



momentum
transport consultancy



In this
Autumn issue

Designing Access for
Cultural Destinations

Changing our Cities with
Smart Servicing

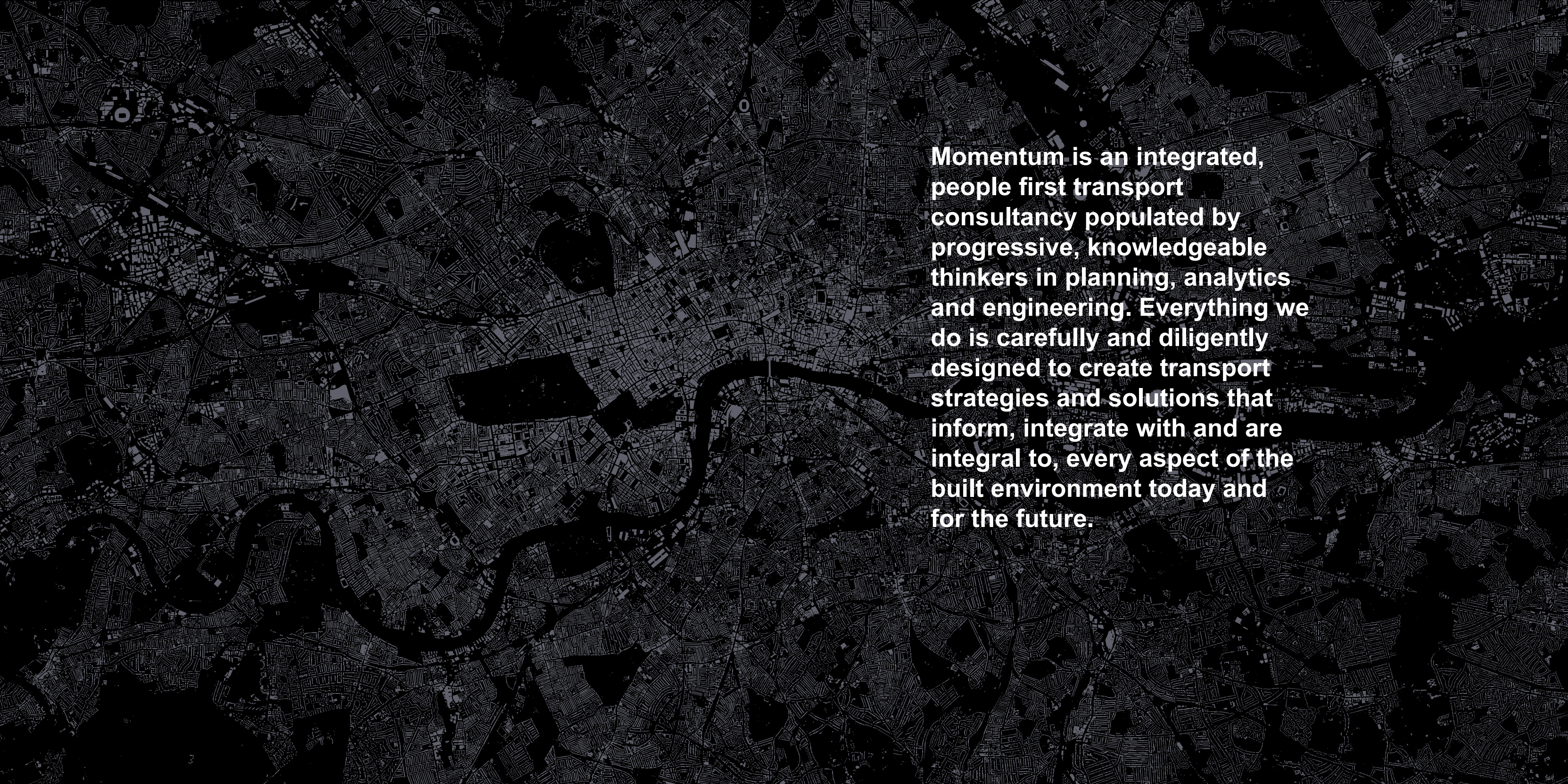
Transforming Public Realm
with Technology

Changing Construction Behaviour
through Lane Rental Charges

The Future of Venue Journey
Planning

Mayor's Transport Strategy

connect →

An aerial photograph of a city, likely San Francisco, showing a dense urban grid and a winding river (the San Francisco River) cutting through the landscape. The image is in grayscale and serves as a background for the text.

**Momentum is an integrated,
people first transport
consultancy populated by
progressive, knowledgeable
thinkers in planning, analytics
and engineering. Everything we
do is carefully and diligently
designed to create transport
strategies and solutions that
inform, integrate with and are
integral to, every aspect of the
built environment today and
for the future.**



Momentum's 2017 Autumn Issue

Welcome to the Autumn 2017 edition of Momentum's Connect; where we offer views on contemporary challenges facing our industry and share our future thinking on the development of cities.

Following our recent successes in a number of competitions designed to imagine the future of transport and urban development, in this edition of Connect we are focussed on some of the emerging trends and future-thinking in our industry. As we help our clients find solutions fit for the future we have been working in a range of areas which are pushing the traditional boundaries of design and operations.

This has included developing studies as varied as innovative ways of managing the servicing of new developments, collaborating with urban designers to embed smart infrastructure in the public realm and working with international tech firms to use big-data to predict transport demands.

Also included in this edition is a review of the Mayor's recent draft Transport Strategy, its implications for our industry, and how it is shaping the agenda around innovation.

If you enjoy what you read here, then please check out our newly launched website. More than just a showcase of what we do, the site is designed to show our thinking about our ever-evolving industry and the challenges facing the wider world, revealing the reasons why we approach our work the way we do.



© Museum of London / Stanton Williams, Asif Khan, Julian Harrap Architects and J&L Gibbons

Authors:
Amelie Cosse
Mailys Pineau

Designing Access for Cultural Destinations

Cultural destinations form the backbone of our civic and community life. Planning access solutions designed to work within often sensitive heritage and operational constraints whilst maximising visitors' numbers requires involvement from strategic to detailed stages. From data analytics on visitors' demographics and origins to testing design options through modelling, access strategies contribute to balanced business cases and unforgettable cultural experiences.

Extracting visitors insights to influence strategic access

Cultural destinations often have a varied audience, ranging from individuals to families and school groups. Insights into visiting patterns, catchment areas and means of transport from early stages can contribute to encouraging a shift to public transport modes and unlocking the re-purposing of parking space for alternative uses. Benchmarking with other attractions and research into audiences are also essential in developing strategies to draw a greater number of visitors to cultural destinations.

As part of the transport strategy for the Imperial War Museum (IWM) Duxford masterplan developed with Grimshaw Architects we included proposals for alternative sustainable modes of transport to access the museum site, reviewing nearby rail stations both from the point of view of their connection to London and their accessibility from the museum. This public transport context study - including analysis of cycle, pedestrian and vehicle access to the stations - identified Whittlesford Parkway as the most strategic and feasible rail station to implement the sustainable transport strategy required by IWM Duxford. Ideas around developing the physical and psychological connection to IWM Duxford from the station were explored as an opportunity to

provide an end-to-end sustainable journey into the museum as well as connecting it to a wider audience catchment through rail access.

Testing detailed design to maximise space opportunities

Once on-site, visitors need to navigate within unfamiliar environments. Entrance lobbies and visitor centres are crucial decision points, significantly influencing the rest of the visit. They perform a number of key functions, including security, orientation, information, and ticketing. Sometimes, other uses can be found in entrance lobbies, such as retail and café space to maximise revenue opportunities in line with the key principle of 'Exit through the gift shop'.

Within the design and planning of entrance lobbies, pedestrian micro simulation modelling ensures that space is not under or over provided, and highlights opportunities for revenue generating uses. As part of our ongoing involvement with the future Museum of London at West Smithfield, we are undertaking internal pedestrian studies to support the design of the Public House, a key internal space permeable with the public realm surrounding the General Market. It will be essential to design a space that acts as both circulation and destination, which can be used as occasional event space and with back-of-house operations supporting the different uses without conflicting with the visitor experience.

Momentum works within complex, often listed, historic sites, where the built environment has an intrinsic cultural value. This has taught us to develop design and operational solutions which seek to both protect and enhance these sites, often bringing their original purpose back to life, whilst ensuring all visitors benefit from unforgettable experiences, contributing towards a positive reputation and increasing visitors numbers.

Encouraging sustainable and safe access in sensitive heritage environments



Authors:
Dave Murphy

Changing our Cities with Smart Servicing

Servicing and delivery areas for major developments can result in a large amount of space being required. New developments often have to balance the need for a servicing space against the need for lobby areas, retail, plant, back of house operational areas, car/cycle parking and storage.

Coupled with this, there is the wider traffic impact of goods and servicing vehicles in London which, whilst a necessity, contribute to traffic congestion, together with the air quality issues that come with it. The production of Delivery and Servicing Plans is commonplace to reduce the impact, so innovation for solutions is already on the agenda. However, what if there was a way of addressing these needs to achieve greater benefits if you had a clean slate to work with? What if an alternative delivery strategy could free up these areas for other spatial requirements, such as utility plant, or for occupant use such as leisure, retail or commercial? If there were no constraints, what could be possible?

How could things change

The potential to reduce the space required on-site could be achieved through specific building design or a city wide strategy.

Roof top servicing areas for drone deliveries could well be an option – testing is already underway by Amazon. These could be delivered overhead, almost unnoticed from the street, avoiding the need for vans to deliver a single item to an office or residential block.

Smart booking systems could direct all non-urgent/perishable deliveries to a central consolidation centre to reduce peak traffic impact. Larger developments often require a greater number of servicing bays to accommodate the multiple deliveries.

A commitment to maximum consolidation can result in fewer vehicles visiting each building and subsequently require fewer servicing bays, on-street unloading and less congestion.

Goods could then be delivered by aerial drones or as part of a coordinated delivery route operated by the consolidation centre at night, via electric bikes or a more efficient multi-drop delivery route outside of peak hours relieving pressure on the transport network.

Driverless vehicles are an exciting development in transport management. Autonomous vehicle deliveries will be able to offer efficient servicing and potentially negate the need to provide turning space in servicing areas. If an autonomous vehicle was multi-directional, there is no need to turn around on site, hence the need for a turning space becomes redundant. We can already see examples of Starship Technologies' delivery robots roaming the streets illustrating what is achievable on a smaller scale.

What are the challenges?

Some of the measures mentioned require advancement to provide the strategic support, whilst others can be introduced in isolation. Naturally there are many real and justified challenges to such a change in our approach. There are already restrictions over the use of drones in busy urban areas, and commercial use effectively requires an entirely new air/traffic management strategy.

For a central London consolidation centre to work effectively there is the obvious question of space. If we were truly seeking a significant reduction in peak traffic, the delivery timings would need regulation and support from businesses with a smart booking system that links all businesses and enables a reliable and efficient consolidation of goods. It is likely that we will see a movement towards these practices over the next decade, it is just a question of the extent to which they will be achieved.



© McGregor Coxall and Momentum

Authors:Amelie Cosse
Dave Murphy
Will Durden

Transforming Public Realm with Technology

After decades of giving up street space to vehicles, the question of the 'function' of the street and consideration of uses other than cars and traffic have climbed up the agenda. Like other cities, London is faced with the claims of many other users such as pedestrians and cyclists who need and want the right to use street space and benefit from a pleasant and safe environment to move, work and enjoy.

Led by McGregor Coxall and in collaboration with Denton Corker Marshall, 18 Degrees, Wolfstrome, Milimetre and Intellectsoft, Momentum are part of a discussion around flexible 'interventions' using modular components to change streetscapes and allow for a variety of uses and functions in a single space.

Hi Croydon!

Organised by the Architects Journal and backed by Croydon Council, the team prepared a submission called Hi Croydon! for the Croydon i-Street ideas competition. The team's shortlisted idea consisted of a habitable and adaptable furniture system used to perform a range of functions from seating and planting furniture to actual animation and activation of the space for events, food markets and bars. The interplay between technology and street would be facilitated through online technology and connection to a mobile app.

Cultural Public Space

Following the successful shortlist of Hi Croydon! the team adapted the modular concept to the City of London's Culture Mile competition, where the constraints of busy vehicular traffic and the simultaneous high density of pedestrian movement is a daily challenge. In particular the competition submission targeted the location of the new Museum of London at West Smithfield through to the Barbican Centre, along the Cultural Mile.

The technology used to build the modular street furniture components would provide a flexible approach to the Long Lane streetscape connecting with the cultural programming at the Museum of London and market activities in line with the identity of Smithfield Market.

Smart City of London

Continuing our collaboration with McGregor Coxall, we considered how the street may be able to adapt to the different demands that could be placed on the western end of Cheapside close to St Paul's. Our submission proposed the idea of a 'Smart Carpet' comprised of a variety of paving modules incorporating modular street furniture, LED lighting, and potentially generating energy and data to change the street environment. The smart pavement can be used to identify vehicle road space during peak hours and shift to close the road at lunchtime and in the evening to create recreational and community space at the heart of a key London destination.

Thrilled to have won the Smart Infrastructure competition with the 'Smart Carpet' entry, Momentum is looking to continue working with innovative partners to radically change London's public realm. This is also part of the mindset we take with our clients facing challenging space constraints for new developments whilst aspiring to provide added value to building users in the form of green space and public realm amenity.

Using innovation and design
to improve public spaces



Authors:
Derek Griffiths

Changing Construction Behaviour Through Lane Rental Charges

As Momentum leads in the delivery of construction logistics and traffic management schemes across London and further afield, we are used to considering the many variables that impact on programme and cost at the delivery stage of a project.

Since 2012, TfL and Kent County Council have been unique among Local Highway Authorities (LHAs) in being able to charge Contractors Lane Rental of up to £2,500 per day when working on the highway, with the aim to reduce the congestion caused by road works.

The case for Lane Rental hinges on a presumption that Contractors must be compelled to minimise the impact of construction on the highway network, however our experience suggests that Contractors already face a myriad of other programme and cost pressures that serve this purpose, whilst LHAs have other tools at their disposal.

As the DfT consults on whether to scrap, extend or amend the scheme, the question must be whether this stick has really helped to reduce disruption on the highway network commensurate with the estimated almost £6m revenue annually generated, and whether it should remain in the LHA arsenal.

Momentum work with our clients to deliver projects in the most efficient way possible. It is a natural first step to consider the individual phases of work required to deliver a finished scheme considering how working space can be maximised to aid buildability. This step is always undertaken ensuring the needs of the general public (including pedestrians, cyclists and motorists) are safely accommodated with minimum disruption.

To do otherwise would be to waste time and effort – we know that LHAs will not allow schemes to commence without such fundamental thought.

Our experience shows that strong working relationships with the LHAs are imperative to ensuring mutual understanding of the pressures of getting things built and those of managing a complex highway network. Collaboration at the construction planning phase allows for agreement on, amongst other things, minimum widths required for pedestrian walkways; provisions for cyclists; the diversion of buses and the suspension of bus stops; temporary changes to road layouts; working hours; and construction programme. Where dialogue is complete and open, and the investigation has considered the options to find the most sustainable approach (that is, balancing the environmental, economic and social aspects of a scheme) and all parties are satisfied, we argue that Lane Rental is just another cost burden to ultimately be passed down the line to clients, asset owners and bill payers.

That said, it would be naïve to suggest collaboration will always happen where it is not a forced requirement. This is where a robust permit system does form an important tool, and where our experience in London can be used to ensure that different parties work collaboratively to optimise road works.

In brief, when considering whether Lane Rental schemes should be maintained in London or expanded across England, our view is that the case hasn't been made that Lane Rental is a driver for change. Instead, we suggest that using robust permit schemes can deliver the same stated objectives of Lane Rental – improved control and planning of works and ensuring works are done sustainably – without accruing further fiscal penalties when upgrading our utility networks, or the highway network itself.



Authors:
Claudio Borsari

The Future of Venue Journey Planning

In a world where everything can be rated and shared instantly among thousands or even millions of users, the user experience of transport services is probably an underestimated factor in venue branding.

Venue travel plans often finish at the closest station or highway junction, or sometimes at the major transport hubs of the city. The difficulty of obtaining data on end-to-end journeys is often the main limiting factor. However, data produced by connected devices, applications and social media open up opportunities to overcome this limitation and create transformative end-to-end journey experiences for visitors.

Journey planning applications allow users to navigate complex, multimodal transport systems and have changed users' expectations when it comes to transport: everything must be a few taps away. Insights from these applications are utilised to plan new public transport services: Citymapper is doing it in London. Outside major cities, however, the complexity and inconvenience of navigating local transport systems is often overwhelming, pushing people towards private vehicles.

The opportunity of analysing anonymised data from a journey planner application would allow venues and other attractions to observe the multimodal journeys of spectators from their origin to the venue, develop bespoke sustainable travel options to reduce car usage and free up parking areas for active and more profitable uses. Some applications already exist, but usage is often low and the software may not enable the collection of the right insights.

Ways to achieve higher use for these applications might include sending exclusive information and bespoke marketing offers to users.

Both venue operators and designers would benefit from insights on people's behaviour within the venue, a precious source of information to improve design and operations, for example by attracting people in underutilised areas through engaging activities or special offers which could also enhance the user's experience.

The application could also represent the main ticketing technology. Mobile ticketing would allow operators to engage with visitors in advance and suggest sustainable travel choices based on the visitor origin. Furthermore, linking the application to an electronic payment system would effectively create a 'Mobility As A Service' system for attractions: visitors would plan and pre-pay their travel and attractions could develop commercial relations with transport providers.

Transport operators could then develop multimodal networks, independently or through partnerships, to offer passengers a seamless journey from major transport corridors, to local services, to last-mile transport through to their final destination. Applications like Sn-ap, Vamooz and Zeelo are developing operational models to match the transport offer and demand, with bus companies such as the Harrogate Bus Company sensing the opportunity to extend their customer base and improve the efficiency in the utilisation of their fleet.

One of Momentum's key aims is to promote a better quality of life, inclusion, enhanced mobility and sustainable living through the design of exemplary transport solutions. Working with international tech companies and software developers, we are creating innovative analytical tools to support our partners to fully take advantage of these transformative technologies, whether they are venue or attraction operators, incumbent or innovative transport operators, or local government and communities.

From journey planning
to mobility as a service



Authors:

Roy McGowan
Sarah Bailey

Mayor's Transport Strategy

The Mayor's Transport Strategy was published as a draft for Consultation and responses were invited up to 2nd October 2017. Sadiq Khan has set out a clear strategic approach for providing "Healthy Streets" for London and it is encouraging that the draft strategy is very much centred around improving air quality and further reducing reliance on the private car.

The undertaking to address non-essential car use within London shows that it is a key challenge that is currently preventing greater efficiency in the use of our valuable street space. The negative effects of the high volumes of single person occupancy road traffic, partially loaded freight vehicles and circulating minicabs; contrasted with the wider benefits of walking, cycling and increased levels of public transport use are clear to all of us who live and work in London. However, it is regrettable that the draft strategy presents no fundamental or revolutionary plans to reduce inefficient and non-essential vehicle use. The draft strategy is reliant upon sustainable transport modes becoming more attractive to the public through the Healthy Streets approach, to encourage (rather than enforce) mode shift away from the car. This lighter touch will take too long to achieve the much needed benefits.

London's recent and most successful public realm and street improvement schemes are broadly all reliant on a transfer of priority away from motorised vehicular traffic to pedestrians and cyclists; and this key objective should be better reflected in the final strategy document. A highly admirable goal on road safety, 'Vision Zero' is strongly supported, in addition to the implementation of widespread 20mph speed limits to increase vulnerable-user confidence and safety on the streets. These proposals will contribute towards a more civilised and liveable city.

Improving air quality is rightly very high on the agenda in the draft strategy and this higher priority is much needed.

Londoners enjoyed the initial success of the introduction of congestion charging in 2003, but the single payment per day of use is no longer fit for purpose, and the draft strategy acknowledges that the effect has worn off. Having paid the daily, zonal charge, drivers are financially incentivised to make maximum mileage use of the roads within the zone, which is completely counter to its intentions. The level of minicab use across London has doubled in the last three years.

The draft strategy proposes that a more sophisticated form of road user charging could be adopted, but this is in no stronger terms than "the Mayor will give consideration to the next generation of road user charging systems". Charging per mile of vehicle use and by time of day is fundamental to the successful delivery of Sadiq's ambitions. We do not believe it can be delivered without it. London will soon see the introduction of "dockless hire bikes" that will be controlled within certain areas by geo fencing technology – you will use a phone app to hire and use a bike in a specific borough. This technology should also be used for the management of motorised vehicles.

We welcome the clear support for the delivery of essential new rail infrastructure, and most particularly Crossrail 2, as well as the strategic orbital rail and mini radial hubs, which will be essential to support the continued growth, vitality and prosperity of central and outer London. We also welcome the proposed further improvements to public transport operations, an 80% capacity increase by 2041 and better affordability. These are all important but in the shorter term providing improved air quality and reduced traffic volumes should be the priority.

Designing a better London
that works for everyone

An aerial, high-angle view of London, England, showing a dense urban landscape. A dotted white line traces a path through the city, starting from the left, curving around the River Thames, and ending near the Shard. The path passes through areas with a mix of old and new architecture. The text "The way the world moves." is overlaid on the left side of the path.

The way
the world
moves.

By design.

Momentum Transport Consultancy

Clerkenwell House
23 Hatton Wall
London
EC1N 8JJ

t. +44 (0)20 7242 0228
e. info@momentum-transport.com
w. www.momentum-transport.com

Registered in England No. 8234059

