The West & Shires Permit Scheme

Year Two Evaluation Report

Document Content

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Foreword

Traffic Manager

Warwickshire County Council

Introduction

In March 2015 Warwickshire County Council, together with Coventry City Council, introduced a permit scheme: The West and Shires Permit Scheme (WaSPS). The purpose of the permit scheme was to introduce more powers for the Council to control works taking place across their network and fulfil their statutory network management duty.

As part of the operation of a permit scheme, the Council is committed to undertake an annual evaluation of the scheme – this Evaluation is for the second operational year of the permit scheme (April 2016 – April 2017).

The Network Management Duty

The New Roads and Street Works Act (1991) places 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.

The Traffic Management Act (2004) and associated regulations widened this NRSWA coordination duty to include other prescribed activities that involve temporary occupation or use of road space. Part 3 of the TMA allows for an Authority to introduce a permit scheme to support the delivery of this duty.

The fundamental objective of a permit scheme is to create a common procedure to control activities on the highway. It is essential that all activities in the highway are effectively coordinated and managed to ensure that traffic disruption and inconvenience is minimised whilst allowing the Promoters of those activities (such as utility companies or the Council) the necessary time and space to complete their work.

Under the New Road and Street Works Act (NRSWA) organisations intending to carry out works on the Council's road network notify the Council of their intention to carry out these works. The Council has powers under NRSWA to provide direction to these works and apply penalties for non-compliance, *for instances where the works are not carried out according to the notice served.*

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 their completion.

Powers under a Permit Scheme

The powers provided under a permit scheme differ from previous powers for managing works in many key ways:

- 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 works to impose constraints; and
- new sanctions with fixed penalty notices for organisations working without a permit or in breach of conditions (of the permit).

The capability provided through these powers is proving essential for the Council to deliver the network management duty and ensure the most effective and efficient use of the network.

Specified Works

A permit scheme covers the same works as specified in NRSWA – street works, carried out by statutory undertakers (utility companies) and road works, carried out by, or on behalf of, the Council to maintain the roads. Collectively, these works are defined as registerable activities and fall under distinct categories:

- **Major** – works with a planned duration of 11 days or more or require a temporary traffic regulation order, such as a road closure;
- **Standard** – works with a duration of between 4-10 days;
- **Minor** – works with a duration of three days or less: and
- **Immediate** – works that are required for urgent or emergency purposes and commence immediately due to their nature.

Permit Scheme Legal Order

The WaSPS was brought into effect under the provisions of the Traffic Management Permit Scheme (England) Regulations 2007, *as amended in October 2015.*

Initially the permit scheme was brought into legal effect on 16th March 2015 through a Statutory Instrument (2014 No. 3310) by authority of the Secretary of State for Transport.

Following the subsequent amended of the regulations in 2015 the Council made a new legal Order for the WaSPS. A copy of this Order is available on the Councils website.

Permit Scheme Evaluation

Regulation 10 of the 2015 Traffic Management Permit Scheme (England) (Amendment) Regulations inserts a new regulation (16A) into the 2007 Regulations.

This new regulation makes provision for the content and timing of permit scheme evaluations which states that permit schemes be evaluated following the first, second and third anniversary of the scheme's commencement and then following every third anniversary. The regulation states that, in its evaluation, the Permit Authority 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.

This report has been developed by the Council to provide an evaluation for the second year of operation of the WaSPS and includes the provisions set out within the regulations. The content of this report, including many of the measures, has been based on guidance and advice issued by the Highway Authorities and Utilities Committee (HAUC) for permit scheme evaluations.

This report contains many technical terms and abbreviations, for which a glossary is provided.

Objectives of WaSPS

From the outset of the introduction of a permit scheme the Council established the objectives and benefits expected from the WaSPS. Section 2.3 of the WaSPS sets out the key objectives of the permit scheme, which are to achieve the following

- increase the efficient running of the highway network by minimising the disruption and inconvenience caused by road works and other highway events and activities through proactive management of activities on the highway;
- improve the quality and timeliness of information received from all activity promoters to increase and improve the publicly available data for integration into the Council-wide travel information;
- encourage a proactive approach to planning and undertaking of works on the highway from promoters and thus lessen the impact of activities on road users;
- protect the structure of the street and the integrity of the apparatus in it;
- ensure safety of those using the street and those working on activities that fall under the Scheme, with particular emphasis on people with disabilities;
- ensure parity of treatment for all activity promoters particularly between statutory undertakers and highway authority works and activities.

It was recognised that the successful performance of the WaSPS should bring many subsidiary benefits. These benefits include:

- maximising the safe and efficient use of road space;
- providing reliable journey times;
- improving the resilience of the network;
- minimising inconvenience to all road users;
- improving public satisfaction.

Executive Summary

Summary of Year 2 Works

In Year 2, the Council received 19,237 applications for a permit (to undertake work), which resulted in 13,883 works being carried out.

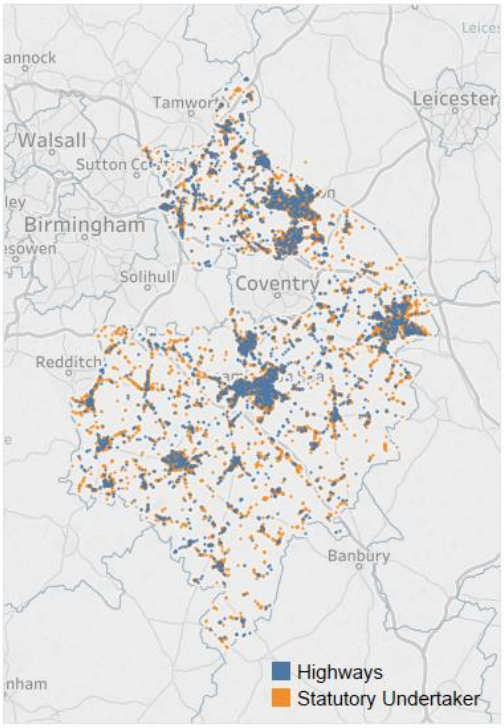
As an average, this equates to 38 new works starting every day which is an overage 2 works starting every hour of every day.

3,710 highway works, *carried out by or on behalf of the Council*, to maintain the roads were undertaken, which represents 27% of total works.

10,173 statutory undertaker works, *by utility companies*, were undertaken, which represented 73% of total works.

In total, these works resulted in 57,946 days of network occupation. Of these days there were 5,205 days of road closures and 19,286 days where works were undertaken using a positive form of traffic control, *such as a lane closure or temporary traffic signals.*

Works Carried out within Warwickshire in Year 2



Measuring the Objectives of WaSPS

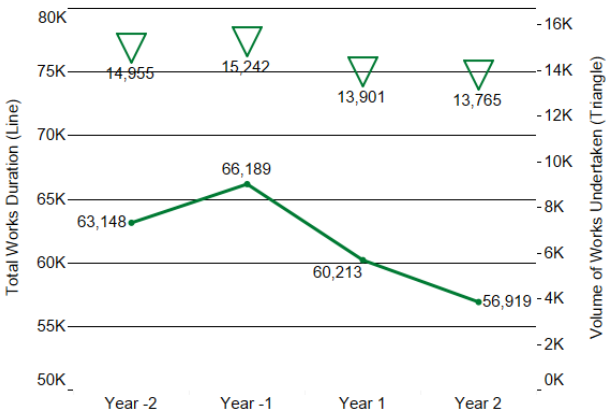
The evaluation of the WaSPS sets out to assess the operation and performance of the scheme and how it has had a positive impact in controlling these works and in doing so achieving the stated objectives. The evaluation seeks to identify areas of operation that have led to quantifiable changes and to measure, *where possible*, the impact of these changes.

For this evaluation a period of 4 years was analysed – two years of operation prior to the permit scheme coming into legal effect (under a notice regime) and the first two years of scheme operation. This period provides an opportunity to measure both the changes during the scheme operation and changes prior to the operation of the permit scheme – a before and after analysis.

Increase the efficient running of the highway network by minimising the disruption and inconvenience caused by road works and other highway events and activities through proactive management of activities on the highway.

One of the main ways to minimise the disruption and inconvenience caused by works is to reduce the overall occupation on the highway.

In Year 2 evaluation the volume of occupation has proportionally decreased, together with the average duration of works (by works category), when compared to the previous three years (which include 2 years of operations prior to the introduction of the scheme). Refer to chart right.



Further analysis shows that as a direct result of actions by the Council, *such as challenging durations of proposed works*, there has been a potential reduction of 2,840 days of occupation, which is an c.5% of the total duration for the year. Using an average daily impact cost for these works this results in a cost saving of c.£607,000 through reduced occupancy.

The measure of occupation also needs to be considered in relation to the timing of works, *for example a 3-day work may amount to 12 hours of occupation because of control and limitations set by the Council instead of an assumed 72 hours*. The Council apply this control through a condition for limiting the days and times of day of works. Analysis of this condition shows that on average a timing condition was applied to 36% of works undertaken, which typically aligns the working time to relevant off-peak periods (non-traffic-sensitive times) for the specific road.

The cost-benefit analysis developed for the evaluation identified an overall impact cost of c.£11.5milion from works carried out in Warwickshire in Year 2. From an established assumption that the operation of a permit scheme can result in a 10% reduction in the impact of works there is an estimated benefit to society of £1.375million from the operation of a permit scheme.

When comparing this benefit to the costs of operating the permit scheme (c.£865,000) this results in an overall Benefit to Cost Ratio of 6.09. This BCR is defined as demonstrating a **very high value for money**.

In consideration to the application of a condition for timing, *using the assumption that this condition would limit works to an off-peak time*, the analysis showed a potential impact cost reduction of c.£1.6million, thereby reducing a quantifiable impact by 70%. This measure alone would deliver more than the assumed 10% reduction of impact used for the CBA and prove the scheme to be delivering a strong benefit and value for money.

Improve the quality and timeliness of information received from all activity promoters to increase and improve the publicly available data for integration into the Council-wide travel information.

The volume of notifications (for works) received from Promoters (those organisations undertaking works) has remained consistent, with no obvious variations across the period of analysis. The number of works being undertaken without a permit (as captured by the Council's Inspectors) has decreased by 72% in Year 2, from Year 1, and represents 1.6% of total works undertaken.

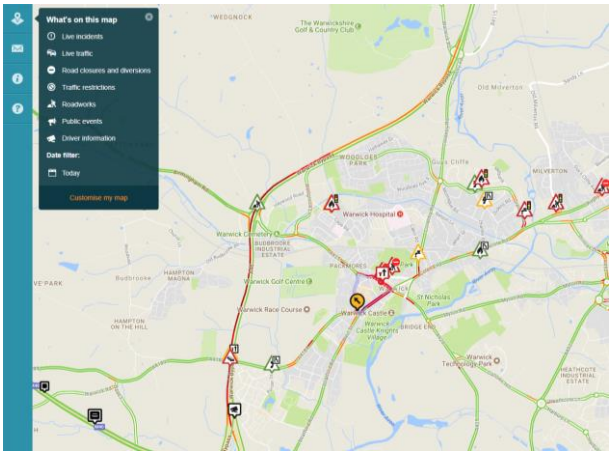
The Council issued rejections for an average 13% of permit applications and a request for modification for an average 25% of permit applications, *including urgent and emergency works where the actual works were in progress at the time of the notification*. The use of this modification request has ensured that the information contained on the permit, which is published to the road user, is accurate and reflects the nature and impact of the work correctly.

Permit variations received by the Council, *not as a response to a permit modification request from the Council*, vary between requests to extend the duration (4% of works undertaken) and changes to the details of the permit (8% for works undertaken). The volume of requests to extend the duration of the permit have decreased from 12% in Year 1 to 4% in Year 2.

The submission lead time for initial applications from the Promoters has seen a minor increase, however on average this lead time represents nearly double the minimum lead time a Promoter should conform to. The evaluation has not been able to consider instances where the Promoter has subsequently requested an early start, to bring forward the proposed dates of work after the initial application, but even when these instances occur the Council has the control to agree or reject these applications. This analysis will be undertaken within the Year 3 evaluation.

Overall, the consistent volume of permit applications together with the decrease in works undertaken without a permit and the response to permit applications and variations indicates that the Council has a good visibility of works and therefore the capability to control works across the County.

The Council continues to publish information on planned and current roadworks through roadworks.org (*see image right*) which is a publicly accessible website for national roadworks data.



In addition to publicity through roadworks.org and the increased visibility of the initial proposal for works, the Council has also increased the use of consultation and publicity conditions on Major works (works involving a temporary traffic regulation order and/or over 10 days in duration). In Year 2 this condition was applied to 68% of Major works undertaken, primarily to ensure advance publicity of works and engagement with potentially impacted network users, *such as bus operators.*

Encourage a proactive approach to planning and undertaking of works on the highway from promoters and thus lessen the impact of activities on road users.

The Year 2 evaluation does not provide any evidence that a proactive planning and undertaking of works by works promoters is taking place, however this is potentially more of a result of the analysis conducted and not the lack of this approach.

The Year 3 evaluation will contain more analysis within this area, specifically to identify the following changes:

- durations of works requested and any changes applied by the Council;
- proactive changes to the way in works are undertaken, *such as working extended hours;*
- the use of appropriate traffic management for works, reviewing the traffic management initially requested and any subsequent changes;
- the proactive application of conditions by the works promoter and changes requested by the Council; and
- opportunities for collaboration and how often these are undertaken.

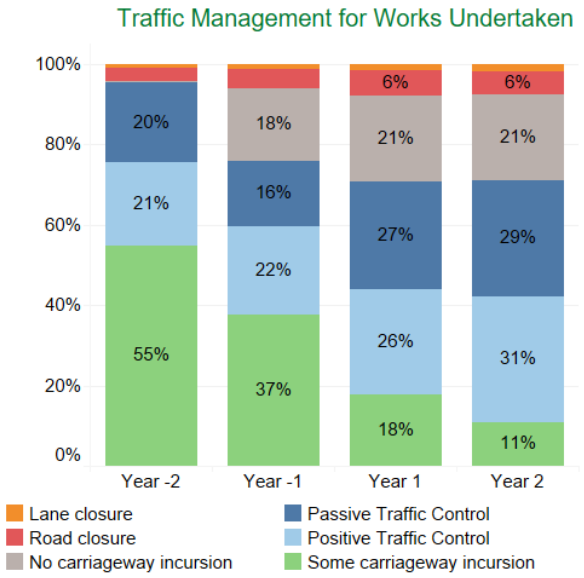
Protect the structure of the street and the integrity of the apparatus in it.

The Council has used the WaSPS to enforce their NRSWA Section 58/58A restrictions – to prevent a road from being dug up, *after a defined agreed period*, following the road being resurfaced or reconstructed. There is no quantitative analysis for the application of this restriction, however anecdotally the Council have observed greater control to protect the street after resurfacing since the introduction of the WaSPS.

Ensure safety of those using the street and those working on activities that fall under the Scheme, with particular emphasis on people with disabilities.

In consideration to safety of road workers and road users, the use of correct traffic management for works, *as set out under the Safety at Street Works and Road Works Code of Practice*, is essential. The introduction of the WaSPS provided the Council with more capability to review and verify the proposed traffic management arrangements for works and where necessary amend the traffic management to a more suitable method to ensure safety, whist balancing the impact of different forms of traffic control.

Since the start of the WaSPS, the application of traffic management has seen the greatest change. Prior to the scheme coming into effect, over 55% the works were carried out under a potentially ambiguous traffic control “some carriageway incursion”, during Year 1 and Year 2 these designations have changed to more defined forms of traffic control – either passive or positive – or changes to the works to ensure there is no carriageway incursion, *for example parking the works vehicle away from the site*. (refer to chart right).



This change has mostly applied to statutory undertaker works as highways works were predominantly carried out under a more defined form of traffic management.

The volume of works undertaken under a road closure has significantly increased, which is because of proactive action by the Council to ensure works that require this form of traffic control have this in place. Prior to the WaSPS coming into effect, many works were carried out without road closures where the provisions for traffic, *such as carriageway width or alternative routes for pedestrians*, were insufficient and not safe – the WaSPS has enabled the Council to address this issue and improve safety for the road user.

Although the volume of specific passive, positive traffic control and road closures has increased, the % volume of total duration of works under traffic management has not increased by the same levels, which reflects the Councils coordination and control of these works to minimise occupation.

The overall changes to the use of traffic management demonstrate a positive effect from the introduction of the permit scheme, to ensure works are carried out under the correct safety methods.

Ensure parity of treatment for all activity promoters particularly between statutory undertakers and highway authority works and activities.

The nature of works carried out by statutory undertakers and highways are different, with varying locations of works and uses of traffic management, therefore establishing and measuring parity treatment can be difficult.

Overall, the evaluation has demonstrated that the controls and any subsequent changes applied to works promoters are done so uniformly. There are no instances where there is an obvious difference between the two works promoter types – highways and statutory undertaker.

The introduction of the WaSPS has resulted in different changes by the promoters, *such as the application of traffic management*, however the results from Year 2 show a level of proportionality has been established. This provides a platform on which future parity treatment can be monitored and evaluated.

Evaluation Methodology

Performance Measures & Indicators

The measures and indicators contained within this evaluation align to the WaSPS Objective Measurements, but also to the HAUC Advice Note: Guidance Operation of Permit Schemes. Appendix 2 of this document sets out a report template for the "Evaluation of Permit Schemes" together with performance indicators and measures.

Section 2.4 of the WaSPS contains a number of Key Performance Indicators and Operational Measures for the scheme, which form the overall Objective Measurement (evaluation), of the WaSPS. Section 14 of the WaSPS sets out a number of measures for the evaluation of operational performance, these include:

- number of overrun incidents;
- average road occupancy and number of days of reduced occupation;
- number of collaborative works and the days of saved occupation;
- number of refused permit by refusal reason;
- number of cancellation as a percentage of granted permits;
- first-time permanent registrations;
- Category A 'in-progress' inspection results; and
- Permit condition inspection results.

Where data is available and a sound measure can be provided, the above measure have been included within this Report.

Works Data Analysis

The evaluation for Year 1 was limited by the data available for analysis. Since then, the Council has worked with a third party, Open Road Associates, to extract full data from the Exor Streetworks system. This has enabled both a more thorough analysis for Year 2, together with a review of the year 1 and pre-scheme data for a wider analysis over time.

The actual works data collected contained the content of notifications sent between those organisations undertaking works, *such as the Councils Highways contractor and utility companies*, referred to as a Promoter and the Council.

Analysis of these notifications and their content enables the Council to produce metrics on which performance indicators and measures can be produced.

Within this period the works analysed only include those that have reached the end of their lifecycle, which is identified either from their status or where sufficient time has passed since the planned work end date.

The status of the work is determined by the work state reached, *for example work completed with excavation*, and the last notification type received, *for example if a work notification is:*

- "Grant Permit" then it is assumed this work did not progress to a start and therefore not undertaken;
- "Works Stop" then it is assumed the works were undertaken.

Interpretation

To ensure that interpretation of the data provides an evaluation that is not only fit-for-purpose, but is also consistent with industry standards, measurements were predicated on current specifications, such as the HAUC TMA Performance Indicators.

As an example of the application of this, durations contained within this Report are based on the dates provided within the works start and works stop notifications. The HAUC TMA Performance Indicators do not include any target values or an acceptable level of performance, therefore an acceptable level is assumed for the measures.

Evaluation Data and Measures

The charts and tables within this Evaluation are generally delineated into distinct categories, with higher-level detail contained within the charts and a lower level detail contained within the tables.

These categories are:

- **Works Category**: refer to box right.
- **Works Promoter**: Highway (road works) and Statutory Undertaker (street works).
- **Permit Category:** Provisional Advanced Authorisation (for Major works)**,** permit application or permit variation; and
- **Works Status**, such as works undertaken.

Data is shown within periods reflecting the permit scheme operational years, i.e. Year 1 is March 2015 to March 2016. Year -1 and Year -2 are the years (March to March) proceeding the introduction of the permit scheme.

Therefore, Years -1 and -2 represent the operation of a notice regime and Years 1 and 2 cover the operation of the permit scheme.

Works Categories

Major works are works that are over 10 days 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*, i.e. not planned.*

Cost-Benefit Analysis

The purpose of the cost-benefit analysis (CBA) undertaken for this Evaluation is to re-evaluate whether the scheme is delivering the benefits anticipated in the preparatory stages, and to demonstrate that when set against the additional costs of running the scheme, these benefits represent value for money.

Reviewing the value for money delivered by the scheme will involve:

- analysis of the quantity, duration and characteristics of works observed;
- estimation of the scale of impact of the observed changes in roadworks occurrences in terms of delay, vehicle operating costs, accidents and emissions;
- quantification of the savings generated as a result of the permit scheme.

More detail on the development of the CBA is contained within the Costs and Benefit Analysis section of this document.

Evaluation Analysis

Notice and Permit Applications

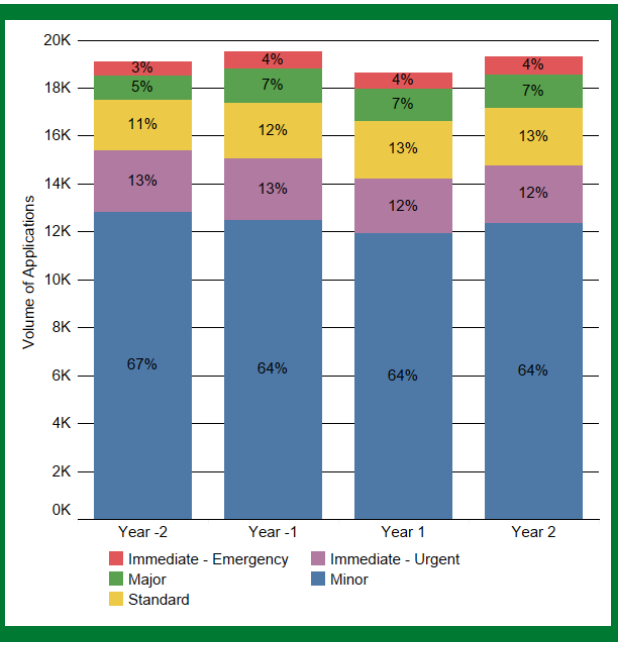
The tables below show the volume of permit applications received by the Council for each operational year. Only the initial permit application has been counted for this measure, not repeated or duplicated applications.

Volume of Notice and Permit Applications Received (All Works Promoters)

The chart shows the volume of notice or permit applications received within each year, delineated by works category.

The chart only shows the volume of initial applications received, not any repeat applications.

This chart shows the applications from all works promoters.



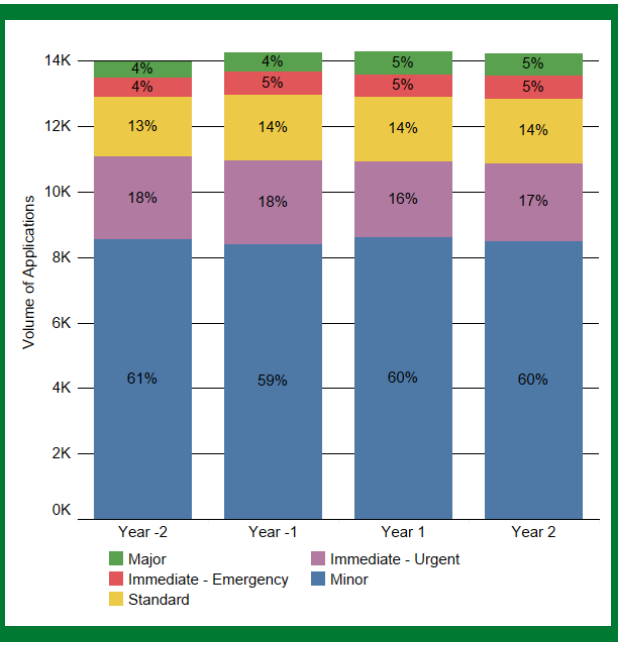
The overall volume of applications received by the Council has remained broadly the same over the period of analysis (March 2013 to March 2017). No obvious variations, increases or decreases are evident from this data.

Volume of Notice and Permit Applications Received (Statutory Undertaker)

The chart shows the volume of notice or permit applications received within each year, delineated by works category.

The chart only shows the volume of initial applications received, not any repeat applications.

This chart shows the applications for Statutory Undertaker works only.



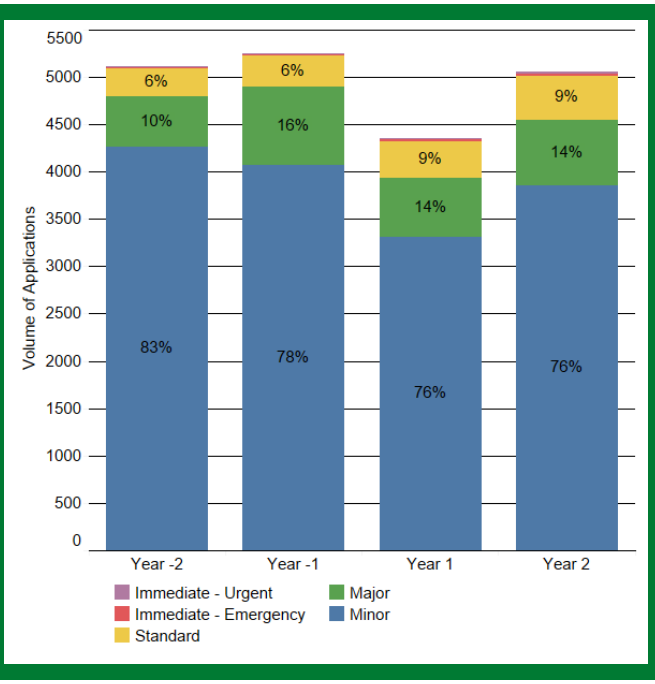
Like the overall volume of applications, those from the statutory undertakers have remained broadly similar, with no obvious variation. The proportion of works category have also remained broadly similar, which would indicate that prior to the permit scheme coming into effect all registerable activities, that required a notice, were being applied for.

Volume of Notice and Permit Applications Received (Highways)

The chart shows the volume of notice or permit applications received within each year, delineated by works category.

The chart only shows the volume of initial applications received, not any repeat applications.

This chart shows the application for Highways works only.



Overall, the volume of Highways works applications has also remained broadly similar, which is an indication of the level of notice compliance already in place prior to the introduction of a permit scheme.

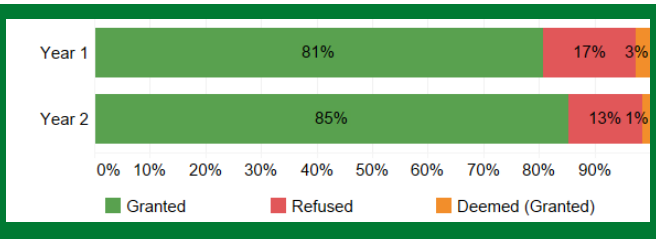
The exception to this is within Year 1 when the volumes dropped for Highways works. This was because of a change of contract by the Council with their Contractor and a subsequent lower volume of resurfacing and associated preliminary works during this transition.

The volume of immediate applications for Highways is obviously low, accounting for less than 1% of total. Highways try to undertake short duration works, including pothole repairs, under a planned Minor activity and their contracts are setup for this purpose. Any immediate works are for genuine urgent or emergency works, that require immediate attention and cannot be completed from a short site visit (to make safe).

The tables below show the final status of all permit applications received within the status of either Granted, Refused or Deemed (Granted), the latter occurring when the Council does not respond to the initial application within a set period and thereby the permit becomes automatically granted.

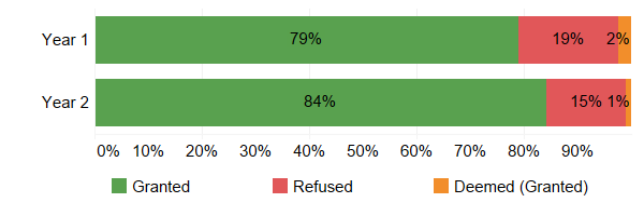
Status of Permit Applications Received (All Promoters)

The chart shows the final status of permit applications received within each permit scheme operational year for all works promoters.



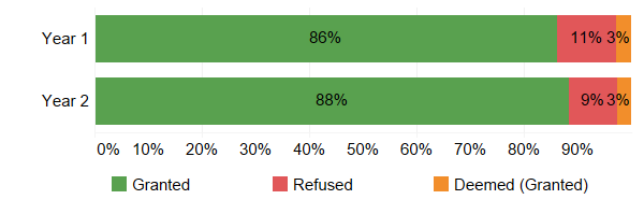
Status of Permit Applications Received (Statutory Undertaker)

The chart shows the final status of permit applications received within each permit scheme operational year for. Statutory Undertaker works.



Status of Permit Applications Received (Highways)

The chart shows the final status of permit applications received within each permit scheme operational year for Highway works.



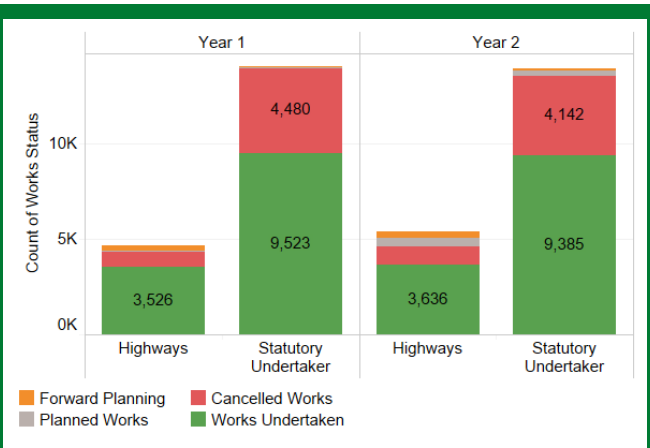
The volume of permit applications that are granted have overall increased, by 4%, for all promoters. Parity treatment is demonstrated by a similar volume of grant and rejected between the Promoters. The volume of deemed (granted) applications has overall decreased from Year 1 to Year 2. In consideration to infrequent system issues and the overall volume of permit applications, this remains within an acceptable level.

Works Planned, Undertaken and Cancelled

The chart below shows the final status of permit applications received, from initial forward planning through to works undertaken.

Final Status of Permit Applications

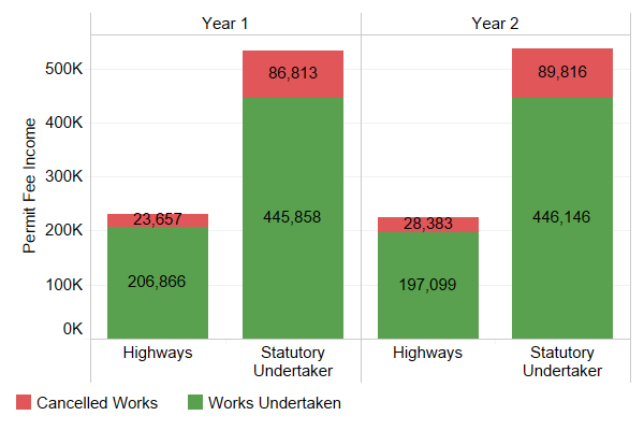
The chart shows the final status of all permit applications received within Year 1 and 2 for both Highways and Statutory Undertakers.



The table below shows the permit fee income, *which represents the cost of administration*, for works undertaken and cancelled works. It should be noted that Highways are not charged an actual permit fee by the Council, therefore this represents an administration cost only.

Permit Fee Income for Works Undertaken and Cancelled

The chart shows the permit fee income for works undertaken and works cancelled within Year 1 and 2 for Highways and Statutory Undertaker works.



In Years 1 and 2 there have been consistent levels of cancelled permits, after they have been granted, by the Statutory Undertaker. As these permits have been processed they have been charged a permit fee. The Council do not have any capability to influence this behaviour by the statutory undertakers, expect highlight through the evaluation the level of cancelled permits and the associated cost for this.

Application Lead Times

Permit applications from works promoters must be sent in accordance to minimum lead times, which are set out within the permit scheme (see box right).

This lead time allows the Council to assess the impact of works, request any further information and/or any changes to the proposed works, *such as timing, duration, traffic management or permit conditions*.

Once an application is received it is published to roadworks.org – a public website where planned and current roadworks can be viewed.

The advanced publicity of works and the status of work in progress, *especially urgent and immediate works*, is not only important for the Council to coordinate works, but also a key tool to help road users mitigate for their impact and for other works promoters to ensure their works complement or collaborate with other works.

Application Lead Times

Permits applications for Major and Standard works should be sent 10 working days prior to the proposed works start date.

Major works also require a provisional advanced authorisation application 3-months prior to works start.

Permit applications for Minor works require 3 working days lead time.

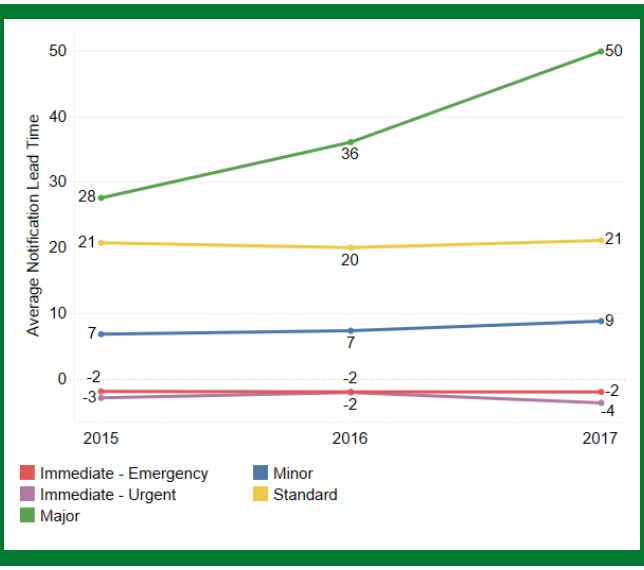
Applications for Immediate works can be submitted after works start, and must be received within 2 hours of works start or by 10:00 on the next working day.

When analysing the lead times for applications, the Council is seeking the longest possible lead time – which should be at least the minimum time set out within the permit scheme for the specific works category.

The charts below show the average lead time (working days) for the initial permit application received by the Council.

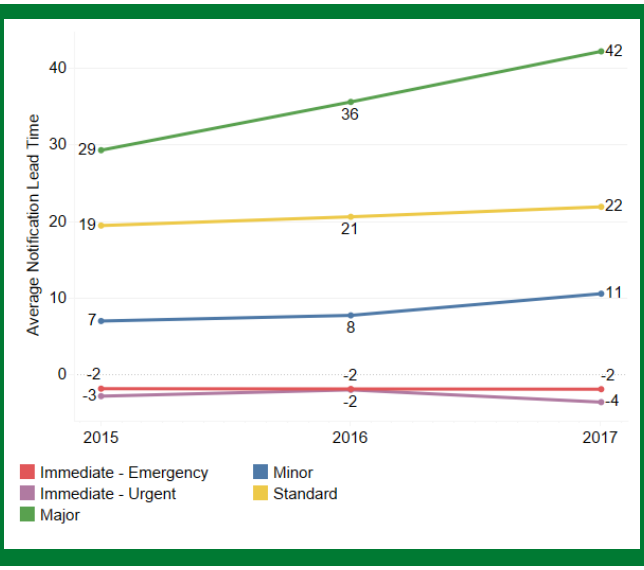
Average Lead Time for Permit Applications (All Works Promoters)

The chart shows the average application lead time (working days) per works activity for the initial permit application received by the Council for all works promoters.



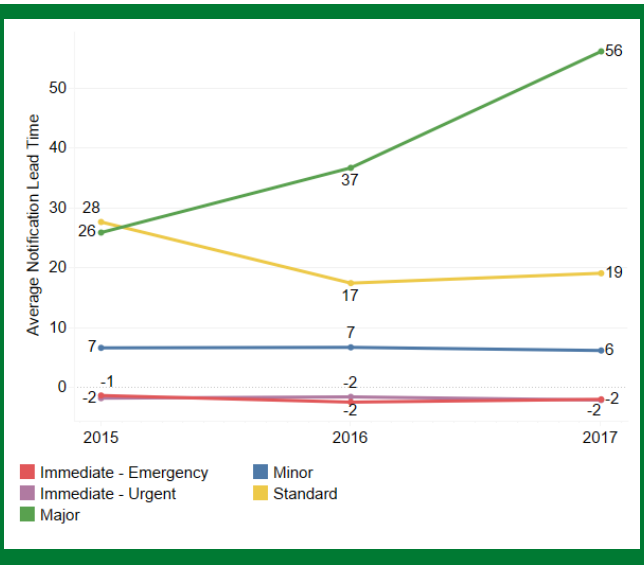
Average Lead Time for Permit Applications (Statutory Undertaker)

The chart shows the average application lead time (working days) per works activity for the initial permit application received by the Council for all statutory undertaker works.



Average Lead Time for Permit Applications (Highways)

The chart shows the average application lead time (working days) per works activity for the initial permit application received by the Council for all highways works.



The average lead times for all planned works are above the minimum lead times and in some instances, double the lead time required. Except for once instance, the lead times have remained constant or increased since the start of the permit scheme.

Although this cannot be directly attributed to the introduction of a permit scheme, it should be viewed as a positive that the Council are able to engage with works promoter on proposed works with a much longer lead time than is due. The retrospective application for immediate works has remained constant, which is expected for these types of works.

Early Start Agreements

An early start agreement is where the promoter wishes to start work inside the minimum lead time and therefore requires a start earlier than allowed within the minimum. Due to the process undertaken by the Council for Promoters to obtain an early start agreement, it has not been possible to measure the instances of early starts for this evaluation.

This level of analysis will be developed for the Year 3 evaluation.

Permit Responses

The capability to make changes to proposed works, and immediate works in progress, is one of the greatest benefits from the operation of a permit scheme compared to a notice regime. This capability enables the Council to discuss and potentially amend elements of the works with the Promoter, such as:

- proposed duration, including works at weekend;
- timing of the work, ideally to avoid peak times during the day, or to avoid specific days, such as school term time; and
- traffic management to be used for traffic control, such as a road closure or temporary traffic lights.

The tables below show the % volume of PAA and permit refusals, *for applications that cannot be accepted*, modification requests, *for applications that require a change*, and authority imposed variations, *for immediate works to make changes instead of a refusal.*

Responses to PAA and Permit Applications (All Works Promoters)

	Works Category	PAA Refused	Permit Refused	Permit Modification Request	Authority Imposed Variation
Year 1	Major	24%	7%	7%	-
	Standard	-	24%	24%	-
	Minor	-	16%	16%	-
	Immediate - Emergency	-	10%	10%	9%
	Immediate - Urgent	-	7%	7%	3%
Year 2	Major	16%	11%	11%	-
	Standard	-	31%	31%	-
	Minor	-	19%	19%	-
	Immediate - Emergency	-	1%	1%	58%
	Immediate - Urgent	-	1%	1%	24%

Responses to PAA and Permit Applications (Statutory Undertaker)

	Works Category	PAA Refused	Permit Refused	Permit Modification Request	Authority Imposed Variation
Year 1	Major	32%	11%	11%	-
	Standard	-	26%	26%	-
	Minor	-	18%	18%	-
	Immediate - Emergency	-	10%	10%	9%
	Immediate - Urgent	-	7%	7%	3%
Year 2	Major	21%	15%	15%	-
	Standard	-	35%	35%	-
	Minor	-	23%	23%	-
	Immediate - Emergency	-	1%	1%	60%
	Immediate - Urgent	-	1%	1%	24%

Responses to PAA and Permit Applications (Highways)

	Works Category	PAA Refused	Permit Refused	Permit Modification Request	Authority Imposed Variation
Year 1	Major	12%	3%	3%	-
	Standard	-	12%	12%	-
	Minor	-	10%	10%	-
	Immediate - Emergency	-	0%	0%	5%
	Immediate - Urgent	-	0%	0%	0%
Year 2	Major	10%	7%	7%	-
	Standard	-	11%	11%	-
	Minor	-	10%	10%	-
	Immediate - Emergency	-	4%	4%	12%
	Immediate - Urgent	-	5%	5%	26%

Overall, the Council has increased the volume of permit responses from Year 1 to Year 2. This increase would reflect the embedding of new working practices and understanding of how to operate a permit scheme effectively.

There has been a significant increase in the volume of authority imposed variations issued for Immediate works, although this increase is not reflected uniformly between statutory undertaker and highways works. This should not be viewed as a lack of parity treatment, but instead reflective of the lower volume of Highways immediate works.

The following sections provide more analysis on the outcome of these responses and how these could have led to a positive benefit for network management.

Duration Changes

The works data was analysed to identify any change in duration between the proposed works duration, from the initial notice or permit application, and the duration at actual start, or at works stop for Immediate works category. Where a direct notification from the Council was identified, *such as a Duration Challenge, Permit Modification Request or Direction on Timing*, then this was attributed as a LHA intervention.

From this analysis, the Council could identify the volume of days where a reduction to planned works was applied and the volume of days because of this. The table below shows the % volume of duration changes and whether these can be attributed to an LHA intervention.

% of Duration Changes between the Initial Notice and Works Start (or Works Stop)

Permit Scheme Year	LHA Intervention	Major	Standard	Minor	Immediate - Emergency	Immediate - Urgent
Year -2	No	18%	18%	16%	18%	46%
	Yes	6%	5%	0%	0%	1%
Year -1	No	20%	19%	16%	39%	42%
	Yes	4%	2%	0%	1%	1%
Year 1	No	9%	4%	5%	15%	24%
	Yes	4%	8%	3%	15%	17%
Year 2	No	9%	6%	4%	11%	33%
	Yes	4%	8%	3%	24%	12%

From the table above, it is interesting to note that the instances of duration challenges and changes prior to the permit scheme coming into effect were very low – on average 2% of each works category.

In Year 1 of the permit scheme operation this volume increased significantly for Immediate works and in Year 2 this has increased again in Year 2 for Immediate – Emergency works.

The overall volume of duration changes for Major, Standard and Minor works categories has not changed since the introduction of a permit scheme. This is an area the Council need to review in future years of operation to ensure durations for works are being reviewed and **where appropriate** challenged.

The table below shows the volume of days reduction (of works undertaken) because of an identified intervention and a duration reduction. In addition, the table also shows an impact cost reduction because of the reduction in network occupation, which was been calculated using the costs from the CBA and an average daily cost for the specific works category.

Volume of Days (of Works Undertaken) Reduced from Duration Changes

Works Category	Days Reduced	Total Duration (after Reduction)	% of Total	Average Daily Impact Cost	Total Impact Cost Reduction
Major	392	14,943	2.6%	690	270,480
Standard	626	11,861	5.3%	68	42,568
Minor	745	18,838	4.0%	211	157,195
Immediate - Emergency	422	3,660	11.5%	68	28,696
Immediate - Urgent	655	9,117	7.2%	165	108,075
Total Days	**2,840**	**58,419**	**4.9%**	**-**	**607,014**

The table above shows a potential cost impact reduction of c.£607,000 resulting from the Council intervention with planned works. As already identified, the most significant duration reduction is within the immediate works (c.9% average), however the greatest impact reduction, *in terms of cost*, occurs within the Major and Minor works.

This would be explained by:

a) the traffic management typically used for Major works – road or lane closure – which have the greatest impact;

b) and the higher volume of minor works, which results in the greatest amount of total days reduction for a works category.

This further analysis supports the initial recommendation that the Council should continue to focus efforts on challenging durations for all works categories, especially those with a higher impact of traffic management.

Traffic Management Changes

All works must be undertaken using an appropriate form of traffic management, which is aimed at ensuring works are carried out safely - for those undertaking the works and 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 traffic lights, lane closures and road closures, so the need to undertake works safely whilst also controlling the impact of works needs to be balanced carefully.

The **Safety at Street Works and Road Works Code of Practice** sets out the arrangements required for worksite safety using traffic management.

Within this code, **passive traffic control** is defined by traffic management allowing traffic to make decisions on how to proceed.

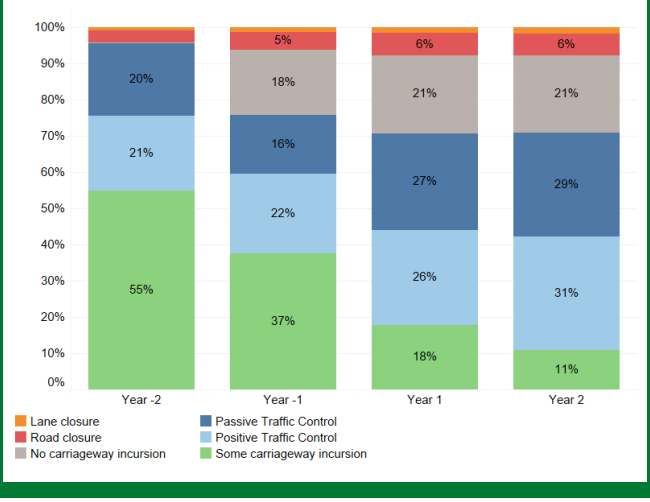
Positive traffic control, such as portable traffic signals, actively controls traffic or diverts it.

In this evaluation designations of lane closure and road closure have been delineated from positive traffic control.

Analysis of the use of traffic management since 2013 (Year -2) and 2017 (Year 2) shows interesting variations in different forms of traffic management, specifically a move from the designation of 'some carriageway incursion' to other forms of traffic management (refer to chart below). The use of no carriageway incursion has been introduced and continues to form c.23% of the traffic control for works

% of Traffic Management for Works Undertaken

The chart shows the % of volume for traffic management for works undertaken between Year -2 and Year 2 for all works promoters.



It could be concluded that prior to the permit scheme coming into effect, the form of traffic management required for the works has been inappropriate, *for example where a work has been designated by the Promoter as 'some carriageway incursion' and the use of a vehicle, plant or storage of materials in or around the worksite has had an impact and potentially not setup correctly,* and since the introduction of the permit scheme the Council has been able to enforce better designation and use of traffic management.

There has also been a significant increase in the overall volume of works undertaken under road closures (refer to chart below). This is the result of specific action by the Council to ensure that works where a road closure is required, *on grounds of safety*, are undertaken with this form of traffic management.

Prior to the WaSPS coming into effect, many works were carried out without road closures where provisions for traffic management, *such as carriageway width or alternative routes for pedestrians*, were insufficient and not safe.

Volume of Works Undertaken under Road Closures (Year -2 to Year 2)

The chart shows the volume of works undertaken under road closures from Year -2 to Year 2 for all works promoters.

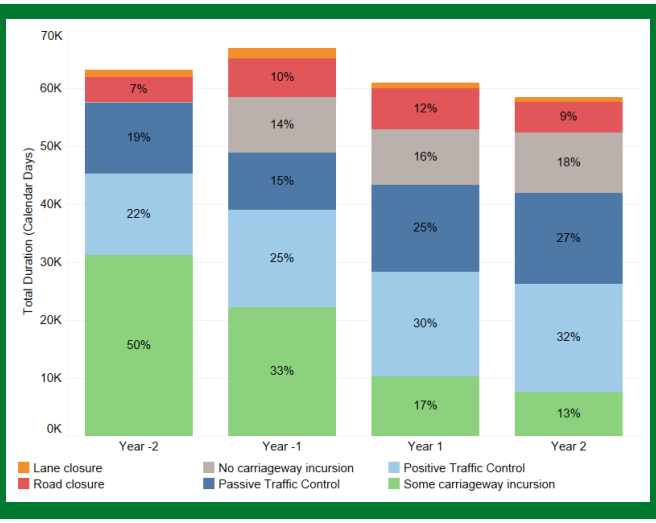
It could be considered that changes on the forms of traffic management used for works could be a negative result from the introduction of a permit scheme, as the forms of network occupation and potential disruption from increased use of traffic control, *such as temporary traffic lights*, and road closures.

However, in consideration to the objective for increased safety for those working and using the network, this change should be viewed as a positive change.

When analysing the average durations of specific traffic management designations, a general decrease can be observed over the period of analysis (refer to table below).

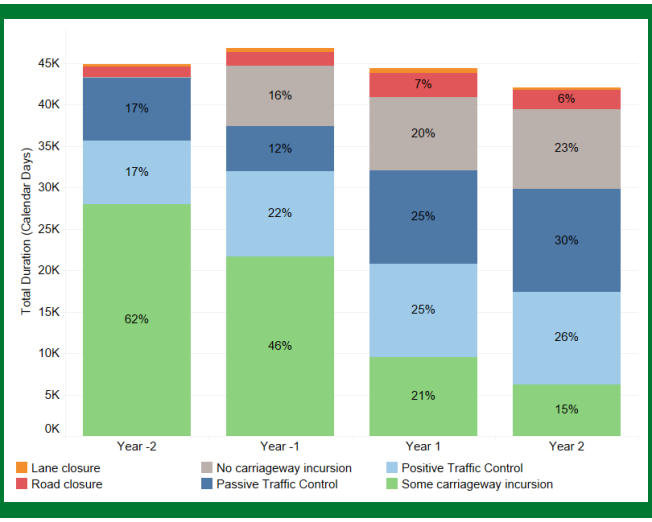
Total duration of works undertaken by traffic management designation

The chart shows total duration for each traffic management designation for works undertaken within the period Year -2 to Year 2 for all works promoters.



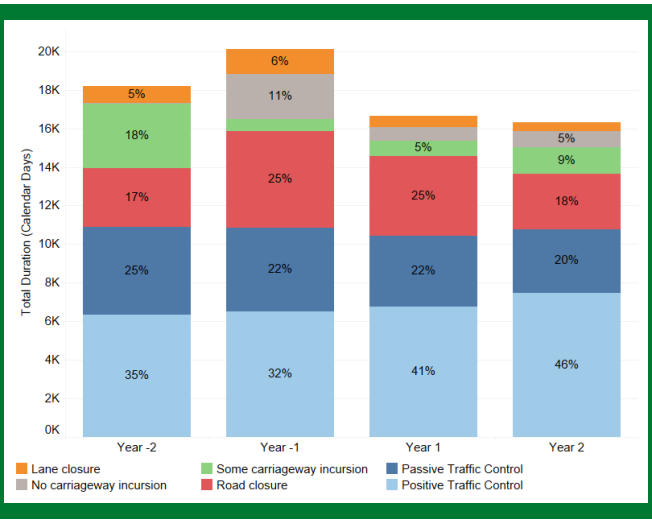
Total duration of (statutory undertaker) works undertaken by traffic management designation

The chart shows total duration for each traffic management designation for works undertaken within the period Year -2 to Year 2 for statutory undertaker works only.



Total duration of (highways) works undertaken by traffic management designation

The chart shows total duration for each traffic management designation for works undertaken within the period Year -2 to Year 2 for highways works only.



Since the start of the permit scheme there has been a noticeable reduction in works being carried out under the designation of “some carriageway incursion” with increases in the designations or passive and positive traffic control and no carriageway incursion.

When looking at the two primary works promoter types, it is obvious that the greatest change has occurred for statutory undertaker works. Highways works have undertaken a smaller change in the use of traffic management across the period of analysis.

Although there has been an increase in the volume of works undertaken under road closures (refer to section above), the overall % duration of works under road closures has decreased.

Permit Variations

Once a permit has been granted, any changes to the works need to be reflected on a change to the permit – this is done through a permit variation. A permit variation can be created, *by the Promoter*, either before the works are undertaken or during work are divided into two categories:

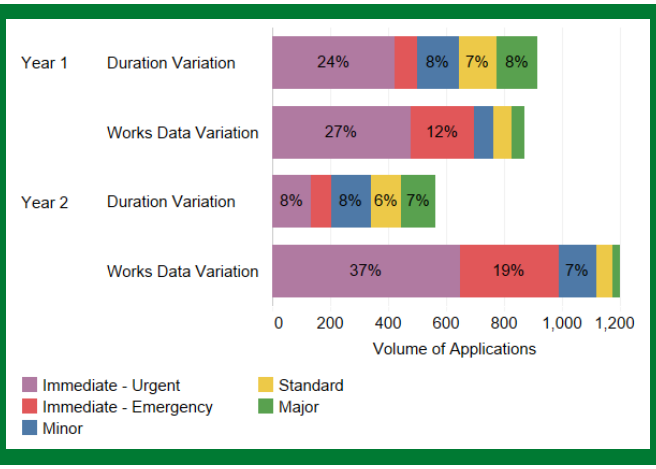
- **Works data variation** – where the content, not duration, of the permit needs to change, such as a change in traffic management; and

- **Duration variation** – a change to the proposed duration of the works – if the works are in progress this is referred to as an extension.

The Council can also issue a variation to the Promoter to request changes to a permit, typically when changes in the network that require a change to the works, or because of a site inspection (for works in progress). Permit variations can be submitted at any time after a permit has been granted and the end date of the permit (subject to minimum end dates as specified within the permit scheme).

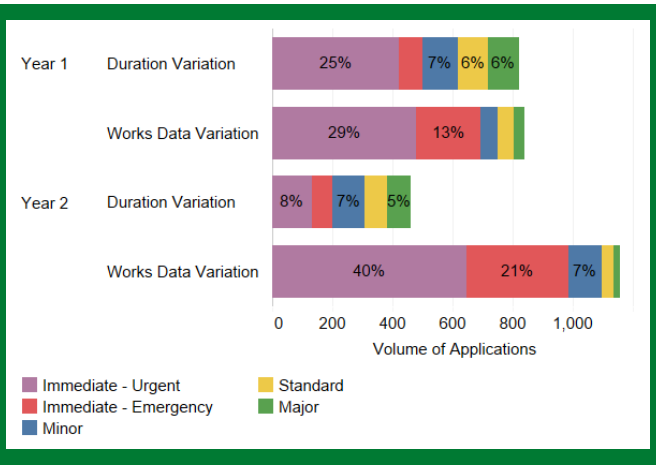
The Volume of Permit Variations Received (All Works Promoters)

The chart shows the permit variations received within each permit scheme operational year, delineated by works category for all Promoters.



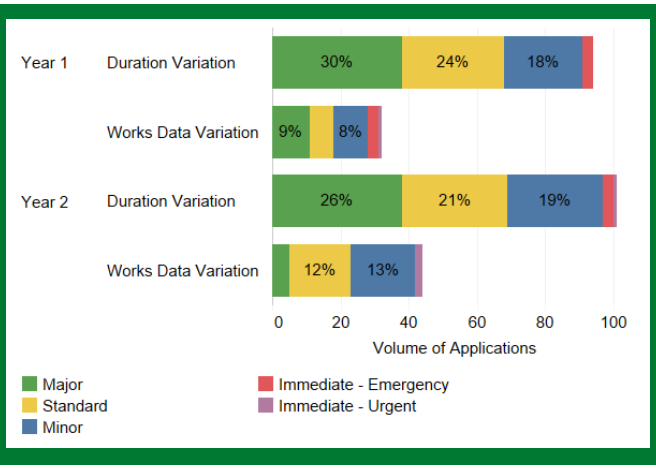
The Volume of Permit Variations Received (Statutory Undertaker)

The chart shows the permit variations received within each permit scheme operational year for statutory undertaker works.



The Volume of Permit Variations Received (Highways)

The chart shows the permit variations received within each permit scheme operational year for highways works.



The proportionally high volume of works data variations are predominately requests for an earlier start to the proposed works after a permit has been granted (refer to Early Start Agreements above). The tables below show the % of permit variations received from works promoters or issued by the Council as a percentage of total planned works (permits received) and works undertaken. Only the permit variations received within each works stage have been counted.

Permit Variations for All Works Promoters in Year 2

		Variation From	Variation Type	Planned Works	Works Undertaken
Year 1	All Works Promoters	Council	Authority Imposed Variation	0.8%	1.2%
			Permit Modification Request	24.7%	6.1%
		Promoter	Duration Variation	0.0%	6.4%
			Works Data Variation	0.4%	5.6%
Year 2	All Works Promoters	Council	Authority Imposed Variation	0.9%	7.3%
			Permit Modification Request	23.2%	1.7%
		Promoter	Duration Variation	0.0%	4.0%
			Works Data Variation	0.4%	8.1%

Permit Variations for Highways and Statutory Undertaker Works in Year 1

		Variation From	Variation Type	Planned Works	Works Undertaken
Year 1	Highways	Council	Authority Imposed Variation	0.4%	0.1%
			Permit Modification Request	16.8%	0.1%
		Promoter	Duration Variation	0.1%	2.4%
			Works Data Variation	0.3%	0.6%
	Statutory Undertaker	Council	Authority Imposed Variation	0.7%	1.5%
			Permit Modification Request	27.2%	8.1%
		Promoter	Duration Variation	0.0%	7.7%
			Works Data Variation	0.3%	7.5%

Permit Variations for Highways and Statutory Undertaker Works in Year 2

		Variation From	Variation Type	Planned Works	Works Undertaken
Year 2	Highways	Council	Authority Imposed Variation	0.9%	0.3%
			Permit Modification Request	14.4%	0.2%
		Promoter	Duration Variation	0.0%	2.7%
			Works Data Variation	0.7%	0.2%
	Statutory Undertaker	Council	Authority Imposed Variation	0.9%	9.9%
			Permit Modification Request	26.4%	2.2%
		Promoter	Duration Variation	0.0%	4.5%
			Works Data Variation	0.2%	11.0%

The tables above support previous sections of this evaluation to demonstrate the use of permit processes by the Council and an overall parity treatment for between works promoters.

The reduction of duration variations by the statutory undertaker in Year 2, compared with Year 2, is a positive indicator and one that will be reassessed in the evaluation of proceeding years of operation.

Duration of Works

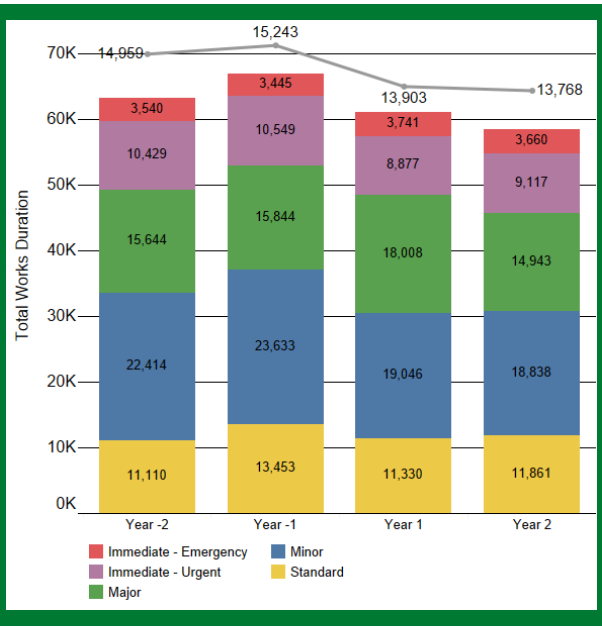
The duration of works is measured by the dates provided by the works promoter on their works start and works stop notifications. The measure of calendar days between these dates, *including the date or works start and stop*, provides the duration of that work.

For the analysis of works durations, only those works that have reached a works status of working in progress or completed are included. Any works that did not reach a works start (in progress) status are not included under the assumption that they were not undertaken. The charts and tables below shows the total and average duration of all works undertaken.

Total Duration and Number of Works (Phases) Undertaken

The chart shows the total duration of works undertaken for each of the operational years, delineated by works category.

The line within the chart shows the total number of works (individual phases) undertaken for that year.

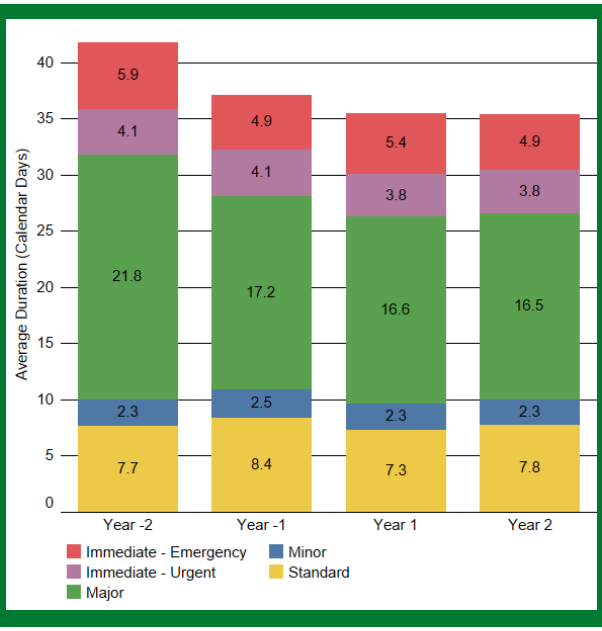


Average Duration of Works Undertaken

The chart shows the average duration, in calendar days, of works covering the years -2 to year 2 for all works promoters.

The works are broken down into works category with the average duration for each category shown within the relevant bar.

Although the averages are not shown in whole days, works are calculated using whole days included the start and end date.



Average Duration of Works Undertaken by Promoter

	Works Category	Year -2	Year -1	Year 1	Year 2
Highways	Major	18.2	14.3	12.8	13.1
	Standard	9.4	10.2	8.4	9.4
	Minor	2.5	2.5	2.4	2.1
	Immediate - Emergency	1.2	1.0	12.0	3.2
	Immediate - Urgent	2.2	2.8	1.7	4.1
Statutory Undertaker	Major	26.6	22.5	19.7	16.7
	Standard	7.4	8.1	7.1	7.4
	Minor	2.2	2.4	2.3	2.4
	Immediate - Emergency	6.0	4.9	5.2	5.0
	Immediate - Urgent	4.1	4.1	3.7	3.8

There is an obvious decrease in total durations of works, *in proportion to the volume of works undertaken*, and the average duration of works across the period of analysis, especially since the introduction of the permit scheme.

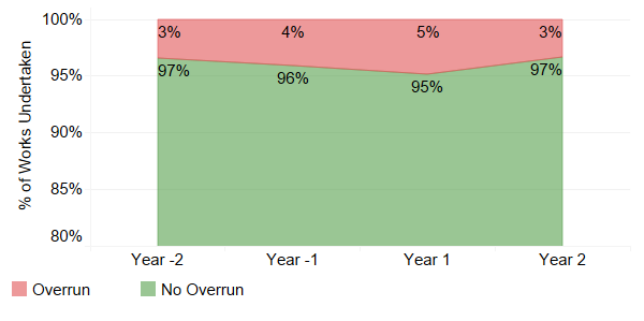
Further analysis of the volume of works that have decreased as a result of first time reinstatements and Promoters not returning to work at the same site will be undertaken for the Year 3 evaluation.

Works Overrun

A works overrun is measured when a work is completed beyond the initial proposed duration, i.e. if at the start of the works the estimated duration is 3 days then the works are completed in 4 days, this is an overrun of 1 day. The charts below show the % of works undertaken with an overrun, or not.

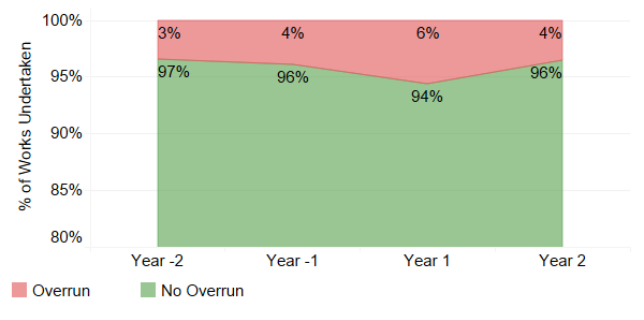
Works Overrun in Calendar Days (All Promoters)

The chart shows the volume of works overrun, as a percentage of total works undertaken, for each operational year, for all works promoters.



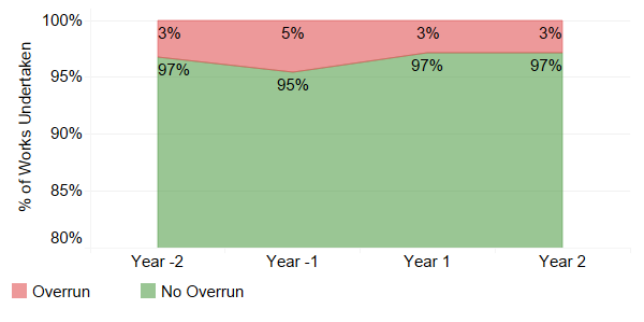
Works Overrun in Calendar Days (Statutory Undertaker)

The chart shows the volume of works overrun, as a percentage of total works undertaken, for each operational year, for statutory undertaker works only.



Works Overrun in Calendar Days (Highways)

The chart shows the volume of works overrun, as a percentage of total works undertaken, for each operational year, for all highways works only.



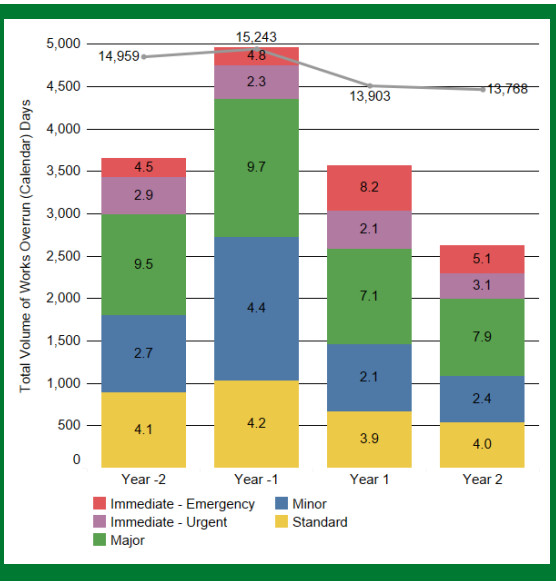
The volume of works overrun has remained constant (c.96%) over the period of analysis – with little variance between statutory undertaker and highways works. This is deemed an acceptable level of works overruns, however analysis of the duration of overruns days is required to justify this. The chart below shows the total duration of days from overruns works.

Duration of Works Overrun Days (All Works Promoters)

The chart shows the total duration (calendar days) from overrun works, delineated by works category, for all works promoters.

The line in the chart shows the total works undertaken for the year.

The number within each works category section shows the average duration of the works overrun in calendar days.

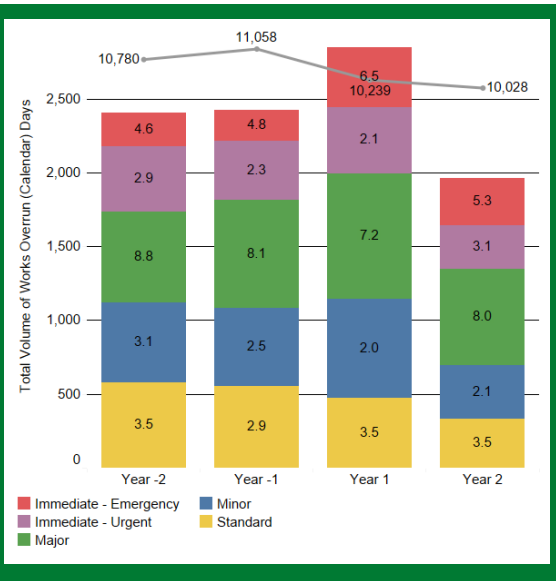


Duration of Works Overrun Days (Statutory Undertaker)

The chart shows the total duration (calendar days) from overrun works, delineated by works category for statutory undertaker works.

The line in the chart shows the total works undertaken for the year.

The number within each works category section shows the average duration of the works overrun in calendar days.

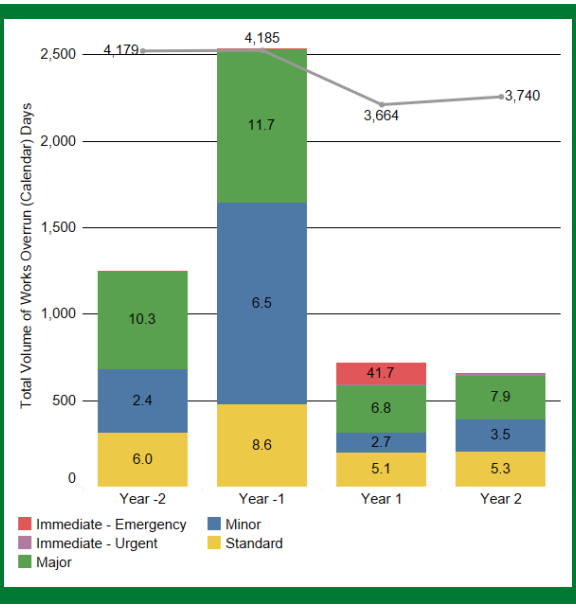


Duration of Works Overrun Days (Highways)

The chart shows the total duration (calendar days) from overrun works, delineated by works category for highways works.

The line in the chart shows the total works undertaken for the year.

The number within each works category section shows the average duration of the works overrun in calendar days.



Since the introduction of the permit scheme the volume of works overrun days has reduced, proportionality to the volume of works undertaken. Year -1 saw a spike in the volume of overrun days and average length (days) of the overrun – this is can be attributed to the increase in overruns for highways works.

An overall trend of lower overruns days is emerging, which would need further qualification in the Year 3 evaluation.

The tables below show the % of Minor and Standard works within a duration, *i.e. % of works within a duration of 3 days*, delineated into works that overran or not. Areas marked in red are high proportion of total works where the durations exceed the defined duration for the works category, and therefore these works should have been treated differently.

% of Minor Category Works by Duration

Duration (Days)	Year -2		Year -1		Year 1		Year 2	
	No Overrun	Overrun	No Overrun	Overrun	No Overrun	Overrun	No Overrun	Overrun
1	40.7%	0.0%	38.9%	0.0%	38.6%	0.0%	39.0%	0.0%
2	19.7%	0.0%	17.3%	0.0%	23.0%	0.0%	24.7%	0.0%
3	22.6%	0.1%	24.0%	0.2%	21.9%	0.6%	19.9%	0.1%
4	4.3%	0.5%	4.1%	0.5%	4.4%	0.5%	4.1%	0.4%
5	10.7%	0.2%	12.8%	0.2%	9.1%	0.5%	9.8%	0.3%
6	0.4%	0.4%	0.8%	0.6%	0.3%	0.4%	0.6%	0.3%
7	0.0%	0.2%	0.1%	0.3%	0.1%	0.3%	0.1%	0.2%
8+	0.0%	0.2%	0.0%	0.2%	0.0%	0.2%	0.0%	0.3%
Total	**98.4%**	**1.6%**	**98.0%**	**2.0%**	**97.5%**	**2.5%**	**98.4%**	**1.6%**
% over Duration	15.4%	1.4%	17.8%	1.8%	14.0%	2.0%	14.7%	1.5%

% of Standard Category Works by Duration

Duration (Days)	Year -2		Year -1		Year 1		Year 2	
	No Overrun	Overrun	No Overrun	Overrun	No Overrun	Overrun	No Overrun	Overrun
1	2.2%	0.0%	2.2%	0.0%	2.7%	0.0%	2.6%	0.0%
2	2.6%	0.0%	2.3%	0.0%	3.9%	0.0%	4.0%	0.0%
3	5.4%	0.0%	6.0%	0.0%	7.7%	0.0%	7.0%	0.0%
4	14.1%	0.0%	12.3%	0.0%	14.0%	0.1%	13.7%	0.1%
5	9.7%	0.7%	11.3%	0.4%	13.8%	0.5%	11.2%	0.1%
6	18.4%	0.2%	12.4%	0.1%	12.3%	0.2%	9.0%	0.1%
7	8.4%	0.9%	5.9%	1.3%	7.5%	1.0%	9.8%	0.4%
8	5.4%	1.3%	5.1%	1.0%	4.7%	1.1%	6.3%	0.7%
9	2.3%	0.5%	3.1%	0.2%	2.8%	0.7%	4.0%	0.7%
10	2.5%	0.3%	2.1%	0.2%	2.9%	0.4%	3.3%	0.5%
11	2.1%	0.8%	2.1%	0.4%	2.1%	0.5%	1.7%	0.1%
12	8.2%	0.2%	9.7%	0.4%	7.1%	0.5%	8.2%	0.2%
13	1.8%	0.3%	2.6%	0.3%	1.0%	0.3%	1.2%	0.2%
14	7.3%	0.6%	11.0%	0.3%	7.4%	0.6%	9.7%	0.1%
15+	1.2%	2.6%	2.9%	4.1%	1.1%	3.1%	2.7%	2.6%
Total	**91.6%**	**8.4%**	**91.0%**	**9.0%**	**91.1%**	**8.9%**	**94.4%**	**5.6%**
% over Duration	20.7%	4.5%	28.3%	5.6%	18.7%	5.0%	23.5%	3.2%

For both Minor and Standard works there are consistent proportions of works where the durations exceed the defined for that works category, *i.e. <3 days for a Minor and between 4-10 days for a Standard*. It is also noticed that these works are not classed as overruns, and therefore have been treated within the wrong works category during the planning stage. This is an area that needs close attention by the Council in future years of operation.

Application of Conditions

The application of attaching 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 works start, *e.g. advanced publicity.*

The sub-sections below outline the use of conditions, on relevant works, within the categories defined in the Statutory Guidance for Permit Conditions. This Statutory Guidance sets out the conditions that can be applied to permits and the potential parameters that can be associated to these conditions.

Conditions for Date Constraint

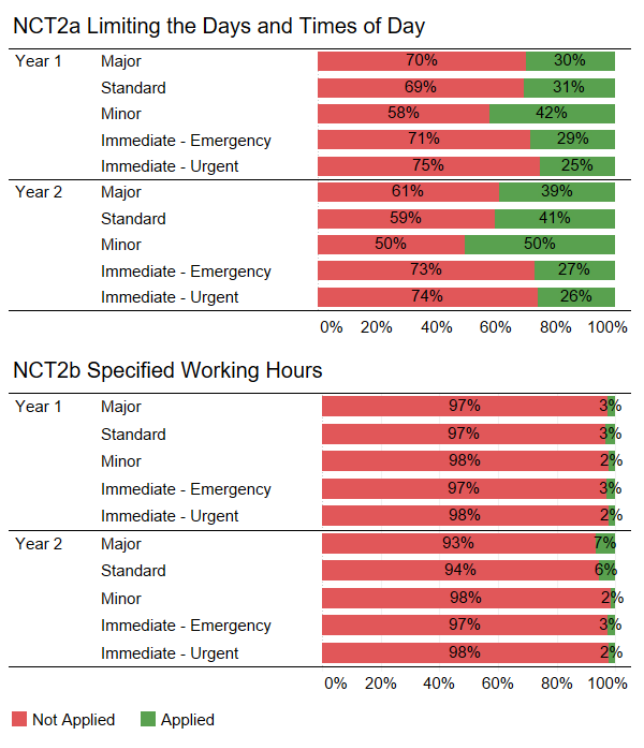
There are two date constraint conditions that can be applied to permits, NCT1a and NCT1b. These conditions limit the days on which works can be carried out in alignment to legislation and the permit scheme. These conditions do not need to be attached (defined within) to the permit, therefore no evaluation on the use of this conditions has been carried out.

Conditions for Time Constraints

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for the two time constraint conditions:

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

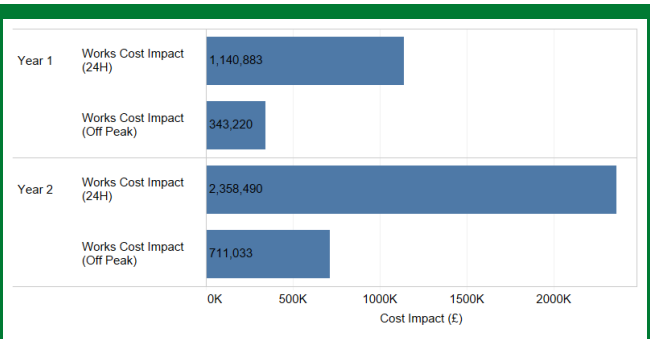
Works using the traffic management 'road closure' have not been included in these volumes.



In consideration to the potential benefit for the application of condition NCT2a, if it is assumed that all the permits where this condition was applied resulted in works being undertaken off-peak, *and therefore the associated traffic management was also used off-peak*, a cost impact reduction (based on the figures estimated within the cost-benefit-analysis) can be determined. The chart below provides an estimated of this impact saving for Years 1 and 2.

The chart shows the total estimated impact cost (£) for works undertaken with condition NCT2a applied, for the different time periods:

1. 24 hour working; and
2. Off-peak working.



As shown within the chart above, the following potential cost impact reductions could be estimated as a result of the application of condition NCT2a:

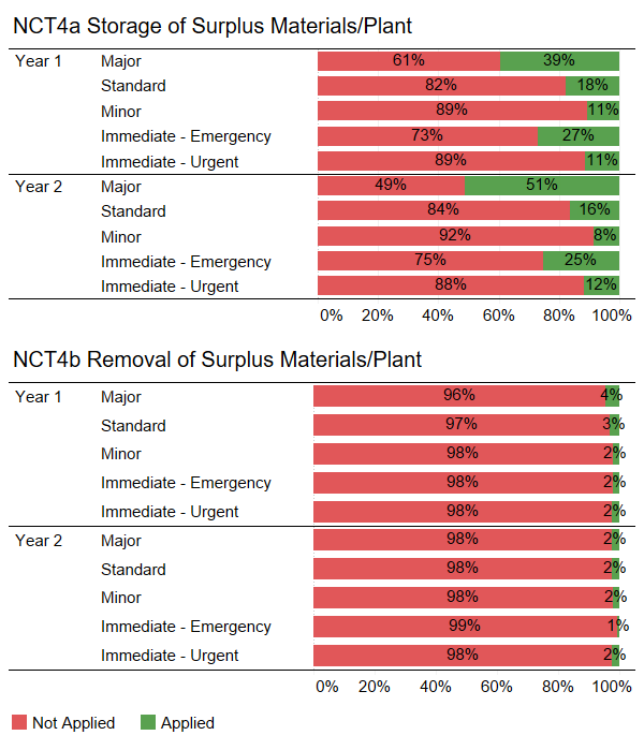
- Year 1 c.£800,000, which represents a 70% impact reduction; and
- Year 2 c.£1.6million, which represents a 70% impact reduction.

Conditions for Material and Plant Storage

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for two material and plant storage conditions:

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

It is not possible within the works data to identify the specific works where these conditions would apply, therefore it has been shown as a percentage total of all works.

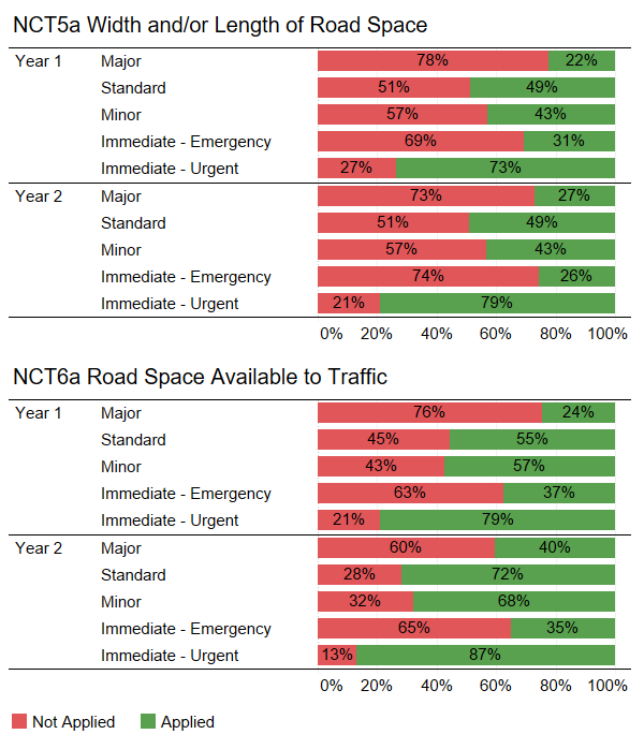


Conditions for Road Occupation and Traffic Space Dimensions

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for a road occupation and traffic space dimension conditions:

- 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 (inc. pedestrians) at certain times of the day.

It is not possible within the works data to identify the specific works where this condition would apply, therefore it has been shown as a percentage total of all works.

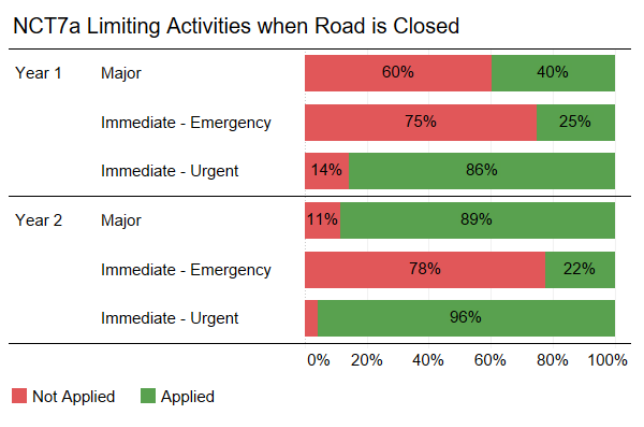


Conditions for Road Closures

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for a condition where a road closure is required for the works:

- NCT7a – limiting activities when the specified road is closed to traffic.

Analysis for the use of this condition has been undertaken only on works where the traffic management type is specified as 'road closure'.

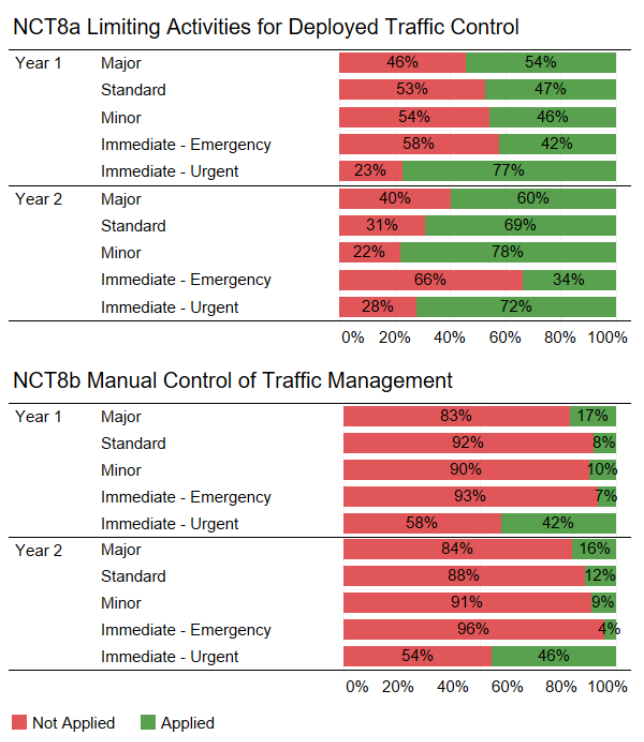


Conditions for Light Signals and Shuttle Working

Analysis for the use of this condition has been undertaken only on works where the traffic management type is relevant to the condition, e.g. two-way lights.

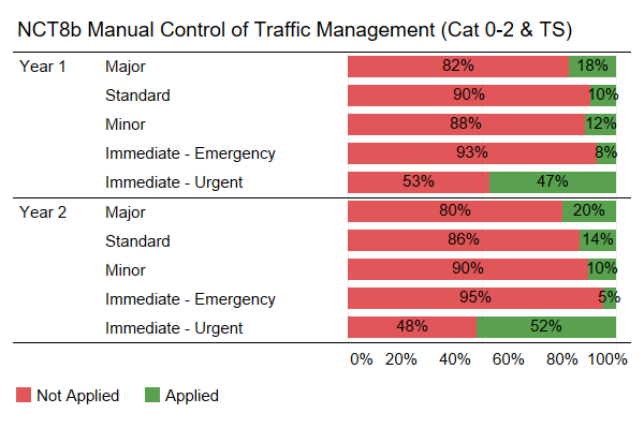
The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for two conditions for light signals and shuttle working:

- NCT8a – limiting activities to the deployment of specified temporary traffic control; and
- NCT8b – specifying the manual control of traffic management at specified times.



Further analysis of NCT8b shows that this condition has been predominantly applied to works on the strategic section of the network (refer to chart below).

The chart shows the volume of conditions applied to works undertaken within Year 1 and Year 2 for the NCT8b for works only on category 0,1,2 and traffic-sensitive streets – these represent the strategically significant streets for the Council.

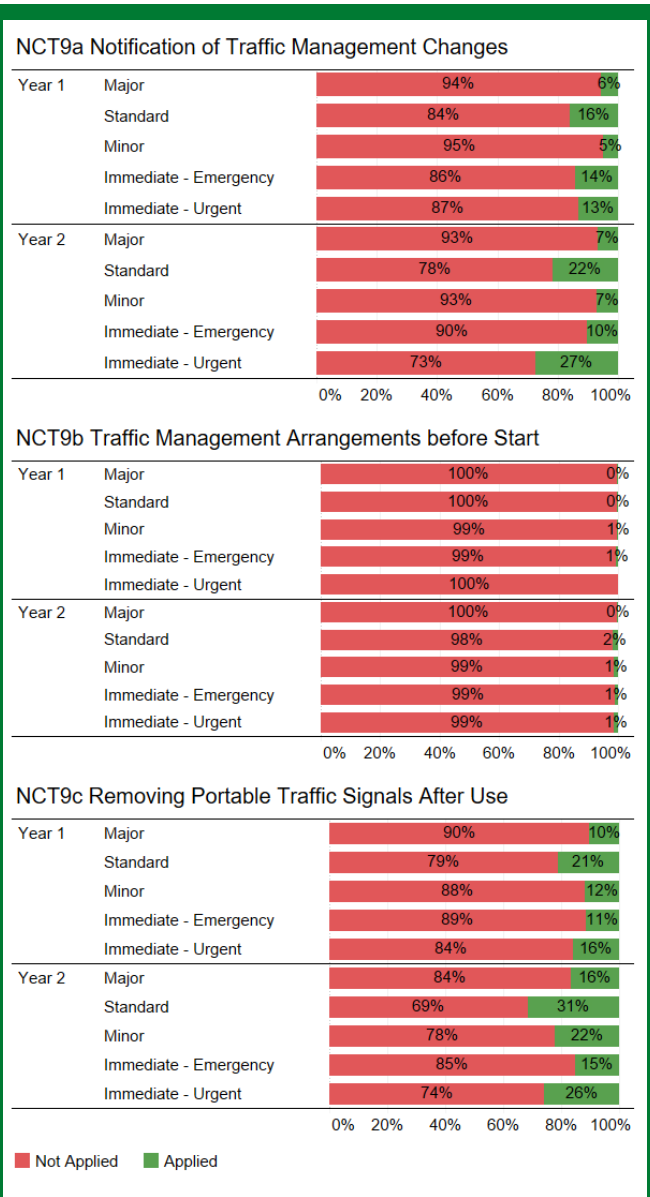


Conditions for Traffic Management Changes

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for three conditions for traffic management changes:

- NCT9a – notifying the Authority when traffic management changes during works;
- NCT8b – 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.

Analysis for the use of this condition has been undertaken only on works where the traffic management type is relevant to the condition, e.g. two-way lights.

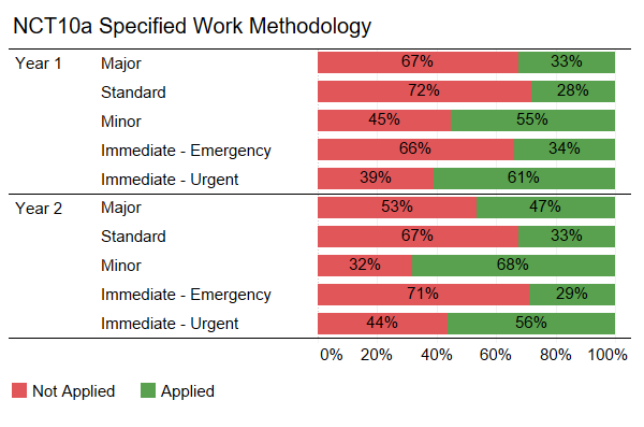


Conditions for Work Methodology

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for a work methodology condition:

- NCT10a – specifying the work methodology to be used for the proposed activities.

It is not possible within the works data to identify the specific works where this condition would apply, therefore it has been shown as a percentage total of all works.



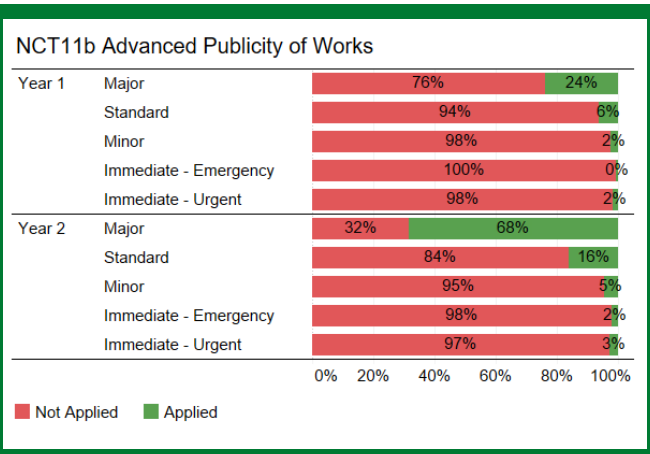
Conditions for Consultation and Publicity

NCT11a display of permit number on a site information board during the duration of the works is a condition that is implied on all permits and therefore does not need to be applied, or attached to the permit as a condition.

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for a consultation and publicity road condition:

- NCT11b – specifying the advanced publicity of works.

It is not possible within the works data to identify the specific works where this condition would apply, therefore it has been shown as a percentage total of all works.

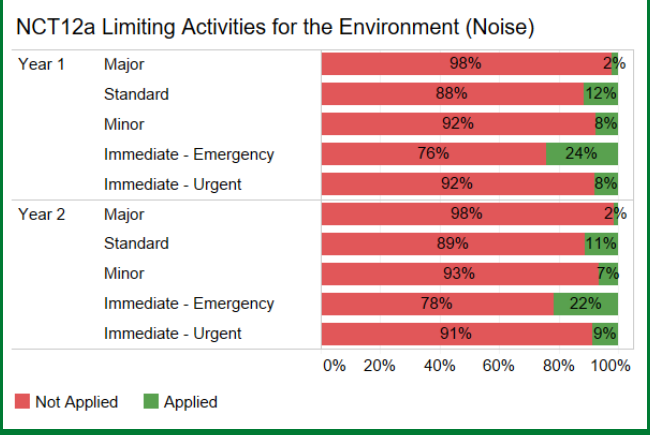


Conditions for the Environment (Noise)

The charts show the volume of conditions applied to works undertaken within Year 1 and Year 2 for an environmental (noise) condition:

- NCT12a – limiting the timing of certain activities for the environment.

It is not possible within the works data to identify the specific works where this condition would apply, therefore it has been shown as a percentage total of all works.



Local Conditions

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 in either Year 1 or Year 2.

Analysis of Conditions

Analysis and evaluation for the use of conditions is 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 or date of the works*.

It can be impracticable with current data 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. Where possible this has been done, but a lot more evaluation and analysis could be undertaken for this. This is something the Council will consider for the Year 3 evaluation.

There is an overall positive assessment that the use of conditions has generally increased from Year 1 to Year 2, thereby demonstrating an increased learning for the application of conditions by both the works promoter and Council.

For the Year 3 evaluation the Council will define a conditions framework – this is outline the criteria where a work could, *or should*, require a condition and whether a condition has been applied, or not. In addition, more quantifiable benefits for the application of conditions need to be identified to demonstrate the positive outcomes they have.

Inspections

Works in Progress

The Council's Streetworks Inspectors carry out routine and ad-hoc inspections on works whilst they are being undertaken – this is referred to as a Category A (Works in Progress) Inspection.

One of the purposes of a Category A inspection is to ensure the works are being carried out safely, in accordance to the Safety at Street Works and Road Works Code of Practice. Where a worksite fails these inspections, the Promoter must remedy their working practices to improve site safety depending on the level of risk from the identified inadequacies.

The tables below show the number of Category A Inspections carried out by the Council in Year 2, together with the number of passes and failures.

Category A (Works in Progress) Inspections in Year 2

	Category A Inspections					
Promoter	Total Inspections	Passed	Failed (Low Risk)	Failed (High Risk)	% Passed	% Failed
Highways	8	2	2	4	25%	75%
Other	11	7	1	3	64%	36%
Statutory Undertaker	902	802	52	48	89%	11%
Total	921	811	55	55	88%	12%
% of Total			6%	6%		

Category A Inspections for Works Undertaken in Year 2

Promoter	Total Works Undertaken	Works Inspected	% of Works Inspected	Potential Total Works Failure
Highways	3,740	8	0.2%	2,805
Other	12	11	91.7%	4
Statutory Undertaker	10,264	902	8.8%	1,138
Total (Average)	14,016	921	6.6%	1,674

The tables above initially highlight a potential issue with site failures for Highways works (75%), however this must be viewed within the context of only 0.2% of works undertaken were inspected. These results are from ad-hoc inspection carried out by network management.

Highways worksite inspections are carried out as part of the Works Contractor agreement, by the Council's Locality Officer. For major scheme works, a resident Engineer is on site during the work to ensure areas like safety are adhered to. This are of inspection and compliance is monitored under Key Performance Indicators within the agreements between the Council and their Works Contractor.

On average 1 in 10 Statutory Undertaker worksites are failing a Category A inspection, with an equal number of low-risk and high-risk failings. The volume of inspections carried out represents c.9% of works undertaken, so there is a potential of over 1,000 works being undertaken during the year by statutory undertaker with low to high risk of safety.

Although there is no direct link to the operation of a permit scheme to this measure and results, the permit scheme does provide opportunity for the Council to improve their inspection regime through increased resource.

This is a change that needs to be considered to ensure there is total visibility and control of works taking place on the network, with an aim to improve working standards and lower the number of unsafe worksites. The volume of both Highways and Statutory Undertake work in progress inspections could be raised, with an aim to reach at least 10% for each Promoter.

Permit Compliance Inspection

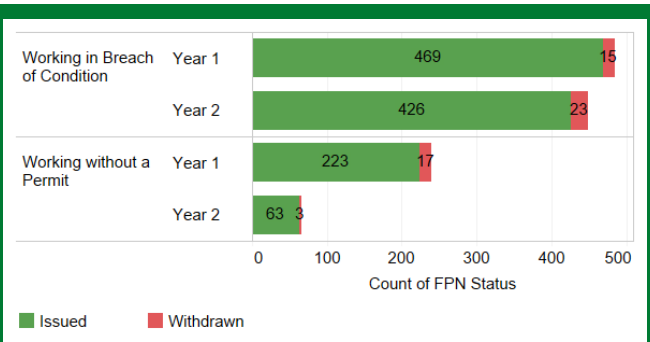
Permit compliance inspections are carried out either as part of the Category A inspections or as an ad-hoc inspection, *where the work has not been notified to the Council and a record does not exist*. The result of the permit compliance inspection is based on two offences set out within the Permit Scheme Regulations:

- Regulation 19 – working without a permit; and
- Regulation 20 – working in breach of a permit condition.

The charts below show the results of the permit compliance inspections for Year 1 and 2.

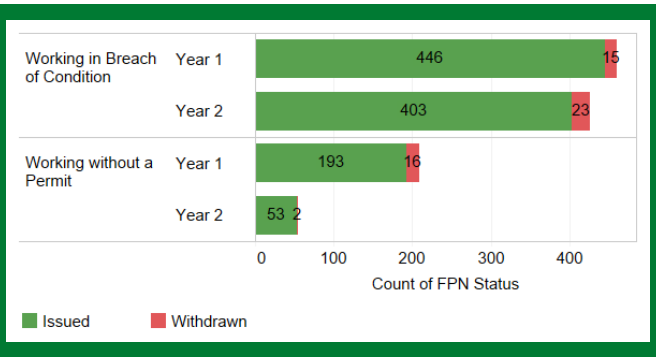
Permit Compliance Inspection Results (All Works Promoters)

The chart shows the number of permit compliance inspections failures and the status of the associated fixed penalty notice – issued or withdrawn – for all works promoters.



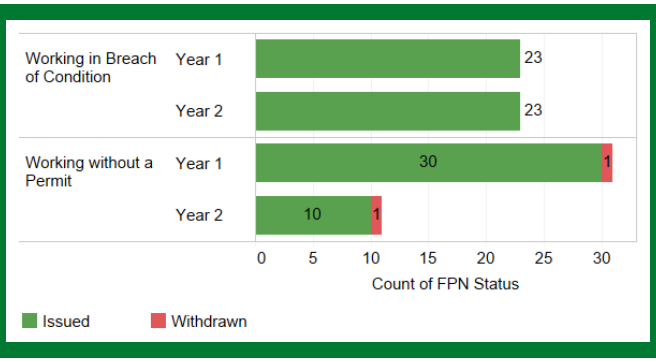
Permit Compliance Inspection Results (Statutory Undertaker)

The chart shows the number of permit compliance inspections failures and the status of the associated fixed penalty notice – issued or withdrawn – for statutory undertaker works.



Permit Compliance Inspection Results (Highways)

The chart shows the number of permit compliance inspections failures and the status of the associated fixed penalty notice – issued or withdrawn – for highways works.



It is positive to note that the number of occurrences of working without a permit have decreased from Year 1 to Year 2. Further analysis on the specific conditions where a breach is occurring will need to be conducted for the Year 3 evaluations. From anecdotal reports, the majority of these are caused by a lack of correct signage on site – displaying the permit number and lack of manual control of traffic signals at specified times.….

Permit Fee Income

The Traffic Management Permit Scheme (England) (Amendment) Regulations 2015 require that the permit authority shall consider whether the fee structure needs to be changed in light of any surplus or deficit.

Prior to the implementation of the permit scheme, the Council undertook a detailed analysis of the future operating model for the permit scheme, based on a new structure and real-term costs for the employees, including overhead costs.

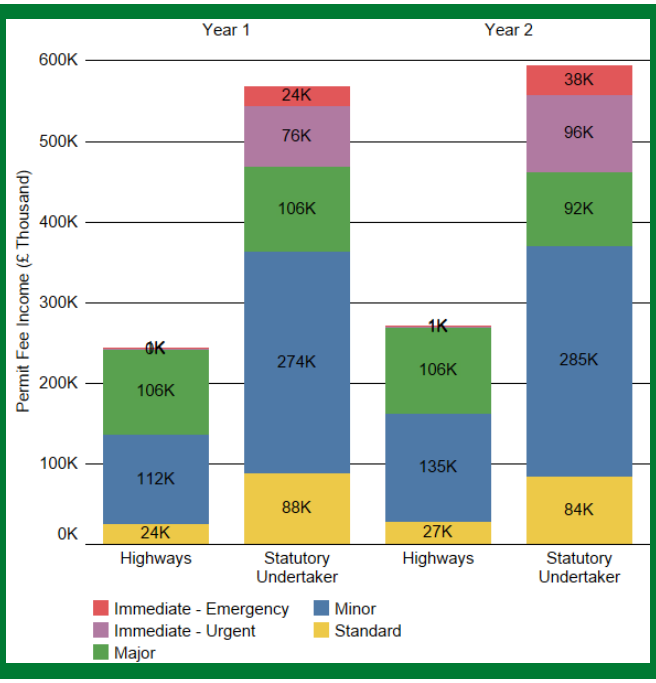
This operating model provided the fee levels required, based on historic noticing volumes, to recover the prescribed costs for operating the permit scheme*, i.e. the costs to administer statutory undertaker permits above those incurred under a NRSWA noticing regime.*

The charts below show the income from permit fees, and shadow fees for Highways works, for Year 1 and 2.

Permit Fee Income for Year 1 and 2

The chart shows the income from permit fees, including Provisional Advanced Authorisation and permit variations, delineated into works category for each operational year.

The costs are shown for Statutory Undertaker works and Highway Authority Works (these not subject to an actual fee, but a shadow charge).

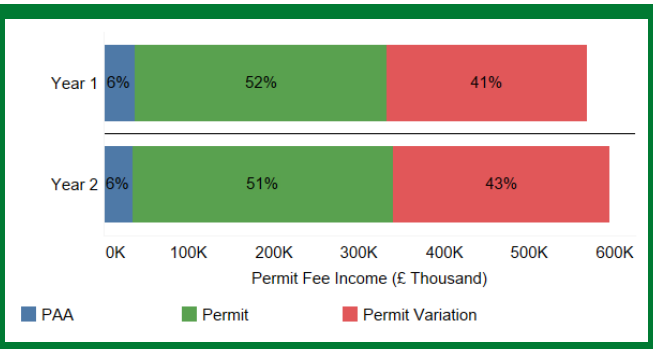


Permit Fee Income for Year 1 and 2 by Fee Type

This chart shows the breakdown of permit fees received by the three categories:

1. PAA;
2. Permit Fee; and
3. Permit Variation.

Income is shown in £ Thousand and as a % of the total income.



In Year 2 the total invoiced income received through permit fees, *including permit variation fees*, after the applications of discounts (not shown in the charts above) was c.£602,000. This income represented a 10% increase compared with Year 1. The total permit fee reduction from discounts was c.£63,000 (c.10% of the total income).

The costs incurred by the Council to operate the permit scheme in Year 2 were £807,000.

In Year 2 the volume of permit fee income from permit variations was 43% of the total income, an increase of 2% from Year 1. This income level is far more than the projected income from permit variations established in the pre-scheme analysis and represents a higher workload for the resource model established at the start of the permit scheme.

Although the overall income from all permit fees has increased from Year 1 to Year 2, the volume of income from permit variations still represents the most significant area of potential change – reduction or increase. This will need to be monitored and revaluated for the Year 3 evaluation to determine an overall trend. If the volume of permit variations remains the same the Council will need to review the resources required to process these applications, and may therefore need assign the fees from these towards additional resource.

The Council will continue to monitor the income from permit and permit-variation fees in the subsequent Year 3 evaluation, from which a more realistic projected of future levels, including permit variation levels, can be assessed. Following this, a review of the permit fee levels can be undertaken and any changes applied accordingly.

Costs and Benefit Analysis

The Traffic Management Permit Scheme (England) (Amendment) Regulations 2015 require that the permit authority shall give consideration to the costs and benefits (whether or not financial) of operating the scheme.

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

With two years of post scheme data, the Council took the opportunity to review the value of the scheme with the benefit of the outturn scheme operating costs and revenues, and updated estimates of the societal impact of roadworks and how these may differ under the permit scheme.

A summary of the approach adopted is as follows:

- Identify the scale and characteristics of roadworks which have taken place in the first two years of permit scheme operation, and quantify the scale of societal impact that these works will have had;
- Estimate the reduction in roadways resulting from the permit scheme and quantify the benefits of this reduction;
- Identify the cost of setting up and operating the permit scheme;
- Undertake the cost benefit analysis to determine the benefit to cost ratio and net present value delivered by the scheme.

Scale and Characteristics of Roadworks Analysed

The table below shows the total durations of roadworks undertaken, as recorded in the last four years.

Duration of roadworks, by traffic management designation, for period Year -1 to Year 2

	Traffic Management Designation					
Period	No Incursion	Some Incursion	Traffic Control	Lane Closure	Road Closure	Grand Total
2013/14	95*	31,304	26,188	1,182	4,367	63,136
2014/15	9,566	22,256	26,647	1,749	6,698	66,916
2015/16	9,608	10,294	32,970	1,065	7,065	61,002
2016/17	10,381	7,639	34,359	817	5,223	58,419

** not effectively recorded pre-permitting*

In the period 2016/17, 13,768 individual roadwork events were recorded, representing over 58,000 days of roadworks. Of these, 48,000 days of works involved at least some excavation of, or incursion into, the carriageway and hence likely to have resulted in some disruption to road users. The remainder involved no incursion into the carriageway, and have been assumed to have no impact on road users.

The estimated impact of the roadworks with incursion into the carriageway have been modelled using QUADRO, Highways England's model to assess the impact of roadworks. Multiple model runs were undertaken to provide estimates of the daily impact of different types of roadwork disaggregated by location, road type and traffic management arrangements.

The modelled impact of typical roadworks in Warwickshire forms the basis of the benefits calculation. These impact estimates include the following elements:

- Road user travel time (delay caused to consumer and business as a result of roadworks)
- 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 as a result of higher fuel consumption)

For each roadwork event featuring some degree of carriageway incursion or traffic management, a societal impact cost has been calculated. The impact of the roadwork is dependent on the following:

- duration of the work,
- the type of road upon which the work occurs, with the major roads having higher traffic flows and therefore greater impacts than minor roads, and dual carriageways having different characteristics to single lane roads.
- geographic location, with distinction between urban and rural areas taking into account within the modelling.
- type of traffic management, with 'heavier' forms of traffic management such as lane or road closure having greater impact than contra-flows or carriageway incursion.

Aggregation of the modelled impacts of roadworks occurring in Warwickshire defines the scale of social cost of these works. The totals are summarised below for the two years pre- and post- implementation of the permit scheme.

Impact costs from works (£) covering period Year -1 to Year 2

		Traffic Management Designation				
	Cost of Roadworks £/yr*	Some Incursion	Traffic Control	Lane Closure	Road Closure	Grand Total
Pre-scheme	2013/14	104,811	2,030,869	3,511,934	12,801,452	18,449,066
	2014/15	82,975	2,318,170	6,225,424	14,843,096	23,469,665
Post-Scheme	2015/16	40,188	2,709,965	3,932,110	8,612,068	15,294,332
	2016/17	27,646	2,492,000	2,993,742	6,010,746	11,524,134

** All figures expressed in £ at 2010 prices*

In line with the falling number of roadwork days since the implementation of the permit scheme, the estimated impact of roadworks has also fallen. For the year 2016/17, the estimated societal impact of roadworks was £11.5m, down from twice that figure in 2014/15. It should be noted that roadwork volumes vary year on year for a range of reasons, and therefore variance should not solely attributable to the permit scheme introduction.

Whilst QUADRO covers most of the standard monetised elements of roadwork 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%. The Council has adopted a factor of 15% to be consistent with this recommendation.

Quantification of Benefit of a Permit Scheme

The benefits of the permit scheme are expected to be achieved through more efficient and better managed roadwork 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 roadwork occurrences. For the cost—benefit analysis, the comparative scenario is one in which the permit scheme had not been implemented, and is therefore by very nature hypothetical and unobservable.

The default assumption relating to anticipated impact of a permit scheme has been to take an assumed 5% reduction in roadwork impact in the absence of local evidence (as stated in the DfT Permit Scheme Evaluation Guidance, 2016). Post scheme data does however provide the opportunity to review trends, although as highlighted earlier, the comparison should not be 'before' vs. 'after', but 'with' vs 'without' scheme.

The analysis of overall roadwork impact cost in Warwickshire demonstrates a significant reduction in overall impact. Taking the average before and after roadwork monetised impacts identifies an average 36% fall following scheme implementation. However, general year-to-year fluctuations in the number of roadworks occurring and changes in the practice and quality of reporting events makes determining the underlying trend challenging.

Recent time series analysis undertaken on roadwork data as part of scheme evaluation in Derby found an observed and statistically significant 10% reduction in typical roadwork duration following implementation of the permit scheme[i]. Transport for London also took 10% as the estimated reduction in its ex-ante cost-benefit analysis of permit scheme implementation in the London Boroughs.

Therefore, taking an assumed 10% reduction in roadwork impact attributable to permit scheme implementation is supported by locally derived evidence and represents a conservative assumption by comparison with the actual observed impact reduction within Warwickshire. Accordingly, the societal impact of roadworks observed in 2015/16 and 2016/17 can be expected to represent 90% of the overall societal cost of roadworks which would have been incurred in the absence of the permit scheme.

The benefit of the scheme can hence be calculated as follows:

2015/16

- Societal cost of roadworks with scheme - £16,417,668
- Societal cost of roadworks without scheme - £18,241853
- Benefit to society of permit scheme (yr 1) - £1,824,185

2016/17

- Societal cost of roadworks with scheme - £12,382,452
- Societal cost of roadworks without scheme - £13,758,280
- Benefit to society of permit scheme (yr 2) - £1,375,828

Scheme benefits of £1.82m and £1.38m are estimated to have been generated through implementation of the permit scheme in its first two years of operation.

The cost benefit appraisal requires that scheme benefits are appraised against scheme costs over the whole appraisal period, which in this case guidance defines as being 25 years. Consequently, the benefits are projected forward over following years, taking an average of the two observed years, with impacts increasing in real terms to reflect growth in values of time, vehicle operating costs, accident savings and emissions costs.

Scheme Operating Costs

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

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

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

The cost assumptions relating to the scheme are detailed below:

- Scheme **setup costs** include consultancy fees and internal staff time in the preparation and implementation of the scheme. These were estimated to be £119,000 (2016 market prices).
- The **operating costs** of the permit scheme principally relate to the additional internal staff resources required to process permit applications and additional operating factors to administer the permit scheme, such as finance payment and reconciliation, performance and evaluation. To identify an operational cost a proportion of each role within the Councils network management service was assigned to permit scheme administration.
- Operating costs for Years 1 and 2 of operations, incremental to those incurred previously, are estimated to be £811,251 and £864,844 respectively.
- The **capital costs** for the permit scheme implementation can include elements such as new IT hardware and software etc.
- Overhead costs for additional software licenses have been accounted for within the staff overhead costs. These licensing costs are deemed more appropriate to be reflected in the operational costs as these represent ongoing annual costs. Therefore, no specific capital costs are identified in relation to permit scheme implementation.
- Cost factors are also projected over the period of the appraisal, growing in line with real wages.

Promoter Costs

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

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

- Detailed promoter cost data has not been available, but in line with evidence gathered from other permit scheme evaluations, an estimate of 20% of local authority operating costs has been applied.

Appraisal Results

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 as follows:

- Net present benefits of scheme (B) £20,565,544
- Net present cost of scheme (C) £3,379,475
- Net Present Value of scheme (B-C) £17,186,069
- Benefit to Cost Ratio (B/C) **6.09**

The benefit to cost ratio (BCR) is a measure of value-for-money exhibited by a scheme. With a BCR of above 4, the Warwickshire permit scheme can be defined as demonstrating 'Very High Value for Money'.

The CBA results are summarised in the Analysis of Monetised Costs and Benefits (AMCB) table below.

Analysis of Monetised Costs and Benefits Table

Noise		*(12)*
Local Air Quality		*(13)*
Greenhouse Gases	1,802,797	*(14)*
Journey Quality		*(15)*
Physical Activity		*(16)*
Accidents	1,422,125	*(17)*
Economic Efficiency: Consumer Users (Commuting)	10,029,858	*(1a)*
Economic Efficiency: Consumer Users (Other)	15,044,787	*(1b)*
Economic Efficiency: Business Users and Providers	- 3,402,156	*(5)*
Wider Public Finances (Indirect Taxation Revenues)	4,331,868	*- (11) - sign changed from PA table, as PA table represents costs, not benefits*
Present Value of Benefits (see notes) (PVB)	20,565,544	*(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)*
Broad Transport Budget	3,379,475	*(10)*
Present Value of Costs (see notes) (PVC)	3,379,475	*(PVC) = (10)*
OVERALL IMPACTS		
Net Present Value (NPV)	17,186,069	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	6.09	BCR=PVB/PVC

Note : This 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.

Glossary

"**Council**" means Warwickshire County Council including their capacity as a Local Highways Authority, also referred to as 'WCC'.

"**DfT**" means Department for Transport;

"**EToN**" means the Electronic Transfer of Notifications, the nationally agreed format for the transmission of information related to works between the Council and those undertaking works.

"**ETS**" means the Technical Specification for the Electronic Transfer of Notifications (EToN).

"**HAUC**" means the Highway Authorities and Utilities Committee.

"**LHA**" means Local Highway Authority.

"**NRSWA**" means New Roads and Street Works Act 1991.

"**PAA**" means 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 Scheme Regulations**" means 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**" means the permission sought be a Promoter to undertake works on the Highway, in accordance to the WaSPS.

"**Permit Variation**" means the process to change an agreed permit to reflect current or proposed changes in the works.

"**Promoter**" means a person or organisation responsible for commissioning activities [works] in streets covered by the Permit Scheme - either an Undertaker or a participating Council as a highway or traffic authority.

"**Statutory Guidance**" means the Traffic Management Act (2004) Statutory Guidance for Permits.

"**TMA**" means Traffic Management Act 2004;

"**Undertaker**" means Statutory Undertaker as defined within Section 48(4) of NRSWA.

"**WaSPS**" means [the] West and Shires Permit Scheme

"**Works**", also referred to as "**Activities**", means any 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*.

Appendix A - Permit Conditions – National References

REFERENCE	CONDITION TYPE	DESCRIPTION	APPLICATION
NCT1a	Date Constraints	Duration	Standard
NCT1b	Date Constraints	Duration	Standard
NCT2a	Time Constraints	Limit the days and times of day	Applied
NCT2b	Time Constraints	Working hours	Applied
NCT4a	Material and Plant Storage	Removal of surplus materials/plant	Applied
NCT4b	Material and Plant Storage	Storage of surplus materials/plant	Applied
NCT5a	Road Occupation Dimensions	Width and/or length of road space that can be occupied	Applied
NCT6a	Traffic Space Dimensions	Road space to be available to traffic/pedestrians at certain times of day	Applied
NCT7a	Road Closure	Road Closed to Traffic	Applied
NCT8a	Light Signals and Shuttle Working	Traffic Management Request	Applied
NCT8b	Light Signals and Shuttle Working	Manual Control of Traffic Management	Applied
NCT9a	Traffic Management Changes	Changes to traffic management arrangements	Applied
NCT9b	Traffic Management Changes	Traffic management arrangements to be in place	Applied
NCT9c	Traffic Management Changes	Signal Removal from operation when no longer required	Applied
NCT10a	Work Methodology	Employment of appropriate methodology	Applied
NCT11a	Consultation and Publicity	Display of Permit Number	Standard
NCT11b	Consultation and Publicity	Publicity for proposed works	Applied
NCT12a	Environmental	Limit timing of certain activities	Applied
NCT13	Local		Applied

Document References

[i] 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.