



Department
for Transport



TRO Discovery

Summary Report



Ordnance Survey



BRITISH PARKING ASSOCIATION

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Foreword

Traffic Regulation Orders (TROs) are essential to the smooth running of the road network. By giving legal force to the restrictions that define our roads they determine the legal layout of the streets that we travel down every day and help to define the streets of the future – in whatever form they may take.



At a time when we spend over £125 million per year on making TROs, only 25% of road users feel informed about plans for road changes. This is especially concerning given that there is a clear democratic process associated with TROs and how the public is notified about what is happening when they use the network.

In order to effectively plan for the roll out of electric vehicles and electric vehicles charging points that the Department for Transport is championing and other innovations such as full fibre broadband and connected and autonomous vehicles, TROs and TTROs are an essential piece of national infrastructure data that need to be made available in a nationally consistent format.

Feeding into the future of mobility work under UK Industrial Strategy's Grand Challenges, the Department for Transport asked GeoPlace, together with the British Parking Association and Ordnance Survey to conduct a discovery into the process by which TROs are made, and how this data is made available and used across the country.

We wanted to explore whether better visibility of Traffic Regulation Orders and access to additional information and services can help improve the citizen experience and increase innovation around traffic control. We wanted to understand if there was a growing demand for open, machine-readable Traffic Regulation Orders from users.

We set out to gather real world evidence to see how the TRO process is working, helping to identify how to deliver the most from the current system and how to support the transport network of the future.

The following report sets out the evidence base into the processes by which TROs are made, and how TRO data is stored and used. GeoPlace engaged widely to explore the current landscape in order to provide an understanding of TROs and their associated data.

We believe that this discovery will help identify how to deliver the most from the current system and how to support the transport network of the future.

A stylized, handwritten signature in white ink, appearing to read 'Nick Chapallaz', with a long, sweeping underline.

Nick Chapallaz
Managing Director, GeoPlace.

Executive Summary

In December 2018, the Department for Transport commissioned GeoPlace, together with the British Parking Association and Ordnance Survey to conduct a discovery into the process by which TROs are made, and how this data is made available and used across the country.

Over the course of the project, GeoPlace conducted research across 92 different organisations across the public and private sectors, speaking to over 200 people.

Our research indicates that 400 authorities across Great Britain create 53,300 TRO and Temporary Traffic Regulation Orders (TTROs) annually to manage their road network at a projected cost of £126.4 million. Almost 90% of TTROs are attributed to streetworks.

Our research uncovered numerous findings that were grouped under four key themes; Data, Legislation, Future of Mobility and Consistency.

Under the **Data** theme, we found there were user needs relating to:

- Availability
- Accuracy and quality
- Timeliness
- Digital maturity
- Content
- Open data

Under the **Legislation** theme, we found areas for improvement relating to:

- Secretary of State Approvals
- How information is conveyed
- Newspaper advertising
- Consultation
- Complexity of the current legislation

Under the **Future of Mobility** theme, we looked at:

- Dynamic TROs
- Connected and Autonomous Vehicles
- Network rollouts

Under the **Consistency** theme, we found that there were inconsistencies on a national scale relating to:

- Knowledge
- TTRO application

Our 23 recommendations come as a direct result of our findings under these four themes and are designed to support the transport network of the future.

Underpinned by user needs and the recommendations in the report, we have highlighted five next steps activities to address the needs and recommendations identified in our dialogue with 92 organisations over the course of the TRO Discovery.

- 1 Initiate pilot activities to assess how the draft Data Model for Traffic Regulation Order information and data meets user needs
- 2 Undertake a review of existing legislation to ensure it is fit for purpose, and identify proposals for future improvements
- 3 Conduct further research to establish what additional network change data is required to meet user needs, and consider how it could be made available
- 4 Conduct further research to establish how current processes associated with TROs and TTROs can be refined to meet user needs
- 5 The British Parking Association should release and promote their guidance document

TRO vision

A vision has emerged for what the future of Traffic Regulation Order (TROs) and Temporary Traffic Regulation Order (TTROs), along with their data, could look like from what users have told us.

We can foresee a world where the process of applying for TROs and TTROs is quick, consistent, and avoids any unnecessary costs that may be passed on to taxpayers or billpayers.

In this world, order-making authorities can make orders for other parties without unnecessary bureaucracy, and can manage their own networks more efficiently using TROs.

Consultees and others who will be affected by changes could be aware in advance of changes that will affect them, and know how to contribute to TROs where appropriate.

Data users could have access to high-quality, timely and accurate TRO and TTRO data so they can apply it for purposes such as reliable navigation and provision of digital services.

The UK has opportunity to be at the forefront of this and deliver against the principles set out in the Future of Mobility: Urban Strategy.





Introduction

This report is presented to the Department for Transport (DfT) by GeoPlace. GeoPlace is a Limited Liability Partnership jointly owned by the Local Government Association (LGA) and Ordnance Survey. We are world class experts in address and street information management.

This report presents the findings from the TRO Discovery, a six-month agile user research project which examined user needs and issues with the current Traffic Regulation Order (TRO) framework. As part of the research, GeoPlace with support from the DfT and the British Parking Association, engaged with stakeholders across many relevant sectors.

This summary report presents:

- the context for the research;
- the methodology;
- the findings by cross-cutting themes;
- recommendations.

Context

The Government's Industrial Strategy has four Grand Challenges focused on global trends which will transform our future. The TRO Discovery is part of the Grand Challenge to make the UK a world leader in shaping the Future of Mobility. One of the initial priorities for the Future of Mobility is to explore and encourage the use of data to support more effective operation of our transport system. The Government also wants to ensure that we provide a regulatory framework which means we continue to have one of the most open environments in the world for transport innovation.



The Department for Transport partnered with GeoPlace, the British Parking Association (BPA) and Ordnance Survey (OS) to collect evidence into the process by which TROs are made, and how TRO data is stored and used to help inform our response to the above challenges.

The programme engaged widely with experts, and with people and organisations who require TROs to understand who is reliant on TROs, how the process works for them and how it could be improved in the future.

Drawing on both the findings and recommendations of the user research, the British Parking Association created a guide to help local authorities understand how they can work within the limits of current legislation based on best practice in the current landscape.

A draft Data Model for TROs has also been developed with the intention to make TRO data accessible to the public, the digital mapping industry and to help develop the international TRO landscape. This is an open resource for all to use.



Local Authority Transport Data Discovery

The Department for Transport commissioned a report from the North Highland consultancy group in 2018. The report explored the transport data held by local authorities. Its key findings relating to TROs were that:

- TRO data is difficult and time consuming to access, clean and process
- TRO data is not in a standardised, machine readable format
- TROs lack of centralised point of reference
- Private sector organisations are being forced to collect TRO data manually
- The current process for amending and implementing a TRO to be labour intensive, time consuming, and costly.

The report recommended that the Department for Transport sponsor data projects which encourage and foster better local authority transport services, including streamlining and digitising Traffic Regulation Orders.

That report is in part the context for this current report, presented by GeoPlace to the Department for Transport.



About Traffic Regulation Orders

Traffic Regulation Orders (TROs) are the legal mechanism used by traffic authorities to implement changes on the road network.

They are used for such diverse things as:

- Defining speed limits and parking restrictions
- Allowing temporary closures for street parties
- Changes such as road closures to enable roadworks

The three main types of TRO are permanent (referred to as TROs), temporary (referred to as TTROs), and experimental. Examples of the type of restrictions that exist within all three kinds of orders are detailed below:

Restriction Type	Restriction Example
Speed Restriction	Min Speed, Max Speed
Vehicle type/load restriction	Height, Weight, Width, Length, Vehicle Type, Load Type
Restricted vehicle movement	Banned Turn, Compulsory Turn, No Entry
Waiting/ loading restriction	Yellow Line, Loading Ban, Red Route, Controlled Parking Zone
Permitted parking	Resident, Charged, Reserved, Limited Stay, Footway
Zone	Congestion, Low Emission
Road Closure	Permanent, Temporary
Toll Charging	Road, Bridge, Tunnel

The term Traffic Regulation Order is intended here to cover the wide variety of orders made under the Road Traffic Regulation Act 1984. This includes order such as Traffic Management Orders (TMOs) in London and off-street Parking Places Orders (PPOs) in car parks.

TRO Landscape

There are over 400 authorities across Great Britain that use a statutory function to manage traffic in their areas, inform the public of changes to the road network that may affect them, give the public a democratic opportunity to be consulted about the change, and publish information about changes to the road.

This complex task is undertaken with the creation of an estimated **14,300** permanent Traffic Regulation Orders annually at a projected cost of **£62.7m**.

Authorities also create Temporary Traffic Regulation Orders (TTROs). TTROs are principally used to facilitate roadworks and streetworks undertaken by authorities and utilities to maintain vital infrastructure and provide us with services we all need. TTROs also allow organisations and members of the public to close a road for special events.

The number of TTROs created by authorities is estimated at **39,000** at a projected cost to industry of **£63.7m**. Almost 90% of TTROs are attributed to streetworks.

The TRO Landscape is vast with an array of organisations that

- a. interact with the legislative process
- b. have a need for TRO data in order to provide services



Methodology

The TRO Discovery project was delivered in twelve, two-week sprints over a 24 week period.

The primary focus was on user research with key user groups across the public and private sectors and used a number of different research techniques to gather input from key user groups:

User Interviews



1 hour phone calls and face to face interviews with individuals or small groups

Workshops



2 hour workshops with Local Authorities, Utilities and Map Makers

Conferences & Events



- LGA Connected Vehicles
- Move 2019
- TDI#9
- Transport & Technology Forum
- Traffex & Parkex 2019
- TN-ITS Steering Group

Surveys



- Initial Consultation
- Digital Maturity
- TRO and TTRO Costs
- Data Needs
- Transport Focus – Transport User Panel

Over the course of the TRO Discovery, the team spoke to 200+ people across 92 organisations across the public and private sector.

All authorities across the UK were invited to take part in the surveys.

Key Themes

The following key themes emerged throughout the Discovery:



Data



Legislation



Future of
Mobility



Consistency

Data

Availability

Timeliness

Content

Accuracy & Quality

Digital Maturity

Open Data

Availability

There is a need for TRO data to be made available in a consistent way.

Authorities have an obligation to provide information to members of the public so that they are consulted with.

Utilities require TRO and TTRO data to effectively plan their streetworks and associated diversion routes which support the reduction of congestion.

Map makers require TRO and TTRO data to turn it into accurate navigation information for their users.

Within current navigation systems, the processing of information is largely automated and relies on data that can be processed digitally. With the introduction of Automated Vehicles and systems where a machine could be making decisions, the data needs to be available in a standardised digitally processable format.

Not all local authorities currently publish TRO information in a digital format. Where it is available, it is inconsistent.

TRO data is currently published through a variety of avenues which causes complexity when combining multiple sources of data. These may include:

- Public inspection in Council offices of largely paper based orders
- gov.uk, council websites or third-party websites
- The London Gazette.

Where local authorities do publish data, it will:

- be supplied in different media; paper and digital
- use different definitions/language and iconography to describe a restriction.

The legislation currently requires TRO information to be made available for public inspection. It does not specify or mandate how this information should be made available. There is no technical approach or standard sitting behind the legislation to make data available in a consistent format.

All TROs have a geospatial element but authorities communicate this through written and text based schedules which adds an additional frustration for authorities creating the order and users translating this into reliable information.

Intelligent Speed Assistance (ISA) refers to systems that help drivers comply with the speed limit but can be overridden by the driver. From 2022, new minimum vehicle safety standards will apply in EU countries which will require ISA to be fitted on new cars, vans, lorries and buses. The high-level requirements are contained in the new General Safety Regulations (GSR), and include the requirement for ISA to be based on speed limit information from observation of road signs and signals, infrastructure signals, or electronic map data.

It is unclear whether the sensing of road signs would be sufficient to provide reliable data about speed limits, in which case it may need to be supplemented with speed data held in TROs. DfT should continue to explore this potential use case for TRO data.

Timeliness

Utilities and local authorities need greater coordination to deliver streetworks efficiently.

Enabling effective coordination and collaboration through the provision of data from the TTRO application stage may have a positive impact on the streetworks process saving money, time and resource for all parties.

The creation of a TTRO is an intrinsic requirement of the streetworks process when a road closure or temporary restriction is required on the Highway.

The application for a TTRO may take place before the streetworks permitting process commences. Utilities do not have visibility of applied for, and granted, TTROs.

Other indicators of utility works are only visible much later in the process preventing coordination. Other sources of streetworks data are not currently visible such as forward planning and permit applications.

The Street Manager service is a new digital planning service for streetworks that is being rolled out over 2019/2020 by the Department for Transport. Street Manager has already been developed to play a key role in enabling coordination of street and road works across utilities and authorities.

Map makers require advance sight of proposed TROs and TTROs and changes to existing TRO (and TTRO) information.

The provision of network change information from authorities, in advance of the TRO and TTRO being enacted, will allow mapmakers to update their maps in a timely manner and provide reliable information to their users. Mapmakers must be able to provide accurate data to enable safe and expeditious movement across the network.

The provision of such data is also part of the TN-ITS Initiative.



TN-ITS (Transport Network Intelligent Transport System) is a European Commission initiative which aims to facilitate the exchange of road data between road authorities within member states and data users such as map makers.

TN-ITS is working to promote standardisation by defining and maintaining the TN-ITS specification. This is a common data exchange format for changes in road attributes.

The Department for Transport should maintain their awareness of the work of the European Commission with regard to network change data. It should also consider whether there are opportunities for TN-ITS and work on TRO data to be mutually supportive.

Content

Mapmakers need network change data to update their maps, however this change data extends beyond that held in TROs. In the future local authorities may need to provide additional information about restrictions that are not subject to a TRO.

The Traffic Signs Regulations and General Directions 2016 gives local authorities autonomy to create restrictions on the network that do not require a TRO to be enforced.

In order to provide complete restriction data to mapmakers in the future, local authorities may need to provide additional information about restrictions that are not subject to a TRO.

An emerging requirement from Mapmakers, and solution providers is for restriction information that is not created by traffic authorities.

The data needed is not limited to the provision of TRO and non-TRO information from local authorities. Where the restriction extends to private highways the information defining the restriction is not held by the local authority. Such restrictions may include 5 mph zones in supermarket car parks for example.

Mapmakers need this data to maximise coverage and provide complete navigation information to their users who will use both public and private highways. The emerging view is that road users do not need to know who creates and/or enforces the restriction, just that a restriction is in place.



Mapmakers and the Connected & Autonomous Vehicles (CAV) sector have expressed a need for more detailed information relating to TTROs and whether the disruption taking place on the network is happening.

TTRO information provides an indication to a user that there will be a disruption on the network and/or a change to existing restrictions. It does not tell a user definitively that the disruption is actually happening.

For example, a TTRO may allow a road closure for a period of 6 weeks for streetworks. However, the streetworks may only take place for a period of 2 weeks within the 6 week window.

The 'works start' and 'works stop' notices could be a mechanism to provide potential value in determining the actual duration of TTROs as a result of streetworks.

Accuracy & Quality

For a TRO dataset and all the data contained within it to be used in a meaningful way, users need the order to accurately reflect the physical implementation of the order.

For TROs to be legally enforceable, local authorities require the signs and lines implementing the order to reflect the content of the order.

Mapmakers, CAV and software suppliers/solution providers need accurate and high-quality data to ensure effective and legally compliant navigation for customers, the creation of quality products and as an enabler for CAV.



The main issue observed by mapmakers and solution providers relates to the difference between the restriction as written in the legal order and how it is implemented in signs and lines on the ground.

Drivers do not trust the data where there is a difference between the real world and legal order.

The perception is that some authorities are reluctant to release TRO data as it has the potential to expose inaccuracies between the legal order and the real world. This may lead to issues around enforcement and subsequent legal action.

For TRO and TTRO data to be used, mapmakers need it to be of sufficient quality to be trusted.

Inconsistencies and complexities concerning the availability, timeliness, content and accuracy have been presented in previous sections. The idea of quality is an intrinsic aspect of all these themes. The expectations of data quality from users of TRO data will need to be better understood in order for local authorities to consider how the provision of 'high quality' data might be achieved.

The perception from mapmakers is that TRO data is subject to a legal process and the data provided by authorities would be definitive.

Data quality issues relating to TROs could have serious consequences with the introduction of Connected and Automated Vehicles and emerging requirements for road safety data - eg Intelligent Speed Assist (ISA).

Digital Maturity



Digital Maturity is the extent to which an authority has digitised the TRO records they hold. The TRO Discovery used a five-point scale (from 1-5) to assess the digital maturity of authorities.

Level 1 digitisation may see an authority:

- only hold hard copies
- only create hand- or type-written TROs.

On the other hand, Level 5 digitisation may include

- TROs being produced in an end-to-end digital environment
- Map-based schedules being held for all TROs
- All in-force TROs being held in a digitally accessible format

TRO data needs to be accurate, available and high quality so that data users can make effective use of the data.

Digital maturity is a strong indicator of the extent to which data can currently meet these needs. The TRO Discovery found that the needs of existing and future data users are unlikely to be fully met given a) the current inconsistent status of digital maturity across local authorities and b) the lack of standards and conventions to create, record, and publish TRO information digitally using the Level 5 definition above.

Other useful findings on digital maturity from research show that:

1. The level of digital maturity is greatest for "Permitted Parking" and for "Waiting/Loading Restrictions". This may be expected as this activity is subject to civil enforcement by authorities, and they require TRO information to conduct enforcement activities.

Potential solutions are already being developed by the private sector to address this issue.

Companies in the market place exist which can digitally survey an authority using technology such as LiDAR scanners. They will then produce a baseline traffic order dataset based on that survey. While this may be a useful tool for mapping the implementation of TROs, this baseline dataset will not necessarily reflect the text of the orders.

One potential solution to this may be through the use of consolidation orders. In effect, such orders would be legal documents made to reflect the signs and lines to make them enforceable. However, this could risk giving legal status to incorrect implementations.

2. "Restricted Vehicle Movement", "Load Restriction" and "Speed Limit" is typically at level 2. Reasons for this could be:

- authorities are not responsible for enforcing these orders
 - there is a lack of resource to digitise
 - The enforcement is undertaken by the Police constabulary which may result in a lower priority to digitise
3. No TRO data is at level 5 maturity
 4. Toll Charges and Congestion/Low Emission Zones did not feature in the response.

Open Data

TRO data needs to be made openly available where appropriate.

Authorities have a statutory obligation to provide information to members of the public so that they are notified of and consulted on changes to the network that may affect them.

Utilities require TRO data to effectively plan their streetworks and associated diversion routes which reduces congestion.

Map makers require TRO and TTRO data to turn it into accurate navigation information for their users.

The provision of open data requires more than data being technically accessible, it also needs to be openly licensed and formatted.

Ordnance Survey (OS) provide mapping data to the public sector via the Public Sector Mapping Agreement (PSMA) and the One Scotland Mapping Agreement (OSMA). Local authorities use OS mapping data which is free at the point of use. In order to realise the full benefit and the value of open TRO data, the licensing of any TRO data that is based on OS Mapping would continue to be explored.

The Geospatial Commission sets the UK's Geospatial Strategy and promotes best use of geospatial data. It launched a call for evidence for a National Geospatial Strategy in 2018 which has now concluded. The results of this consultation should be reviewed by DfT.

The Future of Mobility Urban Strategy set out the principles for facilitating innovation in urban mobility. Principle 9 stated that:

"Data from new mobility services must be shared, where appropriate, to improve choice and the operation of the transport system."

The strategy also said that "Increased data sharing is vital to ensuring an open mobility marketplace, enabling a better user experience and improving the safety and efficiency of the transport network."

The Geospatial Commission and OS are currently working together to create an Outline Business Case for the Public Sector Geospatial Agreement (PSGA) for approval by Treasury in Autumn 2019. A full business case will follow in the autumn with a view to a new PSGA commencing in April 2020. DfT should work with the Geospatial Commission to help meet user needs for TRO data.

The Department of Culture Media and Sport (DCMS) have launched an open call for evidence for the UK government's National Data Strategy. DfT should engage with this activity. Of particular note are the following objectives:

Objective 3: To ensure that all businesses and non-profit organisations can effectively operate in an increasingly data-driven economy

Objective 4. To improve growth and productivity through the effective use of data across the economy

Objective 5. To improve public services and government operations through the effective collection, sharing and use of data

Objective 6. To achieve alignment in government around data, with data shared and used cooperatively wherever appropriate.

Legislation

The Department for Transport should note that the Transport Select Committee is conducting an inquiry into pavement parking. Within the scope of the inquiry is the “enforcement and, if necessary, reform of Traffic Regulation Orders need [sic] to deal with pavement parking”. DfT should support the work of the inquiry and closely consider any report or recommendations arising from it.

Secretary of State Approvals
Convey Information
Newspaper Advertising
Consultation
Complexity

Secretary of State Approvals



Authorities need to make their TTROs efficiently, and without unnecessary delay or administration which would impose a burden on them. They also have a legal duty to manage their networks to secure the expeditious movement of traffic.

Utilities and events organisers need to know the outcomes of their TTRO applications quickly so they have certainty about whether they can conduct their work or carry out their event. They also need to be able to carry out their works or events without unnecessary delays.

The Secretary of State needs to ensure that the Department's aims are being met using the powers he has available. The DfT casework team exercises these powers on behalf of the Secretary of State and need to ensure local authorities are consulting and are using the correct powers.

The Secretary of State approval requirement can provide an additional process for authorities to carry out, potentially frustrating efficiency and causing delays to applicants in obtaining TTROs.

It is not clear that the current approvals requirements are always helpful in ensuring the Secretary of State and Department for Transport attain their objectives.

TTROs subject to an 18 month time limit may be extended by the Secretary of State for a further six months where a local authority would not otherwise have time to remake an order before it expired.

Special event orders can only run for a maximum of three days unless the Secretary of State (or strategic highways company) agrees to extend it for up to three additional days.

A further special event order cannot be made on the same section of road within the calendar year without the consent of the Secretary of State.

With the introduction of the Traffic Management Act 2004, local traffic authorities have a statutory duty under section 16 to manage their own networks to secure the expeditious movement of traffic. The responsibility for this duty has been devolved, but the powers associated with delivering it have not.

Experimental Traffic Regulation Orders (ETROs) made for a period of 18 months which have not expired may, with Secretary of State approval, continue for up to 6 months from the date it would otherwise cease to be in force.

Convey Information

Road users need to be effectively communicated with about changes to the road network.

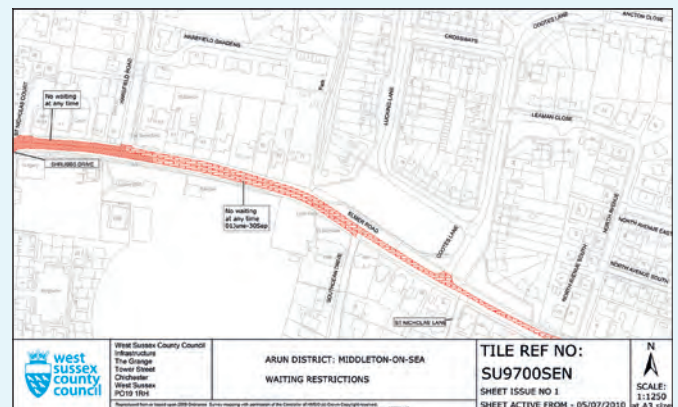
Local authorities believe that the most efficient and simplest way to communicate changes to the road network is to do this through map-based orders. The creation of map-based orders will facilitate the creation of a digital record of TRO information.

Many authorities communicate the scope of a TRO through written, text-based schedules where map-based schedules have not been introduced. Local authorities do not believe this to be the most effective way of communicating what can be complex information to the public.

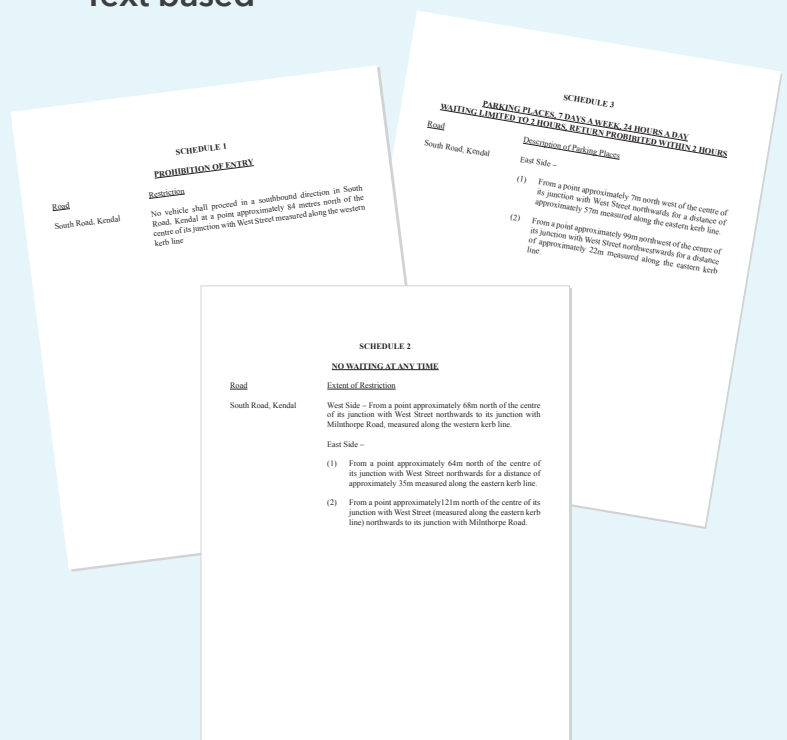
Some local authorities have introduced map based schedules, and are also creating written and text based schedules because they are not clear on the correct procedure to follow which results in a duplication of effort.

TRO officers advocated the use of map-based orders but cited legislative, budgetary and resource constraints as frustrations.

Map based



Text based



It is worth noting that information relating to the restriction itself was actually found after 8 pages of legal text in the document.

Newspaper Advertising

Citizens need to know about changes to the road network that affect them and need be effectively communicated with by local authorities.

Authorities need an efficient and cost-effective process to communicate with their residents.

Utilities and events organisers want to obtain TTROs at reduced cost and would then no longer need to pass on the cost to their customers/attendees.

Road users who responded to a Transport Focus survey told us that there are 8 methods that would better meet their needs for communicating changes about the network than an official notice in the local paper. However, regulations mandate these official local paper notices.

The high cost of advertising TROs is a contributing factor to the number of permanent TROs that can be implemented by authorities which results in delays and frustration to meeting local community needs.

TTROs require 2 adverts placed in a local newspaper which both utilities and authorities are frustrated by as the second advertisement is not seen to be effective in providing information to the public.

Local authorities have been forced to align their TRO consultation process with the timings of newspaper publication.

There are some authority areas which do not have local newspapers that serve local residents.



Only 7% of road users find out about plans for roadworks and future road network changes through an official notice in the local paper.

The estimated annual advertising costs for TROs and TTROs across all authorities in GB is: ~£49m which accounts for 34% of the total cost to make a TRO and 46% of the total cost to make a TTRO.

The TRO Discovery survey findings suggest that the cost to an authority to advertise a single TRO is £1021.

The estimated annual cost to advertise TTROs across all GB authorities is: ~£28m with a single TTRO advertising cost of £769.

Consultation



Consultation refers to either statutory or non-statutory engagement with parties who may be affected by certain types of orders to ascertain their views on proposals.

Statutory consultation takes place for permanent TROs with bodies such as the local emergency services, bus companies and haulage organisations who are highly likely to have an interest in any change to the road network.

Non-statutory consultation will be conducted on a more ad-hoc basis by authorities to either: engage with statutory consultees early, consult with non-statutory consultees on permanent orders, or consult on orders such as TTROs which do not require a statutory consultation.

Advertising sometimes forms part of the cost of a consultation, as affected parties will need to be notified that a consultation is taking place.

Statutory consultees and other affected parties need to receive clear and understandable information about TROs affecting them, and the opportunity to be consulted on such orders where appropriate.

A majority of authorities believe that information about TROs and TTROs through the consultation process could be presented to users in a simpler and more visual way using plain English and maps.

From initial interviews with statutory consultees, there is also an emerging need for greater consistency in the way that statutory consultees are engaged with. A statutory consultee may receive inconsistent forms of consultation information if they are impacted by orders from multiple authorities.

Authorities want to ensure they can consult in a cost- and time-efficient manner; that they can draw upon the constructive proposals of affected parties; and that the ability of parties to object to proposals is not given disproportionate weight.

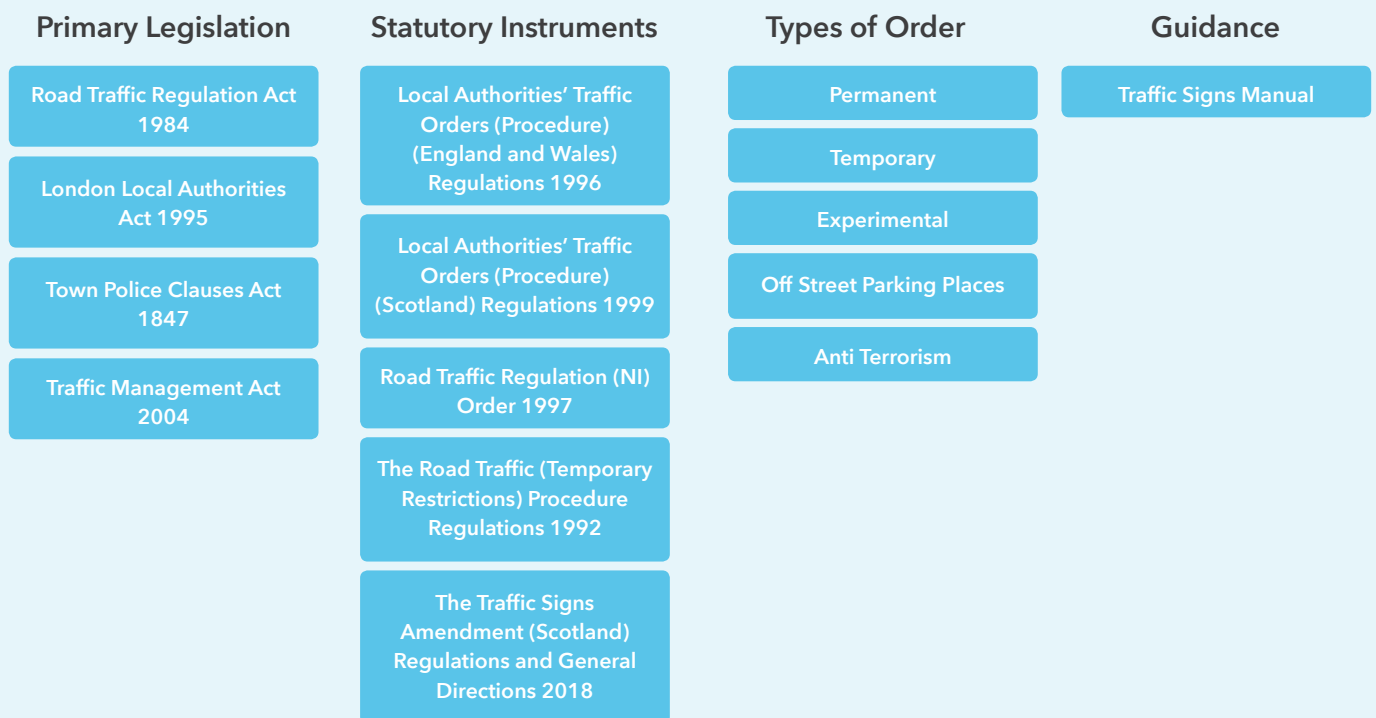
The estimated annual cost for TRO and TTRO consultation is ~£24m and this accounts for 18% of the total cost to make a TRO and TTRO.

The TRO Discovery survey findings suggest that the cost to an authority to consult on a single TRO is **£827**.

77% of road users are not aware of how to have their views considered by the local authority. This survey was conducted by Transport Focus and aimed at their Transport User Panel membership.

Complexity

Authorities want simplicity, clarity and consistency in the different types of statutory powers they used to control and manage their networks. This does not currently exist in the collection of powers outlined below.



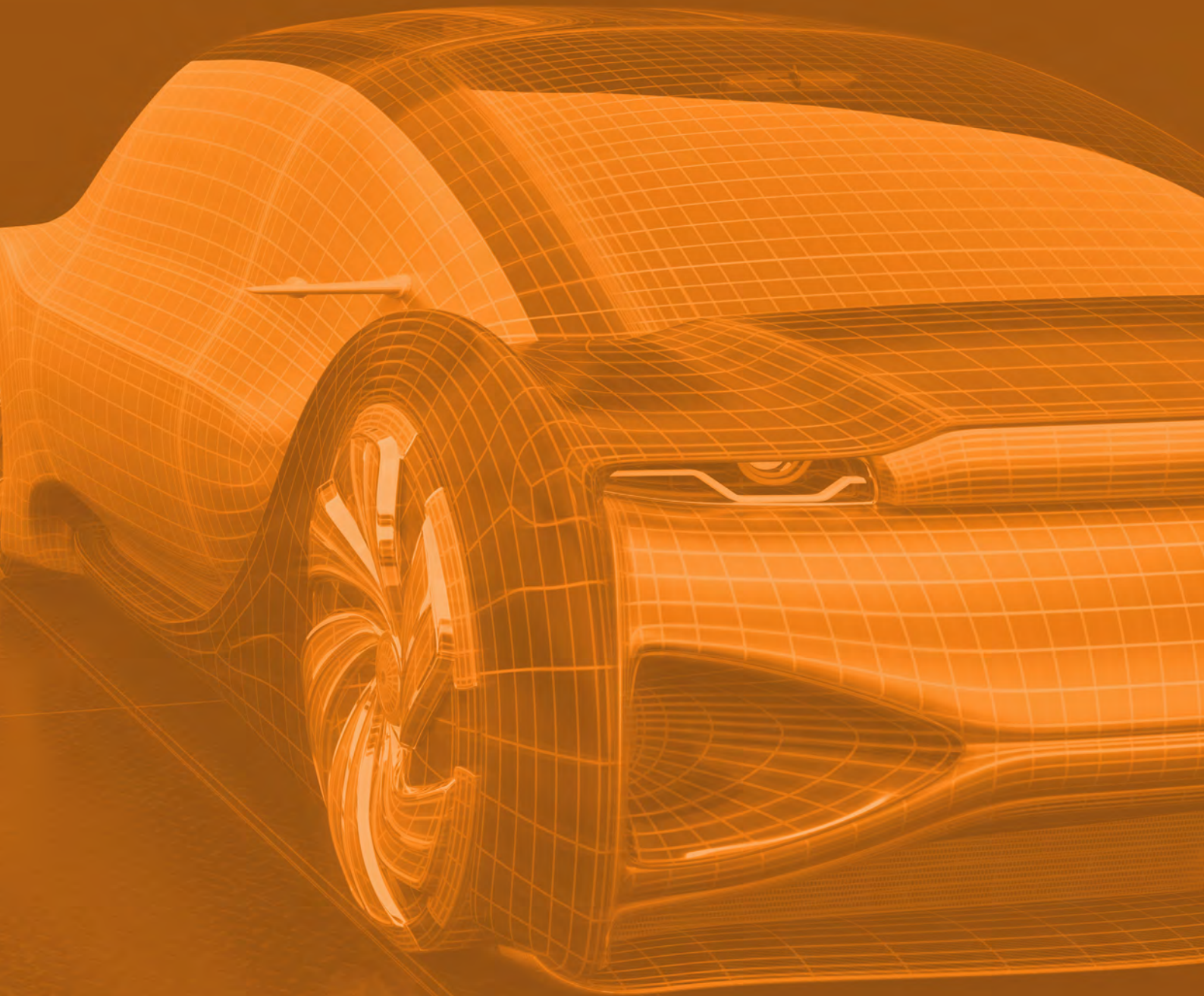
A consolidation and simplification of the legislation would provide an opportunity to meet the needs of authorities in respect of this legislation.

Any such simplification should respect the powers of the devolved administrations.

The Local Government Association has recently commissioned a survey to understand the extent to which councils would welcome the introduction of enforcement powers under Part 6 of the Traffic Management Act 2004, and how they intend to use these powers. DfT should assess the outcome of this activity and consider any recommendations arising from it.

A guide has been created by the British Parking Association as a result of existing complex legislative processes driven by a user need for clarity and simplification.

Future of Mobility



Dynamic TROs
Connected & Autonomous Vehicles
Network Rollouts

Dynamic TROs



Authorities need to make the best possible use of the limited spaces on their network to achieve the expeditious movement of traffic. Authorities want to use space flexibly, altering the restrictions that apply to the road on a dynamic basis according to factors such as parking bay occupancy and demand, or air quality.

Road users want a road network which reflects and facilitates the journeys they make.

If the restriction on the street can change dynamically, dynamic information needs to be conveyed to users, either physically or digitally. Static orders can be conveyed with a simple sign on a post however dynamic orders would require dynamic visualisation.

It is currently unclear to what extent TRO legislation constrains the ability of authorities to make dynamic TROs.

ARUP reported on their FlexKerbs project in August 2018. This project considered the feasibility of allowing the kerbside to dynamically and intelligently change use according to the time of day and day of the week.

The study demonstrated that FlexKerbs were feasible, gave cities proactive agency in achieving their objectives, and enabled the efficient use of street space.

The final report also noted that stringent regulations governing roadway functions, traffic management and signalisation (among other regulations) may complicate FlexKerb implementation.

Connected and Automated Vehicles



The CAV industry will need infrastructure data to help their vehicles effectively navigate a changing road network.

The data that CAVs are provided with will need to be accurate, secure, and efficient to process.

The CAV industry also needs to know how road regulations, including TROs will be enforced against CAVs.

The need for infrastructure data to assist CAVs is recognised at higher-levels within organisations, but those closest to the CAV coalface do not see the value of TRO data as clearly.

TRO data is currently published in a variety of ways which causes complexity to map-makers who will ultimately provide TRO data to the CAV sector.

It is not currently clear how regulations such as TROs will apply to CAVs. Therefore the way that the CAV sector will use TRO data is currently subject to a degree of uncertainty.

Ordnance Survey were commissioned by Zenzic-UK Ltd to provide an insight into the use of geospatial data in support of self driving vehicles which supports the findings from the TRO Discovery Project.

The Geodata Report - analysis and recommendations for self-driving vehicle testing also calls for the creation of common data standards that promote collaboration and improve confidence in mapping data for self-driving vehicles.

An Automated Vehicles Regulatory Review is being undertaken by the Law Commission. It is exploring whether there are gaps or uncertainties in the law relating to automated vehicles, and what reforms may be necessary to ensure the regulatory framework is fit for purpose.

Their preliminary consultation paper was published in November 2018 and included considerations of whether road rules require adaptation for artificial intelligence decision-making. Question 38 in the consultation paper sought views on how best regulators could collaborate with developers to create road rules sufficiently determinate to be formulated in digital code.

DfT should follow the outcomes of the consultation, and continue to have regard to the work of the Law Commission on this project.

Network Rollouts

The UK Government has the ambition to deliver full-fibre to the premises by 2033 and for all new cars and vans to be effectively zero emission by 2040.

This will meet the needs of UK citizens and businesses who want to access all the benefits of ultrafast services without unnecessary cost and delay.

Broadband companies want to deliver these services in a timely and cost-effective way.

Utility companies delivering these rollouts experience inconsistencies in the cost and timing to apply for TTROs.

Companies delivering these rollouts are also subject to issues noted elsewhere including the high costs of various elements of the TTRO process.

This has the potential to impact on the speed and cost of future rollouts.

The UK is deploying full fibre to the premises and a 5G network which will require the installation of new equipment and fibre cables. This will deliver a transformative service.

A report commissioned by the Broadband Stakeholder Group found that one area likely to inhibit infrastructure deployment was the inconsistency of notice periods and fees for road traffic management, including advertising requirements. Operators said the inconsistency increased costs and caused delays.

The report noted this would have more significant implications on a national scale for deployment of infrastructure to customer premises such as the Government's full-fibre ambitions. It also recommended an analysis of schemes such as TTROs.



The UK Government has the mission for all new cars and vans to be effectively zero emission by 2040.

As we move towards the mass adoption of ultra low emission vehicles, more infrastructure will be needed. The UK Government 'Road to Zero' has the vision of electric vehicles being able to easily access reliable charging infrastructure. More than a third of households in England do not have access to off-street parking and will therefore require on-street charging facilities if they wish to move to an electric vehicle.

While solutions such as the inclusion of charging facilities in street lighting columns will help with deployment of on-street infrastructure, support is also being made available to provide dedicated on-street charging infrastructure. The UK will also need more public charge points to meet demand and realise the benefits of electric vehicles.

Consistency

The background of the slide features a green ruler and a metal bracket. The ruler is positioned diagonally from the bottom left towards the top right. It has white markings and text indicating measurements in inches and centimeters, as well as tempo markings such as 'Larghetto 60-66', 'Adagio 66-76', 'Andante 76-108', 'Moderato 108-120', and 'Allegro 120-168'. A metal bracket is attached to the ruler, with a small yellow light or indicator pointing towards the center of the slide.

Knowledge
TTRO Application

Knowledge

The research shows that local authorities would benefit from guidance that explains:

1. What legislation should be used and when
2. The steps in the process to create, consult (where required), and implement a TRO, TTRO and Experimental order
3. Map based schedules and the stages of digital maturity.

This would be particularly helpful to local authorities in order to:

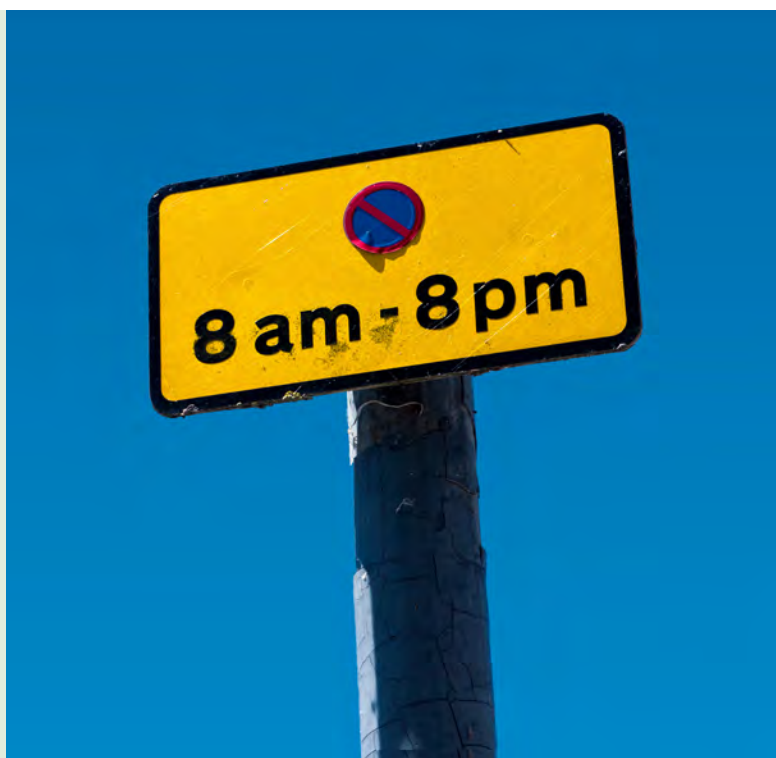
1. Ensure the correct legislative processes are being followed,
2. Enable a mechanism to create policy where it does not yet exist
3. Provide new and existing Local Authority Officers a useful tool to navigate a complex statutory obligation.

Drawing on the research of the TRO Discovery Project, the British Parking Association have created a guidance document to meet identified user need.

What the guide does:

Examines the variety of approaches that local highway authorities take to create and make available their TROs. It examines good practice and explores innovative methods in order to understand the pros and cons of these approaches.

It also gives local highway authorities insight into how they can develop their TROs from where they are now, towards where they will need to be in the near future.



Across Great Britain, there are 205 local highway authorities and 192 districts each with a differing view of legislation.

Although the TRO process is defined in legislation and each local authority is clear on the requirements to deliver the process, the implementation varies across each of these authorities resulting in inconsistencies relating to:

- The initial proposal of a TRO
- The assessment of the initial proposal
- Pre consultation engagement activities relating to the proposal
- The statutory consultation
- The duration of the consultation and objection period
- The duration of the entire process
- How orders are sealed and when they are implemented
- How information is made available to the public

TTRO Application

Utilities and event organisers must be able to effectively plan and deliver streetworks and events.

They need to communicate timelines internally and externally to facilitate coordination and enable delivery of services and successful events.

They need prompt confirmation that a TTRO has been made so they can plan dependent activities with certainty.

When dealing with local authorities, utilities and event organisers experience inconsistencies in lead in times for the application and the duration of the time to process an application.

Utilities find they have to uncover and maintain information relating to the lead in times across each authority area they operate in. This activity requires staff time to undertake.

Utilities and events organisers need clarity and consistency about the application process for each authority they operate in so they can efficiently provide application information and payment to the correct part of the relevant authority.

There is inconsistency in the information required to complete and submit the application.

Applying for TTROs across multiple authorities is an immense source of frustration for utilities as they have to find and maintain information relating to contact details, how they apply for a TTRO, and the mechanism to pay. Every utility and contractor have a need for this information for each authority in which they operate.

Utilities need to evidence the costs they incur when passing the costs of streetworks on to their customers.

The costs associated with TTROs vary considerably across and within authorities, each authority has a minimum and maximum charge.

The breakdown of TTRO costs are not provided to applicants of a TTRO. This means that they are unable to explain to their customers;

1. the reason for the variation of costs
2. what the charges relate to.

This is a source of frustration particularly to the utility sector, and their customers.

Recommendations

Data

- 1 Explore the technical and legislative mechanisms by which TRO data can be provided in a consistent format that can be processed digitally
- 2 Explore whether TTRO application data should be made available to utilities and local authorities to allow them to coordinate early with the work of other parties
- 3 Explore the mechanism(s) to provide early sight of TRO and TTRO data to mapmakers
- 4 Assess the need for, value of, and practicalities of delivering restriction data that is not subject to a TRO
- 5 Explore how data from different processes (such as streetworks permitting and TTRO application) can be combined to provide more granular information
- 6 Explore the implications for all parties where the TRO does not match real world signs and lines
- 7 Examine the quality of TRO and TTRO data required by users for the present and the future
- 8 Continue to explore the levels of digital maturity within authorities. Identify the impact on users of various levels of digital maturity and the challenges associated with increasing digital maturity
- 9 Explore how TRO data can be made open where appropriate.

Legislation

- 1 Review the need for the Secretary of State to approve certain TROs to identify the appropriate scope of this power
- 2 Review legislation to ensure that the representation of information by Local Authorities effectively informs people affected by the order
- 3 Review the legislative requirement to advertise in a newspaper
- 4 Review legislation to ensure an appropriate level of consultation for TROs and TTROs
- 5 Review and determine if legislation for making changes to the road network can be simplified.

Future of Mobility

- 1 Explore whether dynamic TROs are practicable under the current legislative system
- 2 Explore ways to demonstrate the value of TRO data to the CAV sector
- 3 Continue engagement to ensure that TRO data meets the needs of the CAV sector

Consistency

- 1 The British Parking Association (BPA) should release and promote their guidance document
- 2 Explore mechanisms to make information about actual TTRO lead in times easily available
- 3 Explore the feasibility and implications of shortening TTRO lead in times for effective outcomes
- 4 Explore how TTRO application information can be made accessible to applicants
- 5 Explore how transparency of TTRO costs can be provided to all applicants.

Next Steps

The evidence that GeoPlace have presented to the Department for Transport (DfT) has demonstrated a clear need for a review of Traffic Regulation Order legislation. DfT is therefore taking immediate action to begin this review, and will commence a 16-week legislative review in August 2019. The scope of this review will encompass legislation relating to Permanent, Temporary and Experimental orders, focussing especially on the legislative recommendations made in this report. The outputs from the review will be a set of proposals for a new legislative process for making TROs. DfT will then give consideration to these proposals and determine the future steps to be taken in relation to them. DfT will also give close consideration to the other recommendations contained within this report.

Appendix

Acknowledgements:

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Morgan Sindall	Wirral Council
Network Rail	
Newcastle City Council	
Norfolk County Council	

Who is GeoPlace

We work on a national scale, collaborating with entire communities of contributors and a diverse audience of partners, suppliers, and customers. GeoPlace has the experience to identify opportunities for improvement in data management; to balance the need for quality against capability; and to champion innovation while delivering service excellence, day-to-day.

Working together with our partners, we maintain one of Britain's largest, and most valuable shared assets - the nation's detailed and authoritative addressing and street data. This information underpins digital transformation. Our data enables connectivity; it ensures accuracy; it reduces costs and duplication, and has the potential to minimise risk while at the same time maximising productivity. A robust, definitive link between people and place is essential for efficiency and effectiveness in the public sector. That link is made possible, and created by GeoPlace.

As citizens, we all benefit from improvements in the services delivered by our public sector. Improvement is an ambition that is always made easier by using the best possible data. GeoPlace manages the authoritative information - national street and addressing data - for cleansing, de-duplicating, analysing, planning, and understanding content more efficiently and effectively in every part of the public sector.

About the author

Abbas Lokat is a Senior Consultant at GeoPlace with over 11 years' experience working on national initiatives. He led the User Research aspect of the TRO Discovery Project in collaboration with Department for Transport and the British Parking Association to explore the processes by which TROs are made and establish an initial view of user needs for TRO data.

Prior to this, he was involved in the creation of the Ordnance Survey MasterMap Highways suite of products, the evolution of the National Street Gazetteer and their associated specifications and initiatives.

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