

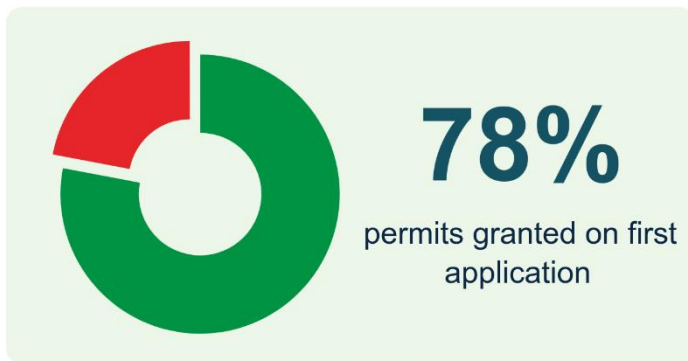
Nottinghamshire County Council
Permit Scheme
Year 1-2 Evaluation

Document Content

1	Introduction.....	5
1.1	The network management duty.....	5
1.2	The role of a permit scheme	5
1.3	Regulatory requirement for a permit scheme evaluation	6
2	Executive summary	7
2.1.2	Works.....	7
2.1.3	Coordination.....	7
2.1.4	Permit compliance	8
2.1.5	Parity treatment.....	8
2.1.6	Economic appraisal	8
2.1.7	Summary.....	8
3	Analysis of works	9
3.1	Applications for work.....	9
3.2	Application lead time.....	10
3.3	Work undertaken	10
3.4	Work activity type.....	12
3.5	Work duration	12
3.6	Analysis of duration	13
3.7	Work exceeding planned duration.....	14
3.8	Work at traffic-sensitive times	14
4	Analysis of work coordination	16
4.1	Responses to permit applications	16
4.2	Collaborative works	17
4.3	Changes during the life of a permit	18
4.3.2	Permit condition changes	18
4.3.3	Duration changes.....	18
4.3.4	Traffic management changes	19
4.4	Variations to permits	20
4.4.2	Requests for work duration extensions	20
4.5	Variations issued by the Council	20
5	Analysis of permit conditions	21
5.1	Use of permit conditions	21
5.2	Conditions for Date & Time Constraints	22
5.3	Conditions for Material and Plant Storage.....	22
5.4	Conditions for Road Occupation	23

5.5	Conditions for Portable Traffic Signals	23
5.6	Conditions for Traffic Management Changes	24
5.7	Conditions for Work Methodology	24
5.8	Conditions for Consultation and Publicity	24
5.9	Conditions for the Environment (Noise)	25
5.10	Local Conditions	25
6	Analysis of permit compliance	26
6.1	Permit compliance inspections.....	26
6.2	Offences for working without a valid permit or breach of condition	27
7	Analysis of parity treatment.....	28
8	Analysis of cost and benefit.....	31
8.1	Review of income from permit fees	31
8.2	Economic appraisal	31
8.3	Emissions savings	31
9	Annex A: Evaluation methodology	33
9.1	Source data for analysis	33
9.2	Work phases.....	33
9.3	Duration analysis and adjustment	33
9.4	Economic appraisal	34
9.4.2	Cost for operating the scheme.....	34
9.4.3	Scale and characteristics of works for analysis	35
9.5	Quantification of benefit of a permit scheme	35
9.5.2	Appraisal Results	36
9.6	Period of analysis	36
9.7	Defining Promoters.....	36
10	Annex B: Glossary and common terms.....	37
11	Annex C: HAUC Performance Indicators.....	39
11.1	TPI 1 Works Phases Started (Base Data)	39
11.2	TPI2 Works Phases Completed (Base Data)	39
11.3	TPI3 Days of Occupancy Phases Completed	39
11.4	TPI4 Average Duration of Works	39
11.5	TPI5 Phases Completed involving Overrun.....	39
11.6	TPI6 Number of deemed permit applications	40
11.7	TPI7 Number of Phase One Permanent Registrations	40
12	Annex D: References	41

Key findings of the evaluation



Figures quoted are based on an average for permit scheme years one and two unless otherwise stated.

1 Introduction

1.1 The network management duty

- 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.
- manage the road space for all users;
 - identify current and future causes of congestion, and to plan and act accordingly;
 - take a proactive approach to the coordination of works on the road, including unplanned emergency works;
 - gather and publish accurate information about planned works and events;
 - manage unforeseen incidents and events on the network;
 - establish and implement contingency plans for incidents and issues; and
 - manage cross-border network travel and demands.

1.2 The role of a permit scheme

- 1.2.1. The fundamental objective of a permit scheme is to create a common procedure to control activities on the highway. It is essential that all activities in the highway are effectively coordinated and managed to ensure that traffic disruption and inconvenience is minimised whilst allowing the Promoters of those activities, *such as utility companies or the Council*, the necessary time and space to complete their work.
- 1.2.2. Under the NRSWA organisations intending to carry out work on the highway notify the Council of their intention to carry out these works. The Council has powers to provide direction to these works and apply penalties for non-compliance, such as for instances where the works are not carried out according to the notice served.
- 1.2.3. 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).
- 1.2.4. 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.

- 1.2.5. The Permit Scheme started just as the Covid 19 pandemic and associated national lockdowns commenced in the spring of 2020. Consequently, data from the first year did not reflect a typical operational year. This report therefore collates data from the first two years and compares wherever it is likely to be meaningful.

1.3 Regulatory requirement for a permit scheme evaluation

- 1.3.1. 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
- 1.3.2. 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.
- 1.3.3. 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.
- 1.3.4. The regulations reference key performance indicators set out in the Guidance – where the Guidance is the Statutory Guidance for Highway Authority Permit Schemes (July 2020 latest edition). The Guidance reiterates the requirement from the regulations, adding each scheme evaluation must be made available to stakeholders (those consulted at the scheme development stage, as set out in Regulation 3) within three months of the date on which the evaluation was due.
- 1.3.5. In addition, Annex A of the Guidance contains a list of Key Performance Indicators, as outlined below:
- TPI 1 Works Phases Started (Base Data)
 - TPI2 Works Phases Completed (Base Data)
 - TPI3 Days of Occupancy Phases Completed
 - TPI4 Average Duration of Works
 - TPI5 Phases Completed involving Overrun
 - TPI6 Number of deemed permit applications
 - TPI7 Number of Phase One Permanent Registrations
- 1.3.6. Annex C of this report contains the performance indicator results for each permit scheme year (as available).

2 Executive summary

2.1.1. The Nottinghamshire County Council commenced a permit scheme in April 2020, which was at the onset the initial Covid pandemic and lockdown measures. The challenges that this posed both for the Council and the participating utilities were not insignificant and it is a credit to all involved that despite the difficulties, after the first two years the introduction of the Scheme can be considered a success and the ongoing benefits can be realised.

2.1.2 Works

2.1.2. The volume of applications increased into Year 2, which saw an overall increase in the number of works undertaken, the highest in the five-year period of analysis. The increase can be predominately attributed to the water sector, which since 2017 has seen a year-on-year increase in works across Nottinghamshire, typically short duration (<3 days) and Immediate work for utility repair and maintenance.

2.1.3. The overall duration of works has remained below pre-scheme years, even with an increase in work volumes. Analysis of duration trends shows a decrease for all works categories, especially the high-volume minor work. On average, 49% of planned work on traffic-sensitive streets are undertaken outside of specified traffic-sensitivity times. Where these works involve a form of traffic control that can be manually operated a condition was applied to 33% to ensure this took place.

2.1.4. The volume of work exceeding the planned duration has decreased in Year 2, which has seen a significant decrease in the duration of unplanned work. Overall, in Year 2 only 1.7% of works exceeded the planned duration, which is the lowest level across the five years of analysis (2017-2022).

2.1.3 Coordination

2.1.5. The Council are effectively processing application under a permit scheme, with 57% of advance authorisations for major work, and 78% of permit applications being granted. The remaining applications are being rejected, primarily to:

- add conditions to the work;
- verify and challenge the proposed traffic management;
- challenge the planned duration;
- avoid a clash of works.

2.1.6. Further analysis shows positive changes are made to work undertaken because of these challenges, with conditions being added to works, decreases in planned duration and traffic management changes.

2.1.7. The Council is also proactively issuing variations to Promoters, and where necessary revoking a permit where a planned work cannot take place or a work in progress needs to be removed from the highway.

2.1.8. The application of permit conditions has been adopted since the start of the Scheme, with 66% of work undertaken in Year 2 having an applied condition – 29% of which are added during the planning stage. Conditions being applied to work are predominantly to:

- limit the date and times of the work;
- specific a type of work methodology to ensure safety or reduce disruption;

- to control the traffic management arrangements, to ensure road space is available or traffic control is operated effectively or removed as soon as possible after work is complete.

2.1.9. Across all the types of conditions, many are being added during the planning stage, thereby demonstrating an effective use of the Scheme controls. In some cases this can account for over 75% of the conditions being applied, such as manual control of traffic management at peak times or the removal of traffic signals after use.

2.1.4 Permit compliance

2.1.10. The volume of permit compliance inspections, to check work is being carried out with a valid permit and to the conditions, has increased significantly since Year 2, from 766 to 2,801. The pass rate of these inspections has also increased from 31% to 78%.

2.1.11. The Council has been issuing regulatory offences, with fixed penalties, from the start of the Scheme. As a result of the increased inspections the volume of offences has increased, with 70 offences issued for working without a valid permit and 585 offences issued for breach of a permit condition in Year 2.

2.1.5 Parity treatment

2.1.12. It is essential for the Council to demonstrate that the Scheme is being operated without any discrimination between different classes of application for permits or for provisional advanced authorisation.

2.1.13. Analysis of specific measures for parity treatment shows a high level of systemic application across the different Promoter sector. Where there are anomalies, these can be justified and explained through differences in volumes of work, working practices amongst the Promoter organisations and general compliance to the Scheme.

2.1.6 Economic appraisal

2.1.14. In Year 1 the Scheme did not fully recover the recoverable operating cost and pre-scheme costs, however after Year 2 the Council is showing a small surplus with all costs recovered. A review of the permit fee levels to ensure they are regulatory compliant is planned for the Year 3 evaluation.

2.1.15. A benefit to cost ratio from an economic appraisal of the Scheme takes into consideration the estimated work impact cost to society with the operating costs to provide a measure of value-for-money. With a BCR of 5.35 the permit scheme can be defined as demonstrating 'Very High Value for Money'.

2.1.7 Summary

2.1.16. In summary, there are many quantifiable positive benefits from the introduction of a permit scheme for Nottinghamshire, from greater control over the planning and delivery of work through to onsite checks to ensure work is undertaken in accordance with the granted permit conditions.

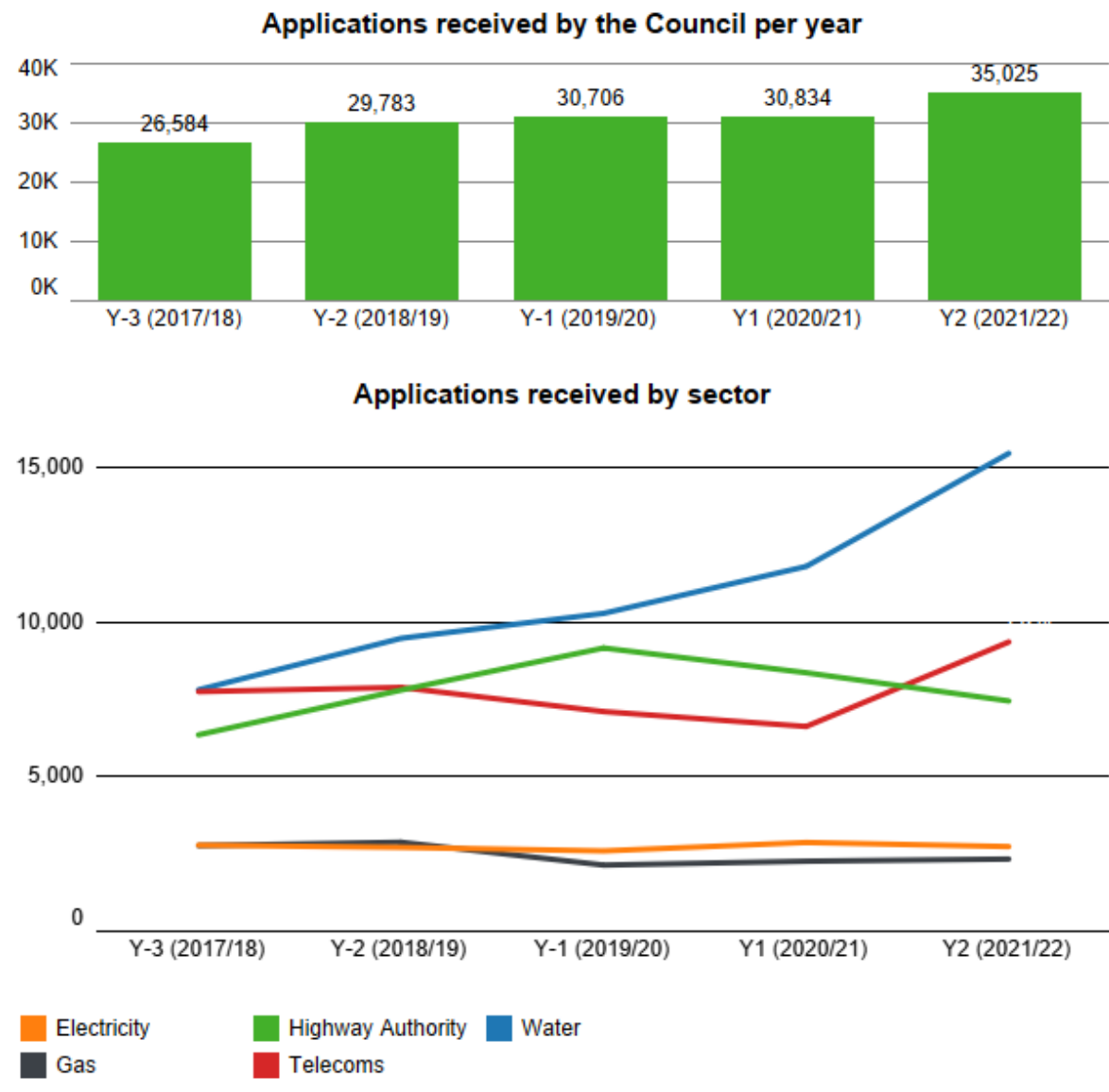
2.1.17. There are a few areas the Council can focus their attention on, *such as the use of conditions and challenging work for durations and traffic management arrangements*, to ensure the future operation of the Scheme can be effective as possible.

3 Analysis of works

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).



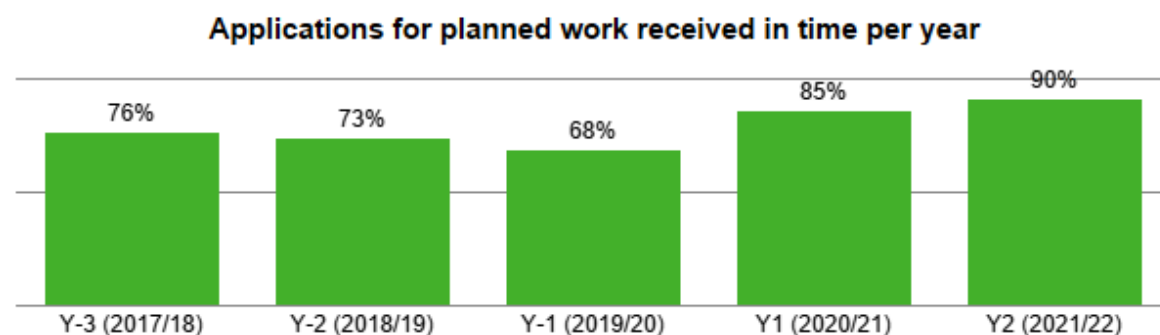
3.2 Application lead time

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 primary legislation.

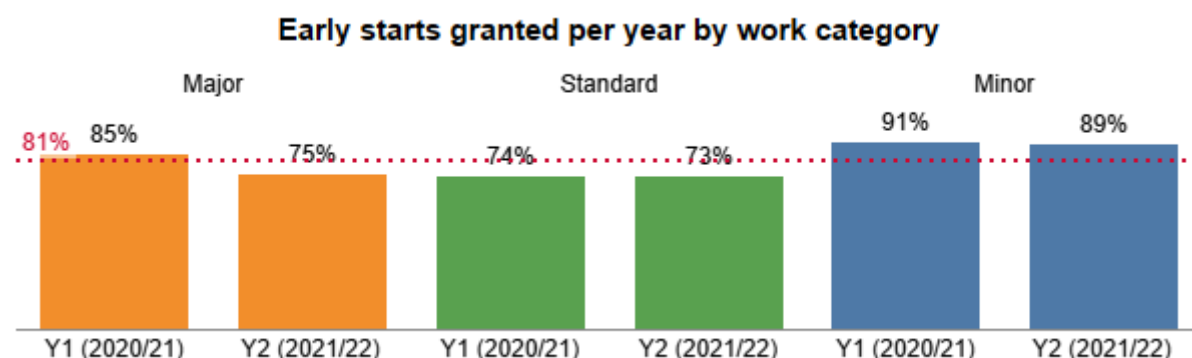
- Major and Standard work requires an application lead time of 10 working days prior to the proposed work start date. Major work also requires a 3-month advanced notice, which becomes a provisional advanced authorisation under a permit scheme.
- Minor works require 3 working days lead time.
- Immediate 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 work started outside of non-working hours.

3.2.2. 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*.

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.



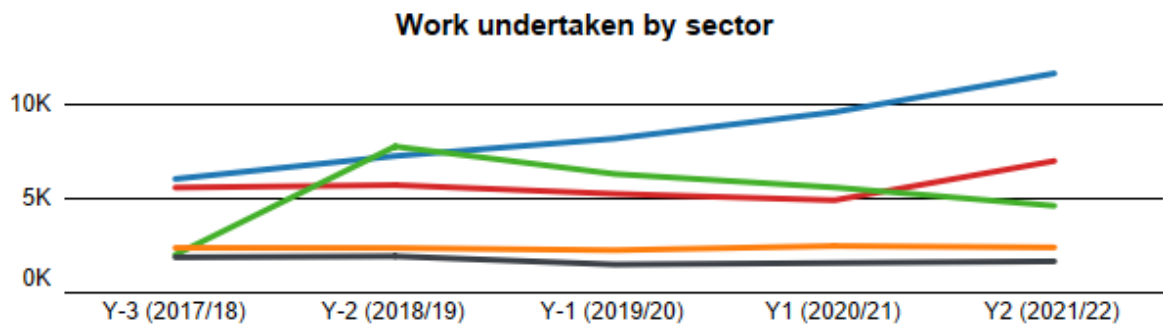
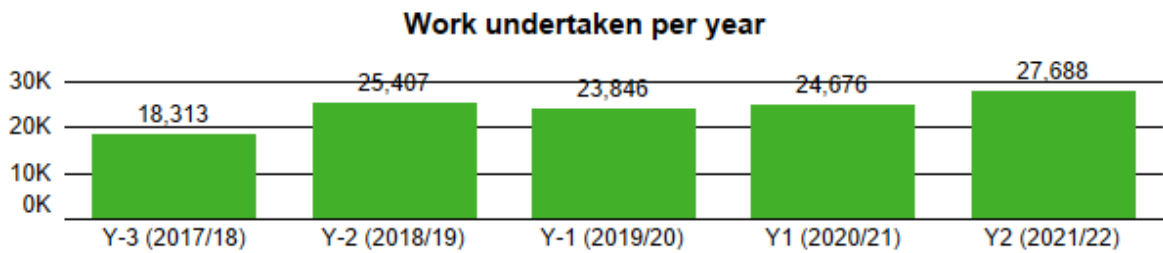
The chart below shows the proportion of requests for an early start granted by the Council (as a % of total received) in Years 1 and 2 delineated by work category. Any instances of an application being superseded, cancelled or auto-granted (deemed) have been removed, leaving any remaining as either granted 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*. Not all applications for work or where a permit has been obtained (granted) result in work undertaken.

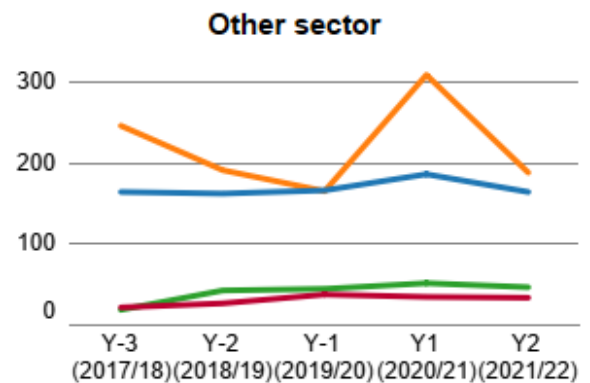
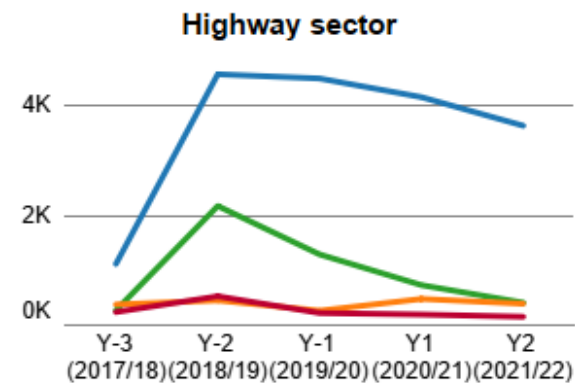
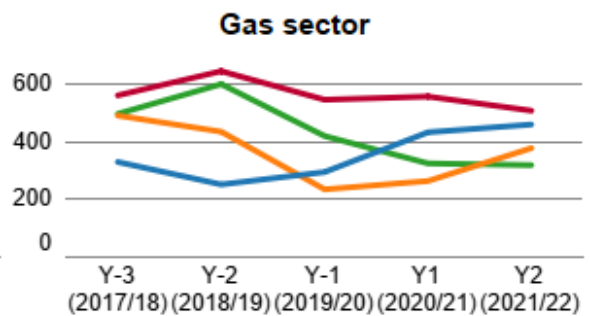
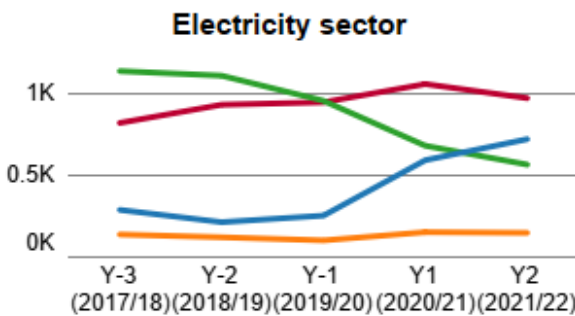
The charts below show the total volume of work undertaken per year, where the year is defined by the date of the initial application not the actual start date of work and delineated by sector (bottom).



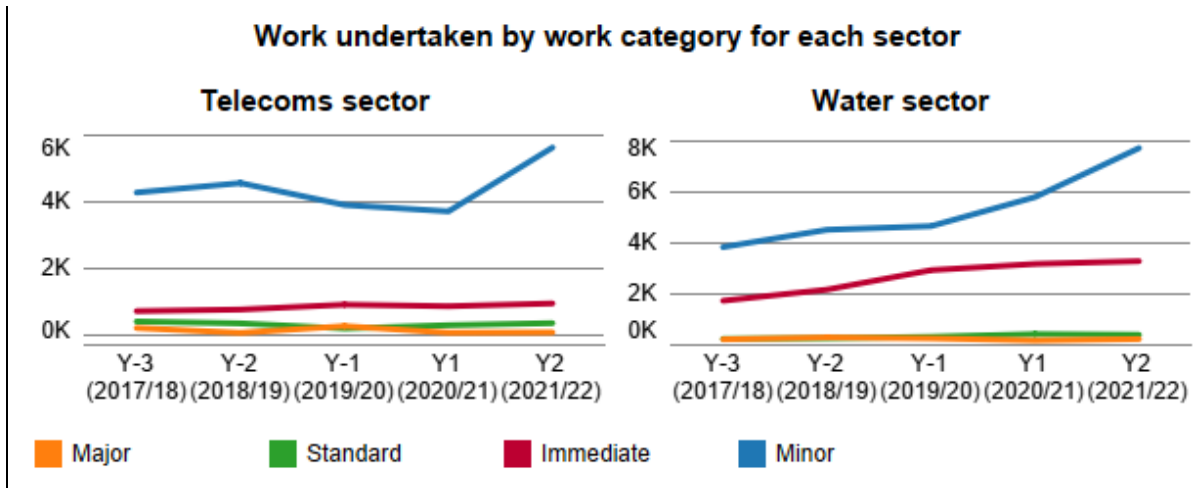
- Electricity
- Highway Authority
- Water
- Gas
- Telecoms

The charts below show work undertaken by work category (colour legend) for each sector.

Work undertaken by work category for each sector



- Minor
- Major
- Standard
- Immediate



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) in Year by activity type for each sector. The Total shows the % of all work for that activity. The colour gradient (white to red) depicts the value (lower to higher) by sector and total.

Activity type for work undertaken in Year 2 by sector (% of total)

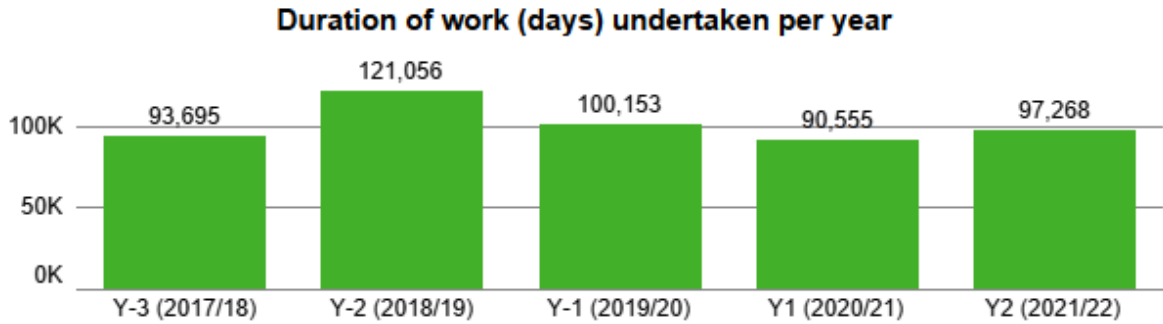
Activity Type	Electricity	Gas	Highway	Other	Telecoms	Water	Total
Core Sampling			0.9%				
Disconnection or alteration of supply	5.9%	15.7%				0.2%	1.6%
Diversiory works	1.2%						
Highway improvement works			77.4%				12.6%
Highway repair and maintenance			14.7%	2.0%	0.3%		2.5%
New service connection	16.8%	13.6%	0.8%		8.2%	2.8%	5.7%
Optional permit (no fee)	1.9%	0.9%	0.5%	0.2%	0.6%	1.4%	1.0%
Permanent reinstatement	1.2%	0.2%		0.7%	0.8%	0.5%	0.6%
Remedial works	1.7%	0.8%	2.5%	0.7%	0.7%	1.6%	1.4%
Statutory Infrastructure Works							
Utility asset works	18.0%	30.6%	1.0%	0.2%	18.1%	1.7%	8.9%
Utility repair and maintenance	53.3%	38.2%		19.6%	71.2%	91.7%	64.0%
Works for Rail Purposes				76.4%			1.1%
Works for road purposes			2.2%				0.4%

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.

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.

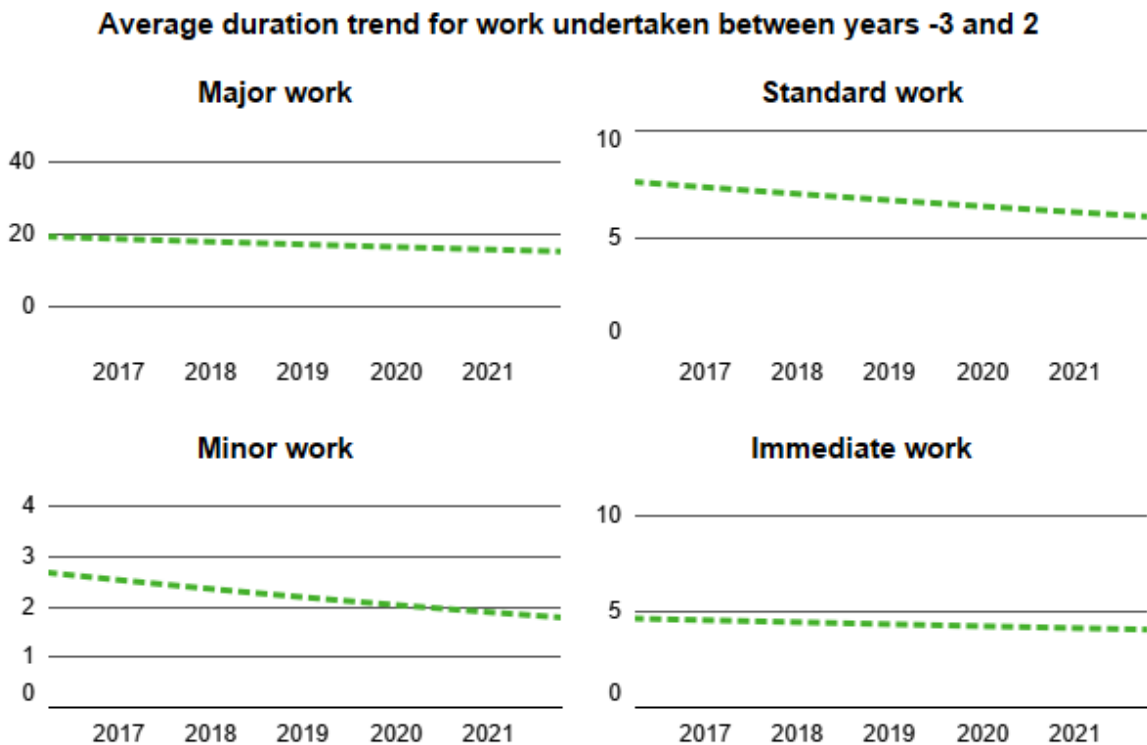
The chart below shows the total duration of work, **in whole calendar days**, per year. A work is assigned to a year based on the first application date.



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*. Analysis of durations by works category within the next sections include charts that show **average duration**, per month with a trend line that shows a linear trend model which is computed for each average duration (observation) per month.

The charts below show an average duration trend for the four work categories for works undertaken.



3.7 Work exceeding planned duration

- 3.7.1. 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.
- 3.7.2. For this evaluation a work exceeding the planned duration is identified when a work's **planned duration** at the start of work is exceeded by the **actual duration** at the end of the work. The duration of the unplanned duration is measured in **calendar days**.

The chart below shows the total number of works undertaken where the actual duration exceeds the planned duration per year (top chart); the additional duration (days) where the work has exceeded the planned duration (middle chart) and the proportion of all works undertaken (% of total) that exceeded the planned duration (bottom chart).

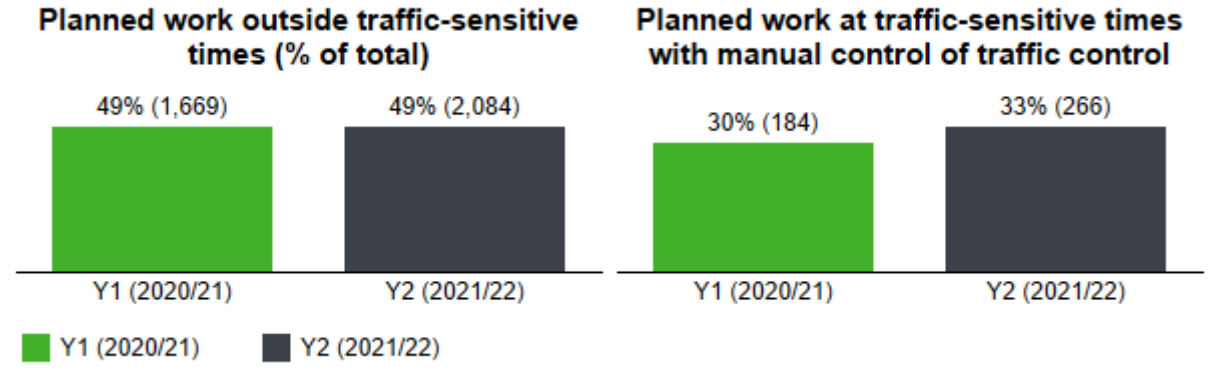


3.8 Work at traffic-sensitive times

- 3.8.1. 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.

This traffic-sensitivity designation is used for the coordination of works, to ensure any impacts 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 charts show the proportion of planned work (excludes Immediate work) on a street with a traffic-sensitive designation when the work was undertaken **outside** of the designation traffic-sensitive times (left) and where manual control is specified under a condition for relevant traffic control (right).

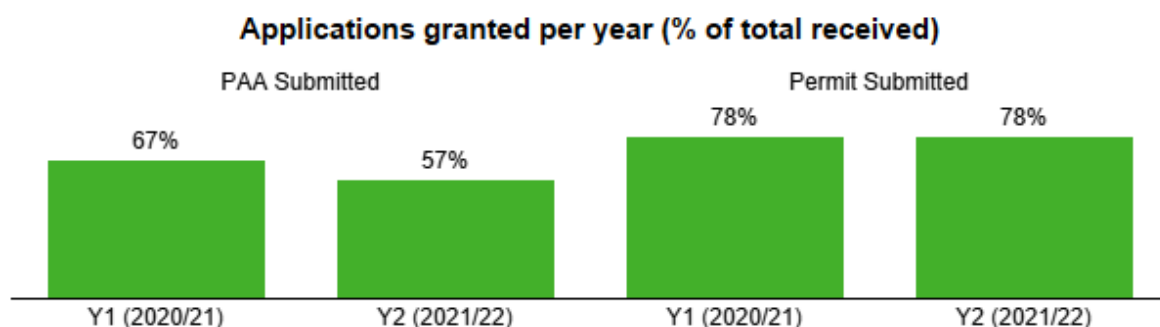


4 Analysis of work coordination

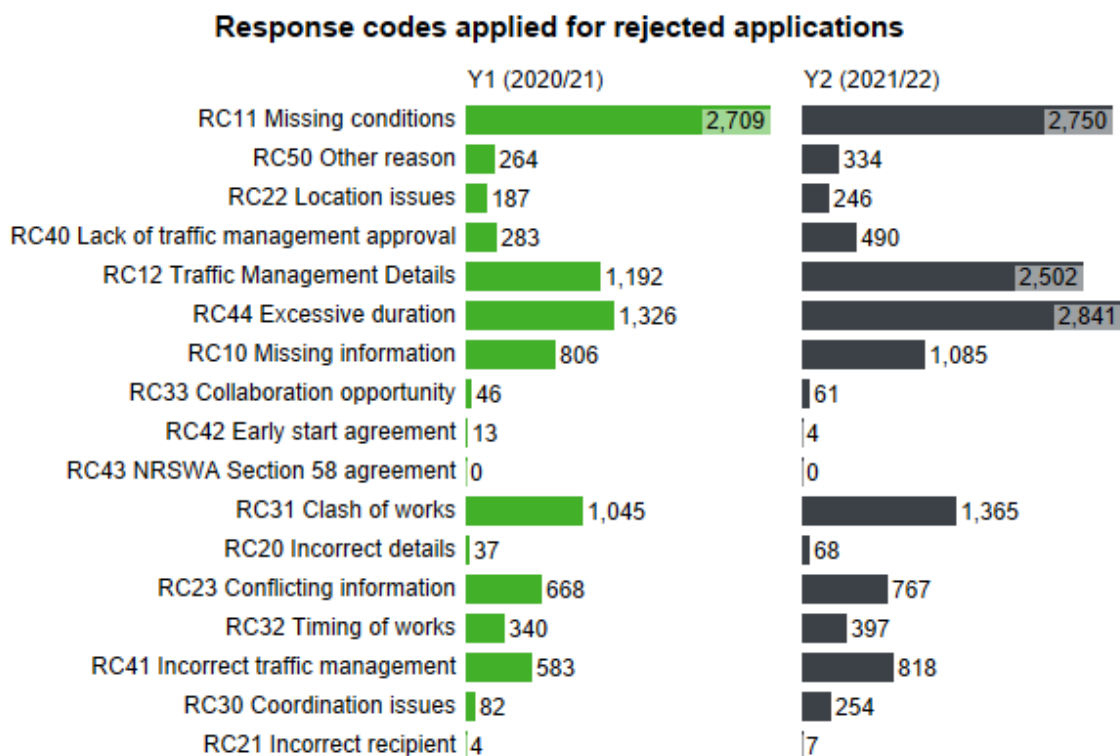
4.1 Responses to permit applications

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 codes) **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.



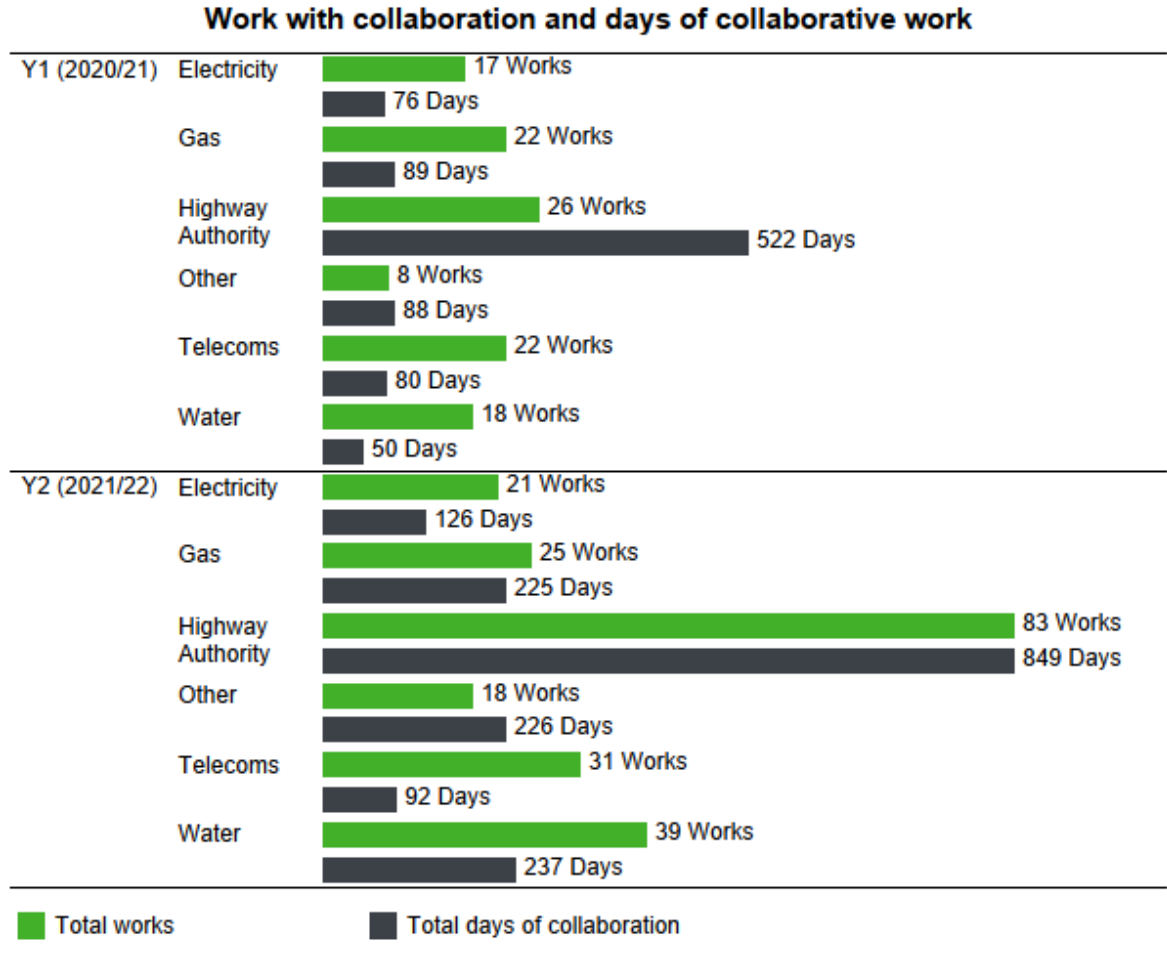
The chart below shows the total response codes used on rejected applications issued via permit modification request, permit refused and PAA refused for Years 1 and 2. A refusal can contain more than one reason and therefore code.



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.
- 4.2.3. As shown in the chart below, collaborative works were undertaken in, although these are very low levels compared with the total number of works and duration. Most collaborative works were minor works by the water sector, whilst the largest duration of collaboration was for highways major work.
- 4.2.4. The Council will continue to actively explore collaboration opportunities wherever possible, even if the likelihood of the collaboration occurring is perceived to be low. The Council should record all work with a collaboration opportunity, using the relevant response code, to at least demonstrate the challenges and limitations that exist across the industry.

The chart below shows the total number of works undertaken, and the duration of these works (days), where a form of collaboration was used in Years 1 and 2.

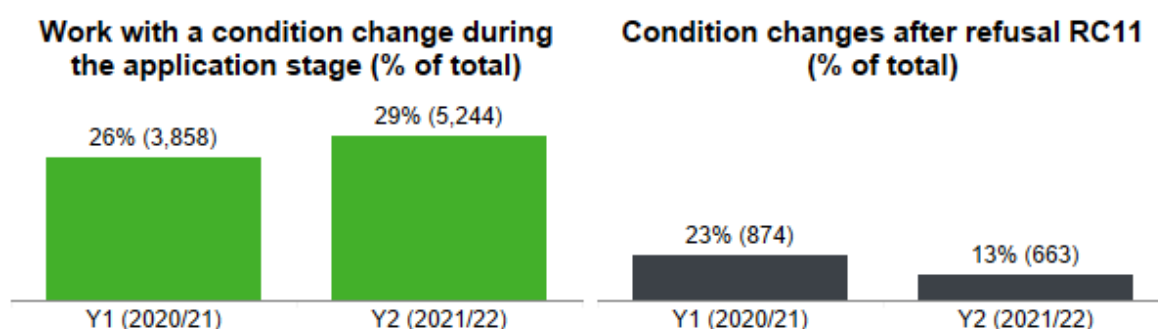


4.3 Changes during the life of a permit

- 4.3.1. Processing permit applications provides an opportunity for the Council to undertake their network management duty, with an aim to reduce the potential disruption of the work. The sections below show analysis of changes to permits during the planning stage - between the initial application and work start - based on the content of the notices received and issued.
- 4.3.2. The analysis considers (1) where a change to the permit content, *such as a condition*, can be identified and (2) where a change has been made whether a permit was refused by the Council with a relevant response (code).
- 4.3.3. This analysis demonstrates the proactive power of the Scheme for coordination, through changes being made to a permit and those at the request of the Council by refusing the initial application(s). The analysis considers changes to three key areas of the work that would permit conditions, duration, and traffic management

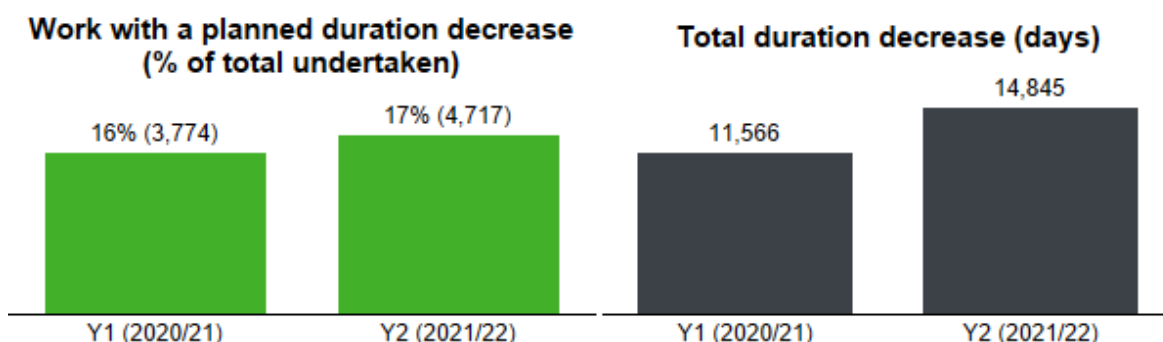
4.3.2 Permit condition changes

The charts below show the number of instances where a change was made to a permit condition during the application stage of work undertaken (left); and the number of instances where the condition change can be attributed to the use of a response code (RC11 Missing conditions) (right). The difference in total is a condition change that cannot be attributed to a rejection with the use of RC11. The numbers in brackets are the total records.

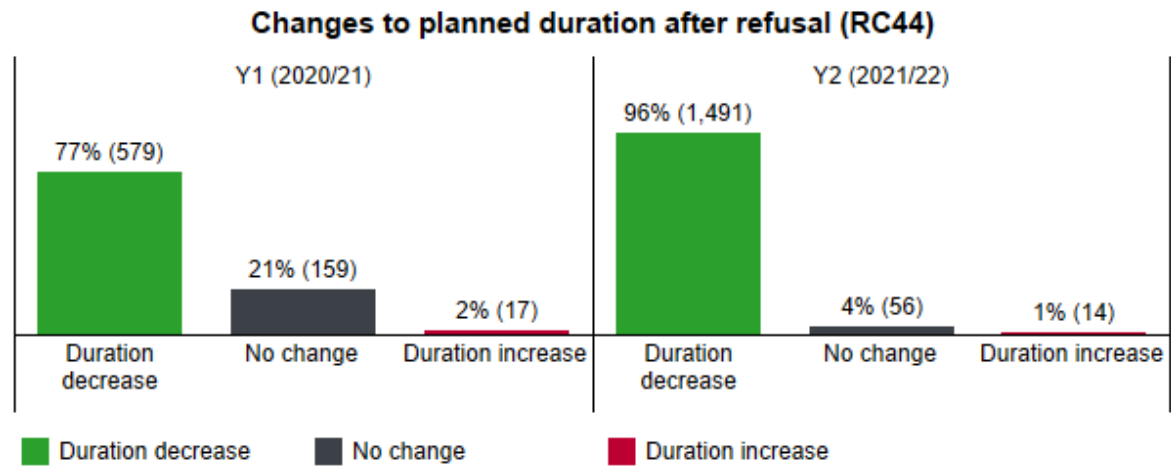


4.3.3 Duration changes

The charts below show the proportion of work undertaken (% of total) with a decrease in the planned duration (left) and the total duration (days) of the planned duration decrease (right).

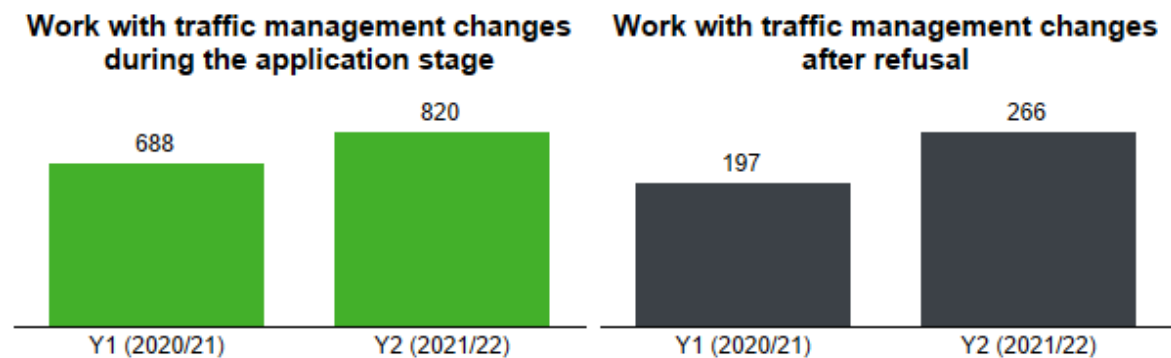


The charts below show the changes made to the planned duration (of work undertaken) after a refusal was issued during the planning stage with the reason excessive duration (code RC44)



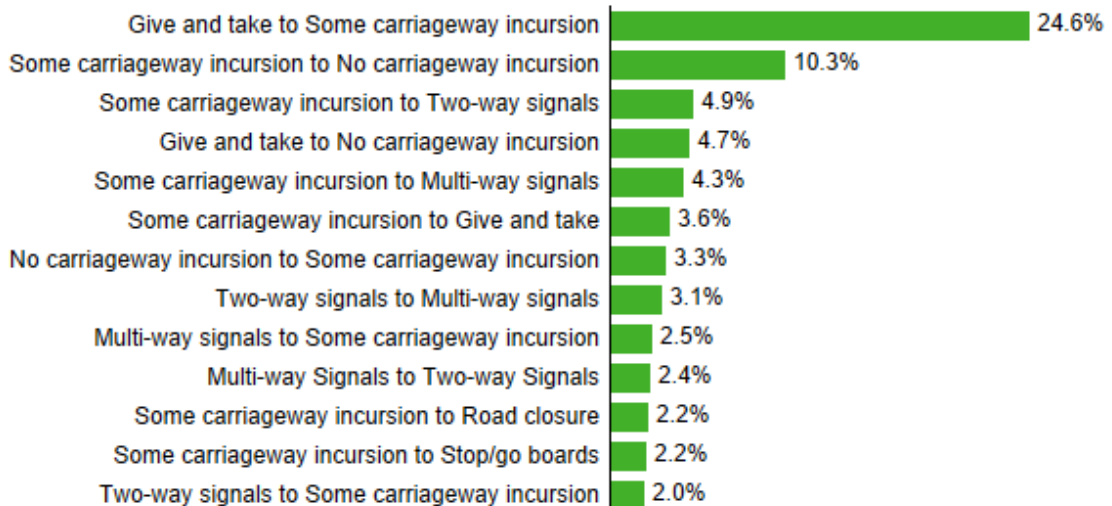
4.3.4 Traffic management changes

The charts below show changes to planned traffic management of work undertaken (left) and the number of changes where a refusal with a relevant code (RC12, RC40 or RC41) was issued (right).



The chart below shows work undertaken with a change to the planned traffic management during the application stage in Years 1 and 2 with the % of total (with a change) for each type. Any changes below 2% of total have been excluded from the chart for presentation.

Traffic management changes during the application stage in Years 1 and 2



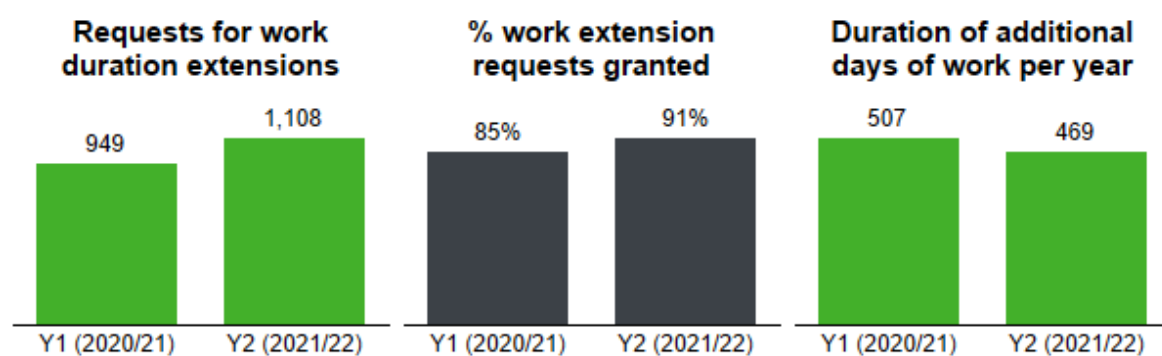
4.4 Variations to permits

- 4.4.1. 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.
- 4.4.2. 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 one of five different categories, either changes from the Promoter or the Council.

4.4.2 Requests for work duration extensions

- 4.4.3. **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.

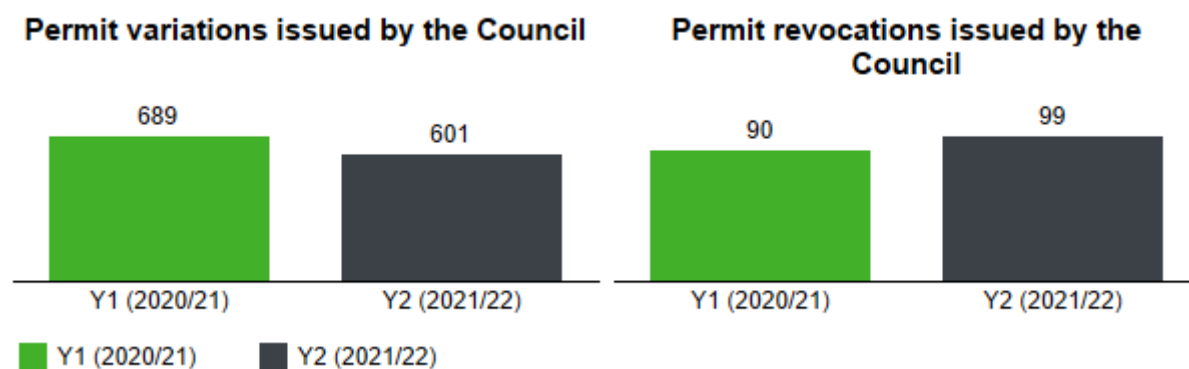
The charts below show requests by Promoters for work duration extensions (left); the proportion granted of the total received (middle) with applications cancelled or superseded removed; and the total duration (calendar days) of additional duration of the total work with a duration extension (right).



4.5 Variations issued by the Council

- 4.5.1. 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 chart below shows the number of permit variations and revocations issued by the Council in Years 1 and 2.



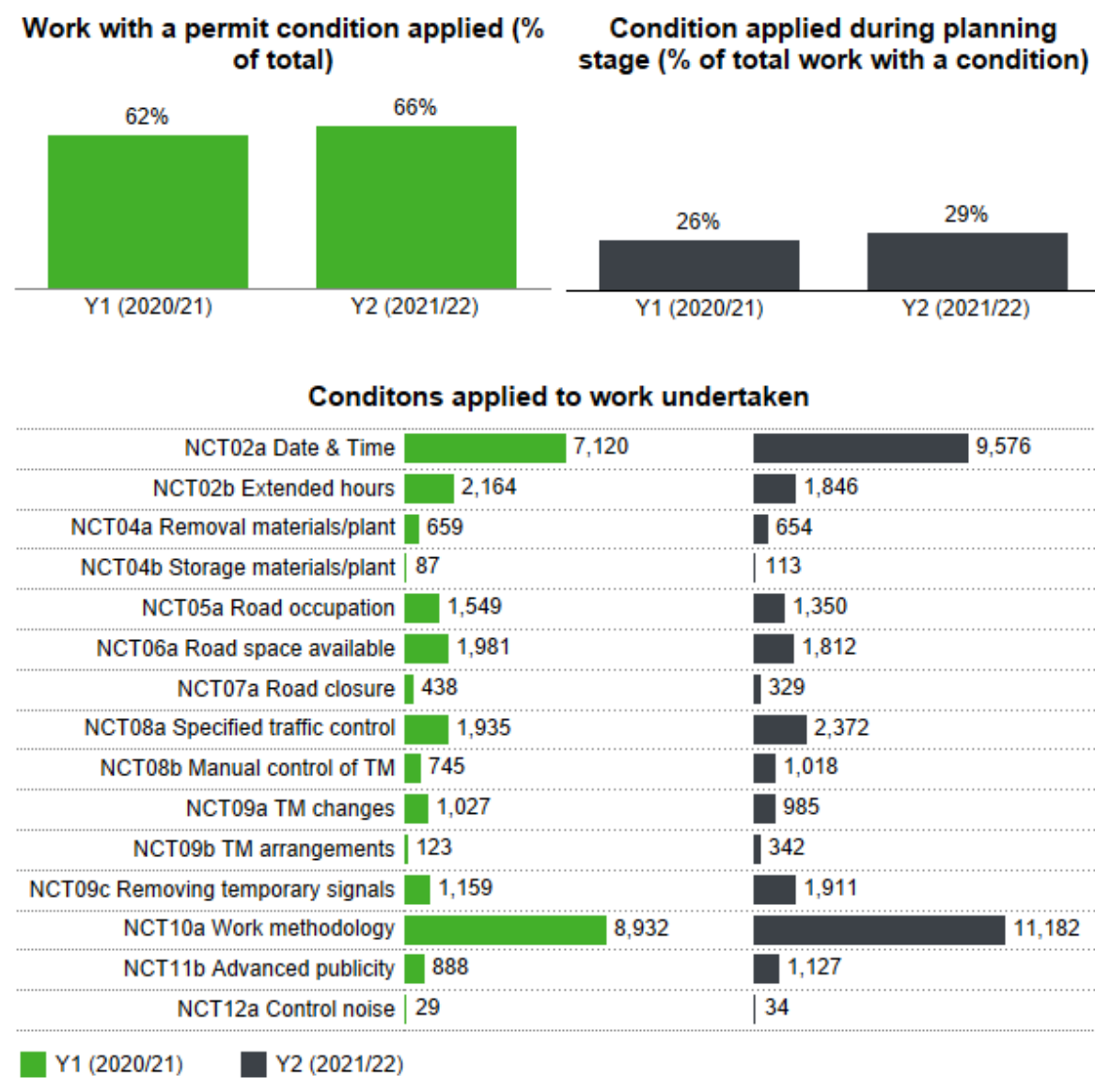
5 Analysis of permit conditions

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 the proportion of work undertaken with any permit condition applied as % of total (left) and the % of those works where the condition was added during the planning stage (right). The chart (bottom) below shows the conditions applied by their type, applied to work undertaken.



5.1.3. The sections below show conditions applied by each type for permit scheme Further analysis shows if the condition is added during the initial planning stage, between application and work start, instead of being included on the initial application.

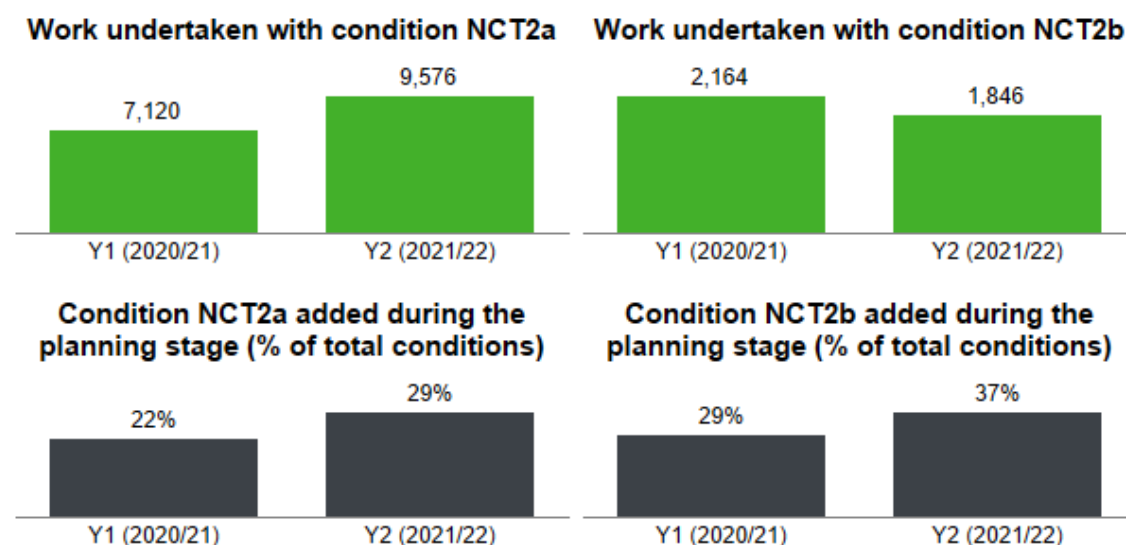
5.2 Conditions for Date & Time Constraints

5.2.1. There are two date constraint conditions applied to permits, NCT1a and NCT1b. These conditions limit the flexibility of when works can be started within a timeframe defined by the road category. These conditions are implied and do not need to be applied.

5.2.2. There are two further time constraint conditions which can be applied to permits:

- NCT2a – to limit the days and times of day; and
- NCT2b – to specify extended working hours.

The charts below show the number of works undertaken with the specified condition (top) and the % of those conditions that were added during the planning stage for Years 1 and 2 (bottom).

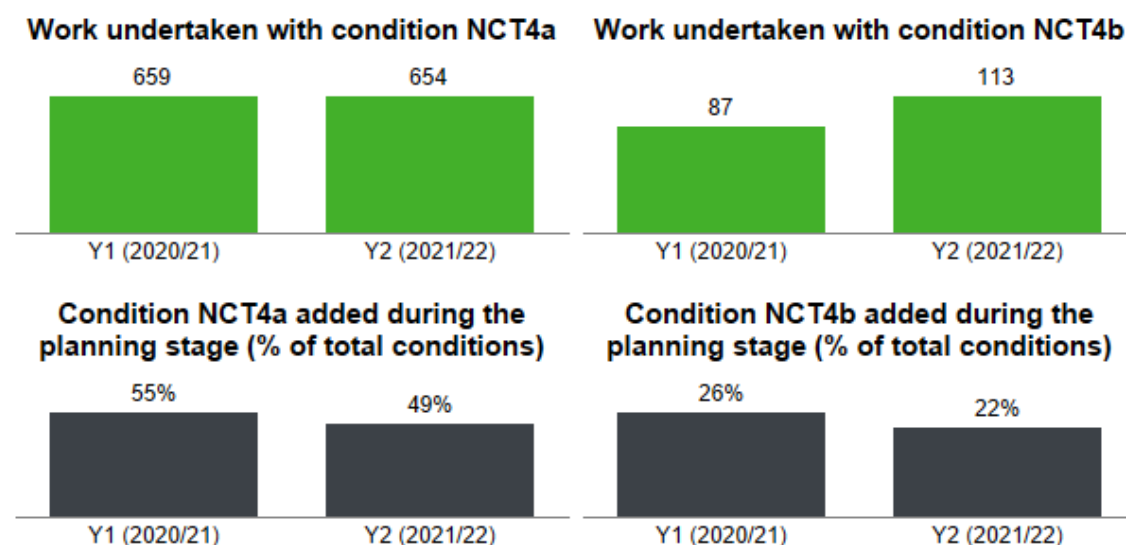


5.3 Conditions for Material and Plant Storage

5.3.1. There are two conditions for the removal and storage of materials and/or plant during works:

- NCT4a - removal of surplus materials and/or plant; and
- NCT4b – the storage of surplus materials and/or plant.

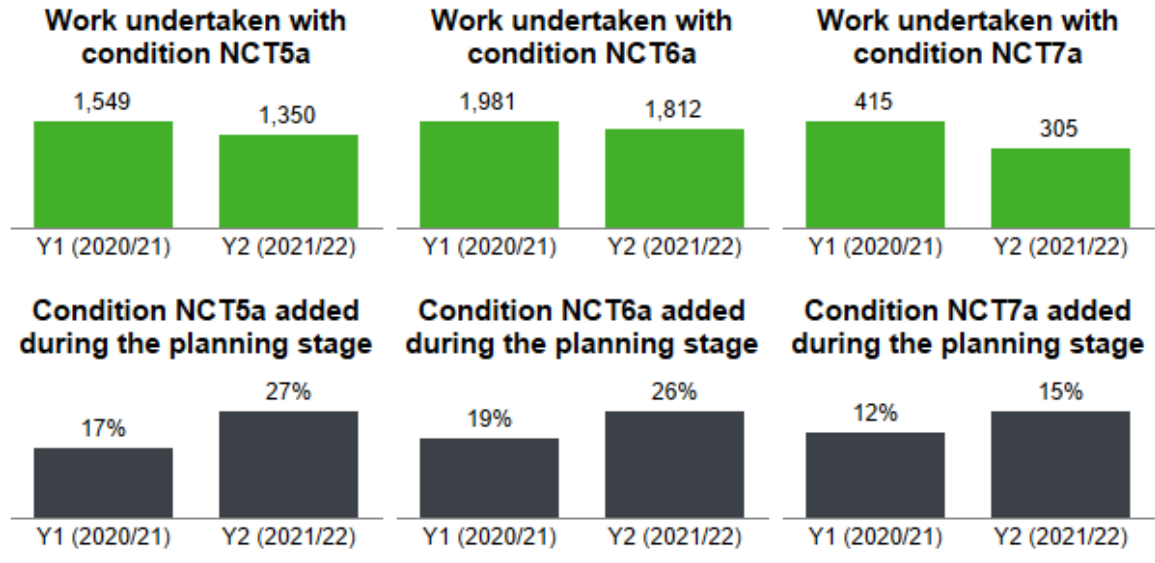
The charts below show the number of works undertaken with the specified condition (top) and the % of those conditions that were added during the planning stage (bottom).



5.4 Conditions for Road Occupation

- 5.4.1. There are three conditions related to road occupation and traffic space dimension:
- NCT5a – specifying the width and/or length of road space that can be occupied; and
 - NCT6a – specifying the road space to be available to traffic (including pedestrians) at certain times of the day; and
 - NCT7a – limiting activities when the specified road is closed to traffic.

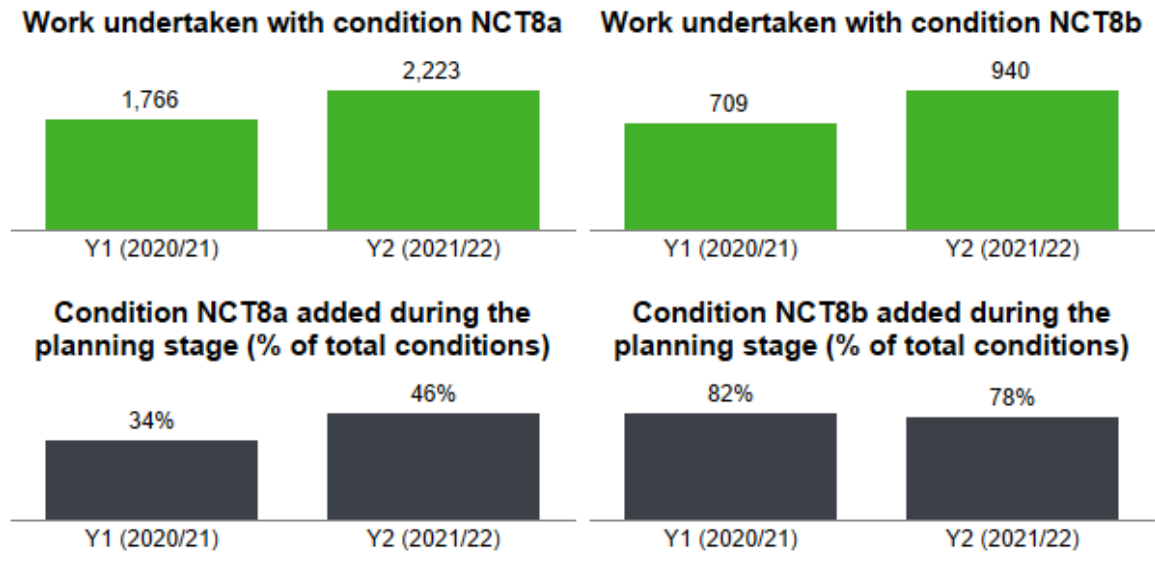
The charts below show the number of works undertaken with the specified condition (top) and the % of those conditions that were added during the planning stage (bottom).



5.5 Conditions for Portable Traffic Signals

- 5.5.1. There are two conditions related to works using specific forms of traffic control:
- NCT8a – limiting activities to the deployment of specified temporary traffic control; and
 - NCT8b – specifying the manual control of traffic management at specified times.

The charts below show the number of works undertaken with the specified condition (top) and the % of those conditions that were added during the planning stage (bottom).

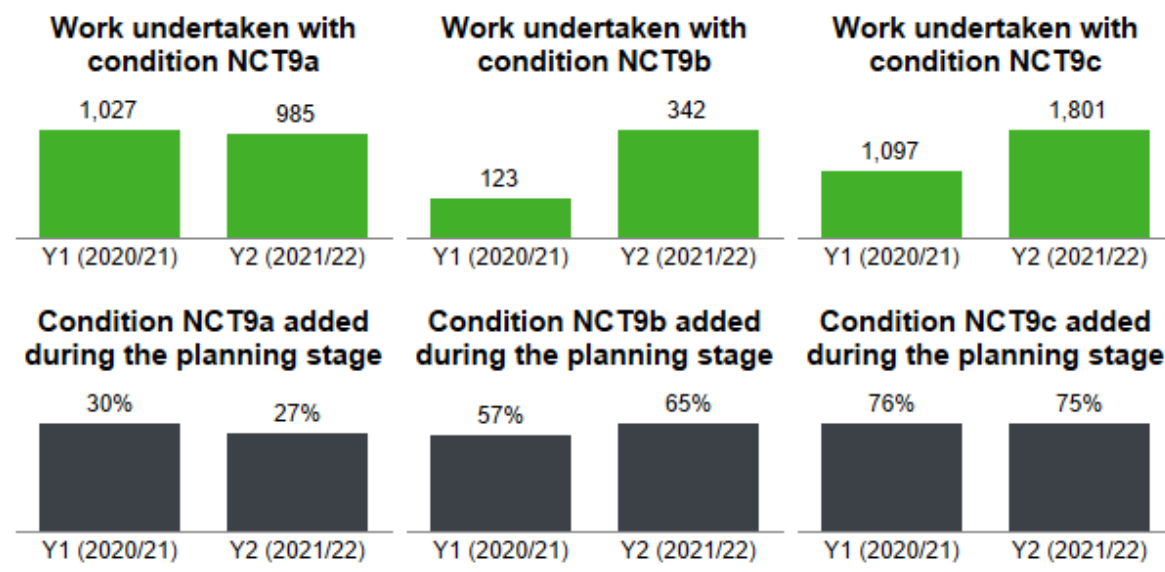


5.6 Conditions for Traffic Management Changes

5.6.1. There are three conditions related to traffic management changes during works:

- NCT9a – notifying the Authority when traffic management changes during works;
- NCT9b – specifying the traffic management arrangements to be in place before activities can commence; and
- NCT9c – removing portable traffic signals from operation when no longer in use.

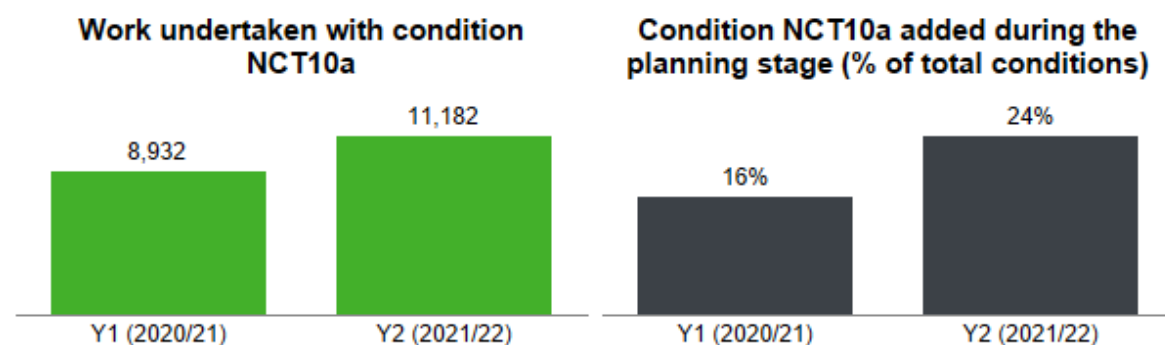
The charts below show the number of works undertaken with the specified condition (top) and the % of those conditions that were added during the planning stage (bottom).



5.7 Conditions for Work Methodology

5.7.1. There is one condition related to work methodology: NCT10a – specifying the work methodology to be used for the proposed activities.

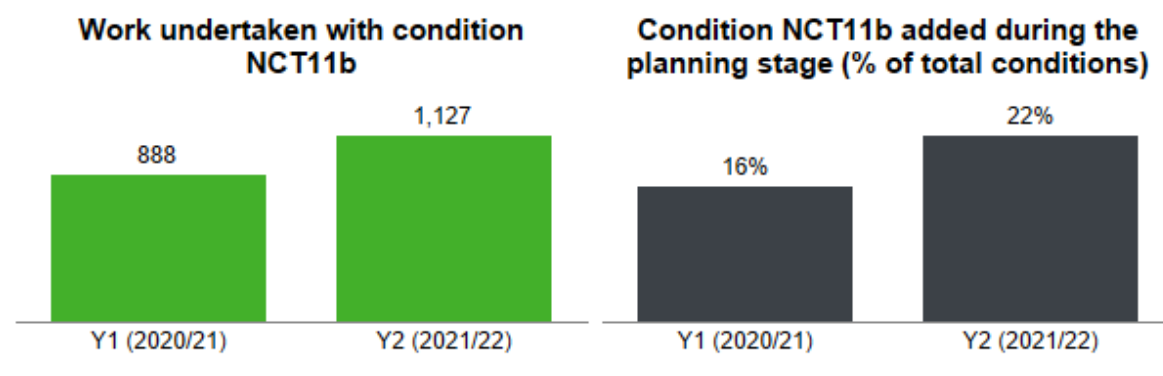
The charts below show the number of works undertaken with the specified condition (left) and the % of those conditions that were added during the planning stage for (right).



5.8 Conditions for Consultation and Publicity

5.8.1. Displaying a permit number on a site information board during the entire duration of the works is a condition that is implied on all permits (NCT11a) and therefore does not need to be specified within a permit. There is an additional condition (NCT11b) specifying the advanced publicity of works that can be applied to work.

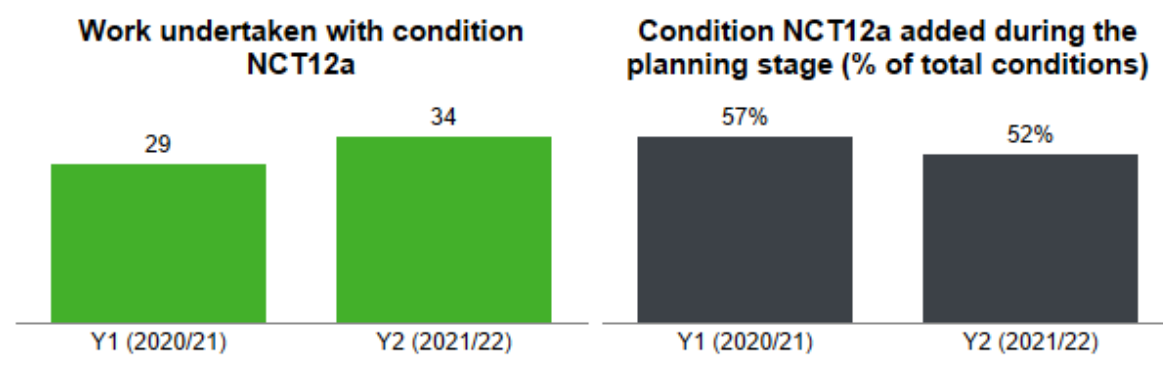
The charts below show the number of works undertaken with the specified condition (left) and the % of those conditions that were added during the planning stage (right).



5.9 Conditions for the Environment (Noise)

- 5.9.1. There is a condition that can be applied to works for an environmental (noise) control: NCT12a – limiting the timing of certain activities for the environment.

The charts below show the number of works undertaken with the specified condition (left) and the % of those conditions that were added during the planning stage (right).



5.10 Local Conditions

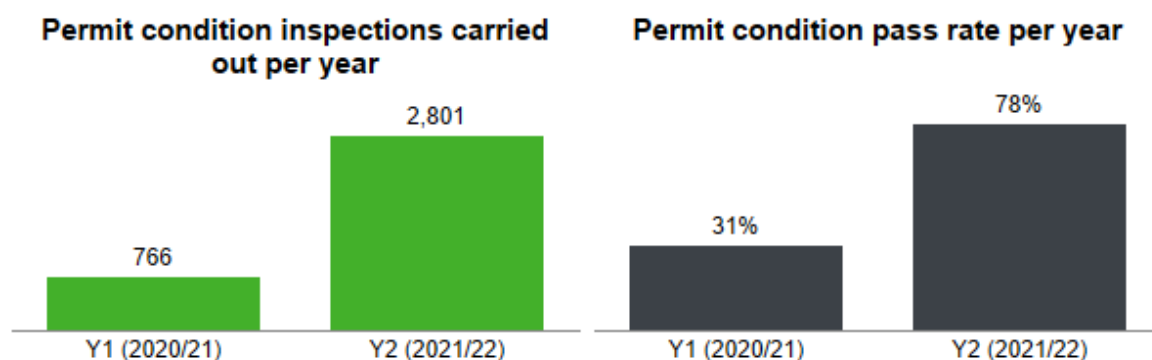
- 5.10.1. The Statutory Guidance for Permit Conditions allows for a non-defined condition to be agreed between the Council and a works promoter – this is called a local condition. No local conditions have been applied by the Council.

6 Analysis of permit compliance

6.1 Permit compliance inspections

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

The charts below show the number of permit condition inspections carried out per year (left) and the % of inspections (of total carried out) with a recorded failure for non-compliance (right). The reason for failure can include work that does not have a valid permit.



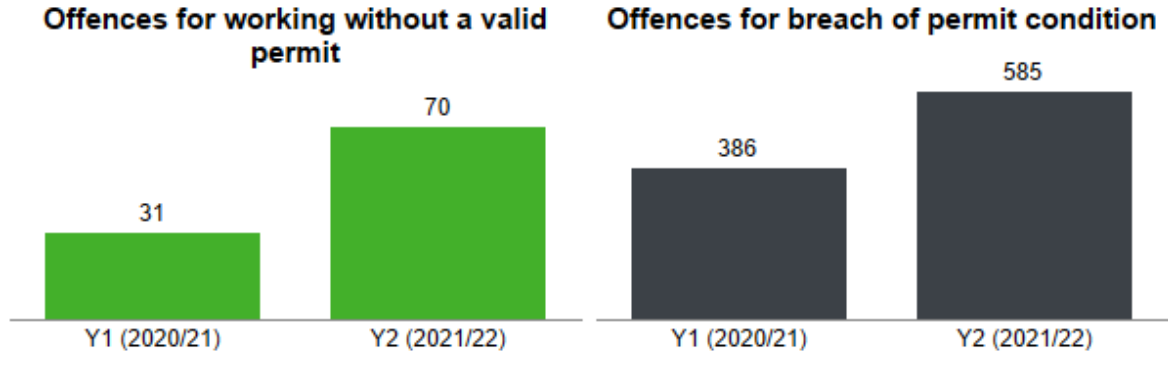
The chart below shows the reason for permit condition failure (non-compliance) recorded. An inspection can fail for more than one permit condition.

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

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 comply with either of these.

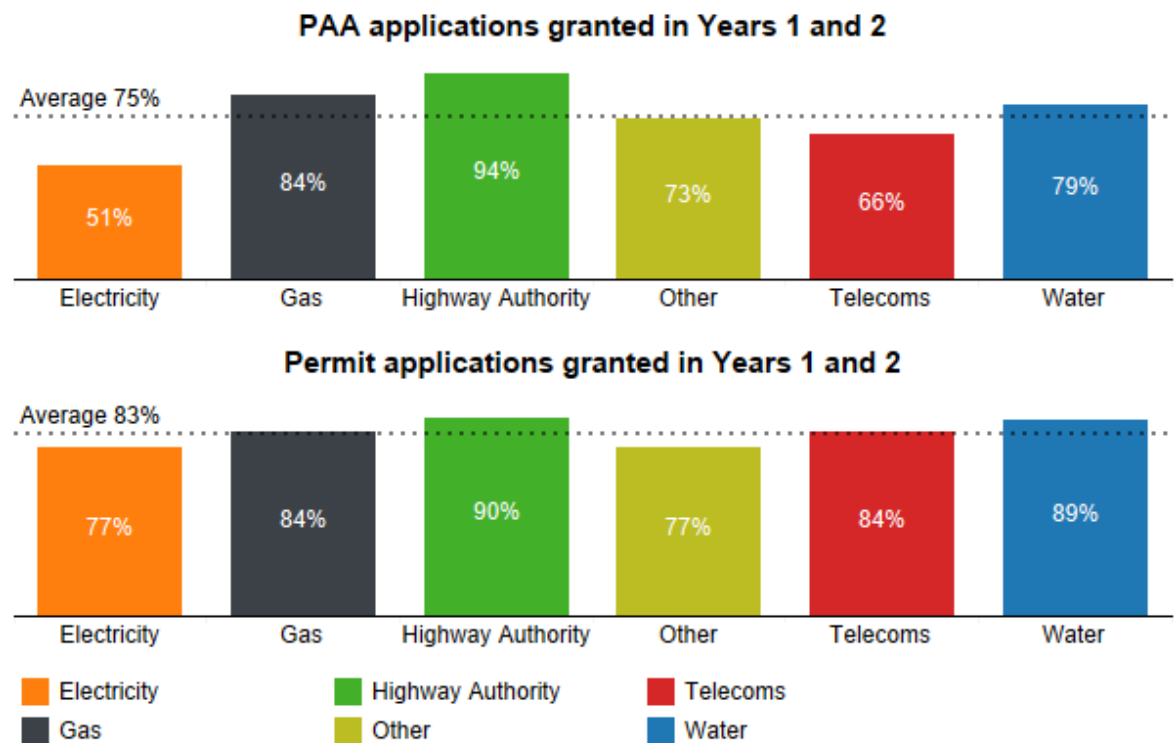
The chart shows the number of offences issued by the Council by their type. The chart does not include offences withdrawn (after issue).



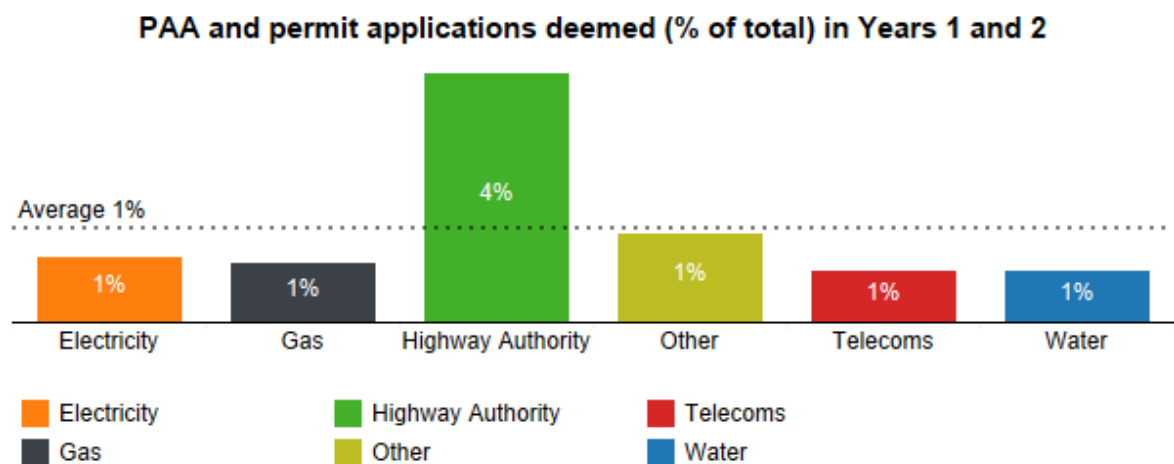
7 Analysis of parity treatment

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)*. Parity treatment will be analysed specific measures,

The charts below show the PAA or permit applications granted within Years 1 and 2 (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.

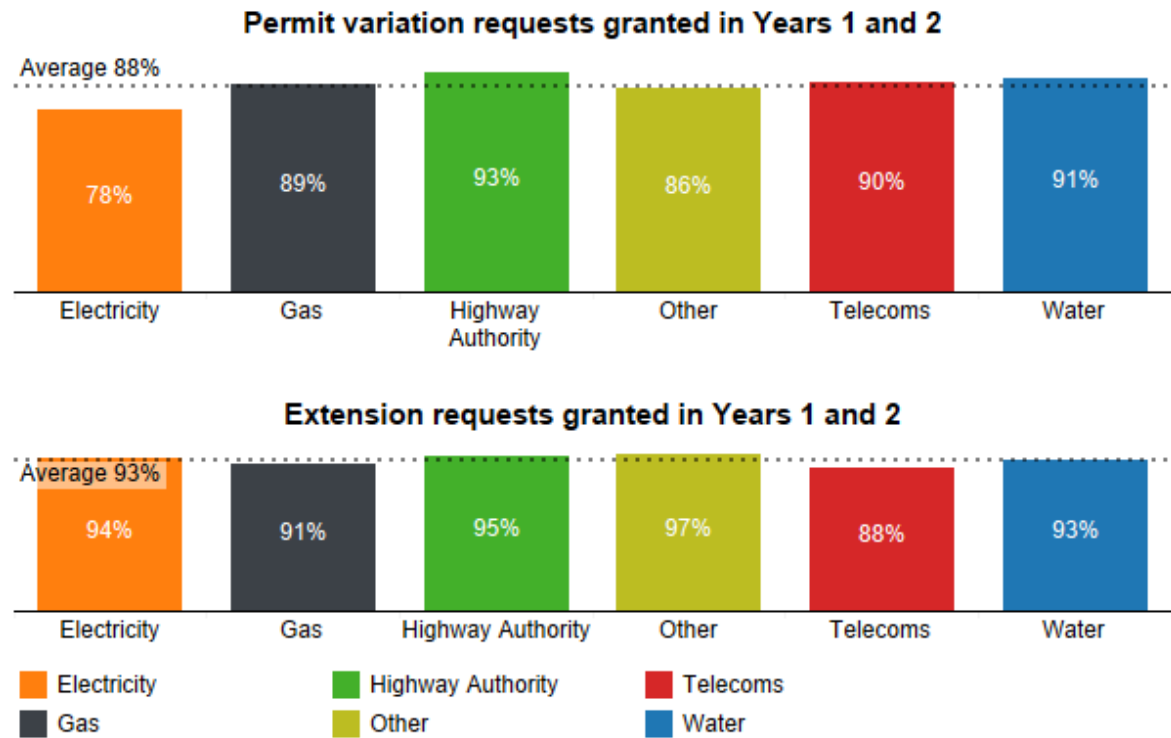


The chart below shows the % of PAA and permit applications (of total) that were deemed (granted) within Years 1 and 2. The charts do not include those applications that were superseded or cancelled before a response could be given.

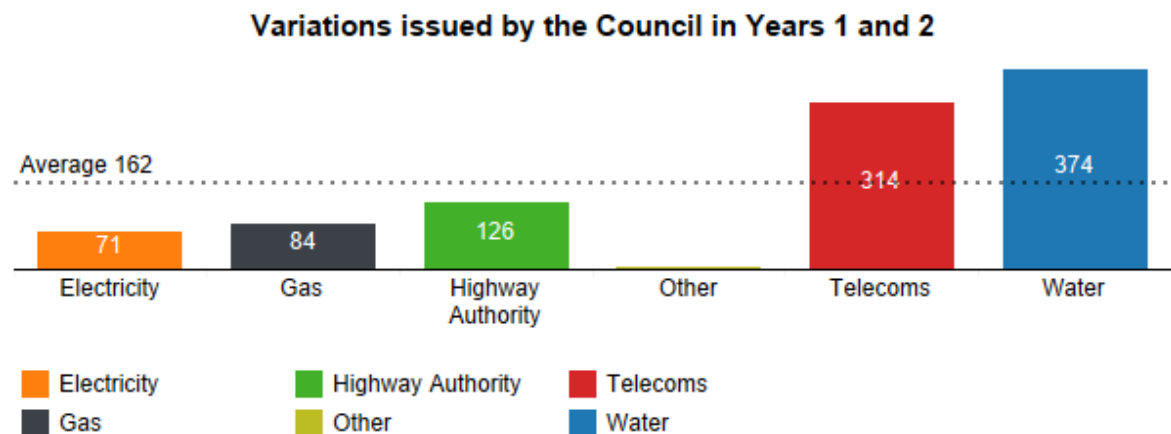


7.1.2. The Highway Authority % of total deemed applications saw a significant increase in July 2021 during the transition into the new Street Manager digital service. Works that were already granted were added during this time to ensure continued visibility.

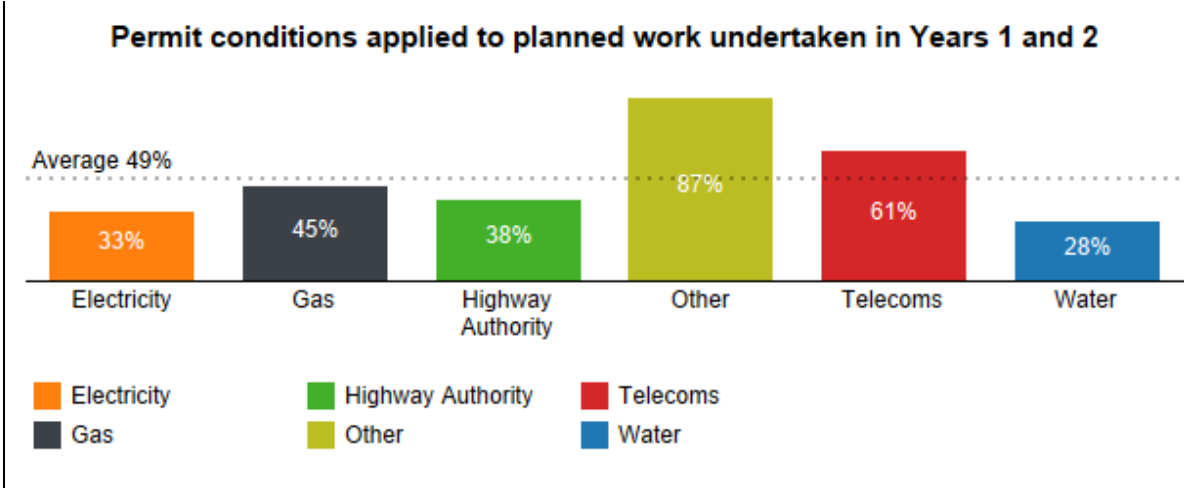
The charts below show the permit variation applications granted within Years 1 and 2 (as a % of total received) by sector. The variations are delineated by requests for extensions and other variations. The charts do not include those applications that were deemed (granted), superseded or cancelled before a response was given.



The chart below shows the number of variations issued to Promoters by the Council in Years 1 and 2.



The chart below shows the % of planned works undertaken with a permit condition, as a % of total works, by sector within Years 1 and 2. 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 (2021/22)	1,131,279	1,156,525	-25,246	-91,223

- 8.1.3. As shown in the table above, there were deficits in Years 1 and 2, whilst the overall costs increased from Year 1 to Year 2. Year 1 included pre-scheme costs recoverable cost, such as employing new staff for the transition and training. The Council intend to complete a review of the permit fee levels after the third year of operation with another full year of permit volumes, cost and income to assess.

8.2 Economic appraisal

- 8.2.1. An economic appraisal provides a cost-benefit analysis (CBA) framework in which the impact of a scheme can be compared against the cost of setting up and operating the scheme. Annual evaluation of a 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 compared to not operating a permit scheme.
- 8.2.2. The modelled impacts of works occurring in Nottinghamshire defines the scale of social cost, demonstrating an estimated average cost impact of £350 day of work ^(2010 prices).
- 8.2.3. A benefit to cost ratio (BCR) takes into consideration the estimated work impact cost to society with the operating costs to provide a measure of *value-for-money*. With a BCR of 5.35 the permit scheme can be defined as demonstrating 'Very High Value for Money'.

8.3 Emissions savings

- 1.1.1 A component to the costed benefits used for the economic appraisal is an estimated reduction in carbon emissions. These emissions savings are assumed from more efficient vehicle movements and the avoidance of the 'stop-start' movements associated with works.
- 1.1.2 The work impact model QUADRO¹ 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 around works or road closures.

¹ **QUEUES AND DELAYS AT ROADWORKS** refer to section **Error! Reference source not found.**

- 1.1.3 In Year 1 of the Scheme, the carbon emission generated by works within the area, as calculated within QUADRO, were valued at £1.7million (2010 prices), which represents around 6% of overall work impact cost. The implied carbon emissions attributable to works amounts to 29,810 tonnes for year one, equivalent to 2.8% of overall highway related carbon emissions (excluding motorways) produced within Nottinghamshire annually (excluding Nottingham City).
- 1.1.4 In line with the broader assumptions about permit scheme impacts, on the basis that emissions resulting from works are 94.6% of the level they would have been in the absence of the scheme, would lead to estimated annual carbon emission savings of 1,901 tonnes CO₂ from reduced delays. 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 1.58 million annual car kilometres CO₂ reduced.

9 Annex A: Evaluation methodology

9.1 Source data for analysis

- 9.1.1. 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 sent between Promoters undertaking work, such as utility companies, and the Council.
- 9.1.2. 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 all work durations 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.
- 9.1.3. Many of the measure contained in this evaluation were analysed with sub-categories to ensure accuracy in the results. These have not all been included within this evaluation report; however, it should be accepted that any findings presented have been tested for certainty and any anomalies investigated and defined.

9.2 Work phases

- 9.2.1. 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.
- 9.2.2. 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.*

9.3 Duration analysis and adjustment

- 9.3.1. Analysis of works duration is calculated using the dates provided within the work start and work stop notifications, inclusive of these dates. As a result of incorrect dates on notices from Promoters spurious durations can be found within the extracted data, such as work with a negative duration, created where the supplied end date is before the start date, or work with a significantly high duration.
- 9.3.2. Analysis of work duration is essential for this evaluation, for both an assessment of changes in work duration and to calculate a work impact cost (impact to society). Therefore, a process to cleanse duration involving the following 3 steps is undertaken. If the actual duration does not meet the criteria below, then the duration is not revised.
- Where an actual duration is a negative value, then this is replaced with the planned duration;
 - In the case of 1. if a planned duration is also a negative value, then a default value for the works category is used; and

- Where the actual duration is more than 50% greater than the planned duration and the difference is more than a set value, based on the work category, then the duration is revised using the planned duration.

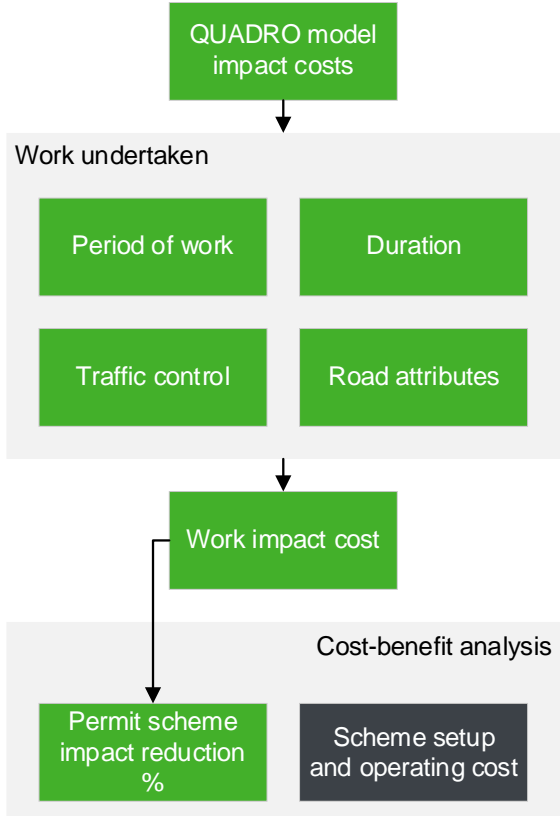
9.3.3. Since the introduction of the DfT’s digital service for the management of roadworks (Street Manager) and associated regulatory changes from 1st July 2020, information related to the timing of works, *i.e. start time, and stop time*, has improved. As such since the introduction of Street Manager it is possible to measure and analyse durations closer to actual time than to a day period.

9.3.4. 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. Future evaluations may contain analysis based on timing once the data range has increased over time. In addition, the use of activity type also introduced by Street Manager can be useful to consider the durations of specific activity and whether these are changing over time or remaining within accepted tolerances.

9.4 Economic appraisal

9.4.1. The approach to the permit scheme economic appraisal, through a cost-benefit analysis, 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.



9.4.2 Cost for operating the scheme

9.4.2. Scheme benefits must be set against scheme costs to determine value for money – these costs include setup costs, operating costs, and capital costs. In addition to the costs of operating the permit scheme by the Council, it is important to recognise that there are costs also borne by Promoters in operating under the permit scheme.

9.4.3. These will include the permit fees, additional administration costs in complying with the permit scheme and costs related to changes in working practices such as off-peak and weekend working.

9.4.4. 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.

9.4.3 Scale and characteristics of works for analysis

9.4.5. 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.

9.4.6. The remainder of works involved no incursion into the carriageway and no impact to motorist road users is assumed. This is a conservative assumption as even non-carriageway works are likely to incur some impact, whether to road users or on wider society.

9.4.7. 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.

9.4.8. 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.

9.4.9. Having developed costs for every work type, an impact cost is calculated for each work within the data, according to its characteristics and the duration of the work. The modelled impact of typical works forms the basis of the benefits calculation. Aggregation of the modelled impacts of works occurring across the network defines the scale of social cost of these works.

9.4.10. 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)

9.4.11. 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.

9.5 Quantification of benefit of a permit scheme

9.5.1. 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.

9.5.2. 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.

- 9.5.3. The default assumption relating to anticipated impact of a permit scheme has been to take an assumed 5% reduction in work impact in the absence of local evidence (as stated in the DfT Permit Scheme Evaluation Guidance, 2016).
- 9.5.4. The DfT's national permit scheme evaluation provided evidence of observed changes in works patterns, with the overall impact in terms of reduced works impact estimated at 6.4%. In line with this evaluation, an impact reduction of 6.4% has been adopted as the most robust source of observed evidence of impact.
- 9.5.5. Accordingly, the societal impact of works observed in the first three years of the permit scheme operation can be expected to represent 93.6% of the overall societal cost of works which would have been incurred in the absence of the permit scheme.
- 9.5.6. The cost benefit appraisal requires that scheme benefit is 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.
- 9.5.7. Consequently, the benefits are projected forward over following years, taking an average of the three observed post-implementation years, with impacts increasing in real terms to reflect growth in values of time, vehicle operating costs, accident savings and emissions costs.

9.5.2 Appraisal Results

- 9.5.8. The cost benefit analysis takes the benefits and costs established from the first year of operation projects these over the 25-year appraisal period. The future 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. The results of the cost benefit analysis are shown in the table below.
- 9.5.9. The benefit to cost ratio (BCR) is a measure of value-for-money exhibited by a scheme. It should be noted that with schemes generating significant revenues the BCR can become very sensitive to inputs.
- 9.5.10. The principal benefits of the scheme are derived from time savings for commuters and others. There are also positive benefits related to reduced accident rates (roadwork sites tend to have higher accident rates than non-work sites) and greenhouse gas emissions savings. An Analysis of Monetised Costs and Benefits (AMCB) produced as part of the economic appraisal includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect.

9.6 Period of analysis

- 9.6.1. 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). 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).

9.7 Defining Promoters

- 9.7.1. Within this evaluation Promoters can be defined by their sector, e.g. water. The sector Other includes other organisations who need to undertake work on the highway, *such as Network Rail*.

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.
NRSA	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	<p>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.</p> <p>The conditions that can be applied are set out within Statutory Guidance, <i>each with a reference code comprising NCT with a unique number</i>, 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.</p>
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 <u>or</u> require a temporary traffic regulation order, <i>such as a road closure</i> . 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)

Permit Scheme Year	Number of works
Y1 (2020/21)	24,301
Y2 (2021/22)	27,250

11.2 TPI2 Works Phases Completed (Base Data)

Permit Scheme Year	Number of works
Y1 (2020/21)	23,743
Y2 (2021/22)	26,858

11.3 TPI3 Days of Occupancy Phases Completed

- 11.3.1. The data shown for this performance indicator includes analysis using either the work start, and work stop notice dates or times (from June 2020). Year 8 only contains part year (July 2020 to October 2020) for duration based on time and is therefore excluded.

Permit Scheme Year	Duration from dates	Duration from work start and stop times
Y1 (2020/21)	89,107	52,175
Y2 (2021/22)	95,903	66,638

11.4 TPI4 Average Duration of Works

- 11.4.1. This data is only show for years eight and nine as the accuracy of the information provided by the Promoters since the start of Street Manager was improved significantly. Prior to this the work start and work stop information is insufficient to provide an accurate and comparable average duration.
- 11.4.2. 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)	28.1	5.5	1.0	3.8
Y2 (2021/22)	23.1	6.5	1.1	4.4

11.5 TPI5 Phases Completed involving Overrun

- 11.5.1. The table below shows the results of the data analysis, however as explained within this report these figures should be treated with caution as the accuracy of information provided from the Promoter prior to the introduction of Street Manager in July 2020 seems low.

Permit Scheme Year	Overrunning Works
Y1 (2020/21)	400
Y2 (2021/22)	379

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

11.7 TPI7 Number of Phase One Permanent Registrations

Permit Scheme Year	Permanent Registrations
Y1 (2020/21)	15,564
Y2 (2021/22)	18,869

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 or varying existing permit schemes, June 2016.