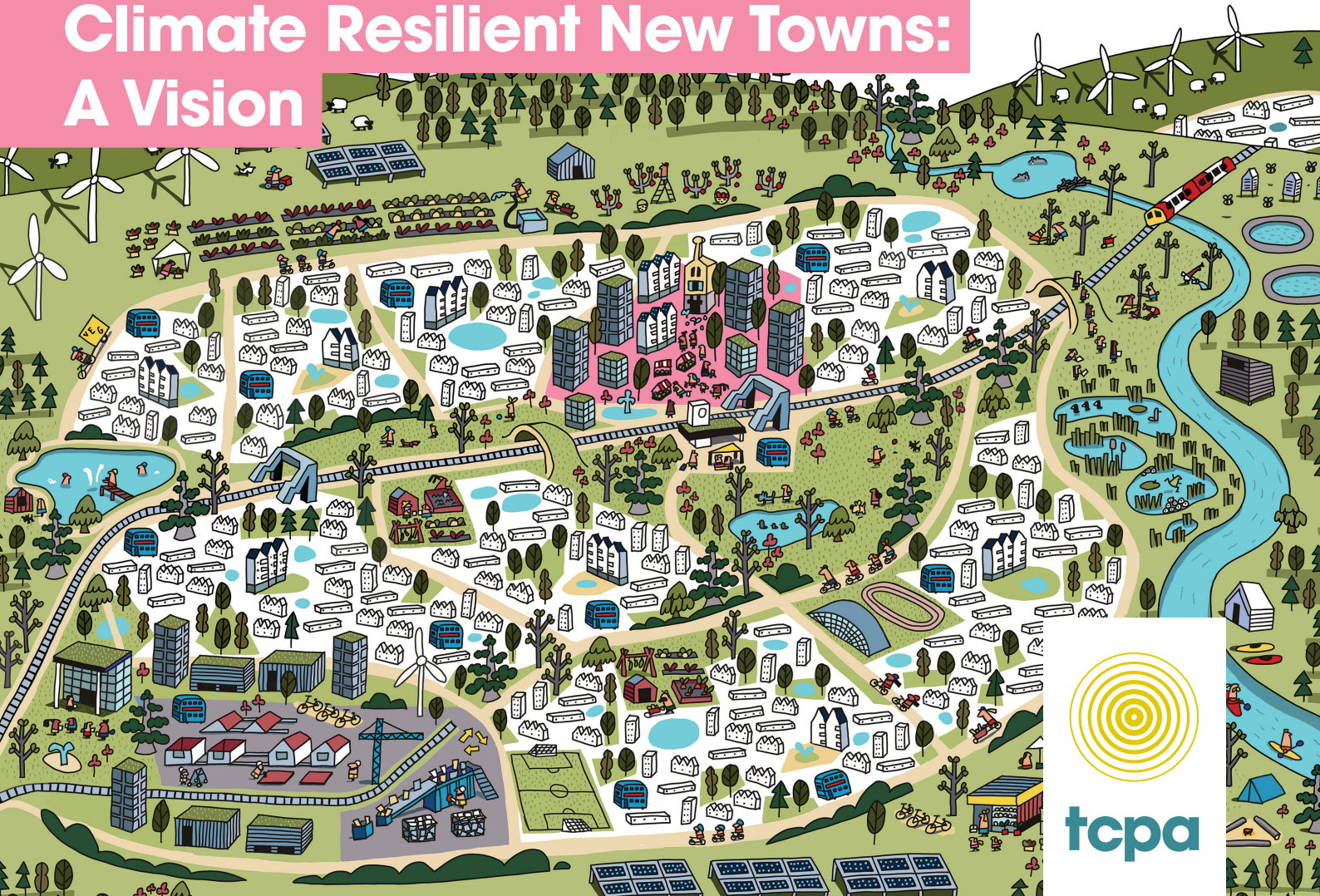


Climate Resilient New Towns: A Vision



tcpa

Introduction

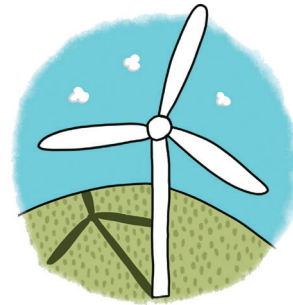
We currently hold a generational opportunity to create new communities that are resilient for future generations. It is vital that new towns are built with climate resilience at their heart, where fossil fuels are redundant and people and nature thrive without fear of fuel poverty or the devastating impacts of overheating and flooding. This will mean taking bold, ambitious design approaches based on a radically different understanding of the conditions in which people will live.

This is an essential task, because the success of new towns will be judged by future generations on whether they provide the conditions in which people can thrive in the face of a dramatically different climate.

This vision document applies a climate lens to the possibility of new towns, to advocate for places that provide an aspirational and hopeful way of living in the future.

The TCPA's heritage, rooted in the bold vision of the Garden Cities, and drawing on lessons from the post-war new towns, means we are clear on how this can be achieved. The Garden City Principles* provide a holistic framework for delivering planned new settlements that address the acute health, housing, climate, and nature crises facing the nation.

We are clear that public development corporations which unlock land value to be invested in the new community, and a model that enables long term stewardship in the interest of communities are key.



To read the Garden City Principles in full visit <https://www.tcpa.org.uk/garden-city-principles/>

> **Foreword by Emma Howard Boyd CBE**

Our generation faces the defining challenge, and the defining opportunity, of the post-war era: to create climate-resilient new towns with healthy homes at their heart. We must build communities that meet today's needs while protecting future generations, including those who may be displaced by flooding and coastal erosion, and those increasingly exposed to the risks of extreme heat and overheating.

We have the knowledge, the technology and the evidence that publicly led development can deliver at pace and at scale. What is needed now is the vision, the moral imagination and the collective will to create places that work with nature, safeguard health and strengthen resilience from the outset.

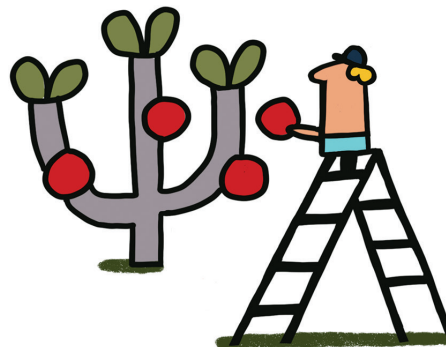
This report sets out the TCPA's vision for Climate Resilient New Towns. It shows that by planning for climate adaptation alongside mitigation, we can create communities that are healthier, fairer and more secure. The choices we make today will shape how people live for decades to come. If we are prepared to lead with ambition and think beyond the immediate horizon, we can leave a lasting legacy

of resilient places that give future generations the opportunity not just to cope with a changing climate, but to thrive.

Emma Howard Boyd CBE

Chair of the National Heat Risk Commission

*Professor in Practice, Grantham Research Institute
on Climate Change and the Environment, London
School of Economics and Political Science*



➤ A postcard from the future

New Mablethorpe, 2100

New Mablethorpe was built high in the Lincolnshire Wolds to house many of the people whose homes were lost to flooding. The reforested hill tops provide shady walks from the town, where glimpses can be caught of the expanded wetlands, teeming with birdlife, and holding water during regular storm surges. Under these wetlands once stood the seaside towns of Lincolnshire's old coastline.

In summer, temperatures regularly reach 40 degrees, but the trees planted throughout the town 60 years ago are now mature and shade the streets and public spaces. Every building is designed to keep cool in summer and warm in winter- with insulation, heat and cooling pumps, external shading, and ventilation systems that run on renewable energy generated in the town.

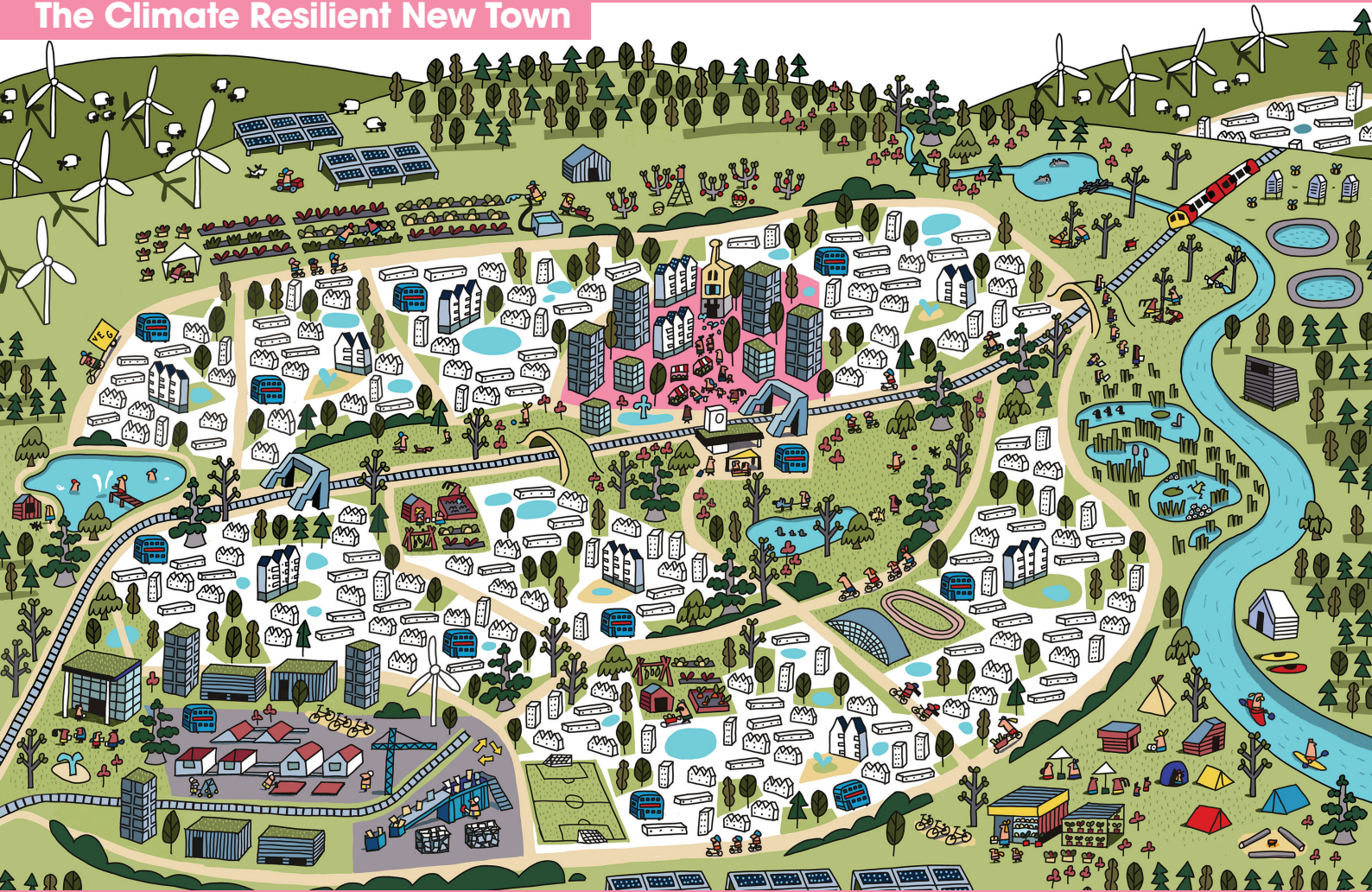
Neighbours gather and children play in the streets and communal gardens. Food is grown on the slopes around the town where water is harvested and recycled carefully to grow crops during droughts.

Nature is on the doorstep, where people have the right to roam and swim in clean rivers. The town is teeming with arts and culture, play and adventure, and sport and leisure is accessible to all.

All this was made possible by the foresight of the people that designed the town, whose vision was to create a new Garden City that would endure for the 21st and 22nd centuries, and beyond.



The Climate Resilient New Town



➤ What would a climate resilient new town look like?

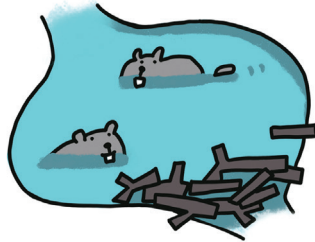
Nature

The town meets clear standards for nature and every home has access to a garden and is withing walking distance from a larger park.

Natural green and blue spaces are intertwined and networked throughout the town, providing essential corridors for wildlife. Thriving natural habitats not only support the resilience of the town but also support diverse species.

Water

The town is designed to cope with periods of heavy rainfall and periods of drought. Homes are built with flood resilience measures and are water efficient, with water harvesting and reuse at the building and neighbourhood scale. Sustainable drainage helps prevent flooding by holding back water.



Urban Cooling

Shading is provided throughout the town, through trees, shades and shelters. Greenery is also used to reduce heat reflecting from buildings, with green roofs and green walls.



Water plays an important role in keeping the town cool, with water fountains, misters that can be turned on in a heatwave, and water channels and ponds.

Building materials have been selected carefully to reduce heat gain and buildings are fitted with reversible heat pumps that keep homes warm in winter and cool in summer. During extreme heat waves, schools, health services and community and workspaces are actively cooled and provide community cool hubs.

Construction

Construction waste is reduced by using modern methods of construction (MMC), with zero carbon materials. An MMC factory creates jobs in the town from an early stage. The town is designed to use existing infrastructure to limit the need for new construction where possible.



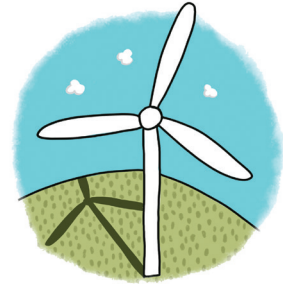
Health and play

The health of people and the environment is supported every day, through active travel, easy access to health services, spaces to play, leisure facilities and nature on the doorstep. All of this supports peoples' physical and mental wellbeing. Air and water quality are of the highest standard because pollutants are strictly managed and have been designed out of the town.



Energy

All buildings comply with the highest possible energy efficiency and net zero standards. Currently, that would mean Passivhaus equivalent or the UK Net Zero Buildings Standard.



The energy needs of the town are met as far as possible from energy generated within the settlement, with additional needs fed by renewable infrastructure on the outskirts of the town.

Community energy systems are built into the infrastructure, such as heat networks, solar power and battery storage which supply streets more efficiently than individual homes.

Food

Food security is a driving principle in the town's layout. Communal vegetable beds and gardens, allotments and market gardens all provide space to grow, and each neighbourhood has shops, cafes and restaurants providing healthy, sustainable food.



Economy

There is a thriving local economy founded on principles of circularity and environmental and social justice, where production and consumption are focused on meeting the needs of local communities, within planetary boundaries.

Workspaces are affordable and designed to be flexible to meet the changing needs of businesses. Employment areas are easily accessed from homes by active travel and public transport.



Transport

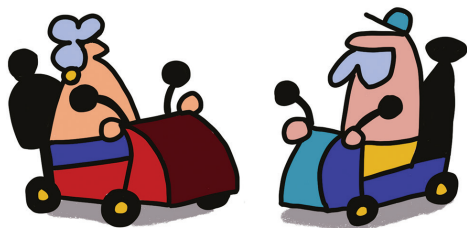
The town is planned as a series of neighbourhoods which are complete, compact and connected. This means that people's daily needs can be met within walking distance, and longer journeys are easily made by cycling or public transport.

Safe routes for walking and cycling are shaded by trees and integrated throughout the town.



▢ For everyone

The climate resilient new town is an environmentally and socially just place. Social and affordable homes are plentiful, creating a diverse housing stock. All households benefit from low energy and water bills due to resource efficient design.



Measures to reduce climate risk are designed to be inclusive and accessible to those who are most vulnerable to climate impacts, such as children and young people, older people, those in care and disabled people.

Participation and democracy are core values, where citizens are involved in designing, delivering and managing their community.

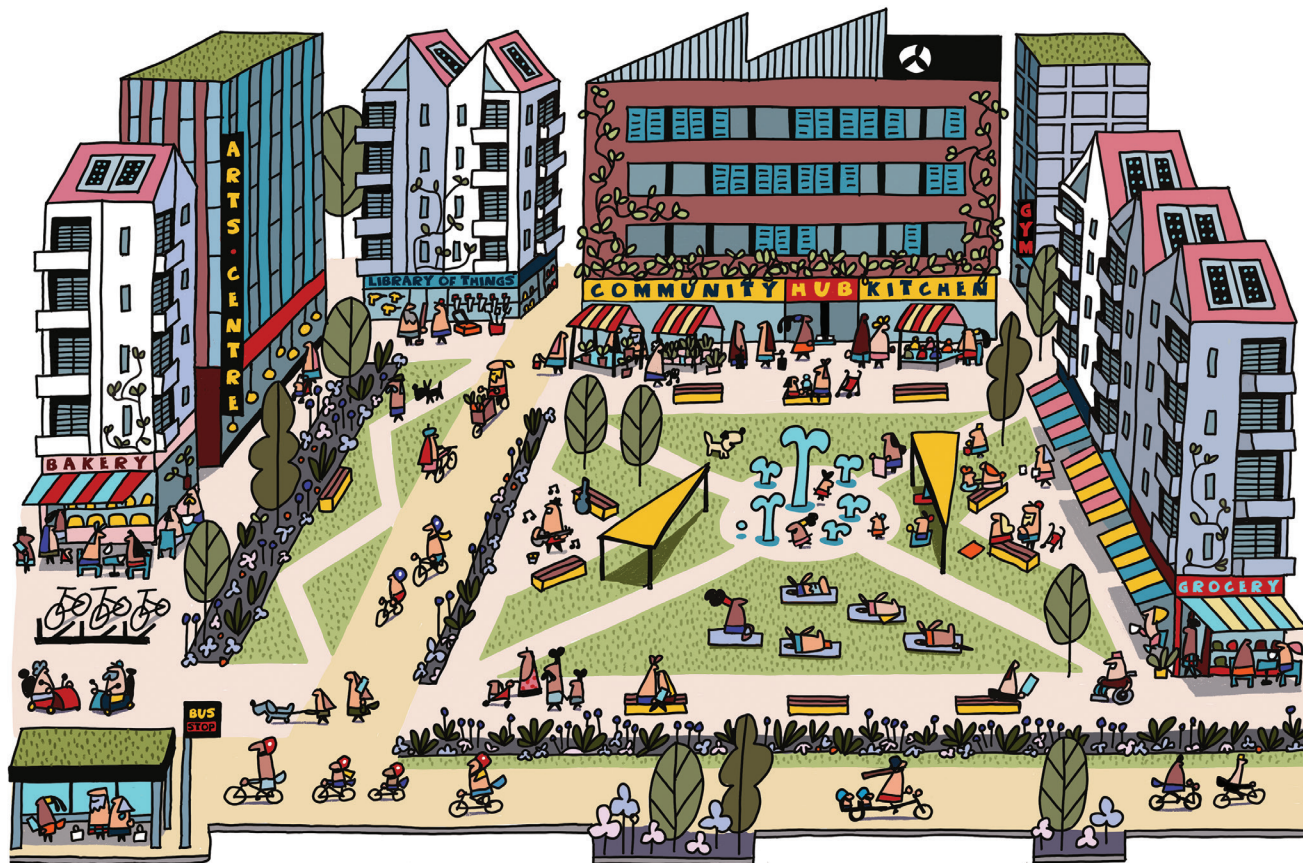
In perpetuity

The long term stewardship of place is fundamental to climate resilience, and underpins the Garden City Principles. This is about caring for shared assets so they last, such as making sure that green spaces are maintained to thrive despite the changing climate.



Stewardship is also about enhancing the lifespan of buildings and infrastructure to reduce embodied carbon and waste. In practical terms this would require a community trust or similar, which generates income that is invested back into the town.

➤ The climate resilient town centre



Thriving local centres

Each neighbourhood includes a thriving centre with shops, places to meet and socialise, and public services. There are some taller buildings with work space and residential uses, so that local businesses do good trade, but the design and density of buildings is shaped by consideration of carbon emissions.

Buildings are designed from the outset to provide flexible space which can be repurposed to prolong their lifespan and avoid the wasted carbon and materials associated with demolition. Existing buildings are incorporated via high quality retrofit which meet healthy design standards.

Green spaces create focal points, with fountains and greenery providing space to socialise, people watch, and play. Green and blue spaces also help to keep local centres cool so they remain comfortable to use during hotter summers.

The public spaces are accessible and will be owned by and managed for the community, so activities, events and markets can take place. Venues for arts and culture and are also a key draw. These varied uses attract a diversity of people to enjoy the space. The centre is easily accessible via a transport hub and active travel routes.



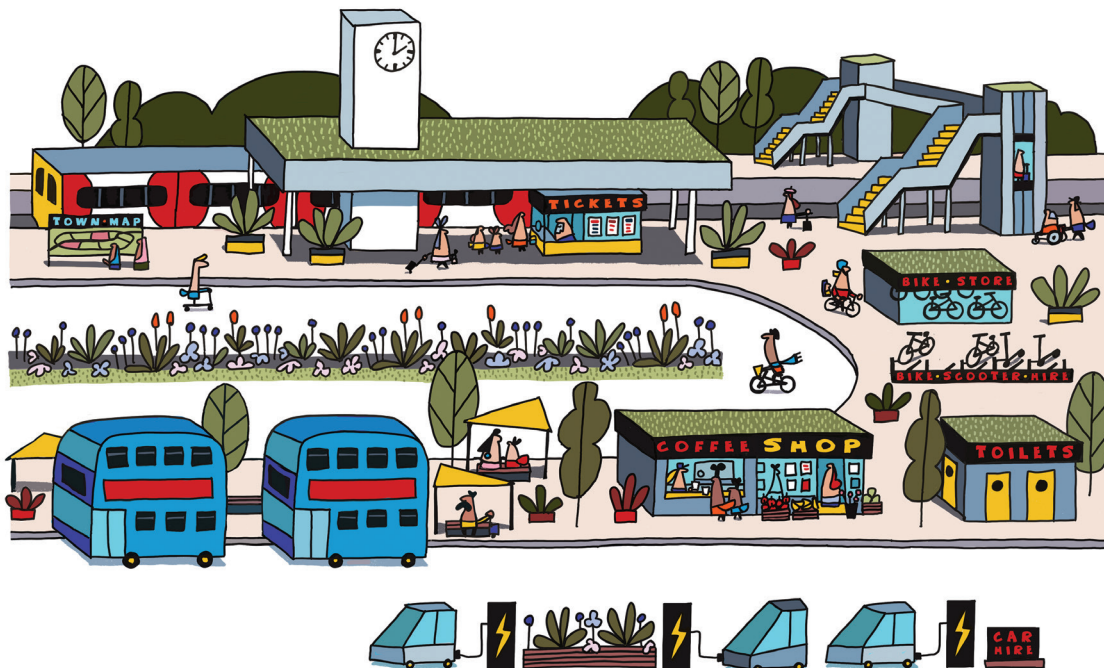
> Transport hub

The transport network is planned holistically, and journeys by different modes all link up, meaning people can get off trains and choose between bus, bike, scooter or car club for onward journeys.

Transport microhubs become nodes around the town, linking up intuitively so that active and public transport are the easy and most affordable options.

Walking and cycling routes and public transport waiting areas are sheltered from heat and rain. Green roofs, trees and planting mean waiting areas are pleasant and comfortable spaces.

Transport infrastructure will be designed to the highest resilience standards, with rails and roads that can withstand heatwaves and flooding.



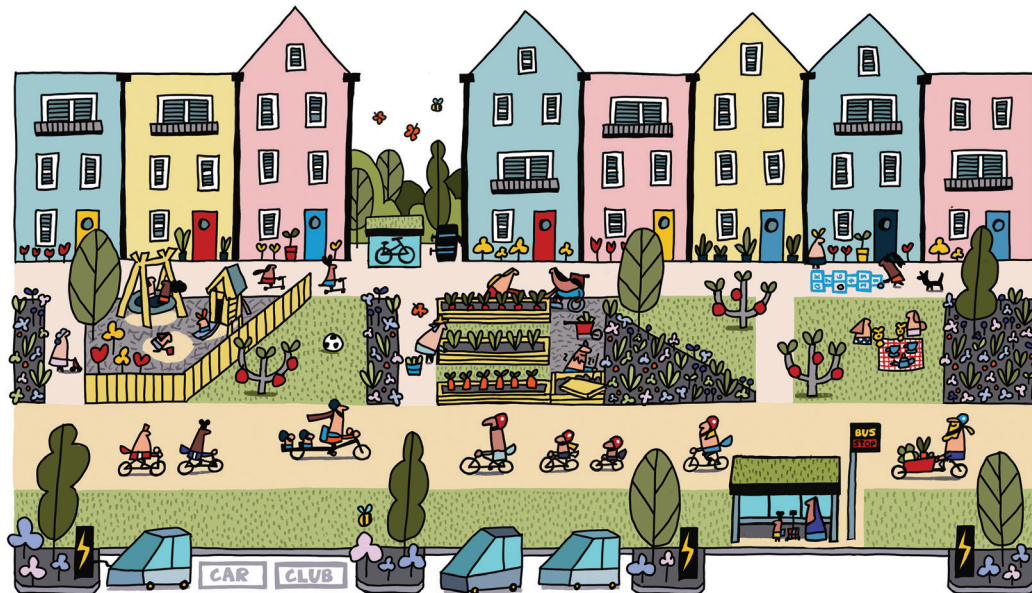
Streets for people and nature

Streets are designed for people. They provide space for play, community and food growing. Each street has sustainable drainage and greenery to provide shade, support nature and keep homes safe from surface water flooding. The use of impermeable materials like concrete and tarmac is limited to reduce the urban heat island effect and to slow down water run off when it rains.

Communal space houses bike stores, recycling bins, composting and rainwater harvesting, optimising land use. Natural surveillance across the street creates a feeling of community and safety.

All streets are well connected, with priority given to play, walking, cycling and scooting and public transport. Streets are calm and easy to navigate.

On demand electric vehicles and car pools cater for longer journeys so less space is needed for car parking.



☒ **Climate resilient homes**

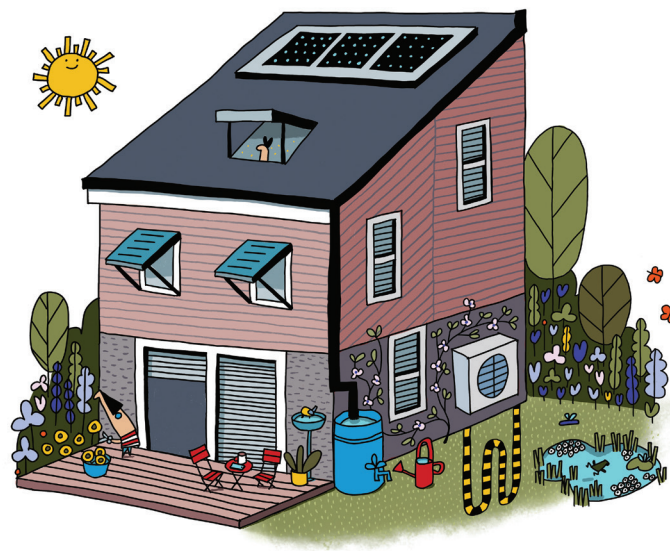
A climate resilient home is a healthy home and will meet the TCPA's [Healthy Homes Principles](#).

Residents benefit from highly energy and water efficient homes meaning bills are low or zero. The home uses zero carbon energy, and is fitted with solar panels and battery storage.

Ventilation is crucial to comfort, stopping the build-up of damp and pollutants. Mechanical ventilation with heat exchange regulates the temperature of the home. Shutters and louvres, and the orientation of the building reduce overheating. Inside, appliances are smart so that dishwashers, washing and heating can be turned on remotely to manage energy use.

Zero carbon homes are a non-negotiable target. A new town provides the opportunity to use innovative delivery models focused on sustainability, including community land trusts and self-build homes. Modern Methods of Construction (MMC) reduce the embodied carbon of construction and maximise the use of sustainable building products.

Homes will be designed to high accessibility standards and with additional space (indoors and out) to meet the needs of growing families. Neighbourhoods are designed to cater for people through different phases of life. Homes and streets are well designed and beautiful, using quality materials that stand the test of time and get better with age.



➤ A town in a resilient landscape

The most fundamental driver of whether a new town will be resilient to the impacts of climate change is its location. Places prone to flooding, now or in future, should not be considered suitable for a new town because the cost of flood defences will divert investment from genuinely affordable housing.

The wider landscape is managed to protect the new town. Tree planting, water storage and sustainable drainage systems mean the landscape and the town act like a 'sponge' - holding, filtering and slowly releasing water to prevent flooding. This illustration shows a river that has been naturalised, helped by beavers, and land set aside to store water which can slowly permeate into the ground.

In areas at risk of wildfire, a break in vegetation creates a firebreak that surrounds the town, offering protection.



> **The TCPA hosts a library of resources that can help make this vision a reality:**



**21st Century
New Towns
(vision
document)**



**New Towns and
Garden Cities
(resources and
guides)**



**Planning for the
Climate Crisis, A
guide for local
authorities**



**Practical Hope
community
guides**



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