Department for Transport

Traffic Regulation Orders and Associated Data

Policy Alpha Report

August 20

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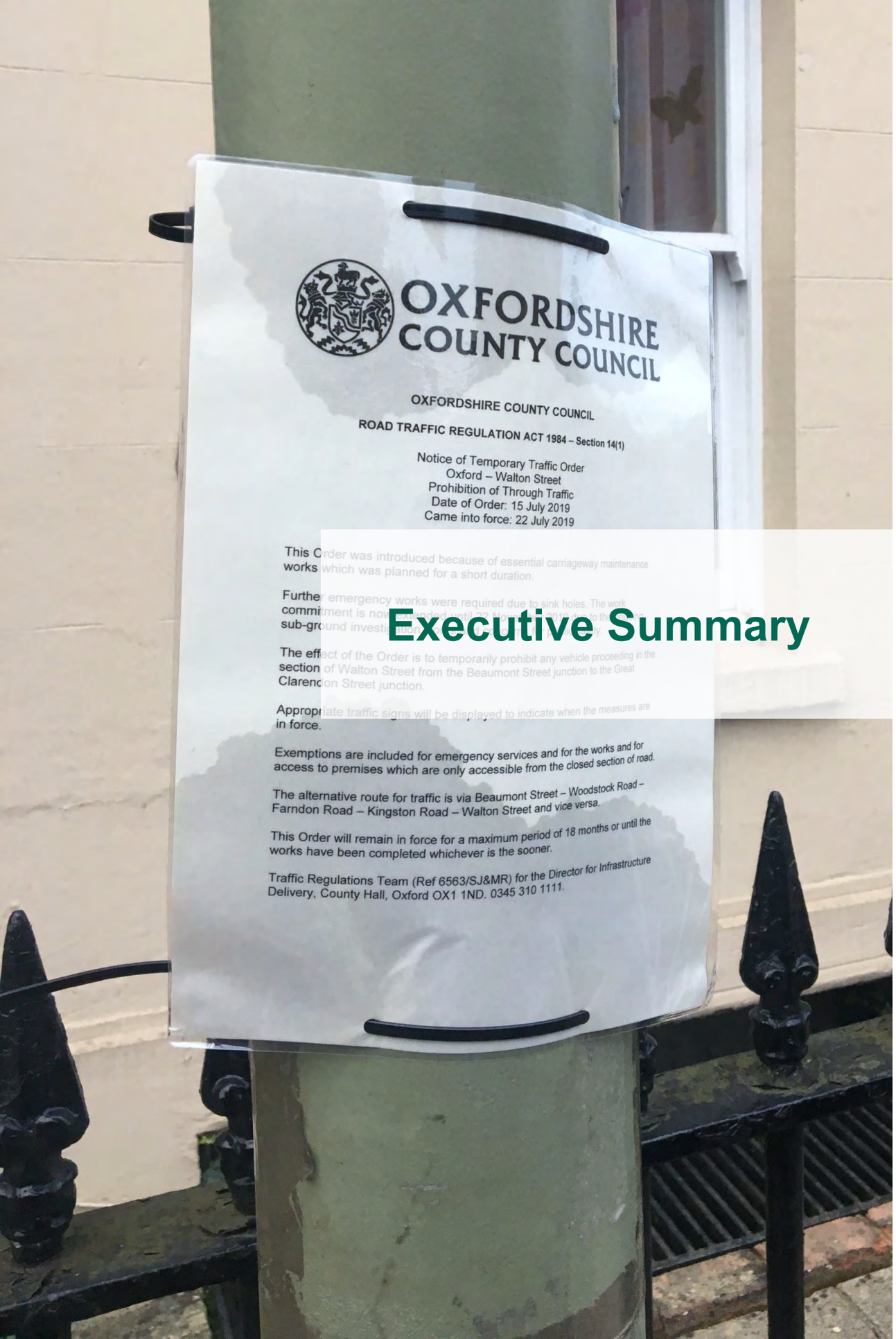


Executive Summary

In August 2019, the Department for Transport (DfT) commissioned PA Consulting (PA) to undertake a Policy Alpha to identify improvements to the legislative process in England. Policy proposals and supporting user journeys were tested and shaped by the engagement and interaction with nearly 100 individuals involved in the TRO-making process.

The five key proposed target user experience improvements are:

1. **Highway authorities should be given the responsibility to set the approach to informing relevant users**
    a) Relevant communities, users and citizens are informed of TROs through the most appropriate means and with due consideration given to improving accessibility requirements
2. **Highway authorities should publish standardised and open TRO data**
    a) TRO data should be consistent and made available for anyone to access, use and share
    b) Real-time data on when TTROs are operational should be made available for anyone to access, use and share
3. **Applicants for TTROs should have a minimum standard of service**
    a) Set out maximum processing times applicants can expect from highway authorities when seeking a TTRO
    b) Enable temporary road closures to be processed in a timely manner by removing the need to publish proposed TTROs
    c) Create higher-quality processes by delivering tailored separate legislative solutions for street work and special event TTROs
4. **Highway authorities should operate a more outcome orientated, flexible and proportionate process**
    a) Set out different classifications of PTROs based on the proposed type of restriction that simplifies and improves the process
    b) Set out different classification of TTROs for street works and special events based on their impact that allows removal of burdensome steps and requirements
5. **Highway authorities should publish clear and transparent information on their charging arrangements**
    a) Fees for PTROs and TTROs should be publicly available and include a breakdown of fixed charges based on cost recovery

Based on user feedback on these policy proposals, we have made three core recommendations as to next steps the DfT could take forward:

- **Seize the collaborative momentum it has created to make the user journeys work as well as possible**
- **Build the TRO processes as a coherent and joined-up part of the users' wider journey and context**
- **Deliver incremental benefits to users more immediately through issuing guidance**

Introduction

1.1 Context for the Policy Alpha

Traffic Regulation Orders (TROs) are the legal orders which define the rules of the road network. They currently provide highway authorities with powers to place permanent, temporary or experimental restrictions on traffic for the purposes of safety or traffic management. Orders therefore provide a vital mechanism for enforcement on the road network.

In 2018, the Local Transport Data Discovery[1] recommended streamlining and digitising TROs. It found the TRO-making process labour-intensive, time-consuming and costly. A subsequent Discovery report[2] into TROs, carried out in early 2019, recommended a review of existing legislation to identify proposals for improvements.

In August 2019, the Department for Transport (DfT) commissioned PA Consulting (PA) to undertake a Policy Alpha to identify improvements to the legislative process in England.

The objectives of the Policy Alpha were to:

- Identify the needs of users of the TRO-making process and TRO data
- Develop and iterate a Minimum Viable Product (MVP) legislative process which met user needs
- Provide a robust assessment of the impact on users of proposed changes

The work is aligned to the Future of Mobility Grand Challenge[3] and Future of Mobility: Urban Strategy[4]. The Strategy prioritises providing a regulatory framework that evolves with transport technology and advocates data sharing to improve operation of the transport system.

1.2 Approach

A combined PA and DfT team employed an Agile Service Design approach to visualise and test policy proposals with users. The Policy Alpha focused on testing the riskiest assumptions that underpinned a set of new target customer experience maps for the making of TROs.

We initially mapped users' experience of the current process and identified their pain points and frustrations. We then mapped out future user journeys. These brought together different policy proposals that aimed to address a prioritised set of user needs. Finally, we tested these with users', refining them further based on feedback.

Over the course of the Policy Alpha, the team engaged with over 80 individuals from 35 public and private sector organisations covering the entire TRO-making process.

1.3 Methodology

The Policy Alpha progressed across three stages and a series of user engagement workshops/discussion groups to gather input. The scope covers TROs in England. Out of scope: Archive of current orders, off-street or private land, Street Manager, Street Signs and ATTROs.

Key terms:	Types of orders referred to in this report:
Traffic Regulation Orders (TRO) refers to all types of orders (i.e. PTROs, TTROs and ETROs).	Permanent TRO (PTRO), Temporary TRO (TTRO) and Experimental TRO (ETRO)

The core activities undertaken included:

Stage 1: Design

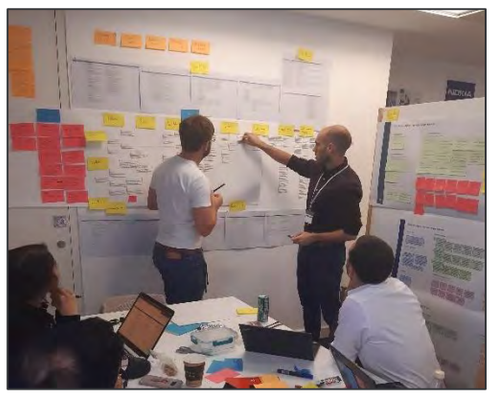
- Mapping the users' current experience, pain points and needs
- Prioritising user needs (MoSCoW) and generating policy options
- Identifying legislative alignment issues and inconsistencies
- Identifying riskiest assumptions for user testing
- Visualising target customer/user experience

Stage 2: Deep-Dive

- Riskiest assumption testing (RAT) workshops across applicants, highway authorities and data users
- Deep-dive engagement sessions with specific groups including Disabled Persons Transport Advisory Committee (DPTAC) and Ministry of Housing, Communities & Local Government (MHCLG)
- Revision of policy proposals and user journeys based on feedback

Stage 3: Develop

- Combined user consultation workshops on revised user journeys
- Gathering user input on impact assessment
- Final policy recommendations



From left to right: Agile development by co-located PA and DfT team within a collaborative workspace environment; Regular Show & Tell sessions with Senior DfT stakeholders to iterate MVP development;

From top to bottom: Highly visual, engaging and interactive user workshops with open discussion and challenge on legislative prototypes; Quantitative stakeholder feedback capture.

> *"Really good discussions and workshops. The visualisations of the user journeys drew out the real practical issues and it was great to take a variety of views into consideration"*
> **User research participant**

Case for Change

2.1 Why do TROs need to evolve and change?

Users cited multiple pain points with the existing process

User research for the TRO Discovery Phase involved 200+ people across 92 organisations. All participants identified pain points with the current process, with many users citing multiple issues.

The key pain points repeatedly raised by users included:

Unsustainable and ineffective newspaper advertising

Currently there is a legal requirement to advertise any TRO in a local print newspaper. However, only 7% of road users accessed information on TROs through this method[2]. Annual advertising expenditure represents a £49m burden to Highway Authorities and applicants[2].

> *"Publishing in local newspapers is outdated and doesn't serve the purpose of informing the public"*
>
> **Applicant research participant**

Significant variation and poor transparency of TTRO fees

Fees for TTROs were found to vary between £600 to £7,000 nationally, with an average fee of £1,021[2].

> *Newspaper advertising can account for up to 46% of the total cost to make a TTRO*

Inconsistent, inflexible and lengthy processing times

Currently there are multiple advertising steps in the process. Finding advertising efficiencies leads to the 'bundling' of adverts by HAs. This increases processing times. As such, granting a TTRO can take 6-12 weeks. In extreme cases, 6-12 month lead times were highlighted by users[2].

> *"The legislation should allow for a shorter duration process under specific circumstances giving more flexibility"*
>
> **HA research participant**

Data provision is inconsistent and non-standardised

The TRO-making process is still managed in some areas through a paper-based approach. The majority of HAs do not generate digital, map-based output as part of the TRO-making process.

> *"It is tedious and time-consuming process to source TRO data currently"*
>
> **Map-maker research participant**

Transport Select Committee demands action on TRO process

In early September 2019, the House of Commons Transport Committee[5] (TC) called for a ban on pavement parking across England. In its report, the existing TRO process is described as 'archaic' and 'very difficult to move into the modern world'.

We are on the cusp of a profound change in how we move people, goods and services around our towns, cities and countryside. This is driven by extraordinary innovation in engineering, technology and business models.

The Future of Mobility Grand Challenge

The TC's report recommends that the Government bring forward proposals to reform the TRO process - to make it cheaper and easier for highway authorities to use.

Specifically, the report goes on to recommend the Government abolish the requirement to advertise TROs in a local newspaper. It recommends replacing this with a requirement for the highway authority to maximise the reach of its advertising to the largest number of people by whatever media would best achieve this.

The Future of Mobility will need new responsive TRO legislation

The primary legislation that facilitates different types of TROs has been in place since 1984. For TROs, the legislation has failed to evolve with modern approaches, such as advertising and open data. This may act as a barrier to the potential mobility ecosystems of tomorrow.

Concepts such as Dynamic TROs, real-time situational awareness of road closures and control of Connected and Autonomous Vehicles (CAVs) will rely on a shift change in TRO data management.

Users emphasised that mandated data requirements would be needed if greater progress in the digitisation of orders and standardisation TRO data was to be made. They also encouraged the central design and setting of data standards.

2.2 What is our future vision?

Transport systems are becoming increasingly automated, digital and data-led. Working with organisations both public and private, the Policy Alpha has focused on addressing current and future users' needs which capture benefits for process and end-users (e.g. road users).

To meet users' future needs, we formed a set of guiding principles by which to shape and rationalise potential policy options/recommendations. These were derived from information gathered during user research and wider departmental and Government goals.

Their role was to provide a clear and transparent rationale for decision-making and to ensure the Alpha's options/recommendations were aligned with its objectives. They also provided a lens on which to examine legislative issues identified during the Alpha, particularly if they were complex or impacted multiple users and stakeholders.

The guiding principles were:

- Reduce overall cost and time by implementing a streamlined TRO process
- Provide standardised, open and high-quality data associated with the TRO process to enable future mobility services and improve choice and operation of the transport system
- Improve accessibility and communications at each stage of the TRO process to build trust in the process and promote input from all relevant users
- Enable transparency and flexibility to ensure that the TRO process is proportionate and interoperable with other transport systems and processes

The Policy Alpha aligns with the Government's Future of Mobility Grand Challenge[6] by considering whether current legislation is fit to maximise the potential of future technologies.

2.3 What are our change challenges and opportunities?

The nature of change can have a material impact on preferred policy proposals. In developing and appraising realistic policies to address user needs, we have taken into consideration a wide-range of barriers, strengths and opportunities.

Some of the key change challenges identified include:

Previous attempts have been made to remove legislative barriers

In 2011/12, the then Government consulted on removing the duty to advertise TROs in local newspapers. However, it was not taken forward at that time due to concerns about the impact on local newspapers.

The TC's recent report into pavement parking acknowledges the importance of providing support for local newspapers. However, it recommended that if support was needed, this should be done directly by the Government, not indirectly through the TRO process.

The way people consume information has radically changed

Since the requirement to advertise in a local print newspaper was first introduced, the way people consume information and their expectations have changed significantly. Over the next 30 years we should anticipate a similar level of transformation and therefore avoid issues of overly prescriptive legislation in the future.

The 'data economy' is poorly served by current TRO legislation

Data is shaping the future of transport systems. The production, distribution and consumption of digital information is facilitating new ways of doing things as well as increasing the transparency of inefficient processes.

However, there is little in the way of effective legislation to enable the creation of standardised, accessible and open data on TROs. Recent years has seen progress made in digitally mapping TROs, though geographical coverage remains limited. A new TRO legislative process should support addressing the significant challenges of digitising historic TROs.

Wider issues with data, such as Intellectual Property Rights (IPR), map-projection and API standards, also need further exploration to ensure appropriate regimes are in place to support open TRO data sharing.

Digital TRO solutions can be 'nudged' rather than mandated

In removing and amending legislation, we can open opportunities to address users' needs through encouraging implementation of digital systems and solutions. Principally, we have assumed that this should be met through market innovation or third-party private sector suppliers.

For example, market developed solutions could help address the major needs of applicants, such as utility companies and event organisers, at the TTRO applications stage, which include:

- A clear understanding of the relevant highway authority they need to liaise with
- Complete transparency of fees that they will be charged
- Standardisation of information requested across authorities

As well as the above use case, there are several others within the TRO-making process that would benefit from the implementation of more digital solutions.

Opportunity to reset decades of variation in operational practices

Updating legislation represents an opportunity to address issues of variation in operational practices across different highway authorities.

For example, the majority of highway authorities still produce only written or text-based traffic orders, as opposed to replacing schedules with visual representation of restrictions or map-based orders.

Legislation is often cited as a barrier to implementing map-based orders although many authorities are known to issue them. Addressing the remaining gap or resistance is likely better done through improving the dissemination of best practice or more centrally provided guidance.

Other examples of variations in operational practice highlighted included the approach to sealing orders, with some authorities continuing to carry out the practice, with others eschewing it.

Summary of the case for change

Several different key benefits have been identified that flow from changing the TRO-making process to meet current and future users' needs, including:

- Completely new services and solutions for the provision of road closure information to residents and road users
- Improved accessibility for disabled and vulnerable road users
- Support for the UK's 'data' economy
- More standardised, efficient and consistent process for users
- Opportunities to help HAs better manage increasingly complex city centre traffic management requirements

The delivery of these key benefits will be dependent on the recommended policy proposals and final future state of the TRO-making process.

Defining the future state

3.1 Minimum legislative policy proposals

This section details recommended policy proposals to improve the TRO-making process. These are designed to meet current and future users' needs. The Policy Alpha identified and prioritised over 100 user needs from across the TRO-making process.

In summary, the five key proposed target user experience improvements, which are further detailed in the following pages, are:

1. **Highway authorities should be given the responsibility to set the approach to informing relevant users**
    a) Relevant communities, users and citizens are informed of TROs through the most appropriate means and with due consideration given to improving accessibility requirements
2. **Highway authorities should publish standardised and open TRO data**
    a) TRO data should be consistent and made available for anyone to access, use and share
    b) Real-time data on when TTROs are operational should be made available for anyone to access, use and share
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    a) Set out maximum processing times applicants can expect from highway authorities when seeking a TTRO
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    c) Create higher-quality processes by delivering tailored separate legislative solutions for street work and special event TTROs
4. **Highway authorities should operate a more outcome orientated, flexible and proportionate process**
    a) Set out different classifications of PTROs based on the proposed type of restriction that simplifies and improves the process
    b) Set out different classification of TTROs for street works and special events based on their impact that allows removal of burdensome steps and requirements
5. **Highway authorities should publish clear and transparent information on their charging arrangements**
    a) Fees for PTROs and TTROs should be publicly available and include a breakdown of fixed charges based on cost recovery

The policy proposal have been designed to meet a prioritised set of 'must have' user needs. User needs are the expectations users have of a 'service', and which that 'service' must satisfy for the user to get the right outcome for them. In the Policy Alpha, we have further improved our understanding of users' and their needs by testing policy ideas and prototypes.

3.2 'Must Have' User Needs

Give us flexibility

Users felt a 'one size fits all' was not working nor catering for their different needs. A single process meant requirements could quickly become onerous for small restrictions or changes.

> *"As a HA, I need legislative flexibility in how I can process applications so that I can manage the variation in impact of different TTROs more effectively"*
> **HA research participant**

Streamline the processing time

All users reported various legislative and operational practices that built in delay to the process. Variations in processing times were experienced across different jurisdictions with significant delays being attributed to advertising requirements.

> *"As a utility, I need the process to be quicker so that I can improve the speed at which I can deliver services to my customers "*
> **Utility research participant**

Make it fit for future communications

From ineffective and costly newspaper advertising to publication of overly technical, difficult to understand and jargon filled TROs. All users reported a frustration with some aspect involved with informing or communicating with other users or stakeholders.

> *"As a HA, I need information to be more visual and accessible so that my constituents can understand what restrictions are in place and where"*
> **HA user research participant**

Enable data-driven services

Many users reported the need for better visibility of sealed and proposed orders to improve coordination and planning. Users cited that the 'window of opportunity' nature of TTROs was not fit for a connected future mobility environment.

> *"As a data user, I need data to be of high quality, in a consistent open, geo-spatial, format, so that I can deliver effective services to my customers"*
> **Data user research participant**

Be transparent on fees

Users were frustrated by the variation in fee structure across jurisdictions. They seek greater certainty and clarity of the cost to them right at the beginning of the process.

> *"As an event organiser, I need transparent, consistent and upfront fee structure so that I can budget effectively and plan events with confidence"*
> **Event organiser research participant**

The 'must have' user needs were derived from significant amounts of user research and formed the basis for policy recommendations set out in section 3.3.

3.3 Policy Recommendations

Minimum legislative policy proposal

1. Highway authorities should be given the responsibility to set the approach to informing relevant users

This target user journey improvement will modernise the approach highway authorities take to communicating TROs to the communities they serve. It will mean legislation remains adaptable to future innovations in communication media and formats.

Principal user needs met:

- Make it fit for future communications

Policy proposal under consideration

a) Relevant communities, users and citizens are informed of TROs through the most appropriate means and with due consideration given to improving accessibility requirements

Why this proposal is being recommended

Since the requirement for newspaper advertising was introduced in 1984, the way in which citizens consume local news has drastically changed. There was wide support amongst users for the view that local printed press no longer presented the best way to inform citizens of TROs.

Print circulation for UK local and regional newspapers more than halved in the decade to 2017 – from 63.4million to 31.4million[5]. Furthermore, a survey carried out during the Discovery Phase found that just 7% of responders were informed of TROs through local newspaper advertising[2].

Local highway authorities are best placed to design the most appropriate communication regimes to reach the community and road users it serves. Additionally, less prescribed definition of format and channel allows for future innovations in communication technology to be adopted without changes to primary legislation.

Key user pain points addressed by this proposal

- Access to, cost and frequency of newspaper advertising is unsustainable and ineffective
- High and uncontrolled advertising costs
- Local newspaper advertising leads to significant delays as the process is built around advertising deadlines

Key user benefits of this policy proposal

- Significant cost savings to highway authorities, utilities and end users. Highway authorities currently spend £49m per year on newspaper advertising and, whilst there will be a cost associated with different publishing formats (e.g. websites, social media, etc.), these are expected to cost significantly less
- Greater awareness amongst target audience
- Greater flexibility to support information accessibility for vulnerable road users
- Removal of timescales and delays associated with newspaper advertising

Additional legislative recommendations to support this proposal

- Removal of information required in local newspaper advertising notice
- Updated list of statutory consultees to include relevant, town or district councils
- Requirement for highway authorities to create a publishing policy to demonstrate how they will communicate effectively with the community they serve. In the absence of a legislated minimum, users felt this demonstrated suitable due diligence in how HAs were discharging their duties, especially if challenged at a Public Inquiry.
- Removal of requirement to publish ‘proposal’ or ‘intent’ for TTROs
- Mandated timescales associated with local newspaper advertising to be removed

Scope of recommendations

- PTROs, TTROs, ETROS

Left: Advances in Natural Language Processing and text to speech conversion could help communicate digital TROs to vulnerable road users using standardised open data

Minimum legislative policy proposal

2. Highway authorities should publish standardised and open TRO data

This target user journey improvement plays a key role in helping put the UK at the forefront of the Future of Mobility. It is essential that legislation leads the way in facilitating the paradigm shift towards standardised, open and real-time TRO data by delivering the needs of the 'digital' economy.

Principal user needs met:

- Enable data-driven services

- Make it fit for future communications

Policy proposal under consideration

a) TRO data should be consistent and made available for anyone to access, use and share

Why this proposal is being recommended

There is an inconsistent approach across highway authorities to the way data is structured, stored and published. Some authorities still operate paper-based systems. Current requirements for publishing TROs, such as making orders available for public inspection in council offices, do not meet modern expectations for data standardisation and accessibility.

Users stated that legislative barriers did not currently prevent the publishing of open TRO data. However, due to the pressure of meeting other legislative requirements, making TRO data open would not be a priority for HAs without a mandate.

If open TRO data was mandated, third-party data users supported the assumption that the market would provide solutions to meet relevant user needs. The policy proposal also supports emerging aspects of the future of mobility. The data could provide a digital codification of the rules of the road to be accessed by Connected and Autonomous Vehicles (CAVs).

Key user pain points addressed by this proposal

- Lack of standardisation in data provision, architecture, format and quality that would be required for providing data-fed services in a digital economy
- Updates to map-makers are slow and irregular
- Lack of common data language and definitions and variation in restriction exemptions across HA jurisdictions (e.g. disabled parking in residential bays)

Key user benefits of this policy proposal

- Improved identification and communication of restrictions so that drivers can be routed to areas that they can park
- Better coordination and visibility of orders, both permanent and temporary
- Provides a pathway towards 100% digital TRO coverage of England's road network
- Supports development of future technologies such as Electric Vehicles and CAVs

Additional legislative recommendations to support this proposal

- Development of TRO data quality, API and map-projection standards
- Specified data inputs when applicants apply for TROs
- Digital sign-off and 'sealing' to create enforceable TROs
- Guidance to support the use and production of map-based orders at proposal and making stages

Scope of recommendations

- PTROs, TTROs, ETROS

Policy proposal under consideration

b) Real-time data on when TTROs are operational should be made available for anyone to access, use and share

Why this proposal is being recommended

Digital solutions that record and exchange real-time roadwork/closure data have evolved significantly in recent years (see case study right). Highway authorities are targeting significant benefits from these technology stacks. These include an enhanced capability to monitor their networks and ability to communicate disruption more immediately to road users. At the same time, travellers and commuters have come to expect 'live situational awareness' along their routes so they can modify travel modes or reroute based on prevailing conditions or disruption.

Existing TRO legislation is a barrier to achieving up-to-date and real-time data on all road closure progress or status. For example, Street Manager will hold information on when works have started and stopped, and when roads are open for traffic or closed due to roadworks. But this will only cover road works information on public roads and not closures due to, for example, construction work, events or on private roads.

The estimated 39,000-70,000 TTROs produced annually is forecast to increase due to infrastructure programmes such as the roll-out of gigabit-capable '*full fibre'* broadband networks. Along with street works, special events are also competing for the limited space on the highway. These pressures serve only to intensify the need for sharing, directly and immediately with road users and planners, high-quality data on when a road can be used.

Key user pain points addressed by this proposal

- TTROs currently only provide a 'window of opportunity' and does not provide information on when the order is specifically being enacted

Key user benefits of this policy proposal

- Benefits to road users from the improved and more rapid communication of street work and other road closures to help them make better routing and travel/mode choices
- Provides standardised access to 'valuable' TTRO data in the real-time elements to help stimulate innovation of third-party solutions and products
- Addresses future user needs by supporting the development of mobility technologies such as CAVs

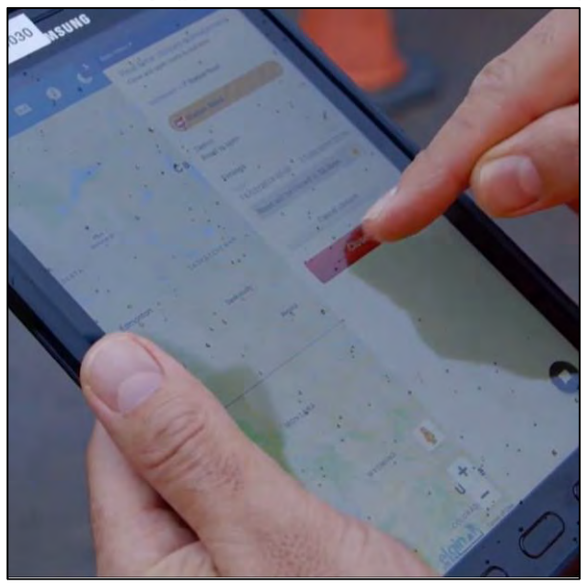
Additional legislative recommendations to support this proposal

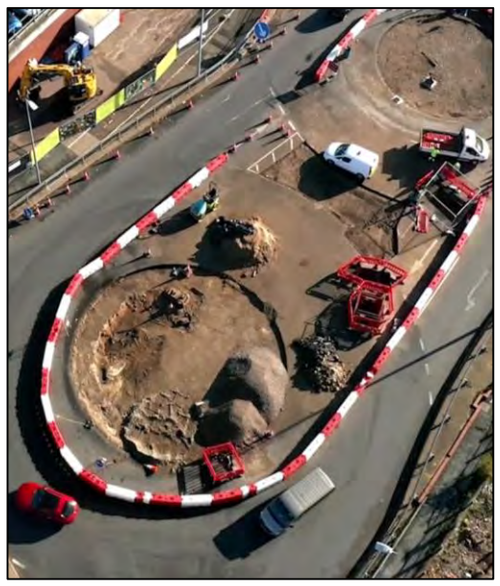
- Development of a TRO data quality, API and map-projection standards

Scope of recommendations

- TTROs

Below: An example of a real-time data capture of road closure data – see case study (provided thanks to Essex CC)





Case Study Hertfordshire & Essex County Councils[7]

Delivering live road closure information to sat-nav devices and providing real-time congestion monitoring across Hertfordshire and Essex

In Essex and Hertfordshire, contractors Ringway, Ringways Jacobs and software platform provider Elgin have developed a system that sends real-time road closure information straight to sat-navs. This ensures drivers are automatically routed around street works. With the information being so widely and instantly communicated, other benefits that are being seen include:

- Better routing decisions
- Fewer traffic disruptions
- Reduction in road space occupancy
- More reliable journey times
- Less congestion, along with all associated environmental benefits such as CO_2 reduction

"*This technology is fantastic news for drivers in Hertfordshire and the surrounding areas. Our Highways officers will be able to influence thousands of journeys in real-time, reducing traffic jams and making it easier for our emergency services to access incidents*."

Phil Bibby, Cabinet Member for Highways and Environment at Hertfordshire County Council

Minimum legislative policy proposal

3. Applicants for TTROs should have a minimum standard of service

This target user journey improvement aims to ensure all relevant users are held accountable for making TTROs in a timely manner. Ultimately, this policy option aims reduce the processing time, create more transparent and higher-quality processes and make sure applicants deliver utilities, services and events through safe, effective and legal temporary road closures.

Principal user needs met:

- Give us flexibility
- Streamline the processing time

Policy proposal under consideration

a) Set out maximum processing times applicants can expect from highway authorities when seeking a TTRO

Why this proposal is being recommended

Discovery established that highway authorities take between 6-12 weeks to process a TTRO application. Applicants cite this lead time as a reason why services to end users are delayed. Through other policy recommendations made in this report, such as introduction of digital signatures and removal of newspaper advertising, some HA Alpha Phase research participants indicated they could feasibly make a TTRO in 3-4 weeks.

With the introduction of maximum response times, applicants will be able to transparently see the relative performance of each HA, driving certainty and continuous improvement across the sector.

Key user pain points addressed by this proposal

- Unpredictable variation in application processing times, extending the entire process
- Lead times can be disproportionate for low impact works of short duration

Key user benefits of this policy proposal

- Applicants will have a clear understanding of how long it will take to process their TTRO
- Reduction in the delay to delivery of end user services such as electricity, gas, water, highway improvements and fibre communications

Additional legislative recommendations to support this proposal

- There should be no requirement to apply to the Secretary of State for requests to extend (over 18 months) orders made under section 14 of the 1984 Act. Instead TTROs will be limited to 18 months
- Publishing of standards of service (i.e. maximum response times) alongside charging arrangements

Scope of recommendations

- TTROs

Policy proposal under consideration

b) Enable temporary road closures to be processed in a timely manner by removing the need to publish proposed TTROs

Why this proposal is being recommended

Statutory undertakers have a duty to maintain their equipment on or underneath the highway. Unlike PTROs, there is no requirement for a formal consultation period. With the introduction of standardised/open data and the requirement for advance warning 14 days prior to the works starting under a standard TTRO, the publishing of ‘proposals’ represents a redundant process step.

By streamlining the legislation, essential works can be carried out in a more timely and efficient manner.

Key user pain points addressed by this proposal

- Unpredictable variation in processing times, extending the entire process
- Lead times can be disproportionate for low impact works of short duration

Key user benefits of this policy proposal

- Improves the end to end processing time of TTROs
- Allows essential services to be delivered in a more timely manner

Additional legislative recommendations to support this proposal

- Publication of standardised and open data

Scope of recommendations

- TTROs

Policy proposal under consideration

c) Create higher-quality processes by delivering tailored separate legislative solutions for street work and special event TTROs

Why this proposal is being recommended

Section 16A of the 1984 Act allows for 'special events' to be held on the highway, but there is currently no process for making an order under this section. Previous guidance published in 1994 has since been withdrawn.

There are approximately 3,000 events per year which require a road closure. Highway authorities have typically adopted a variant of the process used for street works. With an increasing number of special events being held on the highway and their variety of scale, from long-distance cycling events to parades, the street works process is not fit for purpose when applied to special events.

Both HA and event TTRO applicants that participated in the Policy Alpha universally contended that the needs of 'special events' were not adequately met in the current state. They highlighted the fact they continue to rely on workarounds to cover issues such as events off the highway and filming on the highway.

To address these issues, at least one HA has developed its own protocol to fill the void in central guidance. In the protocol, it states that the increase in events seen on its highway network demonstrates a need for:

- Good consultation with local communities regarding road closures and events
- Effective management of events so they do not adversely impact communities
- Comprehensive, multi-channel communications and engagement with residents and businesses
- Consideration of the cumulative impact of events on areas of the county
- Clear evidence of the benefits of events for local or wider communities

The protocol goes on to set out timescales and activities to manage closure of roads for events held in the first year and in subsequent years.

Key user pain points addressed by this option

- There is no flexibility when it comes to amending orders in progress, the process is started again
- No standardisation across HAs, including a lack of guidance and transparency
- There is no certainty an event can be held. Tickets and promotion can be underway but the road closures are not approved
- Safety Advisory Group process is not integrated with TTRO making

Key user benefits of this policy proposal

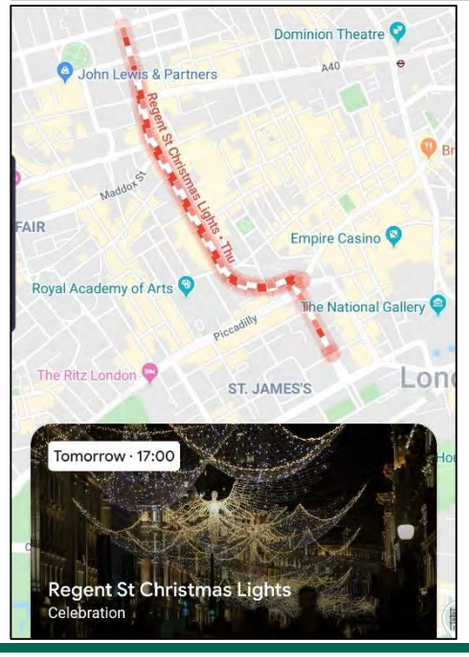
- Improved information provision and communication to road users and better engagement with residents on issues that impact the highway
- More standardised processes so that applicants know what to expect every time and can plan accordingly
- Flexible and responsive processes that accommodate changes on the ground

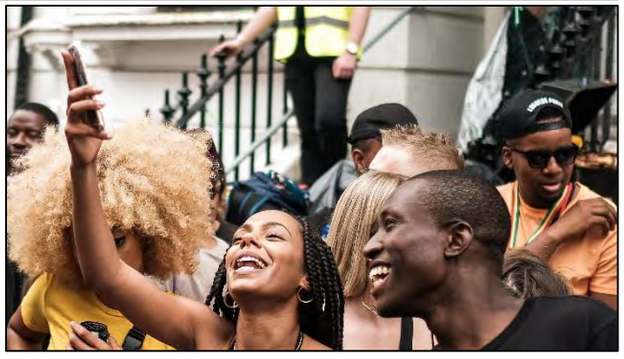
Additional legislative recommendations to support this proposal

- Removal of Secretary of State involvement with orders made under S16A
- Extending definition of Special Events to include Filming on the Highway

Scope of recommendations

- TTROs





Top and Above: HAs are seeing increases in applications for and in the range of events on the highway

Left: An example of how road users could be immediately informed of special events on the highway using open data (Google maps, 2019)

Minimum legislative policy proposal

4. Highway authorities should operate a more outcome orientated, flexible and proportionate process

This target user journey improvement shapes a TRO-making process that can meet the needs of HAs operating with different circumstances and pressures. The concept of greater flexibility and proportionality is not about less demanding requirements. Rather, it attempts to shape a legislative process that is more outcome orientated, that facilitates implementation and makes enforcement more effective.

Principal user needs met:

- Give us flexibility
- Streamline the processing time

Policy proposal under consideration

a) Set out different classifications of PTROs based on the proposed type of restriction that simplifies and improves the process

Why this proposal is being recommended

It is recommended that HAs have more choice in the types of PTROs by allowing for two different classifications - 'Minor' and 'Standard' - that are focused on the impact of the PTRO.

- Minor – removal of consultation period for TROs which are used to prevent parking in the following areas or for other tightly defined restriction scenarios:
    - Near a school entrance
    - Anywhere you would prevent access for Emergency Services
    - At or near a bus or tram stop or taxi rank
    - On the approach to a level crossing / tramway crossing
    - Opposite or within 10m of a junction, except in an authorised parking space
    - In front of an entrance to a property
    - Where you would obstruct cyclists use of cycle facilities
- Standard – all other TROs fall within this category and require a consultation period

The current approach to PTROs results in delays and unnecessary consultation for orders with low levels of impact or where there already exists guidance within the Highway Code (Rule 243). In some circumstances, this lack of proportionality deters highway authorities from using their powers to create PTROs.

The introduction of categories allows 'Minor' PTROs to be installed more efficiently whilst not removing the democratic process of formal consultation for the majority of permanent orders.

Key user pain points addressed by this proposal

- Lack of flexibility in the process for different levels of work
- Process varies for extending and changing dates for TTROs, sometimes HAs require an entirely new application while some do not

Key user benefits of this policy proposal

- Improves the end to end processing time for 'Minor' PTROs
- Reduces overall cost and gives highway authorities confidence to implement low impact PTROs

Additional legislative recommendations to support this proposal

- Highway authorities should be able to make TROs for an area rather than limited to a road
- There should be no requirement to apply to the Secretary of State for requests to extend ETROs beyond 18 months. Instead ETROs should be time limited to 18 months

Scope of recommendations

- PTROs

Policy proposal under consideration

b) Set out different classification of TTROs for street works and special events based on their impact that removes burdensome steps and requirements

Why this proposal is being recommended

The current one size fits all approach to all types of TTROs results in increased costs and onerous processes being applied to orders with differing levels of impact to road users. For example, an applicant for a closure of a parking bay on a C class road (smaller roads, often linking a housing estate or village) will go through the same process as an applicant for a full road closure of an A class road (a major road intended to provide large-scale transport).

This option introduces greater proportionality. It defines an approach to processing different types of activity carried out under a TTRO based on the level of impact. The relevant impact criteria that emerged during the Policy Alpha included:

- Road classification
- Traffic sensitivity
- Duration of activity
- Type of activity
- Working hours
- Bus routes impacted
- Diversion route length and impact

We recommend TTROs be split into two categories - ‘Minor’ or ‘Standard’ - based on the weighting of the criteria above. The difference between these categories would be the requirements on highway authority response times and for publishing information to inform communities and users.

Key user pain points addressed by this proposal

- Lack of flexibility in the process for different levels of work
- Process varies for extending and changing dates for TTROs, sometimes HAs require an entirely new application while some do not

Key user benefits of this policy proposal

- Reduces the end to end processing time for the different categories of activity
- Improved alignment between burden imposed by requirements and the type of activity a TTRO is requested which builds more trust in the process

Additional legislative recommendations to support this proposal

- Highway authorities should be able to extend TTROs when requested by applicants, should issues occur when on site (similar to those allowed currently under street works permits)
- Central guidance clarifying exactly when TTROs are needed

Scope of recommendations

- TTROs

Minimum legislative policy proposal

5. Highway authorities should publish clear and transparent information on their charging arrangements

This target user journey improvement aims to address major inconsistencies in fee charging arrangements for TROs across England. This policy proposal enables a TRO charging framework that is clear and customer-focused. It also ensures HAs still have a duty to recover costs they incur in processing and making TROs. Fee transparency is an important factor in ensuring trust and confidence in the process with a number of benefits for applicants and end-customers.

Principal user needs met:

- Be transparent on fees

Policy proposal under consideration

a) Fees for PTROs and TTROS should be publicly available and include a breakdown of fixed charges based on cost recovery

Why this proposal is being recommended

The fee for applying for a TTRO can vary drastically from £600 - £7,000, driven in a large part by newspaper advertising. This does not provide stability or clarity for applicants up-front and drives a feeling that charges are not cost reflective.

This policy option provides for transparency and predictability of fees by mandating that highway authorities publish a breakdown of their charges and that these are kept up to date. This will lead to greater transparency. Charges will also be directly comparable, provide better price signals for high-cost authorities to be more efficient.

The introduction of proportionality or different classifications of orders, together with a flexible and transparent charging regime, can help better management of costs across the process. For example, HAs can encourage applicants, through discounts, to adopt cost efficient behaviour such as electronic submission of forms.

Key user pain points addressed by this proposal

- Lack of transparency in costs
- Unpredictable variation in costs between authorities
- High and uncontrolled costs with little oversight of annual increases

Key user benefits of this policy proposal

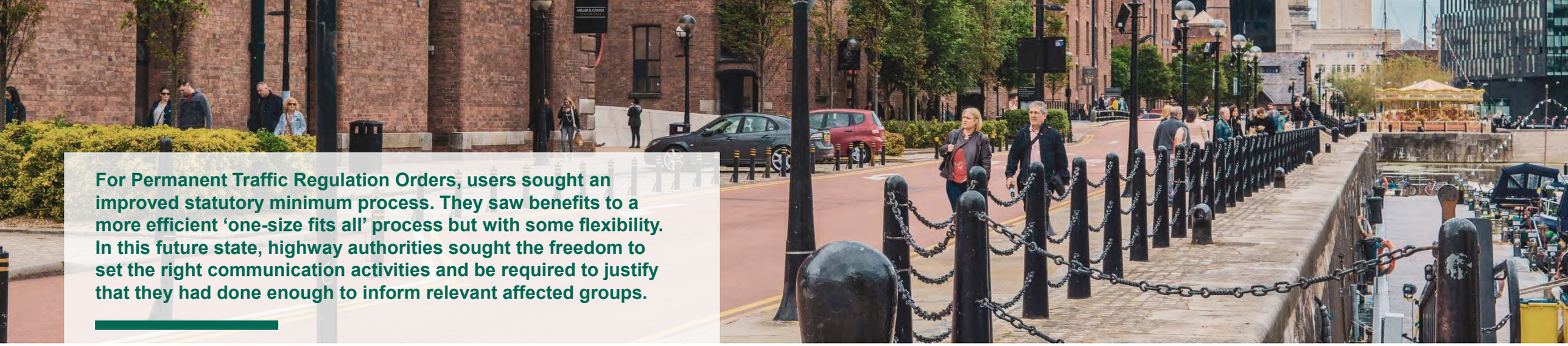
- Introducing affordability, fairness and acceptability of charges for processing and making order

Additional legislative recommendations to support this proposal

- Publishing of charging arrangements (i.e. fee with cost breakdown on a cost recovery basis that is annually updated) alongside standards of service

Scope of recommendations

- PTRO, TTRO, ETRO



For Permanent Traffic Regulation Orders, users sought an improved statutory minimum process. They saw benefits to a more efficient 'one-size fits all' process but with some flexibility. In this future state, highway authorities sought the freedom to set the right communication activities and be required to justify that they had done enough to inform relevant affected groups.

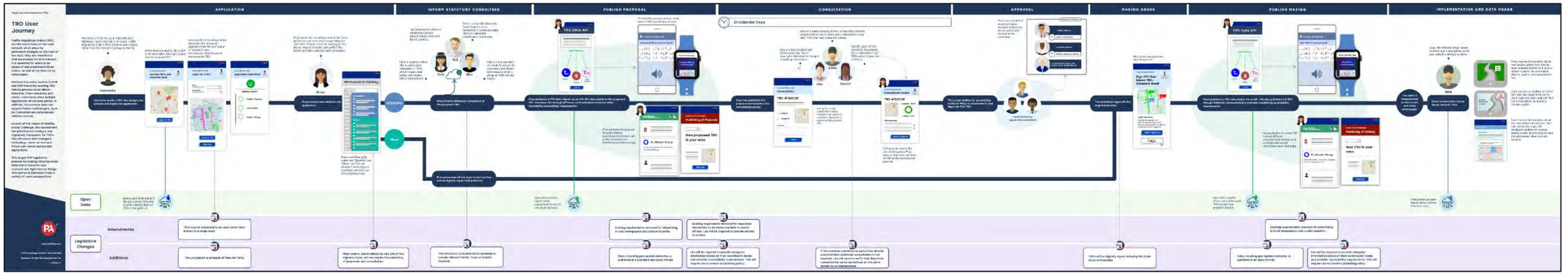
3.4 TRO Legislative Process

Application
Users can apply for Area Wide Orders and check the fee and the breakdown more transparently. Application is more consistent with a requirement to capture a set of standardised inputs.

Statutory Consultees
The list is extended to include Parish, Town and District Councils. This will support consideration of accessibility requirements and maximising citizen outreach.

Standard TROs
A single publication step is introduced. Highway authorities will be required to develop a publishing policy. This will demonstrate how they will inform relevant users of proposed TROs and what media formats best achieve this. Accessibility requirements will also need to be considered. Open data will be published to support a 21 day consultation period.

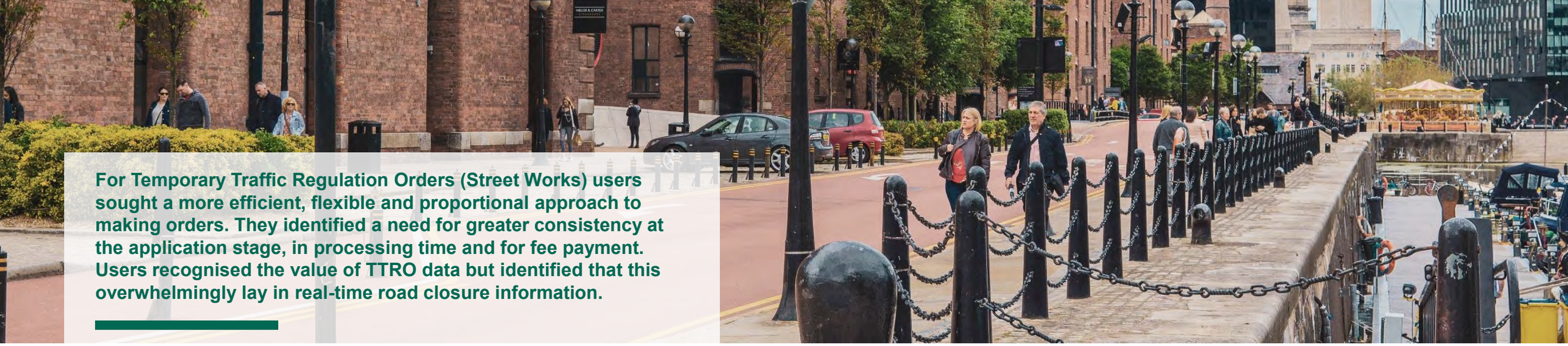
Making a TRO
Data again is published once the TRO is made and publication/advertising will follow the highway authority's policy.



Proportionality
All orders are classified as 'Standard' unless they adhere to Rule 243 of the Highway Code ('Minor' orders). This helps to reduce volume of orders where restrictions is already advised (e.g. 10m from junctions).

Minor TROs
These orders do not require consultation or publishing of proposal stages. They can be made immediately.

Map-based Orders
Highway authorities will publish Map-based orders which are digitally approved



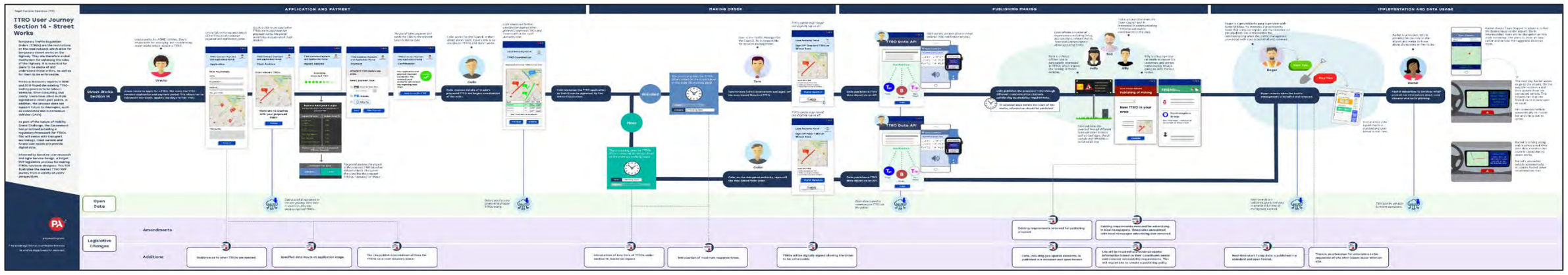
For Temporary Traffic Regulation Orders (Street Works) users sought a more efficient, flexible and proportional approach to making orders. They identified a need for greater consistency at the application stage, in processing time and for fee payment. Users recognised the value of TTRO data but identified that this overwhelmingly lay in real-time road closure information.

3.5 TTRO (Street Works*) Legislative Process

Application
Users can check the fee and the breakdown more transparently as it is required to be published. Application is more consistent with a requirement to capture a set of standardised inputs.

Statutory Consultees
The list is extended to include Parish, Town and District Councils. This will support consideration of accessibility requirements and maximising citizen outreach.

Standard TTROs
A single publication step is introduced. Highway authorities will be required to demonstrate that they have adequately communicated and informed relevant users as well as have considered accessibility requirements when publishing the TTRO. Information is published 14 days prior to works taking place. Processing times are 20 days (plus 14 days as per above) and standardised data, including geo-spatial elements, is published as a data object via APIs.

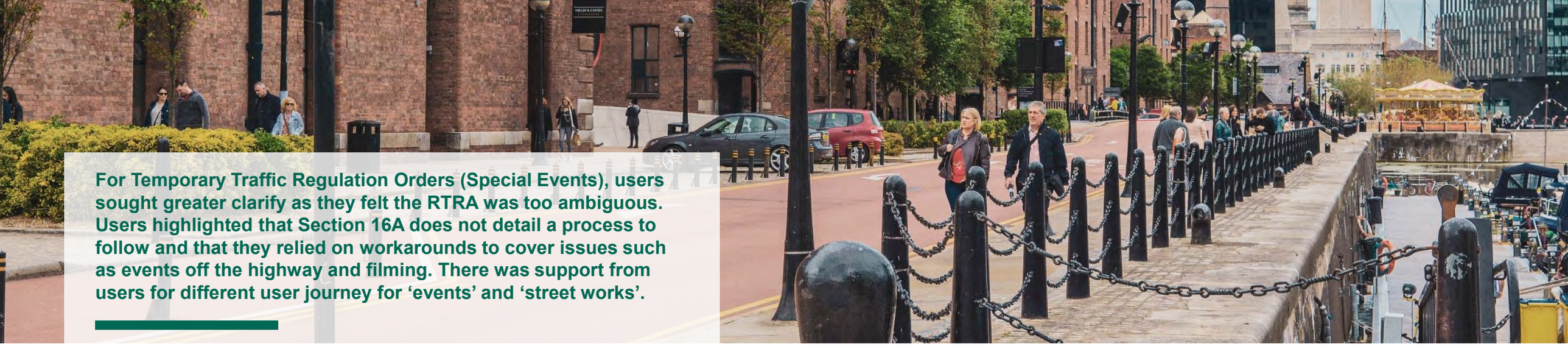


Proportionality
All orders are classified as ‘Standard’ or ‘Minor’ based on a set of definable impact criteria such as duration of the closure, the road classification and traffic sensitivity.

**NB This would also include TTROs for construction works*

Minor TTROs
Are low impact orders that do not require advertising and the processing time is mandated to 3 working days**. Standardised data is published via APIs once the order is made.
***In user consultation workshops this was deemed to short and would likely represent a significant burden in terms of cost to HAs. The 3 working days therefore represents an initial proposal subject to further work with users.*

Real-Time Data
Data is captured when traffic management is installed and removed in real-time and published openly. This would include for emergency street works. Data could be turned into live routing information to users.



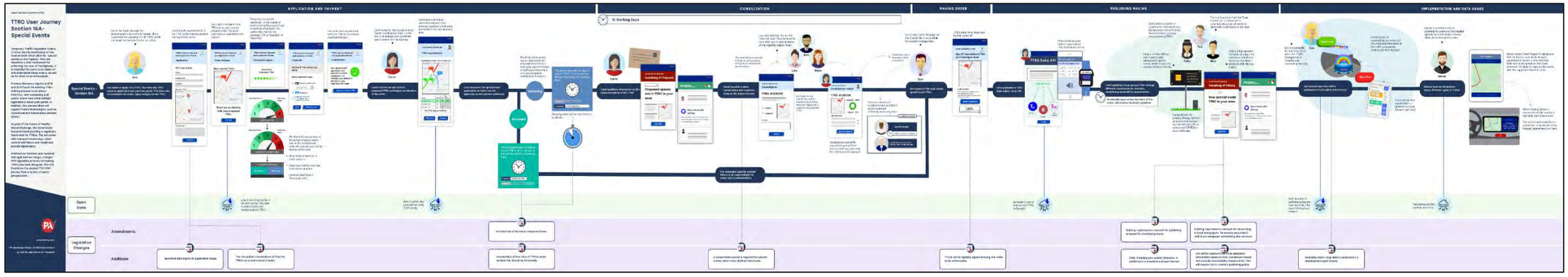
For Temporary Traffic Regulation Orders (Special Events), users sought greater clarify as they felt the RTRA was too ambiguous. Users highlighted that Section 16A does not detail a process to follow and that they relied on workarounds to cover issues such as events off the highway and filming. There was support from users for different user journey for 'events' and 'street works'.

3.6 TTRO (Special Events) Legislative Process

Application
Users can check the fee and the breakdown more transparently as it is required to be published. Application is more consistent with a requirement to capture a set of standardised inputs.

Statutory Consultees
The list is extended to include Parish, Town and District Councils. This will support consideration of accessibility requirements and maximising citizen outreach.

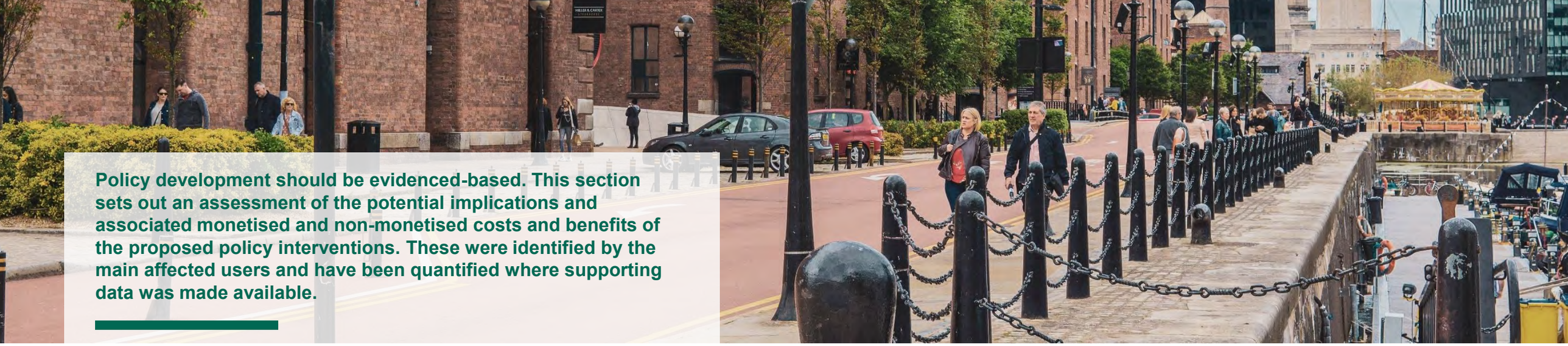
Standard TTROs
Secretary of State approval is removed. Where a threshold trigger is exceeded, a short consultation with residents is required. However, orders will be valid for 24 months. Highway authorities will be required to demonstrate that they have adequately communicated and informed relevant users as well as have considered accessibility requirements when publishing the TTRO. Recommendation for standard response times is maintained for Special Events. Understanding possible maximum working days should be subject to further work with users. Standardised data, including geo-spatial elements are published as a data object via APIs.



Proportionality
All orders are classified as 'Standard' or 'Minor' based on a set of threshold criteria. Threshold criteria include events lasting more than 3 days or four or more events on a single road in a calendar year.

Minor TTROs
Are traffic orders which do not trigger the threshold values of duration and number of events on an impacted highway in a calendar year. These orders can be made without a proposal publishing stage or newspaper advertising. Recommendation for standard response times is maintained for Special Events. Understanding possible maximum working days should be subject to further work with users. Standardised data, including geo-spatial elements, is published as a data object via APIs.

Real-Time Data
Data is captured when traffic management is installed and removed in real-time and published openly. This could be turned into live routing information to users.



Policy development should be evidenced-based. This section sets out an assessment of the potential implications and associated monetised and non-monetised costs and benefits of the proposed policy interventions. These were identified by the main affected users and have been quantified where supporting data was made available.

3.7 Impact Assessment

Minimum legislative policy proposal under consideration

1. Highway authorities should be given the responsibility to set the approach to informing relevant users

a) Relevant communities, users and citizens are informed of TROs through the most appropriate means and with due consideration given to improving accessibility requirements

Description and scale of key monetised costs by 'main affected groups'

- Print media - Loss of revenue of **£35m[8] per annum**, although this might be offset by a gradual decline in the use of print advertising rather than a cliff edge as well as the continued use of on-line or digital media provided by local newspaper groups

Other key non-monetised costs by 'main affected groups'

- HAs – establishing and maintaining capability to publish via alternative communication methods and formats. For example, access to supporting technology and any licencing arrangements that allow use of multiple communication channels when needed

Description and scale of key monetised benefits by 'main affected groups'

- TRO Applicants (HAs and external) – removal of newspaper advertising will result in a saving of over **£35m[8] per annum** with the benefits passed directly on to applicants. Significant net reduction in communication costs with use of alternative methods

Other key non-monetised benefits by 'main affected group'

- Road users and residents – improved awareness amongst target users and greater local engagement in TRO consultations
- Vulnerable road users – increased accessibility for disabled and vulnerable users
- TRO applicants and HAs – reduced lead/processing time due to removal of multiple advertising steps, reduction in bundling of newspaper ads and newspaper submission deadlines
- Applicants and customers – More investment in network development and cheaper connection quotes and costs

Minimum legislative policy proposal under consideration

Highway authorities should publish standardised and open TRO data

a) TRO data should be consistent and made available for anyone to access, use and share

b) Real-time data on when TTROs are operational should be made available for anyone to access, use and share

Description and scale of key monetised costs by 'main affected groups'

- HAs – the costs of licensing digital TRO software is approximately **£2.6m[8] per annum**

Other key non-monetised costs by 'main affected groups'

Open TRO Data

- HAs – one-off implementation, upskilling and familiarisation costs for introduction of new digital TRO systems purchased by HAs

- Government – setting and maintaining data, API and map-projection specifications and standards

Description and scale of key monetised benefits by 'main affected groups'

- Many of the benefits are likely to have monetary impacts (such as reduction in congestion by road users or more efficient HGV deliveries), although we are unable to quantify these at present

Other key non-monetised benefits by 'main affected group'

- Technology sector and road users – development of innovative data services, products and the creation of new business models using open TRO data
- Bus companies and users – Improving customer satisfaction and revenue with the ability to return buses to their standard route more quickly from diversions
- HAs, road users and HGVs – Reduction in congestion through more effective network management, dynamic routing optimisation and closure coordination
- HAs – Better enforcement of closures including greater visibility and quicker notification of emergency road closures
- HAs – reduction in processing time and working days due to quicker more immediate order 'sealing' and calculation of 'start' and 'end' measurements with map-based orders
- HAs – Reduced operating costs and business efficiencies from implementing digital TRO solutions

Minimum legislative policy proposal under consideration

3. Applicants for TTROs should have a minimum standard of service

a) Set out maximum processing times applicants can expect from highway authorities when seeking a TTRO

b) Enable temporary road closures to be processed in a timely manner by removing the need to publish proposed TTROs

c) Create higher-quality processes by delivering tailored separate legislative solutions for street work and special event TTROs

Description and scale of key monetised costs by 'main affected groups'

- We are unable to quantify the costs at present

Other key non-monetised costs by 'main affected groups'

- Applicants (special events) or HAs – Resourcing and administration of consultation period
- HAs – Resourcing to meet maximum response times

Description and scale of key monetised benefits by 'main affected groups'

- Government – Over £200,000 per annum in efficiency savings associated with removing TRO casework from of Secretary of State case working team

Other key non-monetised benefits by 'main affected group'

- HAs – reduction in working days/processing time to make TROs due to removal of requirements
- Applicants – lower or reduction in fee costs from streamlined processes
- Applicants and customers – More investment available for network development and cheaper connection quotes and costs

Minimum legislative policy proposal under consideration

4. Highway authorities should operate a more outcome orientated, flexible and proportionate process

a) Set out different classifications of PTROs based on the proposed type of restriction that simplifies and improves the process

b) Set out different classification of TTROs for street works and special events based on their impact that allows removal of burdensome steps and requirements

Description and scale of key monetised costs by 'main affected groups'

- We are unable to quantify the costs at present

Other key non-monetised costs by 'main affected groups'

- HAs – Administration of the classification of TROs via impact assessment

Description and scale of key monetised benefits by 'main affected groups'

- We are unable quantify the benefits at present

Other key non-monetised benefits by ‘main affected group’

- HAs – reduction in working days/processing time to make TROs due to streamlined consultation and publishing requirements for a proportion of TROs
- Applicants – lower or reduction in fee costs from streamlined process
- Applicants and customers – More investment in network development and cheaper connection quotes and costs

Minimum legislative policy proposal under consideration

5. Highway authorities should publish clear and transparent information on their charging arrangements

a) Fees for PTROs and TTROs should be publicly available and include a breakdown of fixed charges based on cost recovery

Description and scale of key monetised costs by ‘main affected groups’

- We are unable to quantify the costs at present

Other key non-monetised costs by ‘main affected groups’

- HAs – One-off administrative exercise and on-going maintenance to develop an up-front fixed charge or to develop a pre-determined methodology that is fully explainable to applicants that calculates fees

Description and scale of key monetised benefits by ‘main affected groups’

- We are unable quantify the benefits at present

Other key non-monetised benefits by ‘main affected group’

- Applicants – more cost reflective charges, more consistent charging structure nationally and greater budget predictability
- Applicants - More investment available for network development and cheaper connection quotes and cost

4.1 Next steps and opportunities

The recommended policy proposals and user journeys have been tested and shaped by the engagement and interaction with nearly 100 individuals involved in the TRO-making process.

The initial legislative prototypes were tested at a series of workshops. Feedback from participants found that **93%** of HA users, **85%** of data users and **57%** of applicants agreed or significantly agreed that the proposed user journey and policy proposals addressed their overall needs.

Following revisions to policy proposals and user journeys for PTROs and TTROs, these were further consulted on at a set of combined user workshops. Additionally at these sessions, an entirely new TTRO (Special Events) process was shown and tested.

Feedback polling has provided significant insight into users' priorities for the further development of the legislative MVP processes. Results showed that:

- **90%** of users agreed or significantly agreed the **TTRO (Street Works)** journey met their overall needs
- **76%** of users agreed or significantly agreed that the proposed changes to **PTROs** met their overall needs
- **64%** of users agreed or significantly agreed that the **TTRO (Special Events)** journey met their overall needs

Based on this final round of user feedback and the needs raised regarding the wider problem space, we have made three core recommendations as to next steps for the DfT to take forward:

- **Seize the collaborative momentum it has created to make the user journeys work as well as possible –** The DfT should continue to engage with the TRO community whom have positively contributed to both the TRO Discovery and Policy Alpha. The DfT should undertake further design sprints targeting the remaining areas of the journeys that users do not yet consider best meet their needs. This should also include backlog items.
- **Build the TRO processes as a coherent and joined-up part of the users' wider journey and context –** The DfT should map and explore key areas and dependencies in the wider problem space that users have highlighted. This could provide even greater opportunities to design innovative legislative solutions and address more sources of inefficiency.
- **Deliver incremental benefits to users more immediately through issuing guidance –** The case for change for the TRO process is convincing and many users feel they have been here before with regards to change. The DfT should consider how best to make beneficial changes to users now through the tools it currently has available.

Recommendations for next steps

Seize the collaborative momentum it has created to make the user journeys work as well as possible

Temporary TROs (Street Works)

The current proposed 3 day maximum response time for a 'Minor' TTRO were deemed too short and that there would the burden created on HAs would increase costs. **We recommend further options should be explored with users and the impacts understood.**

The criteria for the classification of TTROs base on impact has gained support from users. **We recommend that the DfT progress with the industry initial designs of an impact assessment matrix, thresholds and weightings based on criteria in this report and test with users.**

Permanent TROs

The concept of a 'Minor' order was supported by users with discussion as to what other scenarios might sensibly sit within the category. Examples such as amendments or introduction of disabled parking bays (within a % threshold) or EV charging infrastructure. Users wanted a clear and specified list so that that 'Minor' orders process could not be 'gamed'. Additional concerns were raised about the potential for increased demand for junction protection and how exemptions might need to be handled in these cases (e.g. disabled badge holders allowed to park for 2 hours in double yellows reducing the safety factor of junction protection). **We recommend further investigation as to what constitutes a 'Minor' order and the creation of guidance to support this.**

Temporary TROs (Special Events)

We have established that that there is significant demand for further clarification as to the best approach for managing events on the highway. How prescriptive this needs to be within the legislation remains outstanding though.

It has become clear that there is a complexity and level of divergence from street works and PTROs that warrants more service design to better find the balance between users. **We recommend that further iterations are carried out with users and supported by deep-dive work with event organisers, Traffic Management companies and HAs to understand the nuances of their particular pain points and needs.**

Specifically, users raised the following points with the current proposed journey, including:

- Inclusion of 'events off the highway' within the scope of 'Special Events'
- Adoption of impact classification rather than thresholds, similar to that proposed for TTROs (Street Works)
- The addition of a consultation period changes the nature and essence of the TTRO. In some authorities, the results may need to be considered by cabinet members. The burden may become significant for an event consultation and some users suggested it could form part of the Safety Advisory Group (SAG) process.
- Consideration of wider problem space issues including: better alignment with SAG and licencing processes and consideration of the Town Police Clauses Act and its use to close roads without an order for small events.

Data publication across Permanent and Temporary TROs

The policy options for the publication of standardised and open data have gained wide support. The policy options are likely to 'nudge' users into fully adopting Digital TROs and their systemised processing, therefore in terms of change impact it is one of the most significant.

Users sought clarification on how data publication and real-time capture would work in terms of data specification, data and systems architecture and incentivisation to collect and manage the data to ensure it was of high-quality.

We recommend further exploration of the 'How' and 'What' in terms of data management and architecture. DfT should assess how much development third-party suppliers and HAs will do of their own accord (i.e. relying purely on a market response). This will necessitate further iterations as to the level of prescription within legislation, especially as the full implications of particular data sharing architectures become known.

Build the TRO processes as a coherent and joined-up part of the users' wider journey and context

Throughout the engagement and testing with users, they have consistently raised other tasks that they are completing at the same time which impact their TRO-making journey. Users have highlighted that TRO policy recommendations should be considered within the context of these transactions. Consideration should be given to combining these journeys to make them as intuitive and user-centred as possible.

For future design iterations, **we recommend that the DfT explore how all the different parts of the journey need or can join up coherently. Based on this user feedback, the DfT should start by mapping the following areas in detail:**

Permitting, Entertainment Licencing and Safety Advisory Group

Users across the TTRO-making processes for Street Works and Special

Events highlighted these as a priority if the TRO-making process is to work coherently for them.

For Street Works, users have cited benefits of having a single order to cover a permit and TTRO rather than maintain separate processes for each. Individual TTROs are also needed for each organisation's work so there is currently double or more processing if organisations want to work on the same area of highway. This may represent a barrier to joint works and an increased cost to utilities. The DfT should look at allowing joint TTROs for shared works in the same way organisations can currently share a permit.

In addition, recommendations made in this report on legislating for maximum response times for TTRO (Street Works) for 'Minor' orders will not work in relation to permitting timescales for certain types of activity (e.g. classification of a 'Minor' TTRO to suspend a parking bay).

For example, within the permits process, street works requiring a TTRO regardless of the work activity are classified as major work resulting in a 12 week lead time. **We recommend DfT look at the definition of works in street works legislation to allow for some granularity of activity type within the process.**

For Special Events, users cited the need to look at Entertainment Licensing and especially the SAG processes. Users raised concerned about the inclusion of a consultation period in place of the removal of Secretary of State approval, specifically that it changed the nature of the TTRO by turning it into a political decision.

Consideration of other primary and secondary legislation

Users highlighted other legislative tools that provide powers to close a road and legislative acts that should be reviewed to remove inconsistencies and alignment issues. **We recommend that provision is made to examine legislation within any further design work.** These included:

- Town Police Clauses Act – Frequently cited by HAs as being used to close roads for special events on the highway, though generally for small events such as fun runs. Users wanted the acts provisions to be incorporated into the TTRO (Special Events) process. Users did raise concerns about smaller events subsequently being put off by having to pay for a TTRO.
- Ant-Terrorist Traffic Regulation Orders – the RTRA has been amended to incorporate specific requirements for these orders such as charging the main beneficiary of an ATTRO and a waiver for publishing/advertising. These should be reviewed in line with final policy changes made to the TRO-making process.
- Traffic Management Act – Ensure the remaining local authorities can carry out civil enforcement by designating Civil Enforcement Areas.
- London Local Authorities Act and Transport for London Act 2003 – Consideration should be given as to who should be enforcing TROs for moving traffic restrictions outside of London. If moving restrictions were enforced by highway authorities it may remove the requirement for implementing certain types of TROs.
- Town and Country Planning Act – There are a number of similarities in processes when applying for planning permission as with TRO-making such as consultation, advertising of planning notices and response times.

We suggest any relevant changes with respect to the above processed are reflected appropriately in the TRO legislative user journeys.

DfT Transport Data Strategy

In developing the TRO data recommendations it was identified that the DfT was attempting to answer many repetitive transport data related questions in a siloed manner across areas such as bus open data, TRO-making process and Highways England and local transport data sharing.

We recommend that the DfT take a more programmatic approach to transport data by considering the following key areas:

- The overall design architecture it would like to see to facilitate and allow transport data sharing,
- Its approach to monetisation of transport data,
- The degree of involvement in designing standards/specifications,
- The plan for upskilling and capability development of HAs to manage digital transport change, and
- Providing appropriate signals in areas it believe it wants to accelerate market development and third-party supplier's provisions.

The recommendations support and reinforce work that the DfT has recently progressed through its Transport Data Strategy.

TRO Data Model

We understand the DfT plan to continue developing the TRO data model, initially progressed from the Discovery Phase. This provides a good opportunity to explore options for how TRO data sharing may be implemented as well as ensure a solid foundation in developing the specifications and standards that will need to underpin the open data policy recommendations laid out in this report.

We recommend that future work in this area should:

- Support the data requirements envisaged within the user journeys

- Capture a clear set of users' requirements for the data model, including setting out what the DfT is attempting to achieve and what its objectives are for the work
- Consider the need for specifications of APIs (i.e. Datex II) and map-based projection

More broadly, we recommend the DfT should advance the exploration of technically viable systems architecture and data repository options for implementing modern methods of data sharing of TROs, including the examination of market-led solutions and response.

In doing this, the DfT should note our recommendations above about taking a programmatic approach to designing the model for transport data sharing.

Enforcement and traffic signs regulations

There is a connection between TROs and Traffic Signs Regulations and General Directions (TSRGD), as the on street notification of the restriction. Any changes to the TRO process in types of TROs needs to be reflected in TSRGD to ensure orders are enforceable.

We recommend that DfT should ensure alignment between TROs and traffic signs by:

- Reviewing the TSRGD and align this with the requirements for new types of TROs which did not exist in 2016, such as Dynamic TROs and ensure that the TSRGD is not a barrier to implementation
- Testing the legal interpretation of the different types of orders and ensure it aligns with the TSRGD / can be facilitated through amendments to the 1984 Act

Deliver incremental benefits to users more immediately through issuing guidance

The timescales for legislative change is likely to stretch over the next parliamentary period and will need to proceed through formal consultation. **We recommend that DfT address issues with Special Events and the use of map-based orders within the current legislative framework. This should be through the development of guidance which could yield significant benefits to users on a more immediate timeline.**

Managing special events on the highway

Approving TTROs for events on the highways represents a significant and growing challenge for HAs and a source of significant frustration for event organisers. Due to the timescales for developing new legislation, the retraction of previously issued guidance and the ongoing needs of the users, we believe new guidance on best practice would provide for a more consistent process and reduce some of the frustrations of users.

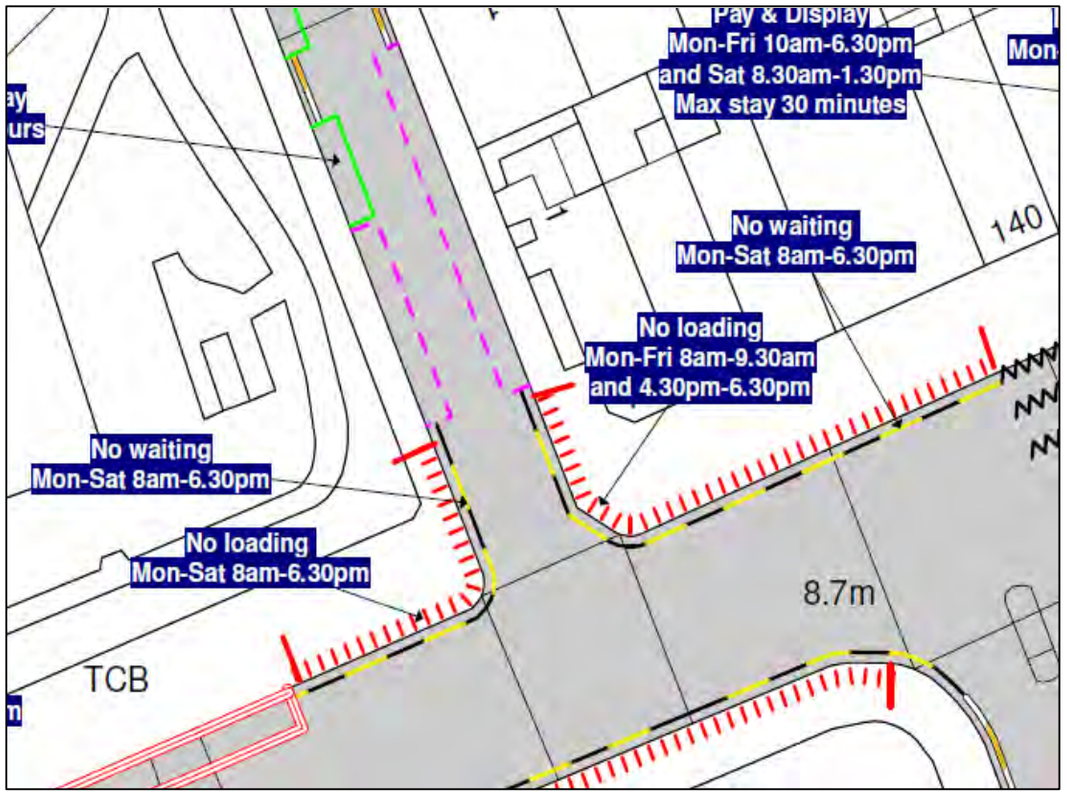
We are aware of at least one HA that has already developed a special events TTRO 'protocol' and we suggest the DfT could establish best practice rapidly by working with HAs that have a good reputation amongst event organisers in this area.

The use of map-based orders by all highway authorities

Map-based orders have continually been cited as having real end-user benefits. These include improved road user comprehension through better clarity of information as a result of the geospatial visualisation of restrictions.

Our considered view is that legislative barriers do not exist that prevent the wider adoption and use of map-based orders. We understand that the reluctance appears to be many decades of established operational practice and local legal officer interpretations of what constitutes a legal order.

Many HAs already publish map-based orders with supporting articles. All HAs are thought to possess or generate a digital representation of the restrictions even if they do not publish it in a spatial format. We believe more HAs could be encouraged to adopt map-based orders through stronger central guidance and support around legal interpretations for their use.



Above: An example of a map-based order created by the Royal Borough of Kensington and Chelsea through ParkMap (provided thanks to the RBKC)

Appendices

A TRO archive digitisation

Context for the TRO archive digitisation

In January 2020, DfT commissioned PA Consulting to carry out a scoping study to investigate the current state of archived permanent Traffic Regulation Orders (TROs). This work forms an addendum to the Policy Alpha, which considered the end-to-end process for new TROs, and focuses on legacy (archived) TROs.

The purpose of this report is to explore some of the key questions and issues associated with leveraging archived TRO data and the approach, if any, that the DfT should take to support this.

This report is aligned to the Future of Mobility Grand Challenge[3] and the Future of Mobility: Urban Strategy[4]. The Strategy sets out the ambition of the UK to be a world leader in the Future of Mobility and strongly advocates data sharing to improve operation of the transport system.

Approach

We adopted an Agile Discovery approach, focusing on user research to frame the problem, issues and potential policy solutions. We carried out three sets of one-week sprints to execute the scoping exercise.

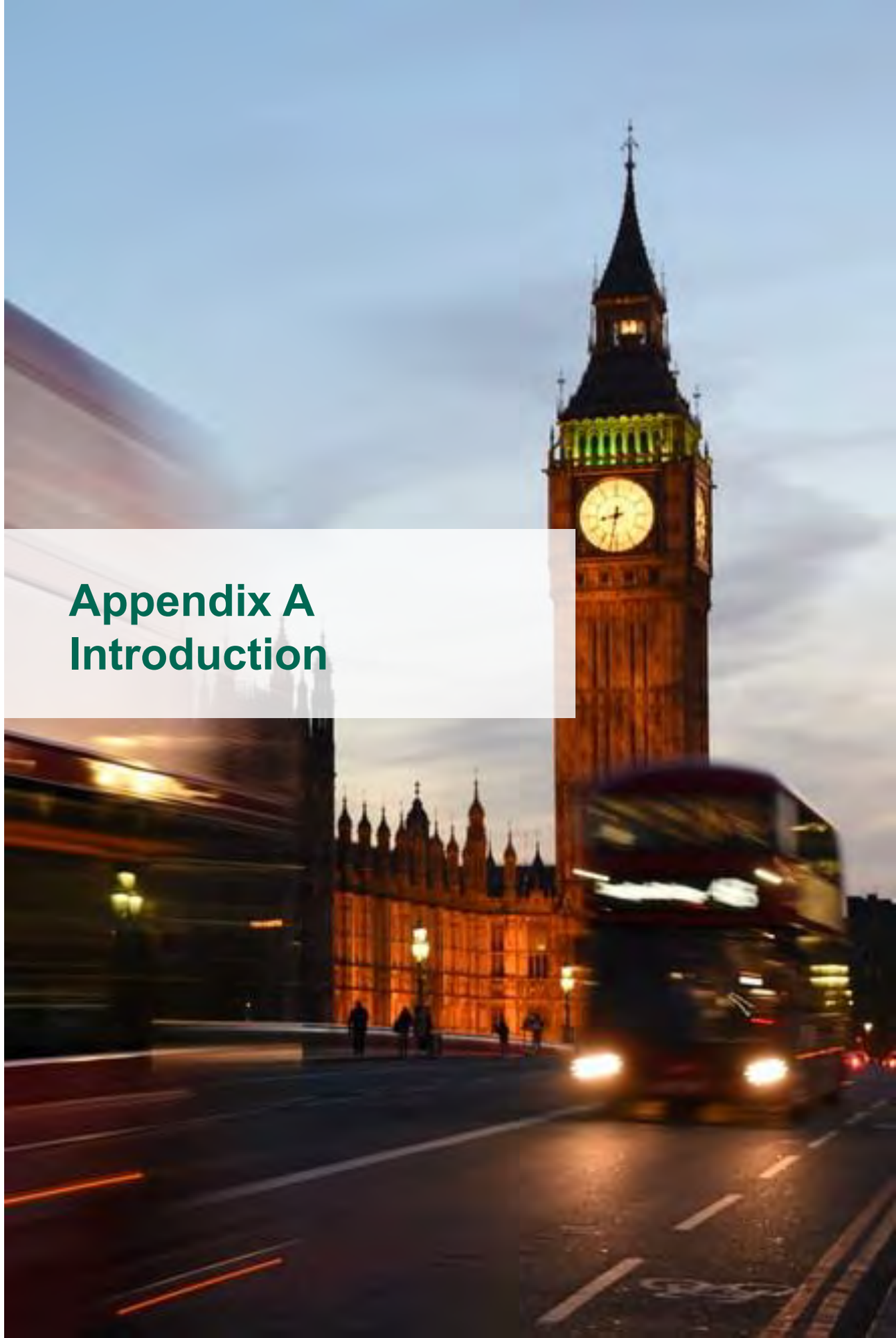
Our user research approach consisted of contextual research to identify core problems quickly via one-to-one interviews supported by digital survey results from 22 Local Authority (LA) respondents and specific targeted data requests.

Our approach comprised of three key stages with the following core activities:

Stage 1: Define the problem
- Surveys issued to 350+ individuals to identify current levels of digital maturity and the scale of digitisation of the LA's TRO archive
- Map the approach of different users to identify the problem space and constraints

Stage 2: Deep-Dive
- Engagement with different user groups, including; 7 local authorities (City and County Councils), 2 solution providers, 1 data user and 1 international tech kerb-side start-up to identify benefits of different approaches and the size of the market
- Engagement with 2 industry experts in TROs and data to provide a third party perspective on the status of the TRO archive

Stage 3: Develop
- Using information captured and existing knowledge base determine improvements that DfT may be able to make
- Final recommendations for DfT to progress



Appendix A Introduction

Future of Mobility

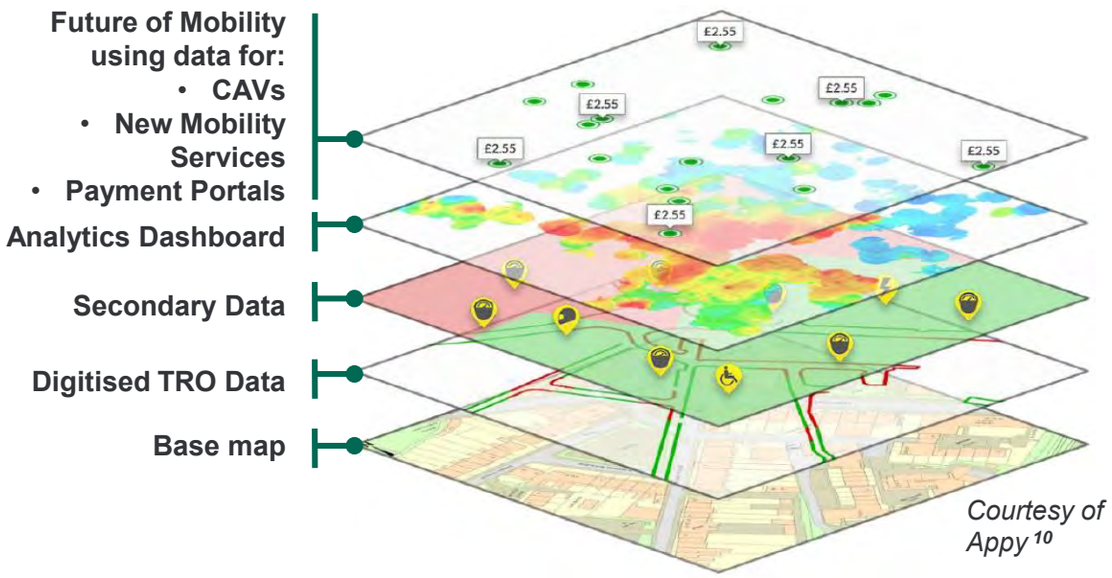
How digitising archived TRO data is the key to new mobility technology and services

The Future of Mobility provides the UK with an opportunity to be a world leader in the development and implementation of Connected and Autonomous Vehicles (CAVs) and new Mobility services, an industry expected to contribute £62bn to the economy by 2030[9].

The Policy Alpha looked at making data accessible for future TROs, but the bulk of existing data is archived TRO orders. Digitising this data forms the basis of a technology "stack" which supports the executing of the CAV vision (see below). Therefore, fully digitised and open TRO data represents a crucial part to the UK Governments aspirations to be a key player in the Future of Mobility.

TRO data sits upon the Base Map layer, forming a digital representation of the rules of the road that all services such payment technologies, enforcement and CAVs, refer back to and rely on. Gothenburg is an international exemplar of digitising TROs and has used its 'digital roads' programme to support new mobility products such as digital permits and will be using the data to build a digital twin by 2021.

Technology "Stack"



Courtesy of Appy [10]

Zenzic's roadmap to Connected and Automated Mobility (CAM)[11] highlights the digitisation of the rules of the road (starting by 2025) and removal of on street road signs as major milestones to transition towards CAM. Furthermore, as the UK seeks to define its digital roads strategy, users must have confidence in the TRO data which underpins it because of the legal and enforcement implications.

Without intervention, the TRO archive will still not be digitised or openly accessible within the next 5 years

At the current rate of digitisation, we estimate that 267* UK LAs will still be relying on non-digitised formats for their TRO archive in 5 years.

Market suppliers and LAs in the current ecosystem won't achieve a fully digitised archive and open TRO data

Our research highlighted that digitisation of archived TROs is often bottom of LA's 'to do' list. Additionally, suppliers of digital TRO solutions are limited, with only two suppliers capable of structuring data in a way similar to the proposed TRO data model. The market providers tend to also focus on the commercially attractive aspects of TROs (e.g. parking restrictions). TRO system development pre-dominantly only takes place when funded by forward-thinking LAs, with smaller LAs less able to afford to make the transition.

The table below represents the survey results of the level of digitisation and digital format and maturity of respondents TRO archive. In a worst case scenario, nearly 75% of respondents confirm that archived TROs were pre-dominantly non-digital. We have classified non-digital as TROs with no digitally represented geo-spatial elements or map-based schedules, which would be expected to be required by CAVs.

Table of level of digitisation of TRO archive, showing percentage of LAs TRO archive that are in different digital maturity states

Archived TROs are handwritten or typewritten	Archived TROs are in a text-based format e.g. Word or PDF	Archived TROs have been produced in a text-based format i.e. with no map-based schedules	Archived TROs are pre-dominantly produced in a digital environment with associated map-based schedules	Archived TROs have been produced digitally from end-to-end, including article
10.18%	**43.21%**	**21.36%**	**13.94%**	**11.31%**

Note: responses to the survey were typically from LAs who are further along their digital journey and as such these digitisation figures are likely to be much lower in reality.

Progress in making TRO archive data open and accessible, compared to digitisation, has been slower

Our research found that not a single LA currently 'push'/publish their data in an open and standardised format. This means that even where LAs have digitised their archive to a significant level, data isn't easily available to other external users or third party's, restricting wider benefits of digitisation.

The table below represents the survey results of the level of data accessibility of respondents TRO archive. In a worst case scenario, approximately 70% of TROs would require some sort of post processing to capture data in a structured and standardised format.

Table of level of TRO archive data accessibility, showing percentage of LAs TRO archive that are at different levels of accessibility

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Archived TROs are only available in hard copies and accessible via council offices	Archived TROs are available in a text-only format e.g. Word or PDF *or scanned image (PNG)	Archived TROs are accessible online in text-based formats such as PDF	Archived TROs are online and accessible via mapping software	Archived TROs are online, mapped and available via digitally accessible formats e.g. XML, SHP, WKT etc	Nationally consistent data accessible in real-time from a single repository
Percentage of archived TROs					
12.05%	**57.44%**	**14.06%**	**16.44%**	**0%**	**0%**

Digitisation efforts need to be expanded beyond the current handful of forward-thinking local authorities

Birmingham City Council and TfL have stated that they have funds available but are held back from digitisation/further digitisation due to a lack of national TRO standard. They are keen to avoid investing in systems/technologies which become obsolete if a national standard comes into force.

Our research engaged several LAs who have digitised or are progressing with digitising their TRO archive. Of those that have, some, such as Coventry City Council, are sharing knowledge through conferences in the UK and abroad. In building the case for change, LAs users and solution providers cite multiple benefits including:

More effective enforcement realising safety, economic and user benefits

- Better user experience and reduction in the number of disputed Penalty Charge Notices (PCNs). Pimlico Plumbers achieved £30k savings per annum through reduced overpayment and avoiding penalties from safer parking

Realisation of significant immediate and follow-on efficiency savings

- Processing effort reduced from weeks to hours as a result of investment made into the system to digitise TROs (over 50,000 TROs and TTROs are created annually across England)
- Response to FOIs near instant compared to 8 hours previously

Stimulation of market activity and ensuring a level playing field

- Digitising the TRO archive allows LAs to reduce costs of opening up data provision as well as ensuring equal access for newer and smaller market entrants

**scaled up nationally from 22 digital maturity survey respondents, however rates of adoptions vary considerably*

Our research indicates that the current digitisation challenge for TROs is being addressed from opposing directions. Neither will on its own provide a total digital network view of the rules of the road. The current situation is driven by differences in how users access information on TROs (on-street signage) compared to the legal force behind restrictions currently represented in the physical TRO order. Alignment between both is critical for users and authorities.

We need to achieve alignment between both the physical and digital representations of TROs

On-street traffic signs and lines should reflect their underlying TRO. However, discrepancies between them have been found to range between 30-60% in some cases. Most are an inconvenience, however the TRO in these instances is seen as the definitive statement in law.

Of those authorities that digitise their archive, some will digitise the 'filing cabinet', whilst the bulk will conduct on-street surveys and check against the TRO archive. Most will then carry out an exercise to align and consolidate the TROs with on-street signage. This is cheaper and less disruptive then moving signs. In these examples both digital and physical representations will match.

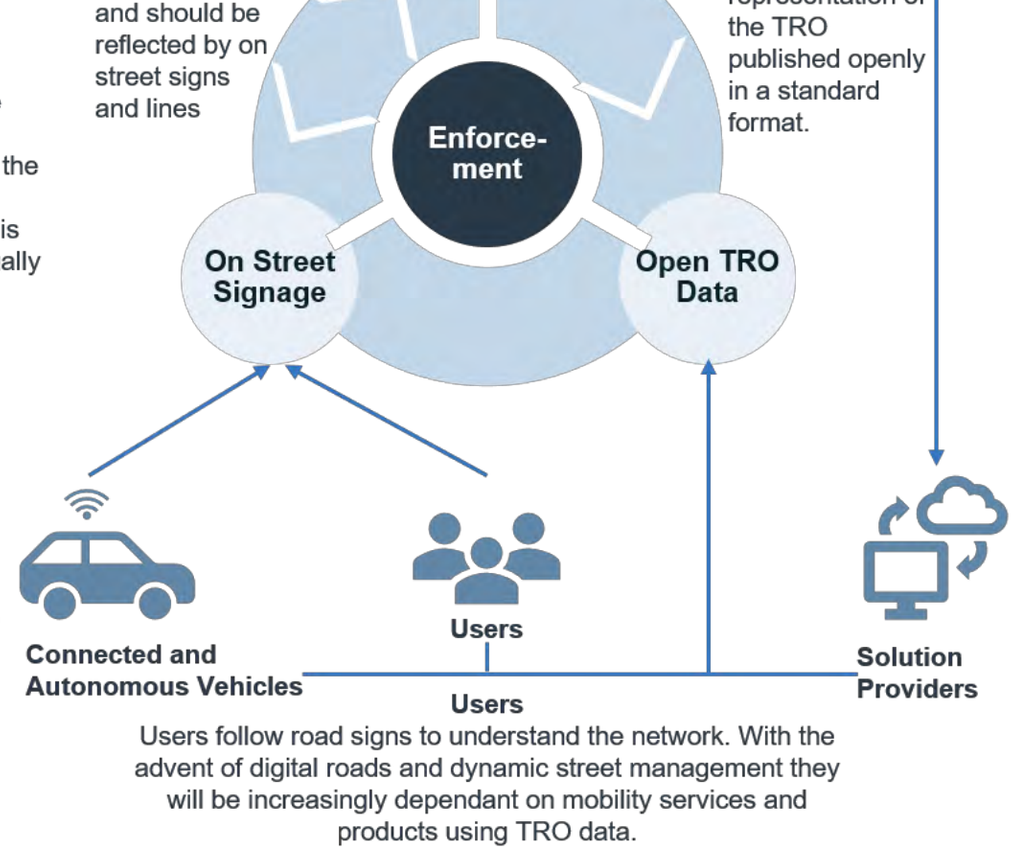
Until the ultimate removal of street-signs as well as legislation requiring signs or lines or both in order for the restrictions to be enforceable, the physical and digital representations of the rules of the road need to accurately overlay. To achieve this the DfT will need to overcome barriers to digitisation, data quality and standardisation. These issues will be non-trivial because of the important legal and enforcement characteristics of TROs.

Enforcement
A primary driver for digitisation from a LA perspective is to improve enforcement. Successful civil enforcement is dependent on accurate TROs.

On Street Signage
On street signage communicates to drivers the rules of the road. User research shows that this is often at odds with the legally enforceable TRO.

Future of Mobility
CAVs currently use sensors to read road signs. However, this may be limited as road signs are often inaccurate, covered etc. As per Zenzics roadmap, in the future they are expected to use TRO data to understand the rules of the road.

TRO Archive
Currently exists as a combination of paper and digital formats with differing approaches to digitisation and levels of data quality across LAs (includes historical and new TROs).



Users
Users follow road signs to understand the network. With the advent of digital roads and dynamic street management they will be increasingly dependant on mobility services and products using TRO data.

Open Data
No LAs currently 'push' their data in an open format. Only 16% of TROs exist in a structured (not standardised) format and can be accessed upon request. In the future this is expected to be a primary source of TRO information.

Service Providers
Service providers have multiple ways of accessing TRO data, such as crowdsourcing and surveys. However, they class LA TRO data as a key source of the truth. Map makers have stated that they would significantly benefit from this data in particular to support Intelligent Speed Assist (ISA) from 2022.

DfT intervention can drive the digitisation of the TRO archive, based on guidance to LAs and leveraging market capabilities

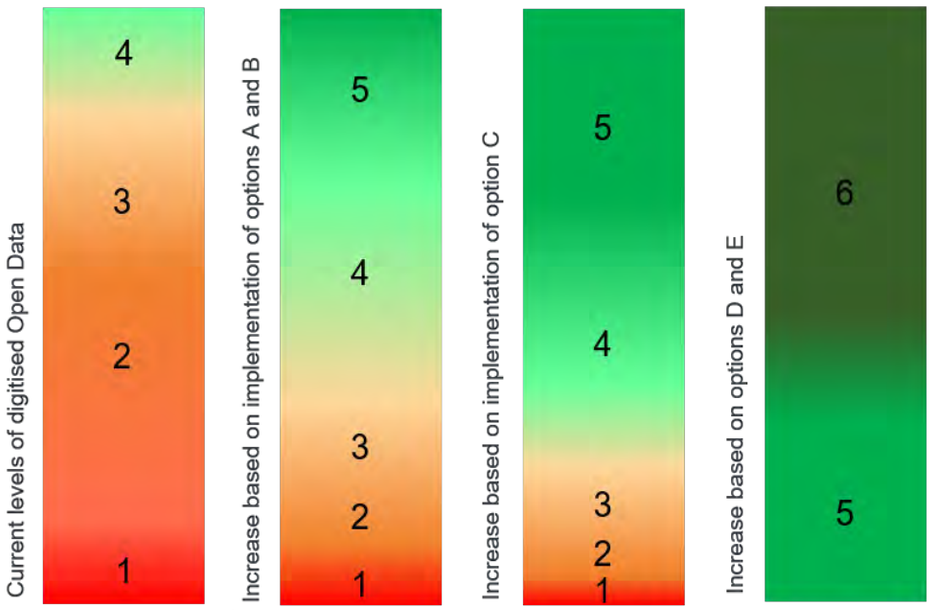
There are five options the DfT could take to help digitise the TRO archive. Each option has benefits and will modernise the TRO archive. The first two options lay the foundations for the remaining three options should these be taken forward in the future.

In summary the five key proposed options are:

A. **DfT create a TRO data model which is issued as a national standard**
B. **Help local authorities move to digital formats and support the transition to digitisation**
C. **Provide funding to local authorities to accelerate digitisation of the TRO archive**
D. **If there is a change in civil enforcement of moving traffic offences, use it to encourage TRO digitisation**
E. **DfT issue a legal mandate for local authorities to digitise all archived TROs in a standard format**

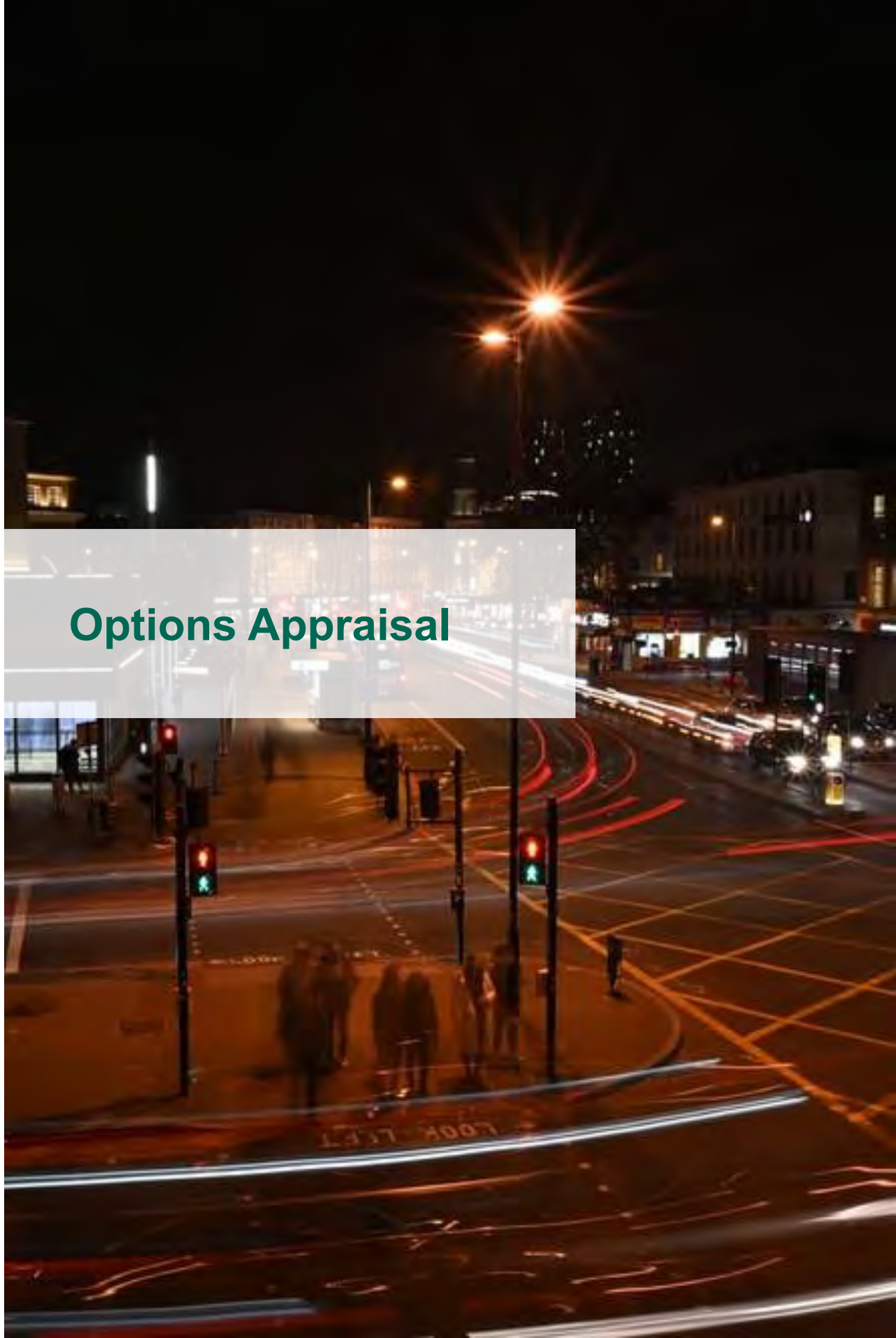
To achieve a significant shift in digitisation and the opening of structured data by 2025, we expect that the DfT will need to support a combination of options A, B and C (illustratively shown below). At that point the DfT can determine whether to progress further interventions to achieve higher levels of digitisation.

Assessment of levels of standard and open data based on implementation of options



This figure shows the impact of interventions against TRO data accessibility. Options A, B and C are likely to achieve high levels of digitisation and accessibility by 2025*

**figure is indicative only to illustratively show possible impact of options. Further modelling is required to understand detailed impact*



TRO Archive Options

A. DfT create a TRO data\ model which is issued as a national standard

This option aims to ensure all archived TROs are held in the same standard structure and format. This will be a national standard to provide consistency in approach and remove local definitions and measurements. Ultimately, this will be the standard adopted by vehicle manufacturers, fleet operators, map makers and third parties to support the Future of Mobility.

Why is this being recommended?

User research identified a number of LAs who have already digitised / would like to digitise their TRO archive. Birmingham City Council and TfL stated that they were holding off investment in digitising their / improving their digital archive due to a lack of national standard. Additionally, Appy commented that customers are holding off investment until it is clear when and whether the data model is in place.

By ensuring that the TRO data model caters for historic TROs and publishing it as a standard, it will drive solution providers to adopt this model. It could also deliver incremental benefits for those LAs ready to invest in digitising their archive. We anticipate the data model will stimulate the market to develop solutions and products. LAs cited that they are often subject to data requests from third parties, but unable to provide them suitable formatted data in a cost effective manner.

Key potential benefits of this recommendation

- Standardise the structure and format of the archive dataset across England
- Inexpensive to those LAs with TRO specific solutions as solution providers are ready to adopt the data model
- A proportion of LAs will adopt straight away delivering incremental benefits to the UK
- Stimulates the market and encourages new solution providers

B. Help local authorities move to digital formats and support the transition to digitisation

This option aims to ensure DfT support LAs to drive business change. DfT will help LAs to understand the benefits of digitisation through promotional activities and development of a common benefits case. We anticipate DfT working with LAs to build business cases and seeking opportunities for funding. Additionally, DfT should create a TRO digitisation toolkit advising LAs on how best to manage their change. These measures will help accelerate the transition to digital TROs.

Why is this being recommended?

Some LAs are unaware of the benefits of digitising their TRO archive with multiple survey respondents stating that their archives are managed in non-digital formats because this is how they have been historically administered. By working closely with LAs the DfT can demonstrate common benefits to help overcome some of these key barriers. Building upon already established relationships with exemplars such as, Nottingham and Coventry City Councils the DfT can build a strong, quantifiable case for change, It also provides an opportunity to pilot the data model.

Key potential benefits of this recommendation

- Empowers LAs to implement their transitions to digitisation with DfT support
- Quantifies to LAs why we should move away from the current equilibrium
- Cost effective approach for DfT to nudge LAs towards digitisation

C. Provide funding to local authorities to accelerate the digitisation of the TRO archive

This option aims to ensure that those LAs with limited resources have the opportunity to digitise their archive. The DfT will provide targeted funding to drive innovation across LAs. This may be in a similar vein to MHCLG's Local Digital Fund. This aims to help local authorities implement the Local Digital Declaration by funding digital skills training and projects that address common local service challenges in common, reusable ways.

Why is this being recommended?

Our research identified LAs who have a desire to digitise but have limited resources, incentive or scale to be able to do so. Without access to funding, capabilities and partners, these LAs are unlikely to be able to digitise their TRO archive in the foreseeable future.

Key potential benefits of this recommendation

- Significantly contributes to achieving high levels of digitisation by 2025
- Eases the burden for those LAs who would otherwise be unable to digitise their archive

D. If there is a change in civil enforcement of moving traffic offences, use it to encourage TRO digitisation

This option aims to ensure DfT maximise any potential enactment of Part 6 of the Traffic Management Act 2004, by allowing LAs the opportunity to carry out civil enforcement of moving traffic restrictions.

Why is this being recommended?

LAs highlighted that static (parking, waiting) orders are of significantly better quality (i.e. they are reviewed, consolidated and mapped on their digital system) in terms of digital maturity compared to moving (speed limits, banned turns etc) traffic restrictions. This is because static orders have a direct revenue implication as LAs conduct civil enforcement of these orders and are therefore subject to higher levels of scrutiny i.e. there is a clear business case for digitising these orders from an LA perspective. Multiple LA users cited they would consider digitising their moving traffic restrictions if there was a revenue implication through civil enforcement.

There are a number of policy drivers for commencing Part 6 of the Traffic Management Act but to date the government has not been convinced by the arguments. If this position changes in the future and the government decides to allow LAs to enforce moving traffic restrictions, then the DfT should re-prioritise this option to achieve significant increases in digitisation.

Key potential benefits of this recommendation

- Prior to digitisation, LAs are likely to review and consolidate their moving traffic orders resulting in a more effective highway network
- Supports consistency in digitisation across static and moving traffic restrictions

E. DfT issue a legal mandate for local authorities to digitise all archived TROs in a standard format

This option aims to ensure that a high level of the TRO archive is accurate and digitised within the standard data model format, through a legal mandate requiring all LAs to conform to the legislation by a certain date. Ultimately, this will deliver full digitisation of archived TRO data in a format which can support the delivery of the Future of Mobility.

Why is this being recommended?

TRO data is an enabler for the Future of Mobility. New products and services, particularly Connected Vehicles (short term) and Autonomous Vehicles (long term) will be dependant on this data.

Without a legal mandate for doing so then it unlikely that we will be able to achieve full digitisation of the archive. The bulk of user research participants could see the benefits of digitising but stated that the DfT should mandate the requirement by a certain date and “it would get done”. This option would require DfT shouldering any costs associated with the additional burden the change in legislation would impose on LAs.

Key potential benefits of this recommendation

- Achieves high levels of digitisation which is needed to support the Future of Mobility
- Stimulates the market place to provide solutions for the legal mandate
- Expected to be used as an opportunity for LAs to not only digitise their archive but re-assess and consolidate the TROs they have in place, leading to better data accuracy

Recommendations

Recommendations

The options set out in the previous section are based on user research and should be seen as a roadmap to achieve a high level of digitisation within the TRO archive. However, we recommend that DfT take a pragmatic and collaborative approach to achieve a step change in the quality and extent of digitisation within the TRO archive.

We recommend that the DfT progress with options A, B and C as we expect that this will significantly increase digitisation by 2025 and help deliver benefits to near term Future of Mobility technologies such as Connected Vehicles. Based on this we have made the following core recommendations

A. **DfT create a TRO data model which is issued as a national standard –** The DfT is already progressing with the creation of a TRO data model. The DfT should consider accelerating this so that benefits can be realised by early adopters and Connected Vehicle technologies such as ISA can utilise the data.

B. **Help local authorities move to digital formats and support the transition to digitisation –** There are a number of LAs ready to digitise but lacking support and skills to do so. The DfT should work with LAs to create a common benefits case and drive business change.

C. **Provide funding to local authorities to accelerate digitisation of the TRO archive** – Many users are ready to embrace TRO digitisation, but lack the resource to do so. The DfT should support these users through targeted development funding. This recommendation should only be taken forward after A and B have been delivered and re-assessed prior to implementation.

We recommend that the DfT should review and evaluate the impact from A, B and C before progressing with further interventions. We believe these options will realise the policy outcomes DfT are seeking in a pragmatic and cost effective manner.

As we progress to 2025, the requirements for Autonomous Vehicles and new mobility services will become clearer and the DfT can re-assess the need for implementation of options D and E. Any changes to the political landscape, particularly in relation to option D, may require the DfT to re-prioritise the options set out in this report to realise early benefits.

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