SWINDON
BOROUGH COUNCIL

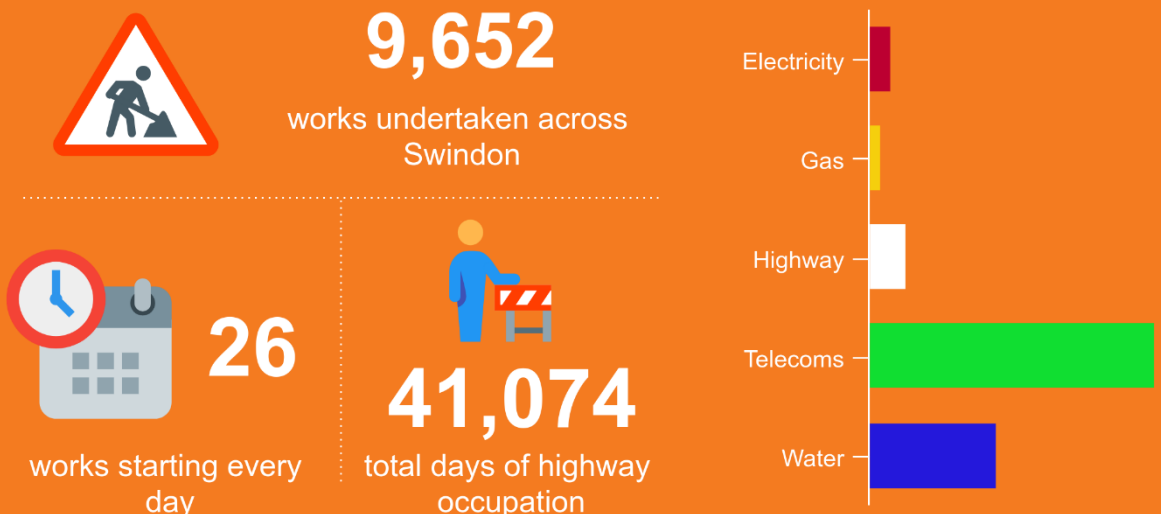
Swindon Permit Scheme
Year 1 Evaluation

Version A5

Document Content

Key findings of the evaluation

9,652
works undertaken across Swindon



26
works starting every day

41,074
total days of highway occupation

95%
permits granted on first application

STOP **35%**
of work is over 10 days in duration with some carriageway incursion

26%
work undertaken with an applied permit condition

£603,500
Annual scheme benefits for a typical year under the permit scheme

486 tonnes
carbon emissions savings from reduced delays

Figures quoted are based on permit scheme Year 1 statistics. The graphic (top right) shows work across Swindon in Year 1.

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 [the 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. These powers enable a Council to deliver a more effective network management service, through the increased capability to control the planning and undertaking of work across their network.

1.1.5. In October 2021 the Council introduced the **Swindon Borough 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. Permit Scheme 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.

1.2.2. This report has been developed by an external consultant, Open Road Associates, for the Council to provide an evaluation for year one (October 2021 to September 2022) of the Permit Scheme and includes the provisions set out within the regulations.

1.2.3. The regulations reference key performance indicators set out in Statutory Guidance. Annex A of the Guidance contains a list of Key Performance Indicators. Annex C of this report contains the performance indicator results for each permit scheme year (as available).

2 Executive summary

2.1.1. Since the introduction of Street Manager in July 2020, the Council were operating a pseudo permit scheme, essentially processing permits without a legal scheme in effect. Therefore the Council were effectively running a Scheme trial from July 2020 to October 2021, when the Scheme came into legal effect. The primary focus of the initial year of a Scheme is to embed new ways of working, to operate an efficient scheme, to create a framework to run an effective Scheme.

2.1.2 Analysis of works

2.1.2. Year 1 saw a significant increase in the applications and subsequent work undertaken across Swindon, 9,652 compared to 6,600 in the previous year. This can be attributed to the impact from the COVID pandemic and increased telecom sector work, for broadband fibre installations. The water sector too saw an increase in their work, primarily attributed to the impact of the dry summer to the pipe infrastructure.

2.1.3. Most Promoters, (those organisations undertaking work) except for the highway sector, submit c.84% of their applications within the minimum required lead time. Highway sector work is below average at 58% of their applications submitted in time. Of these applications c.86% result in an actual work, with other being cancelled or never progressing to a work start status. The exception to this is the highway sector, with a low 65% of applications resulting in a work. Overall, this places an increased resource and coordination pressure on the Council to ensure all work is reviewed and processed, sometimes with short lead times.

2.1.4. Analysis of work in Year 1 shows unplanned Immediate work, for urgent or emergency purposes, accounted for 20% of the work undertaken and 16% of the total duration of work. Further analysis of work activity type shows that 74% of work is for utility repair and maintenance, almost 4% of work is for remedial defect repair and there is a low level (less than 1% of total) for returns to site for temporary to permanent reinstatement.

2.1.5. The average duration of work is showing an overall trend for increasing, except for planned Major work. The averages remain similar to national averages and show a minor increase, so there is no initial concern. The Council should monitor these averages and any significant changes over the next few years, especially for unplanned Immediate work.

2.1.3 Analysis of work coordination

2.1.6. In Year 1, 95% of applications were granted by the Council, which is higher than would be expected for an effective Scheme. Where applications are being rejected these are for location issues or clash of works. The Council needs to undertake a thorough review of the application review process to ensure a full assessment of the impact of work is undertaken, and the correct processes are used to reject a permit, with reason, with a request, such as an additional permit condition, to minimise any impact.

2.1.7. Changes to permits during the initial planning stage (between application and work start) can be observed, however it is difficult to directly attribute these to the role of the Scheme and importantly the action of the Council.

2.1.8. Variations submitted by the Promoters saw an overall increase compared with the pre-scheme year, which is to be expected as a Scheme was not in legal effect. The number of requests for work duration extensions increased in Year 1, from 407 to 566, with 99% of these being granted. The days of additional duration from work extensions in Year 1 was 104 days, which is to be expected considering the overall increase in work.

2.1.4 Analysis of permit conditions

2.1.9. 28% of work undertaken in Year 1 had an applied condition – in addition to those conditions that are implied to all works. The conditions applied to work were predominantly for:

- Managing the road space available to traffic;
- Working extended hours;
- Limiting the date or time of work; and
- Controlling the traffic management.

2.1.10. Analysis shows that 18% of applied conditions were added during the planning stage, i.e. they were not on the initial application, however it is not possible to directly attribute these changes to an action by the Council.

2.1.11. Considering a set of indicators for work scenarios where a condition would be expected, *such as limiting the working times were Promoters agree to work outside of traffic-sensitive times,* shows that the overall application of conditions requires further review by the Council. The Council need to consider how the conditions would apply to enforce any agreements with Promoters for their ways of working. This is an area that requires attention as the use of conditions is a key control for the effectiveness and enforcement of a Scheme.

2.1.12. As the duration of work at traffic-sensitive times has shown an increase in Year 1 (from 8% to 11%) the use of conditions to effectively control work at these times, and any traffic management arrangements, should also be considered as a future action.

2.1.5 Analysis of permit compliance

2.1.13. The level of offences, for working without a permit or breach of permit conditions, were relatively low in Year 1, with the telecoms sector having a significant proportion of these. Further work is required to record permit compliance inspections more effectively, and to also ensure the coordination and inspection regimes are aligned for effective application and checking of permit conditions.

2.1.6 Analysis of parity treatment

2.1.14. Permit Scheme Regulation state that the Council must apply the regulations 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).

2.1.15. A set of parity indicators does show differences across sectors. Whilst no significant issues are identified from these indicators, further consideration to a parity approach in Year 2 is advised, especially for the treatment of highway sector work.

2.1.7 Review of permit fees and cost-benefits

2.1.16. The Council had a small deficit in the cost recovery in Year, however given the initial higher cost to recover and the work volume anomaly within the telecoms sector the Council expect to reach a neutral position during Years 2 and 3.

2.1.17. The cost-benefit analysis developed for this evaluation considers the societal impact of works, including delays and inconvenience, and a reduction in these impacts as a result of the Scheme (as a benefit). When setting these benefits against the cost of scheme operation, the analysis show that the Scheme is demonstrating a positive benefit to Swindon. With a benefit-to-cost ratio of 3.3:1 the Scheme can be classified as high value for money.

2.1.8 Summary of Year 1

2.1.18. The change from the notice regime to a permit scheme for the Council has been more straightforward through the introduction of Street Manager in 2020, however ongoing effects of the COVID pandemic and an increased level of telecom sector work has introduced several issues to work around.

2.1.19. Whilst the Council can clearly demonstrate that the Scheme is operating at a level of efficiency, through permits obtained for work and conditions being applied by Promoters, there are several areas that require attention to ensure the Scheme is also being operated effectively.

2.1.20. In Year 2 the Council are advised to focus on ensuring that permits are processed and challenged more effectively to reduce any potential impact, which would include applying conditions relative to the working practices required by a Promoter. Focusing on the higher impactive work in the first instance, for example work on traffic-sensitive streets or work involving traffic management such as lights or a road closure, would be prudent.

2.1.21. Even without the direct Council action, a permit scheme can deliver benefits as a well-established national regime. The Year 2 evaluation should be able to demonstrate further direct benefits from the use of the Scheme controls to demonstrate the Scheme is being operated to maximum effect.

2.1.22. The table below shows a summary of the recommendations from this evaluation. Each recommendation has been given a Red, Amber or Green (RAG) status to denote priority and level of impact.

Reference	RAG	Summary of recommendation
3.2.2		Monitor the applications for PAA to ensure the average lead time does not decrease below the minimum required.
3.3.2		Work with Promoters to encourage increased use of permits being granted and reduce cancellations, especially for Highway work.
3.4.3		Work location on the permit is checked to ensure it accurately reflects the planned or actual location.
3.8.2		Monitor the average duration of work, identifying any increasing trends and anomalies.
3.8.3		Monitor increasing average duration for Immediate work.
3.8.3		Monitor work exceeding planned duration to ensure the low level (% of total) does not increase.
3.10.3		Focus attention on work at traffic-sensitive times, to ensure any appropriate conditions are applied and any other coordination opportunities to reduce the occupation at traffic-sensitive times are consider.
3.11.3		Ensure work under *some carriageway incursion* are checked carefully at the application stage, and if possible with an onsite inspection, to ensure these work do not impact the flow of traffic.

Reference	RAG	Summary of recommendation
4.1.3		Review the process for refusing permit applications and ensure the correct use of refusal codes.
5.11.3		Review the conditions on permits and how they are applied. Initially focusing on key areas of work at traffic sensitive times, advanced publicity for road closure and manual control of traffic management.
6.1.2		Record a separate permit compliance inspection within Street Manager.
6.2.4		Ensure permit offences for breach of condition contain direct reference to a permit condition.
0		Continue assessing the role of the permit scheme to meet the Councils Public Sector Equality Duty.
7.2.5		Develop a process to demonstrate a review of the Promoters responsibility to consider protected characteristic groups when undertaking work.
9.7.6		Consider the environmental impact of work, and the controls available to ensure this is limited wherever possible.

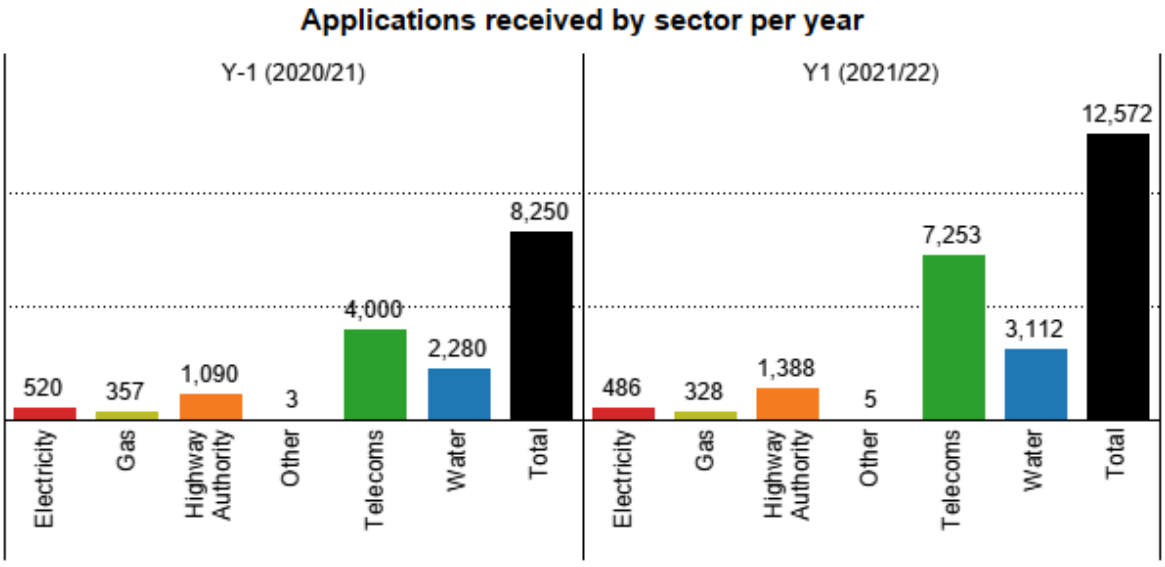
3 Analysis of works

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 or permit application and the three-month advance notice application (PAA) for a Major work, unless stated otherwise. Non-statutory forward planning notices are not included.

The charts below show the volume of notice and permit applications received delineated by sector.



3.1.3. Analysis of work and therefore applications over time will typically show variance because of project specific work or demands on the network. Many of these relate to government led initiatives, *such as broadband and fibre rollout*. It is likely that future initiatives, *such as electric vehicle charge points*, will see further peaks in work when compared to a typical year of routine maintenance and repairs.

3.1.4. Year 1 of the Scheme has seen an overall increase in the number of applications received, predominantly for the Telecom and Water sector. These can be attributed to increased work across Swindon for broadband and fibre rollout, including surveys, installation, and repairs to existing infrastructure.

3.1.5. Swindon is a predominantly clay-based area and the dry summer of 2022 saw significant damage to the water infrastructure as the ground cracked and expected – this led to an increase in water work, mainly 5 to 10 day Standard category work.

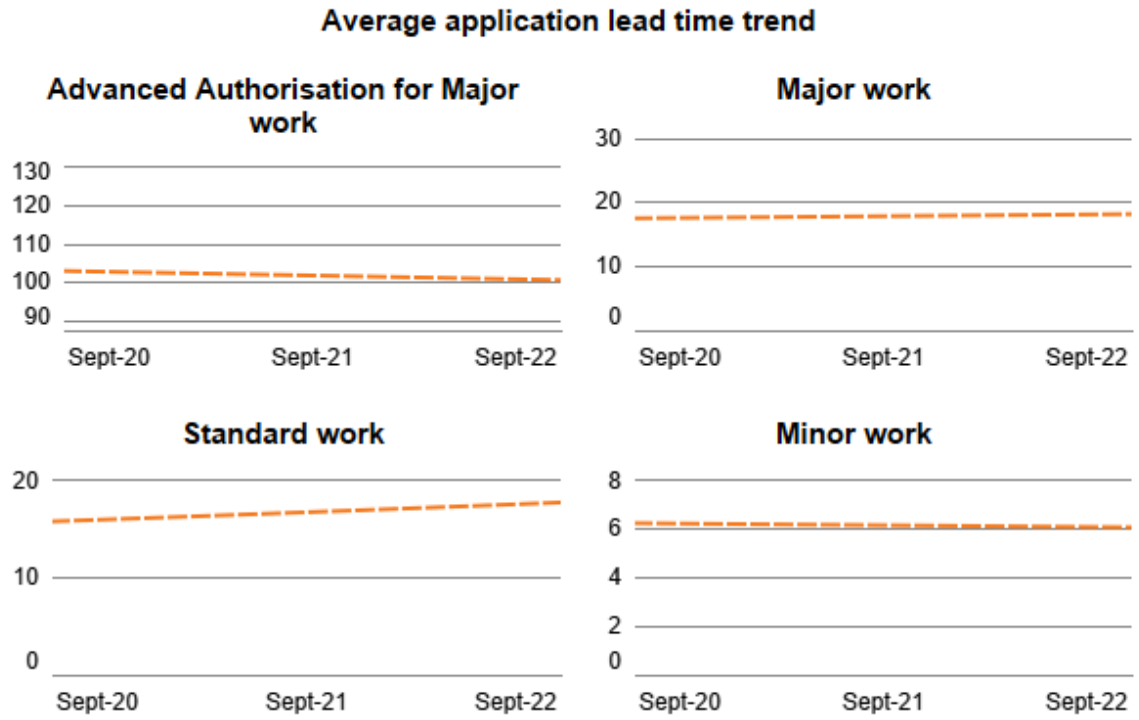
3.2 Application lead time

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.

The charts below show a trend line based on the average application lead time, per month, for the period between Year -1 and 1. The charts are delineated into work category and for advanced authorisation (3-month notice or PAA applications) for Major work and notice or permit applications for the work categories. Applications not submitted in time have been removed from this analysis to provide a more accurate representation of lead time. To reduce any anomalies for the analysis of lead times only applications with a lead time between 1 and 100 days for notices and permits and 1 to 250 days for major works advanced notice or PAA were included. The trend shown in a linear model computed from a natural log of lead time for each of the observed points (months).



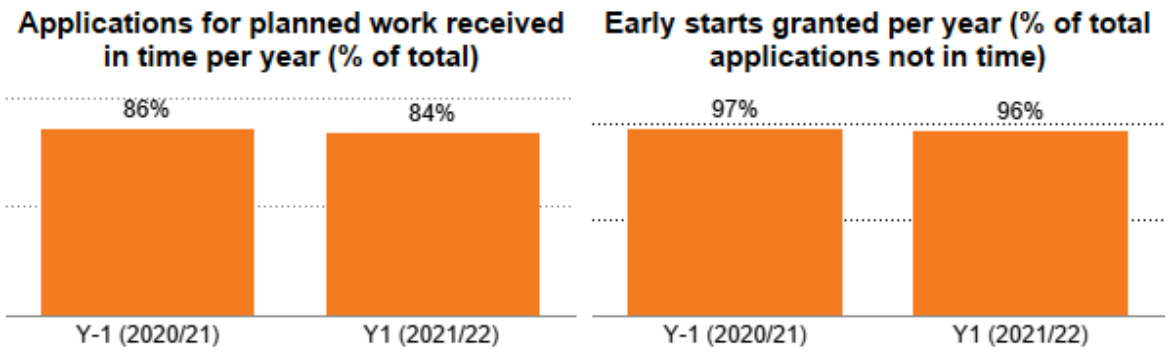
3.2.2. Overall, there has been very slight changes to the average application lead time across the period of analysis, with trends showing all comfortably above the minimum time required. The only minor cause of concern is the lead time for advanced authorisation for Major work as these are showing a decreasing trend which is close to the minimum time required. If this trend continues, then more applications could be submitted without the time required to plan for these potentially high impactive work.

- **It is recommended to monitor the applications for PAA to ensure the average lead time does not decrease below the minimum required.**

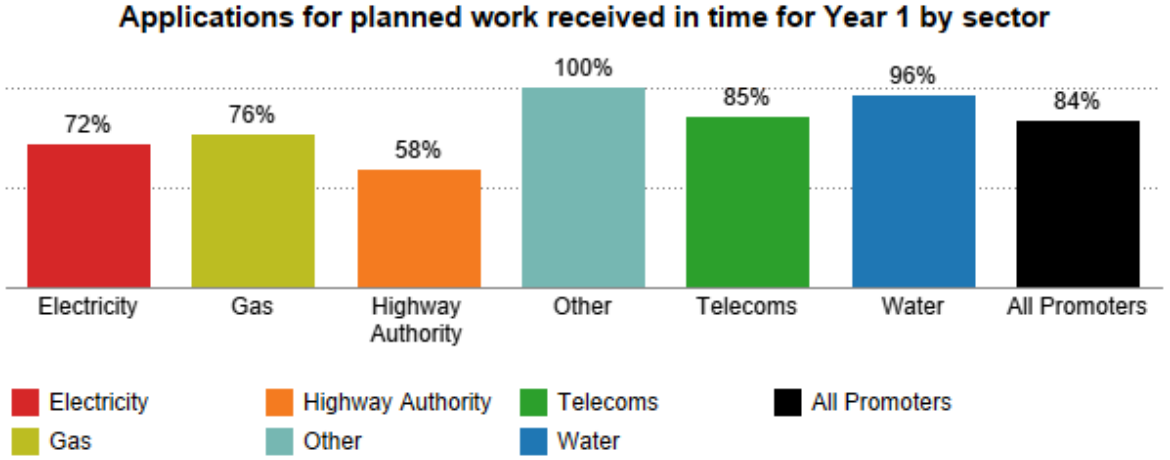
3.2.3. As shown in the charts below, the overall volume of applications for planned work received in time is 84% across all Promoters in Year 1. However there are significant differences between the sectors, with Electricity, Gas and Highway Authority applications in time below the total average.

3.2.4. Given the increase in Telecoms and Water sector work in Year 1 it is surprising to observe that they are maintaining relatively higher levels of applications within time.

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 (right) and the proportion of requests granted by the Council (as a % of total received). Any instances of an application being superseded, cancelled or auto-granted (deemed) have been removed.



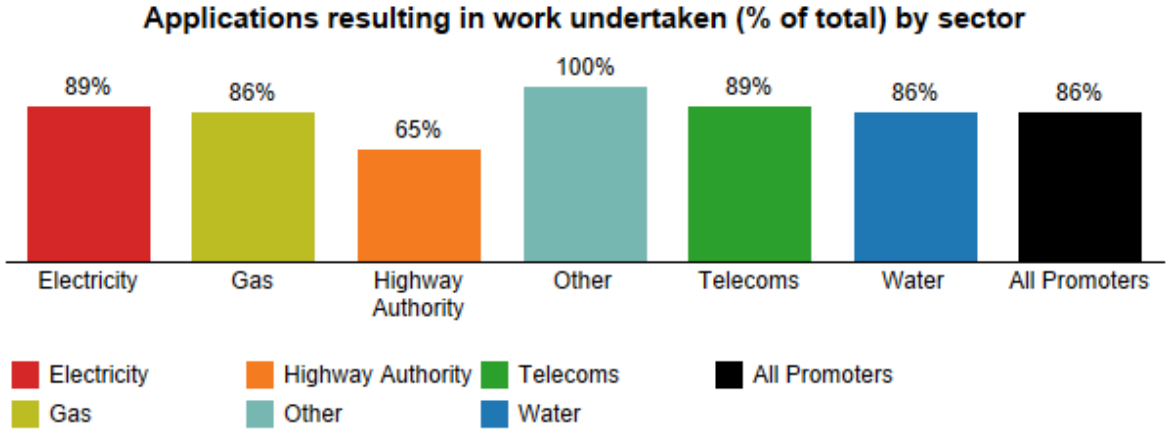
The chart below shows the proportion of applications received in time (of total received) for planned work in Year 1 by sector.



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.

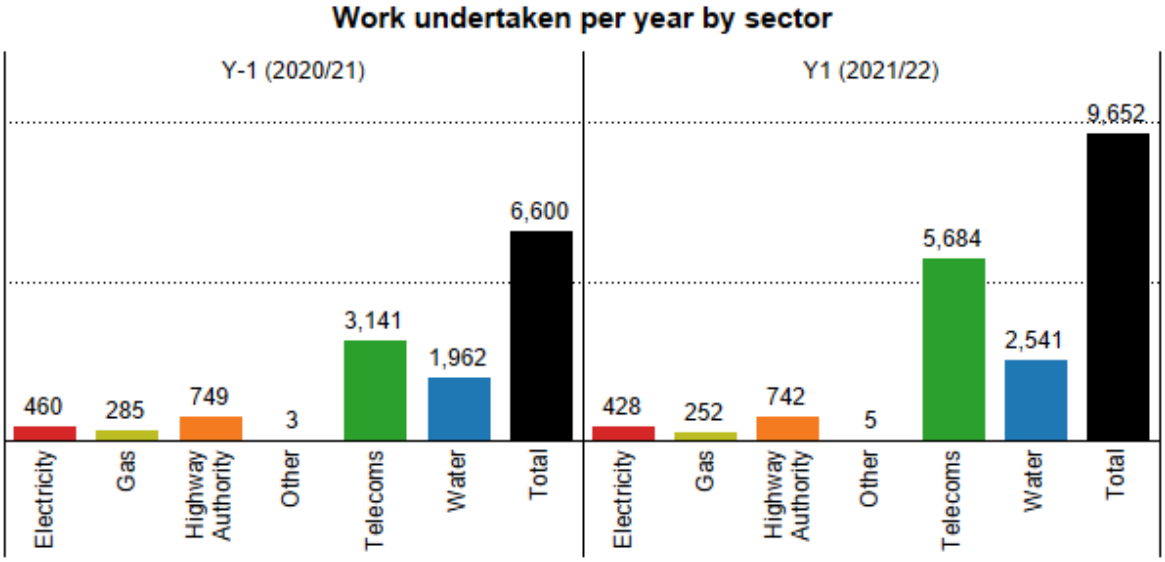
The chart below shows the applications for planned work that result in work undertaken in Year 1 by sector. Applications for work that did not progress to a work start status are deemed as not undertaken.



3.3.2. The proportion of applications received by the Council for planned work that result in work undertaken are 86% of applications, hence the lower volume of work to applications received. The is a noticeable difference with Highway sector work, of which only 65% of applications result in an actual work. Although the Council has no direct way to influence this, understanding why Promoters submit applications and not undertake work may assist in managing future resource issues as processing these applications is a waste of costs.

- **It is recommended that the Council work with Promoters to encourage increased use of permits being granted and reduce cancellations, especially for Highway work.**

The chart below shows 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. The chart below shows the total volume of work undertaken per year, where the year is defined by the date of the initial application, for each sector (colour legend).



3.3.3. The proportionate increases in work form Year -1 to Year 1 reflect increases within the Water and Telecoms sector (refer to section 3.1.3) as all other sectors have remained very similar.

3.4 Work location

3.4.1. A work can impact different types of traffic based on the location, primarily vehicle (carriageway), cyclists (cycleway) and pedestrians (footway). Some work is confined to the verge only.

The table below shows the location of work in Year 1 by groups as a % of total work undertaken, delineated by planned work and Immediate work. The colour scale shows highest (red) to lowest for each section. Any work on the carriageway, cycleway or footway including the verge is included within that location group.

Location of work in Year 1

	Planned	Immediate	All work
Carriageway and footway	40.7%	10.2%	35.4%
Carriageway only	6.8%	18.2%	8.8%
Cycleway and footway	0.1%	0.1%	0.1%
Cycleway only	0.3%	0.3%	0.3%
Footway only	48.2%	60.2%	50.3%
Verge only	4.0%	11.0%	5.2%

3.4.2. Analysing work location with traffic control shows a few anomalies, *such as work 68% of work in the footway only involving some carriageway incursion*.

The table below shows the location of work in Year 1 by groups and the traffic control as a % of total for each group. The colour scale shows the highest (red) to lowest for each group.

Location of work and traffic control in Year 1

	No Carriageway Incursion	Some Carriageway Incursion	Passive Traffic Control	Positive Traffic Control	Lane Closure	Road Closure
Carriageway and footway	1.0%	84.5%	5.5%	7.0%	1.5%	0.5%
Carriageway only	1.1%	39.0%	8.1%	34.3%	7.1%	10.4%
Cycleway and footway	70.0%	30.0%				
Cycleway only	53.9%	34.6%	7.7%	3.9%		
Footway only	26.9%	68.3%	2.0%	2.0%	0.6%	0.2%
Verge only	32.1%	49.5%	4.0%	10.6%	2.7%	1.1%

3.4.3. This further analysis would suggest that the accuracy of the work location provided in the permit by the Promoter is not truly accurate and requires a higher level of checking.

- **It is recommended that the work location on the permit is checked to ensure it accurately reflects the planned or actual location.**

3.5 Work category

3.5.1. Analysis shows that the largest proportion of work undertaken in Year 1 were short duration (1-3 days) minor work, although these only requested to 25% of the total duration of work. Standard category work (between 4-10 days) accounted for 18% of the works, but 39% of the total duration of work undertaken.

3.5.2. Unplanned Immediate work, for urgent or emergency purposes, accounted for 20% of the work undertaken and 16% of the total duration of work.

The tables below show the proportion of work and duration (total days) of work undertaken by work category and sector. The colour gradient (white to red) depicts the value (lower to higher) by sector and total.

% of work undertaken in Year 1 by work category and utility type

Work Category	Electricity	Gas	Highway	Other	Telecoms	Water	Total
Major	0%	1%	1%	0%	2%	0%	4%
Standard	1%	1%	1%	0%	13%	2%	18%
Minor	0%	0%	7%	0%	36%	14%	58%
Immediate	4%	2%	1%	0%	3%	11%	20%
Total	5%	3%	9%	0%	54%	28%	

% of work duration (days) in Year 1 by work category and utility type

Work Category	Electricity	Gas	Highway	Other	Telecoms	Water	Total
Major	3%	4%	3%	0%	9%	2%	20%
Standard	2%	1%	2%	0%	31%	3%	39%
Minor	0%	0%	1%	0%	19%	5%	25%
Immediate	3%	2%	0%	0%	1%	9%	16%
Total	8%	8%	6%	0%	60%	19%	

3.6 Work activity type

3.6.1. 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.*

3.6.2. Analysis of work activity type (refer to table below) shows:

- 74% of work is for utility repair and maintenance;
- Almost 4% of work is for remedial defect repairs;
- There is a low level (less than 1% of total) for returns to site for temporary to permanent reinstatement.

The table below shows the proportion of work undertaken (% of total) in in Year 1 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	Electricity	Gas	Highway	Other	Telecoms	Water	Total
Core Sampling			1.5%				0.1%
Disconnection or alteration of supply			11.8%				1.1%
Diversionary works							
Highway improvement works			11.6%				1.1%
Highway repair and maintenance			68.7%	62.5%	0.1%		6.4%
New service connection			1.2%			2.7%	0.9%
Optional permit (no fee)			0.4%	12.5%			
Permanent reinstatement	2.3%	5.2%	1.1%		0.7%	0.3%	0.9%
Remedial works	1.8%	0.7%	0.3%		6.5%	0.3%	3.8%
Section 58			0.5%				
Statutory Infrastructure Works			0.3%				
Utility asset works			0.2%		9.3%	22.3%	11.2%
Utility repair and maintenance	95.9%	94.0%			83.1%	74.3%	74.1%
Works for Rail Purposes				25.0%			
Works for road purposes			2.3%				0.2%

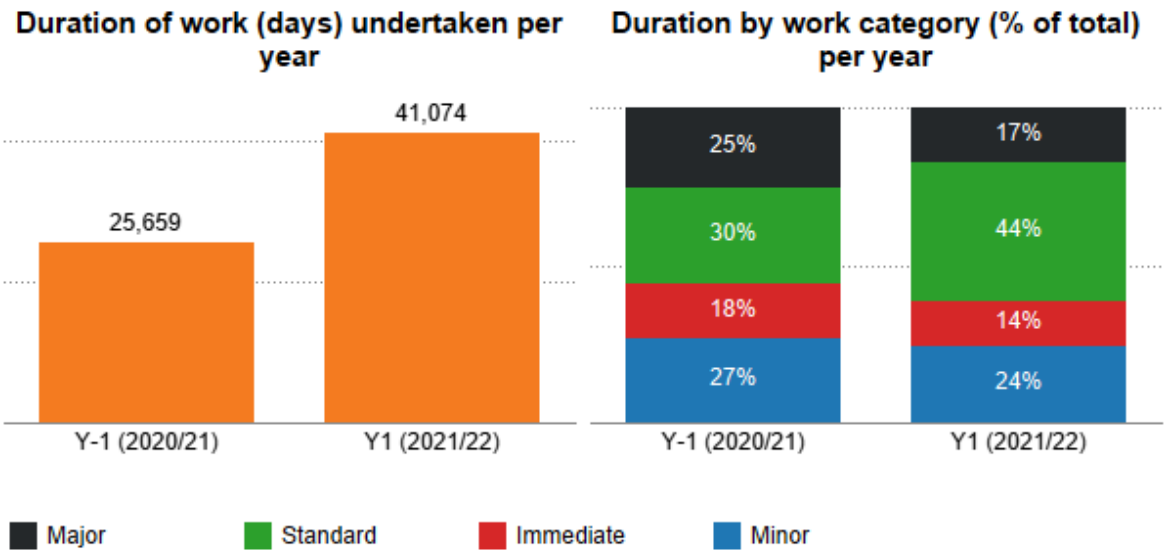
3.7 Work duration

3.7.1. 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.

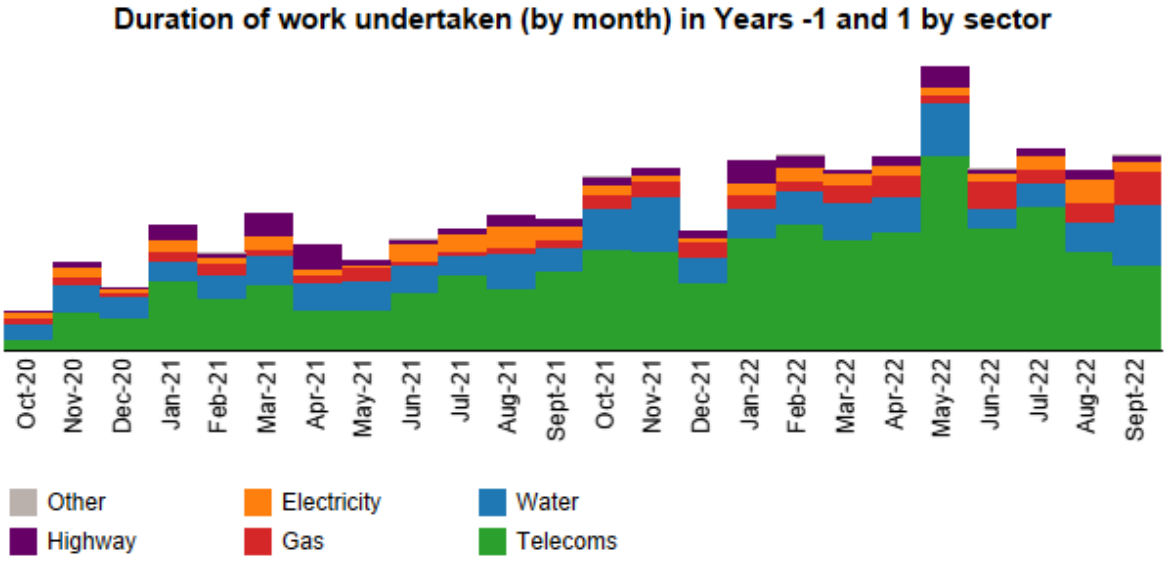
3.7.2. Since the introduction of the DfT's digital service, Street Manager, and associated regulatory changes in July 2020 it is possible to determine the timings more accurately and reliably from the works data. This means a work duration can be calculated by minutes instead of whole days.

3.7.3. In Year 1 there was a significant increase in overall duration of work, compared to Year -1. Analysis shows this can be primarily attributed to increase in Telecoms sector Standard works, which reached their peak in the summary of 2022.

The chart below shows the total duration of work per year with proportion of work category (% of total). A work is assigned to a date (month or year) based on the first application date.



The chart below shows the total duration of work per month in Years -1 to Year 1 delineated by sector each period. The actual start date of work is used to define the month period.



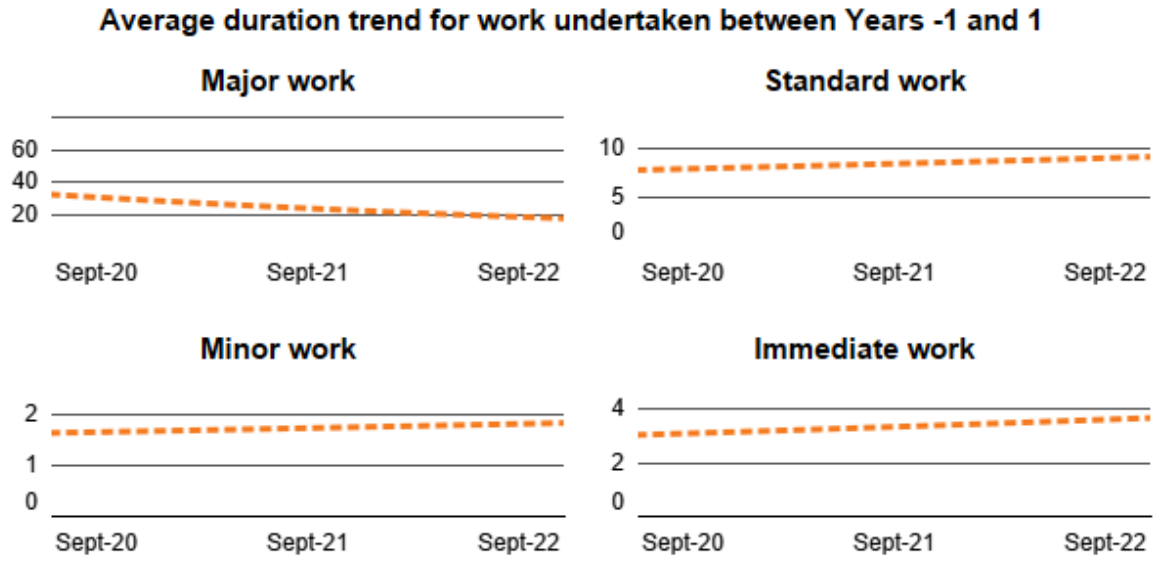
3.8 Analysis of duration

3.8.1. 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*.

3.8.2. Although analysis shows that the overall duration of work has increased significantly in Year 1, it is a positive indicator that the average duration of work by category has only increased slightly. This would suggest that once the programme of Telecoms sector work is complete, overall duration of work across Swindon should return to historic levels.

- **It is recommended that the Council monitor the average duration of work, identifying any increasing trends and anomalies.**

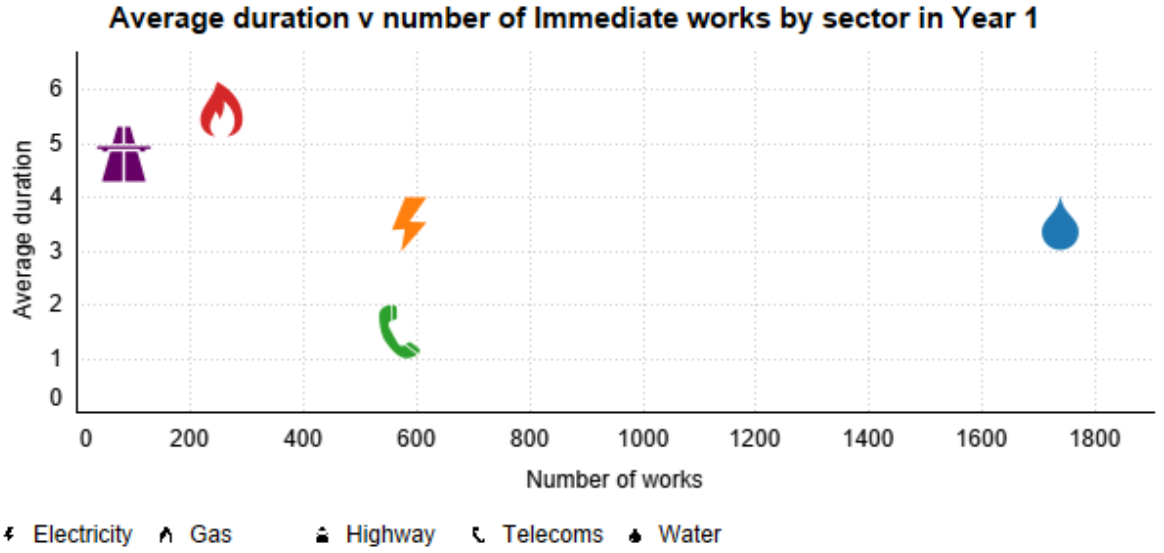
The charts below show an average duration trend for the four work categories across Years -1 to 1. The trend line shows a linear model computed for each average duration per observation (month).



3.8.3. The only potential observed issue is an increase trend for unplanned Immediate work, which is an area the Council will need to monitor closely to understand why this is increasing. As shown in the chart below, there are noticeable variances in the volume and average duration of Immediate work by sector.

- **It is recommended that the Council monitor increasing average duration for Immediate work.**

The chart below shows Immediate works in Year 1 by average duration (y-axis) and total works (x-axis) by sector.

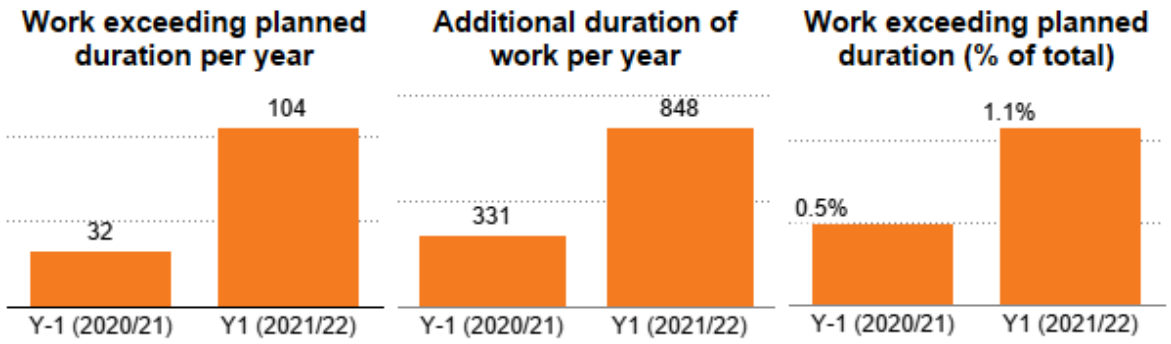


3.9 Work exceeding agreed duration

3.9.1. Works being undertaken 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.

3.9.2. For this evaluation a work exceeding the agreed duration is identified when a work's **actual duration** is exceeded by the **proposed duration** and a **duration extension has not been granted**. 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 (left 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 (right chart).



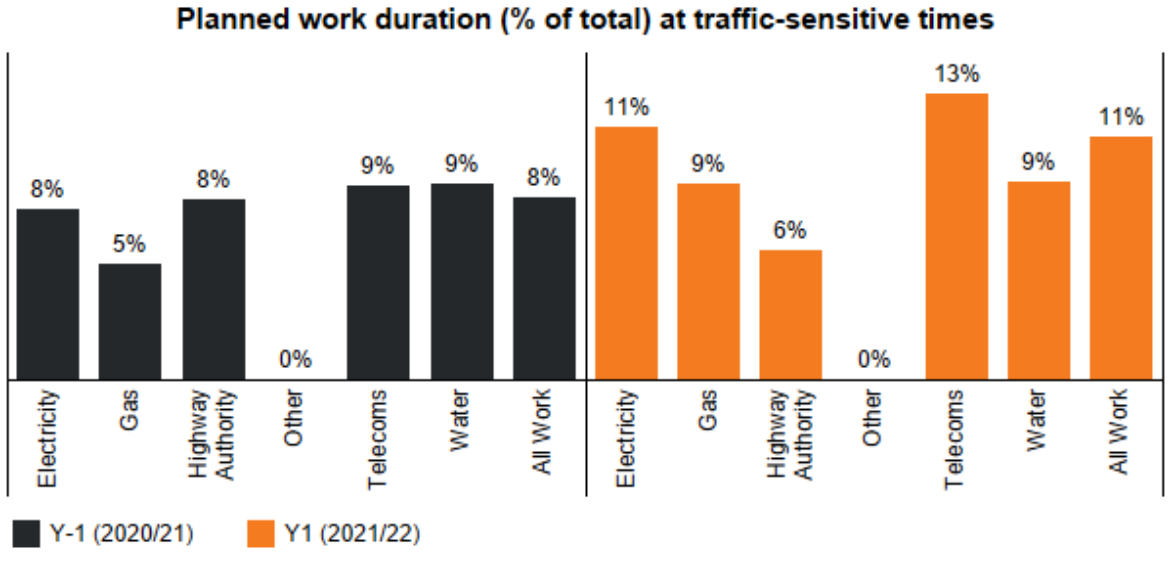
3.9.3. Although the work exceeding planned duration has increased in Year 1 this must be considered with the overall increase in works in that year. Overall the level of additional duration and the low level of these works, *as a % of the total*, is an area for future observation and not immediate action.

- **It is recommended that the Council monitor work exceeding planned duration to ensure the low level (% of total) does not increase.**

3.10 Work at traffic-sensitive times

3.10.1. 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.*

The chart below shows the proportion of planned work (excludes Immediate work) on a street with a traffic-sensitive designation when the work was during the traffic sensitive time. For example if the traffic-sensitive times are 07:00 – 10:00 and a work duration was 08:00 – 12:00 the duration at traffic-sensitive times would be 2 hours of the total 4 hours (50% of the total).



3.10.2. 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) when work is at these times, such as specific control of the traffic management.

3.10.3. Analysis of planned work at traffic-sensitive times, *based on the total duration of work*, shows an increase in Year 1 (3%) compared with the pre-scheme year. This includes noticeable increases for the electricity, gas and telecoms sectors. This analysis does not consider the application of conditions to control work that covered traffic-sensitive times, *such as removing traffic management from the carriageway*, which could influence the overall result.

3.10.4. The Council will continue to consider work around traffic-sensitive locations across the Borough to ensure work is controlled effectively. As shown within section 3.4, work can impact different and multiple forms of traffic, and therefore the relevant **traffic** sensitivity, *not just vehicular traffic*, also needs to the taken into consideration.

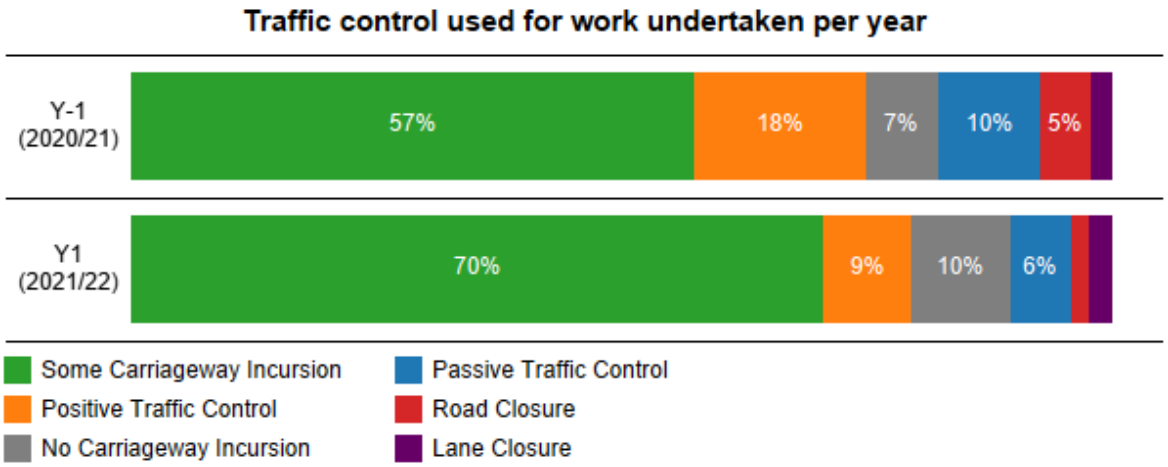
- **It is recommended that the Council focus attention on work at traffic-sensitive times, to ensure any appropriate conditions are applied and any other coordination opportunities to reduce the occupation at traffic-sensitive times are consider.**

3.11 Use of traffic management

3.11.1. All works must be undertaken using an appropriate form of traffic management (control) to ensure work is undertaken safely - for those undertaking the works as well as the road user, *including pedestrians, cyclists and in particular the needs of disabled people and vulnerable groups.* Different forms of traffic management have varying impacts to the network, *especially the use of portable traffic signals, lane closures and road closures,* so the need to undertake works safely whilst also controlling the impact of works needs to be balanced carefully.

3.11.2. The **Code of Practice: Safety at Street Works and Road Works** sets out the proper arrangements for the signing, lighting, and guarding of works – this must be followed by all Promoters undertaking works on the highway.

The chart below shows traffic management (colour legend) for all works undertaken as a proportion of the total works.



The table below shows the % of total duration of all works undertaken in Year 1 delineated by traffic management type and work category.

% of total duration for work undertaken in Year 1 by category and traffic control

Work Category	No Carriageway Incursion	Some Carriageway Incursion	Passive Traffic Control	Positive Traffic Control	Lane Closure	Road Closure	Total
Major	2%	8%	3%	2%	1%	1%	17%
Standard	2%	35%	2%	5%	1%	0%	44%
Minor	2%	20%	1%	1%	0%	0%	24%
Immediate	1%	11%	1%	1%	0%	1%	14%
Total	7%	74%	6%	10%	2%	2%	

3.11.3. Analysis shows that the proportion of work undertaken under some carriageway incursion has increased from 57% to 70% with a reduction in positive traffic control. The majority of work duration was under Standard activity with some carriageway incursion, which would indicate that this change is mainly due to the Telecoms sector who's work with be mostly in the footway and off the carriageway. The Council should ensure work under *some carriageway incursion* are checked carefully at the application stage, and if possible with an onsite inspection, to ensure these work do not impact the flow of traffic.

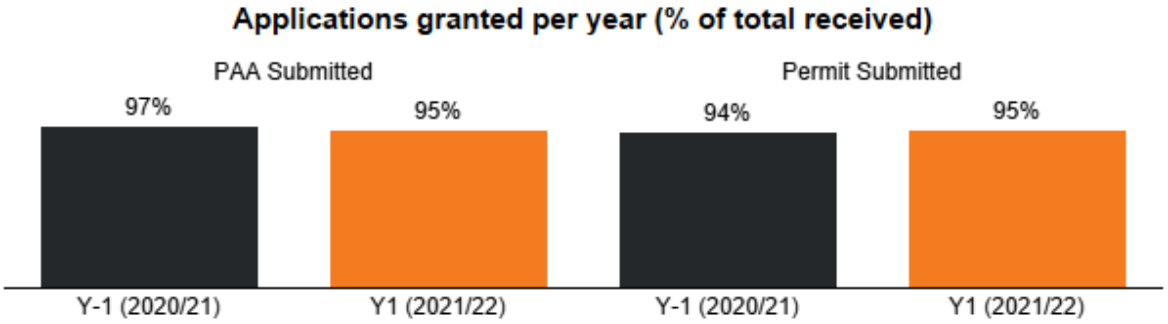
- **It is recommended that the Council ensure work under some carriageway incursion are checked carefully at the application stage, and if possible with an onsite inspection, to ensure these work do not impact the flow of traffic.**

4 Analysis of work coordination

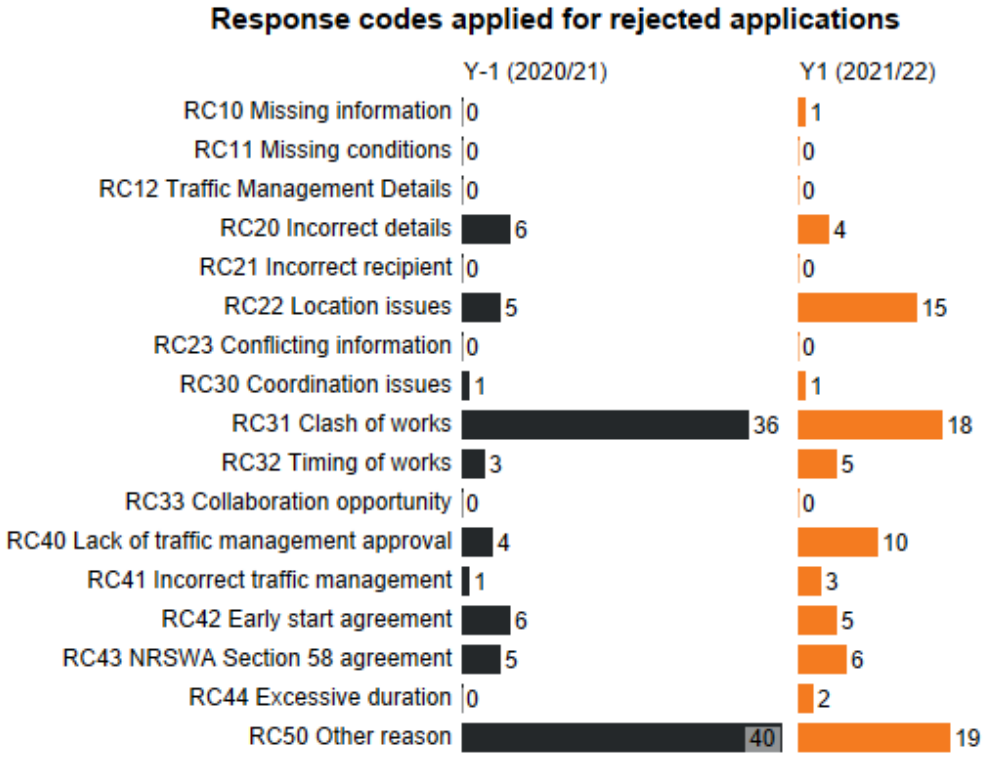
4.1 Responses to permit applications

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.



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



4.1.2. The high proportion of PAA and permits being granted in Year 1 and the low level of response codes applied for rejected applications would suggest that the Scheme is not being operated to maximum effect.

4.1.3. After further analysis of the results from the evaluation the Council have ascertained that the process to reject applications with a response code is not being followed correctly. Instead, work comments, or other forms of communication, are being used to request changes to permits. Whilst this process may lead to effective changes to the planning and delivery of work, it does not align to the Scheme procedures, and severally limits any effective analysis. The Council will seek to change this process in Year 2.

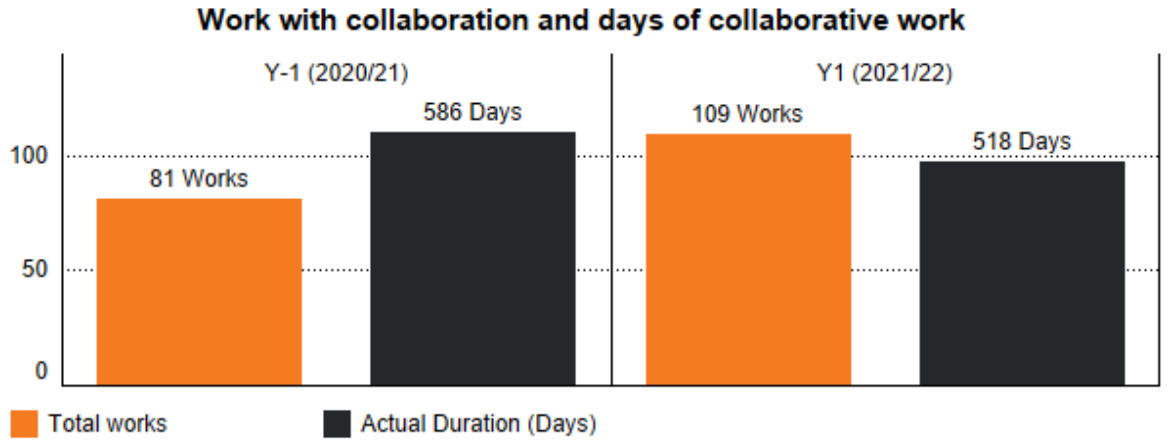
- **It is recommended that the Council ensure work under some carriageway incursion are checked carefully at the application stage, and if possible with an onsite inspection, to ensure these work do not impact the flow of traffic.**

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.

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



The chart below shows work with collaboration in Year 1 by total works (x-axis) and total duration (y-axis) delineated by work category (colour legend) and sector (shape).

4.2.3. Although the volume of collaborative works has increased in Year 1, the total days of collaborative work has decreased. Further analysis shows that 80% of the collaborative work duration can be attributed to the highway sector (60%) and water sector (20%). Overall, the % of planned work (excluding Immediate) with a form of collaboration in Year 1 was 1.2% of the total.

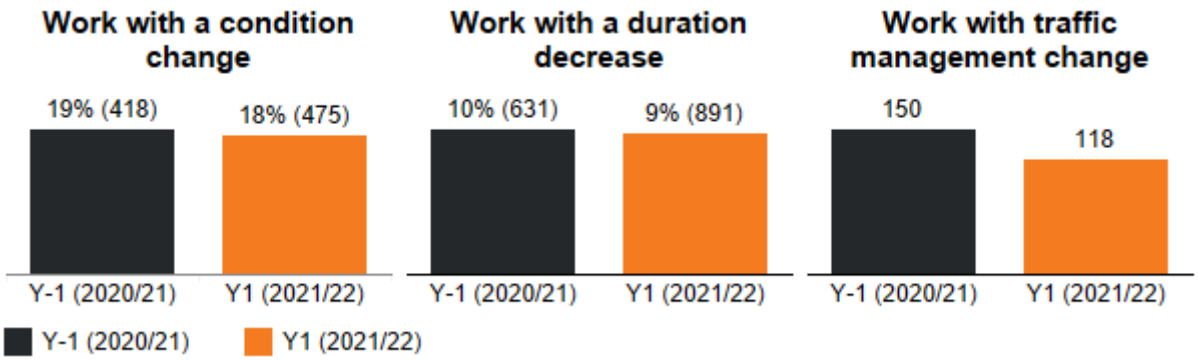
4.3 Changes during the life of a permit

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.

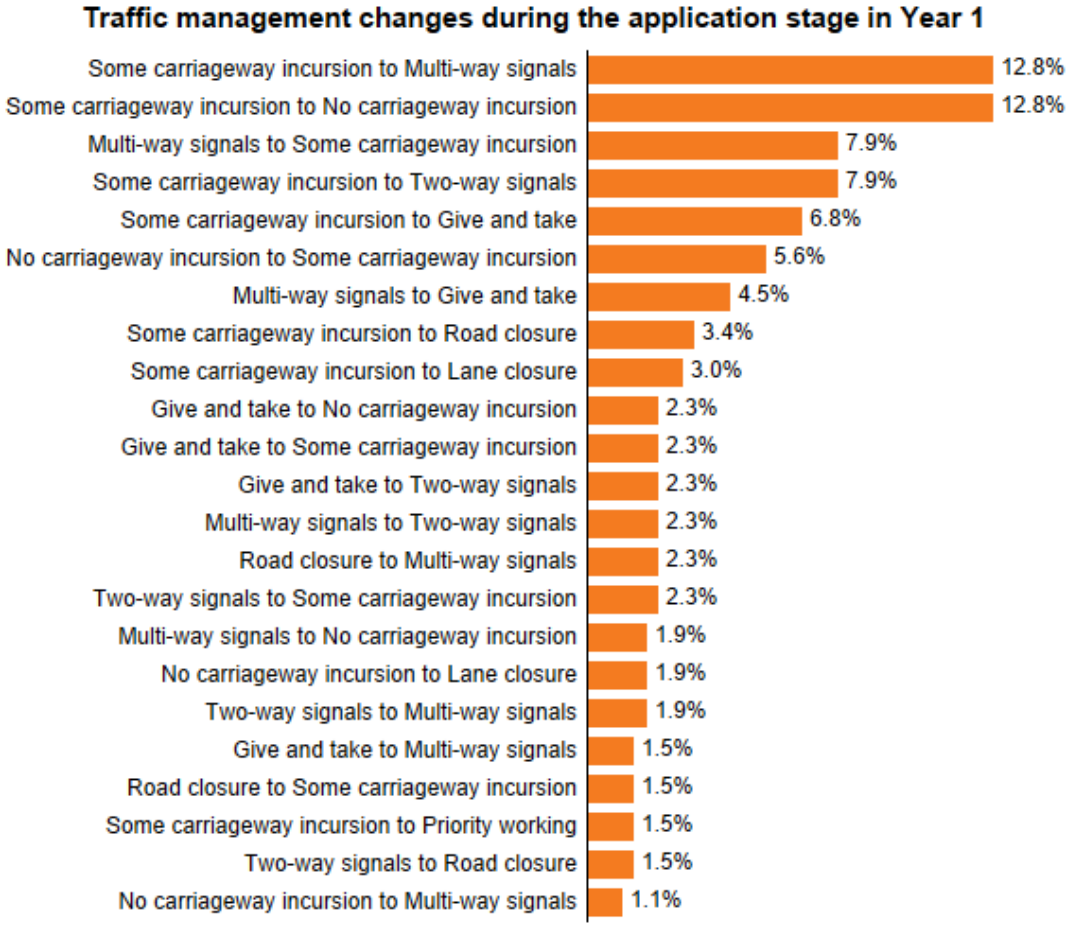
4.3.2. This analysis should demonstrate the proactive power of the Scheme for coordination, through changes being made to a permit and those at the request of the Council by refusing the initial application(s). The analysis considers changes to three key areas of the work that would permit conditions, duration, and traffic management.

4.3.3. 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).

The charts below show the number of instances where a change was made to a permit during the planning stage for conditions (left), duration decrease (middle) and traffic management (right).



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



4.3.4. As the process for refusing permit applications with refusal codes is not being followed, any changes cannot be directly attributed to the operation of the Scheme. Hopefully, future evaluations will be able to include this analysis once process changes have been made.

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. 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*;
- Changes to work details, *such as traffic control or work methodology*;
- Requests to extend the planned duration of the work, because of plant breakdown or other factors, *such as bad weather,* preventing or limiting work.
- Other unplanned activities on the network *such as emergency diversion route caused by an accident or other emergency work.*

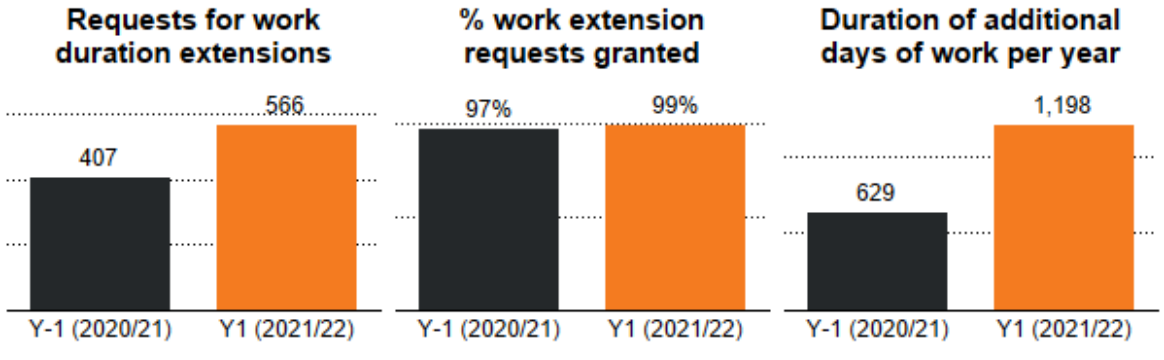
4.4.2. The types of permit variation fall within one of four different categories:

- **Highway Authority imposed change** where the Council want to make a change to the permit, either before or after work has commenced.
- **Permit modification** where a Promoter is responding to a permit modification request (refusal) from the Council during the application stage.
- **Promoter change request** where a permit has been granted and the Promoter wants to vary the permit.
- **Promoter imposed change** where a Promoter wants to vary a permit that is still in the application stage and has not been granted.
- **Work extension** where a Promoter wants to change the proposed end date of work (typically increasing the duration) once a work has commenced.

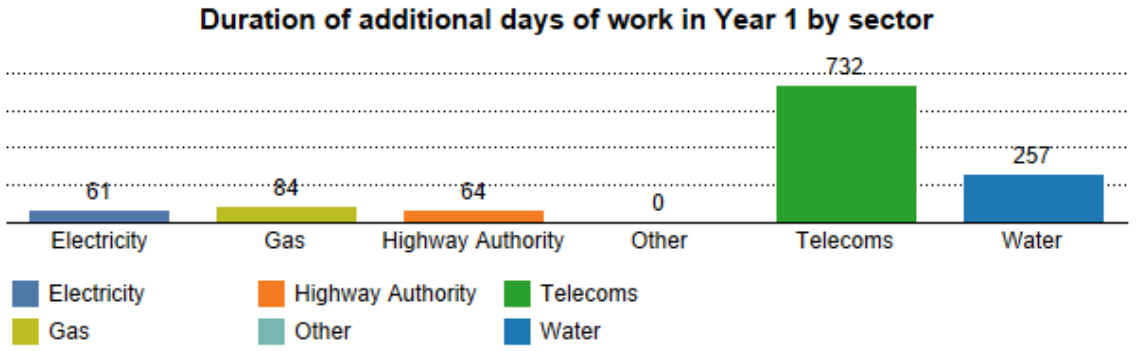
4.5 Work duration extensions

4.5.1. Section 3.9 considers work where the actual duration exceeds the planned duration without a duration extension. In most instances Promoters submit a work duration extension request when it is apparent that the works will take longer than planned, *for example if impacted by adverse weather conditions, or other unexpected events, such as plant failure.*

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



The chart below shows the total additional duration (whole calendar days) of work with a duration extension in Year 1 by sector.

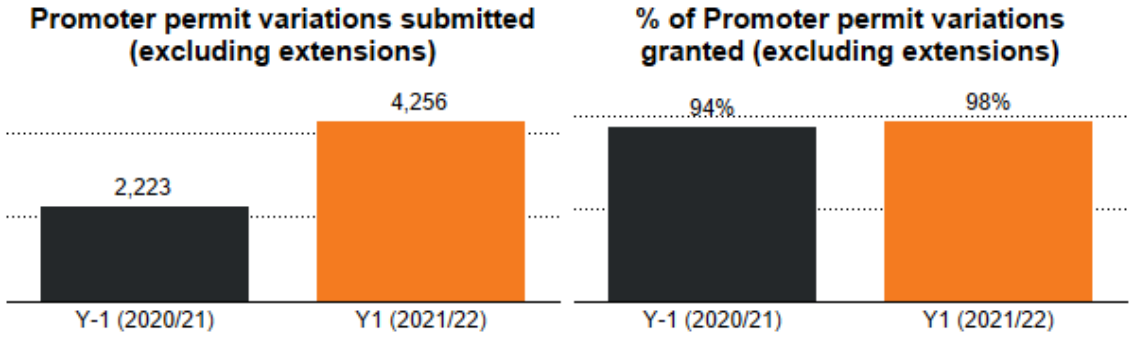


4.5.2. The level of work duration extensions has increased in Year 1, with a disproportionate increase in the duration of additional workdays. The telecoms and water sector are the main contributors to this increase, potentially due to their increase in works in Year 1.

4.5.2 Other variations from Promoters

4.5.3. Other variations from Promoters are mainly to make changes to permits (not duration extensions) prior to work start, to either change the planned work or at Council request.

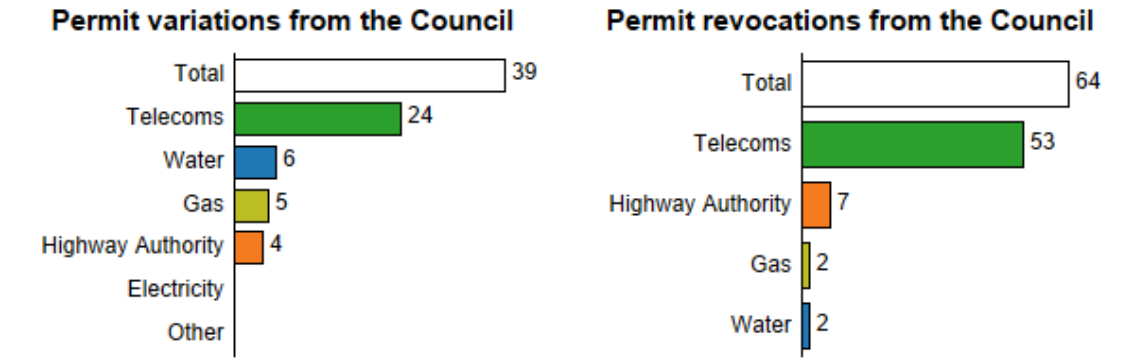
The chart below shows permit variations (excluding duration extension) issued by Promoters (left) and the proportion of Promoter variations granted as a % of total submitted (right). Applications that were cancelled or superseded before a response was given have been removed from this analysis.



4.5.3 Variations issued by the Council

4.5.4. There were 64 permit revocations in Year 1, mostly for the Telecoms sector. The reason for revocations comprised mainly: poor workmanship on site; clash with other unplanned work on the network; or actual work being undertaken has not been approved.

The chart below shows the volume of authority-imposed variations and permit revocations issued by the Council to Promoters (left) and the permit revocations issued by the Council (right).



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 process of a Promoter applying for a permit allows the Council to make changes to the work and where necessary apply conditions, within pre-define categories, to control and minimise the impact of the works, sometimes even before work starts, *for example advanced publicity of a road closure.*

5.1.2. The sub-sections below outline the conditions available to the Council. These 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.

5.1.3. Analysis and evaluation for the use of conditions can be difficult to undertake as there are many variables for a work that need to be taken into consideration, *such as the work methodology, location, use of materials or plant, timing of the work.*

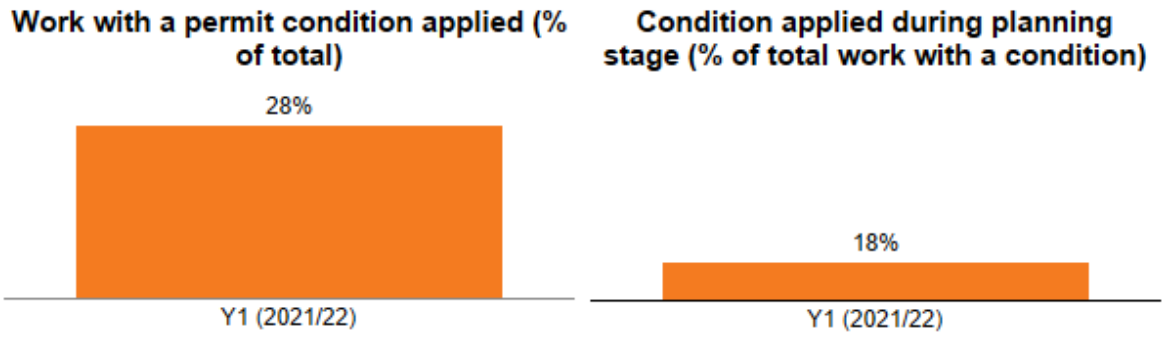
5.1.4. It can be impracticable to determine the criteria for a work and whether a condition could, or should, have been applied or not. In addition, it is not always possible to determine the effect of the condition or an outcome that can be quantified. **This analysis does not include conditions that apply to all permits, *such as displaying a permit number on a site board*, but only those that can be applied to a permit.**

5.1.5. 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. Typically a condition applied after application is at the request of the Council following a permit refusal.

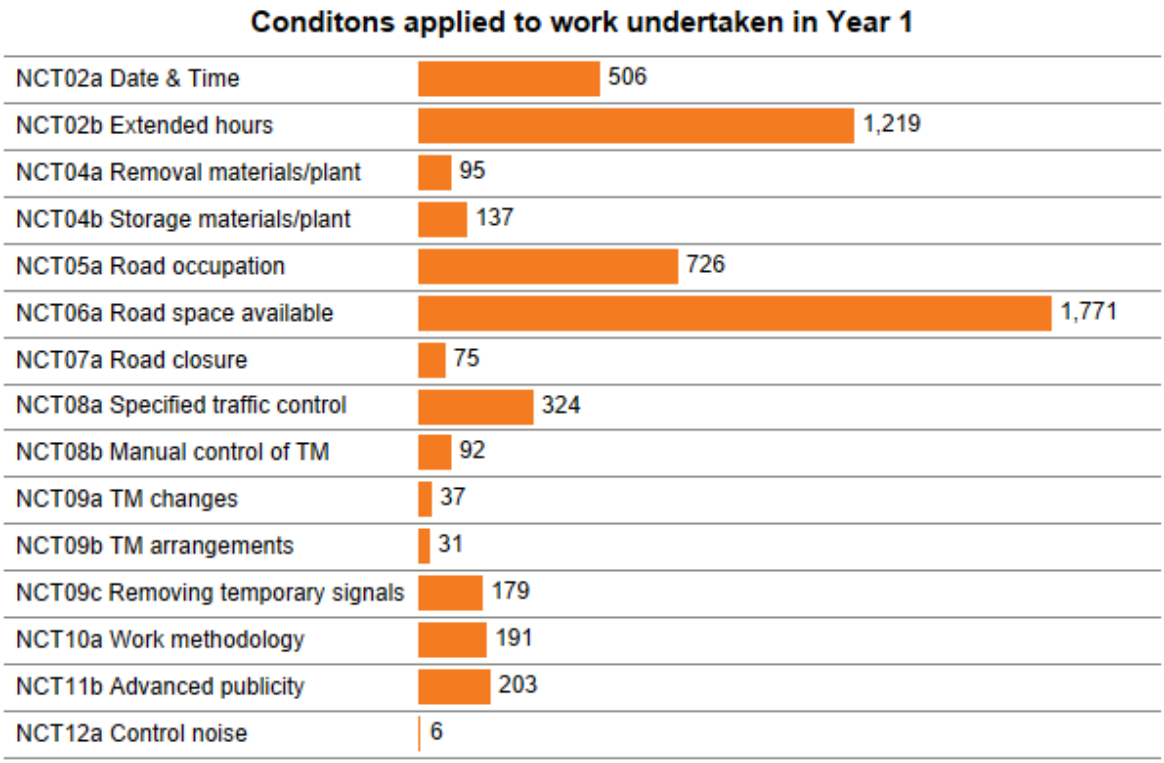
5.1.6. In Year 1, 28% of work undertaken had a permit condition applied, of which 18% were applied during the planning stage. Further analysis shows that the predominant conditions applied were for:

- Managing the road space available to traffic;
- Working extended hours;
- Limiting the date or time of work; and
- Controlling the traffic management.

The charts below show the proportion of work undertaken with <u>any</u> permit condition applied as % of total (right) excluding those conditions that apply to all permits without having to be added to a permit; and the % of those works where the condition was added during the planning stage (right).



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



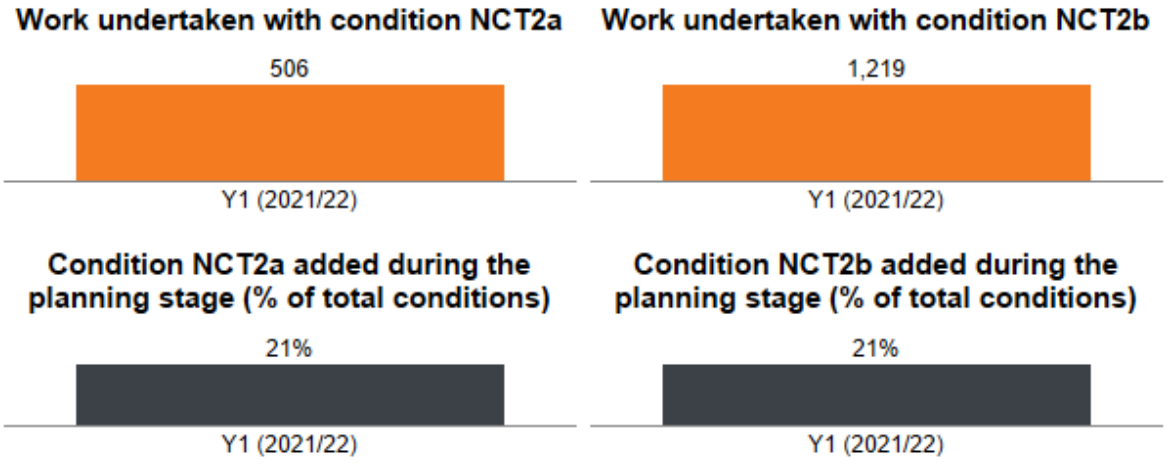
5.2 Conditions for Date & Time Constraints

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 (bottom).

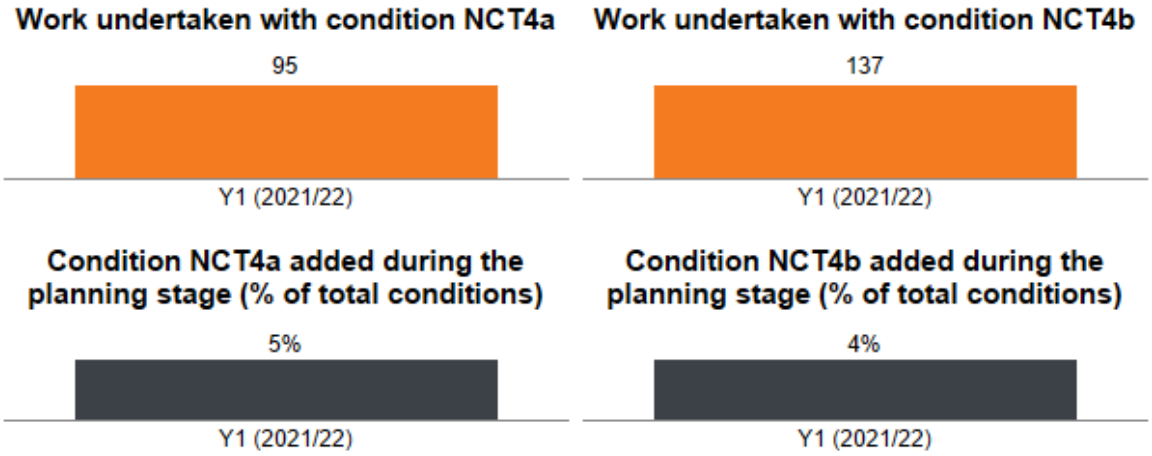


5.3 Conditions for Material and Plant Storage

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).

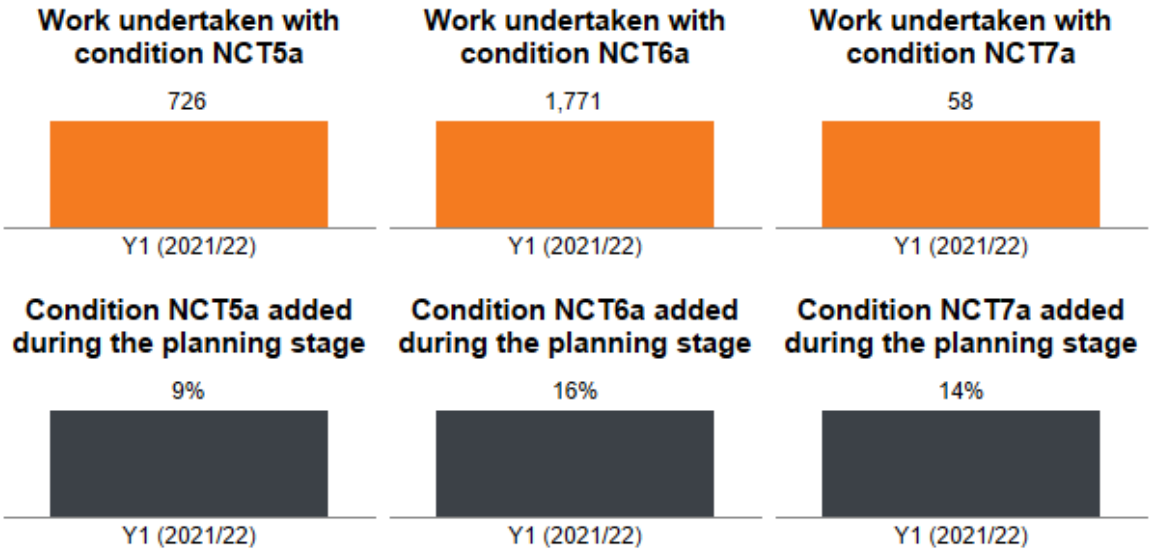


5.4 Conditions for Road Occupation

5.4.1. There are three conditions related to road occupation and traffic space dimension conditions, including a road closure:

- 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).



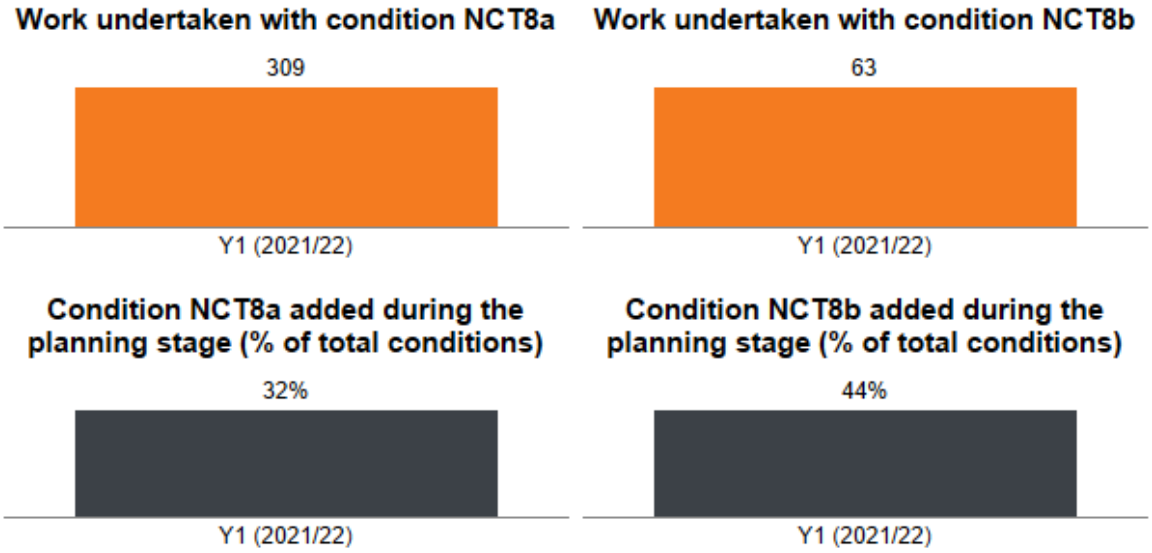
5.5 Conditions for Portable Traffic Signals

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).

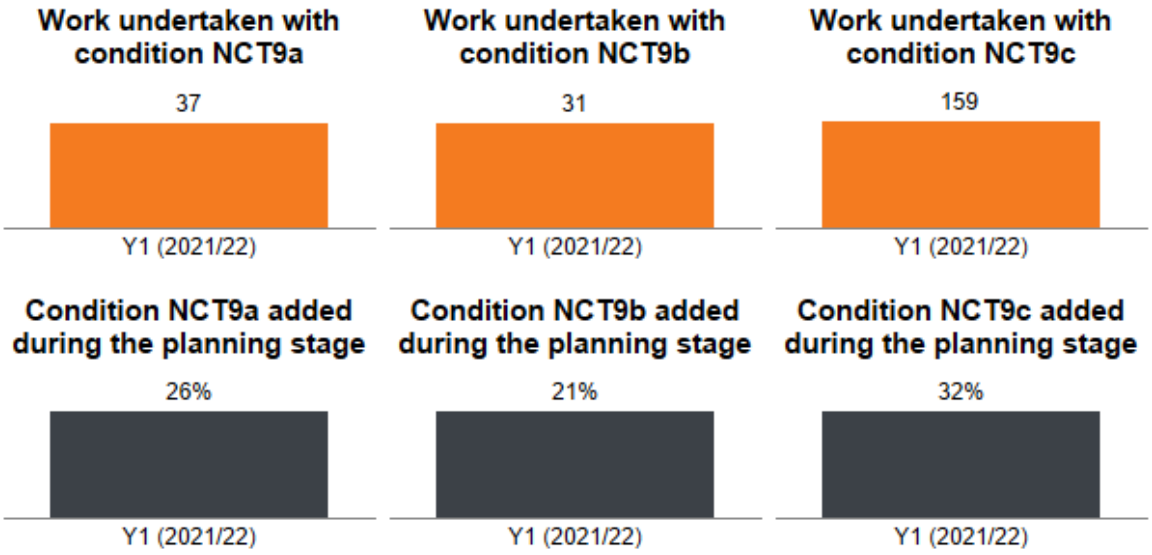


5.6 Conditions for Traffic Management Changes

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.

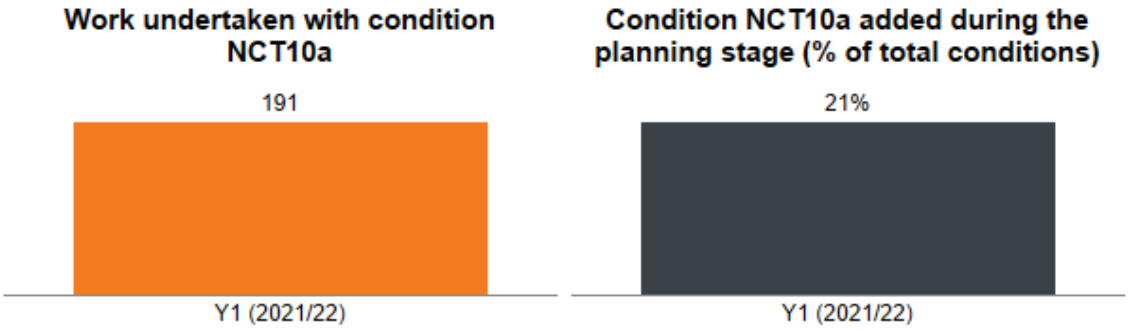
The charts below show the number of works undertaken with the specified condition (top) and the % of those conditions that were added during the planning stage (bottom).



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.

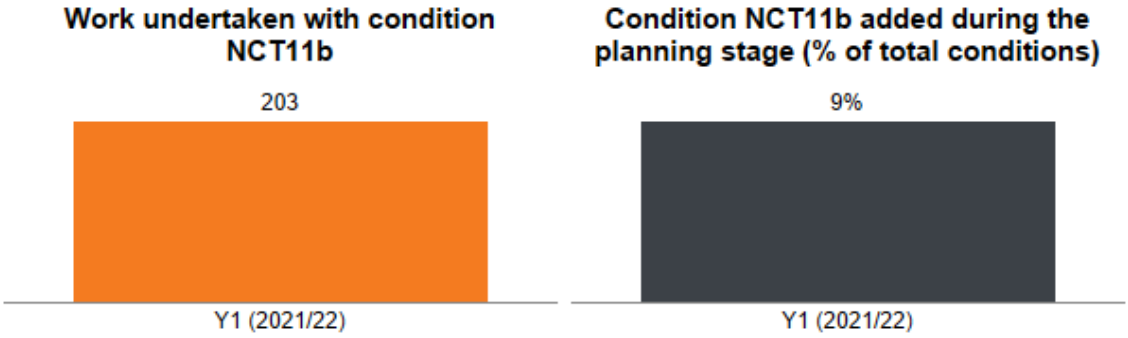
The charts below show the number of works undertaken with the specified condition (left) and the % of those conditions that were added during the planning stage for (right).



5.8 Conditions for Consultation and Publicity

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

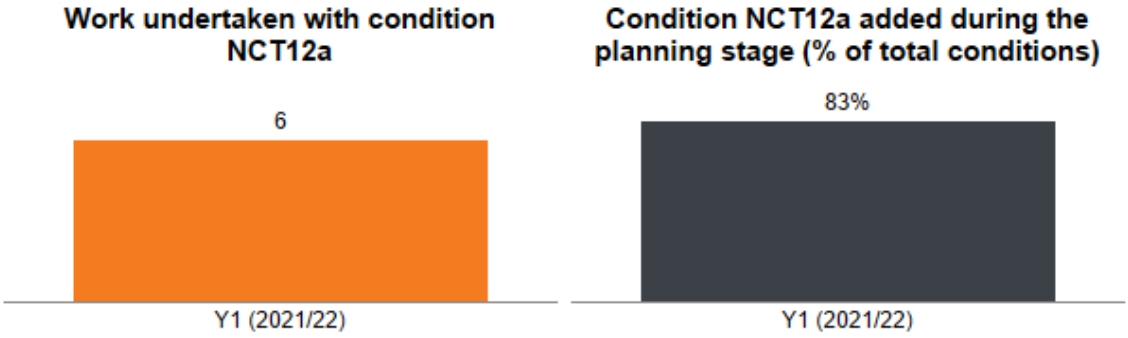
The charts below show the number of works undertaken with the specified condition (left) and the % of those conditions that were added during the planning stage (right).



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.

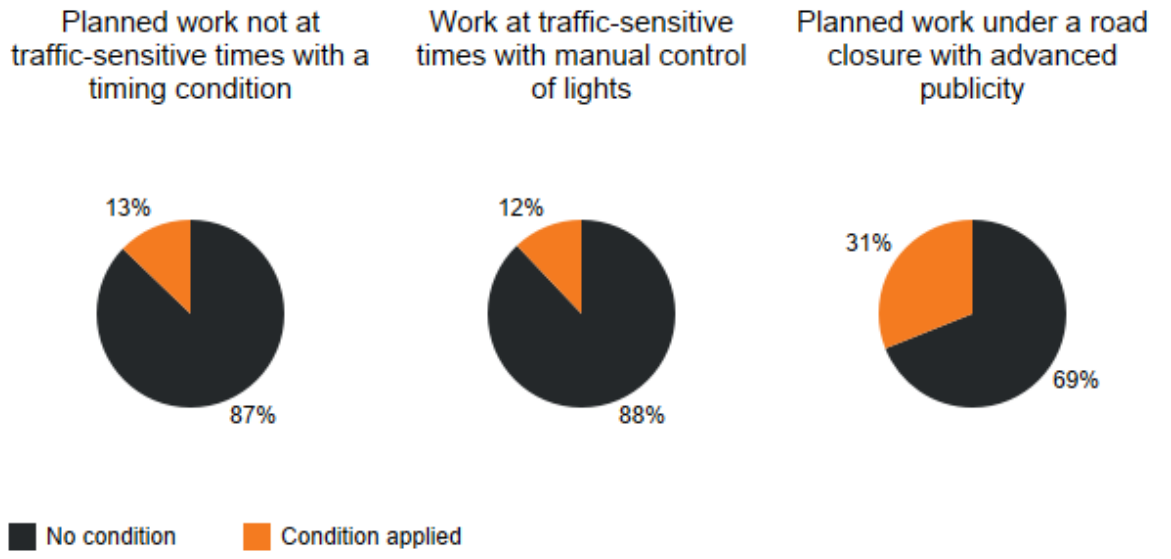
5.11 Benefits of conditions applied

5.11.1. It is difficult to effectively delineate work where a condition could *or may* be applied as 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.*

5.11.2. 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.

The charts below show the proportion of work with an application condition (as detailed above) for work in Year 1.



5.11.3. Overall, the proportion of work with an applied conditions within the three indicators is considered low. As such, it *could* be assumed that the overall application of conditions needs to be carefully reviewed to ensure they are applied and applied correctly.

- **It is recommended that the Council review the conditions on permits and how they are applied. Initially focusing on key areas of work at traffic sensitives times, advanced publicity for road closure and manual control of traffic management.**

6 Analysis of permit compliance

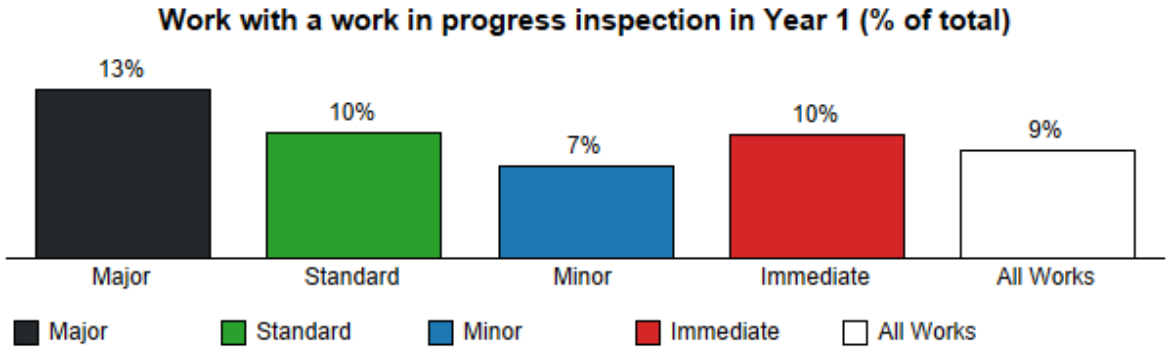
6.1 Permit compliance inspections

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).

6.1.2. The Council undertake all permit compliance inspections alongside their Category A sample work in progress inspections. In total, 9% of work undertaken had a permit compliance inspection. These inspections are not recorded as a permit compliance inspection in Street Manager unless an offence has been recorded. It is recommended that the Council record a separate permit compliance inspection for all these inspections to enable better analysis of volume and compliance.

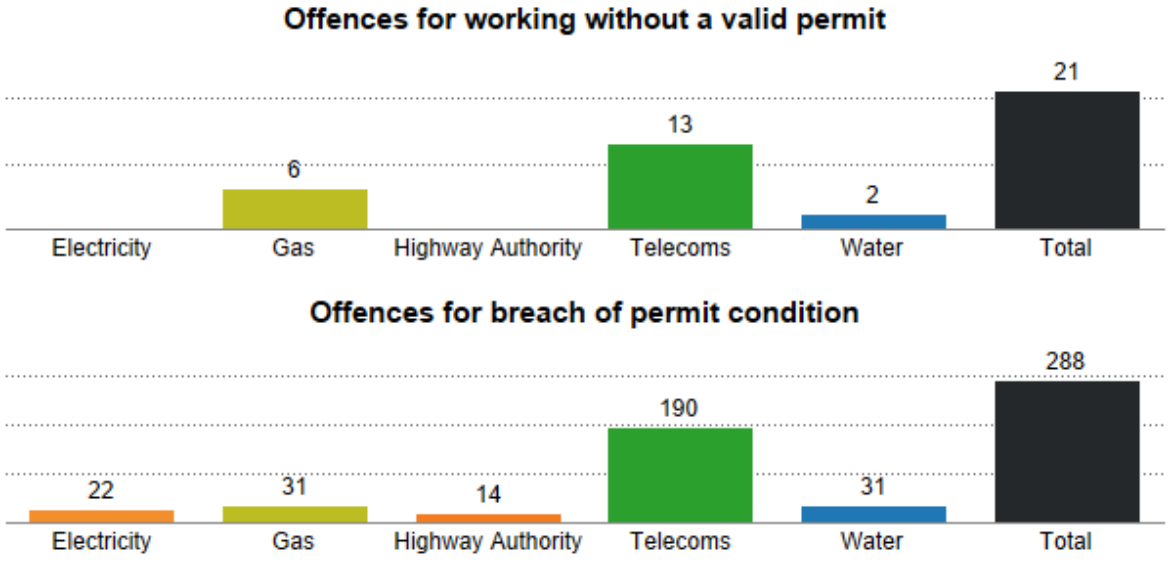
- **It is recommended that the Council record a separate permit compliance inspection within Street Manager.**

The chart below shows the proportion of work (% of total) undertaken in Year 1 with a Category A work in progress inspection, by delineated by work category.



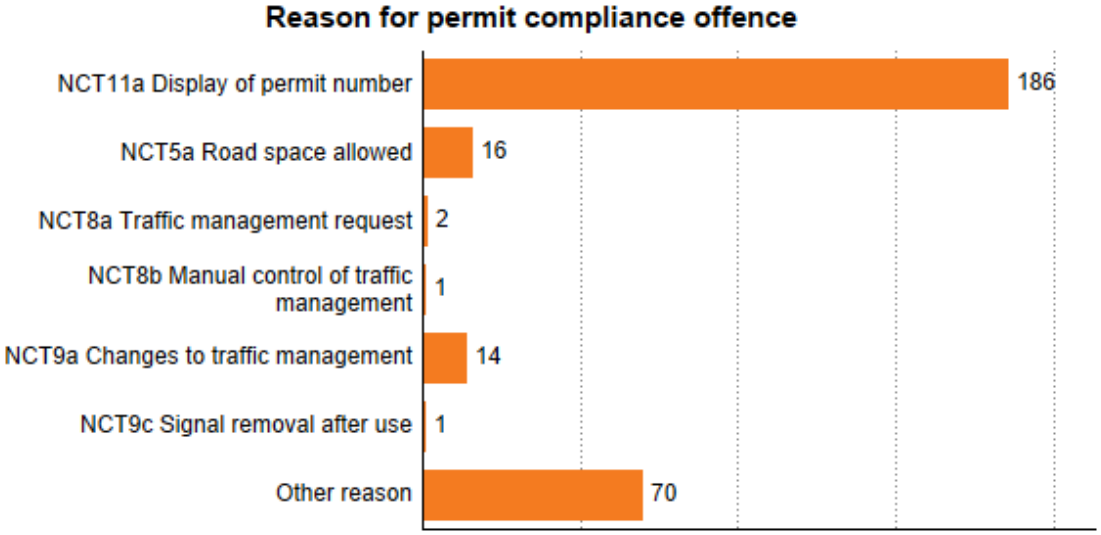
6.2 Offences for working without a valid permit or breach of condition

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 below shows the number of permit scheme offences, by their type, issued in Year 1 by sector.



6.2.2. The overall volume of permit offences is low, however there is a disproportionate level of permit condition breaches for the telecoms sector, with the primary reason for not displaying a permit number onsite.

The chart below shows the reason for permit offences, by the NCT code or other reason, issued in Year 1.



6.2.3. There are 70 permit offences that do not contain a specific reference to a condition code (other reason in chart above). The reason stated within the offence includes:

- Insufficient provision for traffic;
- No works taking place at agreed times;
- Failure to start or stop at agreed times.

6.2.4. The Council should ensure any offences contain direct reference to an applied condition, to remove any ambiguity or challenge for these offences.

- **It is recommended that the Council ensure permit offences for breach of condition contain direct reference to a permit condition.**

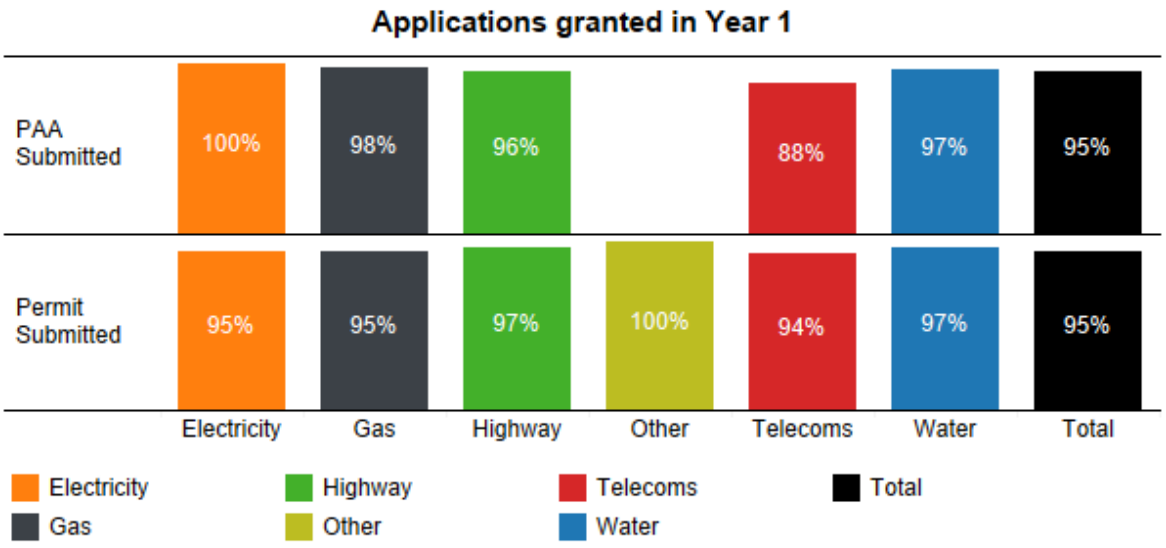
7 Analysis of parity treatment

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).*

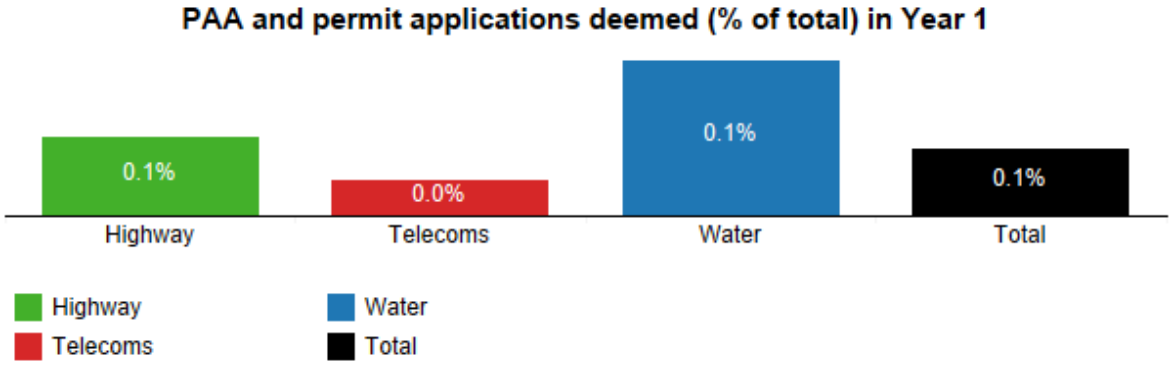
7.1.2. Parity treatment will be analysed using the following specific measures, show for each sector:

- 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;

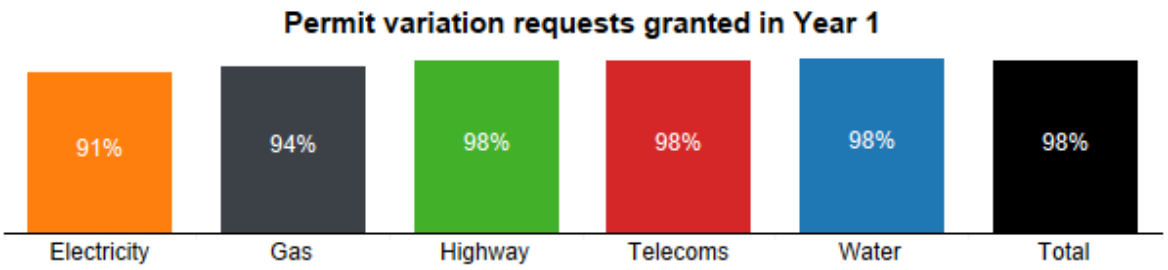
The charts below show applications granted (as a % of total received) by sector. The charts do not include applications deemed (granted), superseded or cancelled before a response was given.

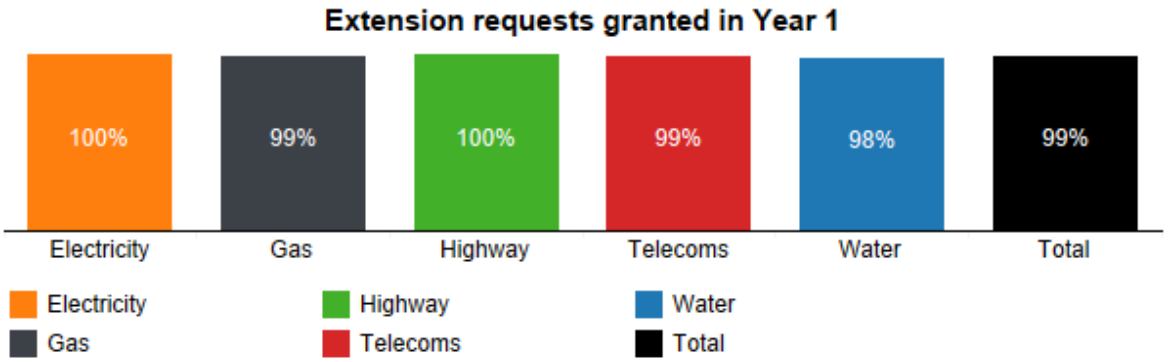


The chart below shows the % of PAA and permit applications (of total) that were deemed (granted). The charts do not include applications superseded or cancelled before a response could be given.

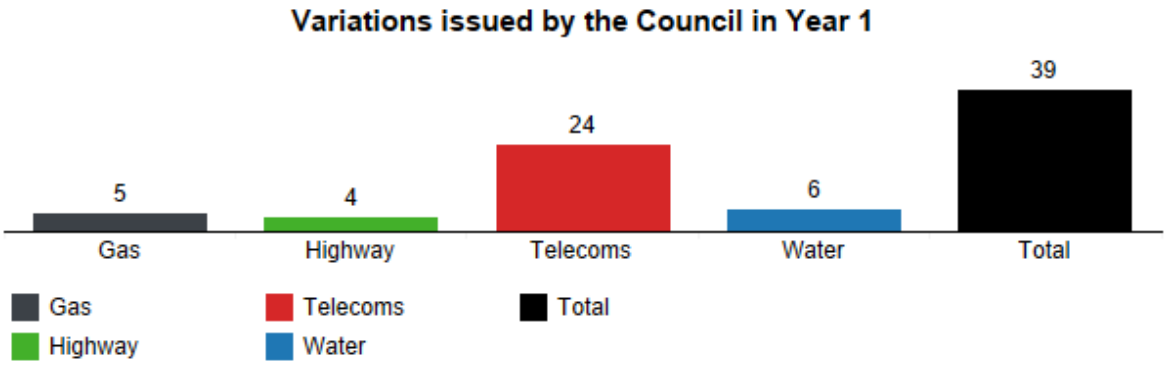


The charts below show the permit variation applications granted (as a % of total received) by sector. The variations are delineated by requests for extensions and other variations. The charts do not include applications deemed (granted), superseded or cancelled before a response was given.

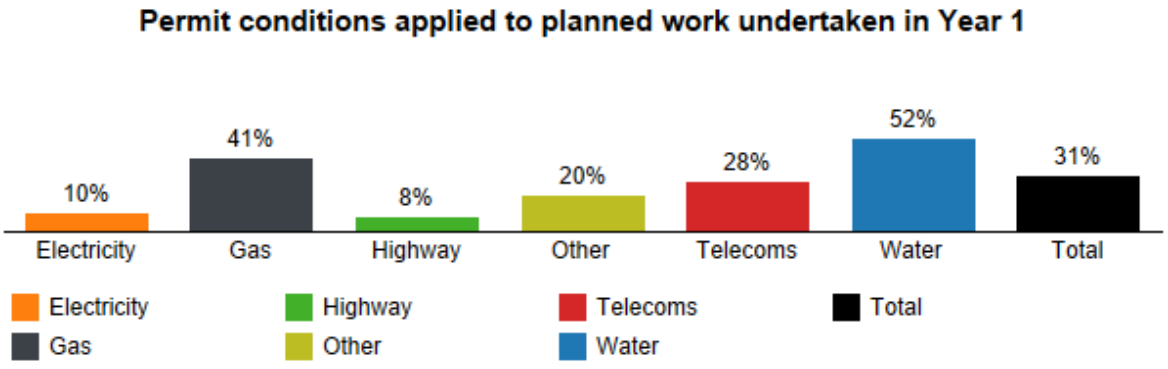




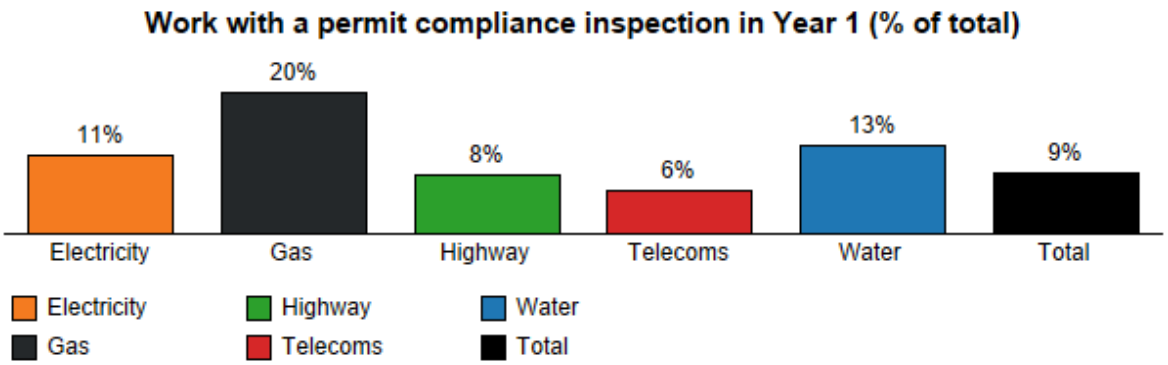
The chart below shows the number of variations issued to Promoters by the Council.



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



The chart below shows % of work undertaken with at least one permit compliance inspection (undertaken with a Category A work in progress inspection), as a % of total works, by sector.



7.2 Equality Impact Assessment

7.2.1. The Equality Act 2010 introduced the Public Sector Equality Duty, which requires all public bodies, including councils, to have due regard to the need to:

- Eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Act;
- Advance equality of opportunity between people who share a protected characteristic and those who do not; and
- Foster good relations between people who share a protected characteristic and those who do not.

7.2.2. In consideration to this Duty an **Equality Impact Assessment** aims to prevent discrimination against people who are categorised as being disadvantaged or vulnerable within society. An Assessment will therefore:

- Demonstrate due regard for the provisions of the Public Sector Equality Duty;
- Identify possible negative impacts of decisions on individuals and **groups with protected characteristics** and plan mitigating action accordingly; and
- Identify additional opportunities to advance equality within policies, strategies, and services.

7.2.3. The table (below) shows **protected characteristic groups** with a potential impact and the nature of any impact to that group from the operation of a permit scheme.[1]

Protected Characteristic Group	Potential for Impact	Positive or Negative Impact of street works environment and street management regime
Care leavers*	No	Not applicable
Children in care*	No	Not applicable
Disability	Yes	Positive
Gender reassignment	Yes	Positive
Marriage or civil partnership	No	Not applicable
Pregnancy and maternity	Yes	Positive

[1] Protected Characteristic Groups noted with an * are Council specific.

Protected Characteristic Group	Potential for Impact	Positive or Negative Impact
Race	No	Not applicable
Religion or belief	No	Not applicable
Sexual orientation	No	Not applicable
Sex (gender)	Yes	Positive
Age	Yes	Positive

7.2.4. The groups with a key impact are highlighted above. The main positive outcomes will relate to the way in which the street environment is planned and managed through the application process, site set up/site delivery and the role of spot checks by SBC to specifically take account of localised impacts on people with these identified protected characteristics. Specifically this will impact on pedestrians and those using mobility equipment of any kind, and the way in which the temporary traffic management and final remedial works are conducted, including quality of final finish. Under the provisions of the permit scheme the Council can further ensure work is carried out in consideration to the needs of **all vulnerable road users.**

- **It is recommended that the Council continue assessing the role of the permit scheme to meet the Councils Public Sector Equality Duty.**

7.2.5. Overall, the Council recognise that as work undertaken across the network is intended to maintain, improve and increase vital services this should increase opportunity for protected characteristic groups.

7.2.6. It is also recognised that whilst these works are undertaken opportunities may be impacted. The Council therefore needs to ensure that Promoters undertake their work with due consideration to protected characteristic groups. As such, the Council will seek to develop processes to demonstrate that work is undertaken with due consideration to these groups.

- **It is recommended that the Council develop a process and associated briefing/training to demonstrate Promoters are considering protected characteristic groups when undertaking work.**

8 Review of 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.

8.1.3. In Year 1 the Council received £160,751 from permit fees. With a recoverable cost of £202,006 there was an overall deficit of -£41,255. The recoverable cost includes pre-scheme costs, such as the recruitment of new staff before going live, which is a one-off cost to recover.

8.1.4. Looking ahead the Council expect the recoverable costs to reduce, *as pre-scheme implementation costs are recovered*, and for permit fee income to also reduce as the telecoms sector work across the Borough is completed. By Year 3 the Council expect to have recovered any accrued deficits and to be fully recovering their costs.

8.1.5. Unless there are any significant changes to the running balance for the permit scheme, *for a deficit or surplus*, the Council intend to continue with the current fee levels and review these in the anniversary evaluations.

9 Analysis of cost and benefit

9.1 Cost-benefit analysis

9.1.1. 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.

9.1.2. 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.

9.1.3. 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.

9.2 Scale and characteristics of works for analysis

9.2.1. Works data is available for a five-year period covering both pre and post scheme implementation. This data has been analysed to produce estimates of historical impact of works in Swindon.

9.2.2. The introduction of Street Manager in 2020 has provided a richer and more detailed source of data on the actual delivery of works including detailed timings and traffic management adopted. From this data, a more precise estimate of the actual impact that works have had on motorists has been possible, through the estimation of part-day works impacts, early finishes or overruns and outturn differences in original application and outturn delivery of works. The impact estimate using Street Manager data is therefore not directly comparable to estimates from previous years using EToN data.

9.2.3. To ensure the most rigorous analysis for the CBA, the Street Manager data from the most recent complete year (2021/22) has been used as the basis for estimating works impact costs and permit scheme benefits. The table (below) shows the number and durations of works (undertaken) for the most recent complete year.

The table below shows the total estimated impact cost for work undertaken for each year by traffic management type.

	Number of works	Duration of work (days)	Works impact cost (£)
No Carriageway Incursion	1656	3,772	0
Some Carriageway Incursion	7,387	35,311	61,909
Passive Traffic Control	418	3,284	213,610
Positive Traffic Control	821	5,402	2,890,063
Lane Closure	184	1,223	4,673,579
Road Closure	143	1,089	2,732,999
Total	10,609	50,080	10,572,160

9.3 Impact of work

9.3.1. 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.

9.3.2. The remainder of the 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.**

9.3.3. The estimated impact of the works with incursion into the carriageway have been modelled using the **QUeues And Delays at ROadworks (QUADRO).** QUADRO was originally developed for the DfT and designed to assess and monetize the impact of delays due to works.

9.3.4. 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.

9.3.5. 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)

9.3.6. Aggregation of the modelled impacts of works occurring in Swindon defines the scale of social cost of these works. The annual impact of roadworks undertaken in Swindon in Year 1 is estimated to be £14.543million (2020 prices). The average cost impact per day of work is £211.11.

9.3.7. It should be noted that work volumes vary year on year for a range of reasons, and therefore variance in roadwork impact cost should not be solely attributable to the permit scheme introduction.

9.3.8. 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.

9.4 Quantification of benefit of a permit scheme

9.4.1. 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.

9.4.2. 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.

9.4.3. 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 5.4% lower in authorities which had adopted permit schemes, which aligned closely with the default assumption of 5% works impact reduction previously adopted in assessments (DfT Permit Scheme Evaluation Guidance, 2016).

9.4.4. To ensure the most rigorous assessment of the impact of the permit scheme in Swindon, the national evaluation estimate of 5.4% reduction in impact under a permit scheme has been paired with the impact cost estimate for the 2021/22 Street Manager data.

9.4.5. The estimated works costs in Swindon under the permit scheme stand at £10.543million (see table above). Therefore, the benefit of the Swindon permit scheme is £603,500 (2020 prices).

The table shows the costed work impacts with and without the permit scheme and the overall benefit of permit scheme to society.

	Value
Societal Cost of roadworks with scheme	£10.572m
Societal cost of roadworks without scheme	£11.176m
Benefit of permit scheme to society	£603,500

9.4.6. 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.

9.4.7. 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 Cost for operating the scheme

9.5.1. Scheme benefits must be set against scheme costs to determine value for money – these costs include those incurred by the Council, including 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. 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.

9.5.2. 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 Appraisal Results

9.6.1. 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.

	Value
Net Present Benefit of Scheme	£10,038,597
Net Present Cost of Scheme	£1,892,894
Net Present Value of Scheme	£8,145,704
Benefit to Cost Ratio	5.3

9.6.2. The benefit to cost ratio (BCR) is a measure of value-for-money exhibited by a scheme. With a BCR of 5.3 the permit scheme can be defined as delivering greater benefit than it costs and classified as 'Very High Value for Money'.

9.6.3. It should be noted that with schemes generating significant revenues the BCR can become very sensitive to inputs. It should be interpreted alongside the net present value of the scheme to provide a complete picture of scheme performance. The full breakdown of the costs and benefits are shown in the **Analysis of Monetised Costs and Benefits (AMCB)** table (below). There may also be other significant costs and benefits, some of which cannot be presented in monetised form.

The AMCB table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. 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 above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Analysis of Monetised Costs and Benefits

Noise		*(12)*
Local Air Quality		*(13)*
Greenhouse Gases	782,574	*(14)*
Journey Quality		*(15)*
Physical Activity		*(16)*
Accidents	672,975	*(17)*
Economic Efficiency: Consumer Users (Commuting)	3,556,763	*(1a)*
Economic Efficiency: Consumer Users (Other)	5,335,144	*(1b)*
Economic Efficiency: Business Users and Providers	960,198	*(5)*
Wider Public Finances (Indirect Taxation Revenues)	1,269,057	*(11)*
Present Value of Benefits (see notes) (PVB)	10,038,597	
Broad Transport Budget	1,892,894	*(10)*
Present Value of Costs (see notes) (PVC)	1,892,894	*(PVC) = (10)*
OVERALL IMPACTS		
Net Present Value (NPV)	8,145,704	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	5.30	BCR=PVB/PVC

- (11) - sign changed from PA table, as PA table represents costs, not benefits

(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)

9.7 Emissions savings

9.7.1. A component to the costed benefits presented above 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 (additional fuel due to idling, or diversion etc).

9.7.2. In the initial year of the scheme (2021/22), the carbon emission generated by works within the Swindon area, as calculated within QUADRO, were valued at £634k (2020 prices), which represents around 6% of overall work impact cost.

9.7.3. The implied carbon emissions attributable to works amounts to 8,994 tonnes for year 1 of operations, equivalent to 3% of overall highway related carbon emissions produced within Swindon. The improved efficiency of works under the permit scheme means that the carbon emissions generated as a result of works may be expected to be lower than they would have been without the scheme.

9.7.4. 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 486 tonnes CO_2 from reduced delays.

9.7.5. 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 over 400,000 annual car kilometres CO_2 reduced.

9.7.6. Whilst this evaluation estimates the emissions savings from the operation of a permit scheme, there are practical measure the Council can undertake to ensure this benefit is realised. These include, but are not limited to:

- reducing the volume of work at high traffic flow periods with the potential to cause queues;
- reducing the use of queuing traffic at temporary lights;
- ensuring road closures with a diversion increasing the journey length and fuel consumed are limited.
    - **It is recommended that the Council consider the environmental impact of work, and the controls available to ensure this is limited wherever possible.**

10 Annex A: Evaluation methodology

10.1 Source data for analysis

10.1.1. This evaluation uses data collected Street Manager 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.

10.1.2. 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.*

10.1.3. Many of the measures 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 than any findings presented have been tested for certainty and any anomalies investigated and defined.

10.1.4. Prior to the introduction of the permit scheme, the Council had to use permit related functionality within Street Manager for their (NRSWA) notice regime . As such analysis within the report can compare the administration of the Scheme under a pseudo-permit scheme environment (Year -1).

10.2 Work phases

10.2.1. 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.

10.2.2. 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*.

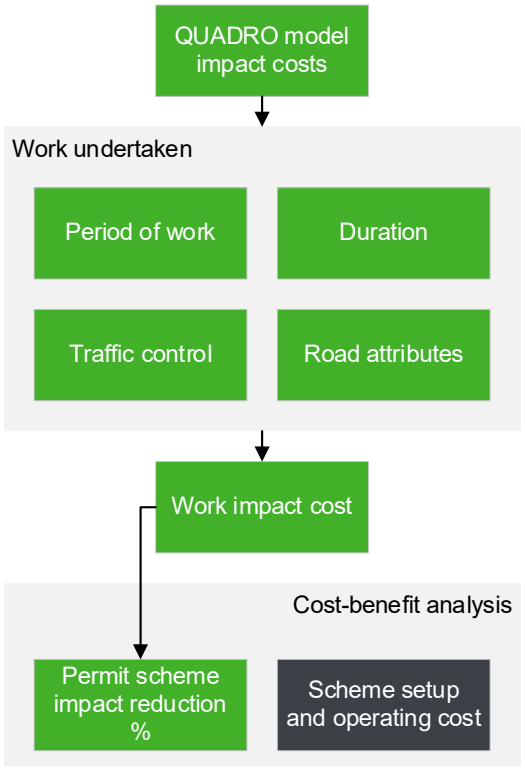
10.3 Duration analysis and adjustment

10.3.1. 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.

10.3.2. 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. This report contains analysis of duration based on time wherever possible.

10.4 Economic cost-benefit analysis

10.4.1. 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.



10.4.2. 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.

10.4.3. 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.

10.4.4. 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.

10.5 Period of analysis

10.5.1. Throughout this evaluation there is a reference to operating years. These years are based on the permit scheme years, where year one is the first year of the Scheme. The operating years before the scheme came into legal effect are show as negative years, i.e.

- Y-1 covers the period 1st October 2020 to 30th September 2021
- Y1 covers the period 1st October 2021 to 30th September 2022

10.6 Defining Promoter sector

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

11 Annex B: Glossary and common terms

Council	Swindon Borough 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.
Equality Act	The Equality Act 2010 covers a wide range of responsibilities for the public sector including the Public Sector Equality Duty. The Act defines a number of protected characteristics and Section 149 in particular stipulates that *"local authorities need to have due regard to the need to eliminate discrimination, harassment and victimisation; and (positively) advance equality of opportunity"*
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 Swindon Borough 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.
Protected characteristics	These are defined by Equality Act 2010 as: • disability • age • sex • sexual orientation • gender re-alignment • pregnancy and maternity • marriage/civil partnerships, • race • religion or belief • children and care leavers (additional category for Swindon)
Social Value	Social value is the quantification of the relative importance that people place on the changes they experience in their lives (socialvalueuk.org) Social Value is a broader understanding of value. It moves beyond using money as the main indicator of value, instead putting the emphasis on engaging people to understand the impact of decisions on their lives.
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
Utilities	Utility Infrastructure means poles, wires, cables, including fibre-optic cables, conduits, towers, transformers, pipes, pipelines or any other works, structures or appliances placed over, on or under land or water by a Utility Company.
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.
Work 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.

12 Annex C: HAUC Performance Indicators

12.1 TPI 1 Works Phases Started (Base Data)

Permit Scheme Year	Number of works
Y1 (2021/22)	9,649

12.2 TPI2 Works Phases Completed (Base Data)

Permit Scheme Year	Number of works
Y1 (2021/22)	9,424

12.3 TPI3 Days of Occupancy Phases Completed

12.3.1. The data shown for this performance indicator includes analysis using the work start and work stop notice dates and times.

Permit Scheme Year	Duration
Y1 (2021/22)	41,074

12.4 TPI4 Average Duration of Works

12.4.1. 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 (2021/22)	28.5	10.2	2.1	4.3

12.5 TPI5 Phases Completed involving Overrun

Permit Scheme Year	Overrunning Works
Y1 (2021/22)	102

12.6 TPI6 Number of deemed permit applications

12.6.1. 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.

Permit Scheme Year	PAA	Permit	Permit variation	Total
Y1 (2021/22)	1	10	4	15

12.7 TPI7 Number of Phase One Permanent Registrations

Permit Scheme Year	Permanent Registrations
Y1 (2021/22)	7,483

13 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.

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