

Helping people, cities  
and economies thrive

**Spotlight**  
Cleaning the  
air in our towns  
and cities

**Accessibility**  
Being truly  
inclusive  
by catering  
for 'hidden  
disabilities'

**Rail**  
Driving  
transformative  
improvements  
to rail services

# The Review

European Edition  
Issue 50  
July 2018

[steergroup.com](http://steergroup.com)

**steer**

Formerly Steer Davies Gleave

# We are Steer.

After 40 years, we are shortening our name to Steer to reflect the bigger and better company we have become.

## Complex made simple

Steer Davies Gleave has become Steer.

In our 40th year, we look ahead to exciting times as our company changes its name and identity to mark our continuing growth and diversity as a business.

With a growing presence across the globe and a broadening portfolio into sectors beyond transport – including health, power and economic development – Steer has evolved to meet new demands, new ideas and new technologies. Transport remains at the core of our business, but we have broadened to help our clients maximise opportunity and realise value within this changing landscape.

Some things haven't changed though. We continue to embrace our legacy of providing impartial, objective and results-driven advice. We are still truly independent, with no external shareholders, and remain wholly dedicated to providing clients with smart-thinking grounded in expertise.

Steer is a firm of specialists – combining strategists, researchers, analysts, economists, planners, designers, engineers and technologists – based in 21 offices across four continents. We are driven by our passion to provide answers that help people, places and economies thrive.

To provide powerful answers to complex questions.

Find out more at [steergroup.com](https://steergroup.com)

**steer**

# Welcome

Welcome to our landmark edition of *The Review* in which we share that we have become Steer, that we celebrate being 40, plus our usual insights and perspectives.

This issue features a strong cross-cutting theme of change and evolution, whether it be in relation to new technologies, shifts in policy or the impacts of major projects on economies and communities (plus our own exciting changes).

It is from time-to-time tempting to highlight change as being atypical, but from our 40 years of working for and alongside clients we have seen, first-hand, that this dynamism is not a temporary or new phenomena but has been and will remain an ever-present characteristic: transport, cities and infrastructure are by their nature inherently dynamic.

Our commitment to innovation, rigour, expertise and impartiality have been with us from our earliest days to the current moment, allowing us to continuously evolve and serve our clients. While we have changed our name, our commitment to our clients and to our inherent qualities is undiminished as we look forward to another 40 years of service.

Hugh Jones  
CEO

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# Company updates

## New faces



**John Dutton**  
Director

John joins our Advisory team as a Director. With over 30 years' experience in the rail industry, John has held leadership roles on large multidisciplinary projects including High Speed 1, London Underground track renewals delivery, Crossrail and Heathrow Airport.



**Helen Waters**  
Associate Director

Helen joins Steer as an Associate Director. She brings significant industry knowledge, predominantly focused on continuous improvement techniques and innovation in the rail sector. Helen leads the expansion of our capabilities in these areas.



**Richard Spence**  
Associate Director

Richard joins as an Associate Director to support our emerging Strategic Rail Engineering initiative. He joins from advising on the Crossrail Old Oak Common depot, bringing over 30 years of experience in the rail industry.



**Richard Harper**  
Associate Director

Richard joins our UK Advisory team in London as an Associate Director. Richard has a wide variety of transport business development experience gained over 25 years. He has worked on the delivery of rail infrastructure enhancement and the development and launch of an open access rail service. Recently, he led business transformation plans as part of successful rail franchise bids.



**Ricardo Montecino**  
Associate Director

Ricardo rejoins us after five years working in the public sector, at the Executive Authority for the Metropolitan Public Transport (DTPM) in Santiago, Chile. He joins as an Associate Director and will be based in our office in Santiago, Chile.



**Josh Stott**  
Associate

Josh joins Steer Economic Development as an Associate. With over 15 years of Economic development experience, Josh has advised a range of public and private sector clients on policy development, case-making, and delivery with a focus on land and property, labour markets, and inclusive growth.



**Fiona Tuck**  
Associate

Fiona joins our economic development practice, Steer Economic Development, as an Associate. She is a research practitioner and she has worked extensively across the UK's creative and cultural industries, delivering projects at the forefront of policy development.



**Alasdair Dawson**  
Associate

Alasdair joins our U.S. business, transferring from the U.K. He brings 15 years of experience managing and facilitating multi-disciplinary projects and programmes around the world to gain a collective understanding of project interdependencies and help sponsors make informed decisions.



**Michael Colella**  
Associate Director

Michael transfers from London to our New York office, bringing 20 years of experience in commercial, economic and planning issues for clients globally. With experience in both public and private sectors, planning, strategy and major projects, Michael has extensive experience understanding clients' needs and developing practical solutions that secure senior management approval and stakeholder buy-in.

## Looking to move?

If you are considering your future and are looking for somewhere to make a real difference, Steer has much to offer. The firm continues to grow in Europe, Asia and the Americas. To find out about the opportunities we have to suit you, visit our website:  
[www.steergroup.com/careers](http://www.steergroup.com/careers)



## Steer opens two new offices

We are delighted to announce the opening of two new offices in Brussels and Panama.

From Brussels, which joins our office locations in mainland Europe along with Madrid, Bologna and Rome, we will continue to serve our global investor client base and the work we undertake for the European Commission and the European Parliament. We have advised and presented to the European Parliament on night trains on the Belt and Road Initiative (BRI) and we continue with influential studies of the liberalisation of transport networks such as the Fourth Rail package and road and coach transport services across Europe.

Our new office in Panama comes after years of working on projects in the country. The office has already secured important projects including a proposal for the design of a nomenclature system for Panama and San Miguelito's streets, the integration of the local bus service with the Metro Line 2, and a project for promoting priority bus lanes for the public transport system in Panama City.

The country has important mobility and accessibility needs and we plan to continue supporting both government and private clients.

## We turn 40!

This year we are excited to celebrate our 40th year! It all began in 1978 when three good friends – Jim Steer, John Davies and Graham Gleave – started a transport planning firm and opened our first office in London. We expanded globally in the late to mid-1990s by opening offices in San Juan, Santiago, Madrid and Bologna. By the mid-2000s, we had grown to over 300 staff and opened offices in North America and later in India. In 2016, we launched an economic development practice, Steer Economic Development, to build on our existing strength in transport and to enhance our service offer to adjacent policy areas such as enterprise, knowledge, skills and governance.

Today we have over 450 staff worldwide, spanning Europe, North America, Latin America and India, and our work embraces all modes of transport as well as a growing portfolio of key successful projects in economic development. We combine commercial, economic, technical and planning expertise to find powerful answers to our clients' complex transport challenges. Answers that help people, places and economies thrive.



First event in the UK Movement Matters series: 'The Future of the Railway Organisation'.

## Movement Matters: a burst of fresh thinking

Movement Matters (MM) is a series of inspirational seminars, debates and workshops, presented by Steer, exploring how transport shapes and influences places, people and economies. Drawing on experience from international leaders in transport, government and related industries, we share insights and debate opportunities and challenges. Our first series of MM events, which took place last year in Los Angeles, London and Manchester, was a great success.

Visit [www.steerMM.com](http://www.steerMM.com) for details on upcoming sessions during 2018.

# Cycle hubs across the whole project lifecycle

By Louis Devenish

Cycle hubs, at their simplest, are a secure, sheltered place to park your bicycle – usually protected by CCTV or swipe card entry. With considered design, and the inclusion of additional facilities such as a café or a repair workshop, they can become attractive elements that contribute positively to the wider urban realm and ease the integration of cycling into our everyday lives.

Bringing a cycle hub from conception to implementation has many phases and needs consideration of key aspects ranging from location to design and usage monitoring. This article steps through the key considerations at each stage of the project lifecycle.

## Planning a cycle hub

When planning a cycle hub, there are several simple but crucial demand, location, security and quality considerations to bear in mind. We need to understand issues such as the kind of cyclist it will cater for and the facilities they will want. Are there significant trip attractors for cyclists or key cycling routes? Will the hub be as close as possible to the transport interchange/ office/home? Will it be as prominent and visible as possible? Lastly, is it robust and easy to use? Does it inspire confidence in the user?

## Designing a cycle hub

When their design is carefully considered, cycle hubs can be more than just storage sheds for bicycles. They can become attractive elements integrated into the urban realm.

Key considerations when designing a cycle hub include the following:

**Access:** provide clear and step-free access and egress, as well as clear routes within the facility, wide enough for a cyclist to walk next to their bicycle.

**Space:** provide enough space between cycle racks, so that users can easily get their bicycles in and out, as well as allowing extra space for larger bikes.

**Light:** use light to improve safety and wayfinding inside and to draw attention to the hub from outside at night.

**Simplicity:** keep installation and maintenance simple, by designing with prefabricated modules, enabling the extension of the hub if there is a change in demand.



Prototype design of Haven Green, Ealing, London © Steer

**Legibility:** follow branding guidance to include logos, icons, maps and wayfinding, to make the hub and its surroundings easy to navigate, as well as linking into any wider cycling strategies.

## Operating a cycle hub

Key aspects to look at when operating a cycle hub are charging, staffing, maintenance and promotion. Are cyclists willing to pay for the service? This will vary depending on the type of cyclist and the facilities offered. People like interacting with people, so consider the viability of having staff on site. Maintenance is also a crucial factor, as issues such as faulty doors or key fobs can deter users. Finally, ongoing promotion of the facility will attract new users.

## Monitoring usage of a cycle hub

The last, and often overlooked, stage of the project lifecycle is the importance of monitoring use once the cycle hub has been installed. This allows operators to understand usage patterns and to develop strategies to boost usage, if needed. There are various ways of monitoring usage, from simple weekly bicycle counts to using smartcard and key fob access to track entries and exits. More innovative approaches include sensors in each cycle rack, or chips in the bicycle's frame, which track how long a bicycle is parked.

## Haven Green, Ealing

Putting into practice the key considerations outlined in this article, we developed a cycle hub design for Haven Green in Ealing Broadway, London. Conceived as quirky, colourful and innovative, this cycle hub was designed as a modular prototype structure to allow its length, span and capacity to fit the space. The temporary structure was designed to be easily erected and taken down if necessary – to respond flexibly to the unprecedented usage of existing cycle parking – and to create an attractive background for Haven Green, while providing extra space for commuters to park their bicycles. We developed this design from feasibility to preliminary design, through concept to detailed design, including 3D models and visualisations of the final design, which were used in the tender document for manufacturers.

Taking into account these key considerations at each stage of the project lifecycle, cycle hubs can be successfully implemented, with high levels of usage and many satisfied users, while contributing positively to the urban realm in which they sit.



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# Travel retail's technology challenge

By Paul Cresswell and David Griffiths

The travel retail sector – sales from customers at airports, border crossings and diplomatic shops, and on aircraft, ferries and cruise ships – has quadrupled in size over the last 30 years to a \$64 billion global business. We review the trends that have shaped the sector and the challenge to airports from new technologies.

In the early 1990s, retail space in predominantly state-owned airports was often operated by "master concessionaires", with one operator of all the retail outlets and one provider of all the catering. With limited competition, there was little incentive to raise standards, and the retail offer was often insufficient and poor. Later in the decade, however, airport retail malls began to appear, as private investors in airports identified an untapped and valuable market.

1999 brought the end of Duty-and-Tax-Free sales for travel within the EU, with a dramatic impact on airport sales and revenues. Airports in the EU responded differently, but many were privatised in the following decade and began to test new concepts for their retail offer. Developments included expanded retail space, airside shopping malls including major international brands, and better food and beverage options. Offsetting this, many of the low-cost airlines which had emerged in the 1990s allowed only limited cabin baggage, deterring airside purchases.

In the following decade, the internet was gradually changing how passengers booked and checked in, but had not yet noticeably affected airport shopping habits. However, "Millennials" grew up and adopted iPads, smartphones and other devices which can be used to buy both goods and services.

In the last few years, technology has had a profound effect on the high street retail sector, and by 2016 around 17% of total UK retail sales were conducted online [1]. Airports have used the internet to support product pre-awareness and to promote services such as personal shopping, "click & collect" and "shop & collect", but these account for only a small proportion of sales and revenues. Compared to the high street retailers, airports are finding it difficult to generate online sales. Looking forward, the key challenges for airports will include:

- How can airports respond to flexible, technology-led shopping within the constraints of the regimes for security, movement of goods, and duty and tax?



- How will consumers, who are becoming more reliant on technology for information, communication and transactions, interact with the existing airport retail environment, and how will this have to change?
- Will airlines providing in-flight connectivity and, by having information on, and direct contact with, their passengers, become a significant disruptor of the airport model?
- How will airports remain price-competitive when travellers can easily compare high street, airport and onboard prices in each direction of a round trip?

Travel retail has a proven track record of continuous growth, despite disruptive effects such as the end of intra-EU Duty Free [1999], global recessions [2000 and 2008] and "9/11" [2001]. It has been successful at identifying potential risks and agile at finding solutions, and these abilities appear set to continue. However, the key challenge facing airports now is how to leverage technology, and there

is a need to develop and implement strategies to convert a problem into an opportunity.

Steer has reviewed the prospects for airport retail development at many global airports. A key contributor to our projects in the sector has been David Griffiths, who was previously a commercial director with BAA, Stansted Airport and World Duty Free, and who has over 30 years' experience in travel retail.

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[1] Online Retailing, Centre for Retail Research, Nottingham UK.  
[www.retailresearch.org/online-retailing.php](http://www.retailresearch.org/online-retailing.php)

# Cleaning the air in our towns and cities

By Simon Hollowood

The European Commission is referring the UK government to the European Court of Justice over the government's failure to achieve targets for nitrogen dioxide (NO<sub>2</sub>) emissions and "for failing to take appropriate measures to keep exceedance periods as short as possible"<sup>[1]</sup>. This follows successive legal action closer to home led by law firm ClientEarth over the government's plans for addressing air pollution. The rulings so far have formalised the prevailing thought within the air quality community – that more could and should be done to combat this issue.

The UK Government published its revised plan for tackling NO<sub>2</sub> in July 2017. However, the latest High Court ruling, in February 2018, found the plans inadequate and there are calls for measures to address air pollution, such as Clean Air Zones, to be expedited and broadened to include more towns and cities.

## What's the issue?

The Government's plan so far focuses on nitrogen dioxide (NO<sub>2</sub>) in urban areas, which has been associated with respiratory illness, cancer and birth defects. Transport is recognised as the major contributor to air pollution, particularly in towns and cities and away from industrial areas.

This leads to a seemingly straightforward plan of action – to tackle poor air quality, we need to reduce the emissions from transport.

## What can be done?

The UK has dealt successfully with air quality problems in the past. The Great Smog of 1952, arguably the most severe of UK air pollution events over the course of hundreds of years, led to the first Clean Air Act of 1956. This Act created smoke control areas, prohibiting the burning of certain fuels for domestic and industrial uses.

More recently, around the year 2000 the additive tetraethyl lead was ubiquitous in petrol, until concerns over air pollution and health led to it being banned in much of the world. What these

events have in common with the current air pollution crisis is that government waited until the damage or risk to human health was palpable before taking serious action. Publication of the Government's plan was accompanied by the announcement that it will end the sale of new conventional petrol and diesel cars and vans by 2040.

In the meantime, there are two broad approaches to reducing emissions from transport:

- **Travel differently** – for example, if we reduce the distance travelled, we will [generally] reduce the amount of pollution emitted by a given vehicle. People can be encouraged to car pool or to swap their cars for walking, cycling and public transport. For freight, consolidation is often cited as a means of reducing emissions, while also providing some decongestion benefits. We might also try to eliminate trips entirely, such as through teleworking and online shopping, although the impacts are much more complex.
- **Cleaner vehicles** – if we can reduce how much a vehicle emits for a given journey, we will benefit from cleaner air. This is usually thought of as cleaner technologies, such as after-exhaust treatment on conventional internal combustion engines, or a whole range of alternative fuels. Emissions reduction can also be infrastructure-led, with improved traffic control and design helping to "smooth" traffic, reducing the emissions from acceleration and deceleration in urban areas.

## Where is the gap?

The Government's plan has been broadly criticised, both for failing to deliver a determined plan of action, and for pushing the burden onto local authorities. There is another area where it might be going wrong – the apparent disconnect between complying with legislation and tackling a serious public health issue.

The UK aims to comply with air quality regulations across 43 monitoring zones,

for which there are only around 200 monitoring stations. Coupling this with metrics such as annual average values, and the various modelling approaches taken, provides only a coarse view of air quality. That might be considered practical for legislative purposes, but is not good enough to understand human exposure to pollution, particularly in urban areas.

Air quality varies over both space and time, which leads to emissions 'hotspots' where pollution is particularly bad. Signalised junctions are a good example, with the inevitable slowing down, idling and acceleration of vehicles leading to elevated emissions. These are also areas where pedestrians often wait to cross the road – making them exposure hotspots as well. Crucially, these hotspots aren't just present in the worst performing air quality monitoring zones, but all over the UK.

Compliance with regulations is the same as easing the public health burden. To tackle the issue of poor air quality, improvements are needed in the way emissions from transport are assessed, monitored and modelled. This must be tailored towards what is to be reduced

– not the annual average across a large area, but the pollution that people experience in the real world, while travelling to school, commuting to work and enjoying our towns and cities. Changing the signal sequence on a pedestrian crossing might not influence the annual average NO<sub>2</sub> level in a district, but could change the exposure to pollution of hundreds of travellers each day.

## What next?

In London, Transport for London has developed the *Healthy Streets* approach, with the aim of putting people and health at the centre of decision-making. Further, as the 2018 Mayor's Transport Strategy adopts the 'vision zero' approach to road safety policy, it may be time to think more broadly about the safety of transport schemes from a public health perspective. Transport schemes should include an independent, systematic and formal assessment of how they could impact emissions, air quality and exposure to pollution.

This approach would not only incorporate local changes to vehicle movements and the fleet, but also

consider how pedestrians, cyclists, business and urban realm are influenced, ultimately evaluating air quality and exposure to pollution. Care also needs to be taken to ensure that the pursuit of cleaner air does not result in the removal or limitation of other proven road safety measures, as called for by the Parliamentary Advisory Council for Transport Safety, in the context of claims about the potential negative air quality impact of speed humps.

It is not always proportionate to conduct a full Environmental Impact Assessment, or practicable to carry out detailed measurement and modelling of air quality. Incorporating wider public health considerations within road safety audits as part of the development of transport and infrastructure schemes would affirm a commitment to solving this issue, to answering key questions around air quality, and to developing mitigation measures.



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[1] [http://europa.eu/rapid/press-release\\_IP-18-3450\\_en.htm](http://europa.eu/rapid/press-release_IP-18-3450_en.htm)



Tackling air pollution in:

## Paris

Hit the headlines in December 2016 after authorities implemented driving bans on cars with odd/even number plates on alternate days, alongside free public transport, in response to a spike in air pollution. In January 2017, a scheme was implemented banning cars registered before 1997 from driving within the Périphérique ring road.

## Barcelona

Will implement a similar ban on cars registered before 1997 on working days from 2019. Air quality will also be addressed through the city's Urban Mobility Plan, which introduces the concept of small groupings of street blocks. Motor vehicles will be limited to travelling around the outside of the blocks, opening the streets within for walking and cycling.

## Hamburg

Introduced Germany's first diesel ban in June 2018, with pre Euro 6/VI cars and trucks banned on two major routes through the city, in a move to reduce NO<sub>2</sub> emissions. Other cities are anticipated to follow.

# Innovation at Transport for Wales to drive transformative improvements to rail services

By Andy Collinson



© Transport for Wales

**When a transport authority has the vision to embrace innovation and to constructively challenge what the rail sector can deliver, transformative change can be achieved for the benefit of passengers and the wider community, and can serve as a new benchmark for the broader rail industry. The procurement of the Wales and Borders and South Wales Metro Rail Services contract is an example.**

Rail services in Wales are set to undergo a transformation as control is devolved from the UK's Department for Transport to the Welsh Government. The Welsh Government has established Transport for Wales (TfW) as a wholly owned, not-for-profit company to provide support and expertise on transport projects. TfW is currently undertaking the procurement of the Wales and Borders Rail Service and South Wales Metro.

On behalf of the Welsh Government, TfW is taking an innovative approach to procuring the new rail services contract, that will see not only major improvements to journey opportunities and service quality, but also transfer of control of infrastructure of the Core Valley Lines (CVL) network from the national Infrastructure Manager (Network Rail) to TfW.

The Core Valleys Lines comprise four routes totalling just under 110 kilometres, linking the valleys' former coal mining towns with the Welsh capital, Cardiff. Under the new contract the CVL will be transformed to create

a much-enhanced transport system. This will form a key element of TfW's strategy to create a South Wales Metro and to support economic development of the region.

TfW is following a competitive dialogue process to procure an Operator and Development Partner (ODP) who will be responsible for investing in, transforming and maintaining the CVL infrastructure, and operating over 1000 daily passenger rail services throughout Wales.

It is the first time that this competitive dialogue procurement process has been used on a major UK rail service contract. The process enables the Welsh Government to set out its key objectives and then to invite bidders to respond with their initial outline solutions.

On behalf of the Welsh Government, TfW is then able to engage with each bidder through a process of dialogue. It can clarify its requirements, and receive feedback on how requirements and the commercial structure could be refined, to allow the market to

offer improved, better-value solutions. Following the dialogue process, detailed proposals are prepared by bidders against a common specification, and the contract will be awarded following a defined bid evaluation process. Relationships established between TfW and bidders during the dialogue process will help to support both rapid and effective mobilisation of the ODP following contract award and to assure successful delivery.

While the Welsh Government has taken great care to set out its key minimum requirements for the CVL system (including objectives for service frequency, journey connectivity and quality standards, such as accessibility), it has also taken equal care not to be over-prescriptive. Bidders are free to determine their preferred technology solution.

Giving the ODP responsibility for development and delivery management of the CVL transformation will integrate the system change with its operation. This embedded level of integration

is expected to deliver cost, quality, programme and risk mitigation benefits for all parties, and is likely to set a new benchmark for devolved management of rail systems.

To ensure early delivery of transformation benefits, in parallel with the ODP contract, TfW is also procuring a framework of Infrastructure Delivery Partners. This framework will be available to the ODP on contract award.

Transfer of the CVL system from Network Rail ownership to TfW enables the integration of operations, maintenance and transformation, offering significant benefits. It paves the way for a system technically segregated from the national rail network, allowing application of alternative technologies and freedom to develop standards for design, construction and maintenance that, while remaining compliant with regulatory obligations, will deliver benefits through the whole life cycle of the asset system.

The ODP contract will be underpinned by public funding support, including a

European Regional Development Fund grant. An allocation of the UK national government's rail services budget will be transferred to the Welsh Government.

The new Wales and Borders and South Wales Metro Rail Services contract is set to showcase a new approach to procuring and delivering rail services, and to serve as a benchmark for the industry at a time when there is increasing interest in devolving control of rail services from national government.

Steer, as an integral part of TfW's advisory team for the ODP procurement, has been supporting TfW in many areas, including funding discussions, shaping the service requirements, working towards the required regulatory approvals and developing the strategy for TfW to lead all aspects of the asset management of the system.



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# Putting our game face on

By Simon Hall

**Planning and managing the transport operation for any large sporting event provides unique insight on how to run an efficient team to deliver a functional and smooth operational solution across a wide range of projects. How do the skills needed to deliver the second biggest sporting event in the world apply to sorting out an airport drop-off?**

With disruptive transport services becoming increasingly available, there is an opportunity to deliver more cost-effective, integrated and dynamic event services. With a sustained threat level there needs to be much earlier consideration of safety and security requirements, to allow for adequate planning and design of overlay and operational requirements. This all needs to be considered as an integral part of event planning, or in fact, any other operational planning.

In July 2017, Cardiff hosted the UEFA Champions League final for the first time. The event was a great success and Steer contributed to it on several fronts, showcasing our breadth of capabilities and experience with major events. Our involvement touched the entire journey of a travelling fan, via the bespoke event guide app we developed, all the way through to a temporary bridge installation, transport operation, and crowd safety support. A 360° event operation approach!

Our event guide app was conceived as a complete tool. Bringing together transport, accommodation, sponsor engagement and event information into one digital experience, created a more effective engagement channel through which we could influence people's behaviour and transport choices. Behind the scenes the app was an event communication and situational tool, using location intelligence to monitor aggregated movement patterns in real time, and using geo-fencing techniques to push relevant notifications concerning transport and spectator movement.

Cardiff is used to hosting rugby matches, but with UEFA come quite unique overlay requirements, and solutions to manage the segregation of fans, VIPs and traffic were required. We worked with stakeholders to design concepts for introducing the elevated security cordons and segregating VIP and general admission fans. This included the design and delivery of a temporary bridge, and a host of barrier/cordon solutions to protect fans from heavy vehicle threats.



We were also called upon to support the delivery of the event operations plan, including crowd flow analysis, crowd management procedures, bus and rail service operations planning and event support. Our team worked closely with the transport operators, police, UEFA, Cardiff Council and the Welsh Government to ensure that every possible risk was mitigated and that the operations plan was robust enough to accommodate any eventuality.

On Game Day we were in the event's control room providing transport support, and on the ground managing the integration of Cardiff Bus operations and the delivery of Juventus and Real Madrid VIPs, as well as the operation of all the Broadcast and Media parking areas. This operational experience – designing, implementing and operating an event plan with face-to-face interaction with spectators, can be applied to clients' other everyday problems.

Last summer, we were called to improve the Express Set Down operation at Stansted Airport. This premium service was struggling to meet the demand from passengers for a drop-off facility adjacent to the airport terminal. Queues on approach to the airport were considerable and disruptive to background operations, and customers were vocal and negative about the functional inefficiencies.

We applied our experience of high-volume, high-turnover operations, gained while moving people to and from major sporting events, to redesign the layout of the drop-off facility.

We also put in place a team of experienced Traffic Marshals with a clearly defined Operations Plan. After a week of operations, which included developing a clear communications protocol and intervention plan for the Marshals, the operation was deemed a success, with a 20% improvement in throughput for passengers and a peak queue reduced from over 500 vehicles to fewer than 100. Regular users of the facility paid compliments to the operation and negative social media comments were reduced.



Stansted Express Set Down

The Stansted team kept the operation in place through the entire summer busy period, and we are now working towards ensuring that these measures are refined for 2018 and the airport is ready to carry more passengers next summer.



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# The new Silk Route: opportunities and challenges for EU transport

By Alberto Preti

**In late 2013, Chinese President Xi Jinping announced China's ambitious plan to revive ancient trade routes that connected China to Europe through Southeast Asia, Central Asia and the Middle East. The initiative aims not only at construction of land-based transport connections between Asia and Europe but also at creation of an economic belt to foster Eurasian cooperation.**

The Transport and Tourism Committee of the European Parliament appointed us to examine the new Silk Route, or "Belt and Road Initiative" (BRI), its impacts and prospects, as well as the EU transport system's readiness for the Initiative. The resulting research provided conclusions and recommendations to address the Initiative's challenges and to harness its opportunities.

Despite the lack of an official BRI definition<sup>[1]</sup>, programme, budget or list of projects, we identified around 80 air, road, rail or maritime projects, representing a total investment of over €100 billion, benefitting from Chinese financial engagement.

The scale and variety of this Chinese investment in the EU's transport infrastructure raised the question of how the BRI will affect the European transport and logistics systems and what opportunities it will bring. We found that:

- Chinese parties are willing to take construction risk and to build infrastructure in Europe.
- EU businesses may become involved in transport infrastructure projects along the BRI, particularly in Central Asia.
- Rail services between China and Europe are growing and offering new connections to European operators, shippers and industry.

In addition, the BRI could be good for the environment, offering a net reduction of CO<sub>2</sub> emissions as some goods switch from air freight to rail. It could also become a platform for streamlining customs arrangements between China and Europe.

However, we also identified several challenges for the EU in its policy response to the BRI. The lack of a definitive BRI investment plan or programme may lead to projects which compete with or duplicate others, either inside or outside the EU, and/or projects which are implemented because Chinese funding is available, with little focus on the demand for,

or sustainability of, the services that they are intended to support. From the perspective of the EU:

- Improved accessibility for trade between China and the EU may alter the relative competitive positions of EU Member States.
- Chinese dominance in rail transport between Europe and Asia, or control of the entire logistics chain, may significantly increase its market power as a trading partner.
- Use of Chinese construction or operational standards in non-EU countries could reduce or supplant the use of EU standards and products.

The study included recommendations to address these challenges. On planning the EU's infrastructure, we concluded that there was, as yet, no need to modify the EU's TEN-T programme. However, we proposed that the TEN-T corridor studies are reviewed and developed periodically as the work of the "Connectivity Platform" progresses and the BRI is more clearly defined. We also recommended that the EU should seek greater clarity on emerging BRI plans, and encourage studies on connecting TEN-T and BRI corridors, starting with the North Sea-Baltic Core Network Corridor of the TEN-T and the New Eurasian Land Bridge Corridor of the BRI.

On promoting the EU's standards and technology, we concluded that EU institutions should encourage the adoption of standards, particularly the European Railway Traffic Management System (ERTMS). ERTMS has been one of the largest beneficiaries of TEN-T funding in the 2007-2013 and 2014-2020 multi-annual Programmes and is increasingly used in China, particularly on its high-speed rail network.

We also made recommendations for engagement and consultation with China, and specifically for guaranteed reciprocity of access to EU and Chinese markets.



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[1] Although no official definition of the BRI exists, it refers to six major land corridors across the Eurasian continent and a network of maritime routes connecting Asia with Africa and Europe. It connects 65 countries which jointly account for 60% of global Gross Domestic Product (GDP) and 30% of global population.

# News in brief

## Strategic Development

**Corridors in the North of England**  
Transport for the North (TfN) is making the case for pan-Northern strategic transport improvements which will allow the North to increase its productivity, create more job opportunities, and make a greater contribution to the UK economy. Steer, partnering with WSP, is undertaking two multimodal strategic development corridor studies: 'Connecting the Energy Coasts' and 'Central Pennines'. These studies build and expand on our earlier work for TfN reviewing transport interventions for their Strategic Local Connectivity and the Integrated Rail Report. The Northern Transport Demand Model, which we also built, underlies these new corridor studies. Future scenarios, based on transformational economic growth and alternative technology, land use and policy options, have been combined to produce future demand forecasts until 2050. We are delighted to be supporting TfN in the delivery of these high-profile studies, as it establishes itself as the first Statutory Sub-National Transport Body outside London.

## Toll Road PPPs: Identifying, Mitigating and Managing Traffic Risk

Public-private partnerships (PPP) are often viewed as the ideal solution for governments balancing limited budgets and growing demand for infrastructure. However, as the failure of some high-profile tolled highway PPPs illustrates, implementing such projects is often not as straightforward as many governments envisage. One of the most common factors contributing to failure is traffic volumes that are significantly different from what were originally forecast. This risk, and the inaccuracy of traffic forecasts, is referred to as traffic risk. Anita Mauchan, Director at Steer, has co-authored a new guide published by the World Bank Group: Toll Road PPPs: Identifying, Mitigating and Managing Traffic Risk. It provides practical guidance, with perspectives from the different parties that operate in a typical highway PPP: a grantor, a financier and a traffic forecaster.



# Affordable access in the world of intelligent mobility

By Simona Dobrescu

**The affordability of our transport systems determines not just how we travel but also how far, when and, most importantly, if we travel at all. While physical access is key in planning for transport systems and solutions across the world, affordability has been explored largely in academic circles, and is mostly related to the topics of social inclusion and travel poverty.**

Previous studies in the UK show that the availability of transport, whether private or public, is not always a factor in social exclusion, and that it is only where the price of transport exceeds affordability that social exclusion occurs. A study in Bogotá revealed that, in poor areas, reducing fares is cheaper and more effective than increasing speeds. Another paper looking at the expansion of the London bicycle sharing scheme in poorer areas of the city concluded that when fares increased the benefit of the expansion was partially offset.

In balancing physical access and affordability, transport systems are designed to make use of the sharing model which manifests itself either in the relatively rigid form of public transport or the more flexible form as 2+ car sharing, bike-sharing and car clubs. A recent study in the US, 'Shared Mobility and the Transformation of Public Transit', concluded that shared-use modes expand options for lower income households and that 6% of the lowest-income group would not even undertake a trip if their shared option was not available.<sup>[1]</sup>

Similarly Liftshare found that, in the Yorkshire and Humber region in the UK, 10% of informal car sharers and 18% of formal use it because of lack of alternatives or access to public transport. In addition, research undertaken by Steer for car club operator Co-wheels in the UK shows that their second largest user group is represented by 'urban squeeze users', characterised by living in urban areas, and having low car ownership, being less wealthy than the UK average, with many finding it difficult to cope on their income. For this group, having access to the car clubs alleviated travel poverty by enabling users to access a car or to make trips that previously they would not have been able to undertake.

At the global scale, evidence<sup>[2]</sup> is emerging regarding the potential of shared transport and technologies such as connected and autonomous vehicles (CAVs) to change the mobility paradigm and car ownership models in the decades to come, to make cities

more liveable and accessible.

Despite this, managing the balance between increasing accessibility and maintaining affordability for a greater proportion of the population, without generating or increasing inequality and social exclusion, remains the biggest challenge going forward, both for the more traditional modes of transport and for shared solutions and on-demand services.<sup>[3]</sup>

One of the main reasons for this is the reliance on information collected from people who currently travel to optimise existing systems or create new services. This creates an involuntary blind spot on the travel needs of everyone else who does not travel. That is why cab aggregators have started partnering with retailers and companies with data aggregating capabilities to anticipate the next travel needs of customers, based not solely on their past travel patterns but also on other things such as shopping preferences.

To open up a more informed discussion about affordability and travel opportunities, we need to expand the sources of information used to analyse travel needs and specifically to start asking questions about the trips that do not happen as much as about the trips that do.

A key element of this discussion will remain whether cities have the resources to form meaningful partnerships and to harness the intelligence provided by such data to shape transport system that are both accessible and affordable. Opening up the travel market to the entire population of a city can be the new disruptive achievement of intelligent mobility.



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## Being truly inclusive: catering for hidden disabilities

By Andrew Mellor

People with a wide spectrum of 'hidden' disabilities can find it challenging to use mainstream transport services. A simple journey can cause anxiety if the information provided is unclear, and a lack of confidence in explaining their needs to staff and other passengers can often add to the stress. There are many ways transport agencies can create a more inclusive and supportive environment for these passengers, often at minimal cost.

Considerable effort has been made towards making public transport networks more accessible for disabled people. The primary focus has been on improvements to hard infrastructure and vehicle design, to cater for people with physical and sensory impairments, with particular emphasis on the needs of wheelchair users. These efforts are necessary, but it is important to remember the broader spectrum of disabilities, many invisible to the casual observer, which nevertheless create severe difficulties when attempting a journey. In the UK, only 10% of disabled people use a wheelchair, so the scale of the problem often goes unrecognised.

People with hidden disabilities are among the most reliant on public transport but face significant problems when navigating the network. Key reasons for not using fixed route services relate to anxiety and lack of confidence, particularly in interactions with staff and other passengers. Potentially limiting conditions affecting ability to use bus and rail services include, but are not limited to, dementia, intellectual disabilities, dyslexia and autism.

Creating a more inclusive and supportive travel environment has significant social benefits, but also makes financial sense. From the perspective of care providers, enabling clients with cognitive and intellectual impairments to use mainstream public transport to access medical appointments, educational opportunities or social functions would reduce demand for costly dedicated transport options or home visits. From the perspective of transport operators, there is also scope to broaden the potential market of fare-paying passengers, and to encourage reluctant users to travel more often.

The wide spectrum of individual impairments means it is impossible to address everyone's needs perfectly. However, we can go a long way by starting with interactions between front line staff and customers. The ability to ask for help and to get a supportive response is vital. This does not mean expecting every bus operator to identify specific disabilities, but simply to recognise signs of distress and to provide appropriate customer service.

Staff training can make an essential contribution to making public transport truly accessible for people with disabilities. Many operators provide refresher courses on disability awareness and how to support people with dementia. However, it is vital that staff are encouraged to put their training into practice, providing the necessary confidence to act.

In the UK, a range of Safe Journey cards let disabled passengers discretely inform the bus driver of their requirements, and prompt staff to respond sympathetically. The cards were initially developed by First Group in consultation with Age UK, and are now issued by many other providers using a standardised card format designed to be universally recognised. Anecdotal evidence suggests that the cards have helped reduce anxiety felt by disabled bus users and increase confidence that their needs will be met. It would be a relatively small step to add equivalent information to personalised smartcards, used as concessionary passes or travelcards, which automatically flag up needs to the driver.

Many disabled people suffer from chronic pain and find it difficult to stand on crowded services. Recognising that not everyone who needs a seat may look disabled, Transport for London launched a 'Please offer me a seat' badge for customers with hidden disabilities. Users in the initial trial reported 72% of journeys as being easier as a result of the badge, with over a third spontaneously offered a seat, and only 4% of requests refused. These results contrast with the experience of a control group where only 6% were offered a seat and 31% of requests refused without the badge. The initiative appears far more successful than publicity campaigns, which simply encourage travellers to vacate designated priority seats. Another means of simplifying

the journey is to provide clear information; offering reassurance at every stage of the journey helps reduce stress. In this context one size and one approach definitely does not fit all: there are often contradictory needs. This means providing information in a range of alternative formats and being prepared to work with personalised apps and devices, which people bring with them. Wayfinding and signage strategies need to address different impairments, including the needs of dyslexic people. Bus route numbers may be easily confused (e.g. 15 or 51), but adding a colour may provide vital clarity, as can at-stop announcements of the next bus arriving. Interfaces between service providers, with changes in responsibility for signage, can create problems where there is a lack of continuity, or inconsistency between the place names used.

To get the best results we must consult disabled people about their needs and fully involve them in the design, development and improvement of transport facilities.

At Steer we ensured extensive engagement with disabled representatives in our work on Transport for London's best practice interchange guidelines and Network Rail's Station Planning and Station Wayfinding design guidelines in London. These included workshops and accompanied site visits to experience the day-to-day issues and problems encountered by users with a range of impairments. In Canada we are engaged in a wayfinding project where we have used the output of workshops with local physically and visually-impaired groups in developing the specifications of a mobile app covering Toronto's parks and green spaces.

Acknowledging the needs of travellers with hidden disabilities, and providing support at critical times, requires minimal changes to the physical environment and can be delivered at minimal cost, but can significantly improve the quality of their journey experience. It is important to remember that many potential initiatives will benefit everyone at some point in their life.



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## News in brief

### Toronto 360 wayfinding implementation

The City of Toronto has commenced the roll-out of its successful TO360 pedestrian wayfinding system, which is a central component of the City's goal to make Toronto a more walkable, welcoming and understandable place for visitors and residents alike.

Steer has been involved in this project since its outset in 2011, at first to develop a wayfinding strategy and outline business case and, subsequently, for the detailed design and implementation of a pilot scheme centred on the Financial District in the city's downtown core.

The TO360 Strategy is a multi-modal wayfinding system that includes pedestrian, vehicular, cycling and public transit modes. The anticipated benefits range from enhancing the city's image as a destination, boosting the local economy, and reducing car use by promoting multiple modes of transport, to improving the sense of community, pedestrian safety, and the environment.

The current commission runs from 2017 to 2022, and includes, among other things: the development of a detailed 700 square kilometre city-wide base map for use in many wayfinding products offered by the City and project partners; the planning and support for the implementation of on-street pedestrian signs in selected geographic areas; and a digital information strategy.

Working alongside partners, we will continue to support the City in the staged city-wide implementation of this world-class wayfinding system over the next five years. We have also led the delivery of a pilot wayfinding project for Toronto's Parks & Trails, and an updated wayfinding strategy for the world's largest underground retail network, The PATH, stretching across the city's downtown core.



TO360 wayfinding system

**Simon Pringle**  
Director of Steer Economic Development

# Steer Economic Development – broadening our offer

Simon Pringle, a highly experienced economic development specialist, joined the Steer consultancy just over 18 months ago. His mission was to create a new, dynamic business known as Steer Economic Development, which would sit alongside Steer's existing business lines. We asked Simon Pringle to reflect on his first year and a half as Head of Steer Economic Development.

As boundaries breakdown between economic domains, new and exciting opportunities for diversification are coming into view. Steer Economic Development is the result of how these opportunities are being taken, building on Steer's existing expertise and knowledge to co-create new areas of competence and new business offers.

'We realised that our long-standing expertise in transport can be enhanced by integrating broader areas of the economy' says Simon. 'It's increasingly important to have a system-wide review of what's broken in our underperforming economies, and to address it, a complete economic development solution. Innovation, skills, enterprise, and infrastructures, including transport, all play a part.'

Simon began work on building Steer Economic Development at the back end of 2016, fresh from leading the Independent Economic Review of the UK's Northern Powerhouse. A year later, he had built a ten-strong team with a wide range of overlapping and complementary capabilities in science and technology, skills, enterprise and competitiveness. Simon is now looking to double the size the business by the end of 2018. The new business offers an integrated service to a widening portfolio of new clients, including universities, research councils, local and city authorities, and the private sector, and adds value for Steer's existing clients. Simon describes how,

in difficult market conditions in a climate of austerity, the team faced 'start-up challenges'. In particular, Steer's strong 40-year history of specialising in the transport sector created a 'dynamic opportunity', he says, 'as we sought to leverage Steer's excellent reputation for quality, integrity and expertise with new skills and approaches to the challenges of 21st century economic development. We find that our clients are not short of challenging, place-changing projects.'

## Projects across the UK

In Liverpool, Steer Economic Development has been appointed to deliver the Liverpool City Region's Science and Innovation Audit, examining how its science and innovation strengths can be augmented and developed to help its economy to compete globally in increasingly distinct ways.

In Northern Ireland, Simon and the team are delivering a project to establish the potential for taking the region's Precision Medicine sector into global markets, with regulatory regimes, market knowledge, and 'collaborating to compete' all recognised as barriers to address.

In Manchester, Steer Economic Development has completed a major assessment of the wider economic benefits of direct flights from Manchester to Beijing, showing how transport connections are necessary, but not sufficient alone, for substantive and sustainable economic success.

In Greenwich, the team has developed a strategy for sustainable and inclusive economic growth, examining not only transport and hard infrastructure, but also the wider role of entrepreneurship, higher-level skills, and innovation, in an economy closely linked with the fortunes of London. 'As Tom Peters says, good strategy is about focussing on the non-routine.'



## Routes to success

Three factors have been vital to success. First, recruiting the right team, 'an incredibly strong mix of people in a pack that really flies.' Second, support from the Steer board: 'being able to set-up a new business with the backing in terms of resource, shared vision, and practical commitment has been crucial.'

Third, clarity of purpose and focus: 'We really understand what makes for modern economic success. Make places sticky for workers and residents, build up their density so workers can change their jobs without changing their car parks, and a long-term virtuous circle of success attracting more success starts to flow.'

Simon's team continues to grow and he wants to establish a London office by Autumn 2018. He wants to achieve similar growth to what he is achieving in the North and Midlands, to strengthen Steer Economic Development's brand position, and to create more profit for reinvestment. 'I want to get to the stage where we are the provider of choice for economic development services,' he says, 'with a growing focus on four or five areas for which we will be internationally recognised.'

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# Consolidating and reimagining campuses

By David Bowers and Helen Bonner

**Education, education, education. The mantra may be twenty years old, but each year it still draws students in their hundreds of thousands to more than 100 universities across the UK. And while the need for lectures may remain the same, the rise of social media, Uber and online shopping means that the needs and expectations of students are changing. So how is the technological revolution affecting the design and operation of university campuses?**

## Students' changing mobility

Compared to twenty years ago, cars are much less seen as a status symbol to be acquired and driven at the earliest opportunity. Research by the RAC Foundation shows that young adults are learning to drive later and are less likely to own a car. We identified several possible reasons.

First, technology simplifies car-free travel. Apps like Citymapper make it easier to find and use public transport, Uber makes it easier to order and pay for a taxi, and computer-based training (CBT) and online courses, publications and data reduce the need to attend lectures or libraries.

Second, social media provide new ways of interacting with friends, reducing the need to travel.

Third, it has become more expensive to learn to drive, partly because the driving test has become harder and requires more lessons. Obtaining insurance is also more expensive. A combination of more young adults first studying and then paying off their student loans helped reduce the number willing to incur the costs associated with owning a car.

## Transport for students

At first sight, all these trends will reduce the need to cater for cars on campus, but the reality is more complex, for several reasons.

Universities in areas with good public transport can often reduce provision for student car parking, enabling car parks to be reused for cycle parking and gardens, or to add new buildings or facilities. However, space may be needed for pick-up and set-down by Uber, and to accept deliveries, including not only

books and clothes but also takeaway food and grocery shopping, all ordered on the internet. The extended hours of these arrivals and departures must be catered for without disturbing the university's operations or its neighbours.

Universities in small towns or on out-of-town campuses, in contrast, have seen little reduction in demand for student parking, partly because the higher costs of attending university mean that more students live at home and commute by car. Students paying £9,000 a year in fees may expect that parking will be available and free when they arrive to study. Reducing car use at these universities may require a stronger emphasis on attracting students local enough to walk, cycle or use public transport, and attracting students from further afield with low prices for campus accommodation.

## Transport for staff

Most students will be at university for three or four years, and their choice of university, accommodation and travel patterns can be influenced by what is offered when they apply. University staff, in contrast, have often built up their home life and journey to work over many years. Encouraging them to change may be difficult, particularly at universities with large, split or multiple campuses, where staff also need to reach, and travel between, two or more places of work.

If persuading staff to consider different ways of travel is a challenge, the key lessons from transport behaviour change are that leadership needs to come from the top, and that strong and clear communication is vital.

First, the problem must be articulated. If the university is to expand, better use of existing space may be required, and this may mean reducing the space devoted to staff car parking.

Second, the 'need' for car parking must be examined, and the requirements of different groups of students and staff assessed and prioritised. In parallel, the alternatives of walking, cycling, public transport and car-sharing must be identified. Surveys of existing travel patterns, and awareness of other options, can help to clarify the issues and to identify opportunities. Schemes providing



loans for cycle purchase, or mileage payments for work-related cycle use, may have been mentioned on arrival but quietly forgotten. Reminding students and staff of their availability, and their health and environmental benefits, can help influence change. Changing behaviour may take longer for staff than for students, but new joiners can be encouraged to use public transport, if necessary by restricting car parking to existing users or those with specific needs.

## Consolidating and reimagining campuses

Changes in student and staff travel can, as indicated above, facilitate the reuse of existing campus space for higher quality residential space, more conference facilities, and improved areas for collaborative working.

Many existing universities are working with architects to reimagine and consolidate their campuses. Pedestrian modelling techniques can be used at the design stage, to examine how different layouts of lecture halls, doors, lifts and stairs can be arranged to create vibrant spaces. However, campuses are likely to remain large, and with confusing layouts, concealing any original vision for their layout, and even staff and students may find it difficult to find unfamiliar buildings or rooms. Airports and hospitals, and sometimes whole cities, face similar issues, and an often-overlooked issue is the need for wayfinding, with clear, informative and up-to-date signs directing new students and visitors around campuses and within buildings. Examples of the good use of wayfinding tools with the introduction of maps and signs across cities can be seen in London and Toronto for example, and many universities are applying similar principles.

So, despite the debts, the protests and the misjudged haircuts, students still want to study in the company of other students – and universities need to work hard to take advantage of wider changes in car use and technology to deliver attractive campuses which are less reliant on cars.

Universities compete for staff and students, and to attract them they need to work hard, not only on the design and quality of their facilities and courses, but also on the accessibility, intelligibility and liveability of the campuses on which they work and study. So, as they negotiate the complex and potentially time-consuming UK planning system to get permission for the changes they want, they can draw on several trends which help them to use available space more efficiently and to reduce traffic impacts on local neighbours.



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# Prioritisation of funding for accessibility improvements

By Daniela Phillips



Several funding sources are available in the UK for improving rail accessibility at stations. Interventions, however, must be prioritised. This is not always easy, as disabilities come in many forms. We helped the UK Department for Transport (DfT) develop a rail accessibility framework to aid the prioritisation of funding for accessibility improvements at stations across England and Wales.

The Office for Disability Issues estimates that around 11.6 million people in the UK have a disability, 2.3 million of whom report difficulties accessing transport with their disability. An accessible network not only benefits those registered with a disability, but also ensures that those with young children, carrying heavy baggage, or who do not speak English can use the railway. There are four key stages to implementing accessibility improvements on the rail network.

## Stage 1: Sourcing funds

There are several funding sources available in the UK for improving rail accessibility at stations, including the DfT's Access for All and Minor Works Budget, as well as specific franchise-related funds such as the Station Improvement Fund and the National Station Improvement Programme. However, the aim of reducing the public spending deficit, the absence of access to Network Rail's Regulated Asset Base

financing, and other constraints, mean that the funding landscape is heavily constrained, making intervention across the entire network impossible at present.

## Stage 2: Identifying the improvement

Interventions must, therefore, be prioritised. This is difficult, as disabilities come in many forms and are not always visible or obvious [see p. 16-17]. Although a disability is often associated with lack of mobility, the Office for Disability Issues estimates that 44% of people registered as disabled in the UK have no mobility issues at all, but rather have communication, incontinence or 'other' problems. Catering for such a variety of issues can cause conflict. For example, those with visual impairments are helped by tactile paving signalling danger, but makes life harder for people in wheelchairs. It is vital to take the local station context into account, as for example, the presence of a hospital nearby may mean increased numbers of mobility-impaired passengers. Another difficulty is the inefficiency of intervening at single stations, as passengers need to access and exit the network. Any approach should therefore consider both origin and destination.

## Stage 3: Implementing the improvement

Once the funding has been sourced and the improvement identified, the implementation of the intervention can

still be complex. Good practice is to consider timing the improvement as part of normal maintenance works, causing less disruption and saving labour costs.

## Stage 4: Communicating the improvement

The implemented improvements need to be communicated effectively. This can be difficult, as the target audience is unlikely to be keeping abreast of industry improvements; they have already decided the network is not for them. An example of effective improvement communication was London's Underground (LU) decision of adopting roundels with wheelchairs for fully accessible stations on network maps, so that it is quick and easy to see which stations are accessible. This solution is not easy to replicate, as the reach of the LU maps is much wider than most rail networks, and has some flaws, such as not indicating facilities at stations which are not fully accessible.

DfT, aware of difficulties in prioritising limited funding, has recently been focusing on Stage 2. To date there has been a lack of an informed picture of accessibility across the network, making it challenging to build consensus on funding allocations between key stakeholders. To help with this, we built a Rail Accessibility Framework for stations in England and Wales. A key part of the development of the tool was stakeholder consultation, which guided us on available data and best practices within the industry, as well as criteria that could be used for evaluating funding priorities. The tool combines disparate data concerning previous accessibility spend at stations, the existing facilities, and the station context. Weighted by factors chosen by the end user, it produces a priority list of stations for intervention, and a dynamic report card for each, displaying relevant information in a digestible format.

It is anticipated that this will feed into the Sustainable Stations Framework, a wider industry initiative being developed to enable informed funding discussions and firmer foundations for consensus in the industry, by providing an agreed, comprehensive dataset of station facilities and contexts.



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# "Out of the box" thinking

By Kristin Eichwede



As part of our ongoing Research & Innovation programme, we have been holding Hackdays, competition days to enable staff to think out of the box. During the Hackdays, teams work on theoretical exercises not related to day-to-day project work, to stimulate innovative thinking. On the last session, one of the competition ideas aimed to look at innovative ways of transport pricing.

With London's population predicted to grow, the pressures already placed on the transport system will increase, bringing on a continued requirement to ensure that it operates at a high standard despite likely funding constraints and operational expenditures. What can be done to future-proof the transport network with such constraints?

Guided by the question of an alternative, a way of accommodating the future passenger pressures on the Underground network without major infrastructure investment, the team developed the idea of "Your Zone". "Your zone" would be a new pricing zone for the underground network during 'super-peaks', the period during which each station experiences the highest demand throughout the day. It puts forward a 'surge charge' in addition to the standard fare structure already in place, which is aligned with the periods

of highest demand for each station. Passengers could avoid extra charges by travelling at different times, re-routing or choosing other sustainable modes.

As part of the competition, the team had to develop a basic demonstration of what the concept would look like as a real-life application, and a website that indicated which stations are part of the surge charging at what times, and that could integrate information on service disruptions from Open Data to help suspend the scheme in case of major disruptions on the network. A further integration of live-feed data would allow the super-peak time periods to be adjusted dynamically for each hotspot station.

While only a theoretical idea, and despite its numerous caveats for real life application, the exercise allowed for teamwork and exploration of fresh ways of facing challenges and thinking out of the box. To find out more about this or other similar "out of the box" thinking project, get a copy of our R&I Booklet, produced in commemoration of the 100th meeting of the R&I club this year.



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# News in brief

## Transport assessments for a nuclear power plant

Steer has been involved since January 2017 in assisting Horizon Nuclear Power prepare for a Development Consent Order (DCO) application for a proposed new nuclear power station at Wylfa, which is on the Isle of Anglesey in Wales. The new power station will generate enough electricity to power approximately 10 million UK homes and the construction works require up to 9,000 workers on site each day during the peak of the nine-year construction programme.

The project is intended to deliver up to 80% of all materials via the sea to reduce traffic impacts. Steer is leading the preparation of the Transport Assessment, as well as being involved in extensive stakeholder liaison.

## How to prepare for driverless cars?

This year we will be publishing interdisciplinary research into the implications and opportunities prompted by the introductions of driverless cars. The work is developed as a manifesto making proposals to harness the potential created by the new technologies in relation to movement, public realm and development in urban areas.

We have focused on the next 20 years and suggested ways to prepare for the transition with old cars and new connected and autonomous vehicles (CAVs) sharing our streets. The paper explores topics such as new street layouts, the interface between buildings and streets, possible ways to organise the movement networks, and the development and use of new built typologies. The work is based on the input of experts in urban design, sustainable transport and intelligent mobility. Do check our websites for updates and download a copy!



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The logo for Steer, featuring the word "steer" in a lowercase, bold, sans-serif font. The letters are white and set against a dark background.