

Efficiencies in Street Works

Consultation Output

Enabling Local Highway Authority and Utility
Company Cooperation

April 2014



Highways Maintenance Efficiency Programme



Although this report was commissioned by the Department for Transport (DfT), the findings and recommendations are those of the authors and do not necessarily represent the views of the DfT. The information or guidance in this document (including third party information, products and services), is provided by DfT on an 'as is' basis, without any representation or endorsement made and without warranty of any kind whether express or implied.

Department for Transport
Great Minster House
33 Horseferry Road
London SW1P 4DR
Telephone 0300 330 3000

Email: highwaysefficiency@DfT.gsi.gov.uk

Website www.DfT.gov.uk

© Crown copyright 2013

Copyright in the typographical arrangement rests with the Crown.

You may re-use this information (not including logos or third-party material) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit www.nationalarchives.gov.uk/doc/open-government-licence/ or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or e-mail: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

Cover page:

Picture 1 (top left): London Evening Standard, (2013). Roadworks killing business say traders in call for payout, [Online] Available at: <http://www.standard.co.uk/news/roadworks-killing-business-say-traders-in-call-for-payout-6544760.html>, [Accessed 04.02.14]

Picture 2 (top right): London Evening Standard, (2013). Capitals drivers enraged as 1,000 road works a day hit London, [Online] Available at: <http://www.standard.co.uk/news/capitals-drivers-enraged-as-1000-roadworks-a-day-hit-london-6756684.html>, [Accessed 04.02.2014]

Picture 3 (bottom left): T.Sumnersmith Infrastructure Services, (2013). Street works Management and Inspections, [Online] Available at: <http://tsumnersmith.co.uk/streetworks-management-inspections/>, [Accessed 01.11.2013]

Picture 4 (bottom right): Above the Line Set Assistance and Security, (2013). Traffic Management, [Online] Available at: <http://www.abovethelinesecurity.com/traffic-management/>, [Accessed 01.11.2013]

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
1. INTRODUCTION	1
1.1. Background	1
1.2. Scope of Investigation	2
2. METHODOLOGY	3
2.1. Survey Design	3
2.2. Survey Content	3
2.3. Survey Response Analysis	4
3. SURVEY ANALYSIS	5
3.1. Activity and Resource	5
3.2. Legislation	7
3.3. Collaboration and Coordination	9
3.4. Communication	12
3.5. Competency	13
3.6. Performance Management	16
3.7. Reinstatement	18
3.8. Innovation	20
4. CONCLUSIONS	23
APPENDIX A	25
APPENDIX B	28

This report was prepared with input from the following organisations.



EXECUTIVE SUMMARY

The Highways Maintenance Efficiency Programme (HMEP) published its Potholes Review¹ in April 2012. The review recognises that the reinstatement of utility openings in the highway is a long standing issue between Local Highway Authorities (LHAs) and utility companies, and that the poor quality of such reinstatements may have a longer term detrimental effect on the highway network.

The Potholes Review identified three areas and made a number of recommendations where improvements could be made:

- Improvements to coordination through the sharing of short and long term programmes of work between LHA's and utility companies;
- The use of alternative and innovative ways of working when reinstating the highway; and
- The development of quality training schemes to cover reinstatements.

The New Roads and Street Works Act (NRSWA) 1991 and subsequently the Traffic Management Act (TMA) 2004 introduced a structured approach to the management and coordination of street works, helping the LHAs to cut traffic disruption and reducing damage caused to the pavement by street works activities. A recent study published in the "*Holes in our Pockets?*" report², led by the Local Government Association (LGA) and Local Shop Keepers Association, identified that there are further efficiencies to be achieved in the street works sector to minimise impact on local business growth. Building on the Potholes Review and supporting the LGA, HMEP recognises this as an opportunity to identify areas where efficiency savings might be realised, and congestion and carriageway condition problems reduced if the sector was to work more closely together.

The National Joint Utilities Group (NJUG) and Joint Authorities Group (JAG(UK)) have been working together in unity to enhance the street works community under the Highways Authorities and Utilities Committee (HAUC(UK)) umbrella. The group is nationally recognised for promoting good practice and supporting innovation in ways to reduce disruption, mitigate adverse environmental impacts and improve safety, sustainability and quality of all works.

The objective of this study is to gather evidence that would provide an overview and assist the current HAUC(UK) and HMEP initiatives. This report aims to provide evidence and understanding of the issues that are challenging the sector, how the sector can collaborate further and where potential efficiencies can be realised. The output of this report details the analysis of survey responses defining the issues and areas of opportunity in respect to the management, coordination and execution of street works and other activities in the highway.

¹ HMEP, (2012). *Prevention and a Better Cure, Potholes Review*

² Local Government Association (LGA), (2012). *Holes in our Pockets?*, pg.3, London: LGA

1. INTRODUCTION

1.1. Background

Utility companies are responsible for an estimated two million road openings every year across England, which create significant implications for our transport network in terms of reducing the residual life of the carriageway and causing delays to traffic. The Potholes Review considered how reinstatements may contribute to the deterioration of the highway network and referenced research by Transport Research Laboratory (TRL) that reported the estimated reduction in the service life of a pavement due to trenching is 17%³.

The LGA report “*Holes in our Pockets?*” identified potential problems with street works and their negative impact on local business growth. It suggests that 17% of utility road openings are not reinstated in accordance with specifications⁴. The report also states that other studies suggest that this figure may be as high as 50%⁴. Inadequate reinstatements do not simply damage the physical condition of the carriageway, but also cause disruption. Street works are undertaken to ensure that the general public and business receive essential services, such as electricity, gas, water and communications. Without these services local business growth would not be possible. However, premature maintenance due to street works is estimated to cost LHAs 18% of their maintenance budgets (equivalent to £218 million)⁴. There is a clear opportunity to investigate how the impacts of street works can be further minimised for delivering service improvements and repairs in a more cost effective way.

In the current economic climate, fiscal growth has become the key priority for Government, which makes it important for LHAs to create conditions in which businesses can prosper. The quality of public infrastructure is a key factor in unlocking prosperity. It is in the interests of business and the communities that infrastructure upgrade and maintenance is delivered in a cost effective and efficient way. This means that “getting it right first time” must be a core principle. It is critical that LHAs and utility companies adopt more efficient and intelligent ways of communicating and collaborating through which non-legislative changes could be delivered that will reduce the incidence of street works, the damage to roads and the cost to local businesses.

NJUG and JAG(UK) have each recognised that essential street works can cause disruption, and therefore have driven a number of voluntary initiatives, delivering real benefits through a step-change in the quality and impact of street works. These initiatives include but are not limited to good practice case studies, advice notes and codes of conduct. Whilst the survey identified that the communication and promotion of these initiatives appear to be limited, it holds a great potential and tools which when used appropriately can significantly enhance efficiencies in street works and facilitate communication within the sector.

³Jordan, R.W, Ferne, B.W, McMahon, W. and Rahman, M., (2009). *A charge structure for trenching in the highway*, TRL PPR386

⁴Local Government Association (LGA), (2012). *Holes in our Pockets?*, pg.4, London: LGA

1.2. Scope of Investigation

The aim of this study is to identify and explain the issues that are challenging the sector and help identify where potential opportunities for improved efficiency and cost savings might be realised.

The study investigated the areas around street works organisation and coordination processes from LHA and utility perspectives in England. The aim was to provide an understanding of the key issues currently challenging the street works community and where possible identify an approach for how these problems could be overcome in a coordinated and effective manner.

2. METHODOLOGY

2.1. Survey Design

A survey was conducted between 16th September 2013 and 29th October 2013 by HMEP. The survey was developed using the web-based platform 'Survey Monkey' and designed to effectively gauge the opinions of LHAs and utility companies to determine the challenges and barriers that prohibit efficient collaboration in street works, and detail good practice examples where these issues have been resolved.

2.2. Survey Content

The survey content was developed in consultation with an agreed group of stakeholders comprising the Department for Transport, JAG(UK), NJUG and the HMEP work stream Project Board to ensure questions were structured in such a way as to elicit maximum benefit. The content of the survey was informed by a comprehensive review of legislation including codes of practice and guidance, duties and powers of LHAs and utility companies, and a review of previous studies on the subject, such as the Evaluation of TMA 2004 by Halcrow.⁵

The target audience for the survey was set at Traffic Managers within the LHAs, on the understanding that it is the Traffic Manager who has the Network Management Duty responsibility and as such an overview on the control and coordination of activities that impact network availability, which includes street works. The utility company contacts were provided by NJUG and are those that deal with the coordination of utility company activities in the highway.

The survey was designed to provide the target audience with the certainty that their responses were contributing to the whole of the HMEP Portfolio rather than tackling an isolated subject.

The survey contained a total of 50 questions and was broken down into nine thematic categories, covering:

1. Activity and Resources
2. Legalisation
3. Collaboration
4. Coordination
5. Communication
6. Competency
7. Performance
8. Reinstatement
9. Innovation

The survey required quantitative and qualitative responses with opportunity given to the responder to expand where they considered further information would add to the response. This approach allowed the respondents to elaborate on their answers and as such can add value to the survey by attaining a deeper understanding of attitudes and examples of good practice.

⁵Halcrow, (2011). *Evaluation of Traffic Management Act 2004*, Final Report, Workstreams 2A and 4

The survey was first trialled with an agreed number of participants to confirm that the methodology and clarity of the questions were appropriate. The feedback from the trial was used to further refine the final survey. A full list of the survey questions is included in the Appendix A of this report.

A total of 152 LHAs and 38 utility companies were invited to participate in the survey. The contractual partners of LHAs and utility companies were not invited to participate in the survey as investigation of contractual aspects of street works is not within the scope of this study.

Incomplete responses and those providing no response were encouraged to complete the survey through telephone conversations.

2.3. Survey Response Analysis

Before undertaking any detailed analysis, responses were vetted for consistency and completeness.

In total, 111 individuals accessed the survey. Of these, 36 responses were empty (no information provided to any question). Of the remaining 75 responses, 55 were from LHAs (equating to 36.2% of all LHAs) and 13 were from utility companies (equating to 34.2% of those utility companies invited to participate). Three of the responses did not complete the personal information (unknown) and four responses were duplicated.

From the 75 responses, 53 respondents formally submitted their response on Survey Monkey (i.e. completed the survey and clicked the 'submit' button). As such where this report provides quantifiable data (i.e. percentages), the analysis is based on these 53 responses, directly extracted from Survey Monkey. Where qualitative interpretation of the responses is provided, it is based on all 75 responses (i.e. including those responses where the 'submit' button has not been clicked but that have some content).

The analysis focused on:

- Identifying trends between different questions, subsections and respondents;
- Identifying inconsistencies and differences in practices and opinions;
- Identifying the key barriers prohibiting effective coordination and management of street works; and
- Identifying good practice case studies and opportunities for the improvement of street works management and coordination.

3. SURVEY ANALYSIS

This section provides an overview of survey analysis and individual responses. The analysis of survey questions has been grouped according to theme (Section 3.1 to Section 3.8, with Coordination and Collaboration combined). An opportunity was given to the agreed stakeholders to address the issues identified by the survey respondents. Those responses also inform the following analysis.

3.1. Activity and Resource

The survey sought to identify the resources available to both LHAs and utility companies in respect to the management and supervision of street works along with the level of street work activity that has taken place over recent years. However, the responses received were inconclusive insofar as the vast majority of those that answered the survey did not complete these specific questions. The key findings from this section of the survey are given below:

- LHAs either have difficulty in extracting information on the annual number of works and the number of inspections they undertake or lack time and resource required for extracting the information in the timescale of the survey.
- Respondent data suggests the overall number of street works has increased between 2010 and 2012. If this were to be the case across the country then resources available to manage and supervise those works will need to increase proportionately to ensure standards are at least maintained.
- Survey results show that only 22.5% of respondent LHAs are currently operating a Permit Scheme (see Figure 1). However, HMEP is aware that there are 9 permit schemes in operation across England, constituting 57 LHAs, equivalent to 38% of LHAs⁶.
- The survey also indicated that 35% of the responding LHAs intend to develop a Permit Scheme (see Figure 1). If these LHAs progress to implementation, Permit Schemes could be in operation in almost half of LHAs across the country over the next five years.
- Some respondents indicated that resources and costs are the biggest barriers to the introduction of a Permit Scheme. Other reasons for not introducing a Permit Scheme include the size of the network not being big enough to merit the switch or that congestion is not considered a big issue in a particular LHA area to justify the investment required.
- A number of respondents also suggest the benefits of Permit Schemes are as yet unclear or unproven so there is no clear incentive to introduce a scheme. It should be noted that some respondent LHAs are satisfied with the use of noticing schemes.

⁶NJUG, (2013). Response to Draft Report

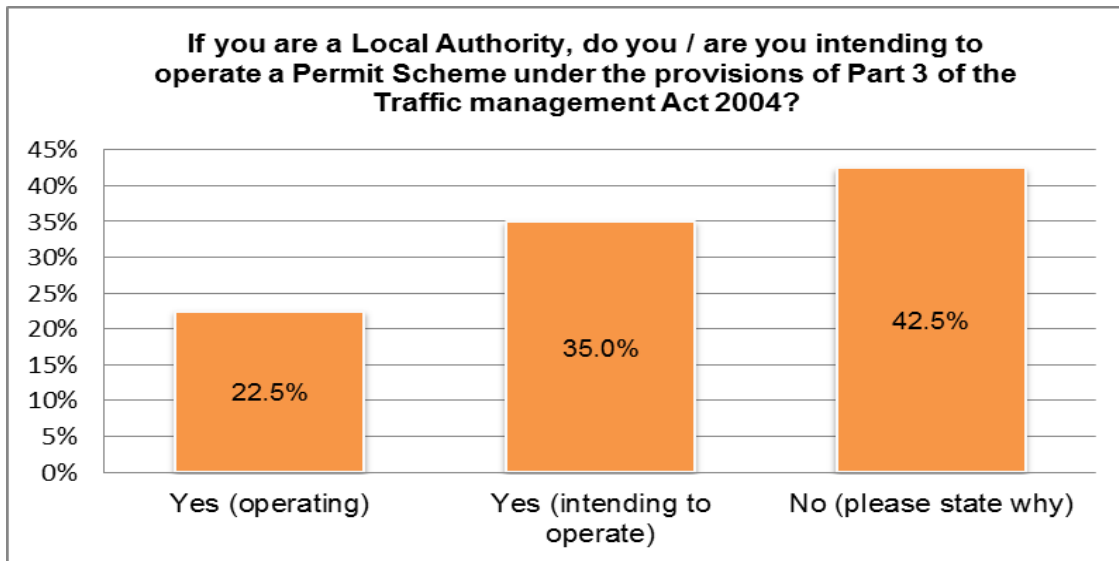


Figure 1 – Do you / are you intending to operate a Permit Scheme? (Question 7)

- The respondents that are operating a Permit Scheme believe they have been a success. They enable LHAs to better manage activities on their road network to minimise inconvenience and disruption to road users. They also state that Permit Schemes make a positive contribution towards them discharging their Network Management Duty placed on them by virtue of Part 2 of the TMA 2004.
- A number of respondents state that the quality of information provided through Permit applications is better than that under notifications, allowing LHAs to co-ordinate activities on street and road works more effectively.

Permit Schemes are in operation within a number of respondent LHAs, including those in London, East of England, Yorkshire and Greater Manchester, along with Kent, Northamptonshire and Buckinghamshire.

Consultation with the stakeholders has revealed that collaboration over the development and implementation of Permit Schemes is occurring across the sector. A working party consisting of DfT and HAUC(UK) members has been established to contribute to the development of new secondary legislation and accompanying guidance for Permit Schemes. In addition, the National Permits Forum provides an opportunity for Permit Authorities and those LHAs considering the implementation of a scheme together with works promoters operating under schemes of bringing a consistency to interpretation and performance management. Clearly there is a challenge to the sector as a whole from the variations in the Permit Schemes in operation but it is encouraging to see the sector working together to rise to this challenge.

HMEP believes that Permit Schemes can deliver positive results in management and coordination of all activities and applauds the efforts of the sector in working together to bring continual improvements in the development of Permit Schemes. Whilst the use of noticing schemes can be equally effective, HMEP would encourage LHAs to investigate the potential for developing single schemes or common / joint schemes with their neighbouring authorities where appropriate.

3.2. Legislation

This section of the survey sought to identify the legislation most commonly used by LHAs and utility companies in the management and coordination of their street works activities. The survey also sought to identify the opinions of respondents with regards to the effectiveness and use of the powers under the NRWSA and the TMA. The key findings from this section of the survey are given below:

- Survey respondents suggest that NRSWA powers and those available through the implementation of a Permit Scheme under the TMA are generally being used, but there is no definitive answer as to whether the use is positive or negative. There is also no clear divide between LHA and utility company response. This may have resulted from misinterpreting what is meant by a “positive / negative” use of a power.
- Anecdotal evidence (and the Halcrow report on the implementation of the TMA) does suggest that some powers are not used as extensively or robustly by LHAs as the survey findings might suggest.
- Utility company respondents suggest that some of the NRWSA and TMA powers are used by LHAs in an informal manner to underpin discussion and negotiation but a lack of clear policies and procedures to guide the use of the powers may be resulting in those managing and supervising activities using them incorrectly or inappropriately.
- Discharged appropriately, NRWSA Sections 59 (*General duty of the street authority to coordinate*), and 60 (*General duty of the undertakers to cooperate*), should drive cooperation and collaboration between parties. However, respondents to the survey suggest that more work is required from both LHAs and utility companies with regards to their respective duties to coordinate and cooperate.
- The survey responses show that the vast majority of NRSWA powers are used in a positive way but nobody expanded upon this to provide examples. Interestingly, 23% of respondents, including a number of LHAs, report a positive use of Section 74(A) (*Power to charge Lane Rental*) yet the use of this power is currently limited to only two LHAs, Transport for London and Kent. This opinion can only therefore be qualitative.
- One comment was made on the notice period for Section 58 (*Power to restrict further street works after substantial road works have been executed*) being inappropriate in some cases. The minimum period for a notice under this section is three months and a survey respondent suggests that this should be extended where the period of protection is towards the higher end (currently protection can be from one year up to five years).
- However, this could be a misunderstanding in how the power can be used. The notice period in the regulations is a minimum and a LHA can extend this period at any time. This misunderstanding is something highlighted in the Halcrow report regarding lack of clear policies and procedures to guide the correct and effective use of the powers.

- Whilst Section 58(A) (*Powers to restrict further street works after substantial street works have been executed*) has been identified as a power that is reasonably well used by LHAs, respondents comment on a lack of clarity or understanding is perhaps one reason why it is not used more extensively. If the power was used along with Section 58 then they should drive an improvement in joint planning and coordination where applied robustly.
- The documents identified as most relevant and most regularly used by LHAs and utility companies in their daily work are primary legislation and codes of practice along with JAG(UK), HAUC(UK) and NJUG Advice Notes (though there were suggestions that the NJUG good practice guidance documents are sometimes difficult to locate on the website).
- Some respondents indicated that they have access to specific, regionally developed advice notes.

Whilst the existing codes of practice offer guidance (sometimes statutory) on the use of the legislative powers it is a concern that some of the powers (and perhaps the reasoning behind their use) are not being applied in a robust or consistent manner.

The HAUC(UK) and NJUG websites hold a number of valuable Advice Notes and case studies that cover the use of legislative powers. At the same time the JAG(UK) website is being re-launched as a result of its association with GeoPlace, which has placed JAG(UK) back within a local government policy development and delivery forum.

The material available on the various websites is positive but there is a danger of duplication or conflict unless there is clear governance across the community over which information takes precedence. HMEP believes there is an opportunity to develop a register to signpost the legislation, guidance and advice that exists already in the sector. However, there would be a need to review any existing advice to confirm its currency. HMEP strongly advocates that the sector continues to promote and share examples of how the powers have been used to enable activities to be undertaken in a manner that protects the road user and the environment whilst allowing the LHA and utility company to achieve their aspirations.

3.3. Collaboration and Coordination

The survey sought to investigate the efficiencies and deficiencies that exist in the way LHAs and utility companies collaborate and coordinate street works, and to investigate any examples of collaboration and coordination. Respondents were also asked to indicate the main consideration applied when coordinating street works activities. The key findings from this section of the survey are given below:

- Respondent LHAs believe that local street works coordination and management typically occurs on a daily basis whilst area and regional coordination is only typically undertaken on a quarterly basis.
- As the primary considerations when coordinating activities, respondents scored reducing congestion, minimising occupation and conflict avoidance highest whilst delay cost saving and opportunities to combine activities scored the lowest.
- Respondents felt that it is not major works that cause the problems as they are generally well planned and information is shared at a relatively early stage. Rather it is minor works and immediate activities that often cause the biggest problem, where LHAs feel they have little or no control.
- The majority of respondents feel that greater visibility on forward planning on all activities and the sharing of the plans via GIS / live web based systems should be the way forward. Figure 2 represents the views of respondents with regards to improvements that could aid better management and coordination of activities.

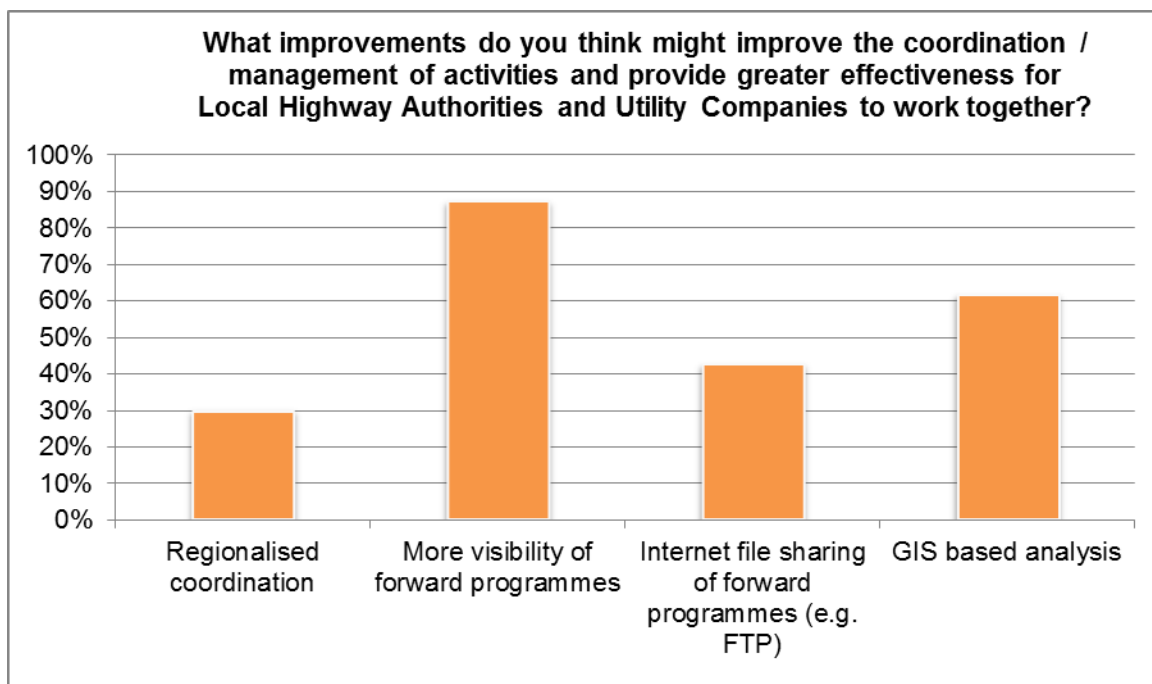


Figure 2 – What improvements do you think might improve coordination? (Question 19)

- It is not clear from the survey how or whether optimisation of activities is being carried out. However, the survey has identified that there are clearly pockets of good practice that exist across the country.

- Occupancy sharing is highlighted several times in the survey responses as a key action for achieving time and cost savings, and Permit Schemes appear to have an ability to promote such collaboration.
- The survey showed that, generally, relations between LHAs and utility companies in the electricity, gas and water sectors are good but the relationships with the telecoms sector are not so good. However, there are examples of collaboration between LHAs and contractors working across all utility sectors that have resulted in recognised benefits.
- Innovation, in terms of new trials and methods, were highlighted by respondents as opportunities to increase collaboration.

Where good practice exists it will inevitably foster good relations, which in turn will create an environment for collaboration to take place. The survey identified areas of collaboration and coordination where good practice exists. These examples could be investigated further and publicised. For example, this may include:

- North East Lincolnshire is working with the utility companies using a lean approach to produce a code of conduct for improving collaborative working and to reduce occupation on the highway, and to improve the way that stakeholders are notified of upcoming major schemes.

HAUC(UK) is currently consulting on a Forward Planning Advice Note that promotes coordination as a two-way process and reaffirms the commitment of HAUC(UK) to the need for greater coordination. HMEP understands that further guidance is planned in areas covering storage of materials on the highway, interpretation of NRSWA Section 58 restrictions and carriageway incursions and more detailed examples of good practice are available on JAG(UK) and NJUG websites.

As previously mentioned, in order to improve their publicity and recognition within the street works community, the JAG(UK) website is being re-launched. It will become far more interactive and serve as a single source of information for all its members. It will hold the library of advice notes and other valuable documents, free for all members. Members can share knowledge, request that a subject be addressed or post a query for response by other members in the discussion forum, consultations will also be managed through this site.

HAUC(UK) itself is reforming to take account of the devolved government process and has formed HAUC England as part of that process, with an agreed set of objectives and challenges described below:

- To drive improved performance of road and street works by promoting good practice and supporting innovation in ways to reduce disruption, mitigate adverse environmental impacts and improve safety, sustainability and quality of all works.
- Explore how best to harness our wealth of contractor expertise.
- To celebrate and publicise successes and to represent the road and street works industry to widen understanding and ensure that industry makes an effective contribution to public policy development.

- To work constructively with governments to create a positive and joined-up industry without the need for onerous regulation.
- To deliver, where necessary, timely, effective and consistent input to, and interpretation of, legislation, associated regulations, codes of practice and guidance that balances the needs of all.
- To strengthen the relationship and communications across the HAUC community.
- To minimise the number of formal disputes through informal mediation, discussion and advice, but where necessary to provide a timely and effective dispute resolution service to deal with disputes that do arise.
- To develop a Business Plan and programme of activities to deliver the above Vision and Objectives

HAUC(UK) Advice Notes are designed to provide clear technical guidance to the road and street works community. Inevitably with differing local priorities and road / street environments across the regions there is sometimes a requirement to adapt guidance to ensure it works for local circumstances. Going forward for the HAUC(UK) and street works community to be more effective, the sector will need to find a way of clarifying national and regional guidance and having a hierarchy to establish agreed policies and guidance following full and extensive consultation and dialogue.

3.4. Communication

This section of the survey sought to identify the ways in which LHAs and utility companies communicate the potential impact of proposed street works on businesses and the public. The survey also sought to capture the opinions of LHAs and utility companies with regards to the effectiveness of communication with businesses and the public and also within and between LHAs and utility companies. The key findings from this section of the survey are given below:

- Effective communication should be applied if street works activities are to be managed in such a way as to reduce congestion whilst allowing LHAs and utility companies to successfully maintain the highway and the services therein.
- Respondents use a variety of means to communicate with businesses and the travelling public with regards to activities that could disrupt network availability, including Variable Message Signs, notices erected close to the location of the works, the local media (printed and radio) and their own website.
- Some LHA respondents suggest that utility companies could invest more effort to publicise their own works and the impact they may have. Permit Schemes may provide one way to improve this as they provide the LHA with the ability to impose a condition on the permit relating to the need for publicity.
- Some respondent LHAs note that their communication with business and the public are unsatisfactory, quoting resources and the methods available to them as barriers to performance improvement.
- Respondents highlight that successful management and coordination of activities also relies on good communication within the LHA (cross departmental) and between adjacent LHAs (cross-boundary).

Communication is identified as an area where the street works community needs to improve to provide transparency to all. It would help if the sector developed communication strategies that provide a framework around which communication with internal and external stakeholders and all practitioners could be agreed, along with the method of that communication.

HAUC(UK) aims to work constructively with governments to create a positive and joined-up sector without the need for onerous regulation. For HAUC(UK), clearly effective two way communications remains key to delivering successful outcomes for the street works community and more importantly the public they serve. Issues that are still to be worked through in more detail are likely to include:

- Interaction between UK-wide and national working groups;
- Cascading of good practice and major legislative / regulatory changes e.g. Safety Code, Diversionary Works;
- Effective communications leading to enhanced performance regionally, nationally and UK-wide;

3.5. Competency

This section of the survey sought to identify how LHAs and utility companies ensure their staff is competent and sufficiently trained to do their job. The survey also asked respondents to consider what additional training would benefit the sector in terms of improved efficiencies, collaboration and performance. The key findings from this section of the survey are given below:

- Respondents suggest that regular training is provided at all disciplines of street works involvement, as shown in Figure 3.

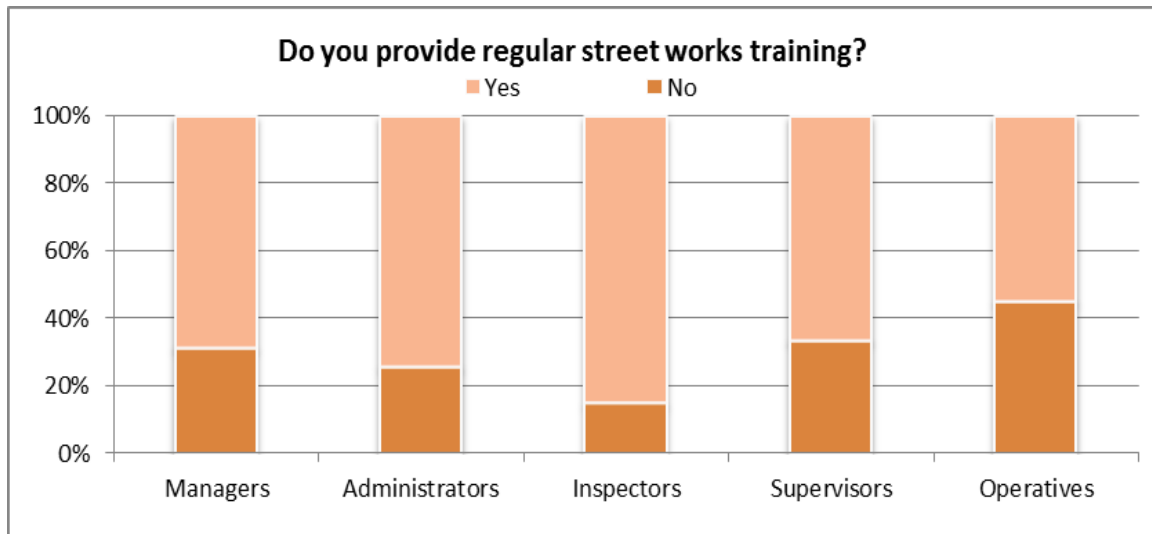


Figure 3 – Do you provide regular street works training? (Question 23)

- Many respondents suggest the training is typically provided as informal, refresher training and as ad-hoc events, suggesting there is no structure to the continuing development of skills. Some respondents state that both internal and external training is provided but no detail is given on what content is covered by that training.
- Examples of good practice in training delivery have been identified by the survey. This includes joint street works training undertaken by Dudley MBC and its utility companies.
- The survey also revealed that the majority of respondents believe more training is required at all levels, as shown in Figure 4. When asked whether joint training is ever considered, 94% of the survey respondents also said they would be interested in joint training programmes between LHAs and utility companies and believe such an initiative could result in greater collaboration opportunities, a better understanding of the drivers for each side and reduced training costs.



Figure 4 – At what levels do you consider more training is required? (Question 26)

- Most respondents to the survey stated that performance monitoring of staff is undertaken as either annual performance reviews or as ad-hoc, one-to-one meetings, and that performance is measured against agreed goals and objectives. However, no detail is provided as to what goals / objectives are set. The survey also revealed that the lowest level of performance monitoring is for supervisors and operatives, the disciplines where formal qualifications can be gained and perhaps where competency could be more easily tracked.

The qualification regulations⁷ do not provide requirements for the training of management, administration and inspection functions, although it is believed that a number of accredited training providers do provide bespoke NRSWA training courses in these areas. A search of a number of training company websites suggest such training is provided for street works managers, coordination staff and inspectors, LHA works promoters and contractors and planners / engineers in areas including Permit Schemes and EToN System Implementation.

Training should be a critical tool used by the sector as a whole to ensure competency levels are high. This is where the sector has a role to play as it is for them to dictate what training should be provided and achieved. There is an opportunity for the sector to take the lead and develop its requirements that will fulfil both the legislative requirements and create a framework that could guide the bespoke training courses that are available to provide greater consistency. One possibility (as referenced in the Potholes Review) could be to consider whether the National Highway Sector Schemes for highways could be extended to cover the street works arena. These schemes are quality management schemes designed to ensure a properly trained and competent workforce in the UK's highways sector.

Discussion with the stakeholders has shown that they are in agreement that competency and training is essential for the sector. HAUC(UK) fought to ensure that

⁷The Street Works (Qualification of Supervisors and Operatives) Regulations 1992, as amended by the Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009

the Training and Accreditation Regulations were not removed under the Red Tape Challenge issued two years ago by the current Government. Further meetings of the Training and Accreditation Working Group are currently being held to drive a more consistent and in-depth training and competency assessment throughout the sector. There is a recognition that the number of competent people are reducing and raising this profile and driving greater training is recognised throughout the sector.

This is an encouraging sign and the stakeholders need to ensure the message is communicated across the sector. In considering how consistency and improvement might be developed, clarification on what the National Highway Sector Schemes comprise and their fitness for purpose should be sought.

Within the drive for improved training, HMEP believes that an official accreditation should be available for the administration of NRSWA / TMA similar to that for supervisors and operatives. This needs to be sector driven to ensure training is developed to deliver tangible outcomes in terms of administrative and management activities.

However, training is only one step in competency; on-going performance monitoring should form an integral part to ensure training is put into practice and the skills and knowledge that are learned help to deliver a better street works service.

3.6. Performance Management

This section of the survey sought to identify the ways in which LHAs monitor and manage the performance of utility companies, and the ways in which utility companies monitor and manage the performance of their contractors. Survey respondents were also asked to highlight any benefits they have realised (or envisage would be realised), from a performance management regime. The key findings from this section of the survey are given below:

- The majority of respondents apply some form of performance management regime to both street works and road works. The most commonly used methods are performance indicators and scorecards, as shown in Figure 5. However, little detail was provided with regards to the mechanics of the regimes or how they are applied to encourage continual improvement.

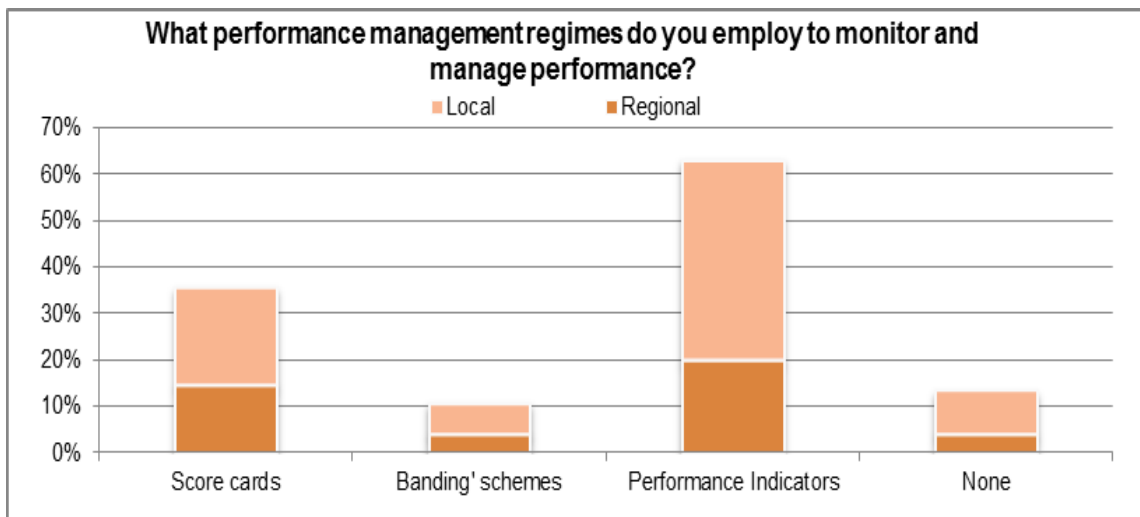


Figure 5 – What performance management regimes do you employ to monitor and manage performance? (Question 29)

- Several respondents reported benefits of using such methods to monitor and manage performance, including:
 - Ability to identify poor performance related to specific contractors and ‘gangs’;
 - Increased performance and compliance and a better understanding of the inspection expectations;
 - Reduced road space occupancy;
 - Better reliability of information made available to the travelling public as a result of better data quality;
 - Improved overall compliance in reinstatements from c50% to c90% as a direct result of a coring programme; and
 - Reduced the number of remedial works.

HAUC(UK) has developed a nationally applicable Performance Scorecard that is aimed at supporting self-regulation and good practice. It is currently aimed at LHAs and relies on them submitting performance data against 19 measures categorised in four areas: Occupancy; Coordination and Notice Quality; Reinstatement; and Safety.

It is not clear how successful HAUC(UK) has been in encouraging LHAs to submit data. However, for this initiative to be successful and provide meaningful results, further efforts should be made to encourage LHAs to submit data and use the outputs to provide a proactive performance management of the activities of all works promoters in its area and encourage continual improvement.

It is understood that the utility sector has also developed a performance scorecard that is driven by data from the utility companies and again the sector should be encouraged to use the information produced through the scorecard to drive a culture of continual improvement that will also help in the building relationship and trust.

Performance management should be a fundamental part of street works management and coordination. HAUC(UK) has issued an Advice Note on performance management⁸ that is intended to guide practitioners to develop performance measures, and more importantly, to adopt a robust and useable performance management process that offers sustainable improvement.

Performance management processes provide a very powerful tool to manage the performance of all activity promoters, and encourage continual improvement. In the first instance, the sector should identify what is the benchmark level of performance. Under-performance cannot be identified without an agreement as to what is the benchmark level.

In its Advice Notes and case studies HAUC(UK) are focusing efforts to drive improved performance of road and street works by promoting good practice and supporting innovation in ways to reduce disruption, mitigate adverse environmental impacts and improve safety, sustainability and quality of all works.

⁸ HAUC(UK), (Sept 2009). *Performance Management Process for Works in the Highway*, Advice Note No. 2009/05

3.7. Reinstatement

This section of the survey sought to identify which LHAs are currently implementing a coring programme and, for those that are, the outcomes of the programme, particularly in terms of improved performance. The survey also asked that utility companies indicate whether or not they implement a quality management programme for the execution and reinstatement of works, and also the outcomes of those programmes. Additionally, the survey sought to identify any examples of good practice in terms of innovative materials and techniques used in reinstatement activities. The key findings from this section of the survey are given below:

- The majority of respondent LHAs state they are implementing a coring programme, as shown in Figure 6, but the comments received on the detail of those programmes suggest they are not done as a regular, planned programme but more as ad-hoc operations to tackle isolated non-compliance.

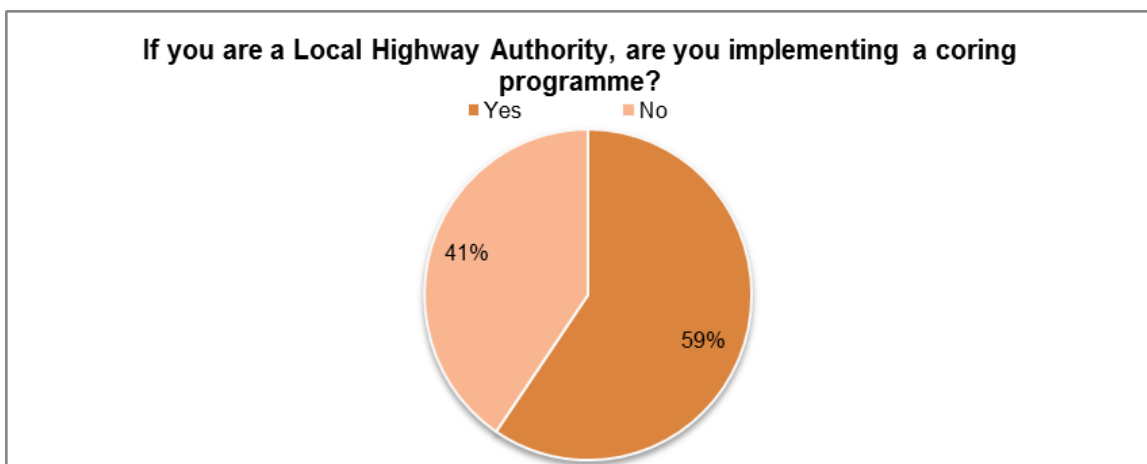


Figure 6 – If you are a Local Highway Authority, are you implementing a coring programme? (Question 33)

- Respondents suggest coring, where implemented, has resulted in improved compliance for reinstatements. Failures are reported to the utility companies concerned and, in some cases, action plans developed.
- The majority of respondent LHAs share the results of the programmes with stakeholders but it is not clear in what way the sharing of results is used to drive improvement.
- A number of utility company respondents suggest quality management programmes are included as specific requirements in the contracts and often include coring programmes. However, it is not clear whether the outputs from such testing are shared with LHAs.
- Survey responses reveal that LHAs are willing to accept innovative techniques but this is qualified by an insistence that they must fall in line with legislation. The utility companies responses to the survey somewhat contradict the LHAs' responses by suggesting many LHAs are unwilling to participate in such trials or innovation.

- Several respondent LHAs state the use of recycled material is greatly encouraged but utility companies suggest the approval process for such materials is often lengthy. Approvals appear to be limited to an authority or a region, in that approval by one authority or region is not always recognised by another.

The reinstatement of openings in the carriageway has been the subject of much research over the years. For example, TRL undertook a study into the long term performance of reinstated trenches⁹ and their adjacent pavements, which concluded that for reinstatements carried out in accordance with the reinstatement specification¹⁰, the long-term structural performance of a carriageway is likely to remain comparable with that present prior to the works, at least during the HAUC(UK) guarantee period. However, the TRL study also found that pavements with reinstatements had a greater number of defects that might lead to long term structural failure, therefore reducing the service life of the pavement.

HAUC(UK) has published an Advice Note on coring programmes¹¹ which seeks to provide clarity, promote consistency, maximise the benefits to be gained from such programmes and to reduce the potential for dispute. It offers guidance on selection, scale, methodology, testing, analysis, reporting and cost recovery. LHAs should be encouraged to use this Advice Note to develop robust coring programmes as part of an overall performance management process. By implementing a robust coring programme as part of a performance management process, the LHA would be in a better position to use inspection resources efficiently in tackling under performance whilst recognising those that are undertaking reinstatement work to a good quality. In turn this would build a level of trust between the LHA and utility company which could create an environment for collaborative working.

The Specification for the Reinstatement of Openings in Highways (SROH) states that recycled material is permitted for use provided that such material meets the performance and compositional requirements for the relevant material layer; the sector should be looking at ways of encouraging the use of recycled material. Furthermore the SROH states that once a material is approved through a successful trial then permission for its use in other areas should not be unreasonably withheld.

HMEP is aware that the SROH Working Party is continuing to look at ways for generating conditions to improve innovation and continue to monitor how the Advice Note on coring programmes sits with the community. The Working Party should also work to communicate to the sector that the use of recycled material is already permitted through the SROH and that the sector should recognise successful approval trials across the country.

⁹ TRL, (2003). *Long-term performance of reinstated trenches and their adjacent pavements*, 572 & 573

¹⁰ HAUC(UK), (2010). *Specification for the Reinstatement of Openings in Highways*, CoP

¹¹ HAUC(UK), (2012). *Good Practice Guide to Implementing a Structured Coring Programme*, 2012/01

3.8. Innovation

The survey sought opinions from the sector on innovations that have been delivered and ideas that could bring efficiencies and improvement. The key findings from this section of the survey are given below:

- Some respondents recognise that for innovative ideas to be developed there needs to be better links with academia. Promoting collaboration with universities might offer the opportunity for new ideas to be researched without LHA and utility company resource constraints.
- Respondent utility companies identify the Regulators as a barrier to innovation, suggesting that incentives would help overcome the issue of legislation standing in the way of progress. Utility companies also believe the LHAs themselves are a barrier to innovation and suggest a more pragmatic approach is required when using legislation in order to facilitate innovation.
- Respondent LHAs quoted the introduction of Permit Schemes is a key driver to improving coordination and efficiency. Permit Schemes have been identified as an effective way of driving an improvement in the management and coordination of activities.
- Respondent LHAs also urge greater dialogue from the utility companies and would welcome joint training opportunities to be developed, which would offer time and resource efficiencies.
- There is desire for a common system to be introduced for the street works register. A number of LHAs cited the Scottish Road Works Register as an example of where this works successfully. Respondent LHAs also highlighted the need for the wider publication of information on street and road works to assist with cross-boundary coordination. However, this was a key recommendation in the Halcrow report on the implementation of the TMA that was rejected by the Government and it is thought unlikely that the decision will be reversed.
- The development of GIS mapping capability on street works systems to allow all stakeholders (LHAs and works promoters) to view the proposed works at the time of submitting a notification / permit application has been highlighted as a potential way to improve coordination and efficiency. If there was a capability for all involved to view a live link to the system that showed the current position of activities at the time of submitting a notification / permit application it could allow a more informed planning process.

The survey also sought to identify what the respondents believe could be introduced / developed to bring efficiencies to the sector in terms of efficiency, cost, quality and compliance. Table 6 summarises the responses received.

Table 6 - What single thing do you think would bring a benefit to the industry in terms of: (Question 48)

Efficiency	Cost	Quality	Compliance
Long term planning	First time reinstatement	Supervision of workforce	Supervision of workforce
Shared occupancy	Supervision of workforce	Improved training	Coring programmes
Trench sharing	Pricing mechanisms	Regular refresher training	Stringent inspection process
Shared access to information	Use of recycled materials	Improved quality of materials	
Recycling and waste reduction	Regional adaption of same standards	Coring programmes	
Improved coordination	Shared occupancy	Severe penalties (penalty points)	
Improved Communication	More flexibility on programmes		
Innovative technology and working methods			
Shared service models – collaborative opportunities			
Consistent interpretation of legislation			

Finally, the survey offered the opportunity for respondents to express an opinion of what areas might benefit from a new product in terms of efficiency, cost, quality and compliance. Respondents were asked to rate the potential on a scale of 1 to 10, where 1 = least required product type and 10 = most required product type. Table 7 shows the average score across the product types which appears to demonstrate the sector is seeking ‘something new’ in all areas.

Table 7 - If a new product was produced to help improve the delivery of street works in the areas discussed above, what should it include? (Question 50)

Answer Options	Average Score
Advice / guidance	7.6
Showcasing good practice	7.2
Clarification powers	7.6
Mapping of legislation	7.0
Mapping of guidance	7.1
Innovative ideas	7.0
New training techniques	7.1
Improved training, accreditation and continual assessment	7.9

Two specific comments that were made to this question by survey respondents are reproduced below:

“Distribution Network Operators are responsible for ensuring that the UK has power at the flick of a switch. Every additional change in legislation or interpretation by a Highway Authority adds additional costs to us. This also impacts on our ability to carry out our statutory duties in a safe and timely manner (such as restoration of power).

We have many policies and processes to ensure we work in a safe and compliant manner with all of the requirements we must consider (of which Street Works is a part) but these must be carried out by people, and we will on occasion get it wrong through misinterpretation or human error. Instead of creating new rules, it would be more sensible to review the current rules to ensure the important things are clear, and the not so important things are managed through common sense and support”;

and

“All the above are relevant and useful but only if the product does not create its own industry in training, accreditation and benchmarking. It must also not be a regurgitation of existing basic knowledge from within the industry. It needs to be truly new, innovative, endorsed and incentivised at government level if it is to be adopted across the industry. LHAs seem to be very slow in changing especially as change requires resources and LHAs are under a constant squeeze so we are in reality doing less and less”.

The sector is awash with guidance and advice, much of which is sound practical advice but which is not always easily accessible, perhaps due in part to the multitude of locations where it is stored. This existing legislation, guidance, advice and other tools that exist in the sector to support activities should be better communicated. This would provide the sector an assurance that advice and guidance is available and a first step access point to encourage stakeholders to utilise the many resources that are available.

The opinions captured by the survey demonstrate the differences that exist in the sector. It is important to remember that all works that are undertaken should be done so safely, expeditiously and to a quality that protects the life of the assets whilst seeking to maximise efficiency and minimise costs.

HMEP recognises that HAUC(UK) is a key player to drive improved performance of road and street works by promoting good practice and supporting innovation in ways to reduce disruption, mitigate adverse environmental impacts and improve safety, sustainability and quality of all works. Working together with the whole sector, HAUC(UK) is exploring how best to harness our wealth of contractor expertise.

4. CONCLUSIONS

The survey on which this study is based has gone some way to confirm the outputs from the Potholes Review with regards to the need for the sector to improve in the areas of coordination, quality and training. However, the survey has also highlighted some areas of good practice where LHAs are implementing Permit Schemes and where LHAs and SUs are collaborating to reduce occupation of the highway. It is vital that such practices are highlighted to the wider audience to encourage the industry to develop new and innovative ways of working together.

Permit Schemes are viewed as being a positive move by the majority of those operating a scheme. The survey has shown that Permit Schemes offer the LHA greater control of activities to the benefit of the road user. They are also reported to have resulted in an improvement in the quality of data received, hence improving the ability of the LHA to coordinate activities with greater confidence.

Whilst some LHAs are concerned at the potential cost of developing a Permit Scheme and are not yet convinced the benefits have been proven, those operating schemes are convinced of the advantages they offer. A number of the Permit Authorities have published annual performance reports that highlight significant benefits in terms of reduced durations and increased sharing of works sites, all of which contribute to a reduction in delay and disruption. However, there remains some scepticism of the benefits of Permit Schemes within the utility company community and LHAs operating schemes should be encouraged to produce the annual reports to openly and more widely demonstrate the benefits.

There is concern raised over the lack of clarity or understanding of some of the powers available to the LHAs in the management and coordination of activities. This claim was also previously made in the Halcrow report on the Evaluation of the TMA and it is important that the sector works together to develop practical guidance on the application and use of those powers to avoid confusion and inconsistency.

Coordination and collaboration opportunities are highlighted as areas where more work is required, particularly in the sharing of forward works plans. If improvements could be made in this area, possibly by developing the use of GIS in the coordination process by both LHAs and utility companies, then opportunities for occupancy sharing could increase. A number of areas of good practice have been highlighted and these require further research and promotion to provide the sector with examples of where working together has had positive outcomes.

Whilst regular training is provided it is felt that more is still required, particularly for managers, administrators and inspectors. Whilst the current legislative framework for training covers supervisors and operatives, there is a gap that the sector could help to fill by working to identify more closely its requirements and encourage training providers to develop training courses to cover these areas. This report also endorses the Potholes Review in encouraging the sector to consider the development of a quality training scheme similar to the National Highway Sector Scheme to include street works reinstatements.

Performance management is an area where it is known the sector has made efforts to promote performance measurement. That work should continue to develop a consistent performance management framework that can encourage a culture of continual improvement through the proactive monitoring and management of performance. Furthermore the sector should share the outputs of such performance regimes more readily.

The Potholes Review highlighted the potential for reinstatements to have a negative impact on the integrity of the highway. LHAs have powers to implement coring regimes to check the quality of reinstatements and the survey shows that where such programmes have been implemented they have resulted in improved compliance.

LHAs are encouraged to develop coring programmes further as part of a performance management process. Guidance issued by HAUC(UK) should be used to guide these programmes to tackle under-performance and encourage continual improvement. Where it can be shown that such improvement can be rewarded then trust will develop between the LHA and utility companies and greater willingness to work collaboratively should follow.

Under the HAUC(UK) umbrella, JAG(UK) and NJUG are leading the way for the sector to achieve improved performance. HAUC(UK) is nationally recognised for promoting good practice and supporting innovation in ways to reduce disruption, mitigate adverse environmental impacts and improve safety, sustainability and quality of all works. Alongside with the street works sector, HAUC(UK) continues its work to investigate and share good practice and provide valuable advice.

It is clear that a lot of the misinterpretation and confusion identified by the survey can be addressed by using the tools that already exist, e.g. signposting to existing information available on HAUC(UK), NJUG and JAG(UK) websites. To achieve better utilisation of the existing information, it is essential to ensure that all available guidance, advice, case studies and other initiatives supporting street works are better communicated and shared across the street works sector to ensure that improvements in performance and efficiencies are delivered.

The biggest challenge facing the sector is one of communication. The work of HAUC(UK) in meeting that challenge through its reform and the development of National HAUCs is encouraging. HMEP believes such work needs to continue to develop an effective communication across the whole sector to tackle the issues raised in this report. Effective communication of advice, good practice and management information will lead to enhanced performance at local, regional and national levels and will enable the sector to actively demonstrate it is a dynamic community, reacting to changing conditions and seeking to continually improve.

APPENDIX A

Appendix A provides the full list of questions used in the survey.

Details	
Q1	Please state your name, organisation and position:
Q2	If you are a Utility Company please select the region(s) in which you operate:
Q3	Where good practice examples or case studies are requested, are you willing for the details to be attributed to your organisation (we will seek position confirmation prior to publishing any information gathered from this survey)?
Activity and Resource	
Q4	What resources do you have (FTE) in respect to street works management / operation (please state numbers)?
Q5	If you are a Local Highway Authority, how many street works openings have you had notified in the last three calendar years?
Q6	If you are a Local Highway Authority, how many street works inspections (Random Sample (R), Defect (D) or Self-Funded (S) or Ad-hoc (A)) have you undertaken in the last three calendar years?
Q7	If you are a Local Authority, do you / are you intending to operate a Permit Scheme under the provisions of Part 3 of the Traffic Management Act 2004?
Legislation	
Q8	Which of the following NRSWA powers do you think are being used positively / negatively in the management and operation of the network? (Please use the comments box to expand your answer).
Q9	Where a Permit Scheme is in operation, which of the following TMA powers do you think are being used positively / negatively in the management and operation of the network? (Please use the comments box to expand upon your answer).
Q10	Please indicate which documents are most relevant / used in your daily work
Q11	If you require more information or guidance regarding your duties, powers or obligations, what sources of information would you use?
Collaboration	
Q12	Have you got examples of collaboration between parties that demonstrate good practice and that delivered a benefit in terms of minimising occupation, reducing congestion and / or providing for delay cost savings?
Q13	What cross boundary arrangements exist between parties that demonstrate good collaboration in planning and / or executing activities? (Please provide examples)
Q14	How could collaboration, or the opportunities for collaboration, be improved?
Coordination	
Q15	How are coordination / management of activities undertaken in your area / region?
Q16	What are the primary considerations when coordinating activities (please rank the considerations on a scale of 1 - 10, where 1 = least significant and 10 = most significant)?
Q17	if you are a Local Highway Authority, do you require your own road works to be notified in the same way as street work (i.e. via EToN)?

Q18	If you are a Local Highway Authority, how would you describe your relationship with the different utility sectors?
Q19	What improvements do you think might improve the coordination / management of activities and provide greater effectiveness for Local Highway Authorities and Utility Companies to work together?
Communication	
Q20	How and what do you communicate with businesses / public regarding the potential impact of proposed works?
Q21	Do you believe communication arrangements meet the requirements of businesses / public?
Q22	How do you use / act upon feedback from businesses / public?
Competence	
Q23	Do you provide regular street works training?
Q24	If yes to Question 23, is the training in line with the requirements of the Qualifications Regulations or do you provide other training over and above those requirements?
Q25	Do you, or would you consider joint training with a Local Highway Authority / Utility Company?
Q26	At what levels do you consider more training is required?
Q27	Do you monitor the competency / performance at any level (if yes, please provide details)?
Q28	What additional training do you believe would bring benefit to the industry (please provide details)?
Performance	
Q29	What performance management regimes do you employ to monitor / manage performance of Utility Companies (in the case of Local Highway Authorities) or contractors (in the case of Utility Companies)?
Q30	If you are a Local Highway Authority, is the performance management regime applied to all works promoters?
Q31	What benefits (tangible and non-tangible) have been realised (or would you envisage if implemented) from the regime?
Q32	Does the performance management regime incentivise improved performance?
Reinstatement	
Q33	If you are a Local Highway Authority, are you implementing a coring programme?
Q34	What are the outcomes of the programme in terms of performance improvement?
Q35	Do you share the outcomes of these programmes and actively promote improvements in the way Utility Companies perform?
Q36	If you are a Utility Company do you implement a quality management programme for the execution / reinstatement of works?
Q37	What are the outcomes of the programme in terms of performance improvement?
Q38	Do you share the outcomes of these programmes and actively promote improvements in the way contractors work?

Q39	What benefits would you foresee in implementing more efficient reinstatement techniques (e.g. first pass reinstatement, trenchless technology or techniques share with other regions), for your organisation or otherwise?
Q40	What benefits would you foresee from Local Authorities and Utility Companies sharing resources in respect to reinstatements (e.g. manpower / materials)?
Q41	If you know other Local Highway Authorities have a material / technique etc. that has been used and approved, would you implement it?
Q42	Why do you think trenchless techniques are / are not being used in your area?
Q43	What recycling initiatives do you currently follow and implement?
Q44	What could be done to encourage / increase the use of recycled material?
Innovation	
Q45	How would you identify / publicise innovations that could benefit the wider community?
Q46	What innovations have you developed / applied that may provide a benefit to the wider community?
Q47	In your opinion, what would encourage more innovation in street works management and operation?
General	
Q48	What single thing do you think would bring a benefit to the industry in terms of:
Q49	What other ideas do you have that could improve coordination / efficiency / cost savings for your organisation / the wider community?
Q50	If a new product was produced to help improve the delivery of street works in the areas discussed above, what should it include (please rank the considerations on a scale of 1 - 10, where 1 = least required and 10 = most required)?

APPENDIX B

Appendix B provides a breakdown of quantitative survey responses.

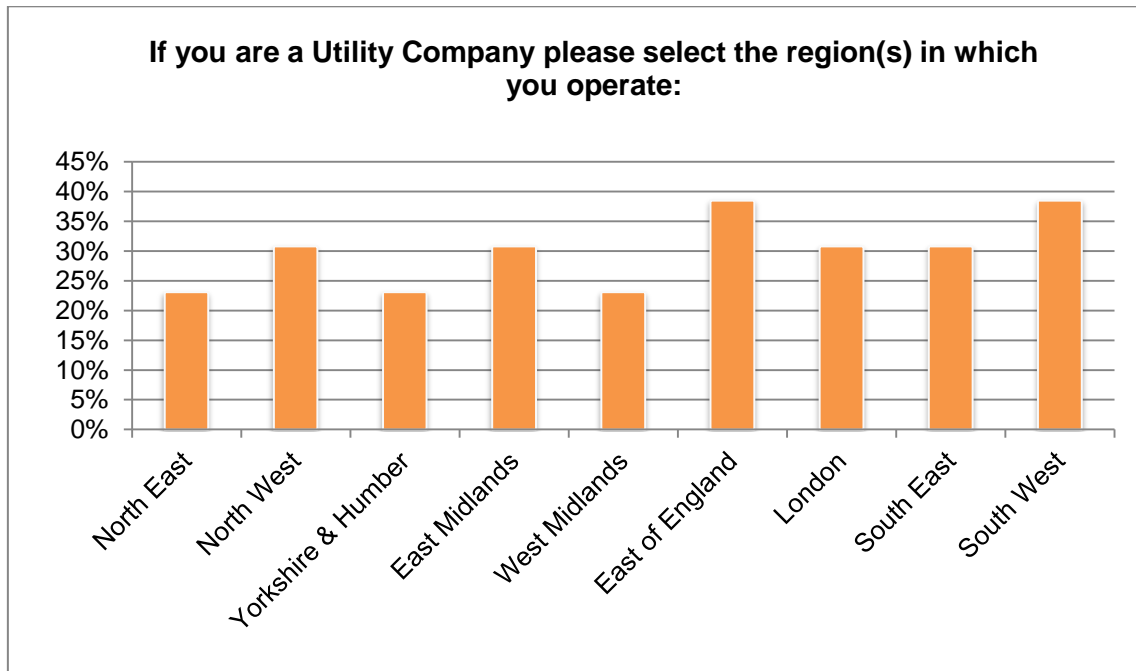


Figure 7 – Question 2

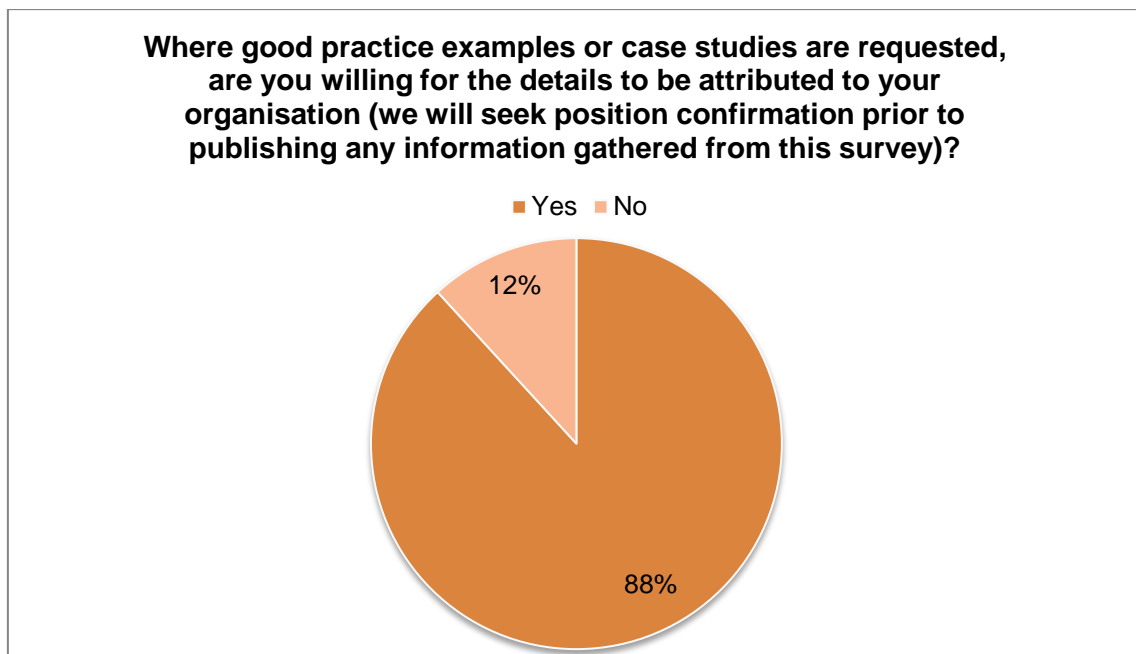


Figure 8 – Question 3

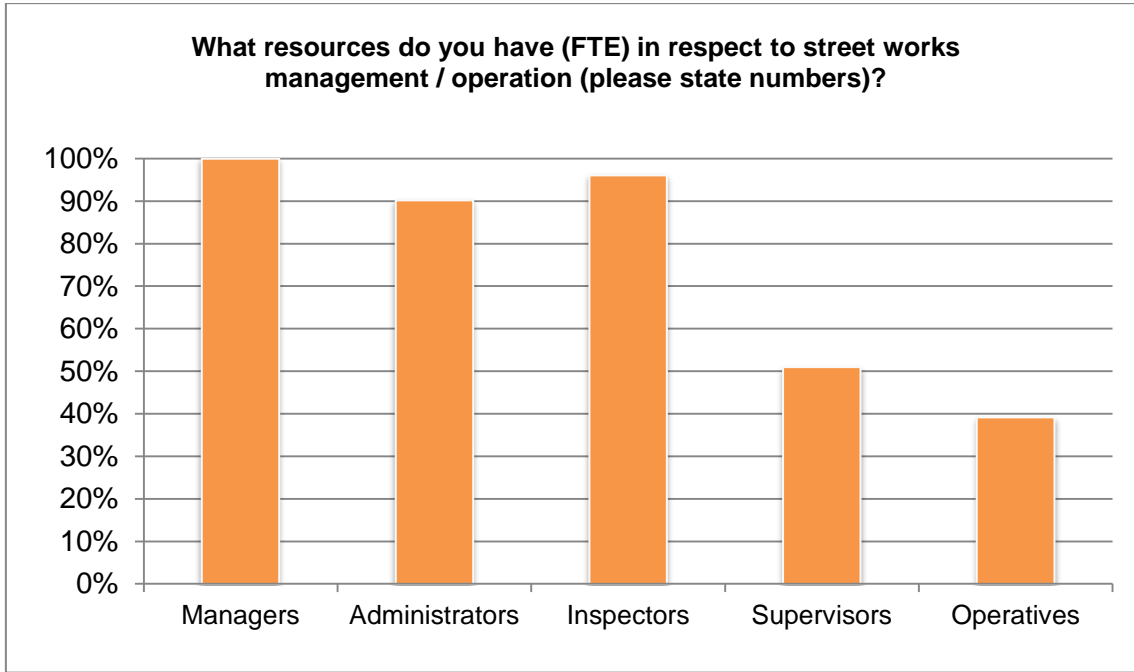


Figure 9 – Question 4

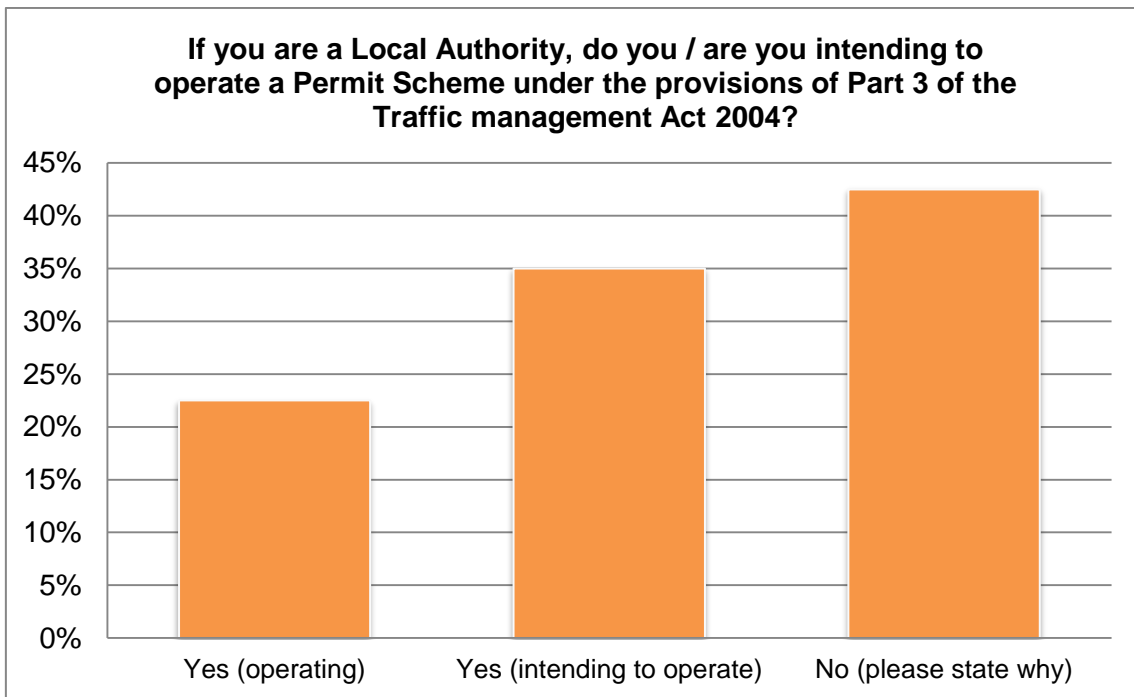


Figure 10 – Question 7

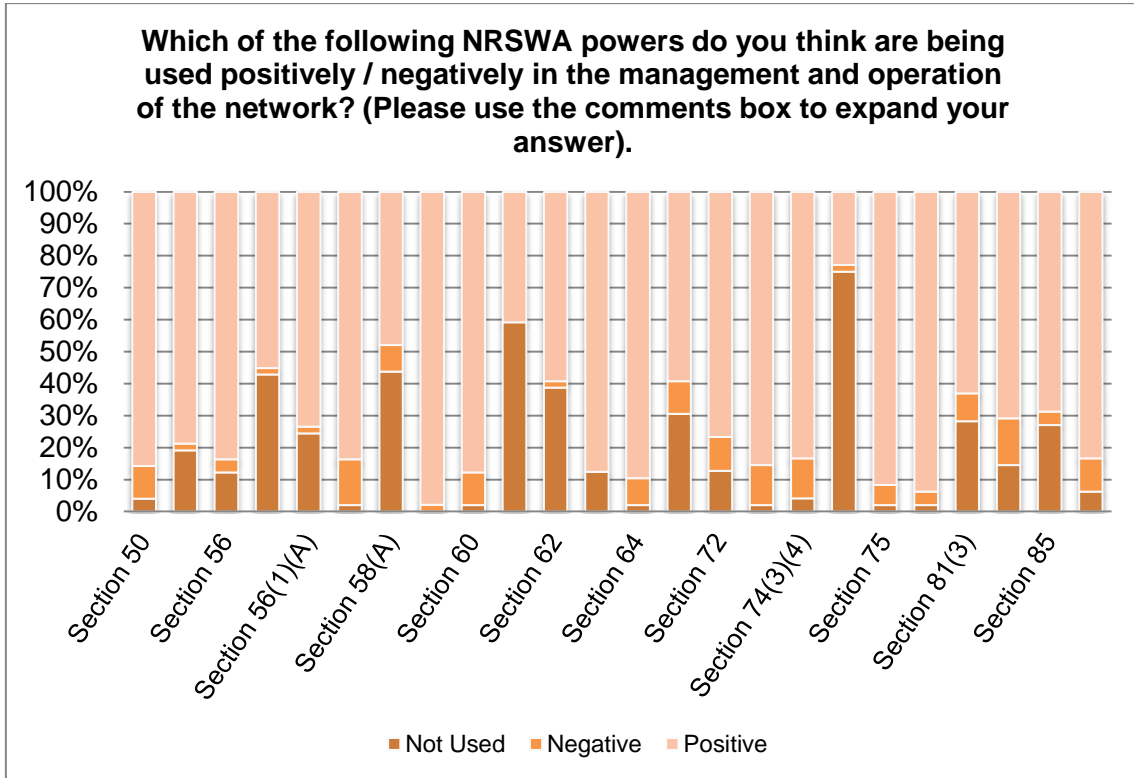


Figure 11 – Question 8

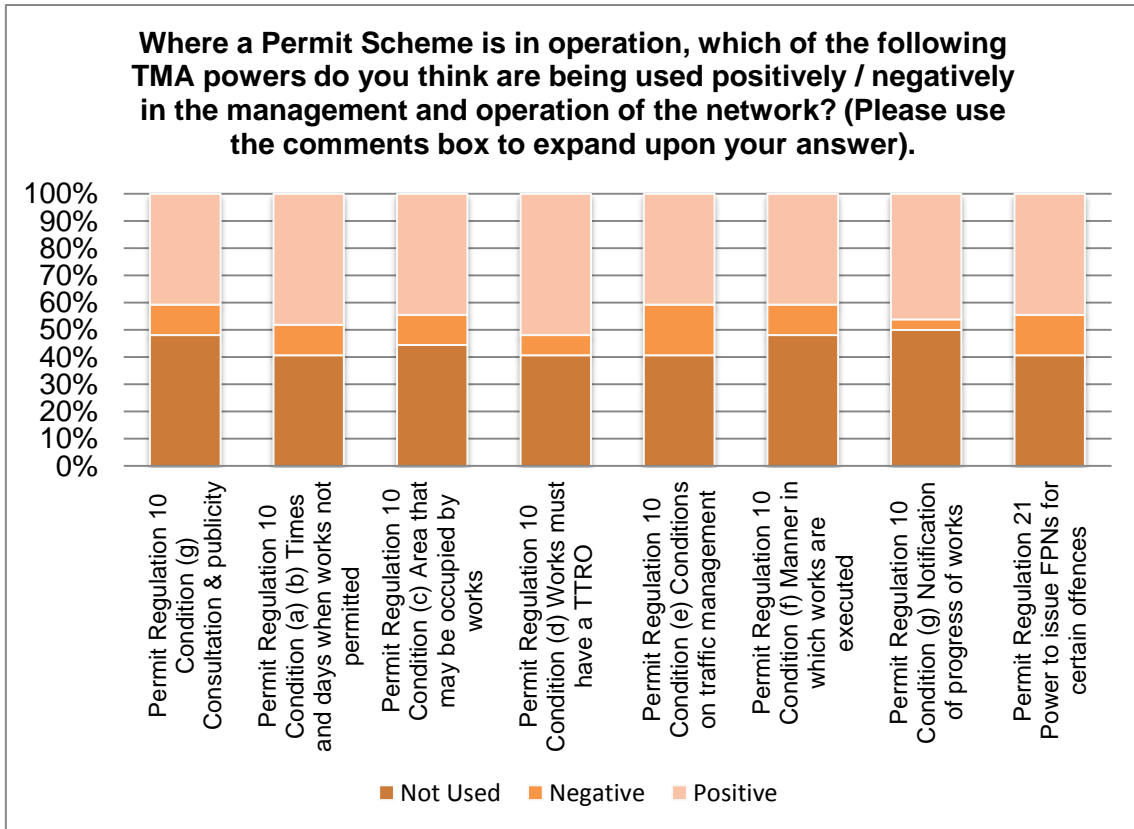


Figure 12 – Question 9

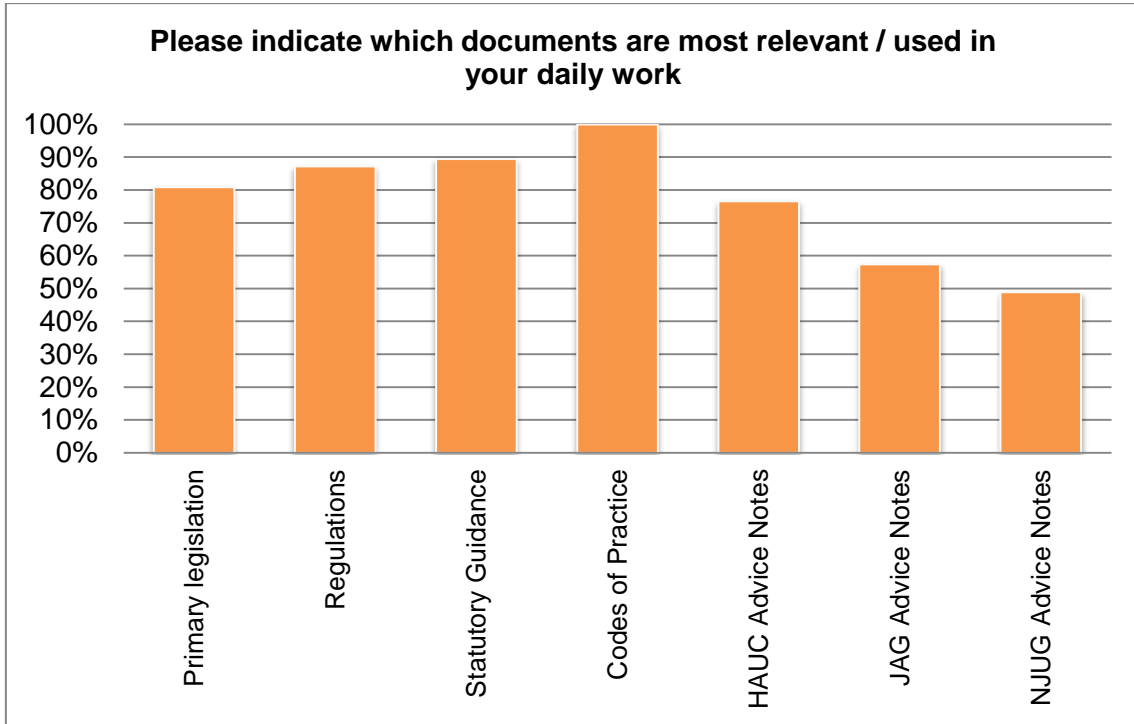


Figure 13 – Question 10

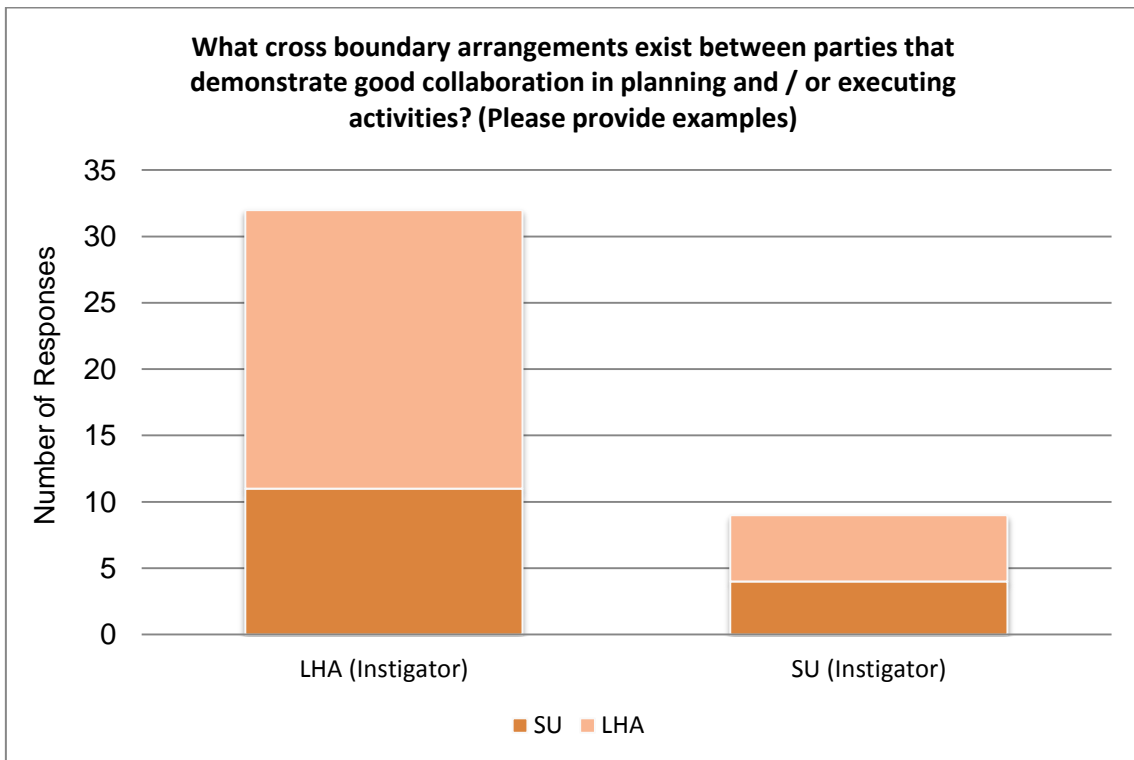


Figure 14 – Question 13

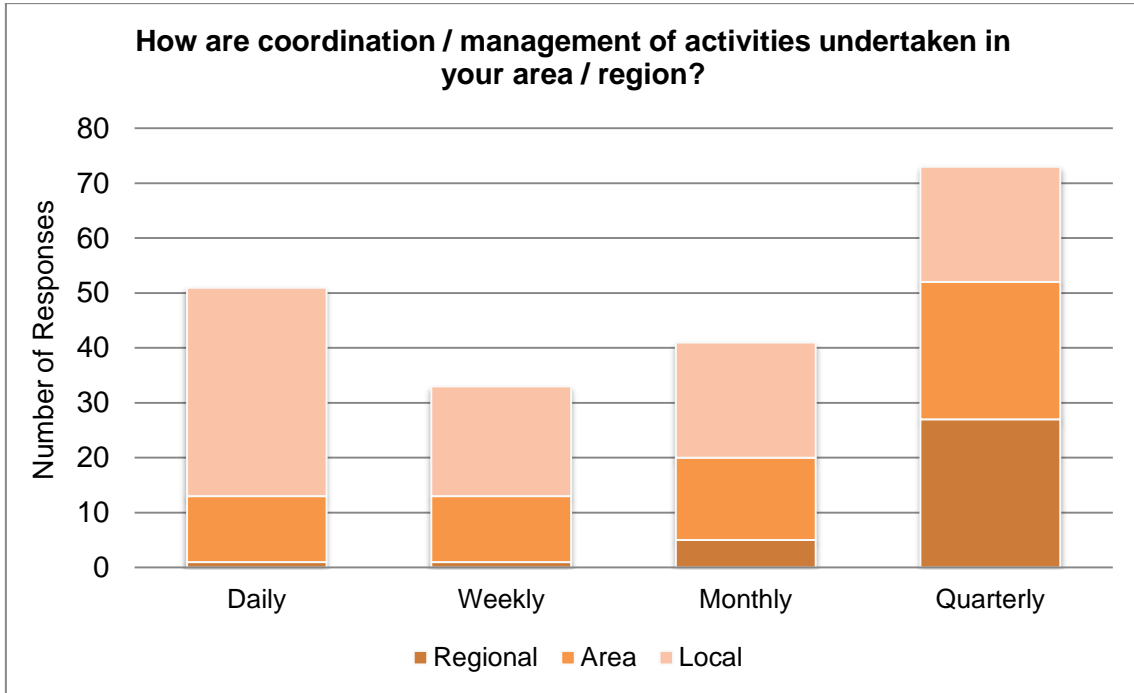


Figure 15 – Question 15

Table 1 – Question 16

What are the primary considerations when coordinating activities (please rank the considerations on a scale of 1 - 10, where 1 = least significant and 10 = most significant)?										
Answer Options	1	2	3	4	5	6	7	8	9	10
Minimising occupation	6%	0%	6%	4%	4%	2%	11%	23%	11%	23%
Reducing congestion	8%	2%	2%	0%	0%	0%	4%	19%	19%	33%
Delay cost savings	9%	12%	5%	7%	14%	14%	19%	9%	5%	5%
Conflict avoidance	9%	2%	2%	6%	9%	0%	11%	13%	17%	23%
Opportunities to combine activities	4%	4%	2%	0%	13%	13%	20%	20%	4%	12%

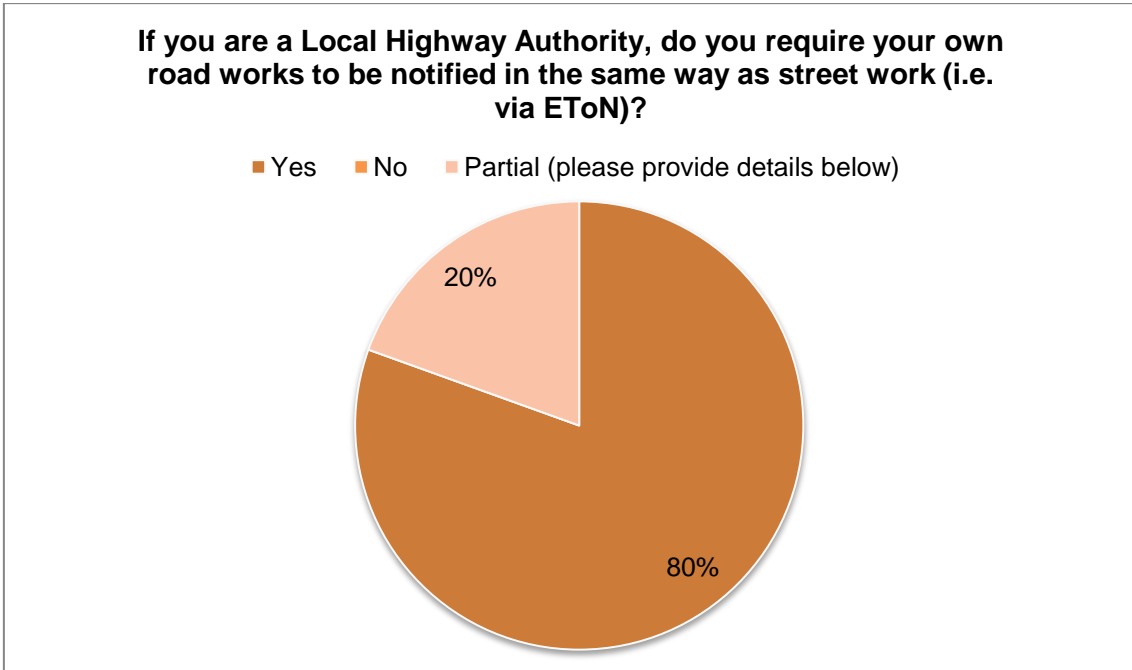


Figure 16 – Question 17

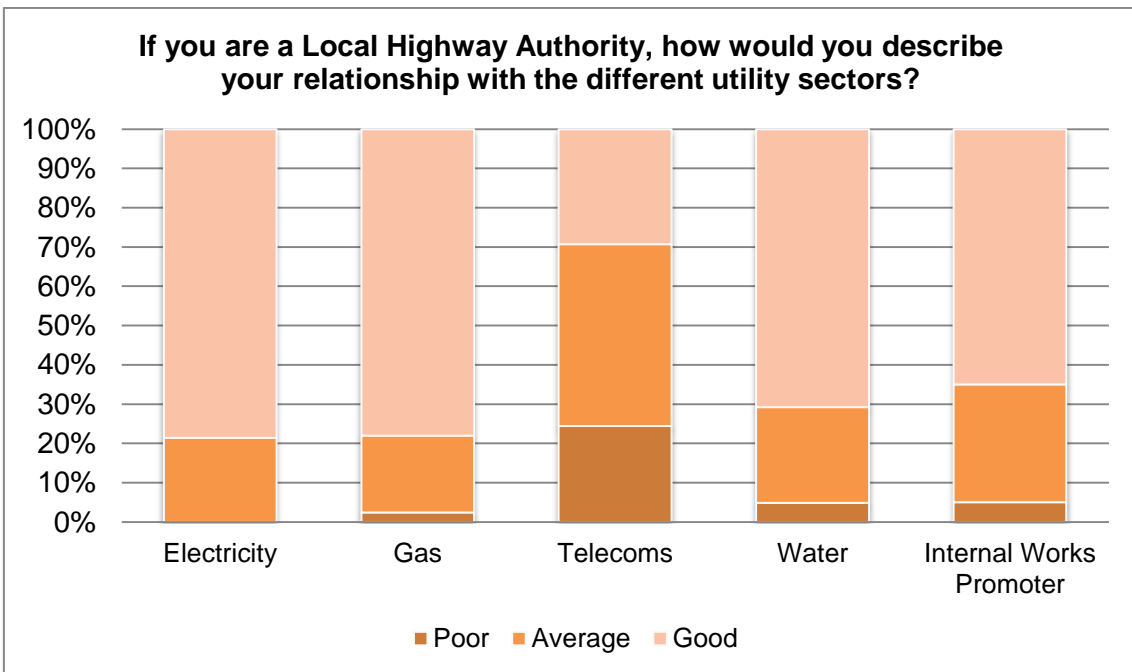


Figure 17 – Question 18

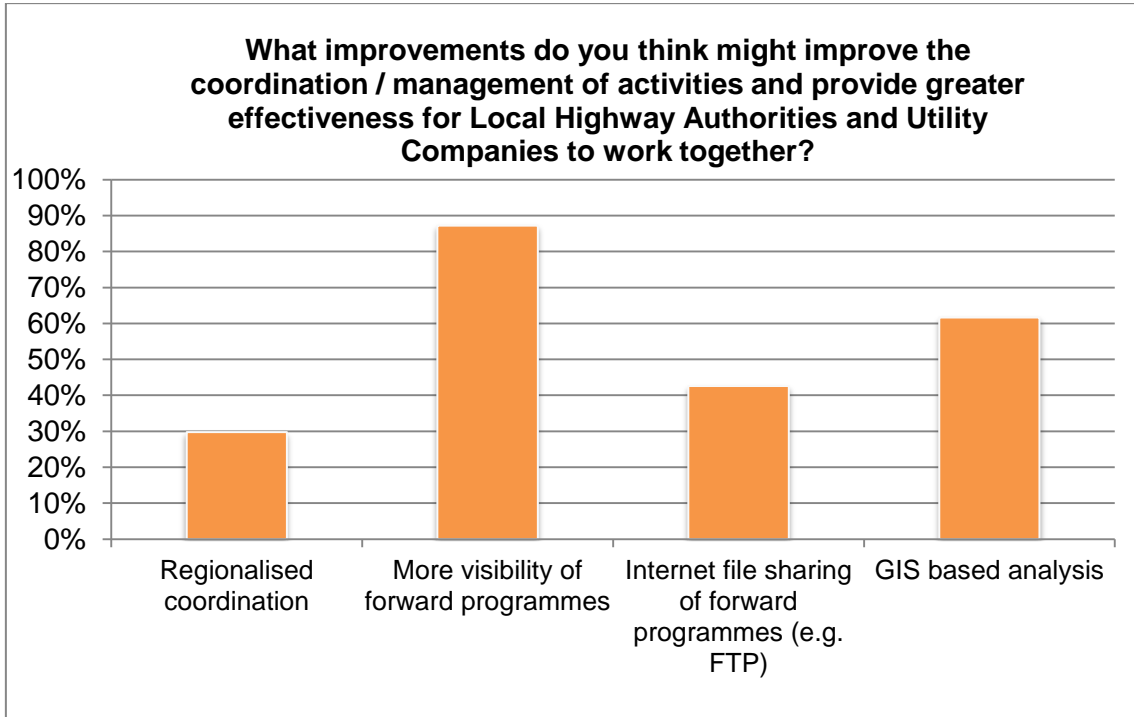


Figure 18 – Question 19

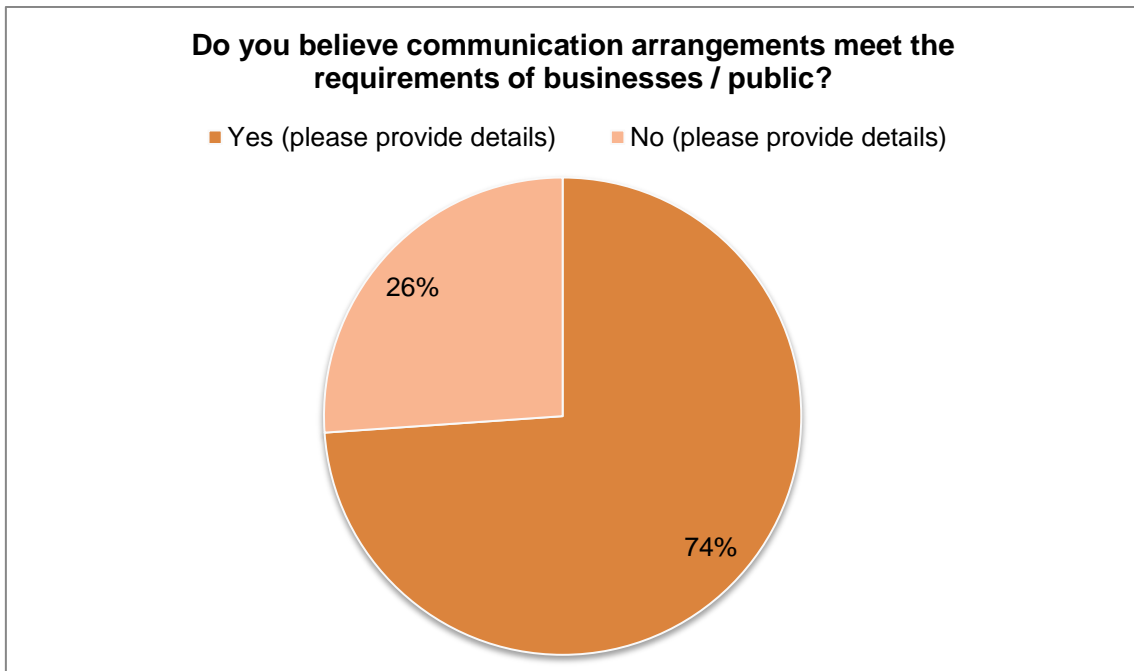


Figure 19 – Question 21



Figure 20 – Question 23

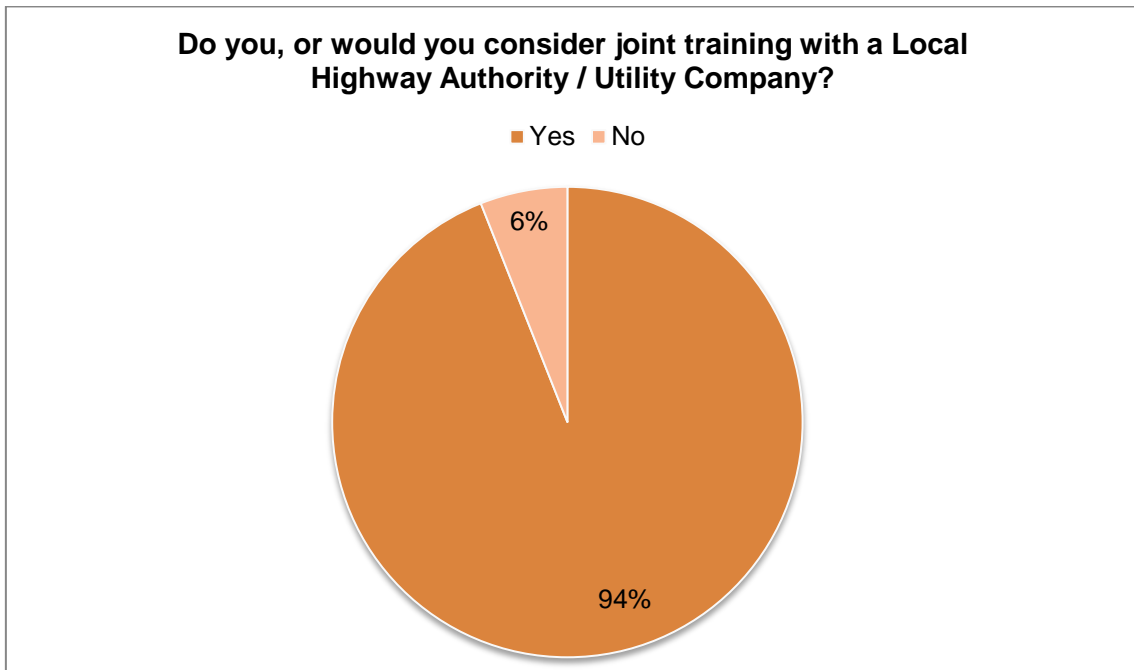


Figure 21 – Question 25

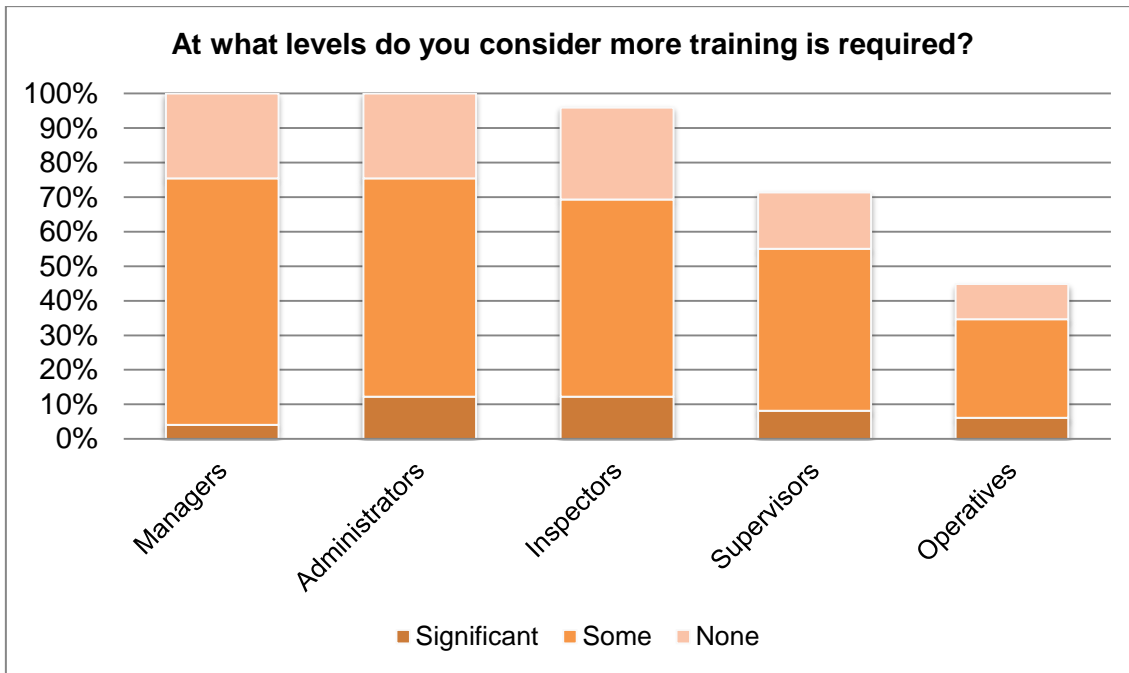


Figure 22 – Question 26

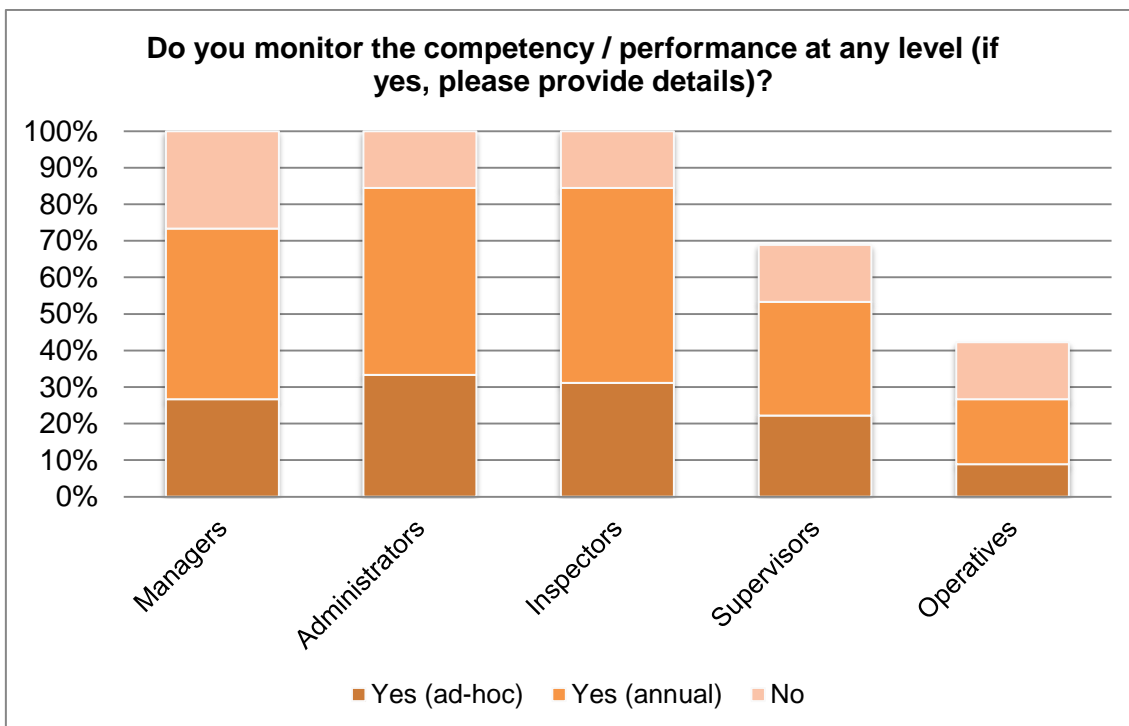


Figure 23 – Question 27

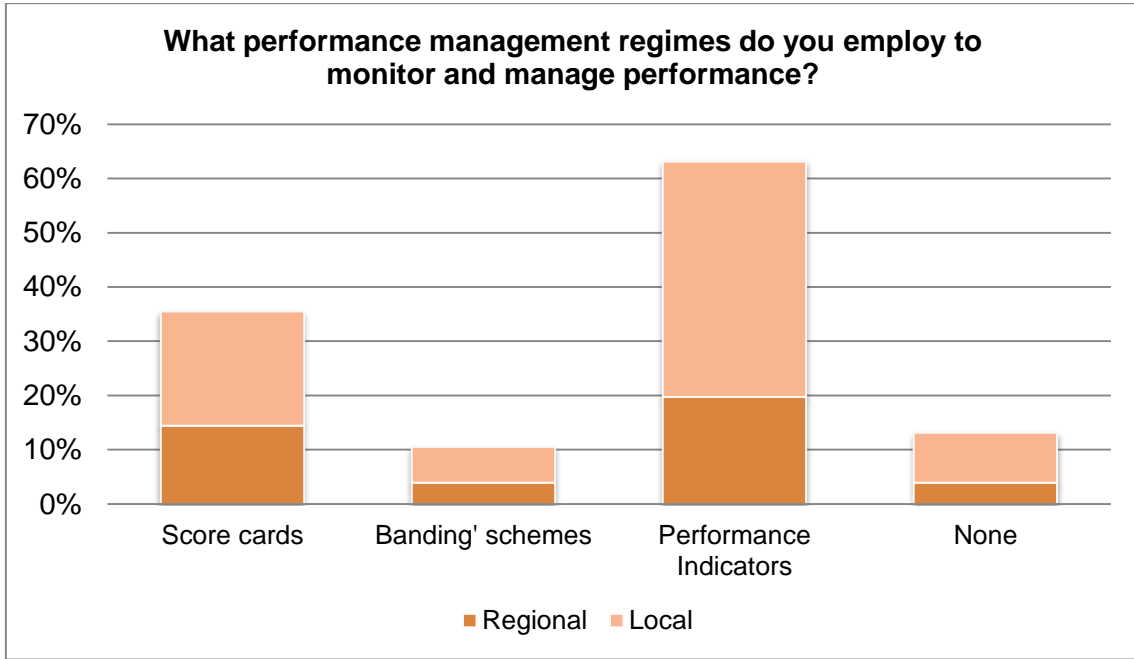


Figure 24 – Question 29

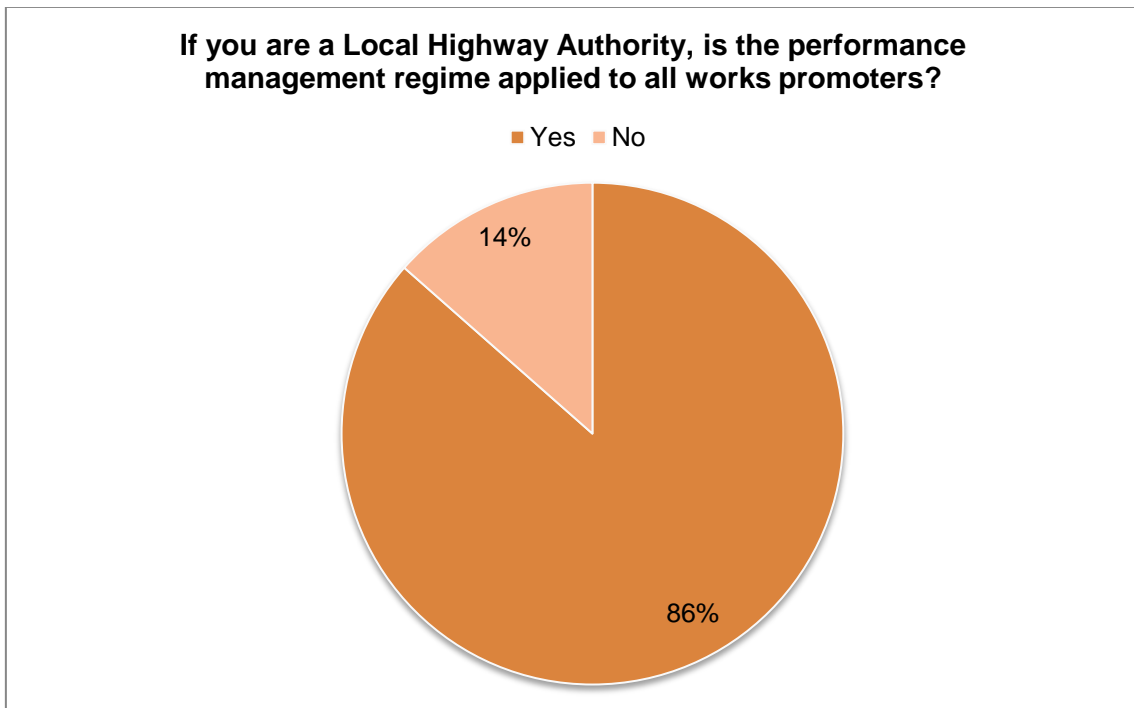


Figure 25 – Question 30

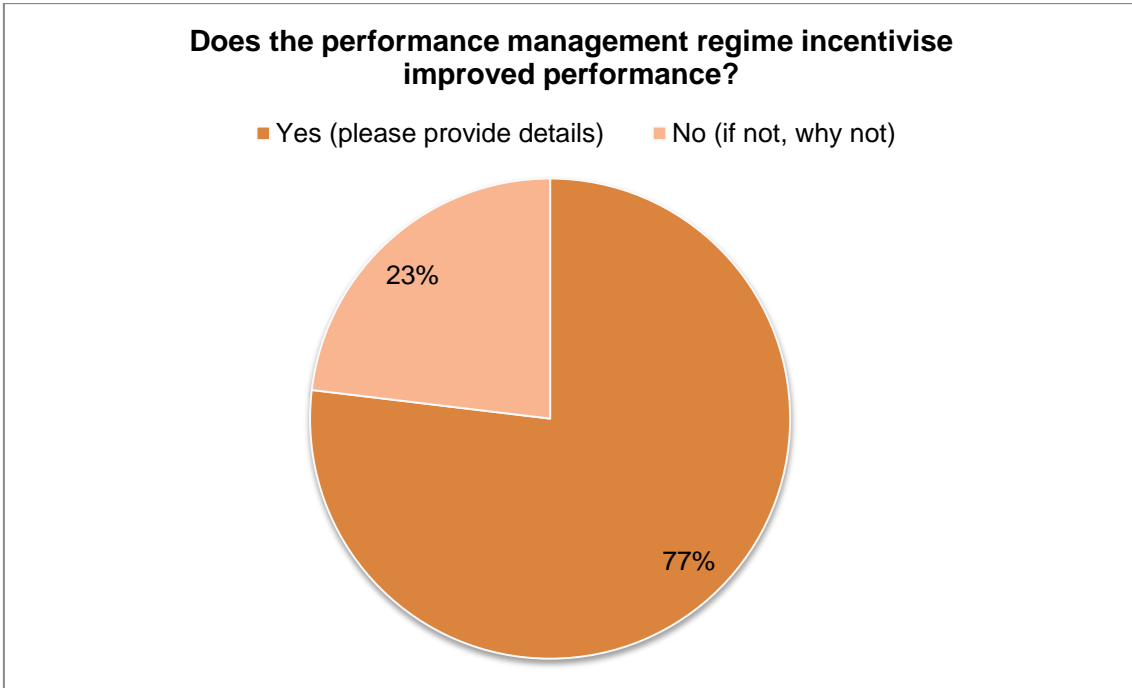


Figure 26 – Question 32

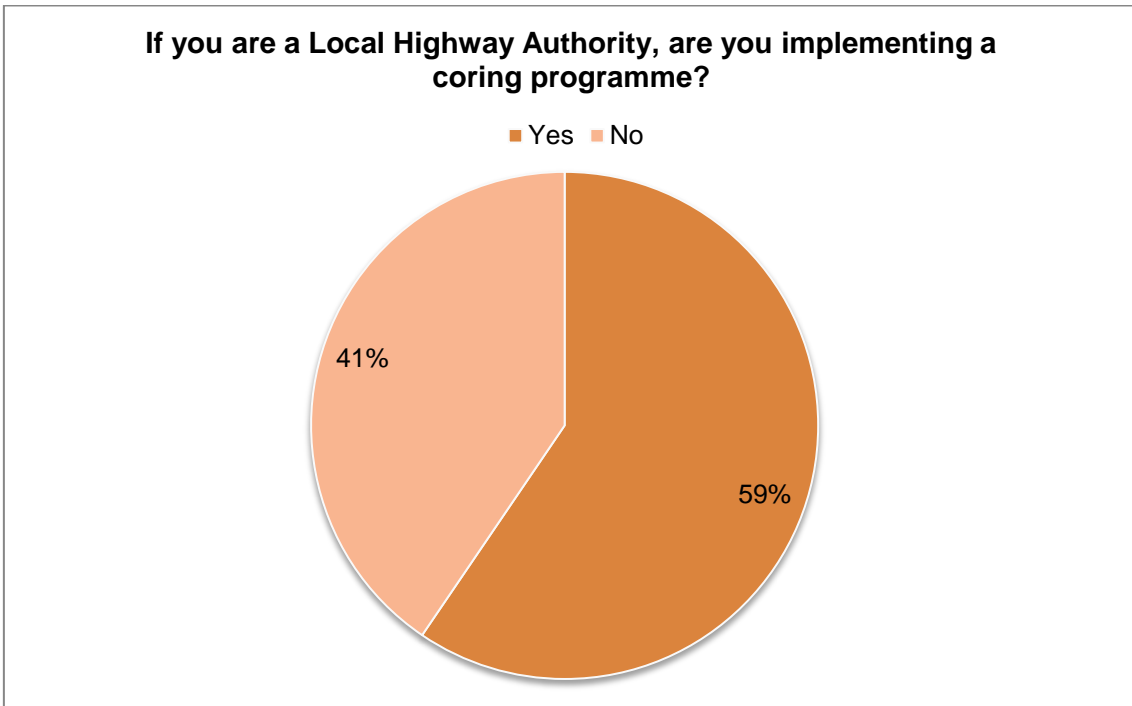


Figure 27 – Question 33

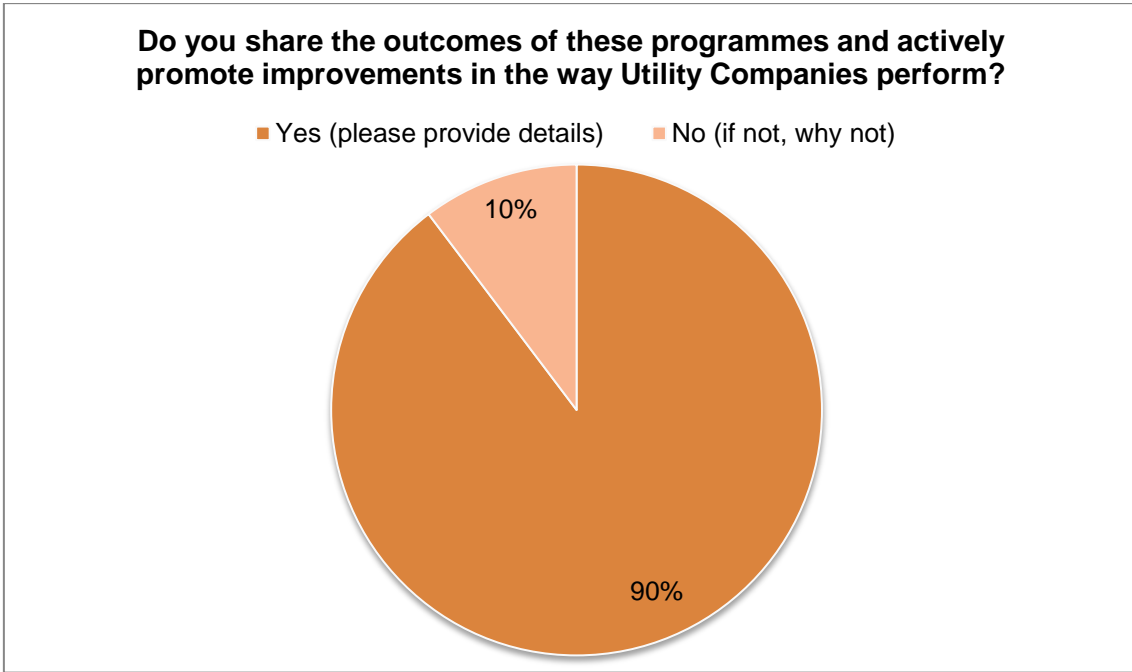


Figure 28 – Question 35

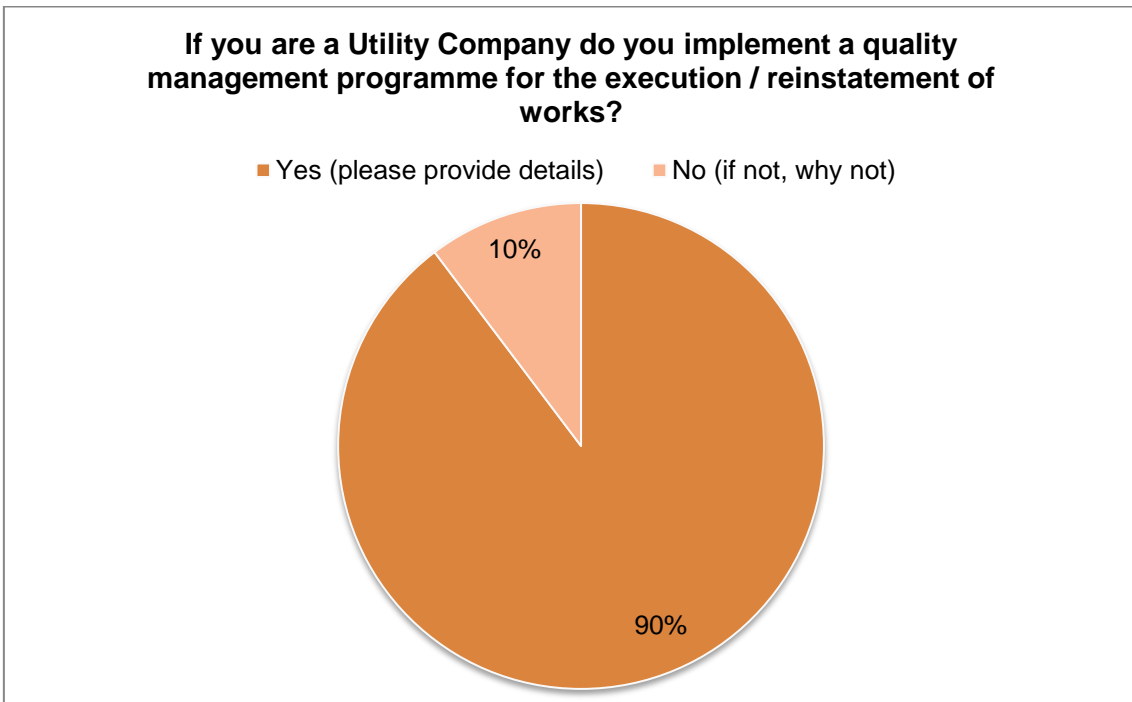


Figure 29 – Question 36

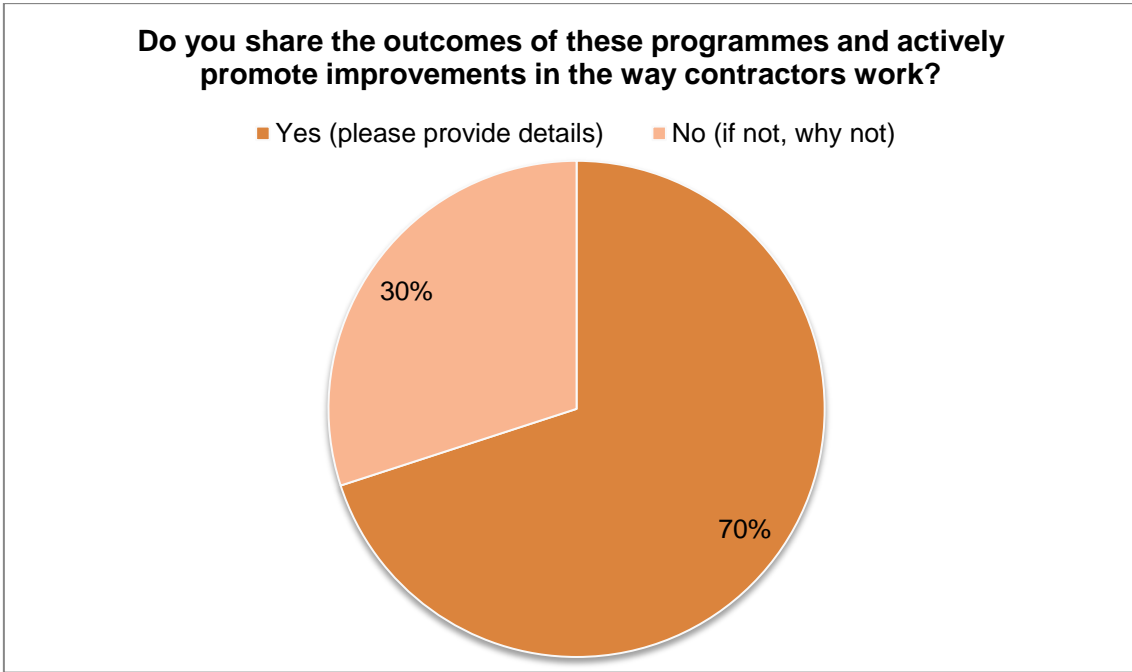


Figure 30 – Question 38

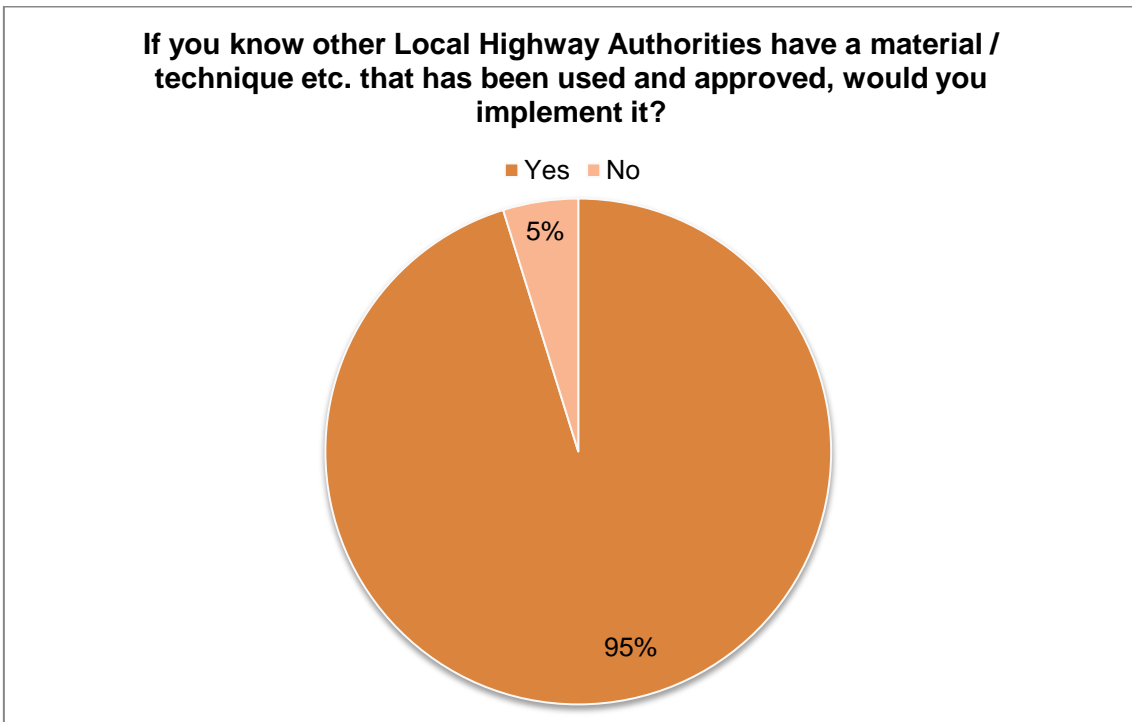


Figure 31 – Question 41

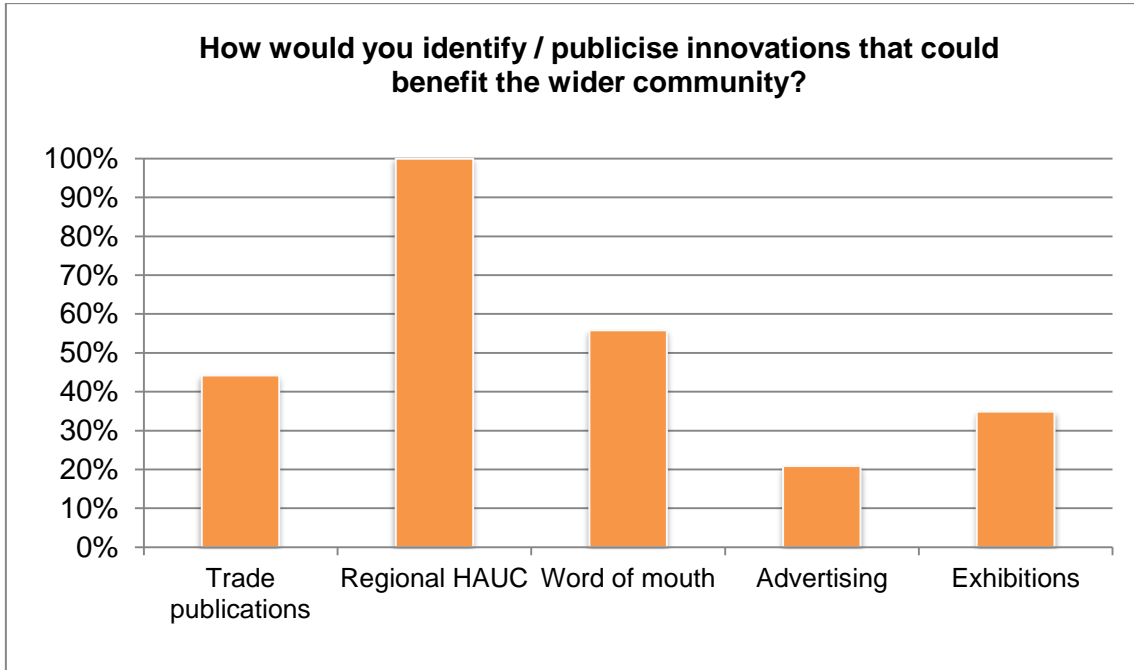


Figure 32 – Question 45

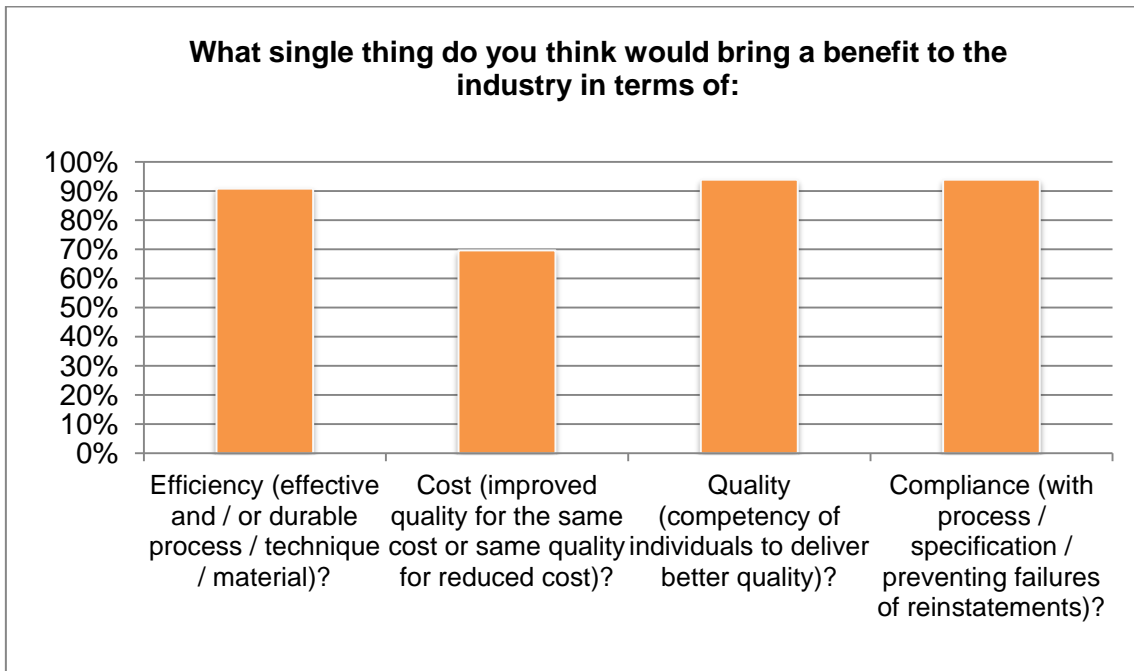


Figure 33 – Question 48

Table 2 – Question 50

If a new product was produced to help improve the delivery of street works in the areas discussed above, what should it include (please rank the considerations on a scale of 1 - 10, where 1 = least required and 10 = most required)?

Please rank										
Answer Options	1	2	3	4	5	6	7	8	9	10
Advice / guidance	2	1	2	2	2	2	3	6	4	16
Showcasing good practice	1	1	1	2	4	2	7	9	3	8
Clarification powers	0	1	1	0	4	4	7	8	3	11
Mapping of legislation	1	2	1	2	5	2	4	9	3	8
Mapping of guidance	0	1	2	2	4	2	7	9	2	8
Innovative ideas	1	0	0	4	5	3	7	8	2	6
New training techniques	1	0	1	3	2	4	7	7	5	6
Improved training, accreditation and continual assessment	1	1	1	1	2	0	5	9	3	14
Other (please provide details below)	1	0	0	0	0	0	0	0	0	2