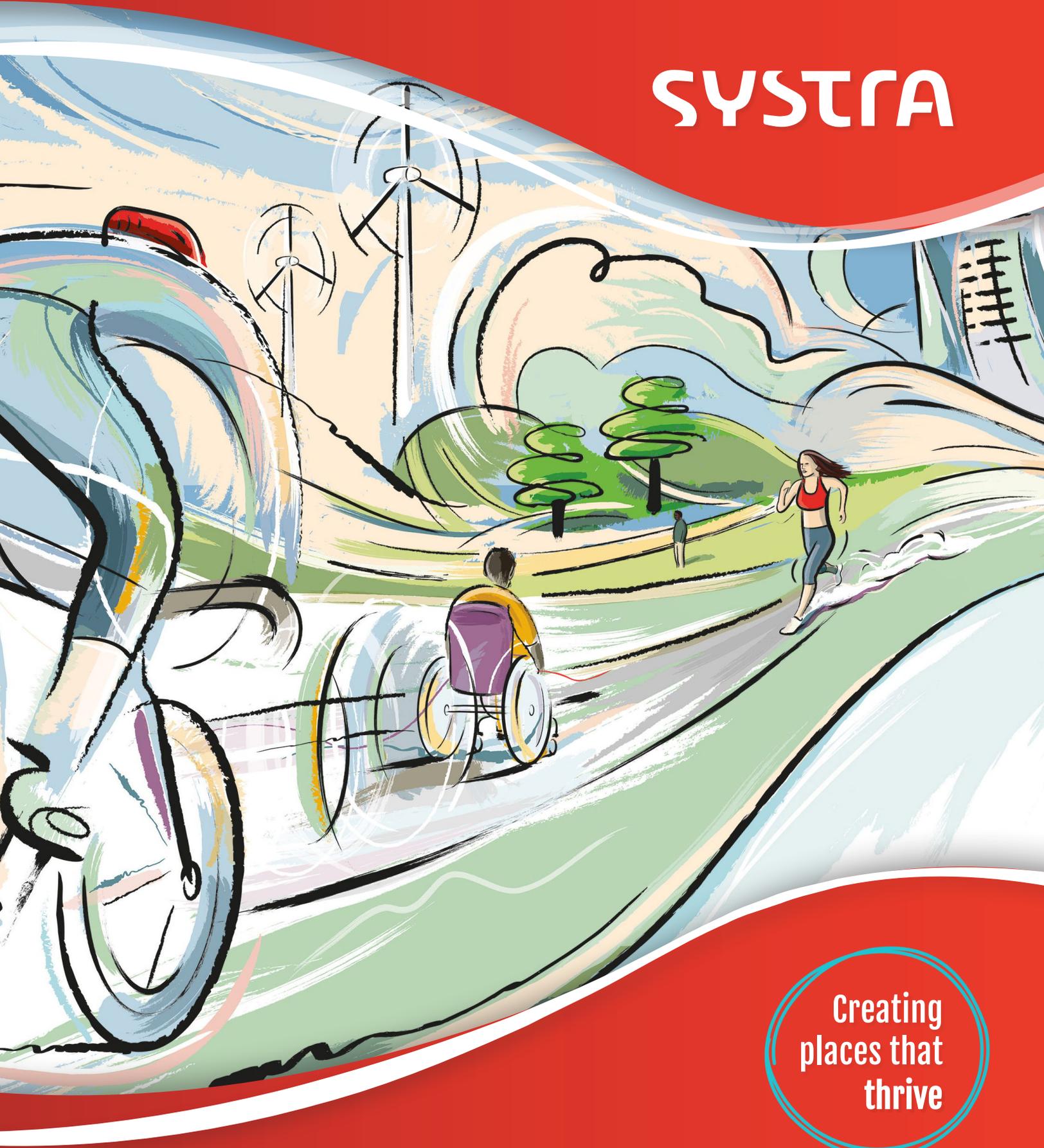SYSTRA

Creating places that thrive

Next generation transport planning that delivers sustainable, liveable communities and economic growth.

Taking a 'Vision-Led' Approach

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Contents>

Foreword>

The planet and its communities face huge and wide-ranging challenges. The carbon impact of how we currently live poses an immediate threat which may not be easily reversed. Biodiversity is being impacted in many places by human activity and the health impacts of living with poor quality air or not having easy access to greenspace and other daily needs is blighting many communities, often the poorest. There are also huge questions about how technologies such as AI can be controlled and managed so that they improve lives and don't introduce new risks to the world.

In amongst this people are getting on with their lives and the places they live in are changing and evolving as they have always done. As transport planners and engineers we are part of this process of change. How we can grapple with the increasing complexity of the world and the challenges it faces to ensure that we improve lives, is a question we are constantly asking at SYSTRA.

There are of course no easy answers. Being aware of both global challenges and the specific issues local communities and places face, is where we need to start.

Applying imagination, energy, professional skills and collaborating with clients and communities is how we can get there.

> A Placemaking Philosophy

Cities and towns are not ends in themselves or a convenient way to socially organise populations, but an expression of the particular people who live in them, their needs and desires and ways of life. That doesn't sound like such a radical idea today, but a glance at the history of urban planning, especially the heroic errors of the 20th century, makes it obvious that it is an idea that is not always well understood.

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Now that we are faced with a huge new challenge, the existential threat of climate change, we are being forced to think again and with renewed ambition about how we make thriving places. Asking ourselves how can we decarbonise without dehumanising?

The 20-minute community – the idea that in an urban area all residents should be no more than a 20-minute car-free round-trip from all essential facilities and services – is the affirmative answer to the question. But achieving such a vision will require more than deep changes in how planners, policy makers and administrators work and think, it will mean breaking through walls of suspicion and distrust from people who have reasons to be wary.

We need to demonstrate and communicate that a 20-minute community is not a limit on choice but an expansion of it. It is not about removing agency but adding it, giving our cities, towns and neighbourhoods back to the people who form it.
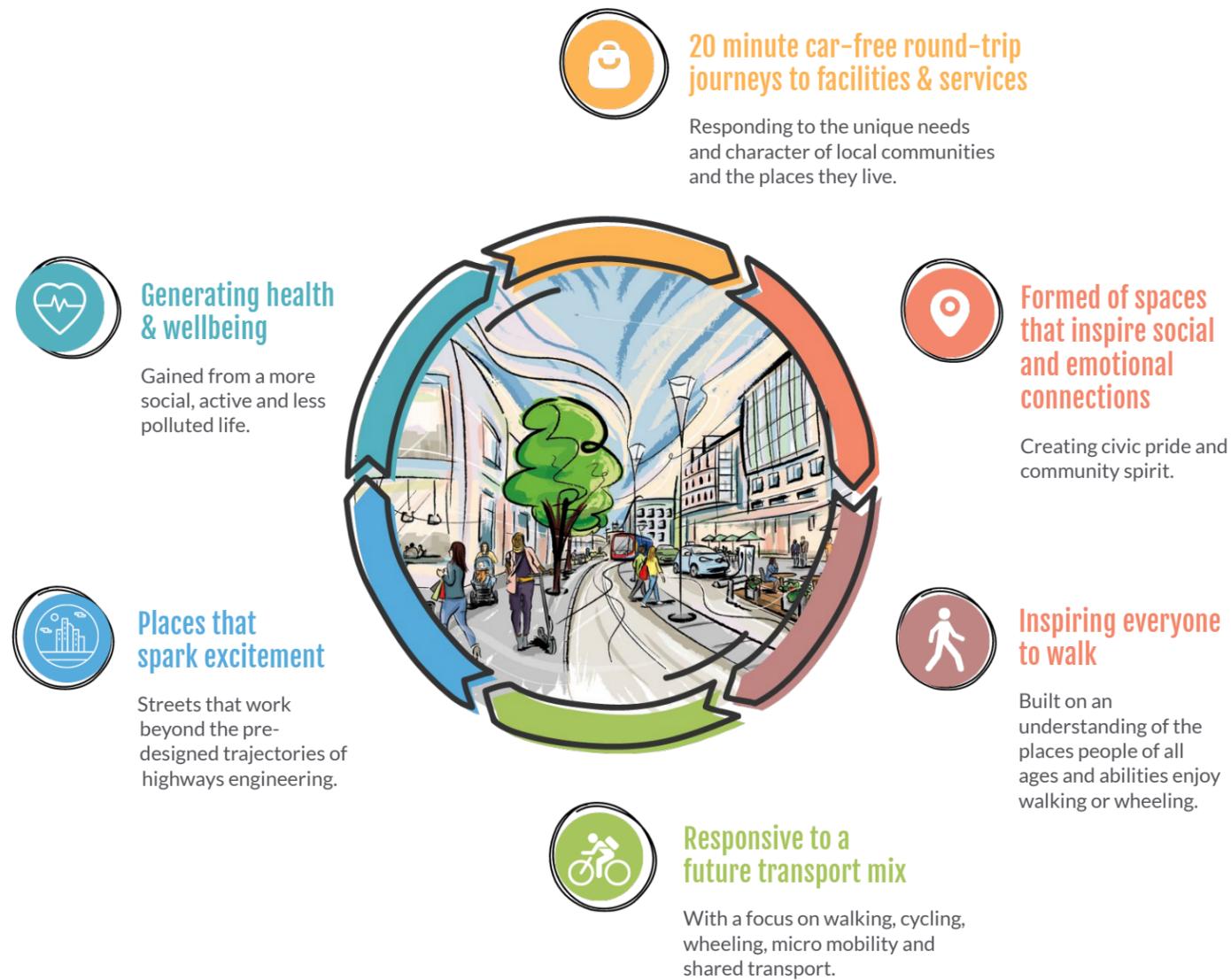
The 20-minute community is a return to the excitement of place because it frees us to explore and refine our own urban geographies beyond the pre-designed trajectories of highway engineering. This presents a difficulty for transport planners dedicated to improving walkability, of course - walking is still much more unpredictable and contingent than other transport modes and harder to plan for. But the more immediate challenge is convincing populations that low-traffic, low-carbon, dense, decentralised, walkable, active travel towns and cities are what they want.

That means demonstrating that we understand that proximity and availability are not the only defining characteristics of a 20-minute community. Quality matters too. The spaces between where we begin and where we are going is where life happens. It won't happen if the place is threatening, polluted or difficult to navigate.

We also need to identify the needs and desires of communities by engaging with them, understanding that their needs are idiosyncratic and specific. All populations are multi-grained and if we are claiming to put everybody within 20-minute reach of all the services and facilities they need, we had better understand what those are. Access to a post box, for example, may not be a majority need but is a lifeline for some parts of the community.

Successful cities and towns are formed over time in response to the needs of their populations and that is where they get their energy and life. Not everything works and that is OK if there is space to respond and to change and learn from the

mistakes of the past. The 20-minute community builds in that space if we do it right. We all live in our own separate geographies, and these are layered and overlapping. The 20-minute community doesn't lock anyone into a single mode of life but adds layers to the fabric.

We need the car to lose its dominance but not necessarily disappear. Even drivers gain when more people choose to cycle and walk as congestion decreases along with all its stress. How we use cars will change over time, car ownership may reduce outside of cities and electric vehicles will be part of the future transport mix.

But if we can build places that tempt people out of their cars instead of only coercing them, we can open the door to the discovery of advantages that go far beyond the gains in health that a more active and less polluted life brings. Deeper social and emotional connection with home. The pleasures and excitement of chance meetings and discoveries. *More life.*

Characteristics of 20-minute Communities

20 minute car-free round-trip journeys to facilities & services

Responding to the unique needs and character of local communities and the places they live.

Formed of spaces that inspire social and emotional connections

Creating civic pride and community spirit.

Generating health & wellbeing

Gained from a more social, active and less polluted life.

Inspiring everyone to walk

Built on an understanding of the places people of all ages and abilities enjoy walking or wheeling.

Places that spark excitement

Streets that work beyond the pre-designed trajectories of highways engineering.

Responsive to a future transport mix

With a focus on walking, cycling, wheeling, micro mobility and shared transport.

Alison Pickett, Director at SYSTRA

Transport System Data — Department for Transport, Active Travel England, National Highways, Ordnance Survey, Sustrans, Transport for London, National Rail

Land Use System Data — Office for National Statistics, Experian, Department for Environment Food and Rural Affairs

Digital Connectivity System Data — Vodafone, BT, T-Mobile, Virgin, o2

Energy System Data — Office for Low Emission Vehicles, Cenex, National Grid, Pod Point, Zap Map, Scottish Power

Responding To Local Idiosyncrasies

We need to identify the needs and desires of communities by engaging with them, understanding that their needs are idiosyncratic and specific.

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Stakeholder Engagement – The Key To Successful Placemaking

Wide ranging, inclusive and innovative stakeholder engagement will shape your Regional City Transport Strategy or Local Transport Plan. If you're going to create vibrant liveable spaces that people want to be part of, it's obvious that you need to involve them and listen to their views. But if you're thinking seriously about stakeholder engagement, the first thing you should do is take the plan you used for your last project, and throw it in the bin!

It's not because it was a bad plan necessarily. But the biggest mistake we all make when it comes to engaging with our stakeholders is to imagine that 'one size' fits all. It doesn't. You need to think hard about who your stakeholders are and why you need to engage them. They may be elected representatives, operators, business, or the general public, but none of those groups are generic. The politicians and businesses involved in your project are not the same ones with the same priorities and pressure as the ones you engaged with in the last. The general public is not so general - it has a specific complexion that is particular to the local area.

The second thing you should do is engage sooner. Early engagement allows you to respond to what you hear, and if you are not going to

change your plans in response, what's the point of engagement? Few things are more frustrating than having your opinion canvassed and then ignored. Not only should you respond, but you should communicate clearly on how you have responded, and build that into your plan too. Last but not least - don't forget to let the stakeholders know how they contributed, investing them in your project, and your project in them.

Of course, some stakeholders are easier to reach than others. Public engagement especially is dogged by the problem of self-selection. Some individuals or communities may be excluded by the data or terminology you use, or by restricting languages to just English. Anticipating these difficulties is not so hard, but it underlines the dangers of simply relying on the strategy that was used before in a different place populated by different people.

So, engage the way you would like to be engaged and you are more than halfway towards forming a successful strategy. Remember why you are doing it - to make changes and, ultimately, to deliver sustainable, liveable communities and economic growth.

Ian Byrne, Business Director at SYSTRA

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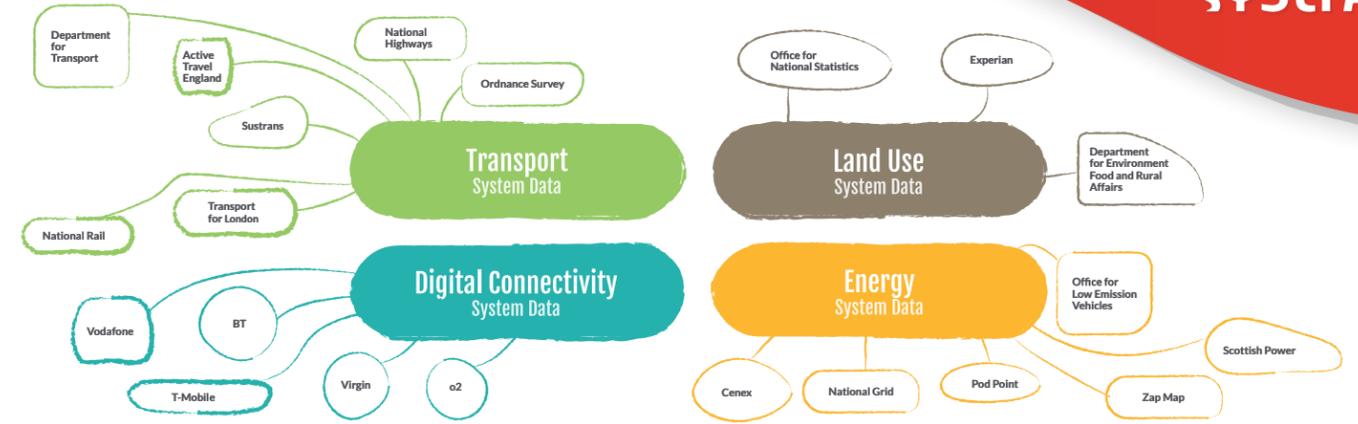
Setting The Scene Through Gathering Evidence

In line with the National Planning Framework, all Key Towns require a Local Transport Plan (LTPs) to be developed in line with the NTA/TII Area Based Transport Assessment (ABTA) methodology. This provides a evidence based approach to the development of area specific transport solutions.

One of those opportunities is 'data' which has changed enormously. Today, we have the potential through utilising the right data sets combined with introducing new data systems, the ability to have real time analysis and more importantly the ability to automate the reporting of a project's impact.

All LTPs must tell a story. The art of good story telling is to first set the scene. That means giving sufficient information to allow the reader to picture the local transport environment clearly. In other words, demonstrate with evidence (and data) your area, the challenges, and your proposed solutions.

At SYSTRA, we know all about data, we know about gathering it as well as interrogating, analysing, and presenting data.

There's an abundance of data sources out there to give context to your story, we pulled together the graphic above to highlight the web of data that's available at your fingertips today – from population data for age, socio-economic and housing profiles to air quality, flood risk, and planning

applications; then there's specific transport data on: car ownership and car, bus, rail and cycle use data. That's not to mention the swathe of new data, which can be derived from sources including: social media to identify transport demand and trends; CCTV capturing footfall at major trip attractors or events; ridesharing and micro-mobility use data; and aggregated mobile phone data for 'origin and destination' information.

Let's not overstate the obvious on choosing your data wisely, instead be sure that the data you choose helps tell your area's story. It should begin by presenting a baseline on transport, accessibility and the environment which will then allow you to showcase the challenging, but achievable local transport plan objectives for your area and the programme for achieving these objectives.

The next step is interrogating the data. Asking questions such as: How can the data be used to address specific challenges such as traffic congestion or accessibility? How

can the data be used to engage with stakeholders to ensure that their needs are reflected? and, How can the data be used to encourage sustainable travel patterns?

There are of course practical considerations like the reliability of the data, any perceived biases, if the data can be presented visually and if it can easily be integrated with other datasets?

Our team of data analysts work with data sets every day to explain and give answers for these types of questions. Just remember, setting the scene with good use of data will immerse the reader into your way of thinking.

Paul Hussey, Associate Director at SYSTRA

Ensuring Biodiversity

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Think Biodiversity

What travels north at 2mph? The answer is the passage of spring, according to researchers from the University of Coventry who first calculated the figure by analysing the pattern of spring events across the UK and Ireland. The timing of the seasons is hugely important for biodiversity since any long-term change will have an impact upon the success or failure of our plants and wildlife.

Every day, plants, animals, and the climate work together to maintain the balance of nature. In many ways they are the nuts, bolts and oil of a perfectly balanced machine. Maintaining biodiversity is important as it prevents this balance getting out of sync.

As humans we are becoming acutely aware of our environmental impact through the choices we make – from the food we eat, the flowers we grow in our garden, the way we heat our homes to the way we get to work or shop. That's got to be good news for biodiversity. But let's be clear, it is not all just about designating more 'areas of outstanding natural beauty', it's about enhancing and protecting the natural spaces where we live – in our towns, cities and rural villages as well as the corridors in between.

And, resolutely aware of our obligation to nature, are those professionals directly involved in the local planning process whose job it is

to weigh up the likely environmental (including biodiversity) impact of each new housing and infrastructure development proposal. It's a daunting task. Some authorities are better equipped than others with their own expert teams of ecologists, water and landscape specialists and have developed plans and strategies to protect natural habitats including majestic trees in our streets and urban parks to ancient woodlands, hedgerows as well as village ponds.

There are some great examples from across the UK and Ireland of initiatives which are already improving biodiversity such as Kent County Council's 'Bee Pollinator Action Plan' to improve bee populations through creating landscapes where bees and insects can thrive. The County has changed its highway verge maintenance regime to allow wild flowers to bloom in the summer for bees. Kent's verges are now cut in the spring and again in the autumn.

With specialist environmental knowledge and national government policies such as Biodiversity Net

Gain to guide us, new housing as well as road and rail infrastructure development need not be an attack on nature. Our teams have been working collaboratively to create green corridors throughout the UK and Ireland to sensitively enable habitats otherwise split by development to instead thrive. Our ecologists have helped preserve tree canopies above roads to support bat colonies, built ledges to allow wildlife to pass through culverts and have worked with drainage engineers to change traditional plastic lined fenced ponds in favour of unlined and unfenced alternatives.

We are constantly learning from nature - from the timing of the seasons to the way plants communicate through their roots – we are also learning to care for it too.

Jon Morgans, Environmental Services Operations Director at SYSTRA

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Delivering Sustainable, Liveable Communities and Economic Growth

SYSTRA working in partnership with the National Transport Authority and developers is one of the premier consultancy companies delivering new liveable and sustainable spaces that support the local community and foster economic growth and prosperity. We have been at the forefront of designing and creating sustainable communities that identify and plan around the needs of the local community, taking account of urban planning, transport needs, facilities, and green spaces to create not only liveable but also lovable spaces where the needs of the community are paramount.

We have been supporting the delivery of the Greater Dublin Area Transport Strategy, the Cork, Limerick/Shannon and Waterford Metropolitan Area Transport Strategies, as well as delivering LTPs and ABTAs across the country. creating healthy environments and offering the opportunity and freedom to move.

We utilise our collective experience to innovate and imagine the future. Identifying how communities will evolve and adapt to the changing

world around us, how our work patterns may change to accommodate a more digital world, and of course our individual needs for social interaction. We then design spaces that integrate with infrastructure that is effective, sustainable, resilient and designed to meet the needs of the places it supports.

John Paul Fitzgerald, Director – Southern Region at SYSTRA

Place-based solutions

Developing insight from the ground up. SYSTRA's transport planning is routed in expert modelling, stakeholder engagement and a placemaking philosophy.
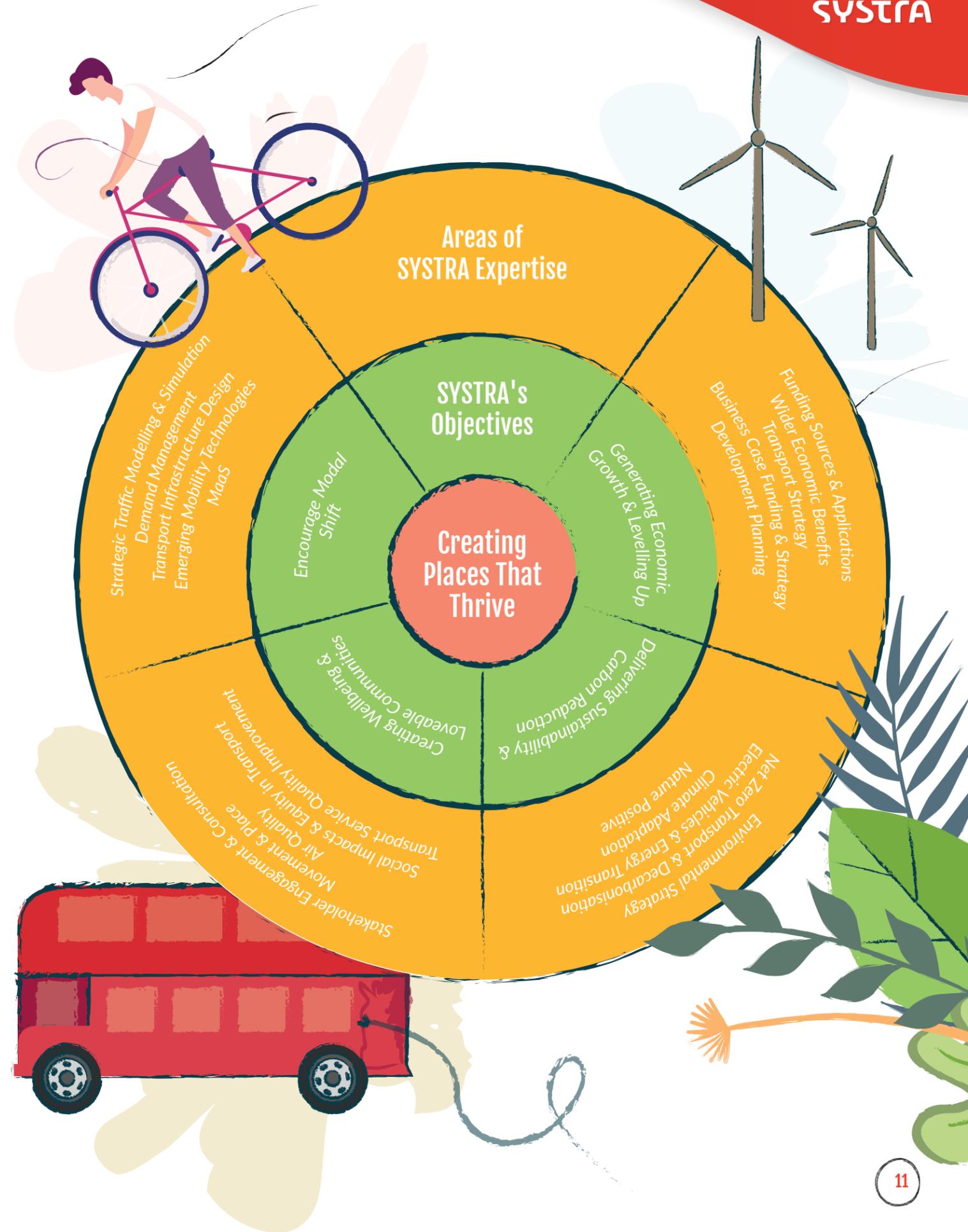
Anticipating future mobility

From EV charging to e-scooters, we seek to understand changing behaviours. Planning for latent demand across a transforming transport environment.

Expert insight and proven process

SYSTRA has industry-leading thinkers and experts across all modes who can deliver against bespoke requirements using a range of proven techniques and processes.

Areas of SYSTRA Expertise

SYSTRA's Objectives

Creating Places That Thrive

Strategic Traffic Modelling & Simulation
Demand Management
Transport Infrastructure Design
Emerging Mobility Technologies
MaaS

Funding Sources & Applications
Wider Economic Benefits
Transport Strategy
Business Case Funding & Strategy
Development Planning

Encourage Modal Shift

Generating Economic Growth & Levelling Up

Delivering Sustainability & Carbon Reduction

Creating Wellbeing & Loveable Communities

Net Zero Transport & Decarbonisation
Electric Vehicles & Energy Transition
Climate Adaptation
Nature Positive

Stakeholder Engagement & Consultation
Movement & Place
Air Quality
Social Impacts & Equity in Transport
Transport Service Quality Improvement

Planning is hard and full of tough choices and compromises - but there are ways to encourage much more effective integration of land use and transport planning. What questions should developers be asking to ensure transport issues don't derail their decarbonisation aspirations? How do we address the practical problems of balancing different and competing demands for space on our streets, and create spaces that people love.

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Land Use and Transport Integration: a Multi-Disciplinary Approach

Getting the carbon out of transport can be an uphill struggle – but it's going to be a much bigger struggle if we keep building places up the wrong hills, or fail to get a full understanding of the challenge.

New developments tend to get built on the sites that developers bring forward at the invitation of local authorities, rather than in the places that make most sense from an integrated and low-carbon transport perspective. This is understandable of course: planning is hard and full of tough choices and compromises, but there are ways to encourage much more effective integration of land use and transport planning. This calls for mobilising a wide range of insight and expertise in order to provide comprehensive answers.

Running a district-based transport study to identify the optimal locations for effective, low-carbon transport is a powerful start, encouraging development where there are natural transport solutions instead of bolting something on to the wrong place later. The criteria for such a study should be locally based, looking at proximity to local services and public and active transport, access to electric vehicles,

and opportunities to increase density in order to increase the viability of public transport.

But even when we can't influence the siting of new developments as much as we would like, there is plenty we can do to encourage better land use and transport integration. For example, bringing together local authorities, developers and other stakeholders such as National Transport Authority, Transport Infrastructure Ireland, bus operators and future mobility providers, to ensure they have the information they need to create the right sustainable transport strategy choices to keep people moving, today and tomorrow.

Do they know what critical mass is needed to make a bus service self-sustaining? Are they aware of the different accessibility requirements of different housing types?

Have they considered the way existing transport services could be exploited and integrated within the new site to encourage active travel and walkable neighbourhoods?

In SYSTRA's multi-disciplinary teams, we have answers to all of these questions. We just have to make sure the right questions get asked. Uphill struggle? Perhaps. But there is a reason we go up hills: the view is better from the top.

Andrew Archer, Projects Director at SYSTRA

Sinead Canny, Director for Transport Planning & Appraisal at SYSTRA

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Putting Streets At the Heart of Placemaking

Good streets are the heart of sustainable places. That is a truth acknowledged by urban designers everywhere, so why do we keep making the kinds of vehicle-dominated, stressful places that nobody wants?

The problem is that our streets are too often the result of uncoordinated changes and stakeholder battles for space and priority. The biggest losers end up being the walkers and cyclists that sustainable, low-carbon places most need to attract. This negatively impacts not just on people's health, but on the health of local economies, town centres and high streets.

Instead, we need a collaborative approach which considers the street holistically and gives full weight to what local communities need from and feel about them. Changes to the urban fabric affect users emotionally as well as practically and these twin effects are dynamically intertwined. As transport designers, we have to more deeply understand the way that moving through a place contributes to what makes that place. These are some of the governing principles that underlie SYSTRA's success in creating better transport solutions.

The NTA have recently published their revised National Cycle Manual, which builds on the concepts within the Department of Transport's Design Manual for Urban Roads and Streets.

Delivering streets which support and encourage sustainable transport and create more liveable places will no doubt be key objectives of this new guidance. Let's hope that it gives proper consideration to the practical problems of balancing different and competing demands for space in streets that have been too often neglected until now. Excellent sustainable transport is not just about carriage, carbon, and cost, but making streets that people love.

Arantxa Martinez-Peral, Associate Director, Team at SYSTRA

A Case in Point

SYSTRA was appointed by Westmeath County Council to undertake a public realm enhancement plan for Church Street in the centre of Athlone Town.

Looking To The Future

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Planning Ahead for Net Zero Transport

For several decades, transport policy in the UK and overseas has been fundamentally designed around making car use safer and more convenient. It has shaped our towns, cities and landscapes in fundamental ways but, more than that, it has shaped our transport behaviours and the way people think about urban and rural space and our place in it.

If transport is going to seriously contribute to Net Zero, some seriously big changes are needed – not least a shift in thinking.

If we allow the conversation to be dominated by the replacement of the car fleet with electric vehicles, we risk remaining trapped in that way of thinking, treating the symptom but not the underlying ailment. The potential to deliver the concept of thriving cities will be compromised.

Creating transportation capable of helping address the climate emergency will mean shaking off those old assumptions and changing the way we think about travel and our relationship to the places where we live. If we're going to keep people moving – today and tomorrow – we need to anticipate future mobility needs and plan for those today.

To achieve the levels of behavioural change necessary to reduce overall travel distances and reach Net Zero, it's likely that private car use will have

to be actively disincentivised. This will be through demand management measures such as a reduction in the amount of parking space and an increase in the cost of car use and parking.

Promoting public transport and active travel modes is relatively complex, even where it is low tech and cheap to implement. When a journey involves a bus, a walk, a train or tram and an e-bike or scooter, the time spent planning and co-ordinating can make the jump into a taxi or a private car seem very attractive. The obvious answer is app-based. Mobility as a Service (MaaS) can be a means of linking many and various transport modes into a simple planning tool with through-ticketing, made possible via a subscription.

Peter Weldon, Director - Net Zero Transport at SYSTRA

Jorgen Pederson, Director of Transport Technology at SYSTRA

Mobility as a Service (MaaS): a Game Changing Concept for Future Mobility

There's a lot of chatter across the industry about Mobility as a Service (MaaS), but what does it actually mean?

Mobility as a Service means, on the most basic level, providing an integrated platform of all available transport modes including active, social and private modes of travel. That platform will be app-based and will allow the user to plan and organise travel that incorporates disparate transport modes - from bus, taxi and ride share, to e-scooter, bike hire or walking, with public and private modes seamlessly integrated.

Practical and psychological barriers to low-cost, low-carbon travel alternatives are removed and travel is experienced as a seamless ecosystem, each part dependent on the health and interdependency of all the others, rather than just a series of separate competing modes with interconnections that are often awkward or worse.

But there is much more at play than simply integrating different transport modes into a single unified app. MaaS is fundamentally about health: for the user, for the community, for the climate. That implies accessibility for all regardless of socio-economic factors or limits on personal mobility. It will not always be possible to simply map an app on to existing transport provision, but will demand changes that increase access and opportunity.
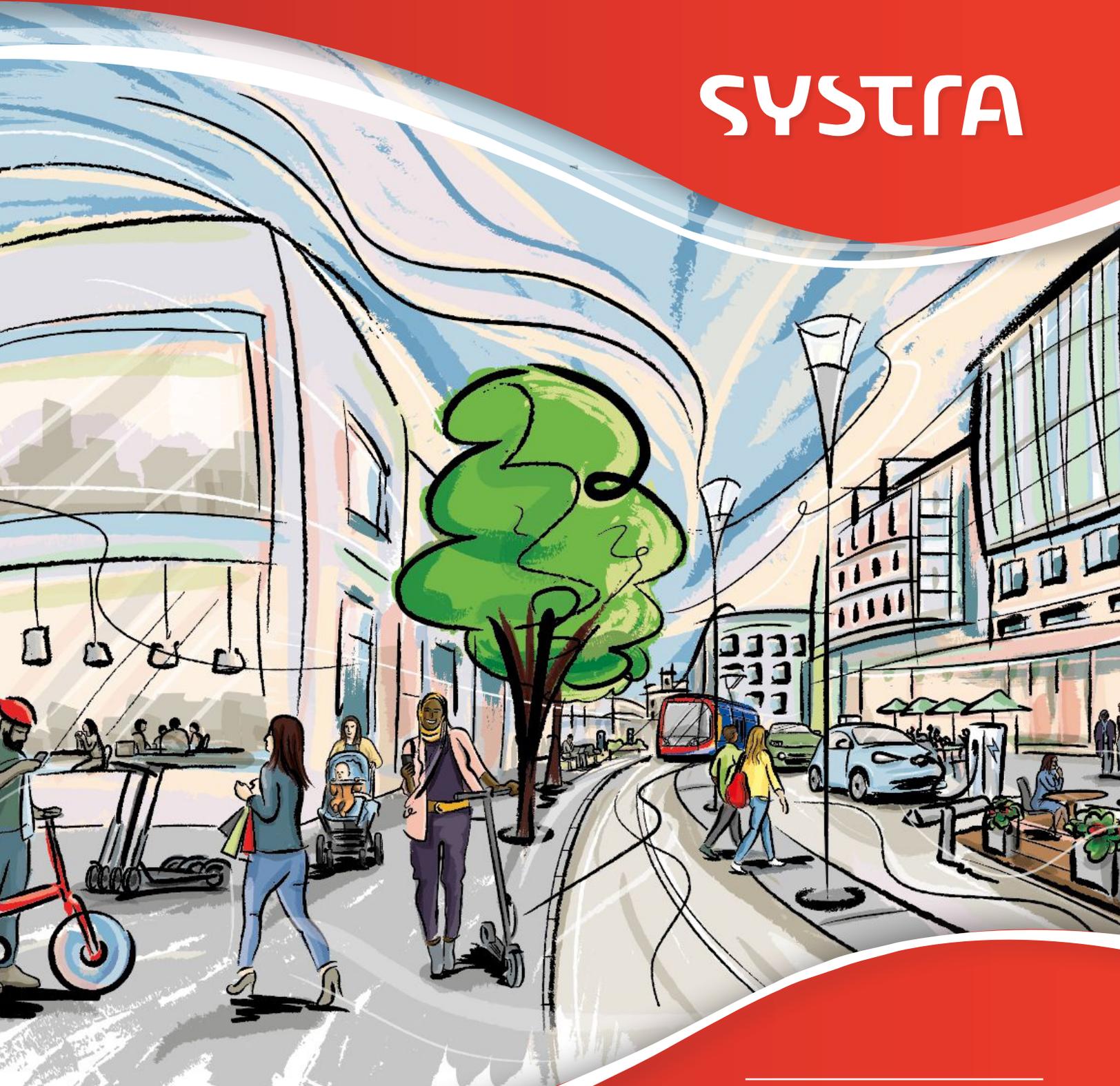
A last word>

Predicting the future is likely to be difficult, but is achievable, and as we plan for the future there are bound to be unexpected challenges and opportunities. We are not going into this blind, nor are we complacent, but we simply cannot ignore the climate situation any longer.

Together we can create a low carbon, liveable, economically prosperous future – locality by locality.

SYSTRA