Nottinghamshire County Council

Permit Scheme Evaluation

Year 3

Nottinghamshire County Council

Document Content

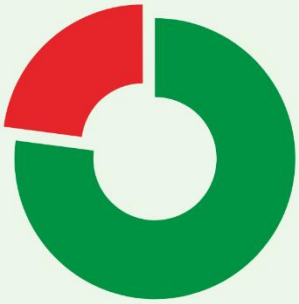
Nottinghamshire County Council

Key figures

25,185
works undertaken across Nottinghamshire per year

37
works starting every day

95,672
days with highway occupation per year

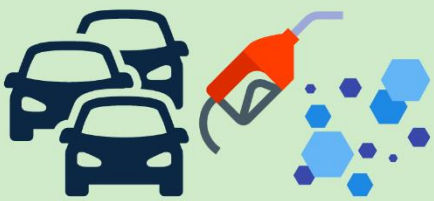


75%
permits granted on first application

STOP **42%**
all work less than three days in duration and involves positive traffic control

66%
work undertaken with a permit condition

£18.2million
Estimated cost to society from roadwork disruptions



610,579
Kms of vehicle carbon emissions saved from reduced delays

Figures quoted are based on an average for permit scheme years 1-3 unless otherwise stated.

1 Introduction

1.1 The role of a permit scheme

1.1.1. In 1991 the New Roads and Street Works Act (NRSWA) placed a duty on the Council, as a highway authority, to coordinate activities (works) of all kinds on the highway under the control of that Authority.

1.1.2. In 2004 the Traffic Management Act (TMA) and associated secondary legislation widened the NRSWA coordination duty. The scope of this increased duty has the following main considerations and Part 3 of the TMA allows for an Authority [Council] to introduce a permit scheme to support the delivery of this duty.

1.1.3. The powers under a permit scheme enable the Council to take a more active involvement in the planning and coordination of works, from the initial planning stages through to completion. This includes:

- organisations book occupation for work instead of giving notice, essentially obtaining a permit for their works;
- any variation to the work needs to be agreed, before and after works have started, including extensions to the duration;
- the Council can apply conditions to work to impose constraints; and
- sanctions with fixed penalty notices for working without a permit or in breach of conditions (of the permit).

1.1.4. In April 2020 the Council introduced the **Nottinghamshire County Council Permit Scheme**. The scheme was brought into legal effect through an Order created by the Council under the provisions of the Traffic Management Permit Scheme (England) Regulations.

1.2 Regulatory requirement for a permit scheme evaluation

1.2.1. An amendment to the 2007 Permit Scheme Regulations saw the introduction of a new regulation (16A) which makes a provision for the content and timing of permit scheme evaluations

1.2.2. This regulation states that permit schemes [should] be evaluated following the first, second and third anniversary of the scheme's commencement and then following every third anniversary. The regulation further states that, in its evaluation, the Permit Authority [Council] shall include consideration of:

- whether the fee structure needs to be changed in light of any surplus or deficit;
- the costs and benefits (whether or not financial) of operating the scheme; and
- whether the permit scheme is meeting key performance indicators where these are set out in the Guidance.

1.2.3. This report has been developed by the Council to provide an evaluation for the first two years of the Permit Scheme and includes the provisions set out within the regulations.

1.2.4. The regulations reference key performance indicators set out in the Guidance – where the Guidance is the Statutory Guidance for Highway Authority Permit. The Guidance reiterates the requirement from the regulations. Annex C of this report contains the performance indicator results for each permit scheme year (as available).

2 Executive summary

2.1.1 Work across Nottinghamshire

2.1.1. Work undertaken since the start of the Scheme increased in Year 2, reducing into Year 3. Whilst there has been an increase in Telecom utility work, for the national rollout of broadband, there has been a reduction in Water utility work. Remaining sectors have remained similar across 2017 to 2023. Highway work has seen a gradual decrease since 2018, notably the shorter duration Minor category work – this possibly reflects changes in the notification of work and not actual work undertaken.

2.1.2. Utility asset work, repair and maintenance account for 72% of work undertaken, with highway improvement work accounting for 14%. The remainder of work is for other types of work, such as disconnection or alteration of supply, new service connections and remedial work to rectify defects.

2.1.3. The overall duration of work has proportionally changed with the volume of work undertaken. Further analysis of duration, *comparing pre-scheme work with the 3 years of the permit scheme*, shows a decreasing trend for planned work below the overall average. Immediate work has remained similar over the period of analysis and therefore close to the average.

2.1.2 Coordinating work

2.1.4. On average, 78% of permit applications received are granted – with the remainder being rejected. Reasons given for rejections vary, however the main challenges are:

- Missing information required to make an inform decision of the proposed work
- Missing permit conditions that need to be added to the work
- Missing, incorrect or inappropriate traffic control arrangements
- Clashes with other work on the network
- Challenging potentially excessive proposed duration

2.1.5. The Council also reject applications where there is a potential collaboration opportunity between Promoters. Whilst collaboration is accepted as a challenge across the industry, it is positive to note than work is undertaken with a form of collaboration each year across multiple sectors.

2.1.6. Analysis of requests for work (duration) extensions shows an increase year on year, with 9% of works in Year 3 requesting an extension. This volume of requests could demonstrate effective use of rejections to keep proposed work durations to a minimum. In Year 3, 3% of duration extensions were not accepted and 10% were accepted with a challenge, potentially resulting in an offence, with penalty, for overrunning work (NRSWA Section 74).

2.1.7. The volume of permit variations issued by the Council is decreasing year-on-year, however it has remained at 2% of total works. Variations issued by the Council are for changes to permit conditions, typically for the traffic management, *such as the control of temporary traffic lights*.

2.1.8. The application of permit conditions on works has increased since the start of the Scheme, with 72% of work in Year 3 containing an applied condition. Permit conditions are typically used to control the:

- timing of work and use of extended working hours (outside of the typically working day);

- road occupation being used, including for the storage of surplus materials, plant and spoil;
- use of traffic management, including the changes during the life of the work, form of control and removal of temporary lights when not in use;
- the use of excavation methods to ensure safety and protect the highway
- advanced publicity for potential high impactive work.

2.1.9. Whilst the Council can clearly demonstrate conditions are being applied to works, with benefit to the road user, analysis shows further potential to use conditions more effectively which should be explored in future years of operation.

2.1.3 Permit compliance

2.1.10. The volume of permit compliance inspection has increased significantly over the three years – with 16% of planned work and 34% of Immediate work being inspected in Year 3. The overall pass rate has increased, to 73% in Year 3, which should be viewed as a good indicator for overall Promoter compliance.

2.1.11. Non-compliance to permit conditions is being identified across many of the condition types, which demonstrates a thorough inspection regime. Most condition breaches are for the lack of a displayed permit number, which is systemic across the industry and not just Nottinghamshire.

2.1.12. Offences being issued have increased year-on-year, which should be attributed to the increase in inspections. This clearly demonstrates, even after three years of the permit scheme in effect, a thorough inspection regime is essential to ensure the coordination work is complied with.

2.1.4 Parity treatment

2.1.13. Under regulations, it is essential for the Council *to demonstrate that the Scheme is being operated without any discrimination between different classes of permits.* Analysis shows variation between Promoters which it to be expected. This does not demonstrate that the Scheme is being applied without parity as these differences can be justified through levels of compliance and ways of working within each sector.

2.1.5 Economic appraisal

2.1.14. Since the outset the Scheme has been operating at a deficit – with the permit fees not fully recovering the prescribed costs. After three years of operation the administration of the Scheme and ways of working have been established, so the Council can now consider changes to the permit fee level to ensure they recover these costs going forward.

2.1.15. The cost-benefit-analysis shows the Scheme has a benefit-to-cost ratio of 2.74 which is classified as high value for money. Estimates for an overall reduction in carbon emissions, *resulting from reduced queues and delays at roadworks*, shows a positive impact for Nottinghamshire with the equivalent saving of 610,579 annual car kms of carbon emissions because of the Scheme.

2.1.6 Summary

2.1.16. The objective from the initial three years of a permit scheme is to transition from a notice regime, establish ways of working to administer the scheme efficiently and realise benefits to the road user.

2.1.17. The evaluation can clearly demonstrate that this has been achieved, through levels of coordination and an effective regime to ensure compliance. The evaluation also demonstrates that the role of a permit scheme has not diminished over this time and Promoters still require coordination and collaboration to mitigate the potential impact of their works.

2.1.18. Looking ahead, the Council can now focus on operating a Scheme to achieve the greatest benefit , to reasonably challenge planned work, ensure conditions are being applied effectively and Promoters are complying with these conditions.

2.1.19. In October 2023 the Secretary of State for Transport published a Plan for Drivers[1] in which they committed to S*upport councils to introduce more Lane Rental schemes, which reduce roadworks by incentivising utilities to avoid the busiest roads at the busiest times.*

2.1.20. Being able to demonstrate a well operated permit scheme the Council can now consider the introduction of a lane rental scheme, which would complement the Scheme by providing a positive financial incentive for coordination and compliance.

[1] https://www.gov.uk/government/publications/plan-for-drivers/the-plan-for-drivers

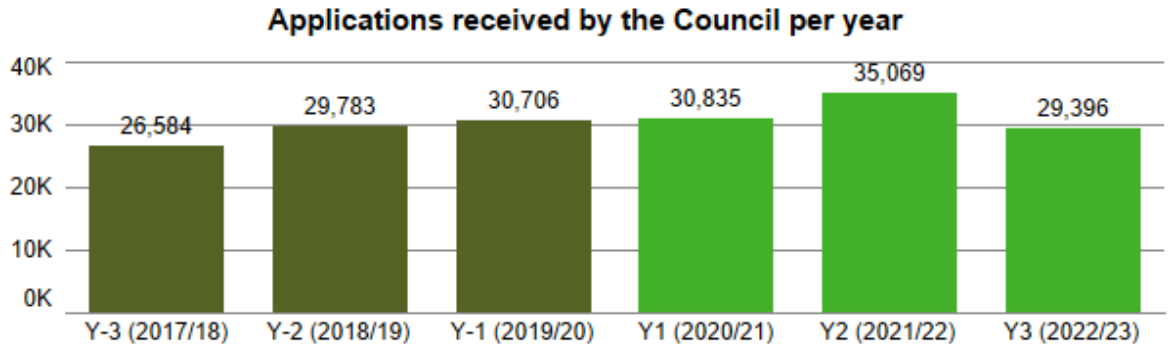
3 Analysis of work

3.1 Applications for work

3.1.1. All **registerable works** require an application to the Council to obtain a permit. Prior to the introduction of the permit scheme, the Council was notified of these works.

3.1.2. Throughout this evaluation the term **application** refers to both the initial notice for a work and the application for a permit unless stated otherwise. Non-statutory forward planning notices are not included in this evaluation.

The charts below show the volume of notice and permit applications received for each year (top) and delineated by sector (bottom).

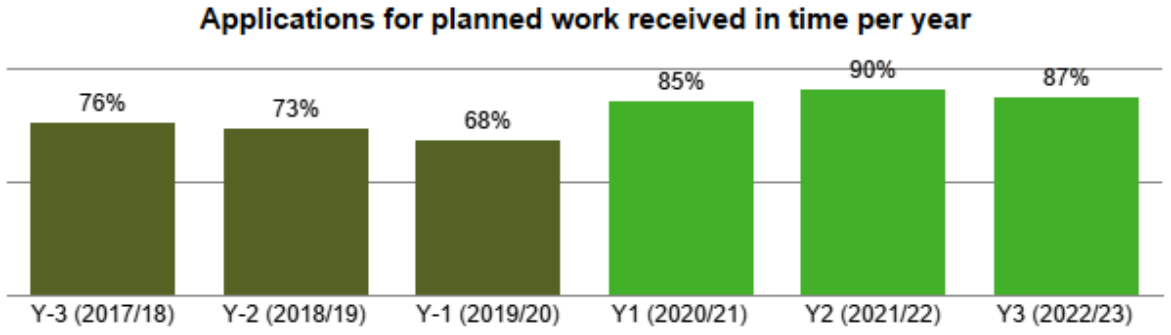


3.2 Application lead time

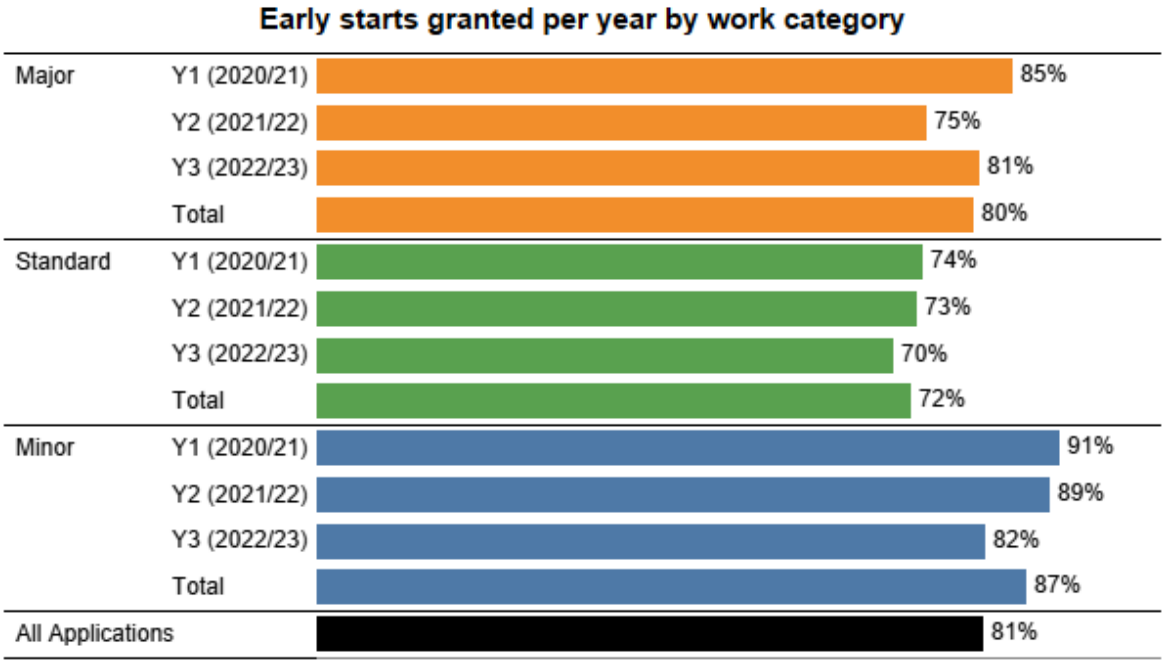
3.2.1. For the Council to effectively carry out the coordination of works, including the advanced publicity of works, it is essential that applications are submitted with sufficient lead time based on the work category, as set out within legislation. Where an application is submitted outside of the minimum lead time, *i.e. less than 3 working days for a minor application*, then this work requires an *early start.*

- Major and Standard work requires an application lead time of 10 working days prior to the proposed work start date. Major work also requires a 3-month advanced notice, which becomes a provisional advanced authorisation under a permit scheme.
- Minor works require 3 working days prior to the proposed work start date.
- Immediate works can be submitted after works start and must be received within 2 hours of works start or by 10:00 on the next working day if started outside of non-working hours.

The chart below shows the proportion of applications received in time (of total received) for planned work (excluding Immediate work category), in accordance with the minimum lead time.



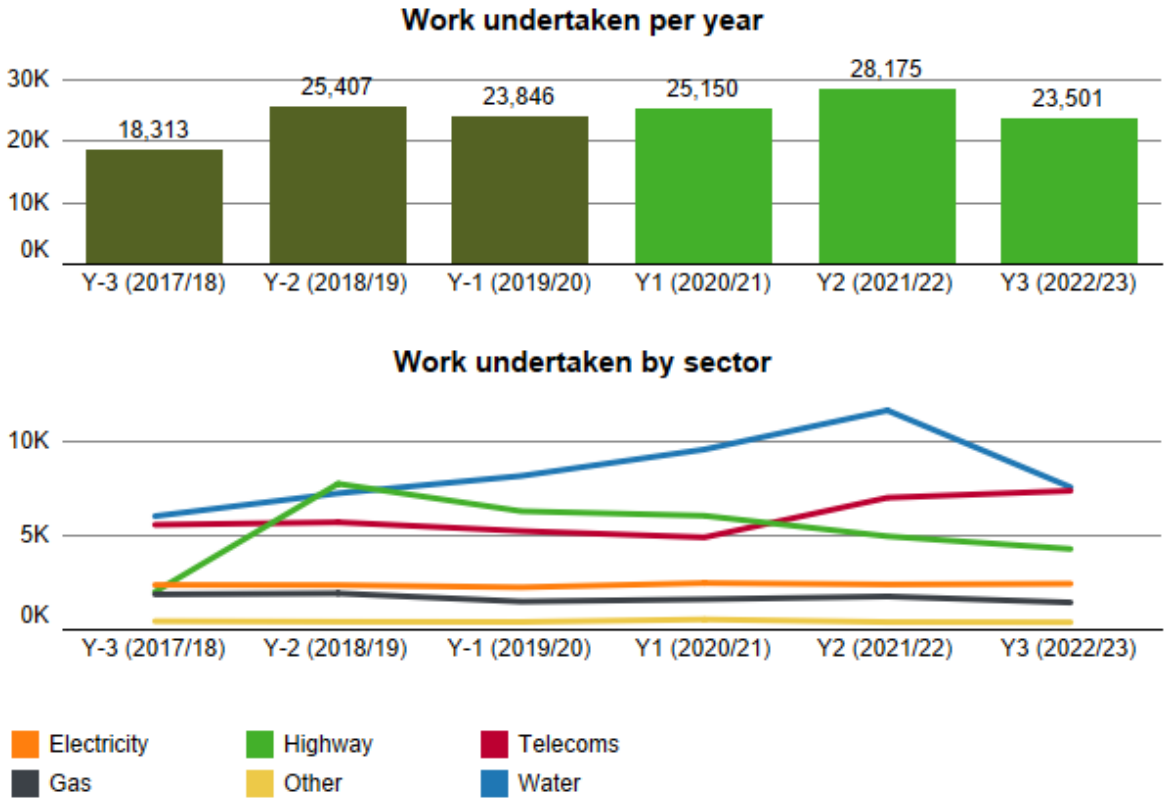
The chart below shows the proportion of requests for an early start granted by the Council (of total received) by work category. Applications superseded, cancelled or auto-granted (deemed) have been removed, leaving any remaining as either granted or rejected.



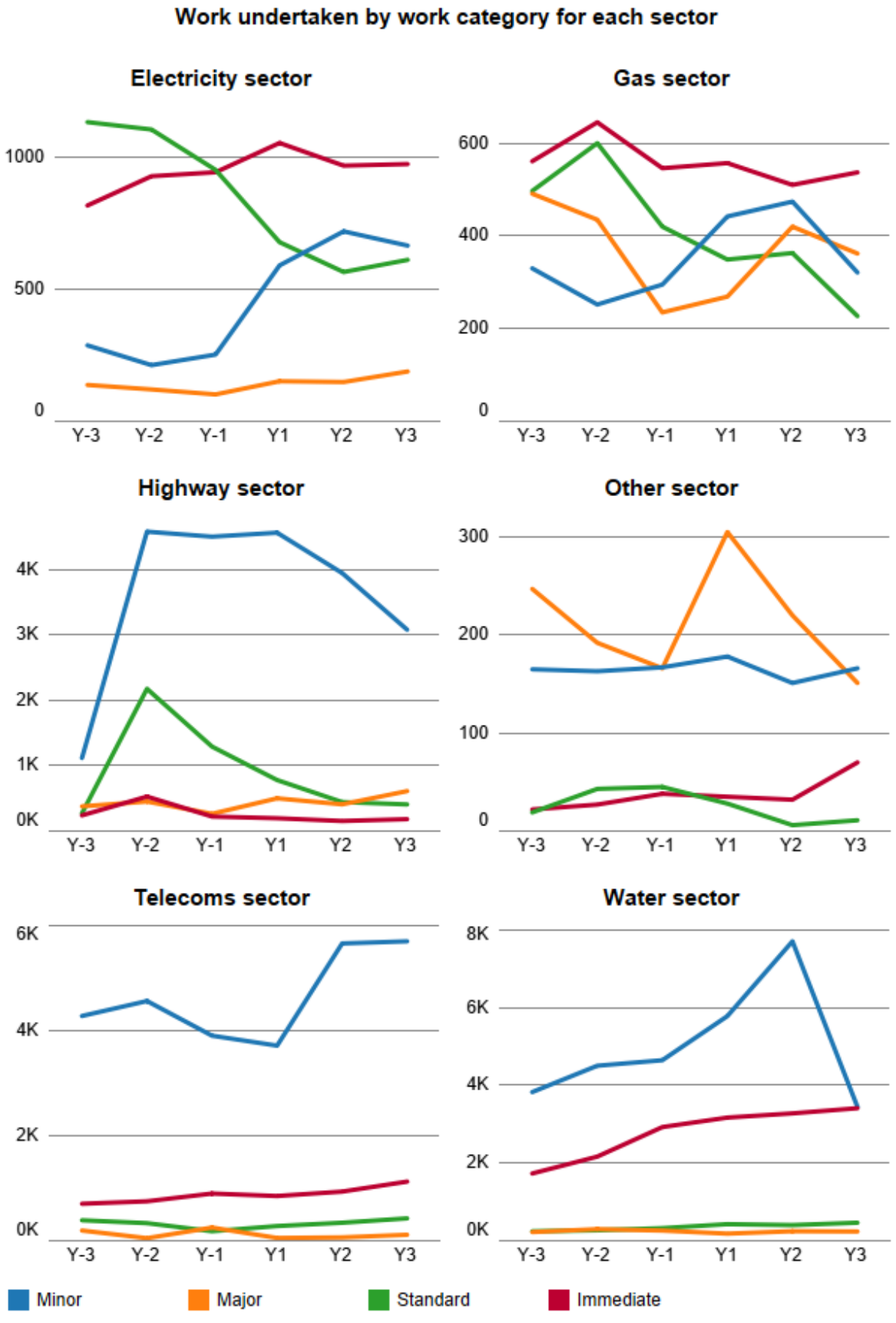
3.3 Work undertaken

3.3.1. Works are only treated as 'undertaken' when they have reached a stage of 'in progress', *i.e. work has started.* On average 78% of applications result in work undertaken.

The charts below show (top) the total volume of work undertaken per year, where the year is defined by the date of the initial application not the actual start date of work and (bottom) delineated by sector.



The charts below show work undertaken for each sector per year by work category.



3.4 Work activity type

3.4.1. Since the introduction of Street Manager in July 2020 Promoters have been able to provide an activity type on their permit, identifying the type of work being undertaken, *e.g. utility repair and maintenance works or disconnection or alteration of supply.*

The table below shows the proportion of work undertaken (% of total) by activity type for each sector. Only works for the period July 2020 to April 2023 are included. The colour gradient (white to green) depicts the value (lower to higher) by sector and total.

Activity type by sector

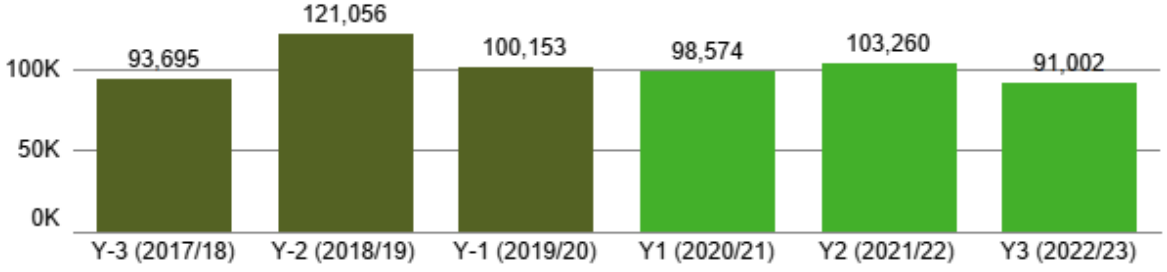
Activity Type	Electricity	Gas	Highway	Other	Telecoms	Water	Total
Core Sampling			3.0%			0.0%	0.6%
Disconnection or alteration of supply	5.7%	14.8%			0.0%	0.2%	1.5%
Diversionary works	0.9%	0.0%	0.0%		0.0%	0.0%	0.1%
Highway improvement works	0.0%		70.6%		0.0%		14.2%
Highway repair and maintenance	0.0%		20.1%	1.5%	0.3%	0.0%	4.2%
New service connection	17.2%	12.0%	0.3%		3.4%	3.0%	4.4%
Permanent reinstatement	1.1%	0.4%	0.0%		0.7%	0.8%	0.6%
Remedial works	2.5%	1.3%	1.3%		0.9%	2.2%	1.6%
Section 50			0.0%				0.0%
Statutory Infrastructure Works	0.0%		0.0%		0.1%	0.0%	0.0%
Utility asset works	17.5%	29.1%	3.1%	1.8%	21.8%	3.4%	10.9%
Utility repair and maintenance	55.0%	42.3%	0.0%	8.5%	72.7%	90.4%	59.9%
Works for Rail Purposes				88.2%	0.0%	0.0%	1.6%
Works for road purposes	0.0%		1.4%	0.1%		0.0%	0.3%

3.5 Work duration

3.5.1. Analysis of work duration is based on works undertaken only. Durations are typically calculated in whole calendar days, however in reality a work, *such as an asset inspection or pothole repair*, may only take a few minutes or hours.

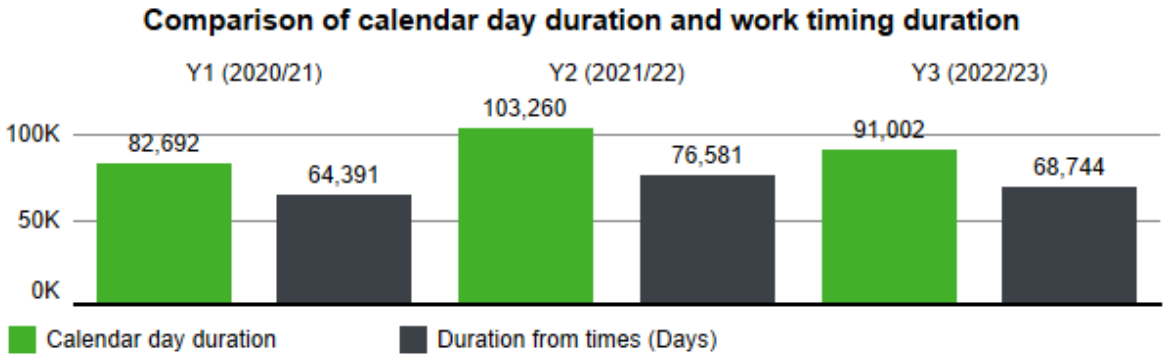
*The chart below shows the total duration of work, **in whole calendar days**, per year.*

Duration of work (calendar days) undertaken per year



3.5.2. Since the introduction of the DfT's digital service, Street Manager, and associated regulatory changes in July 2020 it is possible to determine the timings more accurately and reliably from the works data. This means a work duration can be calculated by minutes instead of whole days. As such, analysis using Street Manager derived data provides a more realistic insight and result.

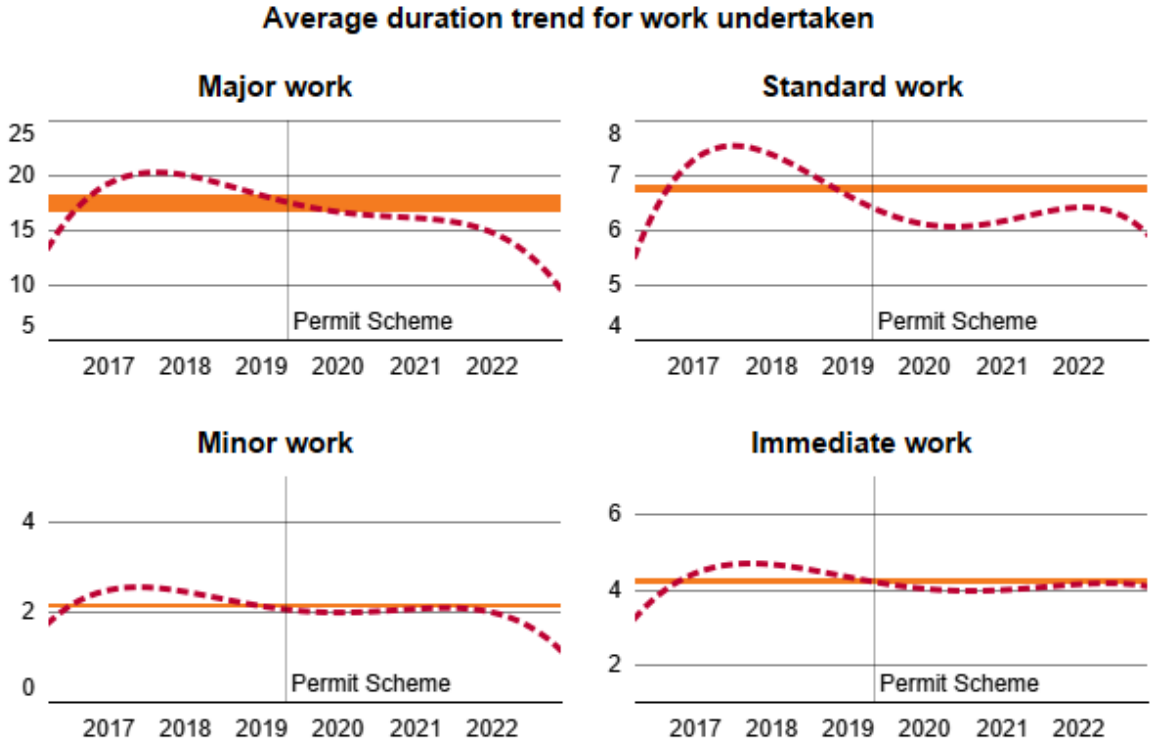
The chart below shows the calculated duration using whole calendar days and the actual timings of work for works from July 2020 (part-way in year 1).



3.6 Analysis of duration

3.6.1. Analysis of duration considers trend over time, with work delineated into their work category', which is typically based on a duration banding, *i.e. a minor is work within 2-3 days*.

The charts below show average duration for each work category (band) with a polynomial trend model (dotted line) which is computed for each duration (observation) across years -3 to 3.

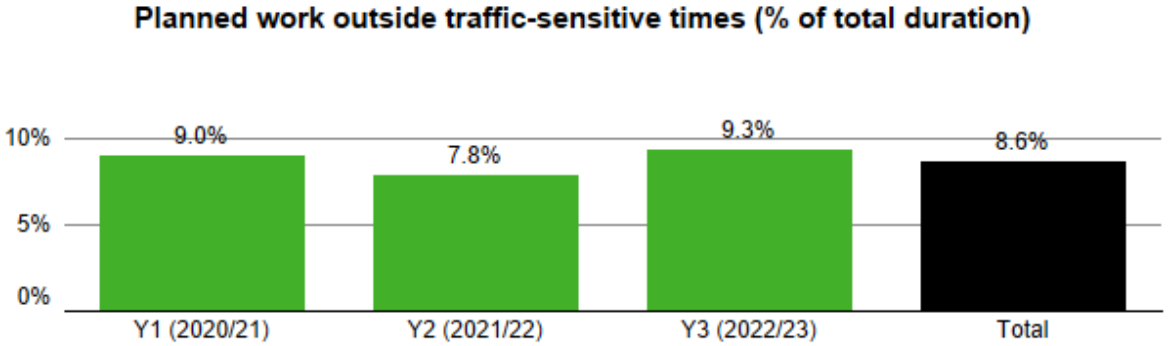


3.7 Work at traffic-sensitive times

3.7.1. Designations in the local street gazetteer enable the council to identify whether a street is traffic-sensitive, based on a set of criteria which includes the volume of traffic travelling on the street over a given period, and the times of that traffic-sensitivity, *e.g. common peak periods such as 07:00 – 10:00 and 16:00 – 19:00.*

3.7.2. The traffic-sensitivity designation is used for the coordination of works, to ensure any impact at peak (traffic-sensitive) times is reduced or controlled, either through work taking place outside of traffic-sensitive times or other measures (permit conditions), such as specific control of the traffic management.

*The chart shows the proportion of planned work (excludes Immediate work) on a street with a traffic-sensitive designation when work was undertaken **during** the designated traffic-sensitive times and involved a form of traffic control on the carriageway.*



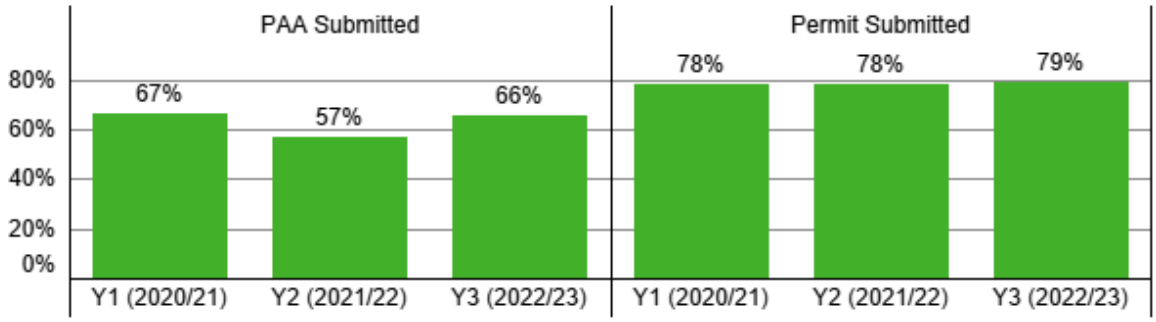
4 Analysis of work coordination

4.1 Responses to permit applications

4.1.1. For a permit scheme to be effective the Council must process and respond to each application. Where the Council accept an application, this is granted. Where the Council do not accept an application, or want to make changes to the proposed work, it is refused, and a response code (based on a set of national codesi) **must** be provided.

The charts below show the PAA applications and permit applications granted by the Council as a proportion of the total received. PAAs and permits that were cancelled or superseded before a response was given have been removed from this analysis.

Applications granted per year (% of total received)



The chart below shows the response codes used on rejected applications per year. A refusal can contain more than one reason and therefore code.

Response codes applied for rejected applications

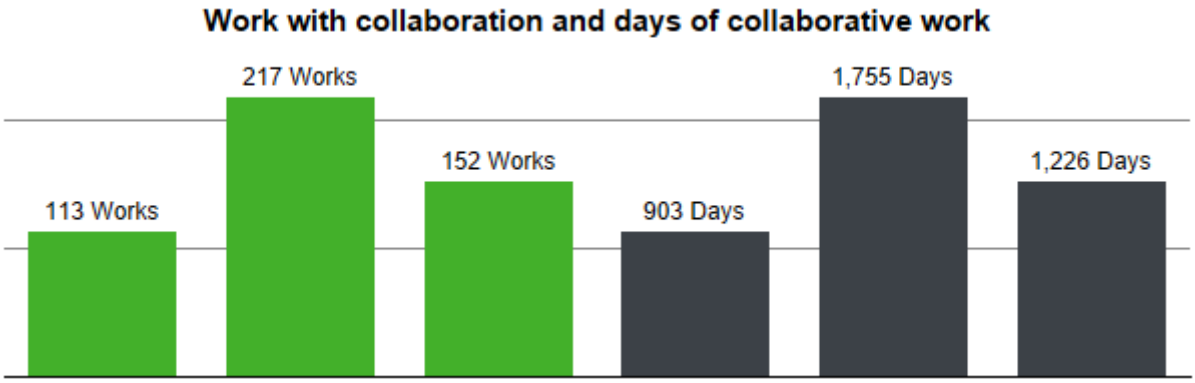
	Y1 (2020/21)	Y2 (2021/22)	Y3 (2022/23)
RC10 Missing information	807	1,095	747
RC11 Missing conditions	2,709	2,753	1,179
RC12 Traffic Management Details	1,192	2,542	2,189
RC20 Incorrect details	37	68	121
RC21 Incorrect recipient	4	7	3
RC22 Location issues	187	246	268
RC23 Conflicting information	668	768	530
RC30 Coordination issues	82	254	260
RC31 Clash of works	1,046	1,365	1,166
RC32 Timing of works	340	397	237
RC33 Collaboration opportunity	46	61	51
RC40 Lack of traffic management approval	283	490	894
RC41 Incorrect traffic management	583	820	695
RC42 Early start agreement	13	4	83
RC43 NRSWA Section 58 agreement	0	0	1
RC44 Excessive duration	1,326	2,842	1,060
RC50 Other reason	264	337	387

4.2 Collaborative works

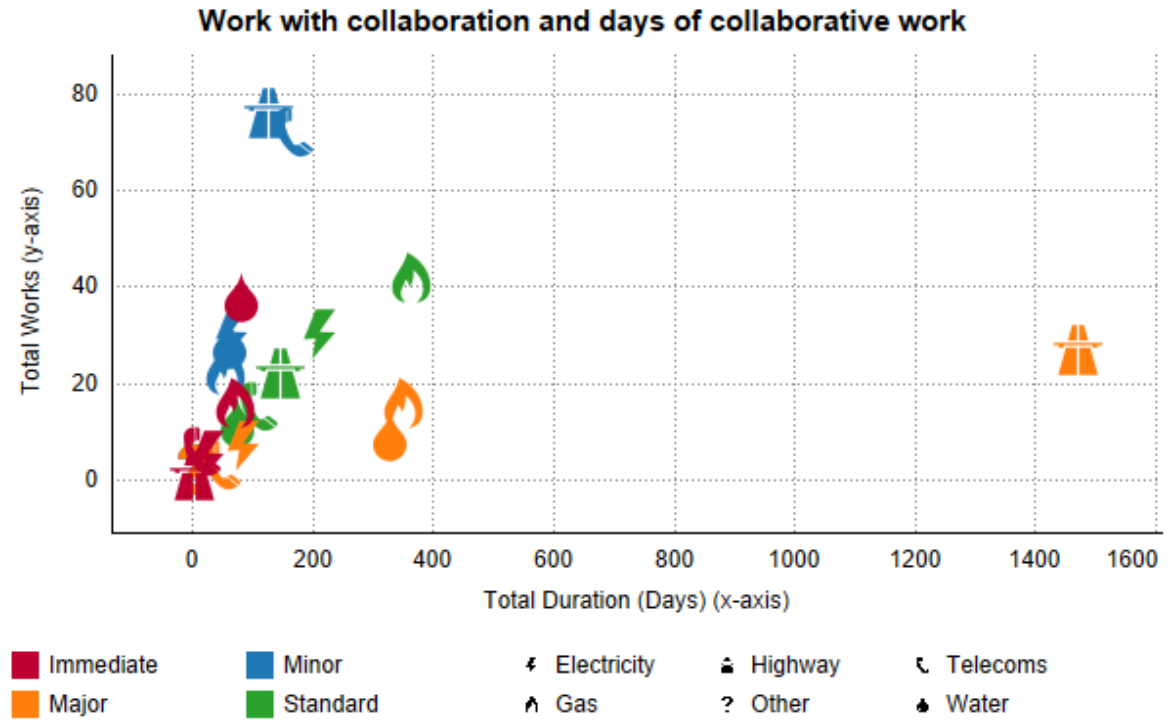
4.2.1. One of the most effective methods for the Council to reduce the potential disruption is for Promoters to collaborate their works, thereby undertaking work on the same section of the highway at the same time, under the same form of traffic management, or contiguous working where work methodology does not allow for works in a close proximity.

4.2.2. Collaboration between Promoters is recognised as an industrywide challenge, with limited opportunities and practical limitations within work delivery constraints, resource schedules and methodology. As shown in the section above, the refusal for applications is rarely for a collaboration opportunity.

The chart below shows (left) the total number of works undertaken with a form of collaboration, and (right) the duration of works (days) with a form of collaboration per year.



The chart below shows the work with a form of collaboration in years 1-3 by total works (y-axis) and total duration (x-axis) by work category and sector.

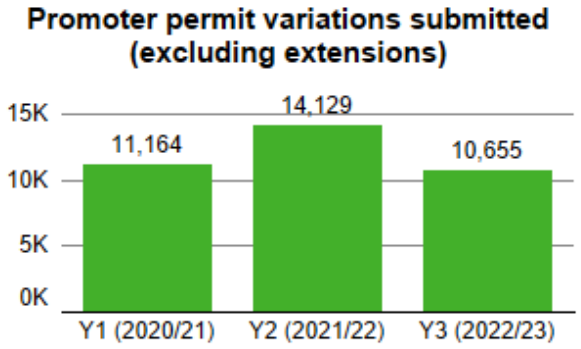


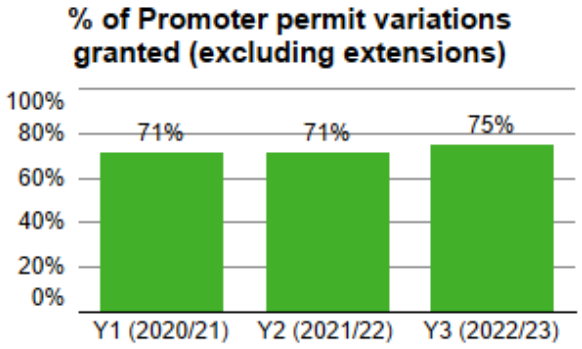
4.3 Permit variations issued by Promoters

4.3.1. Both regulations and the Scheme includes a provision for the Council to vary or revoke a permit. Therefore, a permit variation (*change request or alteration as named in Street Manager)* can be issued either by the Promoter for the Council to grant or refuse, or by the Council to the Promoter as an imposed change.

4.3.2. There are many reasons why variations are issued, which include changes for planned work dates, because of lack of resources, *such as a contractor or work gang availability or* changes to work details, *such as a change in traffic control or work methodology once a work has been started.* The types of permit variation fall within different categories and can be issued by either the Promoter or the Council.

The charts below show (left) the number of permit variations, excluding those for a duration extension, issued by Promoters; and (left) the % of these requested granted by the Council, per year.

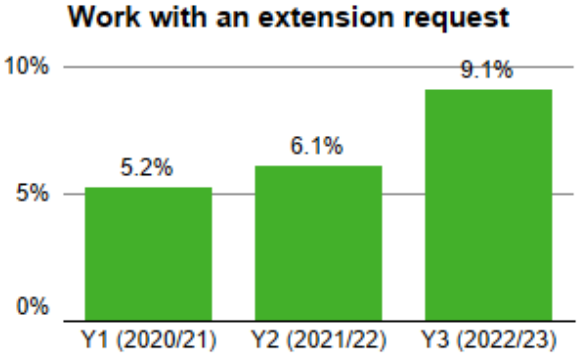


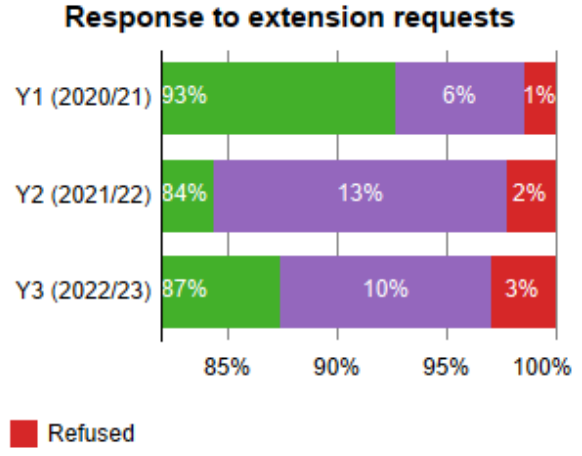


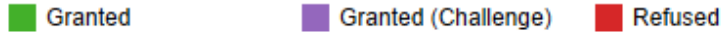
4.3.3. Works on a very busy and often congested road network that exceed their agreed reasonable period of duration can create significant coordination issues. In turn, these works can apply a 'domino effect' on work programmes and the potential need to reschedule or revoke other active or planned works that may clash with adjacent over running works.

4.3.4. **Work extension requests** are issued by the Promoter where they want to change the proposed end date of work (typically increasing the duration) once a work has commenced.

The charts below show (left) the % of work undertaken with an extension request and (right) responses to extension requests, excluding applications that were cancelled or superseded, as a % of total received.



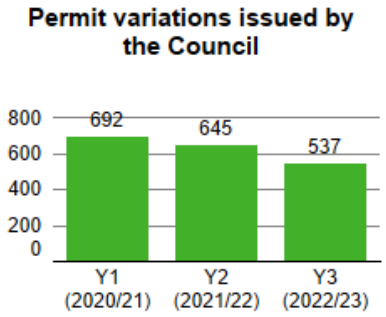


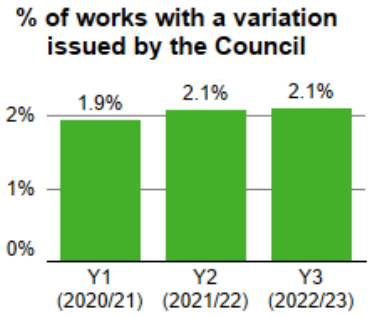


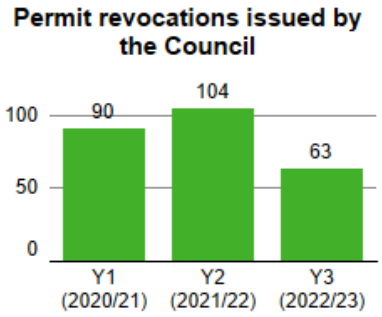
4.4 Permit variations issued by the Council

4.4.1. The Council can issue a variation, as a Highway Authority imposed change, where they want to make a change to the permit, either before or after work has commenced. The Council can also revoke a permit where circumstance.

The charts below show (left) the number of permit variations issued by the Council; (middle) the % of work undertaken with a variation issued by the Council; and (right) revocations issued by the Council, per year.







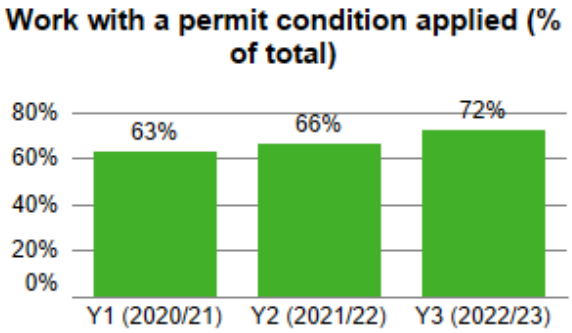
5 Analysis of permit conditions

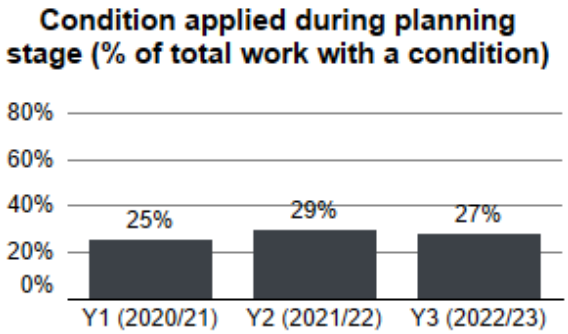
5.1 Use of permit conditions

5.1.1. Applying a condition to a permit is one of the primary methods for achieving the objectives of a permit scheme. The permit application process allows the Council to make changes to the work and where necessary apply conditions to control and minimise the impact of the work, sometimes even before a work start, *for example advanced publicity of a road closure.*

5.1.2. Conditions are based on the categories defined in the Statutory Guidance for Permit Conditions. This Guidance sets out the conditions that can be applied to permits and the potential parameters that can be associated to these conditions.

The charts below show (left) the proportion of work undertaken with <u>any</u> permit condition applied and (right) the % of those works where the condition was added during the planning stage (right).





The chart below shows the conditions applied, by their type, to work undertaken.

Conditons applied to work undertaken

	Y1 (2020/21)	Y2 (2021/22)	Y3 (2022/23)
NCT02a Date & Time	7,408	9,811	6,445
NCT02b Extended hours	2,305	1,995	2,043
NCT04a Removal materials/plant	659	680	345
NCT04b Storage materials/plant	87	117	139
NCT05a Road occupation	1,550	1,360	2,348
NCT06a Road space available	1,983	1,829	4,350
NCT07a Road closure	441	353	834
NCT08a Specified traffic control	1,938	2,401	3,342
NCT08b Manual control of TM	748	1,035	1,103
NCT09a TM changes	1,028	1,017	2,034
NCT09b TM arrangements	133	361	665
NCT09c Removing temporary signals	1,160	1,939	2,296
NCT10a Work methodology	8,935	11,258	9,472
NCT11b Advanced publicity	890	1,216	1,554
NCT12a Control noise	29	34	21

5.1.3. The Statutory Guidance for Permit Conditions allows for a non-defined condition to be agreed between the Council and a works promoter – this is called a local condition. No local conditions have been applied by the Council.

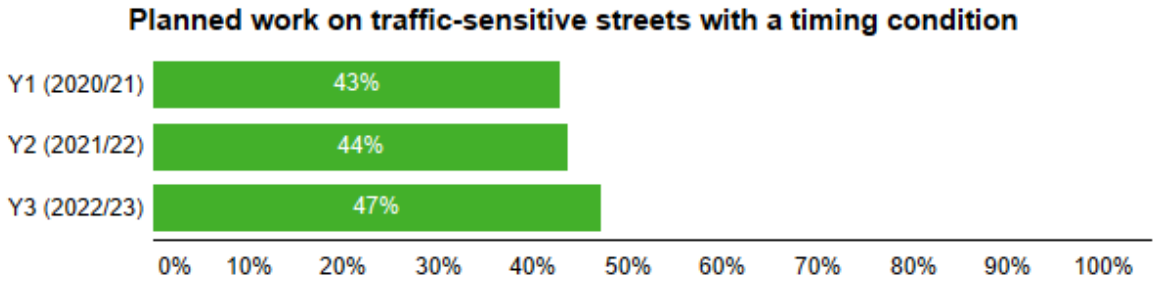
5.2 Benefits of conditions applied

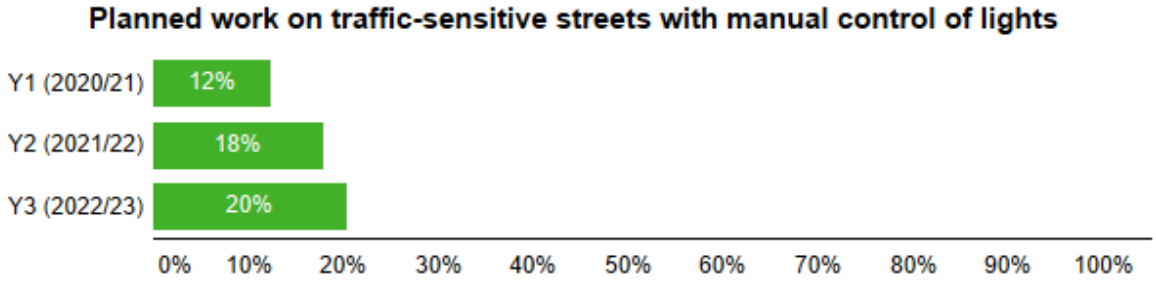
5.2.1. It can be difficult to effectively delineate work where a condition could *or may* be applied as sometimes the relevant elements of the work are not specified within the data for analysis, *such as whether the work involved surplus spoil or materials or required a specific work methodology.*

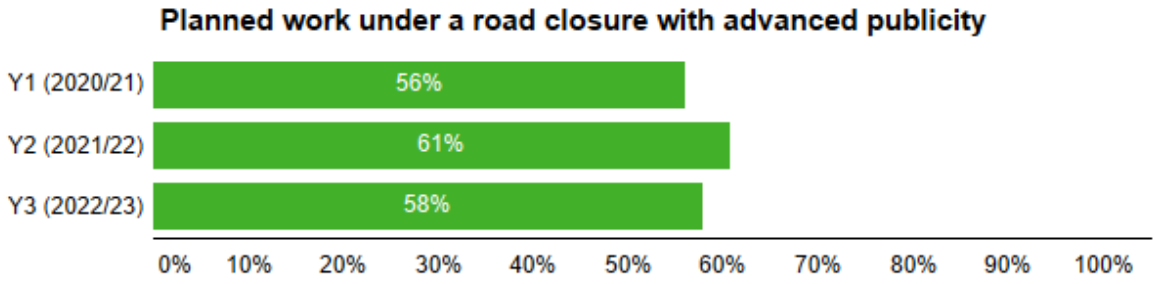
5.2.2. There are however a few indicators that can be used to identify whether conditions are being applied to good effect, and therefore of benefit to the road user. These include:

- Planned work outside traffic-sensitive times (on a traffic-sensitive street) with a timing condition (NCT2a) to ensure compliance to this arrangement;
- Work at traffic-sensitive times (on a traffic-sensitive street) involving temporary traffic lights with a condition (NCT8b) to manually control the lights at specified times, *typically peak traffic times; and*
- Planned work under a road closure with advanced publicity of the work (NCT11b).

The charts below show the proportion of work with an application condition (as above) per year.





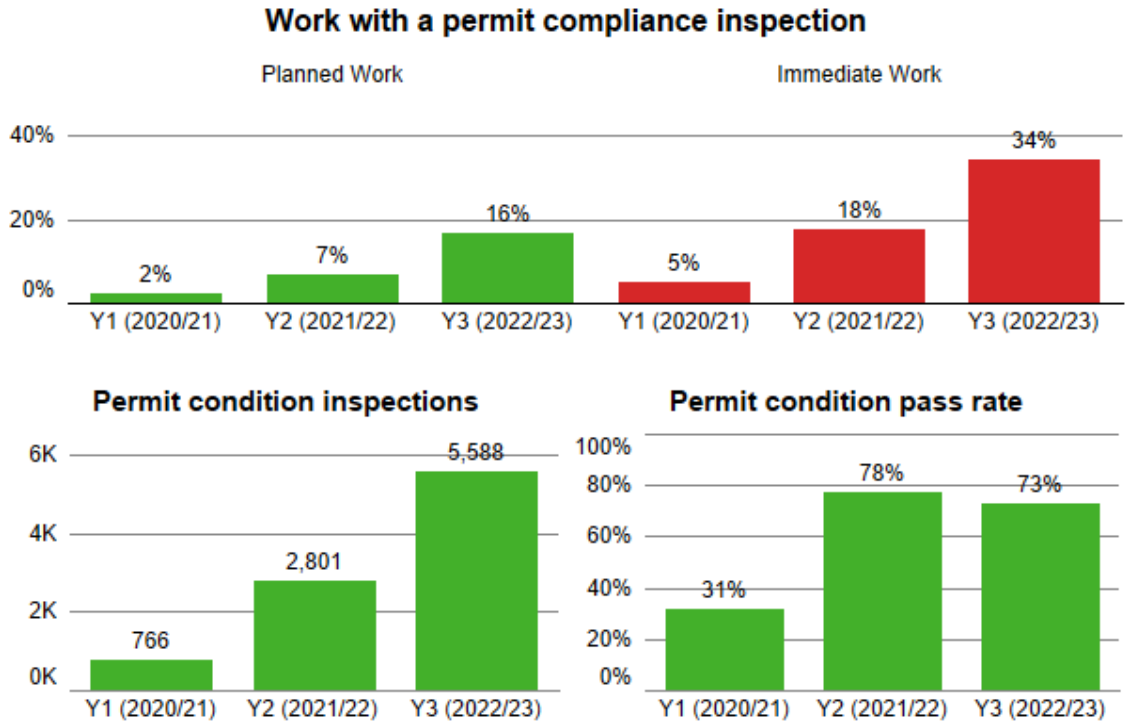


6 Analysis of permit compliance

6.1 Permit compliance inspections

6.1.1. Under a permit scheme the Council can undertake additional inspections for permit compliance to ensure work is (a) being undertaken with a valid permit and (b) in accordance with the stated conditions (as applicable).

The charts below show (top) work with a permit compliance inspection (% of total) delineated into planned work (Major, Standard and Minor) and Immediate work; (below-left) the number of permit condition inspections carried out per year and (below-right) the % of inspections passed.



The chart below shows the reason for permit condition failure (non-compliance) recorded. An inspection can fail for more than one permit condition.

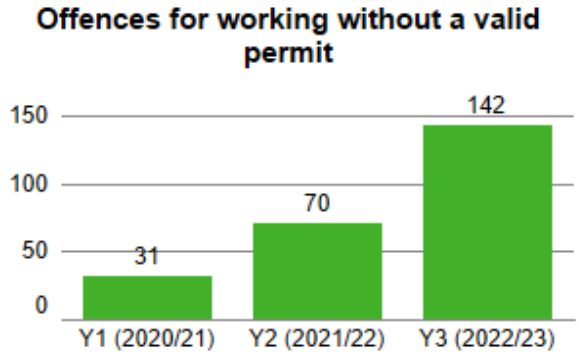
Permit condition failure by type

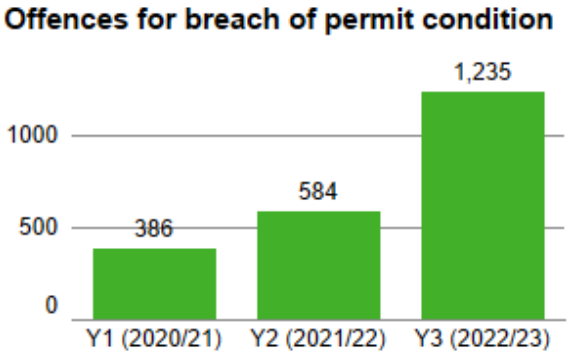
	Y1 (2020/21)	Y2 (2021/22)	Y3 (2022/23)
NCT1a/b Working window	1	1	18
NCT2a Date and times	0	3	10
NCT2b Extended working hours	0	2	5
NCT4a Removal of plant/materials	9	12	16
NCT4b Storage of plant/materials	1	6	29
NCT5a Road occupation	5	10	57
NCT6a Road space available	3	4	84
NCT8a Specified traffic control	0	3	27
NCT8b Manual control of traffic management	39	58	133
NCT9a Traffic management changes	23	33	125
NCT9b Traffic management arrangements	2	4	12
NCT9c Removing temporary signals	8	18	111
NCT10a Work methodology	0	1	5
NCT11a Display of permit number	300	340	947
NCT11b Advanced publicity	3	3	7
No Permit	2	5	6
Other reason	163	196	191

6.2 Offences for working without a valid permit or breach of condition

6.2.1. A permit scheme introduced two new offences, with financial penalties for statutory undertakers, where there is a failure to work with a valid permit and a breach of permit conditions.

The chart shows the number of offences issued by the Council by their type. The chart does not include offences withdrawn (after issue).





7 Analysis of parity treatment

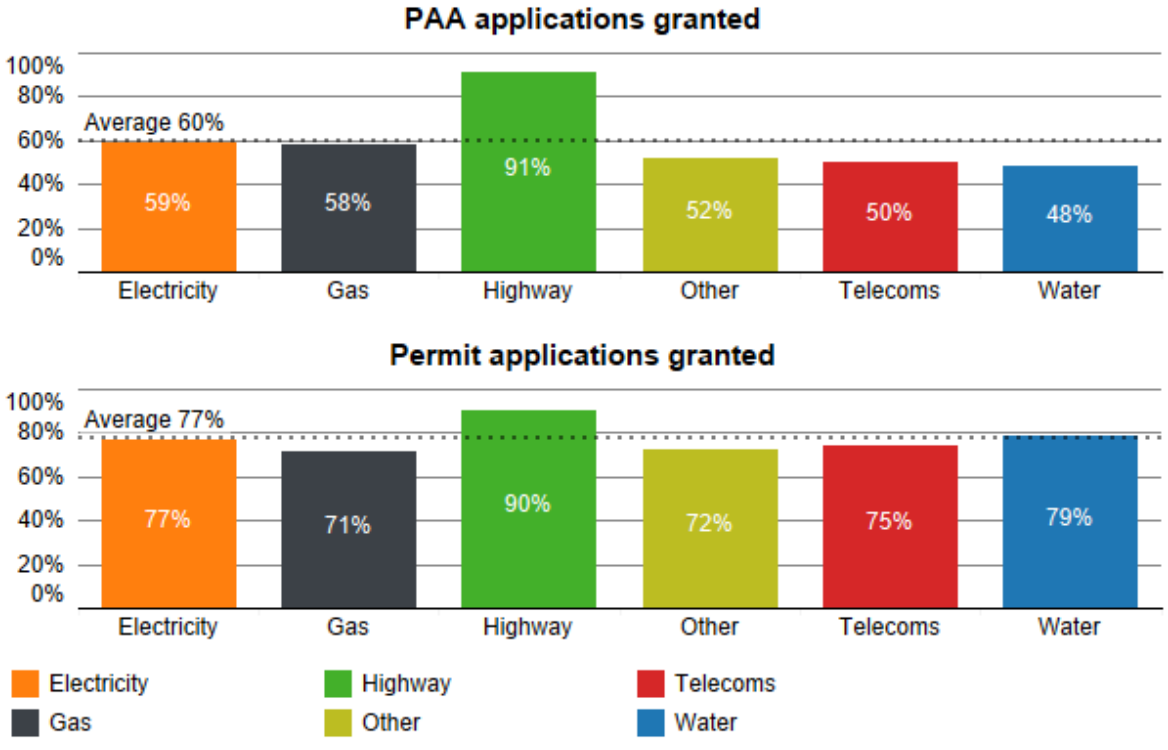
7.1.1. Section 40: Non-discrimination of the Permit Scheme Regulation state that the Council must apply the regulations (Parts 5 and 6) *without any discrimination between different classes of application for permits or for provisional advanced authorisation*. Statutory Guidance defines this further a **parity treatment** with *each permit application received are treated equally regardless of the works' promoter* .... and [Highway] *works will be treated in the same way as any undertaker (except that they are not liable for the fees or sanctions).*

7.1.2. Parity treatment will be analysed using the following specific measures for each sector:

- Response to PAA and permit applications;
- Permit applications deemed (granted);
- Response to Promoter permit variations;
- Variations issued by the Council; and
- Conditions applied to permits.

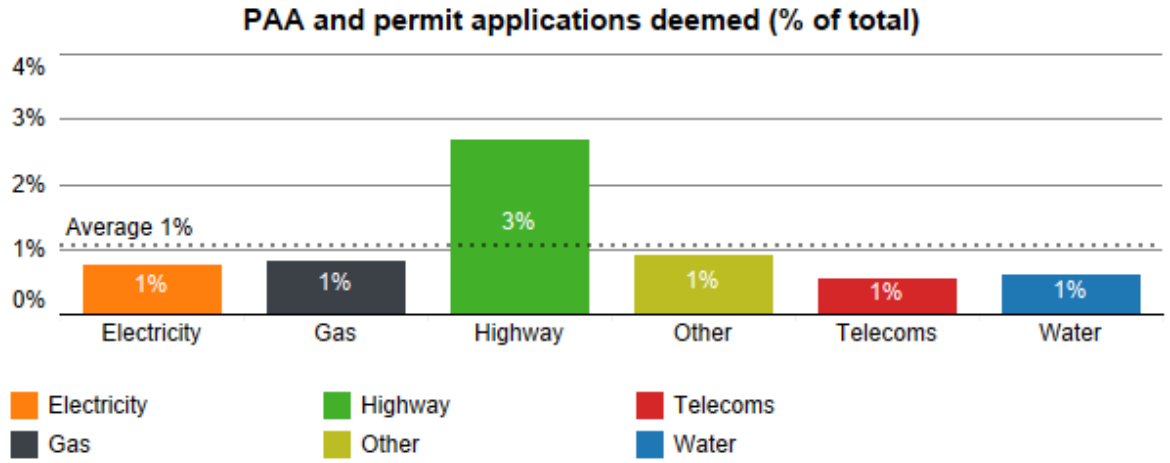
7.1.3. It should be accepted that there will be differences between sectors, when comparing to the average, mainly due to differing working practices, levels of permit quality and volumes of works and applications.

The charts below show the PAA or permit applications granted within year 1-3 (as a % of total received) by sector. The charts do not include those applications that were deemed (granted), superseded or cancelled before a response was given.

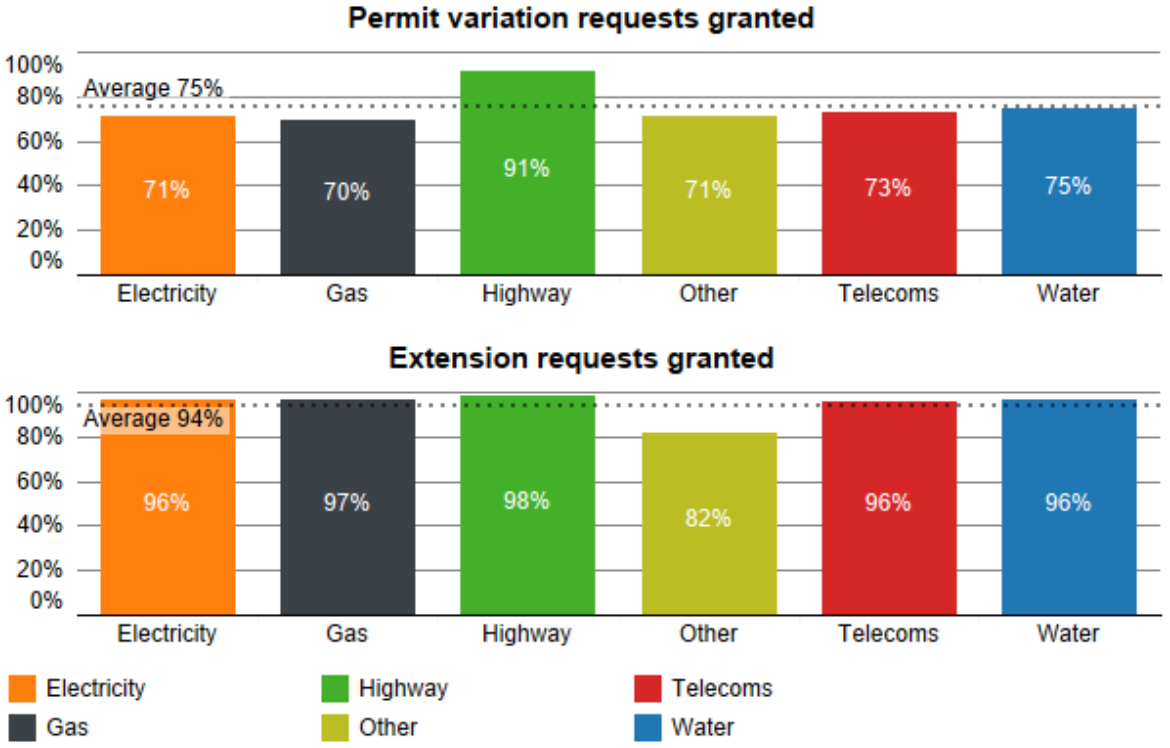


7.1.4. The Highway Authority % of total deemed applications saw a significant increase in July 2021 during the transition into the new Street Manager digital service. Works that were already granted were added during this time to ensure continued visibility.

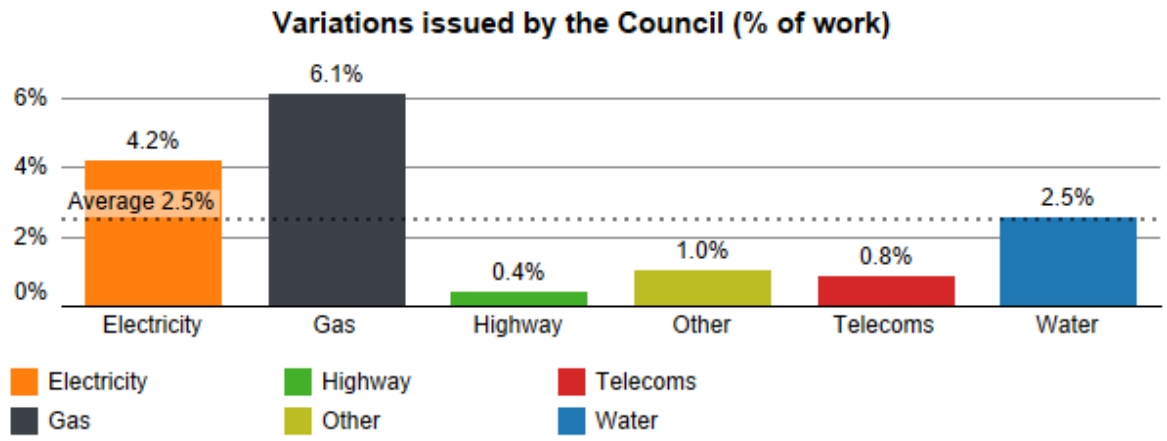
The chart below shows the % of PAA and permit applications that were deemed within years 1-3. Applications that were superseded or cancelled before a response could be given are excluded.



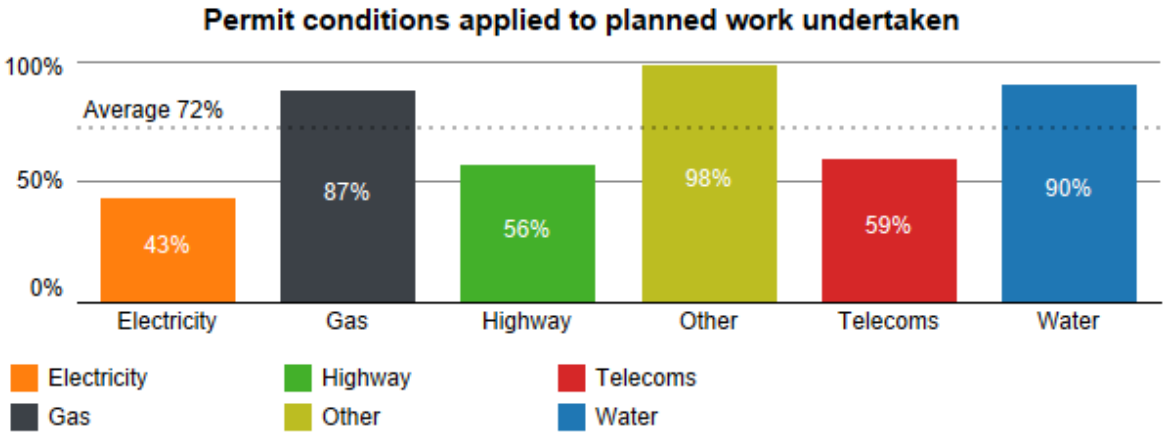
The charts below show the permit variation applications granted within years 1-3 (as a % of total received) by sector. Applications that were deemed (granted), superseded or cancelled before a response was given are excluded from analysis.



The chart below shows the number of variations issued to Promoters by the Council in Years 1-3 as a % of total work undertaken.



The chart below shows the % of planned works undertaken with a permit condition, as a % of total works, by sector within years 1-3. Unplanned Immediate works have been removed from this analysis.



8 Analysis of cost and benefit

8.1 Review of income from permit fees

8.1.1. The Permit Scheme Regulations allows the Council to charge a fee to recover the prescribed costs for the administration of a permit, a provisional advanced authorisation, and the variation (alteration) of a permit. These fees are applied to statutory undertaker works only, not for work for road purposes (highway authority work).

8.1.2. The regulations require that the Council (as a permit authority) consider whether the fee structure needs to be changed in light of any surplus or deficit, to only recover the prescribed costs. The table below shows the income, recoverable cost and balance (income – cost) per scheme year.

Year	Income £	Recoverable Cost £	Balance £	Running Balance £
Year 1 (2020/21)	904,575	970,552	-65,977	-65,977
Year 2 (2022/23)	1,131,279	1,156,525	-25,246	-91,223
Year 3 (2022/23)	1,108,287	1,386,850	-278,563	-369,786

8.1.3. The overall costs to administer the permit scheme have increased since year 1, but now remain stable. As such, the recoverable costs have also increased which has resulted in a significant deficit for Year 3, taking the overall deficit to £369,786.

8.1.4. With three years of operation the Council can now reconsider the permit volumes, resources to administer the scheme, with associated cost, assess the need for a variation to the permit fee levels to recover the deficit and ensure the scheme income matches the recoverable cost.

8.2 Impact of work

8.2.1. The societal impact of each work is estimated based on impact calculations derived from the **QUeues And Delays at ROadworks** (QUADRO) model taking account of local traffic flow for different types of road (refer to 9.6 for methodology).

8.2.2. Whilst this impact is estimated, it should be accepted as a robust indicator of overall impact. Considering QUADRO is predicated only on carriageway impact, and a large volume of work also impact other forms of traffic, this indicator could be considered very conversative.

8.2.3. The table below provides the estimated impact of work per Scheme year for work impacting the carriageway only. This forms the basis of the overall economic appraisal.

Year	Impact £
Year 1 (2020/21)	15,331,475
Year 2 (2022/23)	19,507,450
Year 3 (2022/23)	16,522,253

8.3 Cost-benefit-analysis

8.3.1. A cost-benefit analysis (CBA) provides a framework within which the impacts of a scheme can be compared against the cost of setting up and operating the scheme.

8.3.2. Historical works data provides a basis on which to evaluate the impact of works on motorists and the local economy, and to review the value of the scheme against the actual costs and revenues of operations of the scheme since implementation.

8.3.3. The approach to the CBA is as follows:

- Identify the scale and characteristics and quantify the scale of societal impact these works will have had to the residents and local economy, using the most detailed information available;
- Estimate the reduction in impact resulting from the permit scheme and quantify the social benefit of this reduction;
- Quantify the costs of operating the permit scheme; and
- Undertake the cost benefit analysis to determine the benefit to cost ratio and net present value delivered by the scheme.

8.3.4. Further detail on the appraisal methodology is detailed within Annex A.

8.4 Appraisal Results

8.4.1. The cost benefit analysis takes the benefits and costs from each year of operation and projects these into the future to provide a 25-year appraisal period as per DfT Guidance. The cost and benefit streams are discounted using the standard discount rate of 3.5%, meaning that near term costs and benefits are valued more highly than those occurring later in the appraisal period.

8.4.2. The results of the cost benefit analysis are set out in the table below.

Appraisal Metric	Value
Net Present Benefit of Scheme	£8,936,068
Net Present Cost of Scheme	£3,265,759
Net Presented Value of Scheme	5,670,309
Benefit to Cost Ratio	2.74

8.4.3. The benefit to cost ratio (BCR) is a measure of value-for-money exhibited by a scheme.

- **With a BCR of 2.74 the permit scheme can be defined as delivering greater benefit than it costs and classified as 'High Value for Money'.**

8.4.4. An analysis of monetised costs and benefits includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. Refer to table below.

Noise		*(12)*
Local Air Quality		*(13)*
Greenhouse Gases	1,314,011	*(14)*
Journey Quality		*(15)*
Physical Activity		*(16)*
Accidents	1,129,984	*(17)*
Economic Efficiency: Consumer Users (Commuting)	5,972,117	*(1a)*
Economic Efficiency: Consumer Users (Other)	8,958,176	*(1b)*
Economic Efficiency: Business Users and Providers	-6,307,361	*(5)*
Wider Public Finances (Indirect Taxation Revenues)	2,130,859	*- (11) - sign changed from PA table, as PA table represents costs, not benefits*
Present Value of Benefits (see notes) (PVB)	8,936,068	*(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)*
Broad Transport Budget	3,265,759	*(10)*
Present Value of Costs (see notes) (PVC)	3,265,759	*(PVC) = (10)*
OVERALL IMPACTS		
Net Present Value (NPV)	5,670,309	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	2.74	BCR=PVB/PVC

8.4.5. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

8.5 Carbon Emissions

8.5.1. A component to the costed benefits is a reduction in carbon emissions. These emissions savings are driven by more efficient vehicle movements, and the avoidance of the 'stop-start' movements associated with works. QUADRO places a monetary value on emissions savings by applying a 'cost of carbon' to the amount of carbon generated because of works, such as additional fuel due to idling, or diversions.

8.5.2. Taking the average calculated works impact, the carbon emission generated by works within the area (as calculated within QUADRO) are valued at £1,027,401 (2010 prices), which represents around 6% of overall work impact cost.

8.5.3. The implied carbon emissions attributable to works in the area amounts to 13,568 tonnes. This amounts to around 1% of total vehicular emissions on local roads in area. The improved efficiency of works under the permit scheme means that the scale of carbon emissions generated because of works may be expected to be reduced post-scheme implementation.

8.5.4. In line with the broader assumptions about permit scheme impacts, adopting the national permit scheme evaluation evidence as the basis for the reduction in works duration, scheme implementation would lead to estimated carbon emission savings of 733 tonnes CO2 per year. To set this emission saving in context, using the typical emissions of new cars sold in the UK currently, this reduction amounts to an equivalent saving of 610,579 annual car kms.

9 Annex A: Evaluation methodology

9.1 Period of analysis

9.1.1. Throughout this evaluation there is a reference to "**years"**. These are the Scheme operational years where the first year of the Scheme (Year 1) is between April 2020 and March 2021 (inclusive).

9.1.2. The operating years before the scheme came into legal effect are show as negative years, *i.e. Y-1 covers the period April 2019 to March 2020 (inclusive).*

9.2 Defining Promoters

9.2.1. Within this evaluation Promoters can be defined by their sector, *e.g. water*. The Promoter type Highway Authority is included in this definition, *as works for road purposes*.

9.2.2. The sector Other includes other organisations who need to undertake work on the highway, *such as Network Rail.*

9.3 Source data for analysis

9.3.1. This evaluation uses data collected from both Street Manager and the Council's system to process and record works. The data collected contains the content of notifications (events) sent between Promoters undertaking work, *such as utility companie*s, and the Council.

9.3.2. Analysis of these notifications enables the Council to produce metrics for performance indicators and further measures. For some measures aggregating data for analysis does not provide an accurate picture of the results, for example for the analysis of duration for all work categories can provide a falsely inflated picture of changes over time. This evaluation therefore delineates many of the measures into sub-categories, *such as works category*, to provide a more accurate result and trend.

9.3.3. Many of the measures contained in this evaluation were analysed to ensure accuracy in the results. This level of analysis may not be included within this evaluation report; however, it should be accepted than any findings presented have been tested for certainty and any anomalies investigated and defined.

9.4 Work phases

9.4.1. In this evaluation work is analysed in logical phases. A work is typically identified by a work reference number, which often applies to multiple phases of work, for example a work reference number may contain the following individual phases:

- work with a temporary reinstatement;
- follow-up work changing the temporary reinstatement to a permanent reinstatement;
- defect work to rectify a fault with the permanent reinstatement.

9.4.2. To logically delineate work phases, a phase is identified from the initial application through to work completion notices within the same work reference. Therefore, the analysis shown for work in this evaluation is for a work phase, *i.e. the total works undertaken are the total work phases undertaken*.

9.5 Duration analysis and adjustment

9.5.1. Analysis of works duration is calculated using the dates provided within the work start and work end notifications, inclusive of these dates. As would be expected within a significant data-set from multiple different organisations spurious data can be found, such as work end dates before a work start date therefore giving a negative duration, or work with an incorrect year, thereby giving a significantly high duration. Whenever possible, these anomalies are identified and removed from the analysis to provide a more realistic result.

9.5.2. Since the introduction of the DfT's digital service, Street Manager, and associated regulatory changes in July 2020 it is possible to determine the timings more accurately and reliably from the works data. This means a work duration can be calculated by minutes instead of whole days. As such, analysis using Street Manager derived data provides a more realistic insight and result.

9.5.3. Analysis of total duration based on the notice dates (whole calendar day) and notice times shows that there can be noticeable differences between these two types of measure. For this evaluation, analysis of work duration and trend is predominantly based on dates of the work notices, not timings, as the pre-scheme historic data does not contain accurate timings. Any variations to this approach will be clearly defined in the report.

9.6 Economic cost-benefit-analysis

9.6.1 Appraisal methodology

9.6.1. A cost-benefit analysis (CBA) provides a framework in which the impact of a scheme can be compared against the cost of setting up and operating the scheme. Annual evaluation of the Permit Scheme CBA provides opportunity to review the value of the scheme with the benefit of the outturn scheme operating costs and revenues, updated estimates of the societal impact of work and to compare this not operating a permit scheme.

9.6.2. The approach to the permit scheme CBA is as follows:

- identify the scale and characteristics and quantify the scale of societal impact these works will have had to the residents and local economy;
- estimate the reduction in impact resulting from the permit scheme and quantify the social benefit of this reduction;
- identify the cost of setting up and operating the permit scheme; and
- undertake the cost benefit analysis to determine the benefit to cost ratio and net present value delivered by the scheme.

9.6.3. The societal impact of each work is estimated based on impact calculations derived from the **QUeues And Delays at ROadworks** (QUADRO) model. Originally QUADRO was developed for the DfT and designed to assess and monetize the impact of delays due to works. QUADRO is currently maintained by National Highways.

9.6.4. QUADRO captures loss of time to travellers, increased vehicle operating costs because of idling in queues and/or diversion, vehicle emissions and accident impacts. Impact modelling is based on local traffic flow data (within the Council's boundary), disaggregated by road type, to provide locally relevant impact values.

9.6.2 Promoter Costs

9.6.5. In addition to the costs of operating the permit scheme, it is important to recognise that there are costs borne by works promoters also in operating under the permit scheme. These will include:

- Permit Fee costs which represent a business cost to the promoter. Within the CBA this is treated as a business cost to the promoter, netted from overall scheme benefits. However, the transaction is effectively a transfer payment between promoter and the Council, so the payment is treated as a revenue and is subtracted from scheme operating costs.
- Additional administration costs in complying with the permit scheme.
- Costs related to changes in working practices such as greater use of traffic management or off-peak and weekend working.

9.6.6. Detailed promoter cost data has not been available, but in line with evidence gathered from other permit scheme evaluations and adopted as the default assumption in the National Permit Scheme Evaluation, an estimate of 20% of local authority operating costs relating to Statutory Undertaker works has been applied.

9.6.3 Assessing the scale and impact of work

9.6.7. To ensure the most rigorous analysis for the CBA, the Street Manager data from the most recent complete year has been used as the basis for estimating works impact costs and permit scheme benefits.

9.6.8. For the purposes of the CBA, works are disaggregated by type of traffic management, which has important implications on the scale of impact of those works on highway users. The remainder of the work involved no incursion into the carriageway and has been assumed to have no impact on road users. It should be noted that this is a conservative assumption as even non-carriageway works are likely to incur some impact, whether road users or on wider society.

9.6.9. The estimated impact of the works with incursion into the carriageway have been modelled using the QUeues And Delays and ROadworks (QUADRO). QUADRO was originally developed for the DfT and designed to assess and monetize the impact of delays due to works. Whilst no longer hosted by the DfT, the QUADRO model continues to be maintained, under the responsibility of National Highways, and is considered the most appropriate tool to quantifying the impact of works for this evaluation.

9.6.10. Having developed costs for every work type, each work within the data used for this evaluation has been assigned an impact cost, according to its characteristics and the duration of the work taken from the more robust data contained within Street Manager. This provides highly granular results, especially when compared with the typical aggregated CBA approach adopted in other scheme evaluation documents. The modelled impact of typical works in Wiltshire forms the basis of the benefits calculation.

9.6.11. These impact estimates include the following elements:

- Road user travel time (delay caused to consumer and business as a result of works)
- Road user vehicle operating costs (the impact of delay and diversion on vehicle operating costs for consumers and business)
- Accident costs
- Emissions costs (resulting from congested conditions and diversion)

- Indirect tax revenue (increased tax revenue to the exchequer because of higher fuel consumption)

9.6.12. Whilst QUADRO covers most of the standard monetised elements of work impact, an off-model adjustment was made to account for reliability impacts. DfT guidance recommends that this be captured through application of an uplift to journey time costs/benefits. The recommended uplift factor is 10-20%. A factor of 15% has been adopted for this evaluation to be consistent with this recommendation.

9.6.4 Quantification of benefit of permit scheme

9.6.13. The benefits of the permit scheme are expected to be achieved through more efficient and better managed work events taking place compared to the patterns observed before scheme implementation. Relating observed changes directly to the scheme is complicated by the range of factors which influence work occurrences. For the CBA, the comparative scenario is one in which the permit scheme had not been implemented and is therefore by its very nature hypothetical and unobservable.

9.6.14. A national evaluation of permit scheme impacts was commissioned by the DfT in 2017[ii]. This study adopted a rigorous cross region evaluation of the observed pattern of roadworks under authorities with and without permit schemes. It concluded that the impact of work was typically 6.4%, which aligned closely with the default assumption of 5% works impact reduction previously adopted in assessments (DfT Permit Scheme Evaluation Guidance, 2016).

9.6.15. To ensure the most rigorous assessment of the impact of the permit scheme, the national evaluation estimate of 6.4% reduction in impact under a permit scheme has been paired with the impact cost estimate derived from the works.

9.6.16. The cost benefit appraisal requires that scheme benefits are appraised against scheme costs over the whole appraisal period, which in this case is recommended as being 25 years in the DFT permit scheme appraisal guidance.

9.6.17. Consequently, the benefits are projected forward over subsequent years, with impacts and benefits increasing in real terms to reflect growth in values of time, vehicle operating costs, accident savings and emissions costs.

9.6.5 Scheme Operating Costs

9.6.18. Having established scheme benefits, these must be set against scheme costs to determine value for money. Permit scheme costs elements include the following:

- Setup costs
- Scheme operating costs (staff, consultants, maintenance/running costs)
- Scheme capital costs – IT equipment, software etc

9.6.19. Importantly, the permit scheme costs included within the appraisal are the additional costs of operating the permit scheme above those incurred previously incurred in delivering the council duties regarding work applications. By considering the incremental costs, this fairly compares the ‘with permit scheme’ scenario with the ‘business as usual (i.e. no permit scheme) scenario.

9.6.20. Whilst the scheme has now been running for several years, the appraisal focuses on the projected costs of operation over the coming years, to align with the benefit estimate.

9.6.21. The operating costs of the permit scheme principally relate to the additional internal staff resources required to process permit applications and additional operating factors to administer the permit scheme, such as finance payment and reconciliation, performance and evaluation. To identify an operational cost a proportion of each (relevant) role within the Councils network management service was assigned to permit scheme administration.

10 Annex B: Glossary and common terms

Council	Nottinghamshire County Council including their capacity as a Local Highways Authority.
DfT	Department for Transport
Duration of work	A works duration is calculated in calendar days based on the actual or proposed works start date and the actual or estimated works end date, inclusive of both days. Therefore, a works with an actual start date of 1st April and an actual end date of 5th April would equate to 5 days.
EToN	The Electronic Transfer of Notifications, the nationally agreed format for the transmission of information related to works between the Council and those undertaking works.
HAUC	The Highway Authorities and Utilities Committee.
NRSWA	New Roads and Street Works Act 1991.
PAA	Provisional Advanced Authorisation, which is a notice sent only in relation for Major works 3 months in advanced of the proposed start with a higher-level of detail for the intended works.
Permit	Permission sought by a Promoter to undertake works on the highway, in accordance with the Permit Scheme.
Permit condition	The capability for the Council to apply conditions to a permit, and therefore the work, is one of the primary methods to control and coordinate works through a permit scheme. The conditions that can be applied are set out within Statutory Guidance, *each with a reference code comprising NCT with a unique number*, within the following categories: date and time constraints; storage of materials and plant; road occupation and traffic space dimensions; use of traffic management provisions; work methodology; consultation and publicity of works; and environmental considerations for noise.
Permit Scheme	The Nottinghamshire County Council Permit Scheme

Permit Scheme Regulations	The Traffic Management Permit Scheme (England) Regulations 2007, Statutory Instrument 2007 No. 3372 made on 28 November 2007 and the Traffic Management Permit Scheme (England) (Amendment) Regulations, Statutory Instrument 2015 No. 958 made on 26th March 2015.
Permit Variation	The process to change an agreed permit to reflect current or proposed changes in the works.
Promoter	A person or organisation responsible for commissioning activities [works] in streets covered by the Permit Scheme - either an Undertaker or a participating Council as a highway or traffic authority.
Statutory Guidance	The Traffic Management Act (2004) Statutory Guidance for Permits.
TMA	Traffic Management Act 2004
Undertaker	Statutory Undertaker as defined within Section 48(4) of NRSWA.
Work	Also referred to as an activity. Work that should be registered to the Council carried out by a statutory undertaker, as a street work, or for the Council, as a road work.
Works category	Every work is assigned a category, based on the following: **Major** works are works that are 11 days or more in duration or require a temporary traffic regulation order, *such as a road closure*. **Standard** works are non-Major works between 4-10 days. **Minor** works are non-Major works with a duration of 3 days or less. **Immediate** works are either emergency or urgent works that require an immediate start.

11 Annex C: HAUC Performance Indicators

11.1 TPI 1 Works Phases Started (Base Data)

11.1.1. This performance indicator is calculated using the actual start date of work within the Scheme Year.

Permit Scheme Year	Number of works
Y1 (2020/21)	23,507
Y2 (2021/22)	27,935
Y3 (2022/23)	23,125

11.2 TPI2 Works Phases Completed (Base Data)

11.2.1. This performance indicator is calculated using the actual end date of work within the Scheme Year.

Permit Scheme Year	Number of works
Y1 (2020/21)	23,037
Y2 (2021/22)	27,881
Y3 (2022/23)	23,195

11.3 TPI3 Days of Occupancy Phases Completed

11.3.1. This performance indicator is calculated using the actual start date of work within the Scheme Year and shows either whole calendar days from dates provided in the work start and work end notices or actual days (aggregated) using times provided in these notices. As the timing information is only accurate from July 2020 Year 1 is excluded.

Permit Scheme Year	Duration from dates (calendar days)	Duration from work start and end times (actual days)
Y1 (2020/21)	82,714	N/A
Y2 (2021/22)	95,540	71,165
Y3 (2022/23)	90,691	70,350

11.4 TPI4 Average Duration of Works

11.4.1. This performance indicator is calculated using the actual start date of work within the Scheme Year. To provide meaningful information the data has been delineated into work category and the duration is show in days, rounded to the nearest one decimal place.

Permit Scheme Year	Major	Standard	Minor	Immediate
Y1 (2020/21)	28.6	5.3	1.2	4.0
Y2 (2021/22)	27.1	6.6	1.1	3.7
Y3 (2022/23)	23.6	6.7	1.3	4.2

11.5 TPI5 Phases Completed involving Overrun

11.5.1. This performance indicator is calculated using the actual end date of work within the Scheme year and shows the volume of work with a request for a work extension.

Permit Scheme Year	Overrunning Works
Y1 (2020/21)	1,078
Y2 (2021/22)	1,684
Y3 (2022/23)	2,144

11.6 TPI6 Number of deemed permit applications

11.6.1. This data does not include permits that are auto-granted by Street Manager, but only those where a response was not provided to a permit within the specified timescale. The data is delineated by three different events, PAA, permit and permit-variation.

Permit Scheme Year	PAA	Permit	Permit variation	Total
Y1 (2020/21)	241	659	1,075	1,975
Y2 (2021/22)	33	283	924	1,240
Y3 (2022/23)	28	91	339	458

11.7 TPI7 Number of Phase One Permanent Registrations

11.7.1. This performance indicator is calculated using the actual end date of work within the Scheme year.

Permit Scheme Year	Permanent Registrations
Y1 (2020/21)	14,576
Y2 (2021/22)	19,231
Y3 (2022/23)	15,442

12 Annex D: References

i As defined in the HAUC(England) Advice Note: Standard Permit Response Codes.

2010 is the default base year for the DfT's Webtag appraisal guidance. A common base year allows costs and benefits from different years to be compared in a common unit of account.

HUSSAIN, R.S. ... et al, 2016. Evaluating the road works and street works management permit scheme in Derby, UK. 95th Transportation Research Board Annual Meeting, 10th-14th January 2016, Washington DC

DfT Advice Note For local highway authorities developing new of varying existing permit schemes, June 2016.

ii

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