



Forging the path to a green recovery

REIMAGINING HOW WE SAFELY
AND SUSTAINABLY MOVE
THROUGH CITIES

INTRODUCTION

As cities continue to grapple with many unknowns, including the prospect of periodic lockdowns, life is returning to the streets. This could be a moment of opportunity for positive change and a green recovery.

We've all glimpsed at how cities could look in the future – cleaner, safer, more livable, thanks to reduced road traffic and fresher air, with more citizens walking and cycling to get around. Societies, cities, communities, and organizations are only as resilient as their people. Instead of bouncing back to our pre-pandemic ways, we should be planning to bounce forward to more resilient and sustainable transportation networks and systems.

For the immediate future, the focus of the transport sector, must be on understanding and managing public transit demand, and providing transportation services that are safe, efficient and capable of being run within realistic budgets. But for the longer term there are opportunities to develop a vision of how public transportation could work better, and how to guide and maintain sustainable travel behaviors, as well as reduce resource consumption and protect the environment.

During the heart of the lockdown period, many cities reported urban transit ridership as low as 10% of normal, primarily made up of essential workers. With passenger figures growing, city authorities and transportation operators are working hard to provide safe levels of physical distancing using a range of measures from encouraging more people to use walking and cycling routes, to restricting some station opening times. There is widespread agreement that a surge in private car use should be avoided to prevent rising levels of traffic congestion and air pollution.

4 STEPS TO RECOVERY IN CITIES

There are four things cities can do to create improved networks and systems which are fit for the future:



CHANGE COMMUTER BEHAVIOR

Work with organizations to manage mobility demand and actively influence more sustainable policies.



ADOPT DYNAMIC PRICING

Redefine mass transit income with reduced ticket sales and new pricing models.



RETHINK PRIVATE CAR USE

Actively manage back the urge felt by many people to return to, or increase, private car use while encouraging a switch to EV vehicles and other sustainable transport modes.



REDESIGN FOR ACTIVE MOBILITY

Encourage a more permanent move towards active mobility by leveraging strategies such as tactical urbanism to implement interventions in the urban environment at lower costs with a plan for measuring the effectiveness and success.

While none of these four points will be enough to solve the problem alone, taken together they can provide an extremely effective, proactive approach.



Change Commuter Behavior

Work with organizations to manage mobility demand and actively influence more sustainable policies.

As we witnessed during the peaks of city lockdowns, most people were impressively quick to change their behaviors, in an effort to restrict the spread of the virus. While most essential workers have continued to travel to their workplaces throughout the pandemic, the majority of the workforce stayed at home. Now, with restrictions easing and the mass return to the workplace in some areas, city authorities and transport owners and operators are seeking ways to manage the rising passenger demand in safe ways.

This emphasis on behavior change is essential to locking in the environmental benefits of fewer cars and the associated congestion, noise and air pollution.



Incentivizing Commuters to Travel Sustainably in Amsterdam

[Read Case Study](#)

To support commuters, companies, and others in making positive change, the non-government organization Breikers has been serving companies and organizations in the Amsterdam Metropolitan Area with consulting help from Arcadis. One recent project was to reduce commuter vehicle traffic on two busy highways in the city. The work began by identifying frequent users, engaging in consultation with them and their employers and an analysis of travel behaviour. This was followed by the development of incentives to achieve goals and encourage the modal shift. For example, instead of penalising car drivers with higher parking fees and road tolls for using their vehicles, employees were offered a free bike to try cycling more often.

For instance, working with employers is key to managing demand and developing the new definition of urban mobility. At the outset, there are many questions to be asked, starting with defining whether the changed situation is perceived as a challenge or an opportunity. For city authorities and transport operators, it presents an opportunity to embed sustainable policies into their new plans for managing demand and keeping people safe. For companies and other organizations, it is a moment of opportunity to make positive change to support their sustainability efforts and provide staff with more flexible working conditions.

“Ways in which organisations could nudge employees to change travel behaviour to walking and cycling could include providing infrastructure such as cycle racks and showers at their offices, providing information such as personal journey plans for their journey to work and incentivising staff by offering free cycling training, free cycle repairs or rewarding them for travelling sustainably. This emphasis on behavior change is essential to locking in the environmental benefits of fewer cars and the associated congestion, noise and air pollution,” - Keri Stewart, Arcadis Technical Director.

The window of opportunity is short. The improved air quality and absence of vehicle traffic has shown us what our cities could be like, new habits will be quick to form and can be influenced now. We know that during the early months of the pandemic huge numbers of people bought a bike for the first time. For example, parts of central Paris are now so full of bikes they look like the streets of Amsterdam. The recently re-elected Paris Mayor Anne Hidalgo included in her election manifesto the idea of creating a ‘15-minute city’ so that residents can have all their needs met—be they for work, shopping, health, or culture—within 15 minutes of their own doorstep. The planning orthodoxy is to focus on mixing uses within the same space, so that the access radius is largely shortened and travel behaviors could be significantly shifted.



More people walking and cycling will help manage and optimize passenger pressure on trains, metro and buses and relieve pressure on using private cars, but there are also other ways that employers can help manage travel demand. Discussions with staff about how often and when they need to be in the office are important conversations, as is staggering the times of traveling to and from the workplace.

In addition to the shift in inner city mobility, comes an opportunity to move the needle towards more sustainable practices in mid to long distance inter-city travel. Over the past six months the attitude towards flying has changed considerably – from both a personal and policy perspective. This is especially true for continental flights where there is a greater opportunity to shift towards high speed rail. However, this will require active policy changes such as discouraging low cost airlines and including the environmental costs of pollution and fuel taxes to level the playing field with overland transportation.



Adopt dynamic pricing

Redefine mass transit income with reduced ticket sales and new pricing models.

Once authorities and mass transit owners and operators have met the desired mix of transport mode capacity, gained an understanding of new commuter and leisure travel patterns and worked with organizations to drive changes in commuter behaviours, they can start placing greater focus on rebalancing their incomes and further stimulating desired patterns. Many networks have seen revenues tumble to unsustainable levels due to drastically reduced ridership. Dynamic pricing is one of the tools for managing demand which helps to further optimize distribution of travellers across transport modes, enabling social distancing and recouping funds.

Already used extensively in the hotel, holiday and airline industries, dynamic pricing means that by using smart algorithms, charges can be adjusted to proactively influence travel behavior towards the desired patterns. Applied to transportation networks and services, this can be a useful way of helping passengers travel in a safely distanced environment while simultaneously optimizing the use of available transit capacity. However, where ridership is deliberately kept low and safe, revenues will need to be supplemented with public subsidies. The private train operator model, such as the UK rail franchises, are being severely tested.



Some cities have also been managing ridership on trains by limiting the opening times, or even partially closing, some stations. One unavoidable fact is that travel will become more expensive either through ticketing and tolls, or through taxation. Other cities are deliberately increasing their services outside rush hours, to encourage travellers to spread their trips across the day.

“Dynamic pricing is an economical approach to distribute demand across time and space, in a smart and proactive manner. It helps authorities to actively steer towards desired, more sustainable travel patterns and distribution across modes. It could apply to parking fees, tolls, public transit fares, on-demand rides, etc. In the post-pandemic recovery time, dynamic pricing could also be utilized as a fundraising tool to finance the essential public services, including public transit and active modes infrastructure. It can also be used as social welfare if the fare is reduced at certain hours for certain people, so that people need money most can save the fare for living. The dynamic pricing mechanism should always be designed to be equitable and sustainable instead of posing more pressure on people struggling to make a living. It’s an art of balance, and that is never an easy task,” - Yuan Shi, Arcadis Global Solution Leader for New Mobility.

The dynamic pricing mechanism should always be designed to be equitable and sustainable instead of posing more pressure on people struggling to make a living. It’s an art of balance, and that is never an easy task.



Rethinking private car use

Actively manage the urge felt by many people to return to, or increase, private car use and encouraging a switch to EV vehicles and other sustainable transport modes.

Where some people feel unsafe using public transport, and perhaps live at a considerable distance from urban centers, there has been a growing rise in private car use. While it is impossible to predict how we will get around in cities in the future, one thing we know for sure is that it would be a shame to see a return to pre-COVID-19 traffic congestion levels. This would be a missed opportunity to create myriad benefits for people living in cities, such as lower commute times and improvements to citizen health from reductions in air pollution.



Improved traffic management can strongly contribute to reducing private car use. This has been successfully proven with summer congestion in Zandvoort, in the Netherlands. As part of a wider project, Arcadis helped to measure and analyze road traffic volumes and then explored ways to safely accommodate the influx of visitors to this seaside resort area. The solution was to develop a real-time, digital, traffic-management dashboard to monitor road traffic. By monitoring the volumes of traffic and peak travel times, measures could be put in place to safely move traffic in and out of town. These included an active communication strategy – which employed social media, variable-message signs and, as a last resort, closing the roads to beach visitors.



Electric Vehicle Charging Infrastructure Planning for the City of Cambridge, Massachusetts

[Read Case Study](#) →

Drawing on its experience of planning and implementing EV infrastructure in many different urban scenarios, Arcadis is working with the City of Cambridge, Massachusetts to develop a curb-side and street-light residential EV charging pilot scheme. One of the challenges has been identifying where to place the charging points when many properties are occupied by a number of families.

As more people look to buy personal vehicles, a robust charging network can kickstart the trend to EV adoption, which can lead to long-term behavior changes that are better for our community and lives.

Another option to encourage people out of their cars is to slowly build back confidence around safety in the public transportation systems. Big changes are already underway. In the Netherlands, in June of 2020, more train services were provided with 60% of seats closed off. By July passengers were able to use all seats but had to wear a mask and stay seated at all times.

In New York City, in April of 2020, subway ridership was down by more than 90% compared to the previous year. Subway ridership bounced back a bit by August but remained about 75% lower than 2019. In efforts to building back consumer confidence, the Metropolitan Transportation Authority (MTA) is transparently communicating the cleaning procedures and updating the daily ridership on the website.

And where the private car remains the main option, the use of electric vehicles (EV) should be encouraged as a more sustainable choice. However, in order to facilitate wider adoption, it is key for cities to provide adequate charging infrastructure.

“A really effective EV charging network will encourage drivers to make the switch, because the benefits of EVs will outweigh the small behavior changes required. Right now is the best time to install an EV charging network. As more people look to buy personal vehicles, a robust charging network can kickstart the trend to EV adoption, which can lead to long-term behavior changes that are better for our community and lives,”
- Margaret Oloriz, Arcadis engineer.

Meanwhile, as large numbers of people continue to work from home, we are seeing the rise of the ‘15-minute community’ – places where it’s possible to access most of what you need within 15 minutes of home. According to recent research by Arcadis and YouGov in the UK, people are rediscovering their local areas and there is a growing emphasis on local sustainability, health and convenient access to amenities. The public and local leaders are united in recognizing the post-COVID recovery as a unique opportunity for a radical re-think of how we view our communities and live our lives.



Redesign for active mobility

Encourage a more permanent move towards active mobility by leveraging strategies such as tactical urbanism to implement interventions in the urban environment at lower costs with a plan for measuring the effectiveness and success.

The concept of active mobility introduces a range of benefits from providing alternative travel modes for people who are not taking public transit along with those who may be tempted to turn to cars. Journeys can involve several modes, for example using suburban rail to reach a transport hub where it's possible to collect a bicycle to complete the journey. In some countries networks of bicycle highways are being developed to facilitate mid distance travels without stopping and to provide a safe environment for high speed cycling like power assisted electric bikes. This allows the catchment area for bicycle commutes to be substantially widened and the resulting reductions in emissions and pollution also benefit the environment.



Developing the new (sub)urban transportation landscape is all about balance, for instance, by changing streets to create more space for cyclists and pedestrians.

To address the changes and to facilitate active mobility demands at pace, we have developed a six-step approach to building neighborhoods that uses short-term, low-cost, and scalable interventions and policies to catalyze long-term change. The six steps of tactical urbanism are as follows:

1. Initiate – identify opportunities in the urbanism space for the long run, such as creating space to accommodate additional pedestrians and cyclists through strategic planning.
2. Investigate – consider your options, analyze which streets to change and prioritize your tactical project opportunities.
3. Design – draft your tactical project.
4. Implement – complete the design with reusable, sustainable products.

5. Monitor and evaluate – measure public perception is the key to the success of these projects is gathering data on the intervention's progress including surveys.
6. Document – record the process and results to inform any future permanent rollout.



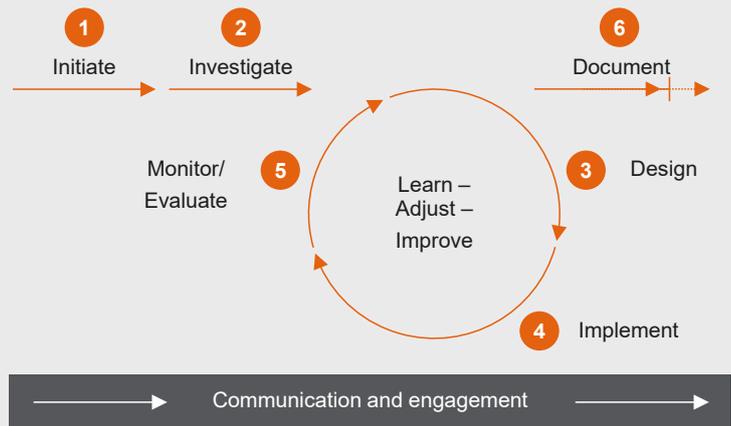


Aberdeenshire Cycle Routes

[Read Case Study](#)

Arcadis was also appointed by Aberdeenshire Council (UK) to investigate the feasibility of upgrading the existing Formartine & Buchan cycle route, as well as explore what measures would be required to develop two more long distance cycle routes in the vicinity of the A90, which connects Aberdeen-Ellon and Aberdeen-Stonehaven. It has been named one of Scotland’s great trails, but with an estimated population of 100,000 people living within easy access, there was a need to ensure the route was preserved not only as a wildlife corridor, but well maintained as a sustainable transport option for the use and enjoyment of visitors and local people.

Tactical Urbanism is an approach to neighborhood building that uses short-term, low cost, and scalable interventions and policies to catalyze long term change.



This method is a long way from traditional urban planning, but the speed of delivery can mean that pilot projects are quick and easy to test. The feedback can also be immediately used to update implementation, which can drive longer term change.

It will be much easier to encourage continued bicycle use if we make it an attractive option. This will need to be a collaborative effort involving cities, companies, schools, hospitals and more. Cities can help by providing more physical space for cycling and pedestrians and employers can help too, by providing secure bicycle storage, showers, and incentive schemes. Campaigns to promote the physical and mental health benefits of cycling can also be part of the mix.

In Australia, Arcadis is developing active transport plans for clients including the City of Parramatta and the Northern Beaches Council, New South Wales. Both clients are seeking to move towards more sustainable multi-modal transport systems. The COVID-19 pandemic has created the opportunity to rethink transportation policies and make positive changes for the environment and personal wellbeing, including promoting more walking and cycling.

“As cities make adjustments to ensure space for social distancing, and facilities to encourage cycling, there is an opportunity to think beyond the road cone or traffic barrier, and to use tactical urbanism as a way to implement more medium term solutions, that can form part of a larger future change directed towards a sustainable future vision of infrastructure that is less car-reliant,” - Jared Chesterman, Arcadis Associate Technical Director.



CONCLUSION

As communities and whole countries emerge from lockdowns but continue to face uncertainty, members of the public, local businesses and government leaders seem united in embracing the post-COVID recovery as a unique opportunity to radically rethink how we live in our communities. Transportation and striving towards a greener recovery are at the heart of this.

For the longer term, it is imperative that communities secure a resilient recovery, so they are better positioned to withstand future stressors such as another lockdown or other unexpected shocks. To achieve this, decision makers must ensure the [five principles of resilience \(People, Design, Planning, Digital, and Sustainability\)](#) are considered during recovery initiatives.

Societies, cities, communities, and organizations are only as resilient as their people and keeping people safe and healthy must remain embedded in the core of each of the four elements of recovery planning. The design and planning interventions implemented as a reaction to the pandemic to ensure people feel safe as they move around urban spaces should be closely monitored. Moreover, amid a risk of resurgences and future stressors, they should be embedded as part of a long term strategy for more sustainable and resilient infrastructure and transport networks.

At the heart of recovery planning must be the same commitment to sustainability as in resilience planning, to continue the gains made for the environment. Similar to the health and safety of our people, the health and safety of the environment has to be of paramount importance. Sustainability should be embedded in all aspects of the recovery, as it is truly a key to longer-term resilience.

Finally, digitization empowers everything. In the short term, data enables dynamic pricing to help transport operators maintain business continuity or to actively steer people and vehicle traffic in real time to ensure the safe passage and optimized distribution of people in urban centers. Longer term monitoring can help everyone make more informed decisions, leading to more resilient societies.

Some of this is already happening. Innovative solutions have been developed in areas such as urban design, transport management, and infrastructure delivery. These have been impressive in helping people change their behaviors, travel and work in different ways, and make more sustainable and healthier choices.

About Arcadis

Arcadis is the leading global Design & Consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are 27,000 people, active in over 70 countries that generate €3.3 billion in revenues. We support UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world.

Contact us



Yuan Shi

Global Solution Leader, New Mobility

E yuan.shi@arcadis.com



Bas Bollinger

Global Leader, Rail and Urban Transport

E bas.bollinger@arcadis.com

Additional credits to mobility experts:

Eline Langeveld
Consultant

Keri Stewart
Technical Director

Jared Chesterman
Associate Technical Director

Margaret Oloriz
Engineer

Find out more:



www.arcadis.com



[@ArcadisGlobal](https://twitter.com/ArcadisGlobal)



[@ArcadisGlobal](https://www.instagram.com/ArcadisGlobal)



[@ArcadisGlobal](https://www.facebook.com/ArcadisGlobal)



[Arcadis](https://www.linkedin.com/company/arcadis)

DISCLAIMER

This report is based on market perceptions, research, and insights from by Arcadis, a design and consultancy firm for natural and built assets. This document is intended for informative purposes only and should not be construed or otherwise relied upon as investment or financial advice (whether regulated by any financial regulatory body or otherwise) or information upon which key commercial or corporate decisions should be taken.

This document may contain forward-looking statements within the meaning of potentially applicable securities laws. Forward-looking statements are those that predict or describe future events or trends and that do not exclusively relate to historical matters. Actual results could and likely will differ, sometimes materially, from those projected or anticipated. Arcadis undertakes no obligation to update or revise any forward-looking statements, whether the result of new information, future events or otherwise. Additionally, statements regarding past trends are not a representation that those trends or activities will continue in the future. Accordingly, no one should rely on these statements for decision-making purposes. Arcadis is not liable for any loss or damages associated with the use of the information in this report for decision-making purposes.

This document contains data obtained from sources believed to be reliable, but we do not guarantee the accuracy of this data, nor do we assert that this data is complete. Please be advised that any numbers referenced in this document, whether provided herein or verbally, are subject to revision. Arcadis is not responsible for updating those figures that have changed. This document should not be relied upon as a substitute for the exercise of independent judgment.