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|---|---|--|--|--|
| Title: Update to Specification for the Reinstatement of Openings in Highways IA No: RPC Reference No: Lead department or agency: Department for Transport Other departments or agencies: | Impact Assessment (IA) | | | |
| | Date: | | | |
| | Stage: : Consultation | | | |
| | Source of intervention: Domestic | | | |
| | Type of measure: Secondary | | | |
| Contact for enquiries: Gereint Killa 07966511761 | | | | |
| Summary: Intervention and Options | | | RPC Opinion: RPC Opinion Status | |

| Cost of Preferred (or more likely) Option | | | | |
|---|----------------------------|---|-------------------|-------------------------------|
| Total Net Present Value | Business Net Present Value | Net cost to business per year (EANDCB in 2016 prices) | One-In, Three-Out | Business Impact Target Status |
| £101.89m | £50.07m | -£4.8m | N/A | Non qualifying provision |

What is the problem under consideration? Why is government intervention necessary?

When carrying out street works, utility companies (providers of water, gas, electricity or telecommunications services) must reinstate the highway to prescribed standards. These standards are set out in the Specification for the Reinstatement of Openings in Highways, a statutory code of practice. The current edition was last updated in April 2010 and much has changed since then. Apart from issues that have arisen over interpretation of its requirements, many innovations in reinstatement techniques and materials have been introduced that are not covered by the code. There is therefore a need to update the code and government intervention is required owing to its statutory status.

What are the policy objectives and the intended effects?

The general policy on street works is that they should be carried out in a way that minimises disruption to road users and should not require return visits to remedy defective materials or workmanship. The works should also be carried out as efficiently as possible. The SROH helps us realise all of these objectives but its lack of currency has become a barrier to achieving them. An updated document will address this, making it easier for utilities to carry out the works and to get them right first time. It will also bring forward innovation. Apart from reducing return visits to site, it is expected that utility/authority disputes will also diminish.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 0: Do nothing (baseline)
Option 1: Published updated SROH (preferred option)
Option 2: Deregulate the code

This proposed update has been developed through extensive engagement with interested parties and stakeholders. The alternative options to updating the SROH that have been considered are to leave it as it is or deregulate it so that the document becomes guidance only. These two options have been rejected because we do not consider that there is a viable alternative to setting reinstatement standards in a statutory code of practice. Street works is a highly regulated activity because undertakers and highway authorities often have conflicting priorities. Undertakers want to reinstate roads as efficiently as possible while authorities need to ensure that those reinstatements do not unduly affect the structural integrity of their assets as they have a longer-term responsibility for maintaining the public road network. Any ambiguity in the SROH has the potential to create disputes and differences in interpretation can lead to conflict.

| | | | | |
|--|--|--|-----------------------------------|---------------------|
| Will the policy be reviewed? It will not be reviewed. If applicable, set review date: | | | | |
| Does implementation go beyond minimum EU/International requirements? | | | No | |
| Are any of these organisations in scope? | | | Micro Yes | Small Yes |
| | | | Medium Yes | Large Yes |
| What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent) | | | Traded: non-quantified | |
| | | | Non-traded: non-quantified | |

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister: Date:

Summary: Analysis & Evidence

Policy Option 1

Description: Publish updated Specification for the Reinstatement of Openings in Highways

FULL ECONOMIC ASSESSMENT

| | | | | | |
|-----------------------------|---------------------------|--------------------------|---------------------------------------|-------------|----------------------|
| Price Base Year: 2018 | PV Base Year : 2019 | Time Period Years: 10 | Net Benefit (Present Value (PV)) (£m) | | |
| | | | Low: 26.1 | High: 227.4 | Best Estimate: 101.9 |

| COSTS (£m) | Total Transition (Constant Price) Years | Average Annual (excl. Transition) (Constant Price) | Total Cost (Present Value) |
|---------------|--|---|-------------------------------|
| Low | 0.0 | -1.4 | -11.7 |
| High | 0.1 | -0.3 | -2.1 |
| Best Estimate | 0.0 | -0.7 | -6.0 |

Description and scale of key monetised costs by 'main affected groups'

Costs largely fall on Local Authorities and Utility companies. The monetised costs of the new code of practice can broadly be split into admin costs and familiarisation costs. The most significant cost impacts to Utility companies are expected to lead to cost savings. These are primarily from a reduction in admin costs due to greater efficiency. For Local Authorities, there are net admin cost savings to both works promoters and administrators.

Other key non-monetised costs by 'main affected groups'

Operating costs and additional admin costs from the proposed changes have not been monetised. The net of these costs are expected to be modest in comparison to the total monetised costs. It has been assumed that there are no additional admin costs beyond the familiarisation costs to Local Authorities as a result of the change.

| BENEFITS (£m) | Total Transition (Constant Price) Years | Average Annual (excl. Transition) (Constant Price) | Total Benefit (Present Value) |
|---------------|--|---|----------------------------------|
| Low | N/A | 2.8 | 24.0 |
| High | N/A | 25.5 | 215.7 |
| Best Estimate | N/A | 11.3 | 95.9 |

Description and scale of key monetised benefits by 'main affected groups'

The key monetised benefits are from reduced reinstatement times and reduced remedial work. Both of these lead to a reduction in congestion, which in turn will lead to benefits to business and non-business road users through improved journey time, reliability and reduced fuel costs. There will also be benefits to society as a result of reduced accidents and reduced fuel carbon emissions due to less congestion.

Other key non-monetised benefits by 'main affected groups'

There may be other benefits from reduced reinstatement times and reduced remedial works that we have not captured (other than reduced congestion), although we believe we have captured the most significant benefits.

Key assumptions/sensitivities/risks

Discount rate (%)

3.5%

We have made some key modelling assumptions with advice from external consultants and key stakeholders, for instance on the number of works affected. The reduced remedial work and reduced reinstatement times are other key examples where we have relied on high level modelling assumptions. The cost of congestion from street works is another key assumption, although this is backed up with data. The reduction in admin costs are vital to the cost savings and rely on key modelling assumptions. Scenario based modelling was conducted to reflect the uncertainty in some of the modelling assumptions to produce a low and high range.

BUSINESS ASSESSMENT (Option 1)

| | | | |
|--|------------------|-------------|---|
| Direct impact on business (Annualised) £m: | | | Score for Business Impact Target (qualifying provisions only) £m: N/A |
| Costs: -0.2 | Benefits: 4.6 | Net: 4.8 | |

Evidence Base (for summary sheets)

1. Problem under consideration

After carrying out street works, utility companies must reinstate the highway to prescribed standards as set out in the Specification for the Reinstatement of Openings in Highways. This code of practice was last updated in April 2010. Since then, issues have arisen over the interpretation of some of its requirements, and many innovations in reinstatement techniques and materials have been introduced.

Given the code's statutory status it is important that its guidance is unambiguous and up to date. However, as a consequence of its age, the current edition is beginning to fail in these respects. It is giving rise to avoidable disputes between utilities and authorities and it has become a barrier to the introduction of new materials and technology.

Many significant amendments have been identified that could help speed up street works through more efficient working. Other amendments could help reduce the number of work sites in operation at any given time, simply by making return site visits to carry out remedial work less likely. Apart from the potential savings in traffic congestion, the proposed amendments will also bring about significant environmental benefits.

A revision of the code will address all of these problems.

2. Rationale for intervention

The consequences of not meeting the code's requirements are costly. For utility companies, it involves the payment of fines and returning to site to carry out remedial works. For the road user, it is the cost of the additional congestion resulting from a return visit. For local highway authorities, it is the cost of the degradation and premature repair of their highway assets where non-compliant reinstatements have not been identified as such within the statutory guarantee periods.

Apart from poor workmanship or materials, there are two main reasons for reinstatements giving rise to disputes between the authorities and the utilities. Either the utility contractor claims it is not possible to satisfy the code's requirements or their interpretation of the code differs from that of the authority.

An example of the former concerns air voids. Many utilities claim that it is not possible to meet the code's air void requirements every single time no matter how conscientiously the work is carried out. Authorities disagree and consider that the air voids limits are always achievable. The truth appears to lie somewhere in the middle.

An example of differences in interpretation is compaction around ironwork in footways. The code covers ironwork in carriageways, but the advice is incomplete - utilities claim that the advice, as written, only relates to ironwork in carriageways whereas authorities consider the advice applies equally to footways.

The code has also become a barrier to innovation. It only covers cement based alternative reinstatement materials, i.e. alternative to established materials. This means that innovation in techniques and other materials (for example asphalt) are not covered. The result is that new techniques like the core and vac method are not permitted and can therefore only be used by agreement with individual authorities. In addition, the code's procedure for trialling alternative reinstatement materials was written when the pace of innovation was not as great as it is today. The result is that the code is over-prescriptive in this area.

The code is also out of date. Much of what was considered innovative several years ago has become accepted practice now and therefore needs to be incorporated into the code.

3. Policy objective

The key policy objectives for street works are that reinstatements should:

- be carried out properly to minimise the effect on the life of the road;
- be right first time;
- be achievable without incurring unnecessary expense; and
- minimise traffic congestion.

In an ideal world, street works reinstatements would be carried out in a way that did not affect the structural integrity of the road in which the services are located. However, once a road's structural layers are disturbed to accommodate buried services, it is inevitable that the road's design life will be affected to some extent. This is accepted as the price we pay for the services we enjoy. The main purpose of the code is to minimise the deleterious effects of reinstatements by setting standards for workmanship and materials for utility companies to adhere to.

It needs to do this without putting an undue burden on utility companies as additional costs are inevitably passed on to the consumer. There is also a need to ensure that the work can be carried out efficiently in terms of site occupation times. The costs of congestion that is attributed to street works are high and in England estimates range from around £1.9-4.3bn per annum. In order to keep these costs under control, the code needs to be up to date and open to innovation.

The current edition is showing its age and there is therefore considerable room for improvement. The fact that certain parts of the code give rise to disputes is not conducive to these aims. For example, the seeming difficulty with which utilities deal with the air voids requirements mean that a certain percentage of works require return visits to carry out remedial works, thus adding to traffic congestion.

The next edition is aimed at resolving deficiencies in the code that have become apparent since it was last updated, with a view to fully realising the objectives listed above.

4. Description of options considered

There are three possible options:

- Do nothing (baseline)
- Update the code (Option 1)
- Deregulate the code (Option 2)

The **do nothing** option is not considered to meet the desired policy objectives. The code is becoming less fit for purpose as time goes by and it is giving rise to problems that could be addressed with a comprehensive update of its requirements. These problems will only get worse with time if left unresolved.

The preferred option is to **update the code**. This option has been chosen based on extensive engagement with interested parties and stakeholders. It is seen as the only practicable way of dealing with the slowly accumulating deficiencies in the current edition. The industry has long recognised the need for an update, indeed the industry has been seeking ways to update the code for some time. However, given the voluntary nature of industry involvement and the difficulties in resolving the very real differences in opinion between utilities and authorities by agreement, a government led update of the code is considered as the only practicable way of bringing about the required results.

Deregulating the code is also not considered to meet the desired policy objectives. Street works is a highly regulated industry because the two main players - highway authorities and utility companies - have different and often conflicting priorities. Both sides of the industry therefore tend to rely on regulations to create the rules they must all work to. If anything, the industry prefers regulation. A deregulated code could not be expected to resolve the problems already identified and would almost certainly create more. Without the force of law, the profit motive of utility companies would inevitably take precedence over any concerns about the condition of the road network and highway authorities would have no power to protect the integrity of their road network assets.

A formal update to the code has, through extensive engagement with key interested parties and stakeholders, the full support of industry and is the only option considered to meet the desired policy objectives. This is, therefore, the only option we are assessing in this impact assessment.

4.1 Do nothing (baseline)

This would mean that:

- The current edition of the Specification for the Reinstatement of Openings in Highways, a statutory code of practice (April 2010) would be kept in place and the code would not be updated.
- We would fail to take advantage of the cost savings that would otherwise be realised and therefore continue to impose an unnecessary burden on UK PLC.

In this impact assessment, this option is used as a baseline to estimate the costs and benefits of Option 1.

4.2 Option 1: Publish updated Specification for the Reinstatement of Openings in Highways

This would allow the benefits discussed below to be fully realised. The key changes will be:

- Inclusion of alternative materials (high bitumen content surfacings, wider usage of Hot Rolled Asphalt etc) to make compliance with the code easier to achieve (underpinned by the hierarchy of consideration, i.e. safety-durability-aesthetics)
- Clarification of parts of the code that have been giving rise to disputes between utilities and authorities
- Revamp of the A9 process to make the code more open to innovation
- The inclusion of previously A9 materials into the main body of the code as permitted materials
- Introduction of large diameter coring as a permitted method
- Introduction of micro trenching as a permitted method and inclusion of new material options to enable wider uptake of narrow trenching

Other changes are listed in Annex A.

5. Monetised and non-monetised costs and benefits of each option (including administrative burden)

This section sets out our assessment of the costs and benefits of the two options. The baseline option is where no Government intervention is undertaken (the current Code of Practice is kept in place). This is used as the counterfactual against which the costs and benefits of Option 1 are compared. Option 1 is where the Government publishes an updated Code of Practice for Specification for the Reinstatement of Openings in Highways.

As this proposal is not time-limited, the costs and benefits of the Options have been assessed over a 10 year appraisal period in this Impact Assessment, which is the default period specified in the Better Regulation Framework Manual. This proposal will be published in 2019 and will come into force in 2020. We have monetised the transition costs for 2019 under the assumption that those using the guidance will become familiar with it when it is published and before it comes into force. The other impacts (excluding familiarisation) are then monetised from 2020 onwards when the guidance comes into force. Since this proposal will be published in 2019, the 10 year appraisal period begins on this date.

Unless stated otherwise, all values are presented in 2018 prices; and where costs and benefits are expressed in present value terms, they have been discounted to their present value in 2019 using a discount rate of 3.5% per year¹, the discount rate recommended in the Green Book.

5.1 Overview of costs and benefits for updating the code of practice

The Specification for the Reinstatement of Openings in Highways prescribes materials that may be used and standards of workmanship to be adhered to in reinstating the highway after street works. It also prescribes the performance of those works over the reinstatement guarantee periods. Its purpose is to minimise damage to highway assets while ensuring that reinstatements perform properly and do not fail prematurely.

Reinstatements need to be carried out as efficiently as practicable so that they:

1. Take no more time than is necessary;
2. Cost no more than is necessary; and

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

3. Minimise the use of natural resources.

Since the last edition was published, many changes have come about that could make street works faster, cheaper and environmentally less damaging. The update is therefore necessary to enable us to take advantage of these potential benefits so that we can continue to satisfy the above objectives.

The extent to which the benefits are realised will depend significantly on the behaviour change and uptake of new practices and technologies that is achieved through the new code of practice. However, this is highly uncertain and for this reason, the quantitative analysis in the next section is indicative and models what the potential impact could be under various scenarios.

These scenarios provide high level indicative estimates of the costs and benefits of the policy option for the purpose of this consultation stage impact assessment. Where possible, we will refine the scenarios for the final impact assessment based on feedback through the consultation process.

Overview of the impacts from updating the code of practice

1. Reinstatements should take no more time than is necessary

The overall effect of updating the code will be a reduction in the number of works sites and shorter site occupation times. The reduction in works sites is expected because the code will make it easier for utilities to comply with the code's requirements in one site visit. There are four strands to this:

- Additional guidance to fill gaps in the existing code
- More flexibility in how to reinstate
- Permitted use of alternative materials
- More open to innovation

As the existing code does not cover certain activities as well as it might, **additional guidance** helps in a number of ways. For example, we aim to include guidance on sealing the vertical edges of reinstatements in footways. It is expected that, in turn, this will lead to fewer reinstatement failures due to water ingress. Additional guidance should also lead to less confusion over what the code requires and hence fewer disputes between utilities and authorities over what is compliant and what is not.

More flexibility can help speed up the works. For example, a trench crossing that begins in the footway and extends into the carriageway currently requires two types of surfacing, typically asphalt concrete in the footway and hot rolled asphalt in the carriageway. The next edition will permit a single surfacing material, Hot Rolled Asphalt (HRA), to be used to reinstate both footway and carriageway in. Apart from cost savings from not having to import two different materials to site, reinstatement is simplified and therefore less prone to error.

The proposal to permit **alternative materials** is expected to have the most significant effect on compliance. Utilities often claim that it is not possible to guarantee compliance 100% of the time using currently permitted materials and this appears to be borne out by the failure rate of street works reinstatements. This is owing to the difficulty in compacting these materials by hand lay methods. We propose to allow the use of alternative materials that are inherently easier to compact. Although they are slightly more expensive, the additional cost will be insignificant compared with that of having to return to site to re-do the reinstatement.

The **increased openness to innovation** in terms of materials and methods will also shorten site occupation times. For example, large diameter coring and micro trenching are two methods that will be new to the code. Both have the potential to reduce a five day job to one taking less than a day

2. Reinstatements should cost no more than is necessary

Any reduction in the number of sites or the total time spent on site could lead to cost savings. Apart from the obvious benefit to utility companies, a bigger saving will come from reduced traffic congestion and a lower likelihood of accidents indirectly caused by that congestion

3. Reinstatements should minimise the use of natural resources

Innovation and the permitted use of optional materials not only help expedite the works and reduce site occupation times but they also lead to less use of virgin materials, lower fuel bills (for utilities and road users), and fewer vehicle movements resulting from fewer site visits and from not having to import materials to site and cart away spoil. The latter aspect also helps reduce congestion.

The above benefits extend to:

- Road users
- Utilities
- Authorities
- The environment

Road users will spend less time in traffic, spend less on fuel and use the time saved more productively

Utilities will save on operating costs because of lower manpower requirements, time savings, and reduced wear and tear on machinery. They will also benefit from reduced fines for non-compliance.

Authorities will spend less time in dispute with utilities and higher quality reinstatements are less likely to cause long term damage to their highway assets.

The environment will benefit because of reduced fuel use, less pollution, and less use of virgin materials. In addition, there will be less waste to cart away to landfill sites.

The increase in cost to utilities will be limited to the effort involved in becoming familiar with the new code. These will be one-off familiarisation costs that will be small and these will be heavily outweighed by the savings associated with updating the Code of Practice.

For authorities, there could be additional costs associated with possibly required improvements to their record systems to ensure correct identification within the proposed increased guarantee period. There may also be an additional annual administrative cost primarily linked to an increase in site inspections although this might be offset to a certain extent by spreading out the inspection regime over a longer time period.

A high-level overview of the approach taken in the analysis for the options is outlined in the next section. Given the additional uncertainty and limitations of the approach, the different scenarios have enabled us to produce a low/high range.

Given the complexity for this analysis and lack of evidence, we have sense checked key assumptions with stakeholders and external consultants to provide assumptions for the scenario based modelling. The estimates below are using the best information/evidence currently available to us.

The estimates are quite heavily reliant on the following assumptions which, if changed would change the scale of the cost and benefits significantly:

- The improvement in compliance from the new code
- Number of works affected by uptake of technology
- Cost of congestion from street works
- Improved admin efficiency

For the final stage Impact Assessment, we intend to gather further information and evidence to allow us to refine this analysis.

5.2 Costs and Benefits of Option 1: Update Specification for the Reinstatement of Openings in Highways

The estimates of the costs and benefits of publishing an updated Specification for the Reinstatement of Openings in Highways are heavily reliant on assumptions made with the help of external consultants and stakeholder engagement as well as the limited data that we have obtained. These assumptions are informed estimates and we are looking to test these during consultation. It is assumed that the costs and benefits (excluding familiarisation costs) will be realised from 2020 onwards.

There are an estimated 2.5 million works each year in England. Of these, an estimated 64% of these are from street works related to utilities². This means that there is an estimated 1.6m utility works in England per annum.

The proportion of works affected (by reduced reinstatement and admit costs) by the new code of practice is more difficult to estimate. For this reason we have produced three different scenarios to model different rates of works affected. We have made modelling assumptions on the proportion of works affected by reduced reinstatement times and the proportion of works affected by reduced admin costs. These assumptions can be found in Table 1 below.

² Elgin data from 2012/13

Table 1: Key assumptions: Number of works affected

| | Low | Central | High |
|---|------|---------|------|
| Total number of works in England | 2.5m | 2.5m | 2.5m |
| % of works that are street works (utilities) | 64% | 64% | 64% |
| Total number of street works in England | 1.6m | 1.6m | 1.6m |
| Proportion of works affected by reduced reinstatement times | 0.5% | 1.0% | 1.5% |
| Proportion of works affected by reduced admin costs | 10% | 15% | 20% |
| Improvement in rate of compliance | 0.5% | 1.0% | 1.5% |

As discussed above, the improvement in compliance as a result of the code of practice is difficult to estimate. For this reason, we have modelled three indicative scenarios based on discussions with policy experts and external contractors to reflect this uncertainty. We are looking to test these scenarios during the consultation process. The scenarios modelled in this analysis are:

- Proportion of works affected by reduced reinstatement times (0.5%-1.5%, 1.0% central)
- Proportion of works affected by reduced admin costs (10%-20%, 15% central)
- Improvement in rate of compliance (0.5%-1.5%, 1.0% central)

Benefits

Input Assumptions

The main benefits that have been monetised are:

- Improvements in journey time
- Improvements in journey reliability
- Reductions in fuel consumption
- Reduction in accidents
- Reductions in fuel carbon (greenhouse gas emissions)

The benefits above have been monetised using the costs of congestion of street works and Quadro modelling carried out for evaluation of permitting³. More detail of these is provided in the monetisation section below.

The improvements to journey time, reliability, reduction in fuels costs, accidents and fuel carbon emissions are driven by two main factors:

- Reduction in remedial works
- Reduction in reinstatement times

The reduction in remedial works are due to there being an improvement in the rate of compliance (0.5%-1.5%) due to the updated guidance, as shown in Table 1 above. Table 1 also

³ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700502/permit-schemes-evaluation-report.pdf

shows that 0.5%-1.5% of works will benefit from reduced reinstatement times. Taking the total number of street works in England and the proportion of works that benefit from reduced reinstatement times and the improvement in compliance has enabled us to estimate the number of works affected by each respectively. These can be found in Table 2 below.

It is assumed the average number of days saved due to faster reinstatement is between 0.5 and 1.5 days. It is also assumed that the average time per remedial work is between 0.5 and 1.5 days. We are seeking to test these assumptions with stakeholders during the consultation process.

Table 2: Benefits Assumptions

| | Low NPV | Central NPV | High NPV |
|--|---------|-------------|----------|
| Number of works affected by uptake of technology | | | |
| Number of works affected | 12.5k | 25k | 37.5k |
| Reduced reinstatement times per work (days) | 0.5 | 1.0 | 1.5 |
| Reduction in non-compliance leading to reduction in remedial work | | | |
| Number of days that don't require remedial work | 12.5k | 25k | 37.5k |
| Average disruption time per remedial work (days) | 0.5 | 1.0 | 1.5 |

Monetisation of reduced disruption

The input assumptions allow us to estimate the overall cost savings from reduced remedial work and reduced reinstatement times. The mechanism by which this happens is that both of these reductions lead to reduced congestion, which we have been able to monetise to cost of per day.

Table 3 below illustrates the costs of congestion to society and the number of works affected. Analysis carried out for the Permit Evaluation (2018) suggested the cost of congestion from Street works to be around £1.9bn⁴ per year. This analysis was carried out using the Quadro (Queues And Delays at Roadworks) program⁵, which is a tool provided by Highways England to assess the impact of road maintenance works, in particular the costs imposed on road users while works are being carried out. By dividing the total cost of £1.9bn by the total duration of works and adjust to 2018 prices, we estimate the cost of congestion per work day to be £252. We have taken the number of works affected and the amount of time saved along with the reduced cost of congestion associated to aggregate the benefits in terms of reduced remedial work and reduced reinstatement time.

For the purpose of this impact assessment, an assessment is needed on the impact on business roads and non-business road users. In the absence of a more detailed breakdown of

⁴ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700502/permit-schemes-evaluation-report.pdf

⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/640877/road-works-the-future-of-lane-rental.pdf

the Quadro modelling outputs for the Permit Evaluation, we have used Quadro outputs developed for Kent's Lane Rental Costs Benefit Analysis⁶. A limitation of this approach is that the % breakdown of Quadro outputs for Kent are being applied to the whole of England, however the factors affecting congestion costs (e.g. traffic flow, journey purpose, types of vehicles) are likely to vary considerably by Local Authority. Nonetheless, the Quadro outputs allows us to apportion the benefits to different users as well as the benefits to society.

Table 3: Quadro outputs breakdown

| Type of Benefit | Proportion of benefits |
|----------------------|------------------------|
| Consumer | 44% |
| Business | 50% |
| Accident | 5% |
| Fuel carbon emission | 1% |
| Overall impact | 100% |

Outputs

The benefits of both reduced remediation and reinstatement time is estimated to be in the region of £1.6m to £14.2m (central £6.3m) per year of the scheme. These two benefits are distinct from each other. They are, however, based on the same assumptions, for instance on reduced cost of congestion per m2, leading to the same estimated benefits. The wide range in estimated benefits is to reflect some of the uncertainty in the modelling assumptions as discussed above. The total road user benefits are estimated to be £3.2m-£28.4m per annum (central estimate of £12.6m). The breakdown of the estimates can be found in Table 4 below.

Table 4: Annual Impacts on Road Users and Society

| Central estimate – per year of scheme £ Millions (2018 prices) | Low NPV | Central NPV | High NPV |
|---|------------|-------------|-------------|
| Benefits from reduced remedial work | 1.6 | 6.3 | 14.2 |
| Reduced reinstatement time | 1.6 | 6.3 | 14.2 |
| Total benefits to road users and society | 3.2 | 12.6 | 28.4 |

As discussed above, the Quadro outputs for Kent allows us to apportion the benefits to different users and to society. The breakdown of benefits can be found in Table 5 below. Table 5 shows that the most significant benefits are to business road users in terms of journey time, reliability and fuel costs with an estimated annual benefit of £6.3m in the central scenario. The road user non-business impacts are also significant with an estimated annual benefit of £5.6m in the central scenario. There are also estimated benefits from reduced accident and reduced fuel carbon emissions, although these are significantly smaller than the road user impacts.

⁶ https://www.kent.gov.uk/data/assets/pdf_file/0015/13074/KLRS-progress-report.pdf

Table 5: Breakdown of annual impacts on road users and society (from both reduced remedial work and faster reinstatements)

| Per year of scheme £ Millions (2018 prices) | Low NPV | Central NPV | High NPV |
|--|---------|-------------|----------|
| Road user business impacts – journey time, reliability, fuel costs | 1.6 | 6.3 | 14.2 |
| Road user non-business impacts – journey time, reliability, fuel costs | 1.4 | 5.6 | 12.5 |
| Reduced accidents benefits | 0.2 | 0.6 | 1.4 |
| Reduced fuel carbon emission benefits | 0.03 | 0.10 | 0.25 |

Costs

Input assumptions

As identified above, the costs are likely to fall onto Utility companies and Local Authorities. The monetised costs of the new code of practice can broadly be split into admin costs and familiarisation costs.

We have assumed that there are no additional costs in terms of admin costs and operating costs associated with the new code of practice, rather we have made the assumption that there will be cost savings due to improved efficiency. This section will focus on the cost savings that have been monetised at this stage.

Table 1 above estimates that between 10% and 20% of works would be affected by reduced admin costs. The admin costs are separated into admin costs for promoters and administrators to reflect the dual function of Local Authorities.

Monetisation and Outputs

The reduction in admin costs and the familiarisation costs for Utility companies and Local Authorities have been monetised and can be found in Table 6 below. The reduction in admin costs per year is based on the reduction in admin costs per work as a result of uptake of technology due to the guidance. For both Local Authorities (for both promoters and administrators) and Utility companies, the reduction in admin costs per work is assumed to be £0.5 to £1.5. This assumption has been made after discussions with specialist policy experts and external contractors to develop three indicative scenarios for a view of the potential cost savings. We will aim to test this assumption during consultation. Using this in combination with the number of works identified in Table 2 (set out in the Input Assumptions), we calculated the total reduction in admin costs for Utility companies and Local Authorities.

The admin costs savings are estimated to reduce admin costs by £0.1m to £0.5m per annum for utility companies. For Local Authorities, the reduction is estimated to be £0.06m-£0.27m (central £0.14m) per annum for promoters and £0.13m-£0.80m (central £0.40m) per annum for administrators. The ranges reflect the scenario based approach whereby different admin costs per work and reductions in admin costs are modelled to reflect the uncertainty in the estimates.

The familiarisation costs that Utility companies and Local Authorities will face can also be found in Table 6. These are estimated to be £8k-£35k (central £18k) for both Utility companies and Local Authorities and will occur for just the first year (2019), when the guidance is published. These costs are very small in comparison to the other costs and benefits associated with the change. The range of familiarisation costs in Table 6 is due to the different scenarios which model variations on the time taken users of the guidance to familiarise themselves with the new guidance (range of 4-16 hours). The overall familiarisation costs are also determined by the assumed number of utility maintenance companies (150) and number of LAs (150) as well as the admin costs per hour for familiarisation (£14.68 per hour in 2018 prices)⁷.

Table 6: Impacts on Utility companies and Local Authorities

| Per year of scheme £ (2018 prices) | Low NPV | Central NPV | High NPV |
|---|---------|-------------|----------|
| Admin | | | |
| One off costs from new standards | - | - | - |
| Increase in admin running costs from new standards | - | - | - |
| Familiarisation costs (one off costs in first year) | 35k | 18k | 8k |
| <u>Admin costs to Utility companies</u> | | | |
| Reduction in admin costs per work | 0.5 | 1.0 | 1.5 |
| Reduction in admin costs | 0.1m | 0.3m | 0.5m |
| <u>Admin costs to Local Authorities</u> | | | |
| Reduction in admin costs from promoters per work | 0.50 | 1.0 | 1.50 |
| Total reduction in admin costs from promoters | 0.06m | 0.14m | 0.27m |
| Reduction in admin costs from administrators per work | 0.50 | 1.0 | 1.50 |
| Total reduction in admin costs from administrators | 0.13m | 0.40m | 0.80m |
| Operating costs | | | |
| Reduction in costs for reinstatements | - | - | - |

Summary of appraisal

The scenario based modelling approach taken shows all three scenarios suggest that there would be a net benefit to updating the code of practice. The overall costs are estimated to be

⁷ The admin costs per hour for familiarisation are derived from the Annual Business Survey (<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2017provisionaland2016revisedresults#earnings-by-occupation>). This is based on the average weekly salary for administrative and secretarial occupation (£431.6) multiplied by the number of weeks per year (52) plus 20% for non-salary benefits. This total average salary plus non salary benefits (£26,932) is then divided by the assumed 266 working days and 7 hour working day to get the admin costs per hour for familiarisation in 2017. The costs were then uplifted with a GDP deflator assumption consistent with Web-Tag guidance.

negative which are driven by a large reduction in admin costs and these significantly outweigh the familiarisation costs.

There are also significant benefits which are driven by a reduction in the remedial work and reduction in reinstatement times. These result in significant benefits in terms of journey time, reliability, fuel costs and accidents. The costs and benefits monetised in this appraisal are summarised in Table 7 below. It clearly shows that there are significant benefits to road users (business and non-business) to updating the code of practice. There are some important benefits to society too in terms of reduced accidents and reduce fuel carbon emissions.

Table 7 also highlights the estimated cost savings, which will be realised by Local Authorities (non-business) and Utility companies (business). The reduction in admin costs to Local Authorities will be realised by both work promoters and work administrators. There are some minor familiarisation costs associated with the change that affect both LAs and Utility companies, and these are outweighed by the significant cost savings.

Table 7: Summary of costs and benefits

| Per year of scheme £ (2018 prices) | Low NPV | Central NPV | High NPV |
|--|---------|-------------|----------|
| Costs | | | |
| Reduction in admin costs (business) | 0.1m | 0.3m | 0.5m |
| Reduction in admin costs (non-business) | 0.2m | 0.5m | 1.1m |
| One off familiarisation costs (business) | 35k | 18k | 8k |
| One off familiarisation costs (non-business) | 35k | 18k | 8k |
| Benefits | | | |
| Road user business impacts | 1.6m | 6.3m | 14.2m |
| Road user non-business impacts | 1.4m | 5.6m | 12.5m |
| Reduced accidents benefits | 0.2m | 0.6m | 1.4m |
| Reduce fuel carbon emissions benefits | 0.03m | 0.10m | 0.25m |

Putting together the costs and benefits, we have calculated Net Present Values for all three scenarios. Table 8 below shows the summary of the appraisal, including both Net Present Values (NPV) and Business NPVs.

Table 8: Summary of appraisal

| 2018 prices (£m) | Low NPV | Central NPV | High NPV |
|---|-------------|--------------|--------------|
| Present Value Costs (PVC) | -2.1 | -6.0 | -11.7 |
| Present Value Benefits (PVB) | 24.0 | 95.9 | 215.7 |
| Net Present Value (NPV) | 26.1 | 101.9 | 227.4 |
| Business Net Present Value (NPV) | 12.8 | 50.07 | 112.0 |

The figures in Table 8 above show that in all three scenarios there are high net benefits to updating the code of practice. As discussed above, these net benefits are primarily to road users (both business and non-business), although there are also cost savings to Local Authorities and Utility companies that feed into this.

6. Rationale and evidence that justify the level of analysis used in the IA (proportionality approach)

The evidence used in this consultation stage impact assessment relies on engagement with key stakeholders and external consultants with specialist knowledge on the potential impacts. We have taken a scenario based approach because of the uncertainty in some of the modelling assumptions, which gives a high level indicative estimate of the costs to business of the change.

For the final stage impact assessment, we are intending to update some of the modelling assumptions to feed into the scenario approach based on further evidence received from the consultation process.

7. Risks and assumptions

The key assumptions in this analysis are:

- Number of works affected: whilst we have reasonably firm data on the number of works in England per year and proportion that are street works, the proportion of works affected by reduced reinstatement times and reduced admin costs is more difficult to measure. The analysis models scenarios of proportions of works affected by reduced reinstatement times of 0.5% to 1.5%. The proportion of works affected by reduced admin costs is estimated to be between 10% and 20%.
- Cost of congestion from street works: there is uncertainty around the cost of congestion from street works. The estimates vary from the top-down approach of £1bn per year to the Halcrow estimate of £4.3bn per year⁸. Recent work on this has suggested that the

⁸ <http://streetworks.org.uk/wp-content/uploads/2016/09/93.pdf>

total cost of congestion from street works per year is around £1.9bn, which is used in this analysis. This figure is from estimates published in the Permit Evaluation (2018) and is based on uplifted estimates using 2010 market prices. The Works total (no.) and Total duration (days) are from 2016.

- Reduced remedial work and reduced reinstatement times: these are essential to how the benefits of the code of practice are captured in terms of: improvements in journey time and journey reliability, reductions in fuel consumption, reduction in accidents and reductions in fuel carbon (greenhouse gas emissions). These both depend on a number of modelling assumptions which are part of the scenario based modelling. These include assumptions on: improvement in compliance and proportion of works affected.
- The improvement in compliance due to the new code of practice: there are no published statistics on the rates of non-compliance of reinstatement of street works. From engagement with key stakeholders and consultants, we have modelled three different scenarios in which compliance improved (range of 0.5%-1.5% with a central 1%)
- Admin costs: the reduction in admin costs for administrators and promoters are a significant component of the overall negative costs of the new code of practice. The estimates that form the scenario based modelling also depend significantly on a number of assumptions such as admin costs per work for promoters/administrators and the reduction in admin costs for promoters/administrators as a result of the updated code of practice.

8. Wider impacts

Equalities Impact Assessment

There will be no negative impact on those with "protected characteristics" under equality legislation. An overall reduction in site occupation times will benefit people who are infirm for whatever reason.

Small and Micro Business Assessment

Many of the utility company contractors are SMEs and there will be an obvious benefit to them in terms of time and money. SMEs not connected with the industry will also benefit owing to the reduced site occupation times helping to make travel easier and journey times more reliable. SMEs that are suppliers of the newly approved alternative materials will benefit from increased sales of their products

Competition Assessment

The 4th edition will not affect competition in any way.

Greenhouse Gases Impact Test

There will be a reduction in greenhouse gases owing to reduced traffic congestion, reduced fuel use of plant on site and fewer lorry movements to and from site.

Wider Environmental Impact

There will be a reduction in the use of virgin reinstatement materials

Family Test

No impact

Health Impact Assessment

No impact

Human Rights Impact

No impact

Justice Impact Test

No impact

Rural Proofing Toolkit

No impact

Sustainable Development

No impact

9. Summary and preferred option with description of implementation plan

The preferred option is to update the code. The do-nothing and de-regulate option do not meet the desired policy objectives and would fail to realise the economic and environmental advantages of the preferred option.

The new edition is planned for publication in the Spring of 2019. It will come into force one year later.

10. Annex A: List of proposed amendments

The following are in addition to the key amendments listed in section 4.2

- Guidance on layer thicknesses has been rationalised and Table A11.1 has been deleted to remove inconsistencies in existing advice on layer thicknesses.
- A new high bitumen content AC has been introduced to address the difficulties of achieving proper compaction of AC6 DSC in footways.
- A preferred option for determining the maximum density of core samples has been included, and an option has been added permitting trimming the bottom of cores exceeding the specified depth when layed over unbound material.
- A specification for applying base edge and tack coating in footpath reinstatements added.
- Guidance on reinstating reinforced concrete has been expanded. It also includes guidance on using Large Diameter Cores Large Diameter Cores in a concrete road.
- Advice on the early trafficking of concrete has been added.
- PSV values have been updated to optimise aggregates properties, in line with materials availability and DMRB.
- Table NG1.1 has been updated for projected flows up to 2033.
- Polymer modified mastic asphalt has been added as an option for narrow trenches and situations where the opening around ironwork is too small to compact materials. An option for hand compaction has also been added.
- HBM and Foamed concrete are now permitted materials
- A9 now covers alternative technologies as well as the full range of potential reinstatement materials. A9 is now less prescriptive in its requirements for trials. It now allows for different trial periods dependent on risk and permits the use of new material/technology without trials if both parties agree. A clarification has been added stating that where a new

material/technology has been approved by one authority, it is permitted for use everywhere except where there are sound engineering reasons not to use it.

- Guidance on reinstatements in sub-standard roads has been added, requiring that the surrounding road condition is taken into account.
- Guidance added on how to deal with coal tar arisings
- Scope for use of HRA increased
- Guidance on overbanding expanded.
- Guidance on the reinstatement of high friction surface courses has been amended to be less restrictive
- Advice has been added on the use of cementitious fillets when reinstating modular pavements.
- Text on product equivalence reintroduced to the preface
- Option of lower aggregate size for hand raked patches, to provide similar looking surface texture
- New “Type 1” unbound material grading has been included to facilitate compaction of backfill in restricted areas. Guidance on testing compaction compliance has also been included.
- Guidance on the reinstatement of composite footways has been clarified to avoid mis-interpretation.
- Guidance on reinstating in high amenity/high duty areas and on modular pavements has been amended with emphasis on safety, durability and aesthetics