are ongoing, but inefficient practices in the planning and carrying out of works can often make disruption much more severe. The experience of disruption can also differ depending on the mode of travel used. Often too little or no explanation is given for why no work seems to be being carried out, even when this could be for legitimate reasons.

[15] DfT (2024) Street works: fines and lane rental surplus funds, Department for Transport

[16] AIA (2025) Annual local authority road maintenance survey report 2025, Asphalt Industry Alliance

[17] LSBUD (2024) Digging up Britain, Linesearch BeforeUDig

[18] DfT (2025) Press release: Thousands of miles of roadworks lifted ahead of Easter as drivers set to be £500 better off, Department for Transport

Congestion and journey delays:

In many cases, delays caused by works may be unavoidable; however, some inefficient practices can exacerbate delays to journey times. An example is excessive carriageway occupation, whereby promoters may seek to maximise the length of road used to ease operations and reduce costs. Delays in sequencing, whereby different contractors are employed to carry out different functions, can increase work durations, with sites often being left unattended for long periods without explanation. Multiple highway works may also be conducted along the same road or within a short period, further compounding user frustration. The impact on buses can be particularly significant, given they travel on the same route repeatedly throughout the day and may find it harder to use diversionary routes available to private cars, for example due to the presence of low bridges or weight or width restrictions. For bus users, this can result in unreliable journey times, or even loss of services for prolonged periods.

Inaccessible and unclear route diversions for pedestrians:

Poorly laid out signage around highway works can often make alternative routes for pedestrians difficult to understand. In some cases, the alternative routes provided may not be viable for all users. For people walking, wheeling, and cycling, diversions can be unsafe and there is often a disregard for visually impaired people and people using pushchairs, wheelchairs, or canes. Moreover, works that limit access to rest stops, such as benches and bus stops, impact people with an energy-limiting impairment or major pain as they need to be able to stop regularly to rest. When multiple works are ongoing in different places, alternative routes may cross into other works, which can make them inaccessible for some users. Motorised traffic diversions can also cut passengers off from bus services when access to bus stops is impacted.

Difficulties in planning travel when there are disruptions:

Road users need to be kept informed of where and when works are taking place and what the impact will be on the network. However, this information is not always provided or easy to access for people with additional visual or neurological requirements, making it harder for all users and bus operators to plan accordingly. A high frequency of emergency and urgent works also gives little notice to authorities, making the task of coordination and communication difficult. Without adequate communication between promoters and authorities, it is difficult for authorities to keep road users informed of where and when disruption will take place.

Safety issues caused by road degradation:

Repeated excavation of the road and poor reinstatement associated with street works has a detrimental effect on both the surface condition and the underlying structure of the highway.[19] Inconsistency in footway surfaces following street works can create unpredictability in navigating a streetscape and cause discomfort. Wheelchair users may experience significant physical pain caused by bumpy and uneven surfaces. This can also create trip hazards for visually impaired people and people who are less steady on their feet. Potholes[20] caused by road degradation can damage vehicles travelling over them and can be dangerous for motorcyclists, cyclists, horse riders, and pedestrians crossing the road.

While poor road conditions and defects are caused by several different factors, including drainage and soil quality, poor reinstatement of the road can compound an already worsening outlook for the condition of the local highway network. Factsheet 2 highlights some of the costs of wider road asset degradation.

[19] In the UK the service life of carriageways is reduced by 17% and footways by 10% because of utility trenches according to TRL (2009) A charge structure for trenching in the highway, the Transport Research Laboratory report for Transport for London (TfL) and County Surveyors' Society (CSS).

[20] For more information on the wider costs of potholes, CIHT members can read CIHT (2025), Potholes and poorly maintained footways: the cost to the NHS, the Chartered Institution of Highways & Transportation.

FACTSHEET 2: Key figures relating to road defects

£1.25 billion

The cost of damage caused to vehicles by potholes in 2020[21]

631,852

The number of pothole-related breakdowns attended by the AA in 2023[22]

£19.7 million

The amount paid out by local authorities in compensation claims for damages arising from road defects[23]

255

The number of cyclists killed or seriously injured due to road defects since 2017[24]

1 in 10

The number of people over the age of 65 who trip or fall due to uneven or damaged pavement surface[25]

1.2 The cost of disruption

Disruption does not just impact users' journeys but also creates additional costs, which often fall on public sources of funding.

Economic impact:
The Department for Transport (DfT) estimates that the disruption to people's journeys and congestion caused by street works has an annual cost of £4 billion to the economy.[26] This figure would be higher if disruptions caused by highway authority road works were to be included, but this is not monitored centrally and so no figure is available. There is an undeniable economic cost of congestion and delayed journey times, given the impact on the movement of people and goods. It has been estimated that traffic congestion could cost the UK economy £307 billion between 2013 and 2030, with indirect cost burdening households as higher freighting costs caused by congestion are passed on to the consumer prices of goods and services.[27]

[21] AtkinsRéalis (2024) Economic appraisal for investing in local highways maintenance, AtkinsRéalis, Department for Transport

[22] Reported in news article by the AA, published in 2024.

[23] Asphalt Industry Alliance (2025) Annual local authority road maintenance survey report 2025, Asphalt Industry Alliance – based on ALARM surveys of 78% of local authorities responsible for local roads in England and Wales.

[24] AtkinsRéalis (2024) Economic appraisal for investing in local highways maintenance, AtkinsRéalis, Department for Transport

[25] AtkinsRéalis (2024) Economic appraisal for investing in local highways maintenance, AtkinsRéalis, Department for Transport

[26] DfT (2024) Consultation outcome: Street works: fines and lane rental surplus funds, Department for Transport

[27] Inrix (2014) Press release: Traffic congestion to cost the UK economy more than £300 billion over the next 16 years, Inrix

Asset degradation:

Accessing underground utilities requires an estimated 4 million excavations of the road a year.[28] This damage effectively shortens the service life of the highway, leading to increased highway maintenance costs. According to the latest Annual Local Authority Maintenance Survey, while 84% of road reinstatements after street works were reported to be completed in accordance with legislation, local authorities still reported spending an average of 2.8% of their carriageway maintenance budget addressing premature maintenance arising from openings.[29]

Asset strikes:

Excavating the road without knowledge of what is underneath it can create problems such as accidental damage to underground assets. Asset strikes pose a major risk to road worker safety and create a need for further works to repair the damage, creating more disruption to the network. There are 60,000 asset strikes a year, costing the UK economy £2.4 billion, according to the DfT.[30] The true cost of an asset strike has been estimated to cost 29 times the initial direct cost of repairing the damaged asset, because of resulting production losses, damage to equipment and machinery, and disruption to local utility services, businesses, and consumers.[31]

Compensation:

When injuries occur to road users due to hazards on a road or pavement, local authorities may have to pay compensation. In 2024/25, local authorities reported paying out £19.7 million in compensation claims, with 92% relating specifically to potholes, and a further £17.6 million spent on staff costs to deal with claims.[32]

Inspections and compliance:

Inspections allow highway authorities to monitor road reinstatements following street works. Performance-based inspections of street works enable highway authorities to issue fines for defects and follow up inspections, with more inspections and charges focused on poor performers[33] and fewer on better performers. Inspections offer a largely surface-level analysis of the road, while coring programmes give an indication of underlying structural defects. Coring involves the removal of a 100mm diameter core from the reinstatement and testing for compliance with current standards.[34] Coring can develop a better understanding of overall compliance, promote best practice, and help to drive continuous improvement.[35] However, coring requires adequate resourcing and funding. While highway authorities can recover coring costs from promoters, costs can only be recovered for cores that have failed to comply with specification. This makes running a coring programme to monitor and maintain good performance difficult without adequate revenue funding to support it. It can also be difficult to attribute defects to any one promoter in places where the road has been excavated repeatedly.

Dispute and mediation:

When utility companies and authorities disagree over the application of regulations, the dispute is referred to the Highway Authority and Utilities Committee (HAUC). Straightforward disputes are referred to the relevant regional HAUC, while more complex matters are referred to HAUC England, and if a conclusion is not reached, HAUC (UK). Mediation will involve equal representation from both disputing organisations but does not always reach a unified conclusion. In some cases, authorities may choose to prosecute promoters, taking time and incurring additional administrative costs.

---

[28] LSBUD (2024) Digging up Britain 2024, Linesearch BeforeUDig – according to LSBUD 4 million is an industry "guestimate", and the actual figure is likely much higher.

[29] Asphalt Industry Alliance (2025) Annual local authority road maintenance survey report 2025, Asphalt Industry Alliance – based on ALARM surveys of 78% of local authorities responsible for local roads in England and Wales.

[30] DfT (2025) Press release: Thousands of miles of roadworks lifted ahead of Easter as drivers set to be £500 better off, Department for Transport

[31] LSBUD (2024) Digging up Britain 2024, Linesearch BeforeUDig

[32] Asphalt Industry Alliance (2025) Annual local authority road maintenance survey report 2025, Asphalt Industry Alliance

[33] DfT (2023) Code of practice for street works inspections, Department for Transport

[34] DfT (2023) Code of practice for street works inspections, Department for Transport

[35] HAUC (UK) (2012) HAUC (UK) good practice guide to implementing a structured coring system, Highways Authorities and Utilities Committee

2. Collaboration-first – the ideal approach

The above issues suggest that the current system of delivering works is not functioning adequately. Many of the practices taking place that worsen disruption could be mitigated through enhanced collaboration. The following table describes the process of delivering works, highlighting example scenarios where enhanced stakeholder collaboration would reduce disruption.

1. Initiating highway works	2. When highway works are ongoing	3. When works have been completed
Promoters may undertake highway works because of a need to repair and upgrade infrastructure. Street authorities are made aware of all the details of works with advance notice, allowing them to coordinate highway works effectively; they discuss the details with key stakeholders such as bus operators and agree the most efficient and least impactful approach. When traffic from a road closure is diverted on to another authority's network, both authorities are involved in decision making where possible. Developers of new buildings, housing, and industrial estates are responsible for liaising with utility companies to ensure that these buildings are connected to services. Developers work with utility companies and planning authorities to coordinate these works to happen at the same time, where possible. Similarly, where junction improvements or similar highway works are undertaken to support a new development, these works are coordinated with the utility works. If multiple works are planned in the same place, promoters work together to carry out multiple sets of works in the same trench before the excavated road is reinstated, preventing works within a short time of earlier works and repeated excavations of the same road. If street works are planned on a road due to be resurfaced by the highway authority, promoters and authorities work together to carry out works before the road is resurfaced to prevent degradation of a recently resurfaced road.	Once highway works are initiated, different contract organisations working on site will communicate effectively with each other to prevent delays in the sequencing of their work. While highway works are ongoing, promoters communicate with the street authority if plans change so that authorities have all the up-to-date information needed to coordinate effectively and notify users of potential disruptions. Promoters and highway authorities will work together to communicate potential disruptions with road users, sharing resources to support more effective communication. When emergency street works have taken place, promoters and authorities work together to identify possible opportunities to carry out other planned works before the road is reinstated, to prevent more works within a short time of earlier works and repeated excavations of the same road.	Once street works have taken place, promoters reinstate the road to the required specification. If a trench has been shared, a single promoter will take responsibility for the guarantee of the reinstatement. Where a dispute occurs, mediation results in an unambiguous conclusion, accepted by all parties.

3. Barriers to collaboration

The previous chapter highlights a set of scenarios in which collaboration could minimise disruption. However, these scenarios are currently largely aspirational. DfT data suggests only around 1% of all works in England involve some sort of collaboration.[36] A collaboration-first approach, through which authorities and promoters seek collaboration opportunities from the outset of initiating works, could lead to more effective minimisation of disruption.

Working with stakeholders, CIHT has identified three core barriers to meaningful collaboration becoming a standard practice – limitations to the legislation, the regulatory environment, and knowledge and resource limitations.

3.1 Legislation

Sections 59 and 60 of the NRSWA set out the duty for street authorities to coordinate works and the duty for promoters to cooperate with this process.[37] Sections 71 and 72 of the NRSWA also set out compliance requirements for reinstatement and the power of authorities to carry out inspections.[38] Highway authority permit schemes were introduced by Part 3 (sections 32 to 39) of the Traffic Management Act 2004 (TMA) and are regulated in England by the Traffic Management Permit Scheme (England) Regulations 2007 (the 2007 regulations).[39] Section 16 of the TMA introduced the network management duty, which obligates highway authorities to secure the expeditious movement of traffic, including pedestrians and cyclists, on the authority's road network, and facilitate the expeditious movement of traffic on neighbouring road networks.[40] Currently, the legislation does not clearly define or reinforce collaboration.

Lack of a legal framework for collaboration:

While collaboration is encouraged in the *Code of practice for the coordination of street and road works*, it is not specified in the underlying legislation. Compliance with the duty of promoters to cooperate with coordination processes, as set out in the NRSWA, does not necessarily require meaningful collaboration. For example, street authorities are encouraged to hold coordination meetings, as per the *Code of practice for the coordination of street and road works*,[41] but it is not mandatory for promoters to attend them. The lack of a clear legal framework for collaboration has meant that it has not been embedded in the sector.

Legislation and guidance has not kept up with sectoral change:

Since the enactment of the NRSWA (1991) and the TMA (2004) the sector has changed significantly. For example, data-led traffic modelling has become central to traffic management, and new technologies have become available to support monitoring. While guidance[42] has subsequently been written to account for changes over time, this has also made the overall legal framework layered and complex.

Legal ambiguity can create tensions between authorities and promoters:

Ambiguities in the legal framework can create tensions because they provide the potential for authorities and promoters to dispute over compliance and make it difficult for arbitration to reach a conclusion. It can also be difficult to attribute responsibility for a failure in meeting statutory duties such as cooperation and reinstatement to the correct specification, because different contractors may play a role in delivering a single scheme on behalf of a utility company or highway authority.

---

[36] Street Manager quarterly reports made available to HAUC via DfT

[37] DfT (2023) Code of practice for the coordination of street and road works, Department for Transport

[38] DfT (2023) Code of practice for street works inspections, Department for Transport

[39] DfT (2022) Permit schemes: statutory guidance for highway authorities, Department for Transport

[40] DfT (2023) Code of practice for the coordination of street and road works, Department for Transport

[41] DfT (2023) Code of practice for the coordination of street and road works, Department for Transport

[42] Guidance and documentation published by DfT relating to street and road works can be found here

3.2 Regulatory environment and compliance

The regulatory environment can be an effective way of fostering a collaborative culture in the sector. However, both promoters and authorities have highlighted frustrations with the regulations. There is a general view that behaviours by either side make it harder for promoters to comply with regulations and for authorities to enforce them.

Lack of standardisation in practices:

There are local variations in the way authorities implement regulations and the different practices used by promoters. A lack of standardisation in practices has meant that a general framework for collaboration has not emerged organically within the sector. It has also created tensions between promoters and authorities because both sides perceive a lack of compliance in the other's practices.[43] Supply chain dynamics can also complicate matters as the regulatory relationship mainly exists between highway authorities and promoters, but not the contractors they employ.

Lack of incentive to collaborate:

The fines regime is one of the main levers available to authorities to incentivise promoter cooperation. However, there are frustrations within authorities that promoters may view paying penalties as being cheaper than compliance and cooperation.[44] There is also little incentive to embed best practice in supply chain contracts. Without proper incentives to comply with the regulatory environment, collaboration is unlikely to become standard practice.

Permits do not provide the full picture:

Generally, permits do not contain the optimum level of information needed to support authorities in coordinating works. Statutory guidance suggests that permits are requested for an agreed "reasonable period".[45] Promoters may factor in contingency to their calculation of a reasonable period. However, the outcome is not always the optimum permit duration and can lead to long permit periods without a mechanism to shorten the duration if works are completed before the end of the permit duration. There is also not necessarily the incentive in place for promoters to complete works before the end of the permit period, which can lead to long periods where work may not be taking place while the permit is still ongoing. Emergency works permits, for highway works that are required to prevent danger to people or property, and urgent works, for street works that are required to prevent a loss or restore a supply or service, also provide very little notice and information to authorities as permit applications are submitted within two hours of work already commencing.

3.3 Knowledge and resources

The roles played by authorities and promoters in the sector encompass a wide spectrum of skills and technical expertise. For example, both promoters and authorities are expected to have skills relating to mediation to carry out effective arbitration of disputes. Effective collaboration requires a transdisciplinary skillset, placing an even higher demand on stakeholders to have knowledge and understanding of the sector in order to proactively seek collaboration opportunities.

Lack of knowledge and information sharing:

While different authorities and promoters will likely have access to a wide variety of data and information, the channels are not necessarily there to share it. On a basic level, permits could provide a channel for better information sharing around specific works, such as the planned sequencing of works, but currently permits do not tend to contain this level of information. On a national-level, collective knowledge of what utility apparatus sits underneath the road, and where it is located is limited. Utility companies will place assets in different layers of the road but will not necessarily have knowledge of the other layers and assets in the road.[46]

---

[43] During oral evidence submissions to the Transport Committee inquiry on Managing the impact of street works, representatives of the street works sector and local authorities alluded to practices by the other creating issues.

[44] Submissions by the Joint Authorities Group UK and the Local Government Association to the Transport Committee inquiry on managing the impact of street works suggest that payment of fines is often less costly than full compliance.

[45] DfT (2022) Permit schemes: statutory guidance for highway authorities, Department for Transport

[46] The Department for Science, Innovation and Technology is currently working on a National Underground Asset Register (NUAR), due to be operational by the end of 2025.

Sharing technical knowledge between promoters and authorities can also support the task of coordination. For example, granting permit applications for street works could be made easier with technical knowledge of utility work, providing an understanding of whether requested permit durations are appropriate for the type of work being undertaken. Providing better and more effective channels for knowledge sharing could help foster a better common understanding between stakeholders of their needs and drivers.

Limitations to data inputs and access:

Data is essential to effective decision making, but currently the data needed to make better decisions is not available or not of good enough quality. Street Manager is a digital system developed by the DfT and made available to authorities, works promoters, and contractors as a works management tool. The tool is used to apply for street works and road works permits, assess permits, record inspections, and add reinstatements once they have been completed. Street Manager has provided a hub for data, but there is still much information that Street Manager does not provide and there is scope for more effective data visualisation. For example, permit data alone will not necessarily highlight the direction of a road closure. This means that data is often scattered because authorities have to rely on multiple different streams to access it. Weaknesses in data also prevent uptake of newer technologies like AI, because the information is not sophisticated enough to support effective automated systems. This will require better standardisation of data and a wider set of inputs for information in Street Manager, which would support better data collection and monitoring. Improving data inputs will also require support for the skills to both collect and utilise it effectively.

Skills and funding:

As outlined in Chapter 1, there are a number of cost burdens that fall on coordinating authorities. There is already a major gap in funding for the required maintenance across the local highway network, estimated to be £16.81 billion.[47] Maintaining an effective coring programme to sustain performance improvement in reinstatement also requires funding beyond the current cost recovery measures. HAUC has previously highlighted that maintaining an adequately trained workforce is a resource challenge for the sector, but a lack of data in this area makes it difficult to identify priority areas.[48] Embedding collaboration and integrating new technologies and innovations into working practice will require funding support for the necessary skills and knowledge.

[47] Asphalt Industry Alliance (2025) Annual local authority road maintenance survey report 2025, Asphalt Industry Alliance

[48] HAUC (UK) A five-year vision for street and road works in the UK, Highway Authorities & Utilities Committee (United Kingdom)

4. Good practice in collaboration

Despite the barriers highlighted in the previous chapter, there are examples of innovative practices and collaborative working emerging in the sector. Promoters and authorities have developed practices that have both improved the efficiency of delivering works and minimised associated disruptions. This chapter highlights examples of collaborative practices taking place in parts of the sector with scope for wider application nationally.[49]

4.1 Examples of collaborative practices in the delivery of works

Joint works

Joint works are extremely effective at mitigating disruption because they allow multiple works to be carried out within a shorter period, minimising the time between one set of works concluding and another starting. If road excavation is required, joint works can also involve trench sharing, which reduces the number of times the road needs to be excavated and reinstated, often referred to as a "dig once" approach.

There are examples of this happening in practice. Transport for London (TfL) advertises opportunities for utility companies to work within the block and lane closures and directional road closures it uses for parts of its network when works are carried out by its maintenance teams. Joint working between Camden, GLA, and Cadent Gas aligned the installation of rain gardens with Cadent Gas maintenance work, saving 21 days of possible disruption. The Royal Borough of Kensington and Chelsea (RBKC) actively pursues joint working opportunities between promoters, which has saved in excess of 4,500 days of additional disruption between April 2010 and July 2024.[50]

Lincolnshire County Council has introduced a Street Works Charter, which seeks to align works programmes between different organisations. In the city of Lincoln, Cadent Gas and City Fibre reordered their line of work to carry out planned works on Hykeham Road, aligning with road works being carried out by Balfour Beatty on behalf of Lincoln City Council, to reduce how often the road would be dug up. Traffic management was implemented by Cadent Gas to keep traffic flowing and create enough space for five different teams from all three organisations to work simultaneously, with the costs shared between organisations.

The challenge with developing joint works programmes is finding the communication channels to share information and understand where works are planned to take place. In Birmingham, where HS2 has required major ongoing works, Transport for West Midlands (TfWM) has held multi-stakeholder forums, which has facilitated communication and the establishment of combined work programmes on the highway. Examples include the Eastside Metro Extension and Washwood Heath. There are also products available on the market that can support this communication and information sharing. For example, the FYLD fieldwork execution platform provides a view of contractor activities across water, gas, fibre broadband, and transport infrastructure projects in a shared dashboard, which can help promoters and authorities identify overlaps and align schedules.

Joint working and collaboration can also be a platform for knowledge and information sharing between site teams. Disability equality awareness among promoters and site workers is key to improving site layouts and preventing accessibility impediments being created. RBKC works with Action Disability Kensington and Chelsea's (ADKC) Access Group to understand more about some of the challenges disabled people encounter when trying to negotiate work sites while going about their daily business. It has involved the ADKC Access Group carrying out several joint audits of live work sites where the group's members are asked various questions about how the site has been set up and how it could be improved. This initiative brings together ADKC Access Group members, RBKC contractors, and utility companies that carry out the majority of work throughout the borough every year.[51]

[49] This chapter has been compiled using submissions made by the organisations referenced, unless an alternative source is provided

[50] The Royal Borough of Kensington and Chelsea roadworks FAQs

[51] CIHT (2024) Creating a public realm for all, the Chartered Institution of Highways & Transportation

Similarly, the TfL Network Management & Resilience – Construction Advisory & Innovation Team won the 2024 Team of the Year at the CIHT Awards. By using experiential learning to improve accessibility, TfL's Network Management and Resilience Directorate uses experiential learning to offer a new perspective to improve accessibility for vulnerable users during works by gaining direct feedback from underrepresented groups, as required by the public sector equality duty, under the Equality Act 2010. TfL provides advice to works promoters, developers, and constructors on the impact of its works on members of society with physical, visual, and hearing needs, neurodivergent people, and those with learning disabilities.

The *Code of practice for safety at street works and road works*, known as the "red book", provides guidance on appropriate safety measures on work sites.[52] The Disabled Citizens Inquiry has recommended an update to the red book, which was last updated in 2013, noting that it is too often not adequately followed.[53] The DfT has drafted updates to the code of practice and plans to consult on these.[54]

It is important that these updates provide practitioners with the knowledge and tools to ensure that sites do not create barriers for people trying to access streets and roads, by providing information that is applicable to real-world situations.

CIHT's report *Creating a public realm for all* states that the UK government should fund disability equality awareness training for all local authority personnel who are designing and changing the public realm. It is equally important that utility companies and contractors conducting street works are given disability equality awareness training.[55] CIHT Learn, CIHT's professional development platform, offers a growing suite of courses in this area, including Designing for highways and transportation for people with dementia, Understanding disability, Designing highways and transportation for blind and partially sighted people, and a CIHT Learn course on Creating a public realm for all.

Data and monitoring

Data can be used to inform work management systems, which helps promoters to create maintenance plans.[56] In Southampton, Southampton City Council and Balfour Beatty, through their Southampton Highways Service Partnership, opened their Operational Control Hub (OCHub) in July 2022. Aiming to use data to provide a holistic oversight of its maintenance services, the OCHub is a dashboarding product that displays real-time data to drive interventions and improvements. Within the first 100 days of use, there was a 25% reduction in time taken to resolve third-party defects, and 100% of highways inspections were completed on time.

Data recording is essential to understanding what is happening on and beneath the roads. Asset strikes create significant costs and knock-on disruptions. However, workers must contact multiple organisations and wait on average over six days just to get the information required to carry out works beneath the road safely.[57] Currently, the Department for Science, Innovation and Technology is developing the National Underground Asset Register (NUAR), which is expected to increase the efficiency of data sharing and excavations, lead to fewer accidental strikes on underground pipes and cables, and reduce disruptions for the public and businesses, leading to an estimated economic growth of at least £400 million per year.[58] There are other safe digging services currently being used by a variety of stakeholders, such as LSBUD, and it is important that these are integrated with the NUAR to help formalise stakeholder collaboration and knowledge sharing.

---

[52] DfT (2013) Safety at street works and road works: a code of practice, Department for Transport

[53] Sustrans, Transport for All, Motability (2023) Disabled Citizens Inquiry: giving disabled people a voice in walking and wheeling policy and practice, Sustrans

[54] Transport Committee (2025) Managing the impact of street works: Government Response, second special report of session 2024–26, HC 1318, House of Commons

[55] CIHT (2024) Creating a public realm for all, the Chartered Institution of Highways & Transportation

[56] LGA (2025) Improving highways maintenance productivity, Local Government Association

[57] Government Digital Service, Geospatial Commission, and Department for Science, Innovation and Technology (2025) Guidance: National Underground Asset Register (NUAR), Department for Science, Innovation and Technology

[58] Government Digital Service, Geospatial Commission and Department for Science, Innovation and Technology (2025) Guidance: National Underground Asset Register (NUAR), Department for Science, Innovation and Technology

Technology and materials

New technology and materials are being trialled that help reduce disruption by shortening work durations with more efficient techniques for reinstatement and repairs. Innovations in machinery can be used for reactive maintenance like pothole repairs and can enable faster repairs, lower costs per pothole, and improve worker productivity.[59]

Different techniques can be used to deal with specific challenges without resulting in full road closures and resurfacing. For example, aiming to improve skid resistance in a deteriorating road without applying a costly full resurfacing, Balfour Beatty and Lincolnshire County Council have used cyclone machines that power high-pressure water through a jet to break up the bitumen without causing damage to the road. Simultaneously, the machine suctions up water and bitumen, leaving the road retextured and safe. In the case of one scheme, this resulted in a 50% reduction in programme duration, and it was carried out without road closure and allowed buses to use a road that had been previously avoided.

RoadMender Elastomac has been tested by a number of authorities, including the London Borough of Sutton. This is a modified flowable hot-lay mastic asphalt used for potholes and patching repairs. The material utilises a faster process, which reduces the required duration of works. MEON PermaFyx has been used by utility companies on works around carriageway ironworks to ensure that reinstatement can be carried out quickly and is durable under high volumes of traffic. Kent County Council has found success in treating concrete roads with Road Techs Concrete Carriageway Rehabilitation, a National Highways and TRL approved repair solution that is rapid setting and allows for efficient repair of potholes, and Miles Macadam Milepave, a high-strength material that provides sealing against water ingress.

Scanning technology is also used to detect road surface issues, allowing authorities to shift towards more proactive road maintenance techniques. Councils in England have been using AI-powered camera technology, whereby cameras attached to patrol vehicles scan the road surface to detect potential issues before they turn into serious problems.[60]

Technologies are also being utilised to allow access to apparatus underneath the road without major excavation. Cadent CISBOT (cast iron joint sealing robot) is a remote-controlled robot that Cadent Gas is using to repair and upgrade large sections of gas pipes from a single hole in the road. Thames Water, Cadent, Openreach, and TfL have collaborated to investigate the use of fibre cables to proactively detect anomalies across networks. This would help with detecting potential issues early, allowing for more advance notice and mitigating the potential for emergency works, meaning information and planning can be shared early with coordinating authorities.

Technology can support more dynamic, automated monitoring of works. TfWM uses drones to monitor the impact of traffic management relating to its schemes. A live feed of the footage allows for interventions relating to traffic management layout and operation, to reduce network impact and potentially change the duration or phasing of the work. To communicate potential disruptions to users, WJ uses Safety Cloud digital alerting by HAAS Alert, which sends out automatic digital alerts activated by vehicle lights through compatible navigation apps and vehicle infotainment screens to let users know they are approaching road works, road maintenance, or other hazardous operations on their route, ensuring users are aware of potential disruptions and can plan accordingly. FYLD and Colas have used AI to monitor site conditions, allowing them to develop a proactive approach to issue identification, meaning potential disruptions caused by unexpected safety issues can be avoided.

[59] LGA (2025) Improving highways maintenance productivity, Local Government Association

[60] LGA (2025) Improving highways maintenance productivity, Local Government Association

4.2 Examples of collaborative practices in the coordination of works

Passenger transport

Improving the quality of bus services has been a significant national priority over the past few years, with local authorities having the responsibility for delivering on this objective. Since the publication of the National Bus Strategy[61] (NBS) for England, English local authorities outside of London have been expected to produce a Bus Service Improvement Plan (BSIP). However, disruptions caused by street works pose a challenge to local authorities' vision for improvement, given the impact of works on bus services. Authorities have been developing new coordination practices to mitigate this impact, through close collaboration with operators. Through the Enhanced Partnership Scheme for Buses,[62] TfWM monitors bus journey times using automatic vehicle location (AVL) data. This monitoring helps identify areas where road works are causing significant delays, enabling TfWM to work with local highway authorities to adjust street works schedules and methods to minimise impact on public transport services. TfWM is also developing the Bus route and Streetworks Coordination tool (BuSCo), which shows current and upcoming planned street works in conjunction with bus routes across the West Midlands. It will have operational uses for transport operators, utilities, and authorities to help reduce the cumulative impact of street works along bus routes and across authority boundaries.

Similarly, TfL has started a project called Bus Sense, working in partnership with boroughs to mitigate the impact of road works on bus journeys. Partnership working is essential because bus routes often cross through multiple authority areas. The project aims to use partnership working to reduce the impact of road works on buses by focusing coordination on bus routes, rather than simply on specific roads or local areas. TfL works with boroughs to assess new high-impact road works proposals, using data to mitigate traffic management and provide recommendations and supporting expertise to boroughs around mitigating disruption to bus networks. It is important that planning information is collated and utilised centrally in advance of the permit stage to enable sensible programmes that allow operators time to adapt, bearing in mind schedule and route changes are sometimes required.

In Plymouth, bus company Go South West works closely with Plymouth Highways works permits department and its highways inspectors. This includes a monthly meeting to discuss any major work schemes before they start so they can mitigate the impact to the bus service. The highways team provides a weekly rundown of works planned for the following weeks. The operator has helped establish a system whereby utility companies need to consult with the public transport team at the local council, who then consult with the bus companies to identify stops that would need to be suspended. Any stops that are to be suspended then become the responsibility of the utility company to close off when the work starts and open up when the work is finished and for them also to provide and put out a temporary stop if needed.

In Oxford, Oxfordshire County Council has a "bus champion" role within the highways function who must be consulted before the permit for street or road works is granted, and who liaises with bus operators Go-Ahead and Stagecoach to ensure that all feedback regarding potential impacts to bus services is taken into account. Typically, local authority highways teams do not necessarily have technical knowledge of bus networks, where buses go, and which locations cause the greatest disruption for buses in terms of available diversionary routes and length of diversion. The champion role ensures these matters are considered. In Oxfordshire the role has been in place for a number of years, with successes relating to pushing works outside of peak times, to overnight working, to less disruptive times of year, or reducing proposed full closures to single-lane working.

[61] DfT (2024) National Bus Strategy: 2024 bus service improvement plans: guidance to local authorities and bus operators, Department for Transport

[62] More information can be found on the Transport for West Midlands website.

Surrey County Council, working with Causeway, has used a data-oriented approach to integrate street works and bus network mapping into a single digital interface through the Causeway one.network Route Manager. The digital service automatically flags conflicts between planned works and Surrey County Council bus corridors, ensuring bus operators can view and prepare for planned closures and authorities can process permit requests without having to manually conduct checks for conflicts. This has reduced the resource burden on the council to process 2,500 street works applications monthly and streamlined its overall working processes.

Data and monitoring

Integrating passenger transport considerations into the coordination process can form part of a wider shift to more network-oriented and holistic decision making. As evidenced by Surrey County Council's approach, effective data utilisation plays an important part in this. Subnational transport bodies can support authorities in taking a wider strategic view of the network and facilitate more data-driven decision making.

TfWM uses Network Rail BT/EE mobile network data (MND) and its own travel segmentation persona data to support targeted communication strategies for travel planning. MND data, which is sub-licensed to TfWM, provides travel insights, while its travel segmentation persona data enables demographic-based interventions to influence travel behaviour. This data then provides the basis for decision making around the required actions to help reduce overwhelming network demand and ease congestion at crucial strategic locations. TfWM also uses these data sources to produce a library of historical works impacts on the network, including the type of traffic management and impacts to different modes. This library is used as a lessons learned bank and can be used to inform how future works at similar locations can be best developed to reduce impacts to the customer. Examples of this working in practice include Harborne High Street in Birmingham. TfWM's apps and websites also integrate real-time road and public transport data to inform users of disruptions and suggest alternative routes, helping travellers make informed decisions and avoid congested areas.

TfL uses a number of datasets that allow the monitoring of traffic flow data as well as bus journey time data. This is used to reduce the potential disruption of road works, through the optimisation of portable traffic light timings and adjusting permanent traffic signal strategies to improve the flow of traffic. The next logical step is to integrate AI systems to develop more automated processes. However, this is currently being held back by limitations with data. For example, if the data does not highlight a potential temporal overlap with portable traffic lights, AI would not be able to understand the potential impact of the overlap without knowledge of signal timings and the proposed phasing. Improving the type of information being input into Street Manager is essential to introducing more automated processes supported by AI.

The 2023 CIHT report *The role of data and artificial intelligence in achieving transport decarbonisation*[63] recommends that the government must work towards creating regulations and standards that ensure that the data collected by the transport sector is:

- **fit for purpose, recorded in standardised formats on modern, secure, future-proof systems**
- **held in a condition that means it is findable, complete, accessible, interoperable, and reusable, and accords with open data standards where possible.**

CIHT will continue to liaise with stakeholders to understand how data can be more effectively utilised in highway works.

There is major potential for subnational transport bodies to share knowledge and resources with local authorities. Equally, this will require local authority interest to take on these practices, and funding support for the necessary skills to effectively analyse and interpret improved data.

[63] CIHT (2023) The role of data and artificial intelligence in achieving transport decarbonisation, the Chartered Institution of Highways & Transportation

Technology and innovation

In a limited funding environment, encouraging and adopting technological innovations is extremely challenging. One route available to authorities is to use a portion of lane rental funding on innovation projects. Primary legislation for lane rental is set out in Section 74A of the NRSWA.[64] Lane rental allows local highway authorities to charge works promoters for the time that street works and road works occupy the highway. Whereas permit schemes do not necessarily incentivise more efficient delivery of works, lane rental charges are designed to be used on the busiest streets at the busiest hours to encourage promoters to carry out works during less busy hours to avoid charges, or deliver them more quickly to minimise the charge. Lane rental schemes must be approved by the Secretary of State for Transport, with authorities expected to demonstrate a well-run permit scheme as part of the application and, once approved, the scheme must undergo a trial period. Authorities are also expected to apply lane rental charges to their own road works. A cost–benefit analysis by the DfT previously estimated a net benefit of £1.5 billion to widening rollout of lane rental to other local authorities beyond early schemes introduced by Kent County Council and TfL.[65] Recently, the government consulted[66] on whether powers to approve lane rental schemes should be devolved to mayors of strategic authorities and announced[67] that highway authorities would be required to invest 50% of surplus lane rental funds into highway maintenance. While lane rental schemes should not be used to raise revenue, surplus lane rental funding can be spent on innovation projects.

Lane rental schemes have not yet had a wide uptake among authorities, but interest is growing. TfL has had a lane rental scheme in place for several years. This has allowed the organisation to use surplus funding to support several innovation projects. The London Infrastructure Coordination Service (ICS) was set up with backing from industry leaders in the mayor's London Infrastructure Group and the Lane Rental Surplus Fund, to drive better collaboration in the planning and delivery of London's infrastructure. The streets service aims to embed collaboration as a "business as usual" and drive a dig once approach to street works by working with partner organisations. Thames Water is working with other water companies on OFWAT and Lane Rental supported and funded projects that are aiming to develop possible techniques and solutions that will enable the repair of water leaks from inside the pipe. This will reduce disruption across the highway network. TfL has also used surplus lane rental funding to support SGN's use of Core and Vac 2nd generation, which uses keyhole technology to minimise road occupation, with the potential to reduce work durations from four to five days to six hours.[68]

4.3 Learning lessons from practices in Scotland

Highway works in Scotland create similar disruptions to those in England relating to delays and asset degradation. However, through the Scottish Road Works Commissioner (SRWC), there is an independent body in place to monitor performance trends and drive improvement in the sector.

In Scotland, the position of the SRWC was created through Section 16 the Transport (Scotland) Act 2005.[69] The aim of the SRWC is to improve planning, coordination, and quality of road works throughout Scotland. The SRWC is an independent official, with the role of monitoring performance and compliance, promoting and encouraging good practice across both promoters and authorities, and the management and operation of the Scottish Road Works Register (see below). The SRWC has powers to impose financial penalties on road authorities that systematically fail in their duty to coordinate and on undertakers that systematically fail to cooperate when undertaking road works.[70] The SRWC also has powers to inspect road works and investigate organisations carrying them out.

[64] DfT (2025) Lane rental schemes: guidance for English highway authorities, Department for Transport

[65] DfT (2017) *Road works: the future of lane rental impact assessment*, Department for Transport

[66] DfT (2024) Lane rental scheme approval, Department for Transport

[67] DfT (2024) Street works: fines and lane rental surplus funds: outcome, Department for Transport

[68] SGN (2021) Core and Vac 2nd generation, SGN, Transport for London

[69] Transport (Scotland) Act 2005

[70] SRWC (2023) Corporate plan 2023-26, Office of the Scottish Road Works Commissioner

The independence of the SRWC creates a greater degree of trust in the overall process of delivering and coordinating works. A review of the office and functions of the SRWC was carried out in 2016, in which it was noted that *"the role is seen to be independent and that is fundamental to its acceptance and support"*. [71] Although the SRWC is an independent regulator, the work of the office supports the purpose and vision of the Scottish government.[72] The SRWC therefore helps provide a strategic link between national objectives and local stakeholders.

Key performance indicators suggest that the introduction of the SRWC has made a positive impact in Scotland. In the SRWC's latest performance review, the sample inspection pass rate increased from 92.6% to 94% and the number of substandard traffic management issues reduced by 21%.[73] A recent report by the House of Commons Transport Committee estimates that the cost of introducing a similar role in England would be around £7.2 million a year.[74]

National coring programme

Local authorities in Scotland undertake a national coring programme every two years. Utility reinstatements are sampled and assessed for compliance with the specification. The national coring programme provides an incentive for utility companies to ensure that reinstatement meets specification. Failure can result in penalties imposed by the SRWC. The coring programme has been in place for over twenty years and evidence suggests that it has made a positive impact in improving reinstatement quality. In 2001/02, when the national coring programme was introduced, the pass rate was 44%.[75] The SRWC's latest performance review demonstrated a 90% pass rate for 2022/23.[76] Coring drives performance improvement, helping to improve the overall culture around works. In Scotland, some utility companies will carry out their own coring programmes as part of quality assurance.[77]

The Scottish Road Works Register

The Scottish Road Works Register is the central repository of all notifications of intended road works in Scotland. The register performs a similar function to Street Manager in England but deals with the notification of intended road works, because Scotland does not have a permit system.

Promoters and authorities use the register as a planning tool to help coordinate works, while the SRWC uses the register to monitor and report on performance of both promoters and authorities.[78] This oversight means that trends in performance can be monitored centrally over time, as well as the overall functionality of the register and the data it acquires over time.

The Scottish Community Apparatus Data Vault, a record of underground assets in Scotland, is fully integrated into the Scottish Road Works Register.[79] This ensures that both promoters working in and under roads and authorities coordinating works have knowledge and understanding of what is underneath the road.

---

[71] Jim Barton (2016) Review of the office and functions of the Scottish Road Works Commissioner, Transport Scotland

[72] SRWC (2023) Corporate plan 2023-26, Office of the Scottish Road Works Commissioner

[73] SRWC (2024) Road works monitoring report 2023–24, Office of the Scottish Road Works Commissioner

[74] Transport Committee (2025) Managing the impact of street works, Second report of session 2024–25, HC 522, House of Commons

[75] Jim Barton (2016) Review of the office and functions of the Scottish Road Works Commissioner, Transport Scotland

[76] Road Authorities & Utilities Committee (Scotland) (2023) National coring report 2022/23 programme, Road Authorities & Utilities Committee (Scotland)

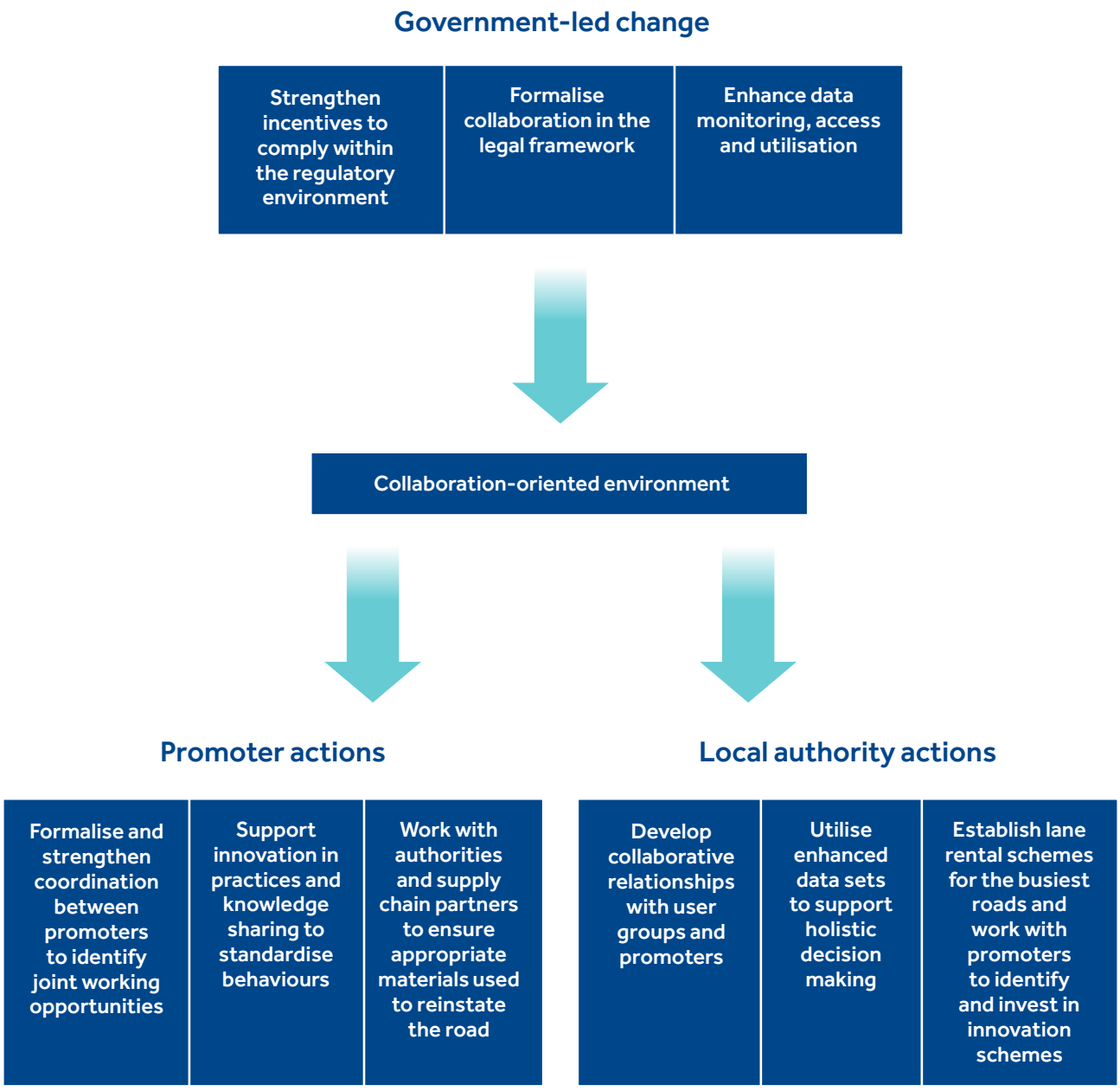
[77] Jim Barton (2016) Review of the office and functions of the Scottish Road Works Commissioner, Transport Scotland

[78] Jim Barton (2016), Review of the office and functions of the Scottish Road Works Commissioner, Transport Scotland

[79] The Office of the Scottish Road Works Commissioner (2024), Commissioner advice paper 13: vault – frequently asked questions, Office of the Scottish Road Works Commissioner

5. Embedding a collaboration-first approach

Embedding a collaboration-first approach to works will involve a process of prioritised actions to deliver change. This process begins with government-led change to establish a more collaboration-oriented environment, which will then support wider uptake of collaborative practices by both authorities and promoters.



5.1 Government-led change

While some of the barriers highlighted in previous chapters relate to culture and practice, there is also clearly a need for government-led change relating to the legislative and regulatory environment. Disruption caused by works is a national issue and government leadership can be effective in fostering a wider cultural shift towards standardised practices in mitigation, rather than the current system of local variation.

Equally, a renewed approach to the regulatory framework would help to ease some tensions between promoters and authorities by helping to standardise regulation and compliance. Additionally, support for knowledge sharing and data standardisation and utilisation would help authorities to shift towards a more holistic, evidence-based coordination and open a pathway to embrace and embed innovations such as AI into the coordination process. This combination of action can create a more collaboration-oriented working environment for promoters and authorities.

The DfT oversees the legislation, regulatory environment, and guidance around street works and road works. Meeting the recommendations in this report will require action on all three fronts.

Government-led change		
Strengthen incentives to comply within the regulatory environment	**Formalise collaboration in the legal framework**	**Enhance data monitoring, access and utilisation**
	Collaboration-oriented environment	

5.2 Promoter actions

For promoters, compliance should be the bare minimum. As well as actively seeking collaboration opportunities with other promoters to conduct joint works, resources should be used to foster innovation and share knowledge with both promoters and authorities. Promoters should work with authorities to ensure that appropriate and effective materials are used to reinstate the road to minimise surface quality degradation. Promoters play an important role in improving culture within the supply chain, by establishing long-term partnerships with reliable contractors with the appropriate skills for reinstatement of the road to specification. Promoters also need to play a coordinating role when using multiple contractors at different times on a site, working to minimise times that sites are left unattended. Effective coordination of works by authorities relies on advance notice, and this should always be a priority for promoters, as well as keeping road users informed through accessible channels.

Promoter actions		
Formalise and strengthen coordination between promoters to identify joint working opportunities	**Support innovation in practices and knowledge sharing to standardise behaviours**	**Work with authorities and supply chain partners to ensure appropriate materials used to reinstate the road**

5.3 Authority actions

Strengthening incentives to comply with the regulatory environment and mandatory coordination meetings should drive up promoter performance and improve communication channels. Coordination meetings should include user groups like bus operators to ensure information is shared with key stakeholders. The focus for authorities should be to utilise enhanced data sets to support more holistic decision making.

This can shift a focus away from a street-by-street view into looking at the network as a whole and lay the groundwork to introduce more automated and streamlined processes such as in permitting and making traffic interventions. While lane rental schemes take time to set up, are only appropriate on the busiest roads, and should not be used as an income-generating tool, there is an opportunity in the long term to support innovation projects with surplus funding.

Local authority actions		
Develop collaborative relationships with user groups and promoters	**Utilise enhanced data sets to support holistic decision making**	**Establish lane rental schemes for the busiest roads and work with promoters to identify and invest in innovation schemes**

6. Conclusion and recommendations

Mitigating the disruption caused by road works and street works is a major challenge for both promoters delivering the works and highway authorities responsible for coordinating them. The increased costs and disrupted user experience make a clear case for a need to change current practices.

There are several opportunities throughout the process of delivering works to utilise collaborative practices to mitigate disruptions. However, these are not being routinely taken advantage of. This is largely because of a lack of incentives caused by limitations in legislation and the regulatory environment, and knowledge gaps within the sector.

There are notable examples of collaborative practices and innovative solutions that have been successfully implemented in different locations. These examples demonstrate the potential for wider application and the benefits of joint working, data sharing, and the use of advanced technologies and materials.

However, these practices are unlikely to become standardised across England without government intervention. To embed a collaboration-first approach, CIHT recommends government-led changes to formalise collaboration within the legal framework, enhance data monitoring and access, and strengthen incentives for compliance. This can establish a more collaboration-oriented environment to support promoter and local authority action. Assisted by government intervention, promoters and highway authorities are encouraged to work together to strengthen communication, widen knowledge sharing, and support innovation opportunities.

By prioritising collaboration, stakeholders can significantly reduce the impact of works on road users, improve the efficiency of works delivery, and enhance the overall quality of the local highway network. This approach will ultimately lead to better outcomes for all road users and contribute to a more sustainable and resilient transportation infrastructure.

A report published by the House of Commons Transport Committee in July 2025 into managing the impact of street works made a series of recommendations similar to those in this report, concluding that more can be done to assist local authorities in managing the deterioration of streets and minimising disruption.[80]

In September 2025, the Government rejected most of the House of Commons Transport Committee recommendations[81] however we believe it is important to reflect the findings from this project as provided by those who participated in it and so continue to call for some actions already rejected by the Government in their response to the House of Commons Transport Committee.

Recommendations for government-led change

Independent Works Commissioner in England:

The introduction of an independent commissioner in England, similar to the current model adopted in Scotland, to oversee the planning, coordination, and quality of road works and street works. A commissioner would help standardise practices across the sector, create a consistency of approach and provide a single knowledgeable point of resolution with powers to enforce decisions, helping to mitigate some issues around legal ambiguity. A commissioner would also be able to monitor wider performance trends using data from the government's digital works management tool, Street Manager,[82] help to develop and improve the use of data, and disseminate good practice.

[80] Transport Committee (2025) Managing the impact of street works, Second report of session 2024–25, HC 522, House of Commons

[81] Transport Committee (2025) Managing the impact of street works: Government Response, second special report of session 2024–26, HC 1318, House of Commons

[82] Street Manager is a DfT-developed works management tool used by highway authorities, utility companies, and contractors in England to apply for street and road work permits, assess permits, record inspections, and add reinstatements (after work has been completed)

More incentivised fines regime:

Thousands of works are carried out each day without comment or complaint, but when they overrun or are not managed appropriately they can cause problems. A more incentivised fines regime that rewards utilities that try to minimise disruption should be established. One possible way of doing this could be a performance-based system, similar to the one established with the inspections regime. As with performance-based inspections, pricing bands could be established, with lower fines applied to promoters that have received a low number of fines, and higher bands applied to promoters that have received a high number of fines, in the past financial year. The definition of "low number" and "high number" could be established based on the average number of fines issued across the industry. A below average number of fines would be classed as a low number and an above average number of fines would be classed as a high number. Alternatively it could be based on a percentile approach, with a number of fines above the xth percentile being classed as a high number.

New immediate-planned permit category:

Current definitions of immediate works (emergency and urgent) permit categories, where permit applications are required within two hours of works commencing, do not provide promoters with scope to share advance notice with street authorities if they are aware of any required immediate works earlier than the current notice period. The creation of an immediate-planned permit category would provide a channel between street authorities and promoters to share more advance notice for immediate works.

Mandatory coordination meetings and attendance:

Currently, compliance with the duty to cooperate does not always result in meaningful collaboration between works promoters and authorities. It is therefore recommended that the duties to coordinate and cooperate are strengthened by creating a statutory mandate for coordinating authorities to hold local coordination meetings with key stakeholders, and a statutory mandate for works promoters – including highway authorities and statutory undertakers – to attend them. Coordination meetings should include road user group representatives, such as bus operators and vulnerable users, ensuring there remains a focus on reducing the impact of works on road users.

Framework for collaboration:

While collaboration is encouraged in the Code of practice for coordinating street works and road works, a more comprehensive framework for collaboration is needed that provides statutory guidance on best practice for collaboration between all stakeholders, including highway authorities, utility companies, contractors, and developers, across the different stages of delivering works, formalising collaboration within the process. As part of this framework, highway authorities will need to be adequately funded to support the transdisciplinary skillset required to fully embed collaboration into working practices.

Improve the planning, monitoring, and evaluation of data:

Street Manager can be a platform to improve access and use of data and it is recommended that the government expands the breadth and types of data being input into the system. Promoting more standardisation of data will support stronger embedding of AI in working practices in the coming years. Government must ensure that data is fit for purpose, recorded in standardised formats, and held in a condition that means it is findable, complete, accessible, interoperable, and reusable, and accords with open data standards where possible. The new National Underground Asset Register should also be integrated into Street Manager.

Review-recommended accessibility measures:

The red book should be updated to include descriptions of road user experience to help practitioners understand the lived experience of users navigating sites. Providing practitioners with this knowledge may support making informed decisions around site design and traffic management and help practitioners to adapt and apply guidance to real-world scenarios and locations. Guidance should reinforce the need for sites to be set up and managed so that works take place in the safest and most accessible manner possible. Updates to the red book should also ensure alignment with other documents, such as Chapter 8 of the Traffic signs manual.[83]

[83] DfT, Department for Infrastructure, Transport Scotland, Welsh Assembly (2009) Traffic signs manual chapter 8 (parts 1, 2 and 3), Department for Transport

Appendix: Contributors

Adrian Hull FCIHT, Causeway Technologies

Confederation for Passenger Transport

JAG (UK)

KCC pavement asset managers

London Borough of Sutton

Royal Borough of Kensington and Chelsea (RBKC)

Street Works UK

Surrey County Council

Transport for London (TfL)

Transport for West Midlands (TfWM)

The Scottish Road Works Commissioner (SRWC)

About CIHT

CIHT provides strategic leadership and support to help our members develop, deliver, and maintain sustainable solutions for highways, transport infrastructure, and services that:

- **Address the challenges of climate change**
- **Support the economy**
- **Help address societal inequalities**
- **Reduce environmental degradation**
- **Respond to a changing world**

We bring members together to share, learn, and feel confident about addressing these challenges through the application of good practice, by embracing innovation and by acting with integrity. It is through this and the values that CIHT can demonstrate and deliver on thought leadership and shaping the highways and transportation sector for the public benefit.

Whether you are a student, apprentice, work in the private or public sectors or are a company director, CIHT has a place for you and a commitment to fulfilling your professional development needs throughout your career.

www.ciht.org.uk