

Road Openings by Utilities

Report by the Comptroller
and Auditor General

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Dorinnia Carville
Comptroller and Auditor General

Northern Ireland Audit Office
3 December 2024

Contents

	Abbreviations and Glossary	5
	Executive Summary	7
Part One	Introduction and background	13
	Road openings by Utilities	14
	There have been a number of historic reviews of the Department's performance in this area	16
	Scope and structure	16
Part Two	The number of road openings and the Department's performance in monitoring the quality of reinstatements	17
	The number of road openings by Utilities has increased in recent years	18
	DfI Road's notification performance for resurfacing schemes fails to meet the notification requirement	19
	The Department is not completing the required number of inspections of road openings	20
	The visual inspections undertaken have not identified significant issues in Utilities' performance	21
	The Department has substantially improved its performance in respect of following up on failed inspections	23
	The Department has not completed the expected number of core sample tests	24
	The failure rate on the completed core sample tests is above the 10 per cent target	24
	The Department has not regularly evaluated the value of additional or new tests	25
	The Department does not measure costs arising from defective reinstatements	25
Part Three	Key challenges and recommendations	27
	The Department must develop its understanding of the proportion of structural maintenance works caused by road openings by Utilities	28
	The Department's inspection arrangements are not risk-based	28
	The warranty period applying to road openings by Utilities recently increased to six years in Scotland	30
	The Department does not regularly publish information highlighting Utilities' performance	30
	Inspection fees have not been revised since 2011	31
	Fixed penalties and prosecutions are not used as much in Northern Ireland as other regions of the United Kingdom	32
Appendix 1	Valuation of the road network and our uncertainty associated with this valuation	34
Appendix 2	The Department's legislation and Codes of Practice relating to road openings by Utilities	35
NIAO Reports 2024		37

List of Abbreviations

C&AG	Comptroller and Auditor General
Department	Department for Infrastructure, formerly the Department for Regional Development
Dfi	Department for Infrastructure, formerly the Department for Regional Development
KPIs	Key Performance Indicators
NI	Northern Ireland
NIAO	Northern Ireland Audit Office
NIRAUC	Northern Ireland Road Authority and Utilities Committee
NISRANS	Northern Ireland Street Works Register and Notification System
The Committee	Public Accounts Committee

Glossary of Terms

NI Water (formerly Water Service)

NI Water is responsible for the delivery of water services in Northern Ireland. This involves the abstraction, treatment and distribution of around 575 million litres of wastes and the collection and treatment of 340 million litres of wastewater each day, utilising a large network of around £3.7 billion of capital assets. These assets include water treatment works, reservoirs, and water and sewerage mains.

The Northern Ireland Street Works Register and Notification System (NISRANS)

The Northern Ireland Street Works Register and Notification System (NISRANS) is a computerised database, accessible to both the Department and the Utilities, facilitating electronic notification of road openings. The Department uses the database to generate performance management information, monitor sampling, and produce summarised reports on the Utilities' performance.

Northern Ireland Road Authority and Utilities Committee (NIRAUC)

The Northern Ireland Road Authority and Utilities Committee (NIRAUC) meets quarterly to promote regional liaison and best practice, maintain a professional relationship leading to improved co-operation between the parties and discuss issues of mutual interest. The street works Codes of Practice have been agreed at NIRAUC before being approved by the Department. Membership of NIRAUC includes utility company representatives from: electricity, gas, telecoms, and water.

Traffic-sensitive road

A traffic-sensitive road is a road where roadworks will cause delays and disruptions to road users.

Utilities

Utilities are companies in the business of supplying essential services, such as gas, electricity, and communication.

Executive Summary

Executive Summary

Road openings are unavoidable, but create a risk for the taxpayer

1. To maintain and enhance the networks of assets used to deliver services to consumers, and to respond to critical failures, Utilities must regularly open the road network. It is the responsibility of those Utilities to ensure that when their work is completed, they reinstate the road or footpath they have opened to an acceptable standard. Where they fail to do so there is a heightened risk of accelerated deterioration in the condition of the road.
2. This has an impact on road users. It can also impose costs upon the Department for Infrastructure (the Department), which is responsible for maintaining Northern Ireland's road network and also for coordinating and controlling the work of Utilities when they open roads. In Northern Ireland, the taxpayer is protected by a warranty against a deterioration in the reinstatement quality for two or three years, with an identified defect being the responsibility of the Utility to repair. Outside this warranty period, the cost of the remedial work falls to the Department.
3. As a result of funding constraints in recent years, the Department has not been able to undertake all the structural maintenance work it has identified as being necessary on the roads network. This has led to the accumulation of a significant backlog of works, and the Department has highlighted this issue as a significant risk in its recent Annual Report and Accounts. The accelerated deterioration of roads where a Utility's reinstatement is not of sufficient quality can increase this pressure on the Department.

This report identifies there have been some areas of improvement since previous reports

4. Previous NIAO and Public Accounts Committee (the Committee) reports, in April 2002 and February 2009, highlighted a number of administrative deficiencies in the arrangements used to manage road openings by Utilities. The Committee's key concern was that these weaknesses benefited Utilities and their shareholders at the expense of the taxpayer, by allowing Utilities to pass on costs which should have lain with them.
5. The Department now has significantly improved management information about road openings by Utilities. Where inspections identify an issue, we found that follow-up inspections are carried out to ensure issues identified are remedied.

We found a number of significant weaknesses in the current arrangements for protecting the network assets

6. We found weaknesses relating to key issues identified in the previous Public Accounts Committee reports that have still not been fully addressed, including:
- It is not clear that the inspection programme operated by the Department provides the taxpayer with adequate assurance over the work of Utilities.
 - The Department has no reliable estimate of the proportion of structural maintenance work that is related to previous road openings by Utilities.
 - The testing programme that the Department carries out to provide assurance over the quality of reinstatements is not risk-based. Furthermore, the number of reinstatements subject to laboratory testing continues to be at a level deemed inadequate by the Committee, with failure rates on the laboratory tests well in excess of the targeted 10 per cent failure rate.
 - The Committee's reports highlighted the lack of basic management information and performance indicators to assess the performance of Roads Service, now DfI Roads and Utilities. The Committee recommended that *'performance measurement should include a comparison with performance in Great Britain and should cover the full range of key indicators listed in the C&AG's report'*. Between 2004 and 2007, the Department developed and reported on its performance against a set of Key Performance Indicators (KPIs). However, the summary of the Utilities' performance was last published on the Departmental website in 2020. Whilst the Department reported to us it keeps abreast of developments in other jurisdictions, there has never been any formal benchmarking of performance.

As a consequence of the weaknesses found, we are unable to conclude that current arrangements are effective in delivering value for money.

Recommendations



Recommendation 1

We recommend that within six months the Department should establish and implement a plan to ensure that there is substantial measurable improvement in performance against the notification target.



Recommendation 2

We recommend that the Department begins measuring and reporting the proportion of structural maintenance costs that are linked to road openings by Utilities.



Recommendation 3

We recommend that the Department undertakes a review of its overall testing programme in respect of road openings by Utilities. This review should, as a minimum, consider:

- the introduction of a risk-based sample selection approach for inspections;
 - whether the current allocation of resources between visual Category A, B, or C inspections and core sample tests is appropriate to provide maximum value for Northern Ireland taxpayers; and
 - whether there is value in undertaking any other types of inspections and undertaking regular evaluations of any emerging inspection techniques beyond those currently used in Northern Ireland, to ensure that the Department can demonstrate that it continues to use the most effective tests to manage this key financial risk.
-



Recommendation 4

We recommend that the Department undertakes its own analysis to consider whether the current warranty period in Northern Ireland is effective in providing adequate protection against poor quality reinstatement practices.



Recommendation 5

We reiterate the recommendations of previous reports that the Department ensures that it provides publicly available information about the Utilities' performance and undertakes benchmarking with other jurisdictions.



Recommendation 6

We recommend that the Department puts in place effective procedures to calculate the full cost of inspection fees. These procedures should be compiled in accordance with the relevant Code of Practice, with proposed fee increases discussed at NIRAUC and introduced quickly.



Recommendation 7

We recommend that on a biennial basis the Department should assess as a minimum:

- **the number of instances that have occurred where penalties could have been applied;**
 - **the financial value of those penalties had they been imposed;**
 - **whether the assumptions underpinning the decision to not impose a Fixed Penalty Noticing System remain valid;**
 - **the possible impact on Utilities' long term performance;**
 - **other penalties and performance improvement pilots in other GB regions and if they would apply in Northern Ireland; and**
 - **any opportunities for income generation and their impact on the Utilities, the consumers and the taxpayer.**
-

Part One:

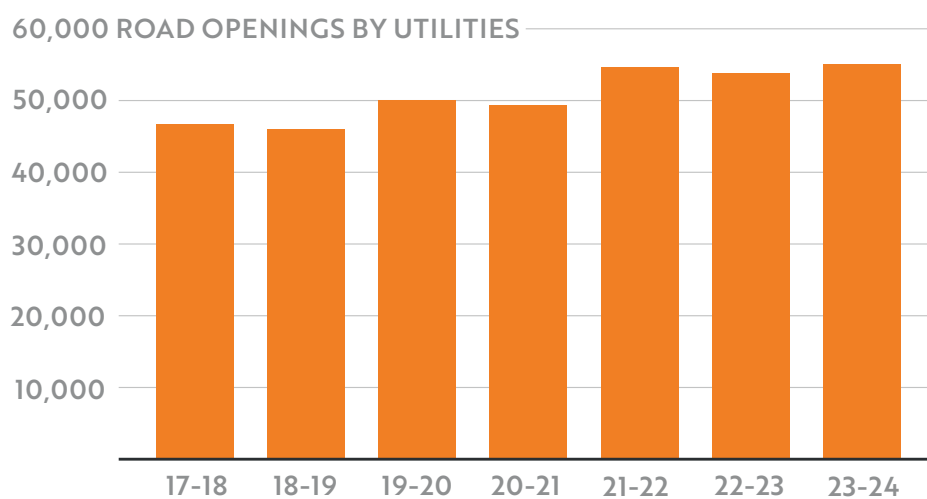
Introduction and background

Introduction and background

Road openings by Utilities

- 1.1** To deliver water, gas, electricity and communications services to consumers in Northern Ireland, utility companies (Utilities) continuously work to install new infrastructure and maintain existing assets. Such assets may be constructed on, under or on top of the road network and therefore frequently involve Utilities being required to open and reinstate the road network. In 2023-24 there were just over 55,000 such openings by Utilities (approximately 53,000 in 2022-23) (see **Figure 1**).

Figure 1. The total number of road openings by Utilities has increased in recent years



Source: NIAO based on data provided by the Department for Infrastructure

- 1.2** Any road opening, even when reinstated to an adequate standard, may weaken the structure of the road. Where road openings are not reinstated to an adequate standard they contribute to accelerated deterioration in road quality, resulting in a need for maintenance. Road openings by Utilities are subject to a two-year warranty period (or three years depending on the depth of the road opening), whereby issues identified within this two or three-year period should be rectified by the Utility involved. However, where issues are identified and require remedy outside this warranty period, the cost of restoration will fall on the Department for Infrastructure (the Department).
- 1.3** The Department has overall responsibility for maintaining and managing the road network in Northern Ireland. This is a major public asset, consisting of over 26,000km of roads and 10,000km of footpaths. Whilst Departmental data suggests the majority of this network is in good or adequate condition, it has identified that between two and four per cent of the network is in poor condition across different road categories (see **Figure 2**). At 31 March 2024 the total value attributed to these assets was £29 billion (see **Appendix 1**).

1.4 The costs involved in ensuring that this network of roads and footpaths is maintained in a satisfactory condition are significant. In recent years, the Department has not been able to afford to undertake the work required to address all the condition issues it has identified. In 2019, our report on the Structural Maintenance of the Road Network noted that a backlog of £1.2 billion of necessary maintenance had accumulated at that time. This report recommended that the Department should publish a strategy for maintaining the road network to a satisfactory state that could form a part of the wider roads investment strategy, which takes account of the needs of the existing network when considering the affordability of large-scale road infrastructure and other transport investments. The Department's most recent estimates indicate that the value of this backlog maintenance had increased to over £3 billion by 2023. In its most recent Annual Report and Accounts, the Department states that, "funding for our road network is insufficient to maintain the current state of repair", and identifies, "sub-optimal asset maintenance regimes", as a significant Departmental risk.

Figure 2. Key points in the December 2023 Northern Ireland Road Network and Condition Statistics report

Key Points	As at 1 April 2023
Road Length	25,858 km total road length 61.1% of roads are unclassified 77.2% of roads are rural
Road Condition	<p>Combined motorway and trunk road network 93.8% of motorway and trunk road network has a residual life of more than five years remaining in the sub-structure</p> <p>A class roads 82.6% in good condition (80.9% in 2019-20) 15.4% in average condition (16.7% in 2019-20) 2% in poor condition, requiring further investigation (2.4% in 2019-20)</p> <p>B class roads 74.6% in good condition (72.6% in 2019-20) 22.4% in average condition (23.8% in 2019-20) 3.1% in poor condition (3.6% in 2019-20)</p> <p>C class roads 64.8 % in good condition (62.8% in 2019-20) 31% in average condition (31.9% in 2019-20) 4.3% in poor condition (5.3% in 2019-20)</p> <p>Defects/potholes In 2022-23 there were 100,487 surface defects with 84,900 repaired</p>
Road Expenditure	£441 million total expenditure on roads in 2022-23, including £111 million on capital expenditure and £66 million on new construction and improvement

Source: The Department for Infrastructure's Northern Ireland Road Network and Condition Statistics 2022-23

- 1.5** Road openings by Utilities are not the sole cause of deteriorations in road quality. They are, however, potentially a contributing factor to some of the deterioration and therefore can add to the financial burden of maintenance faced by the Department. It is therefore critical that the regulatory regime which is in place to control the quality of these openings, and their reinstatement, operates in a way that mitigates the financial risks as much as possible.
- 1.6** The Street Works (Northern Ireland) Order 1995 as amended by The Street Works (Amendment) (Northern Ireland) Order 2007 gives the Department statutory powers to coordinate and control street works, by coordinating the work of Utilities to ensure that roads and footpaths are reinstated to a high standard and that the disruption caused to the public, from their work, is minimised. This legislative framework, which requires the Utilities to be co-operative, is supported by six Codes of Practice introduced between September 2003 and October 2006, with the exception of the Safety at Street Works and Roadworks Code of Practice, which came into force on 1 October 2014 (see **Appendix 2**). These Codes of Practice provide the Department, and Utilities, with practical guidance on how road openings should be undertaken and managed by all relevant parties.
- 1.7** The Department works with Utilities to promote best practice and manage any emerging performance issues at the Northern Ireland Roads and Utilities Committee (NIRAUC). NIRAUC brings together representatives from the Department and Utilities on a quarterly basis. NIRAUC is supported by four divisional Road Authority and Utility Committees, that meet every six months at a local level to discuss works programmes and major schemes.

There have been a number of historic reviews of the Department's performance in this area

- 1.8** We have previously undertaken reviews in this area, with a full review undertaken in 2001 and a follow-up investigation completed in 2008. Both these reviews led to Public Accounts Committee (the Committee) inquiries, with the Committee reporting in 2002 and 2009. Across both these reports, the Committee highlighted its key concern that there was a significant risk the taxpayer was being left to pay the costs of making good damage caused by poor quality reinstatements by Utilities.
- 1.9** Both the Committee's reports emphasised that a robust and effective inspection process was vital to ensuring that Utilities bore their fair share of the costs of reinstatement. The Committee also emphasised the need to maintain adequate management information and operate an effective performance reporting regime.

Scope and structure

- 1.10** This report evaluates the extent to which the Department can demonstrate that it is fulfilling its statutory obligations in respect of road openings by Utilities in a way that minimises the risk that costs are being unfairly transferred from Utilities to the taxpayer. Our report is structured as follows:
- Part Two provides an overview of the current performance of the Department in monitoring and managing the performance of the Utilities.
 - Part Three provides an outline of the key issues we have identified relating to monitoring and testing to provide greater financial protection to the taxpayer.

Part Two:

**The number of
road openings and
the Department's
performance in
monitoring the quality
of reinstatements**

The number of road openings and the Department's performance in monitoring the quality of reinstatements

The number of road openings by Utilities has increased in recent years

2.1 The number of road openings by Utilities has increased year on year over the last seven years. The key driver of this overall increase is the number of openings by telecommunications and energy Utilities, as new internet and home energy options have become available and adopted by home consumers (see **Figure 3**). We consider that the combination of an increasing volume of road openings, and a wider range of Utilities undertaking those openings, creates a greater level of risk for the Department than it would have been subject to in this area in the past.

Figure 3. Road openings by Utilities are increasing over time (reported in units of inspection)

UTILITY	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
NI Water	25,933	25,286	25,137	23,265	20,390	17,418	15,405
Phoenix Gas	8,164	7,535	7,368	7,178	6,974	6,962	6,099
Virgin Media	1,720	2,214	4,864	7,198	10,488	9,155	6,481
BT	3,392	3,354	3,265	3,434	5,151	8,289	12,003
NI Electricity	3,764	4,100	4,022	3,785	3,516	3,425	3,348
Firmus	3,205	3,220	3,471	3,710	3,901	4,045	3,317
B4B Networks (Fibrus)	0	0	1,600	400	3,500	1,835	5,204
Other	536	321	253	353	655	873	1,472
Nexfibre	0	0	0	0	0	1,790	1,790
Total	46,714	46,030	49,980	49,323	54,575	53,792	55,119

Source: NIAO based on data provided by the Department for Infrastructure

*Other includes Utilities with less than 1,000 road openings per annum

2.2 The Street Works (NI) Order 1995 imposes a statutory requirement on Utilities to register road openings in advance, with exception for emergency and urgent works, and minor works without excavation on non-traffic-sensitive roads. Failure to provide advance notice is an offence and a Utility is liable, on conviction, to a fine not exceeding £1,000.

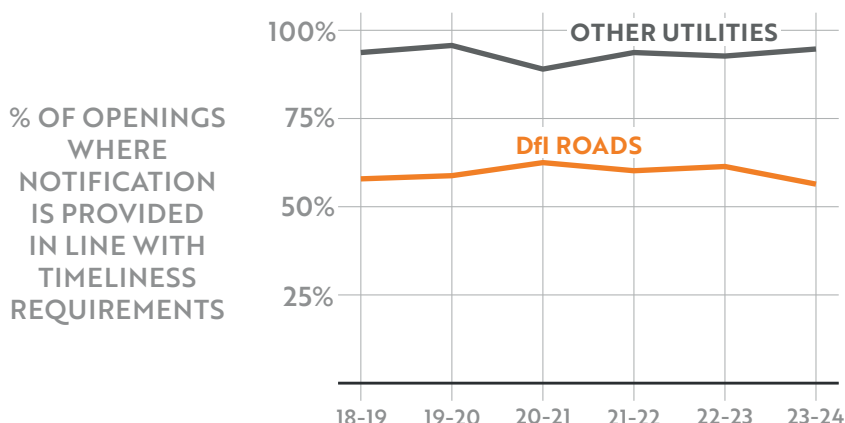
2.3 Previous Public Accounts Committee (the Committee) inquiries highlighted concerns about the poor quality of the Department's record keeping, and the risk that the Department could not always identify the Utility responsible for all road openings. A lack of such knowledge meant the Department would not be able to ensure remedial work was carried out by the Utility that opened the road, should this be needed.

- 2.4** During this review, we found that the Department's management information contains a record of which Utility is responsible for the road openings that it is informed of. We are aware that internal audit reviews, in 2016 and 2020, found that there remained some issues in respect of incomplete recording of some notifications. However, these were relatively minor issues and did not prevent the internal auditor providing a satisfactory assurance audit opinion.
- 2.5** The Department has processes in place for the identification of road openings which have not been notified to the Department. However, these identify only a small number (typically around 160) of such instances each year. Of these, around 20-30 per cent are attributed to the responsible Utility, but the remainder remain unallocated. In 2023-24, NI Water was responsible for the largest share of these attributed cases, with 14 out of the 48 unnotified openings.
- 2.6** The Department's approach to managing the issue of non-notification by Utilities has been to seek to change behaviours through direct engagement with the relevant Utilities. There has only been one prosecution relating to Unattributable Works, against Northern Ireland Electricity for failure to give notice for works conducted on 21 and 22 October 2019 on the Saintfield Road, Carryduff. The road works also failed to ensure the street was adequately guarded, resulting in obstructions on the footpath and bus lane. At the October 2020 court hearing, Northern Ireland Electricity pleaded guilty and was fined £400 for each charge, a £15 offender levy and £3,125 in costs.

Dfl Road's notification performance for resurfacing schemes fails to meet the notification requirement

- 2.7** The Street Works (NI) Order 1995 imposes a statutory requirement on Utilities to register road openings with the Department. Our previous reports found evidence that some Utilities were failing to notify Dfl Roads of street works and some openings had not been notified on a timely basis. To monitor and drive improvement in this notification rate the Department introduced a KPI for initial late notification. The Department's recent data indicates that Utilities now notify the Department in advance for over 90 per cent of road openings (see **Figure 4**).
- 2.8** However, Dfl Roads has complied with the three month notification requirement in just over half of their resurfacing schemes. During 2023-24 only 56 per cent (61 per cent in 2022-23) of Dfl Roads' initial road opening notifications complied with the legislative notification target, compared to nearly 95 per cent of Utilities. This disparity in performance has been consistent over the last seven years (see **Figure 4**). The Department told us that it is not always possible for its resurfacing schemes to meet the notification requirements due to a reliance on in-year monitoring rounds to provide funding for a substantial proportion of these schemes. This often means that such schemes tend to be completed at short notice towards the end of the financial year.

Figure 4. Dfl Roads' performance against notification requirements is significantly lower than the performance achieved by other Utilities



Source: NIAO based on data provided by the Department for Infrastructure

2.9 The purpose of the three-month advance notice of the works is to support the effective coordination of road openings, and communication with relevant stakeholders. Therefore, Dfl Roads is unable to restrict Utilities from conducting work on newly resurfaced roads and there is a possibility of reputational damage if Dfl Roads is unable to prevent Utilities damaging newly surfaced roads. **Therefore, we recommend that within six months the Department should establish and implement a plan to ensure that there is substantial measurable improvement in Dfl Roads' performance against the notification target.**

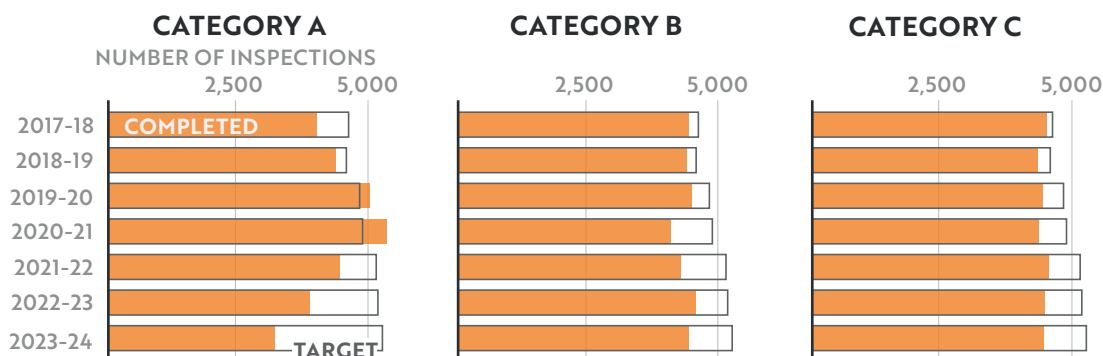
The Department is not completing the required number of inspections of road openings

2.10 The Code of Practice for Inspections establishes a requirement that the Department inspect 30 per cent of the estimated annual total openings, averaged over the previous three years. The Code recommends that the overall number of such inspections be subdivided into the three inspection categories:

- **Category A** – A progress inspection undertaken during the road opening and reinstatement works, inspecting signing, lighting and guarding of the works, how the excavation has been opened, the backfill materials being used and compaction work.
- **Category B** – A reinstatement inspection within 6 months of interim or permanent reinstatement.
- **Category C** – An inspection within the final three months of the warranty period.

2.11 Over the last six years the Department failed to meet the 30 per cent inspection target. In 2023-24 only 76 per cent of the target visual inspections were carried out (see **Figure 5**). The Department told us that the main reason for this deterioration in performance is that whilst the volume of road openings has been increasing in specific areas, driving up the number of inspections required, there has been no corresponding increase in inspection staff to undertake these.

Figure 5. The Department has not been able to undertake the required number of visual inspections across all three inspection categories



Source: Department for Infrastructure

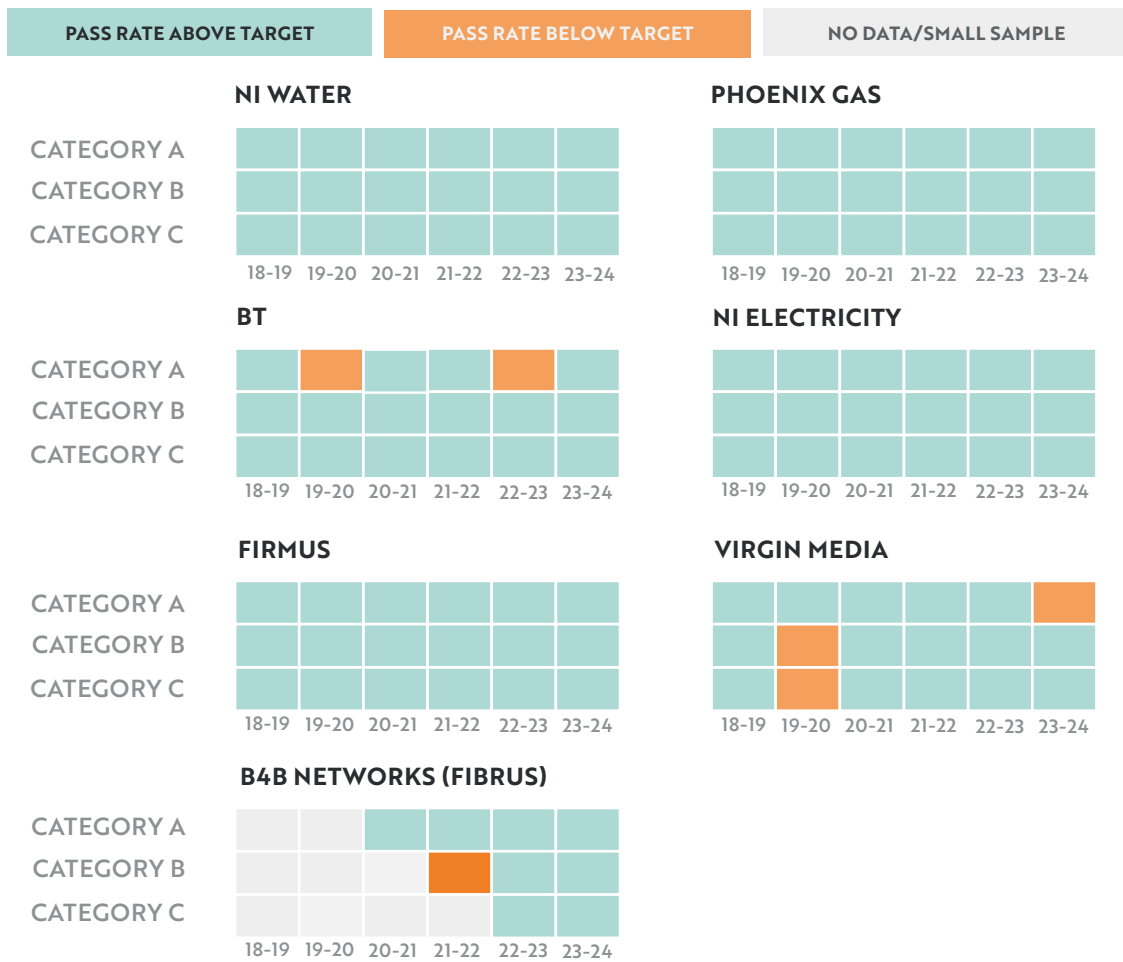
2.12 Whilst the Department was not able to provide detailed analysis of resourcing levels relating to staff specifically involved within this inspection programme, it highlighted to us that its overall staffing complement had 1,441 average full time equivalent staff in 2018-19 compared to 1,386 in 2022-23 (a decrease of four per cent), with the number of industrial staff falling from 390 to 359 (a decrease of eight per cent). The Department further highlighted that this staffing reduction coincided with an increase in the overall number of road openings being made by Utilities, driving up the number of inspections required.

The visual inspections undertaken have not identified significant issues in Utilities' performance

2.13 Overall, the results of the visual Category A, B, and C inspections conducted are positive. In the last seven financial years, most Utilities achieved a pass rate above the targeted 90 per cent in all three inspection categories (see **Figure 6**). There have however been instances over this time period where Utilities have fallen below this rate.

2.14 The Code of Practice states that where more than 10 per cent of the sample inspection results of a Utilities' work in a three month period reveal a reinstatement defect then the Department should issue an Improvement Notice. In recent years, the Department has issued two such Notices: to Virgin Media in 2019-20 and to BT in 2020-21. These Notices prompted the development of substantial engagement between the Department and those Utilities, and the development of Improvement Plans. **Figure 6** shows that Virgin Media's Category B and C inspection results improved in the following years and while BT's Category A inspections have fluctuated.

Figure 6. Utilities have mostly achieved the target pass rates for all categories of visual inspection in recent years



NOTE
 We have excluded periods where there were fewer than 50 inspections for a Utility.
 Source: NIAO based on data provided by the Department for Infrastructure

2.15 The Code of Practice recommends that quarterly and annual performance summaries against these inspection programmes should be compiled and submitted to the NIRAUC. This process is implemented, and performance of Utilities based upon inspection results is regularly discussed at NIRAUC meetings. However, the Code of Practice further recommends that summarised performance reports should be put into the public domain, which is currently not the case.

The Department has substantially improved its performance in respect of following up on failed inspections

- 2.16** When an inspection identifies a defect, the Utility is informed, and the defect is noted on the Northern Ireland Street Works Register and Notifications System (NISRANS). The system informs the Utility that it must remedy the defect. The Department's processes require that it should carry out a follow-up inspection in 27 days to ensure that this has been completed. Our previous reports found that follow-up reviews were only being completed for a small proportion of failed inspections. For example, in 2006-07 we found that only six per cent of failed inspections had been subject to a follow-up.
- 2.17** During 2022-23, 100 per cent of the 203 failed Category B and 136 Category C inspections were reinspected. During our review of the Department's management information system, we became aware that there have been occasions where the same opening may be subject to repeated inspection failure and follow-up.
- 2.18** For example, we identified one instance where a road opening carried out by a contractor, on behalf of NI Water, was subject to a total of 16 inspections (see **Case Study 1**). We sought to analyse this issue in greater detail, but the Department's information system was not able to provide a report detailing the total number of follow-up inspections required in respect of each individual failed inspection before the issue was resolved.



Case Study 1 - Repeated failure to reinstate the road to the expected quality

During January 2021 a contractor, on behalf of NI Water, completed a road opening and a temporary bitmac repair reinstatement at Springhill Road, Dollingstown, Co Down. On 9 August 2021 this reinstatement, inspected by the DfI Roads' Banbridge & Craigavon Section Office, was found to have failed to meet the expected quality. NI Water was informed of the failure and given a reinspection date.

During the period 22 September 2021 to 15 May 2023, this defective reinstatement was inspected a further 14 times and found not to have met the expected quality. The results and reasons were passed to NI Water, including:

- edge depression not acceptable;
- edge cracking not acceptable;
- trips not acceptable; and
- surface depression not acceptable.

In early May 2023, the contractor, on behalf of NI Water, re-laid the bitmac surface. The reinstatement was inspected by the Section Office on 22 May 2023 and found to have passed the expected quality.

This road opening was subjected to 16 inspections, 15 of which were chargeable at £64 per reinspection, totalling £960.

Source: NIAO based on Departmental data

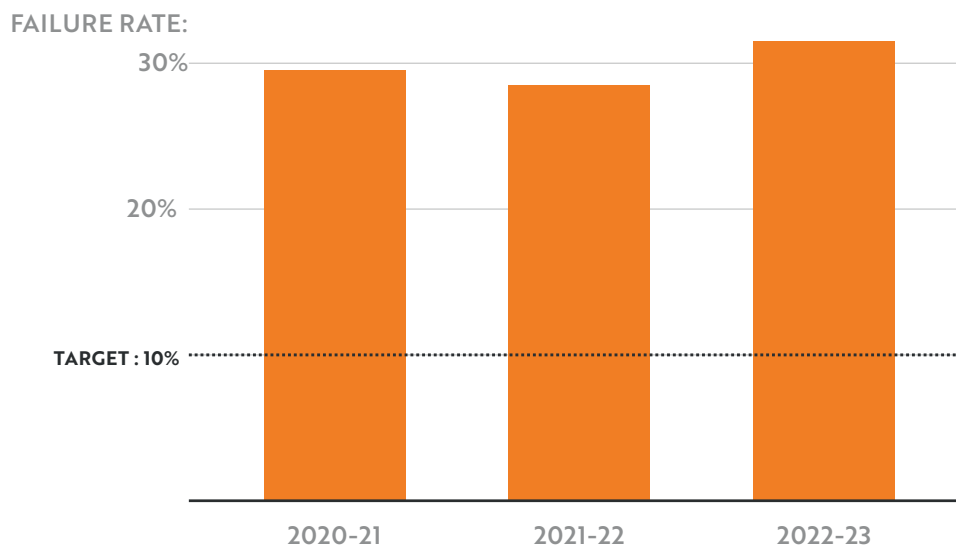
The Department has not completed the expected number of core sample tests

- 2.19** In addition to visual inspections, the Code of Practice permits the Department to conduct core sample tests to determine if the Utility has complied with the standards set. The core sample testing process involves laboratory testing of a sample taken from a reinstatement to provide assurance over its depth and compaction.
- 2.20** Our 2001 report and the Committee's 2002 report highlighted that the very small number of core sample tests carried out each year, about 240, did not represent a statistically valid sample. The core sample testing programme therefore provided the taxpayer with only limited protection against the financial risks arising from poor quality reinstatement and weak evidence about the overall level of the Utilities' performance. In 2008, we again highlighted this issue and recommended that, at a minimum, 400 core sample tests should be carried out each year. The Department subsequently adopted this recommendation and implemented a programme that involved testing 500 cores each year until 2015-16.
- 2.21** However, this programme was paused between 2016 and 2019 due to resourcing pressures. The core sample testing recommenced during 2020, but the number of samples tested was reduced to 250 per annum. The Department told us that it currently aims to complete 238 core sample tests but during 2023 only 203 cores were taken and processed. Given the overall increase in road openings volume, this represents a smaller percentage sample of the overall road openings population than was the case in 2001 and 2008.

The failure rate on the completed core sample tests is above the 10 per cent target

- 2.22** The Department sets the target that no more than 10 per cent of core inspections should fail. We consider a higher core sample testing failure rate than this to be a potential indicator of poor compliance with reinstatement standards by Utilities. If this was the case it would, in the long-term, impose a cost on the taxpayer in paying for the restoration of these poor quality works.
- 2.23** Currently, core sample testing failure rates are well above the 10 per cent target and have been for the last three years (see **Figure 7**). The Department has identified the suspension of core sample testing between 2016 and 2019 and the lower number of tests carried out following the resumption of testing as being key contributors to this poor performance. In our view, these results provide clear evidence of the critical need for a robust and appropriately resourced core sample testing regime to be maintained.

Figure 7. The failure rate on core tests has been substantially in excess of the targeted failure rate over the last three years



Source: NIAO based on data provided by the Department for Infrastructure

The Department has not regularly evaluated the value of additional or new tests

2.24 As described above, the Department's testing regime consists of a high volume of visual inspections and a small volume of core tests of reinstatements. This combination of tests has been in place since our first review in 2001. Whilst we are aware there have been some small local pilots of additional tests, no formal evaluation has been completed to assess whether any of these tests would provide additional value to the Department or taxpayer.

2.25 Given the ever-evolving nature of technology, we consider it important that the Department is able to demonstrate that it continuously evaluates its processes and procedures to ensure these are as effective as they can be.

The Department does not measure costs arising from defective reinstatements

2.26 During our review we asked the Department to provide us with a detailed costing or estimate of the costs associated with repairing defects in roads related to road openings after their two year warranty period has elapsed. The Department was not able to provide us with this, and therefore is not able to identify the proportion of structural maintenance costs that relate to road openings by Utilities.

2.27 Whilst the Department did provide an estimate of these costs to the Committee in 2002, our 2008 report noted that the Department was no longer able to assess these costs. In our view, the measurement of these costs is a critical piece of information, and we discuss this further in Part Three.

Part Three:

Key challenges and recommendations

Key challenges and recommendations

- 3.1** In its reports on road openings by Utilities, the Public Accounts Committee's key focus was ensuring that the Department was providing the taxpayer with adequate protection from being unfairly passed reinstatement costs that should be borne by Utilities. The Committee was particularly critical that weaknesses within the Department's inspection regime and management information systems meant the Department was not able to demonstrate it was providing this protection effectively.
- 3.2** In this review, we have identified that there continue to be a number of limitations within the Department's arrangements that impair its ability to demonstrate that it is effectively performing this role. This section of the report provides an overview of these issues.

The Department must develop its understanding of the proportion of structural maintenance works caused by road openings by Utilities

- 3.3** As noted in Part One of this report, the Department currently faces a significant struggle in being able to deliver the full programme of structural maintenance work it identifies as being necessary each year to maintain the overall road network in an adequate condition. Whilst not the only driver of these costs, deteriorations in condition at the site of previous road openings by Utilities contribute to these costs.
- 3.4** As noted at paragraphs 2.26 and 2.27, the Department does not currently measure or estimate the portion of overall structural maintenance costs that are linked to road openings by Utilities. In our view, this is critical information that the Department should collect on an ongoing basis. There are two key reasons for this.
- 3.5** Firstly, gathering this information will enable the Department to provide the taxpayer with information about the extent to which they are, or are not, bearing costs that should be borne by Utilities to maintain the road network.
- 3.6** Secondly, such information is important for the Department in ensuring that the arrangements it has in place represent value for money. Its absence means the Department does not have an understanding of the full extent of the financial risk it, and the taxpayer, are subject to. Having such an understanding is a key enabler of ensuring that appropriately risk-based administrative arrangements are in place to ensure that the resources that are available to the Department are deployed to maximum effect. The absence of such knowledge means the Department is not able to demonstrate the arrangements it has in place represent value for money.
- 3.7** **We recommend that the Department begins measuring and reporting the proportion of structural maintenance costs that are linked to road openings by Utilities.**

The Department's inspection arrangements are not risk-based

- 3.8** As described in Part Two, the Department's approach to inspecting the work of Utilities is based upon a large volume of visual inspections (see **Paragraph 2.10**) which are supplemented by a small number of core tests (see **Paragraph 2.19**) of a random sample of reinstatements. Across both of these testing programmes there have been long-term concerns that the volume of testing carried out by the Department is not meeting the 30 per cent sample target or the expected number of core tests, and this report has found this to still be a significant issue. Beyond these volume concerns, we have identified a number of other issues that we consider affect the Department's inspection programme.

- 3.9** We did not find evidence that the Department's testing programme is sufficiently tailored or responsive to risk. Both visual and core inspection sites are selected on the basis of a random selection model, and not based upon historic results or current testing methods in the other UK regions. In a context where the Department is not able to undertake the full volume of testing it should be completing, it is important that the resources that are available are utilised to deliver the maximum benefit they can offer.
- 3.10** Having a risk-based approach is fundamental to achieving this and its absence is a weakness in current arrangements. In discussions relating to this issue, the Department highlighted that the adoption of a risk-based approach would potentially require significant changes to its administrative processes and IT and software infrastructure across its 17 Section Offices. We recognise the Department's concerns regarding the potential for new costs associated with the implementation of these changes, but we consider the introduction of a risk-based approach to be an important improvement that should be made to current arrangements.
- 3.11** The extent of the divergence in overall performance as measured by the visual inspections and the core sample tests is concerning. As noted at paragraphs 2.22 and 2.23, current core sample test failure rates are three times the target. This is difficult to reconcile to the consistently high pass rates achieved by Utilities in relation to the visual inspections programme. The Department told us that it also has concerns with the increased core failure rate but notes that as the number of cores tested is not statistically significant this should not be used as a general measure of utility performance.
- 3.12** Visual inspections and core test samples provide information on different elements of a reinstatement. However, the relatively poorer performance in respect of core sample testing than visual inspections is important, as core sample tests provide more detailed information about the structural integrity of reinstatements than visual inspections. Whilst the Department suggested that a high proportion of the core test failures are marginal, this is not a distinction made within the Code of Practice, and we were not able to meaningfully evaluate this qualification.
- 3.13** In our view, the results of the different inspection types suggest there is a risk that the allocation of resources between these inspection types is not optimal. Therefore, it is appropriate that the Department gives consideration as to whether the current balance of testing is appropriate.
- 3.14** **We recommend that the Department undertakes a review of its overall testing programme in respect of road openings by Utilities. This review should, as a minimum, consider:**
- **the introduction of a risk-based sample selection approach for inspections;**
 - **whether the current allocation of resources between visual Category A, B, or C inspections and core sample tests is appropriate to provide maximum value for Northern Ireland taxpayers; and**
 - **whether there is value in undertaking any other types of inspection and undertaking regular evaluations of any emerging inspection techniques beyond those currently used in Northern Ireland, to ensure that the Department can demonstrate that it continues to use the most effective tests to manage this key financial risk.**

The warranty period applying to road openings by Utilities recently increased to six years in Scotland

- 3.15** In Northern Ireland, the taxpayer is protected by a warranty against a deterioration in the reinstatement quality for two or three years, depending on the depth of opening. Where a defect is identified within this warranty period it is the responsibility of the Utility to repair the reinstatement. Outside of this warranty period the responsibility for remedial works falls upon the Department and adds to its structural maintenance work programme.
- 3.16** In England and Wales, a consultation was held proposing that the warranty period be extended to five years. However, there has been no change made as a result of this consultation to date, and further work is being undertaken to assess the financial implications for Utilities.
- 3.17** In 2022, the Scottish Road Works Commissioner commissioned a Research Study to support extending the guarantee period applied to reinstated road openings to six years. This research found that most reinstatements in Scotland were assessed as being moderate or above after six years in service.
- 3.18** As a result of the findings, the Report concluded that it was reasonable and appropriate to extend the warranty period applying to road openings by Utilities to six years. This resulted in the Scottish Road Works Commissioner applying a local variation to the Codes of Practice there and the six year warranty period is now applied.
- 3.19** The introduction of this longer warranty period in Scotland means that there is a risk that the taxpayer in Scotland is protected from costs relating to defective reinstatements by Utilities that the Northern Ireland taxpayer is not protected from. **We recommend that the Department undertakes its own analysis to consider whether the current warranty period in Northern Ireland is effective in providing adequate protection against poor quality reinstatement practices and what changes would be required to the Reinstatement Code of Practice.**

The Department does not regularly publish information highlighting Utilities' performance

- 3.20** The 2002 Committee report noted a lack of basic management information and performance indicators to assess the performance of the then Roads Service and Utilities. The Committee recommended that '*performance measurement should include a comparison with performance in Great Britain and should cover the full range of key indicators listed in the C&AG's report*'. Between 2004 and 2007, the Department developed and enhanced its set of KPIs and published the six KPIs in its Annual Report and Accounts. However, the summary of the Utilities' performance was last published on the Departmental website in 2020.
- 3.21** The Department informed us that performance against the KPIs continues to be measured and discussed directly with Utilities. The Department also informed us that whilst it keeps abreast of performance issues and trends in other jurisdictions, it does not undertake any formal performance benchmarking due to differences in legislation and supporting Codes of Practice.

- 3.22** As noted in paragraphs 2.6 and 2.15, the Department considers that engagement with the Utilities based on performance analysis is a more effective means of driving good performance than a regime based on prosecutions where standards are not met. In particular, the risk of reputational damage arising from poor performance by Utilities is seen as being a key issue for them that can be leveraged to improve performance. However, this is not consistent with the Department's failure to publish the Utilities' summarised performance information publicly. Publication of performance information would, in our view, enhance the power that information has in terms of being a driver of improved performance standards.
- 3.23** **We reiterate the recommendations of previous reports that the Department ensures that it provides publicly available information about the Utilities' performance and undertakes benchmarking with other jurisdictions.**

Inspection fees have not been revised since 2011

- 3.24** Utilities are required to pay the Department for the planned Category A, B, and C inspections that it carries out, at a level that ensures full cost recovery for the Department. The relevant Code of Practice states that these fees should be evaluated every three years or following any revision of fees applied in other areas of the United Kingdom.
- 3.25** The Department conducted a costing exercise during 2001-02 to determine the cost of its inspection process and the fees to be charged that would enable it to fully recover the costs it incurs in carrying out those planned inspections. From January 2002, the Department introduced statutory fees, £15.50 for a sample inspection and £31 for a joint inspection. The fees were reviewed in 2007 and 2010 and, with effect from 2011, fees were set at £32 for a sample inspection and £64 for a joint inspection. Since then, inspection fees have not been subject to any formal review and have not been changed. An exercise was commenced in 2021-22 but this has not yet been finalised.
- 3.26** In England, the sample inspection fee was increased to £50 with effect from 2009 and from 1 April 2023, Utilities that are considered to be performing poorly have 100 per cent of their reinstatement work scrutinised, with the local authorities able to charge £50 per defect found and a further £120 for a follow-up inspection. The legislation in England allows the number of inspections per quarter to be calculated based on previous quarters' fail rate; effectively this is a risk-based system. Meanwhile, Scotland increased the sample inspection fee from £33 to £36 during 2014.
- 3.27** The Department does not formally and routinely monitor the cost of its inspection process and cannot clearly demonstrate that the level of annual income derived from its inspection fees is sufficient to fully recover the costs of its sample inspection process. **Therefore, we recommend that the Department puts in place effective procedures to calculate the full cost of inspection fees. These procedures should be compiled in accordance with the relevant Code of Practice, with proposed fee increases discussed at NIRAUC and introduced quickly.**

Fixed penalties and prosecutions are not used as much in Northern Ireland as other regions of the United Kingdom

- 3.28** In other jurisdictions, financial penalties are used as a lever to drive improvements in performance. For example, in Scotland, Fixed Penalty Notices have been used to manage poor performance in respect of Utilities providing inadequate notification of forthcoming road openings. During 2021-22 there were 7,041 potential noticing offences identified, with Fixed Penalty Notices issued for 3,197 of these failures (45.4 per cent). These notices generated income of £255,680. Also, in England the Department for Transport approved the first permit scheme for the management of street works in Kent County Council during November 2009, with another 15 London Boroughs following in January 2010.
- 3.29** In Northern Ireland, Fixed Penalty Notices for Utilities, in respect of certain notification offences, were included in primary legislation, the Street Works Amendment Order 2007. However, in September 2012 the Department determined that because of a significant improvement in the Utilities' performance, it was not clear that a Fixed Penalty Noticing System would offer value for money. It estimated that the administration costs of implementing such a system for all roads would be as high as £3.2 million, whilst a system applying to traffic-sensitive streets only would cost around £700,000. It also estimated that some 20 to 30 additional staff would be required to manage the additional work within the Department.
- 3.30** As a result, the Department decided that due to the low number of cases where penalties could be applied, it would not represent value for money to implement such a system. Therefore, the Department did not develop the secondary legislation to support the Fixed Penalty Noticing System.
- 3.31** The Department told us that it still considers there to be no economic case to support the development of a robust Fixed Penalty Noticing regime. It is the Department's view that the use of KPIs, regular engagement and dialogue with Utilities, and the risk of reputational damage from notable poor performance, are more effective drivers of performance improvement.
- 3.32** It is important that the Department regularly considers the costs and benefits of the application of financial penalties as a means of improving performance. **Therefore, we recommend that on a biennial basis the Department should assess as a minimum:**
- **the number of instances that have occurred where penalties could have been applied;**
 - **the financial value of those penalties had they been imposed;**
 - **whether the assumptions underpinning the decision to not impose a Fixed Penalty Noticing System remain valid;**
 - **the possible impact on Utilities' long term performance;**
 - **other penalties and performance improvement pilots in other GB regions and if they would apply in Northern Ireland; and**
 - **any opportunities for income generation and their impact on the Utilities, the consumers and the taxpayer.**

Appendices

Appendix 1: Valuation of the road network and our uncertainty associated with this valuation (Paragraphs 1.3)

Figure 8. Valuation of roads network (roads, structures, and footways)

As at	31.3.2024 £billion	31.3.2023 £billion	31.3.2022 £billion	31.3.2021 £billion	31.3.2020 £billion	31.3.2019 £billion	31.3.2018 £billion
Cost	33,891	34,556	28,243	25,038	25,251	25,034	23,803
Depreciation	4,656	4,813	3,897	3,527	3,556	3,598	3,500
Net book value*	29,235	29,743	24,347	21,513	21,696	21,438	20,305

Source: Department for Infrastructure

*Figures may not balance due to rounding

Uncertainty and our qualification

The Department for Infrastructure is required to show a true and fair view of its financial position at 31 March each financial year but the valuations of a substantial proportion of the Department's network assets at 31 March each year have been based on an index relating to movements between 1 January and 31 December, and not measuring movements between 1 April and 31 March.

The NIAO is unable to undertake any exercise to obtain adequate audit evidence that no material differences would have existed if a 31 March index had been used. As a result, the NIAO does not have evidence to conclude that the valuation network assets at 31 March each year are not materially misstated.

On 4 July 2024 the C&AG strongly encouraged the Department to continue exploring available options for more accurate figures in the financial statements and her audit team would work with the Department to try to resolve this issue.

Appendix 2: The Department's legislation and Codes of Practice relating to road openings by Utilities (Paragraph 1.6)

The Street Works (Northern Ireland) Order 1995 gives the Department powers to coordinate and control street works. This Order is supported by six Codes of Practice introduced between September 2003 and October 2006, with the exception of the Safety at Street Works and Roadworks Code of Practice which came into force on 1 October 2014, as follows:

- Code of Practice for inspections (2nd Edition)
 - Provides practical guidance on procedures for inspections, investigations, improvement plans, fee arrangements and reports.
 - Provides the essential features of signing and guarding a street works site.
 - Outlines the processes for exchanging information, dealing with the results of inspections and procedure in the case of disputes.
- Code of Practice for the Co-ordination of street works and works for road purposes and related matters
 - Provides practical guidance on a wide range of responsibilities for street authorities and undertakers, setting out regulations relating to notification and registration of works.
 - The notifications input to the system provide vital information to aid the co-ordination process and time within which appropriate steps can be taken.
 - Streets subject to special controls provide a mechanism by which attention can be focused on particularly sensitive streets and traffic sensitive streets.
 - Provides a range of tools to facilitate the co-ordination process, including: power to direct the timing of street works; power to restrict street works following substantial road works; and the requirement on undertakers to avoid unnecessary delay and obstruction.
- Code of Practice – Specification for the Reinstatement of openings in roads (2nd Edition)
 - Provides the requirement for goods or materials to comply with certain specifications or to undergo specified tests.
 - Provides guidance to ensure the reinstatement conforms to prescribed performance standard and for the prescribed period after completion.
- Code of Practice for recording of underground apparatus in streets
 - Requires undertakers keep up to date and make available for inspection, records of every item of apparatus belonging to them in the street as soon as reasonably practicable after placing it in the street, altering its position or locating it in the course of executing any other works.
- Safety at street works and road works - A Code of Practice
 - Is intended to help Utilities to safely carry out signing, lighting and guarding of street works and road works and to ensure all street and road works are safe for both operatives and the public, especially the needs of disabled and vulnerable people.

- Code of Practice - Measures necessary where apparatus is affected by major works (Diversionary Works) 2nd Edition
 - Provides background information to enable the authority and undertaker to understand each other's roles and responsibilities and provide technical information to enable a sensible appreciation of the issues to be gained.
 - Sets out technical description of a variety of undertakers' apparatus.
 - Describes procedures to be adopted in order to minimise the need for diversionary works in the future.
 - Provides practical advice on the need or otherwise to divert apparatus within a street or bridge, redundant roads and bridges and efficient implementation of measures needed to be taken in relation to apparatus and the avoidance of unnecessary delay.
 - Sets out general financial arrangements and guidance in the event of a dispute.

NIAO Reports: 2024

NIAO Reports 2024

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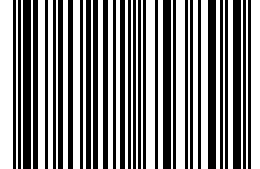
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