

# Net Zero Towns and Cities

Max Farrell, LDN Collective

eurammon Symposium, June 14, 2021



engineering for  
a better world



eurammon

refrigerants delivered by mother nature



we are city makers

## DECISIVE

our team  
comprises senior  
decision-makers

## COLLABORATIVE

diverse  
partnerships and  
knowledge

## DYNAMIC

hand-picked  
teams convening  
and disbanding

## BEYOND PROFIT

sustainable and  
liveable cities  
for everyone

# sustainable buildings

Net Zero  
Whole Life  
Carbon

use of  
recycled and low  
carbon materials,  
zero waste

fabric first  
minimise  
day-to-day  
energy use

design for  
durability  
low maintenance  
and flexibility

local  
sourcing

retrofit and  
circularity where  
possible

Life Cycle Assessment for carbon and financial ‘total cost of ownership’

test-bed for new GLA Whole Life Carbon policy

# sustainable sites

sustainable  
land use

Net Zero  
site creation

biodiversity  
-  
flora and fauna  
-  
link to Wellbeing

sustainable  
water use

improved  
ecological  
condition

optimise  
reuse of existing  
infrastructure

site-wide sustainability: GIS mapping

track existing and proposed measures

# sustainable communities

maximise  
Wellbeing for  
project within  
local community

optimise  
social value

integration  
with local  
community

maximise Health  
and Wellbeing  
within project

safe  
spaces

sustainable  
connectivity and  
transport

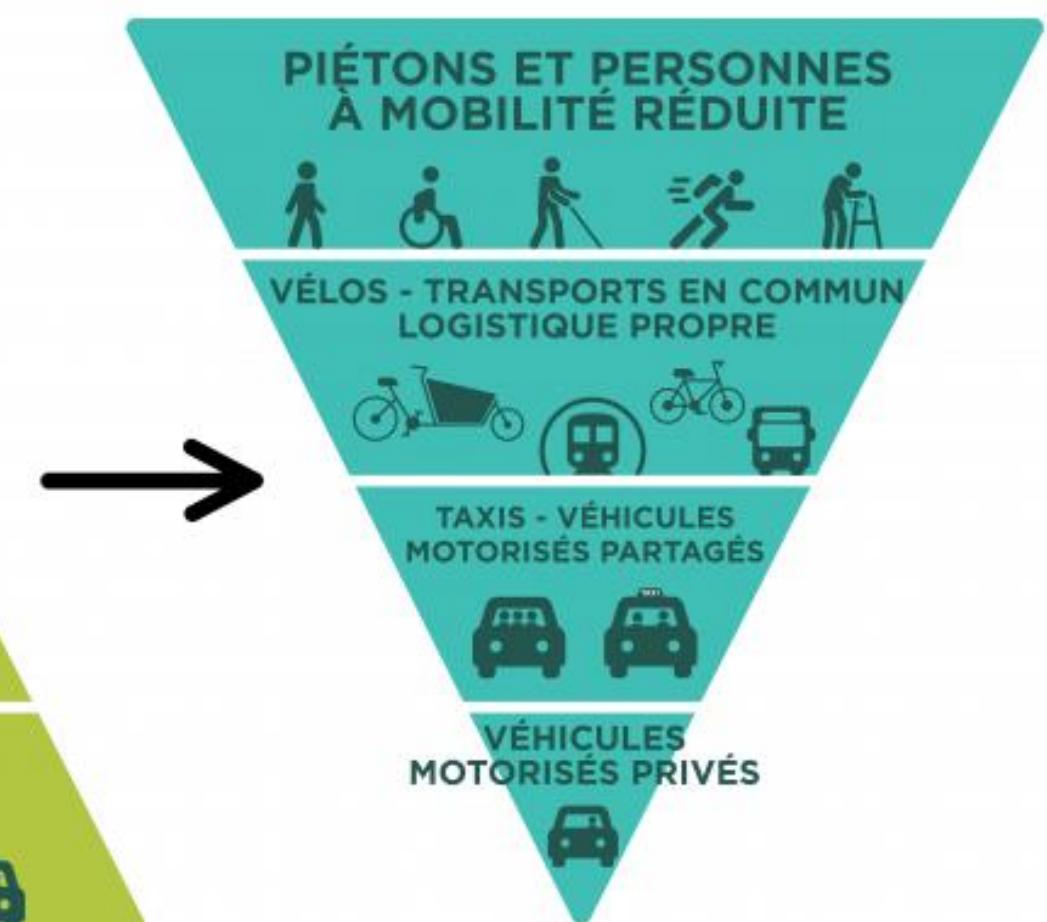
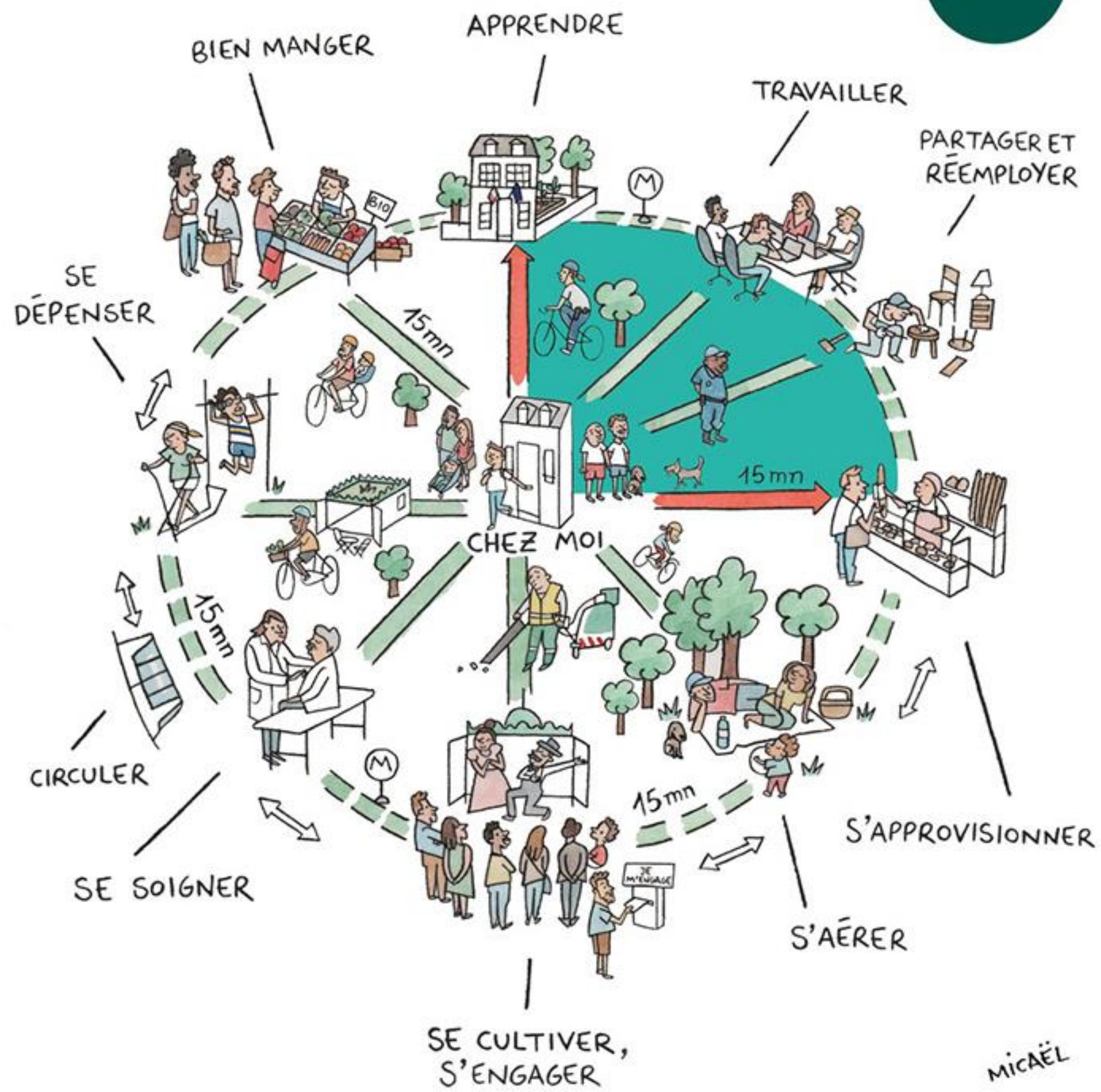
air quality, thermal comfort, acoustics, daylight

flexible and adaptable spaces – ownership



town centres  
post coronavirus

# LE PARIS DU 1/4 HEURE



LDN  
BEFORE



AFTER



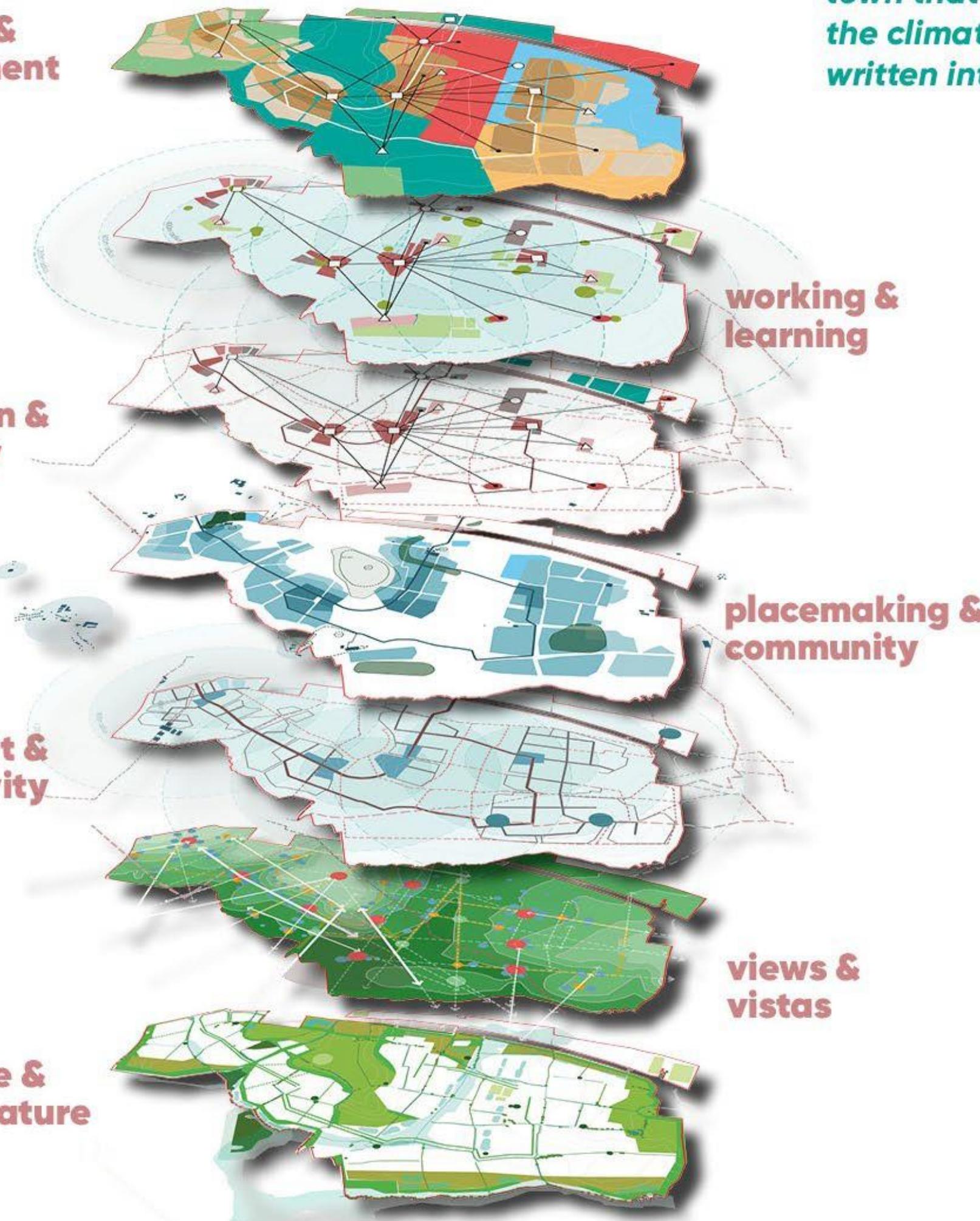
A man with glasses and a beard is sitting at a desk in a home office. He is wearing a striped shirt and holding a smartphone to his ear with his left hand. His right hand is on a keyboard. In front of him are two computer monitors, one showing a starry sky and the other showing a dark image. A lamp is on the desk, and there's a potted plant to the left. Behind him is a window with a view of trees.

working from home





research &  
development



*"Harrington is the first new town that has a response to the climate change emergency written into its DNA"*

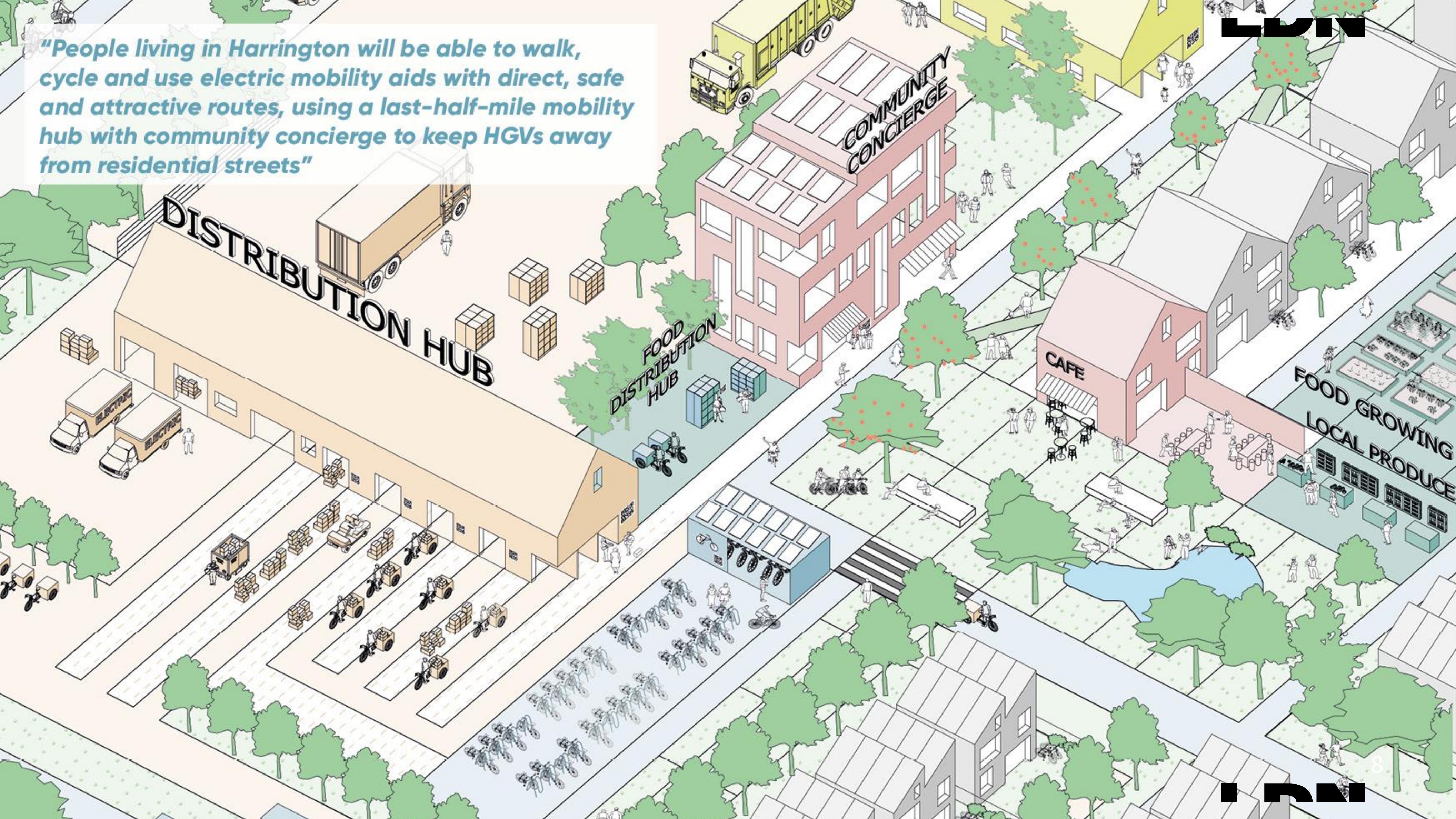


LIDN

LIDN



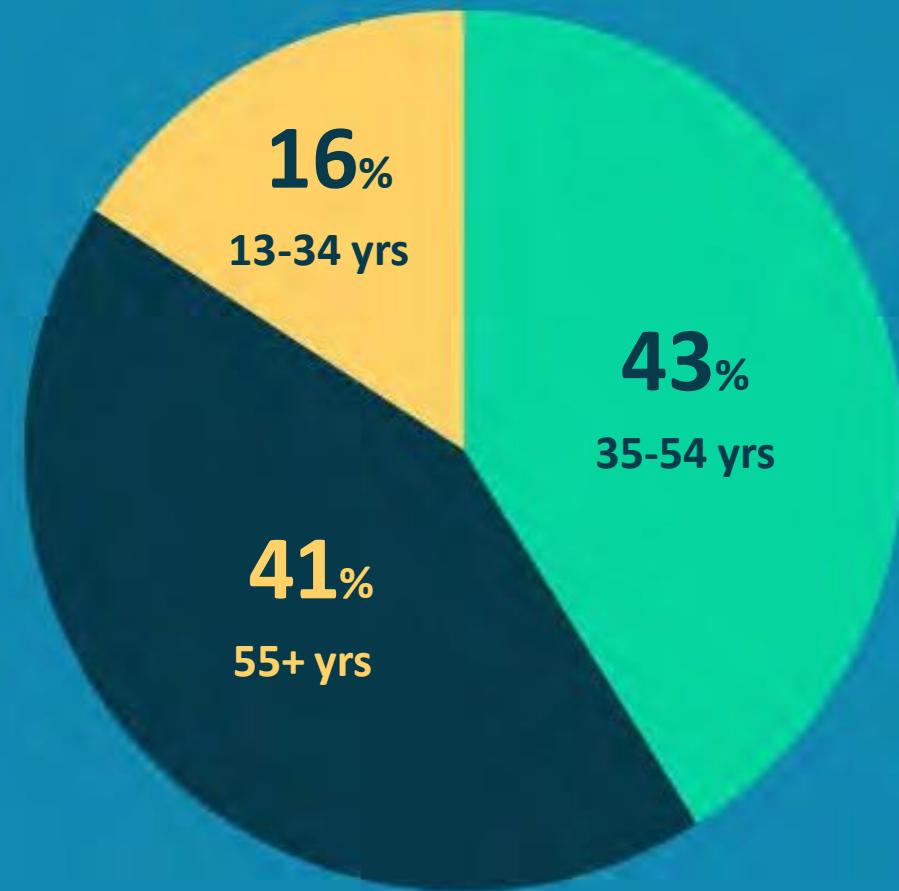
**"People living in Harrington will be able to walk, cycle and use electric mobility aids with direct, safe and attractive routes, using a last-half-mile mobility hub with community concierge to keep HGVs away from residential streets"**



welcome to  
**#PARKPOWER**

#PARKPOWER

# participation statistics



2,339  
3,440  
2,458

participants

contributions

comments



contributor

 Commonplace

#PARKPOWER

# parkologies

Understanding the variety of open spaces in our city is an important first step: we saw that different spaces fulfil different local needs. This has helped inform our recommendations, ensuring that parks remain true to their character and identity that has evolved over the years.



where everything  
happens



the green lungs  
of our city



where we go  
to meet up



where we spend time  
with our loved ones



exercising and  
traveling through

contributor



#PARKPOWER

# recommendation themes

access  
to nature

health  
+  
wellbeing

social value  
+  
inclusivity

technology

zero  
carbon

active travel  
+  
accessibility

culture

public  
engagement



access to nature, recommendation #1

# Make space for returning wilderness.

- Design new plant palettes based on existing soils, geology, aspect and drainage. Use native plants and species suited to the location, make parks work with nature
- Create more green habitats in our parks including biodiverse roofs on existing buildings, living green walls on blank elevations and more wildlife gardens
- Consider dog free zones in appropriate areas so as to not disturb wildlife, particularly during breeding seasons

- Consider green links to connect different parks together such as tree-lined streets. Connecting green spaces enables ecosystems services such as improved air quality, reducing the urban heat island effect and boosting wildlife population. It allows nature to move more easily through a network of green spaces in the city
- Include habitat creation for priority species in order to increase number and type
- Include hibernaculum wherever possible such as log piles, insect hotels and bird boxes





access to nature, conclusion #3

# food growing

The idea of experimental growing was very popular with the public. It would connect people to nature in cities and teach young children where food comes from.





health and wellbeing, conclusion #2

# ecosystem services

Ecosystem services is a nature-based solution that improves the wellbeing of city dwellers. How much a park or green space contributes to ecosystem services should be integral to the planning of open spaces.

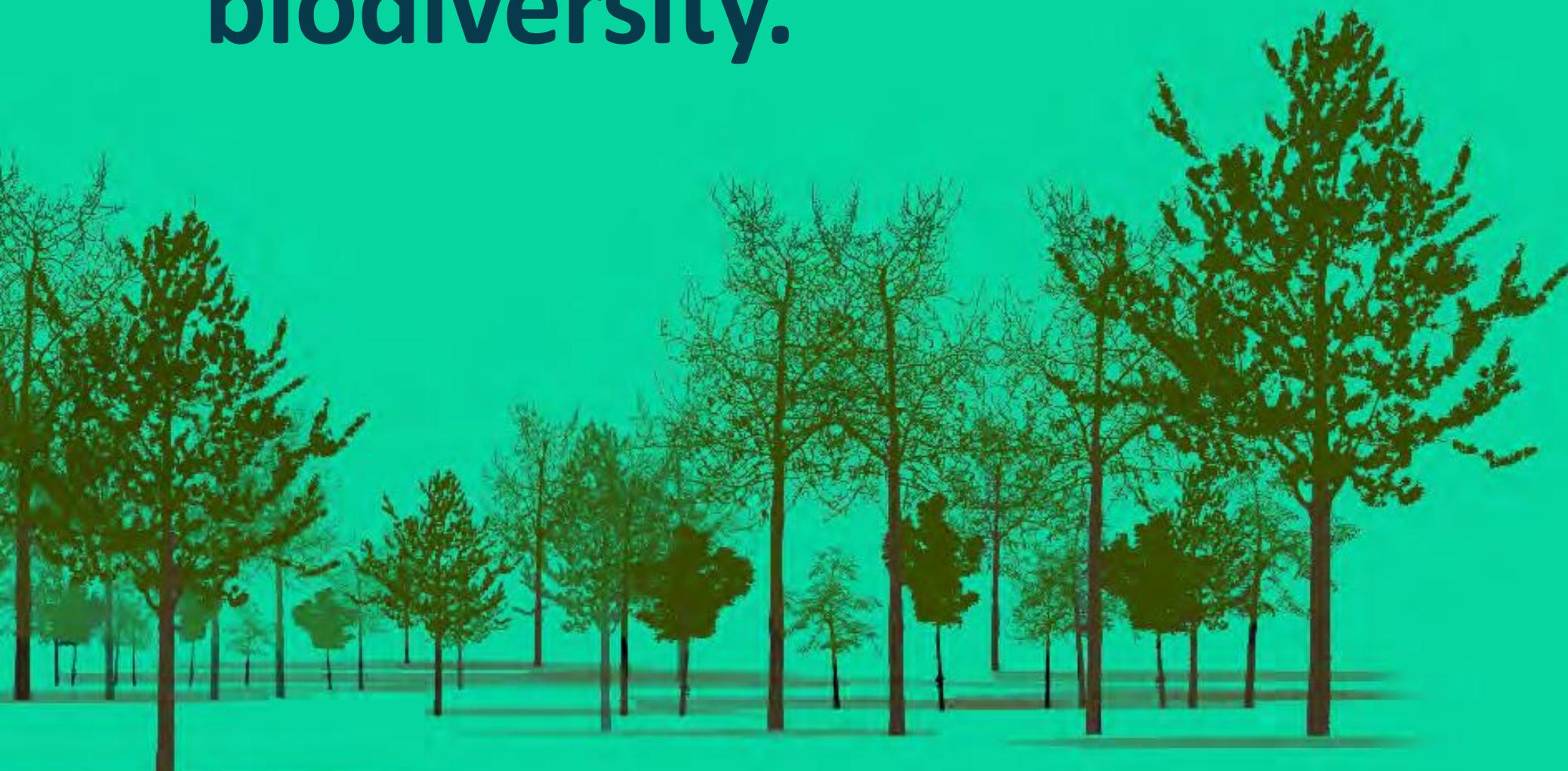
Designing a park based on how much it can give back increases the benefits to people, the environment and wildlife. Parks can create healthier, cleaner cities with carbon sequestration, microclimate regulation, and wind and noise reduction improving social and psychological wellbeing.





health and wellbeing, recommendation #2

# trees are the best technology nature has for locking away carbon, and they are centres of biodiversity.



- We should plant more trees. Trees make our cities cooler, reducing the urban heat island effect and making our air cleaner by sequestering CO<sub>2</sub>. Exposure to trees can boost the immune system, lower blood pressure and even increase energy levels. We need more trees in the future of our parks and in the city
- Tree line streets capture particulates and create a more pleasant green network for people to walk through
- Species that are flowering or fruiting increase nature in our cities by being a food source for wildlife. Birds and insects then pollinate and spread seeds which is crucial for the reproduction of plants
- Consider sustainable urban drainage in parks. Rain gardens and swales are not only visually appealing, they also filter water and slow the amount of run off going into urban drainage systems. Water can also be harvested for irrigation



health and wellbeing, recommendation #3

# design, management and maintenance can transform a park into a welcoming space.

- Parks should design out risk using passive surveillance such as attractive facilities for the local community with an active year round programme
- Keeping parks well maintained and the presence of a park warden, or other park staff also can make people feel safer



- Consider separating cycle paths from pedestrians. Mixed paths should be sufficiently wide and always have pedestrian priority
- Provide compliant-level access. Many run-down parks have uneven surfacing that can be a trip hazard, particularly to the elderly. Changes to the future of our parks should prioritise renewed surfacing with sufficient grip

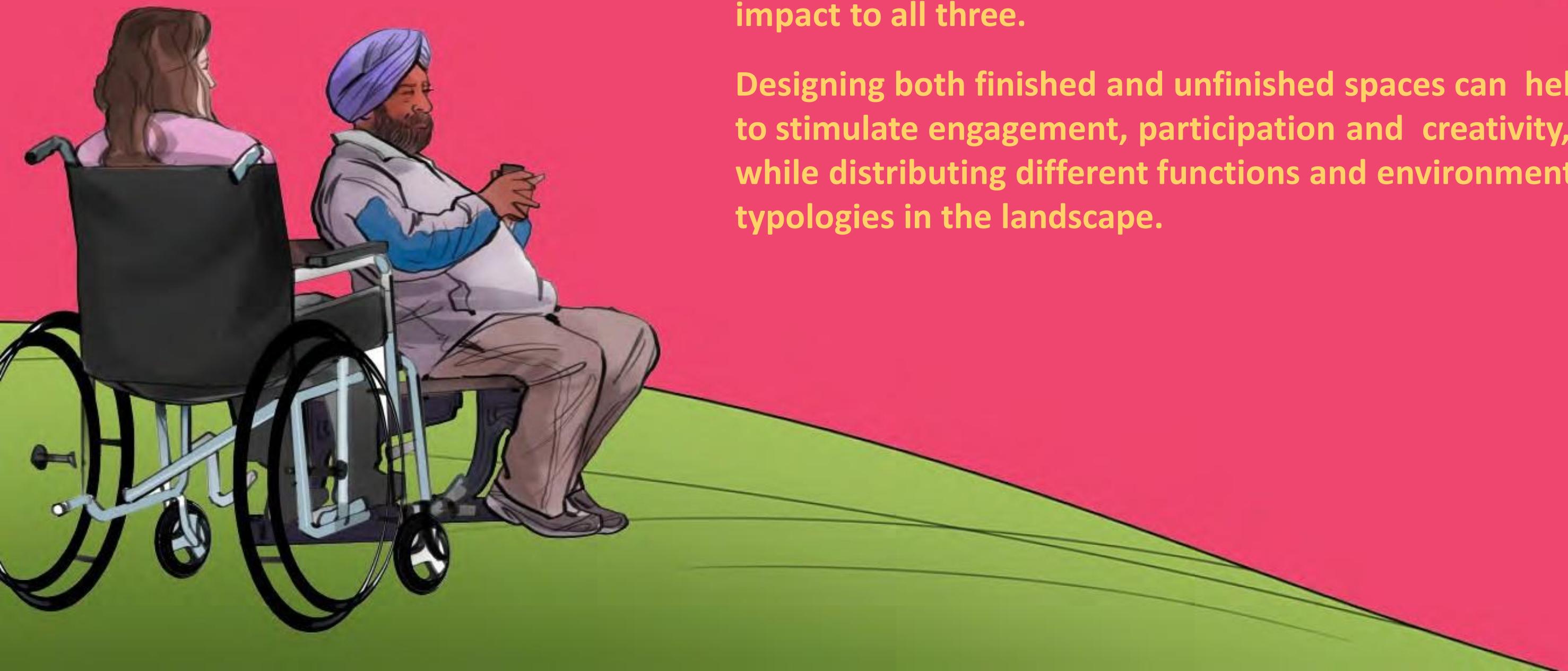


social value and inclusivity, conclusion #3

# inclusive places

The social value of parks can be maximised by considering how multiple dimensions of wellbeing can be accommodated, and how the interrelationships between people's lives, urban spaces and nature can deliver positive impact to all three.

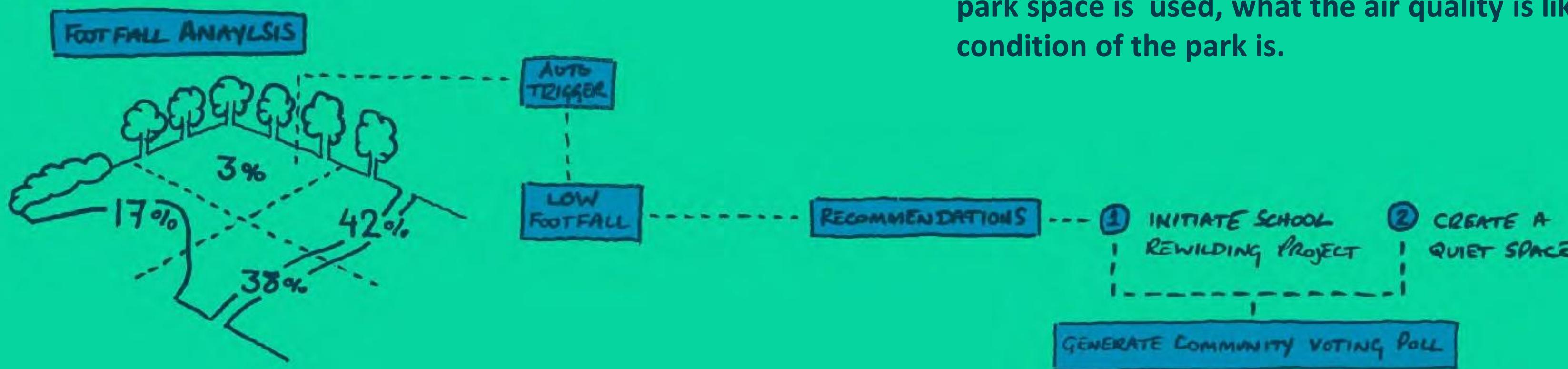
Designing both finished and unfinished spaces can help to stimulate engagement, participation and creativity, while distributing different functions and environmental typologies in the landscape.





technology, conclusion #1

# using data to inform decisions



Urban parks are dynamic multi-use spaces with less structure than the buildings that often surround them. Data can be difficult and costly to gather, is quickly out of date and makes evidenced-based decision making difficult and unreliable.

Like the buildings we work in, parks have the potential to capture the real time data on how they are being used, to make the right decisions for the park and its users. Deploying an enabling layer of technology to capture data using connected sensors is a first step to understanding and making decisions on a range of topics ranging from how park space is used, what the air quality is like or what the condition of the park is.



technology, recommendation #1

# an enabling layer of technology to drive decision making

- Understand space and air quality – deploy sensors to anonymously measure space usage, by times of day and gather air quality data.
- Use existing park assets such as benches, buildings, and lighting solutions to host an unobtrusive layer of technology.
- Create a model to capture and analyse data from parks using existing available technology that can be constantly updated forming a true picture of park usage and status.
- Install smart bins with sensors that can notify when full and provide publicly available data of how much waste is being collected.





## technology, recommendation #4



# improve parks with smart and adaptable lighting

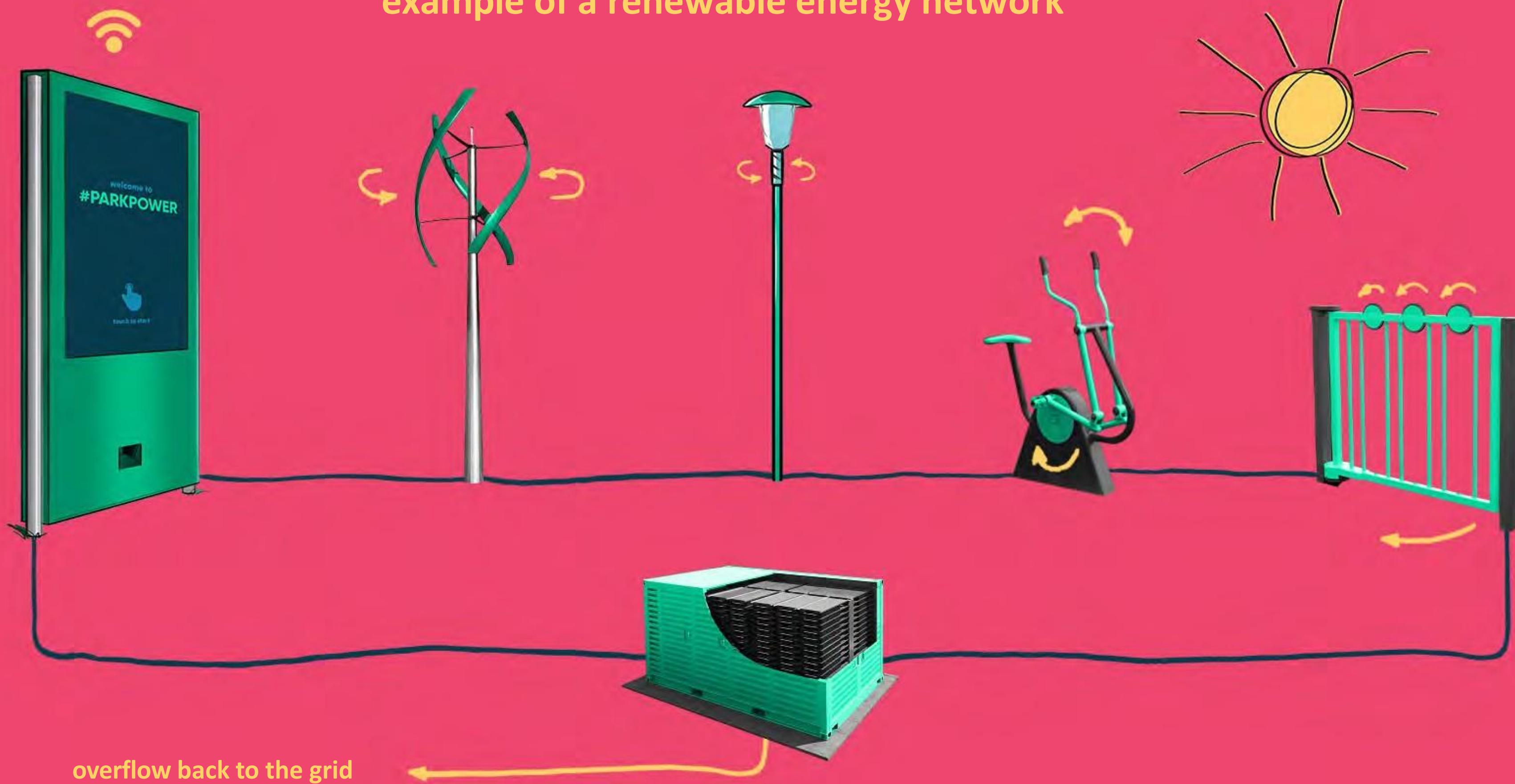
Develop best practice lighting design options for different park types and different use areas within the park. Minimise disturbance to wildlife with careful positioning and aiming of lights, and to be good neighbours and not intrude on homes near the park.

- Develop best practice lighting design options for different park types and different use areas within the park.
- Define lighting standards for safety in parks, like recognised lighting standards for buildings.



technology, recommendation #5

## example of a renewable energy network





# achieving net zero

The Climate Crisis is now part of all our lives and has a direct and increasing impact on our open spaces.

Climate change is altering the very nature of London's parks. In mid-summer we now see parched brown grass instead of the green open spaces we love. Increasing carbon emissions and our planet warming up are directly responsible for this. However, we can make a direct positive impact, and this means reducing all our carbon emissions.

The processes of improving and managing our parks' natural capital can also contribute positively to reducing climate change impacts and achieving 'net zero' parks. This can be through better product choices, use of recycled materials and by maximising tree and other planting. Together we can achieve 'net zero'.

contributor

targeting  
zero



zero carbon, conclusion

# we have a chance to get it right

To reduce emissions from our parks we need to start with what is already on the site and maximise its reuse. We should also design to introduce the minimum of new material and that material should be from recycled or renewable sources and from non-oil based products.

New planting and trees should be selected for a long life, and to suit a changing climate. New elements such as paths, play areas and seating should be highly durable and long lasting. Wild areas are important for encouraging wildlife habitat and community enjoyment. We need to design our parks to have different experiences in tune with the natural seasonal cycles.

The following recommendations highlight the design principles required for minimising carbon emissions.





zero carbon, recommendations



**work with what you already have**  
maximise the retention of existing materials,  
flora, fauna and structures



**minimise restructuring or  
new works to the site**  
moving earth, changing levels is carbon intensive



zero carbon, recommendations



**use natural, renewable sources of  
materials as a priority**

materials that are reusable or recyclable



**use recycled materials  
where possible**

avoid oil based or non-recyclable materials



active travel and accessibility, conclusion #3

# improve parking facilities for cyclists and e-scooters

Well located, secure and sheltered cycle and escooter parking facilities enable users to be able to stop and dwell in parks for longer and can increase spend.

However, an absence of or a shortage in facilities can lead to inconsiderable parking which can impinge on access and reduce visual amenity.





**Thinking about conditions at different times of the year is therefore important in determining the correct infrastructure design response.**

- Consider park opening hours in the winter to accommodate early morning and evening commuting patterns
- Survey the park at different times of the year to assess usage and pedestrian and cycling needs
- Assess visibility lines in all seasons to ensure the safe use of paths and tracks
- Consider scope for improvements to lighting in conjunction with habitat considerations.

# #PARKPOWER

download the e-book and help us  
shape the future of our green spaces

[parkpower.commonplace.is](http://parkpower.commonplace.is)

*we respectfully ask you not to print this e-book, thank you*





thank you



**eurammon e. V. is always available as a sparring partner  
for questions on refrigeration with natural refrigerants.**

Contact:

Dr. Karin Jahn | Lyoner Straße 18 | 60528 Frankfurt | Germany

Phone: +49 (0)69 6603-1277 | E-Mail: [karin.jahn@eurammon.com](mailto:karin.jahn@eurammon.com)

**eurammon**

refrigerants delivered by mother nature