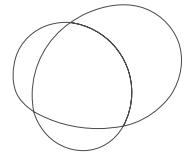


# connect



Future of transport  
City streets  
Women in Transport  
Walkable towns  
Technology & transport





Welcome to the Spring 2018 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.

**Inspired by our recent commissions on some of the most exciting and talked about schemes soon to enhance the ever-evolving London skyline, our desire to contribute towards the needs of the urban environment has never been so timely.**

In this edition of Connect we continue to discuss some of the emerging trends and future thinking in our industry. We paint a picture which imagines the future of transport, we share our views on how to successfully make London a walkable city and how we hope to help change the face of our industry following our recent partnership with Women in Transport.

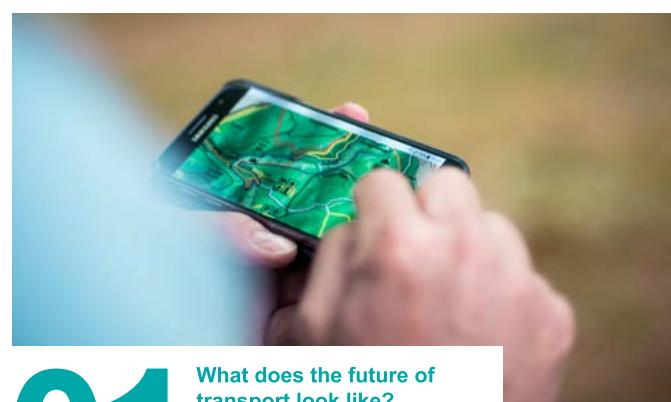
At Momentum we pride ourselves on being an integrated, people-first transport consultancy populated by progressive, knowledgeable thinkers in planning, analytics and engineering. Everything we do is carefully and diligently designed to create transport strategies and solutions that inform and integrate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

If you enjoy what you read here, then please check out our website. More than just a showcase of what we do, our 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.

**Keep up to date with our latest news via Twitter & LinkedIn.  
#SpringConnect2018**

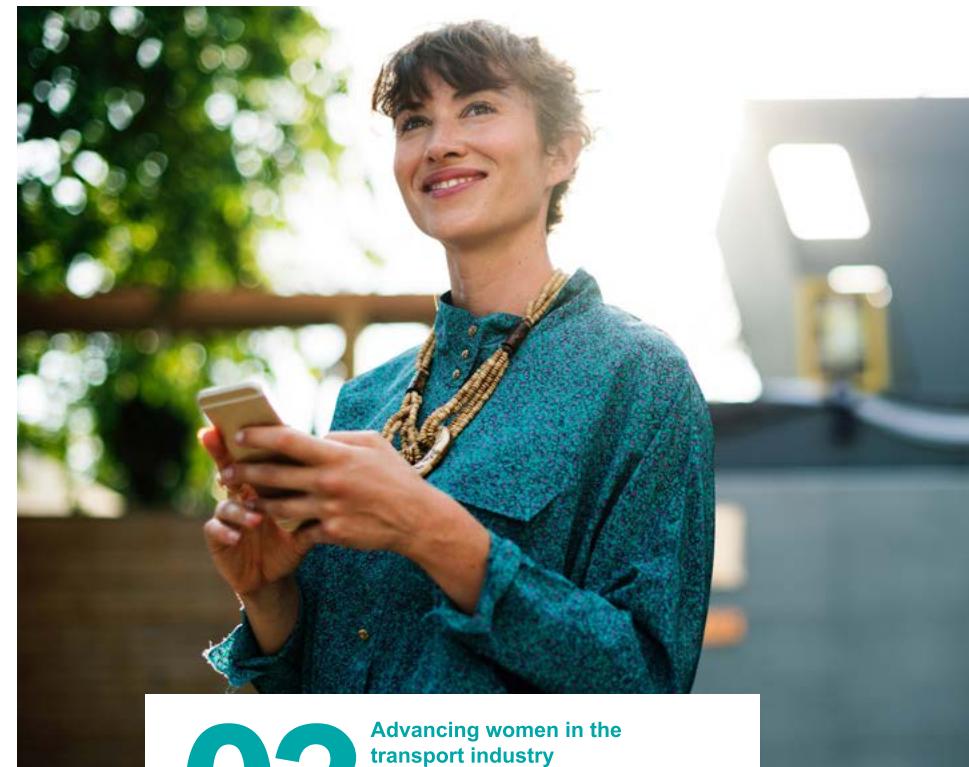


# Contents.



What does the future of transport look like?

## 01.



Advancing women in the transport industry

What next for the City's streets?



## 02.

Planning walkable towns



Transforming the face of transport with technology

## 05.





# 01.

What does the future of transport look like?

Written by: Ollie Bolderson

The way the world moves. By Design

At Momentum we are always excited by the ways that new technologies can enhance transport systems through improving operational efficiencies, user experience, and data analysis, or preferably all three! In this article we give you a taste of what the world of transport will look like in the months and years to come, and the key barriers preventing the wider application of these technologies.

For the most part, new transport technologies are not quite so new as their proponents would like to make out; they may involve innovation in the technical delivery of the technology, or it may involve improved systems integration to provide new services. Whatever the case, new technologies must serve, rather than dictate, our transport needs, offering new and improved means of achieving the same ends that transport has always served.

#### Journey planning

Journey planning is already a hugely powerful tool which is bespoke to each individual's routing decisions, and available in 'real-time' and for future route planning. The more interesting development, though, has been the use of the vast data stores collected by companies offering journey planning services. Citymapper, for example, is providing more and more transport services directly. Using the wealth of demand data at its disposal, it is finding gaps in supply in the current public transport provision.

**Expect private transport provision intermingling with public transport in new multi-modal combinations.**

#### CAVs

Perhaps the most eagerly anticipated and feared in equal measure, connected and autonomous vehicles (CAVs) seem inevitable in some shape or form in the next five years. The key fault lines in the provision of CAVs are their tenure, and their design provision for pedestrians and cyclists. Private CAV ownership may well increase congestion as simpler-to-operate vehicles could encourage the use of CAVs

instead of public transport. A fleet of CAV vehicles, though, could reduce the generation of further congestion, as the total provision would be limited. A fleet-style operation, where people can rent a CAV, thus moving away from private vehicle ownership, would limit vehicle numbers whilst offering access to CAV technology.

The issue of pedestrian and cyclist interaction with CAVs is of great public concern, and reasonably so. The debate is reminiscent of the 'trolley problem' thought experiment in moral philosophy, asking whether you would pull the lever for a tram heading towards five people, diverting it to a different set of tracks with one person on them. The 'decision' that CAVs are programmed to make between the safety of its passengers and that of other road users will determine the public acceptance of CAV technology. In terms of efficiency, an over-prioritisation of the pedestrian will result in gridlock for CAVs that venture into busy areas. This may, in the long run, not be such a bad thing. Connected and autonomous vehicles are, after all, still large metal boxes which makes them the least space-efficient road user group.

#### Seasonal changes

We at Momentum are placing bets on the scale of uplift in dockless bikes being left around our office near Farringdon station as the summer months (or weeks...) approach – we're a fun office like that! How increased numbers of parked dockless bikes affect street clutter as their numbers increase with the temperature will be a good barometer of the success that dockless bikes have with regulatory authorities in London and beyond. In a similar vein, the rise of electric scooters will raise regulatory questions about where they can legally be used – the pavement or the carriageway. Review of this will open a host of more difficult questions about road space prioritisation.

The future of transport could be a bright one, with a better-informed public using more efficient and less congested transport services, and flexible transport options facilitating multi-modal transport with ease.

**Sounds simple, right?**

# 6.

For a more in depth insight into connected and automated vehicles make sure to read Article 05.

# 02.

What next for the City's streets?



Written by James Dyson

Since 1999, the total number of people cycling in the City of London has increased by an impressive 292%. This equates to an additional 24,000 cycling journeys in 2017 compared to 1999. Cycling is now officially the single largest mode of transport counted on the city's streets from 8am–9am. These statistics, taken from the City of London's 'Traffic in the City 2018' report, provide us with an opportunity to reflect upon the rise of cycling in the City and in central London and consider the future of London's road network.

#### Maximising limited space

With London's population forecast to grow significantly over the next decade, further pressure will be placed onto London's already strained road network, worsening traffic conditions and increasing air pollution. Continuing with the status quo isn't a feasible option and will only worsen matters.

Arguably the most interesting statistic from the report is regarding the utilisation of space. Pedestrians and cyclists only use an estimated 13% of total street space, yet move a staggering 55% of people travelling on City streets. In comparison, cars, taxis and motorcycles take up 53% of total street space, while moving only 19% of people. Comparable results have been recorded elsewhere in central London. Cycle Superhighway 6, northbound across Blackfriars Bridge, taking up less than 1 lane of general traffic, was found to be moving as many people as would be moved in 2.5 general traffic lanes.

#### Changing priorities

Between 1999–2012, the City witnessed annual increases of cycling of between 20–50%. It is important to recognise that this is without the creation of any form of segregated cycle infrastructure – something which has been proven to significantly increase the number of people cycling from all backgrounds. Despite this continuing rise of cycling, the City has raised concerns that cycling may have reached 'peak cycle' over the past five years - suggesting that significant changes in cycling infrastructure provision and/or travel behaviour may be required to spur growth on City streets and avoid back-pedalling.

This certainly raises the question – is it now time to accelerate the reallocation of London's road space to cycling and pedestrians?

**To provide the quality of infrastructure that makes people feel safe and enables cycling and walking trips, road space will require reallocation, with priority given back to cyclists and pedestrians.**

Critical issues such as air pollution and congestion will only be resolved through the reduction of motor vehicles on our streets, with a shift of emphasis from moving vehicles through the streets, to moving people.

The City's move to restrict car, van and taxi usage from Bank Junction was a fantastic signal of intent, sending out a clear message that the City is willing to place the most efficient methods of transport at the top of its road hierarchy.

As a company which places people at the core of every aspect of our work, Momentum is a great believer in this and sees it as a vital step towards a London which is safer, cleaner, healthier and more efficient.



# 10.

The transport industry is no exception to others when it comes to unequal statistics on gender parity. As the country's larger organisations start to release information on the gender pay gap, the issue of representation in transport itself speaks volumes as to why it is actually difficult to measure the pay gap across the sector: 78% of the transport workforce is male; and men are still dominating the boards of public and private companies. To put it simply, it is a challenge to find like-for-like circumstances where male and female employment can be compared - a problem that only gets more acute as one goes further in their career and higher in the companies' hierarchies.

There are many structural and societal causes of gender inequality and these are rooted in our educational, personal and professional lives. The capacity to inspire, train, employ, support, retain and promote women is key to bringing forward a much-awaited change. Not to mention the ability to change cultural perceptions about the industry and fight discrimination at every possible level, including internal and external policies.

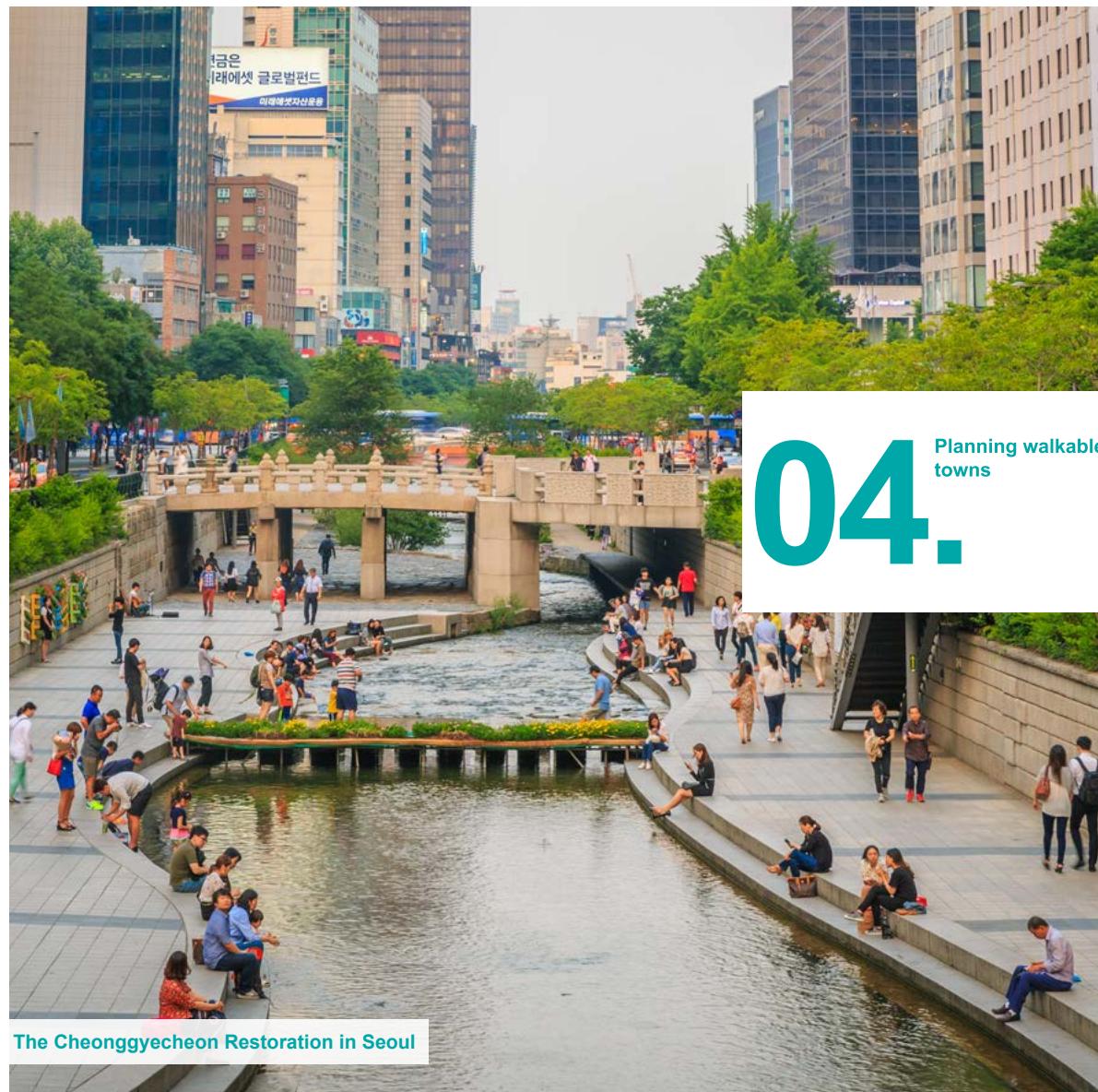
But there is also good news. There are almost as many practical solutions and scales of action as problems, alongside incredible existing networks pressing for progress. And even SMEs like Momentum can play their part in supporting gender parity and making a positive contribution to our industry. In addition to our recruitment processes and training programme we have recently initiated a number of actions to advance women in the transport industry.

The principle that drives these actions is to empower both men and women in the process of advancing women. This occurs in different parts of our business operations and also in our relationships with the wider industry. It includes providing all female staff with the possibility to take ownership of projects and be represented in various committees as well as attending the Women in Transport network's fun and inspiring events and networking opportunities. Recently we have enjoyed a 'behind the scenes' tour of Bank Station and also we learnt to drive a train.

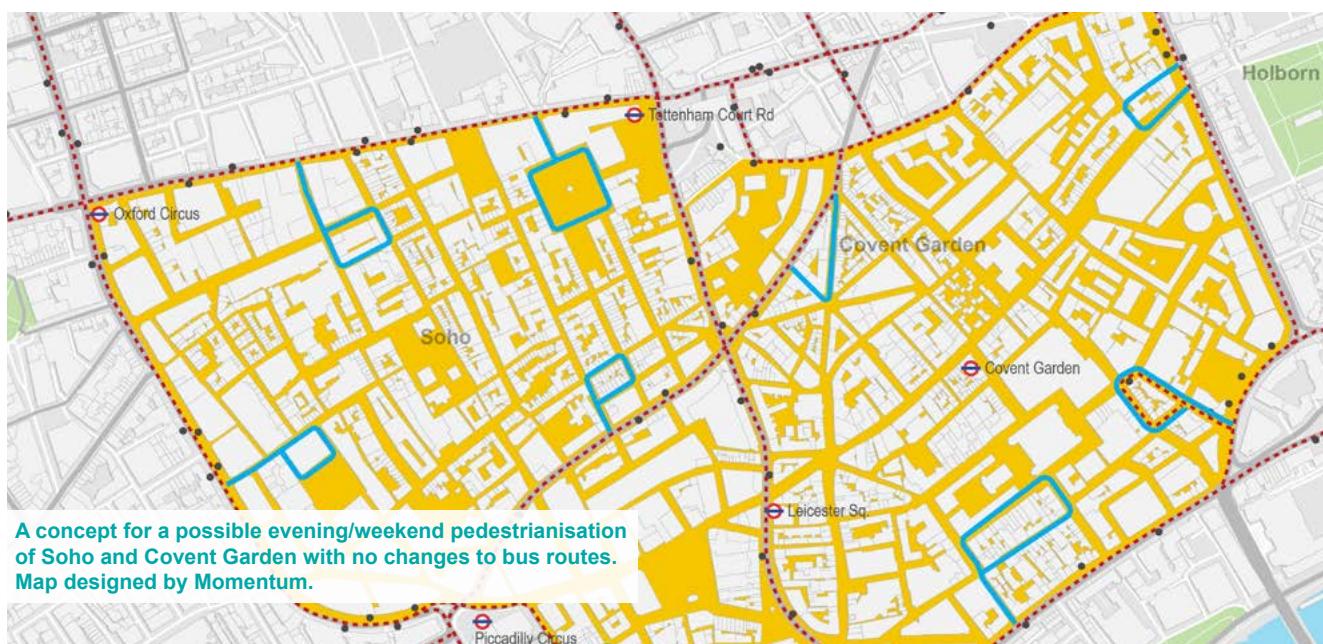
We also have three permanent members of staff enrolled in a mentoring programme supported by Women in Transport, two as mentees and one as a mentor. This scheme complements the one we implemented several years ago at Momentum for our graduate employees and we aim to continue to provide mentoring support throughout women's careers and open the 'pairing' of a mentor and a mentee outside of the company's boundaries; with noticeable mutual learning opportunities and benefits.

**In a sense, there has never been a better time to be a woman in the transport industry.**

Parity is high on the political agenda and certainly moving forward in a number of ways. But there is still plenty to do and we at Momentum are proud to be making a contribution on this important journey.



## 04. Planning walkable towns



Keep the design simple, put human users first and reduce speeds.

Walkable London, by Patrick Schumacher from Zaha Hadid Architects, is a bold proposal and a powerful vision. Starting from world renowned case studies, such as the Strøget in Copenhagen, the Promenade Plantee in Paris, the High Line in New York and the Cheonggyecheon River Restoration in Seoul, the Walkable London vision considers the transformation of key arterial London roads into walking boulevards dedicated to pedestrians, active and healthy life and social encounters. The arterial roads of London would become as much landmarks for London as the case studies are for cities around the world.

The High Line in New York and the Promenade Plantee were disused grade-separated railways, the Cheonggyecheon Restoration removed an elevated expressway while the Strøget in Copenhagen is a shopping destination. These case studies do not seem to sufficiently reflect the complex interweaving of movements and urban functions along London's arterial roads, which should not be shrugged off as easily as discussing parallel routes: in most places in London they do not exist. Buses, for example, perform a crucial role for many Londoners: 2.3 billion journeys are made by bus annually in London versus 1.3 billion on the Tube, mainly by the most vulnerable parts of the population, such as those living in the least accessible areas, the disabled, the elderly and those on low incomes (bus-only season tickets come at about a third of the cost than tube season tickets).

Although consolidation of logistics in London is long overdue (90% of freight is delivered by road and between 7am and 11am, freight makes up more than 25% of motor traffic), is it desirable to route hundreds of vehicles and buses through "parallel" residential streets? Moreover, why should cycling be moved to windy "parallel" routes?

A successful pedestrianisation of London should begin with the districts of Soho or Covent Garden, for example. These areas are no more than 450 or 500m across and bounded by a small number of through routes where buses run. Internal roads are too busy and narrow to allow motorised traffic, especially during evenings and weekends, with people overflowing into the streets, parked cars hiding shop entrances and taxis and other vehicles slowly trying to make their way through the narrow streets.

Closing a limited number of turns for vehicles using bollards or landscaping would allow unimpeded cycling and walking while eliminating rat running and

the need for complex one-way systems. All properties would remain accessible by car or for deliveries. The walking distance to bus stops would remain the same. During evenings and weekends, only pedestrians and cyclists would be allowed inside the districts and no street parking would be allowed. Taxis would have a number of ranks within the districts.

This approach, filtering vehicle traffic on small streets while maintaining bus accessibility, could easily be applied all over London. The short trips from residential areas to local attractions would be the easiest to move away from cars. Attempting to shift the longer trips along arterial roads would probably not be as transformative or effective.

The attractiveness of the public realm on major and arterial roads and the importance of landmarks to create a local identity should not be dismissed easily either: the Oxford Street pedestrianisation proposals will surely become a landmark as much as the Walkable London case studies, but it would also be important to look again into traffic-led schemes, multiple traffic lanes, on-street parking and deliveries to repurpose as much space as possible to more social uses.

As the Netherlands shows, there are many intermediate and liveable street designs between highway-led schemes and strict pedestrianisation: keep the design simple, put human users first and reduce speeds. Congestion, noise, pollution, accidents, injuries and aggressive driving (or cycling) behaviour will reduce as well through using this design approach.

Schumacher's vision is bold, provocative and it represents an important kick-off for the debate: it is the kind of vision that can lead to change if bold leadership picks it up and runs with it, as we have seen with the Oxford Street proposals. This scheme also highlights the political challenges as well.

Momentum's integrated team of planners, designers and analysts works with our clients and partners (local authorities, BIDs, private investors and architects) to create connected, inclusive, sustainable, innovative and deliverable public realm schemes. We place the needs of all users at the heart whilst analytically considering people movement, freight consolidation and delivery, waste and servicing strategies to further refine a people focused approach to urban spaces.

We find ourselves on the cusp of a technology-led revolution in personal transport, with international tech firms and car manufacturers working on ways to disrupt public and private transport markets.

When asked recently what he felt the most important emerging trends in transport were, Michael Hurwitz, Director of Transport Innovation at Transport for London, said he felt there were three primary drivers for change. Firstly, the trend towards an 'asset-light' sharing economy, with younger people rejecting traditional models of ownership, including the car. Secondly, artificial intelligence and machine-learning creating ever more optimised systems. And finally, a shift to a demand-driven approach where the consumer dictates the services they want, and the providers follow.

### As these trends start to influence the transport industry, this is the first of a series of articles from Momentum focussed on what they might mean for our urban environments and how we can harness them to improve people's lives.

Perhaps the most talked about of the technologies aiming to reshape how we travel is autonomous vehicles (AVs). With companies from Google to Tesla investing heavily, and test vehicles already on the roads, it won't be long before vehicles without drivers are a common sight in our cities.

The benefits seem clear; AVs will communicate with each other and with traffic systems to optimise the highway network; run close together in platoons to increase highway capacity and reduce congestion; and remove driver error from the equation, vastly improving safety.

However, many of the implications of AVs for our cities are not yet known and the disruption they create is unlikely to be all positive.

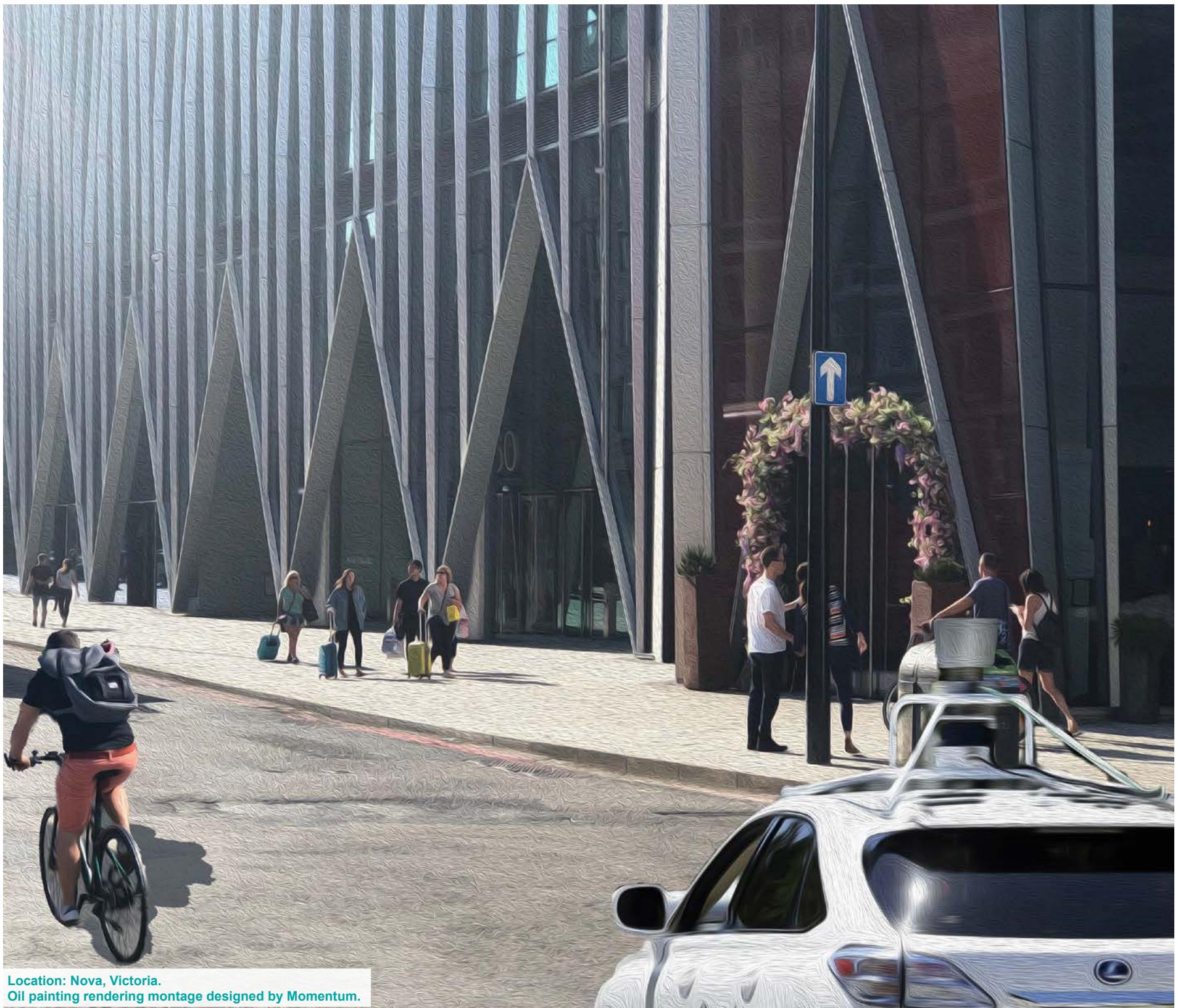
One risk is, by making travel by vehicle more attractive, AVs will increase the amount of traffic on the roads, offsetting any benefit of improving efficiency. Evidence suggests the arrival of ride-sharing platforms, such as Uber, does more than simply erode the share of trips made by traditional taxis; they create new trips as customers choose to take a cheap and convenient car somewhere they may previously have walked or may not have travelled to at all.

In our densely-populated urban centres there are also concerns about how viable AV use may be when sharing space with people. AVs will be programmed to preserve human life, travelling at low speeds in populated areas and using a multitude of sensors and predictive technologies to avoid hitting a pedestrian. But with the streets of our cities full to bursting with people there is a risk they will simply be gridlocked at the busiest times. In urban environments many people cross roads outside of the time allocated to them by traffic lights and away from crossings altogether. It is not hard to imagine queues of stationary AVs as busy commuters take advantage of their generous nature.



# 05.

Transforming the face of transport with technology



Written by: Will Durden

**Continued...**

The only option to avoid this would be to segregate pedestrians and vehicles, returning much of the pedestrian guard railing we have spent the last decade removing, thereby having a hugely detrimental impact on our public spaces. Current population trends suggest our existing pedestrian routes simply will not cope with future demands, and space currently given to traffic will soon need to be given over to people. The trend is towards pedestrianisation in our congested urban centres not greater levels of traffic, autonomous or otherwise.

The convenience of AVs also raises fears about their impact on public health. Cyclists and walkers put off by the crush and expense of public transport might be more easily seduced by the comfort of low-cost private AVs. With door-to-door travel available at the push of a button, last-mile journeys currently made on foot or by bike might start to disappear, taking with them the only regular exercise many people get.

Questions around ownership lie at the heart of whether AVs will really change the transport landscape for the better. In large urban areas it is easy to envisage younger travellers forgoing car ownership altogether and paying by the journey to use a city-wide shared fleet of AVs. However, will car-loving baby boomers be as ready to give up their own wheels? And what about less densely populated areas where shared fleets might lack commercial viability? If privately-owned, single-occupancy AVs are circulating our cities we will scarcely be better off than we are today.

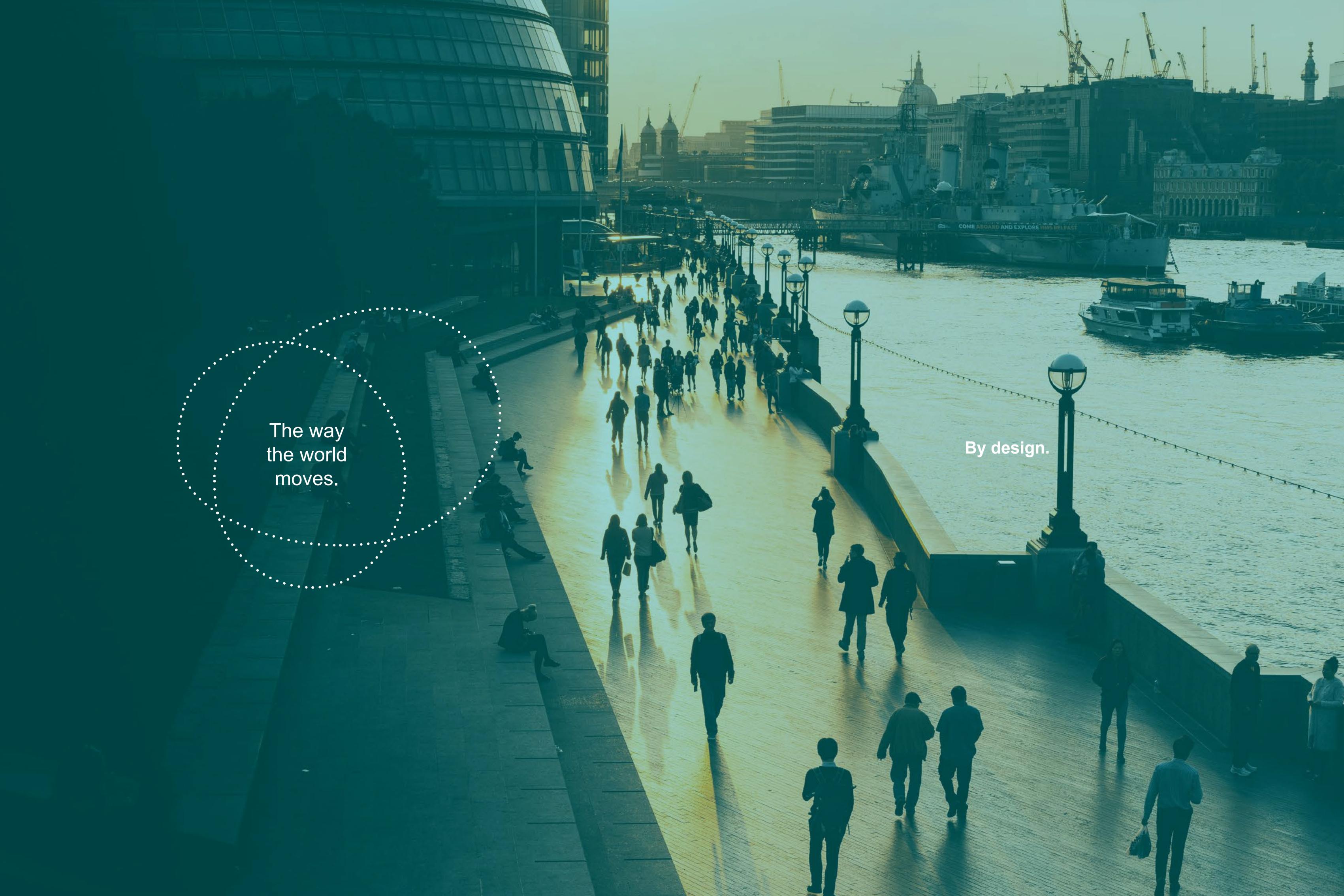
However, if they can be harnessed through effective legislation and control, AVs do have the potential to change our urban centres for the better. Our suburban city streets could be transformed as falling car ownership removes the on-street parking from clogged residential roads, allowing us to create streets which are greener, safer and can become hubs for community life.

Our whole perception of what a vehicle is will be changed; rather than simply being a means to travel to a place of interest, an AV could be a destination itself. Your hairdresser or gym could take you home from work. Retail units could travel to where the demand is rather than the other way round. AVs will allow us to work whilst we commute, improving the efficiency of the working day and allowing us to reduce the number of hours we are away from home. Or simply work more hours, of course.

To make sure AVs improve our city life it is essential they are seen as part of a range of solutions, with controls in place on where and when they can travel. Perhaps, like mass transit systems, they will deliver their passengers to strategically placed hubs enabling journeys to be completed by foot or cycle, or certain areas of cities will be restricted to shared vehicle fleets only.

The advent of AVs is perhaps the first fundamental change in personal transport in a century and presents a wealth of opportunities. However, we must be realistic about their ability to solve problems like congestion and severance, and wary of the risks they might pose.

**It is important that those of us tasked with the design of the city understand their impacts but remain focussed on creating people-focussed cities which enhance the lives of those who work and live in them.**



The way  
the world  
moves.

By design.



# Designing and creating spaces for people

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