



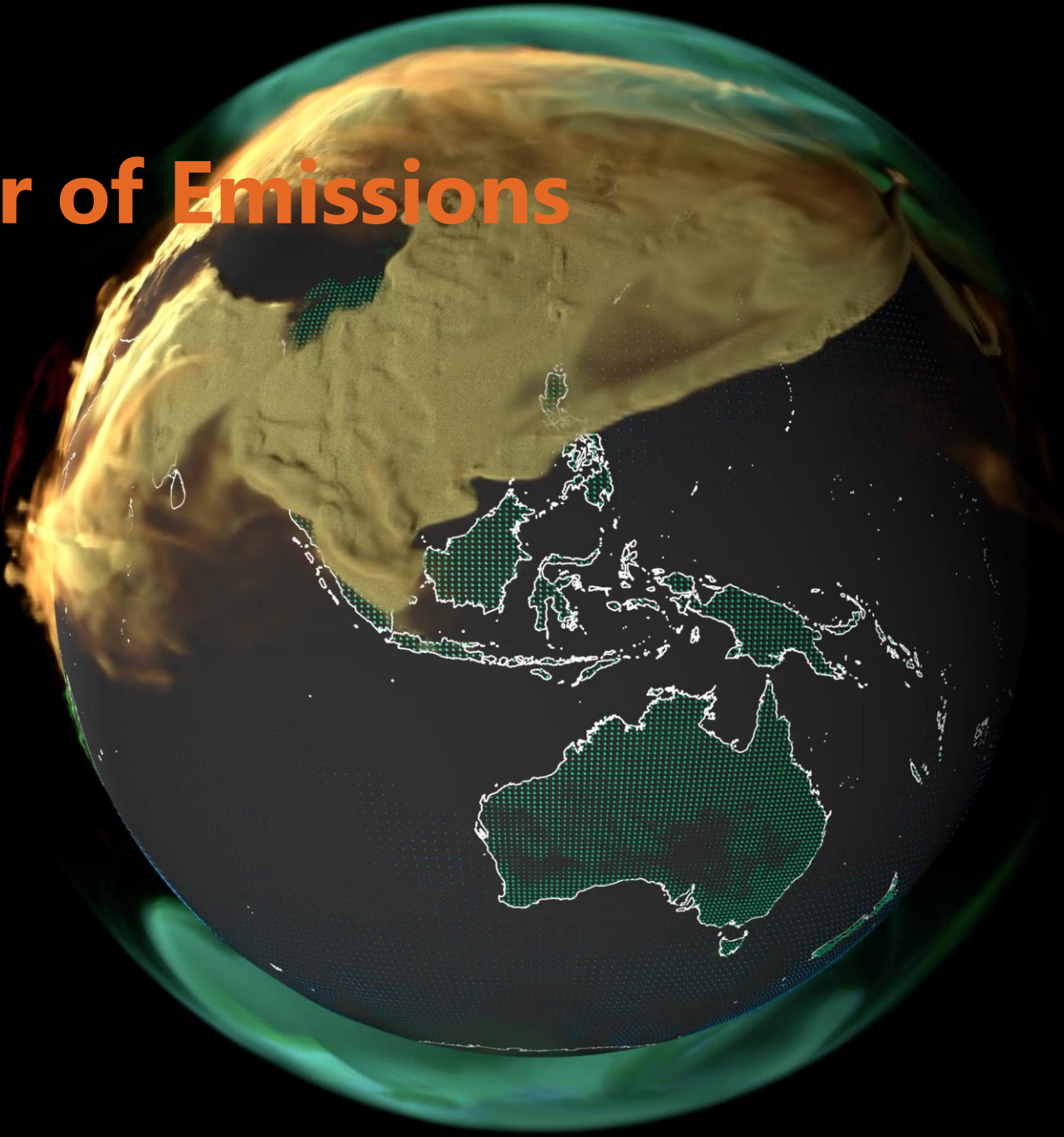
Living in Whangārei

Introduction

- 1. Warming Climate**
 - Emissions and temperature
 - Heat island effect
- 2. Cooling Whangārei**
 - Painting
 - Shading
 - Planting (Evapotranspiration)
 - Greener streets
 - Pocket parks
 - Green walls
 - Green roofs
 - Green car parks
- 3. Water in Whangārei**
 - Mostly hard surfaces
 - Dual use storm water retention
 - Storm water planters
 - Water sensitive design
- 4. Living in Whangārei**
 - Examples from around the world
- 5. Conclusions**



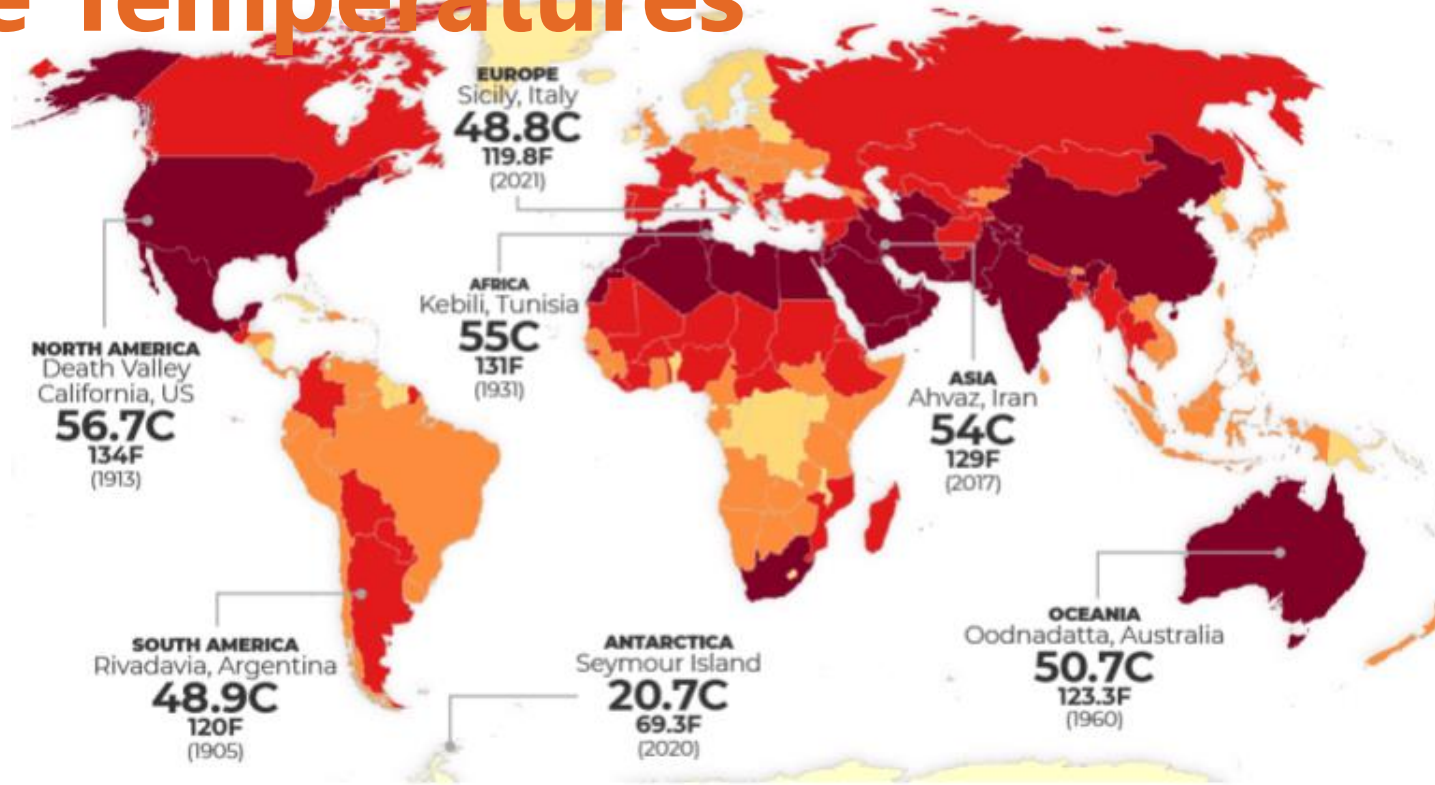
One Year of Emissions



The highest temperatures ever recorded

At least 22 countries have recorded maximum temperatures of 50°C (122°F) or above. The map below shows the highest temperature ever recorded in each country.

Extreme Temperatures



Highest ever recorded temperature is or exceeds:



Temperatures may vary according to local sources

Sources: WeatherBase, Automated Surface Observing System, news agencies | Updated: July 5, 2023



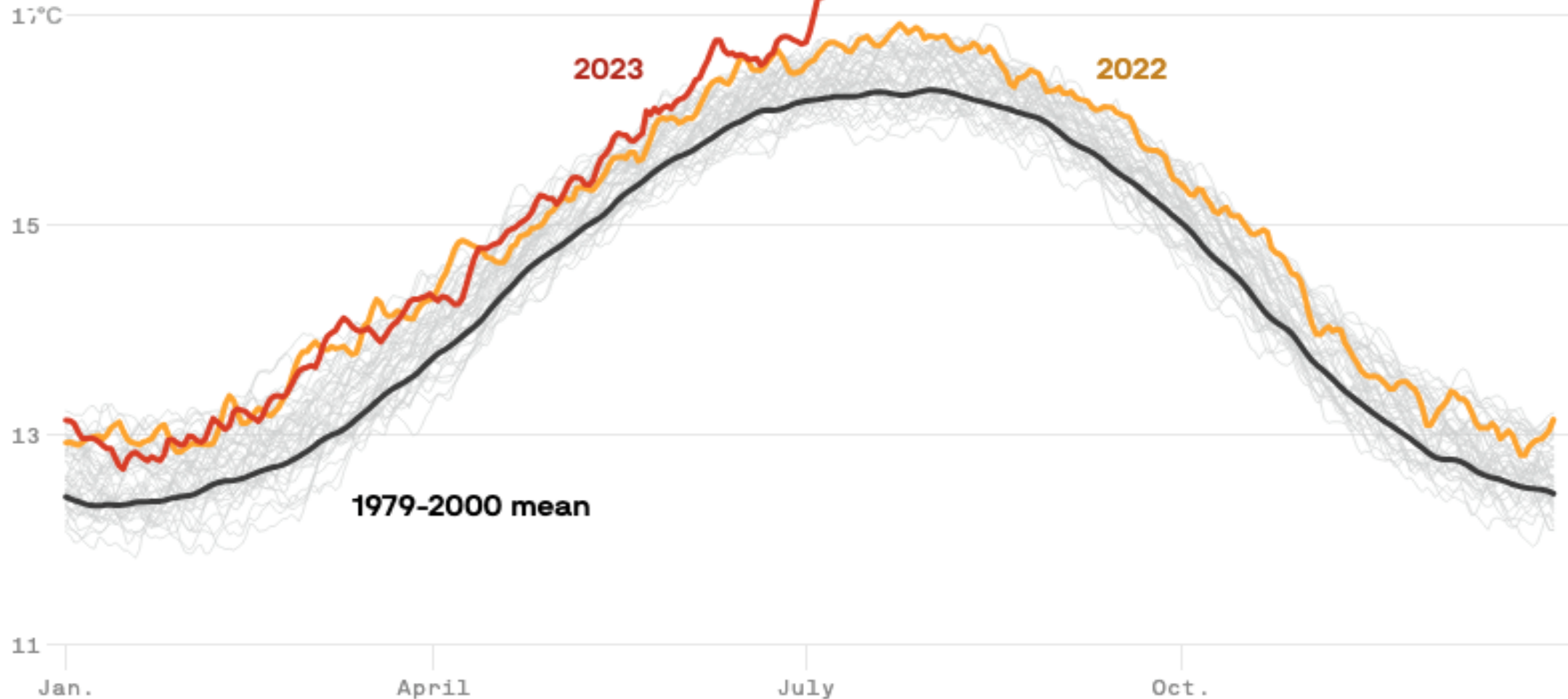
@AJLabs ALJAZEERA

Daily global mean surface air temperatures

In degrees Celsius; 1979-2023 (As of July 6)

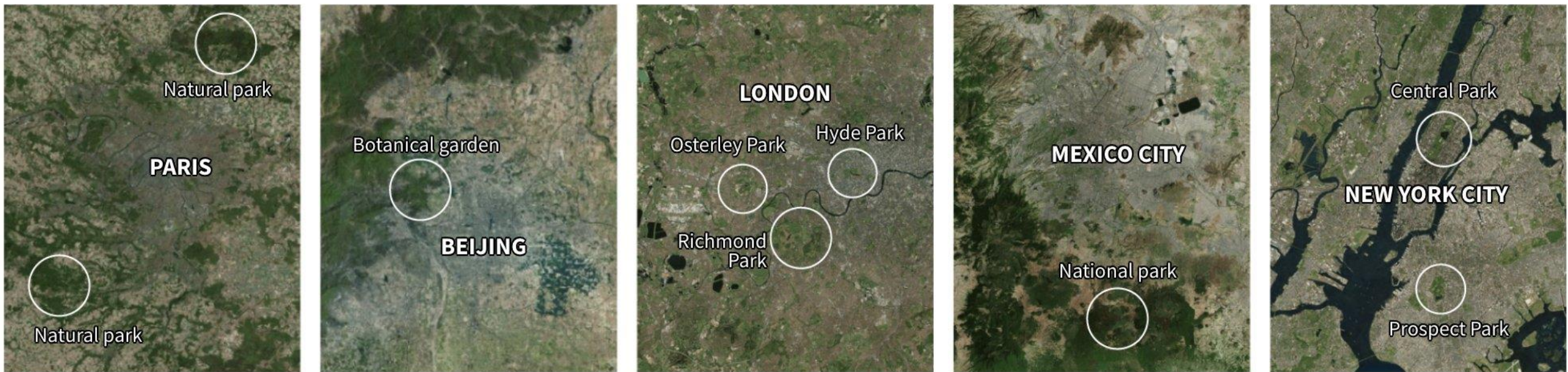
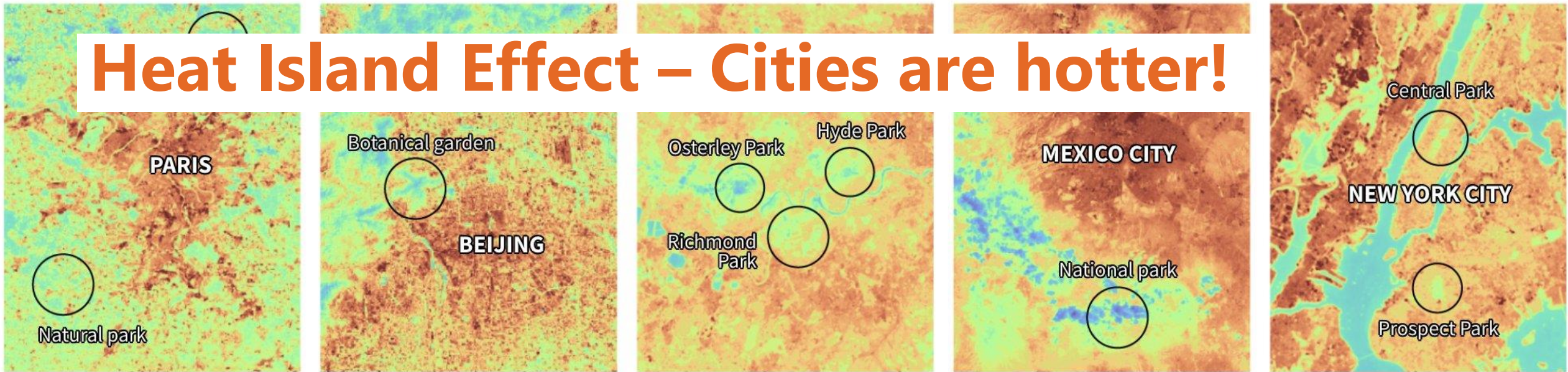
It's Getting Hot

July 3-6, 2023 were the warmest days on record, crossing 17°C



Hotter Cooler

Heat Island Effect – Cities are hotter!





Cooling Whangārei

Ways to Cool - Painting



INSIDER

Ways to Cool - Shading



Ways to Cool – Grow Plants

- **Evapotranspiration**
 - Pocket Parks
 - Greener streets
 - Green Walls
 - Green Roofs
 - Green Car Parks

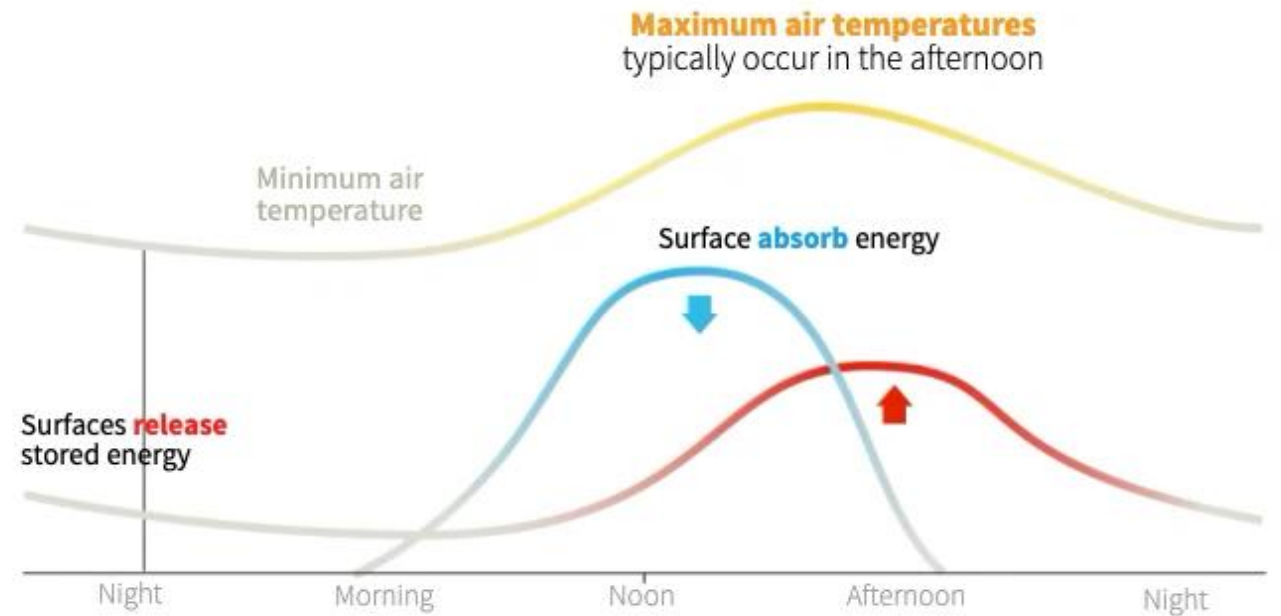
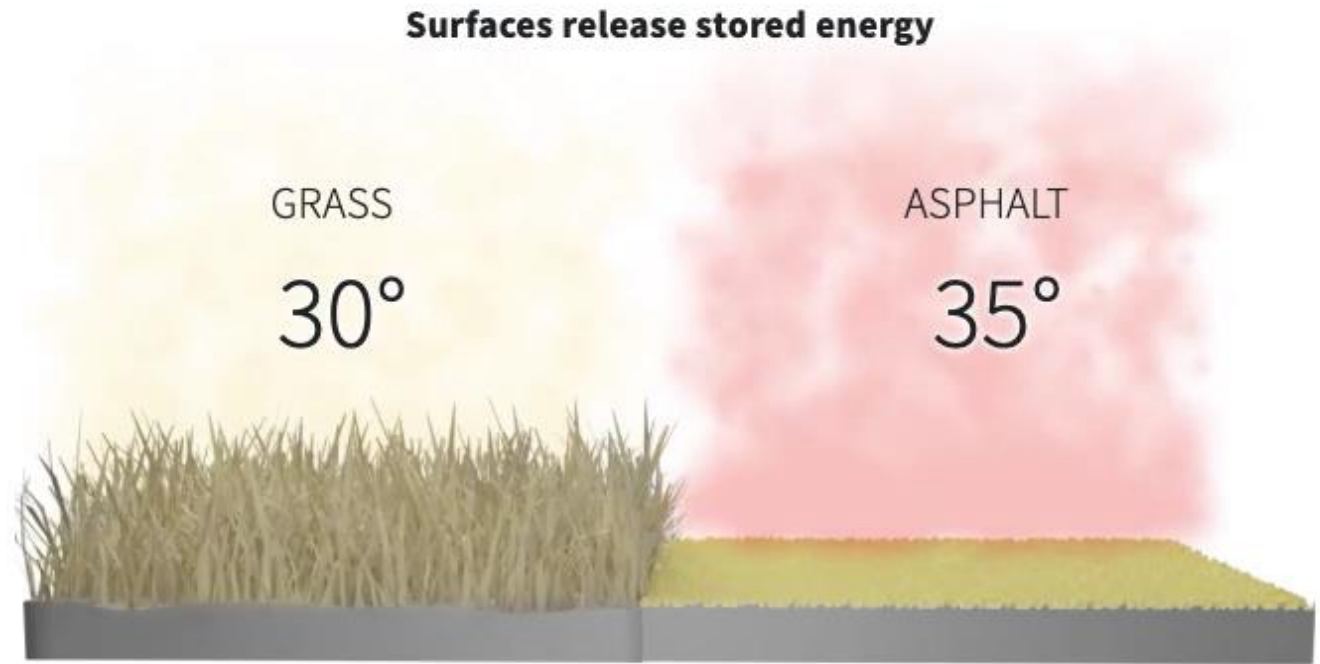


Evapotranspiration

Trees and vegetation (e.g., bushes, shrubs, and tall grasses) lower surface and air temperatures by providing shade and cooling through evaporation and transpiration, also called evapotranspiration

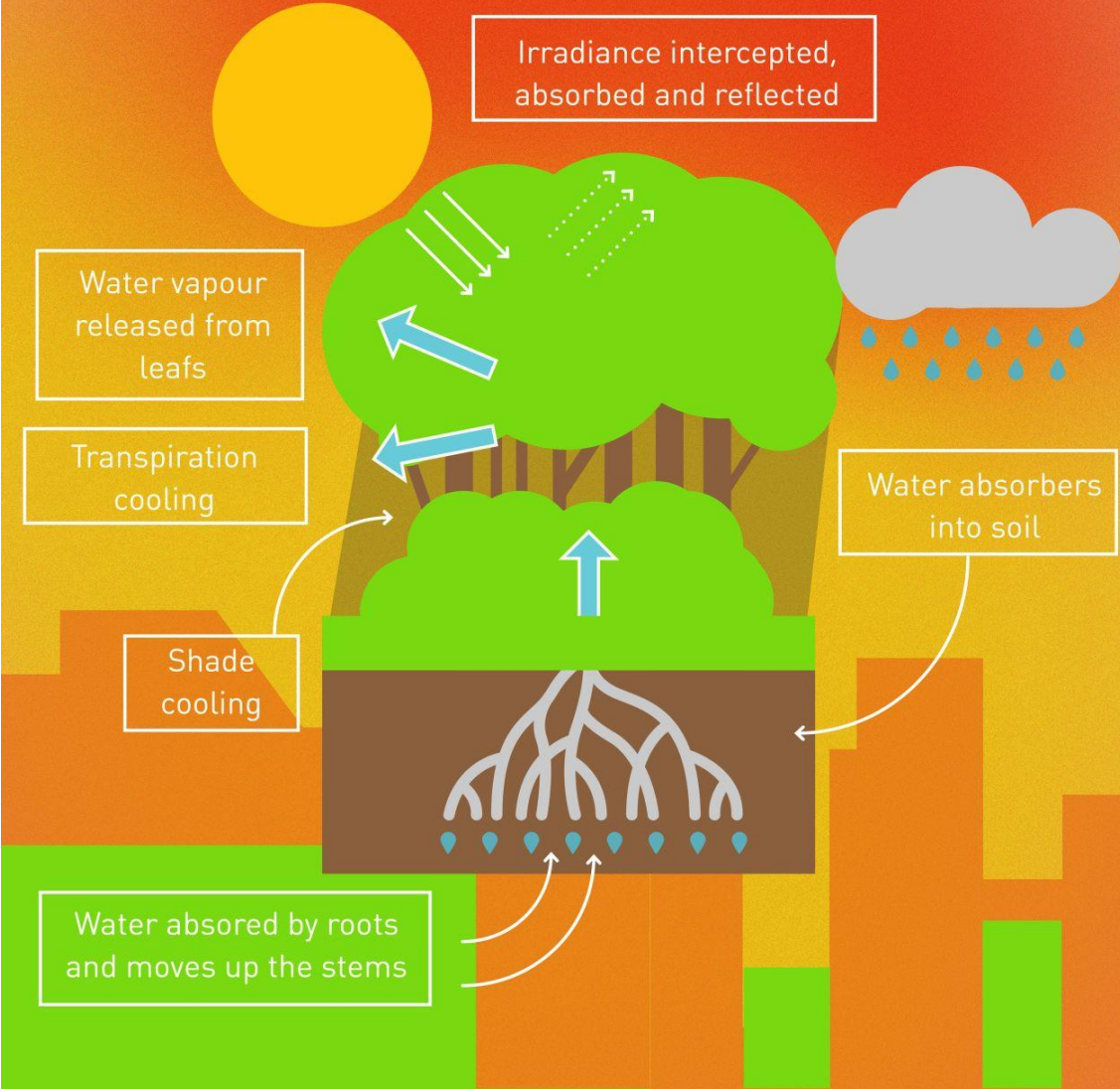


Evapotranspiration

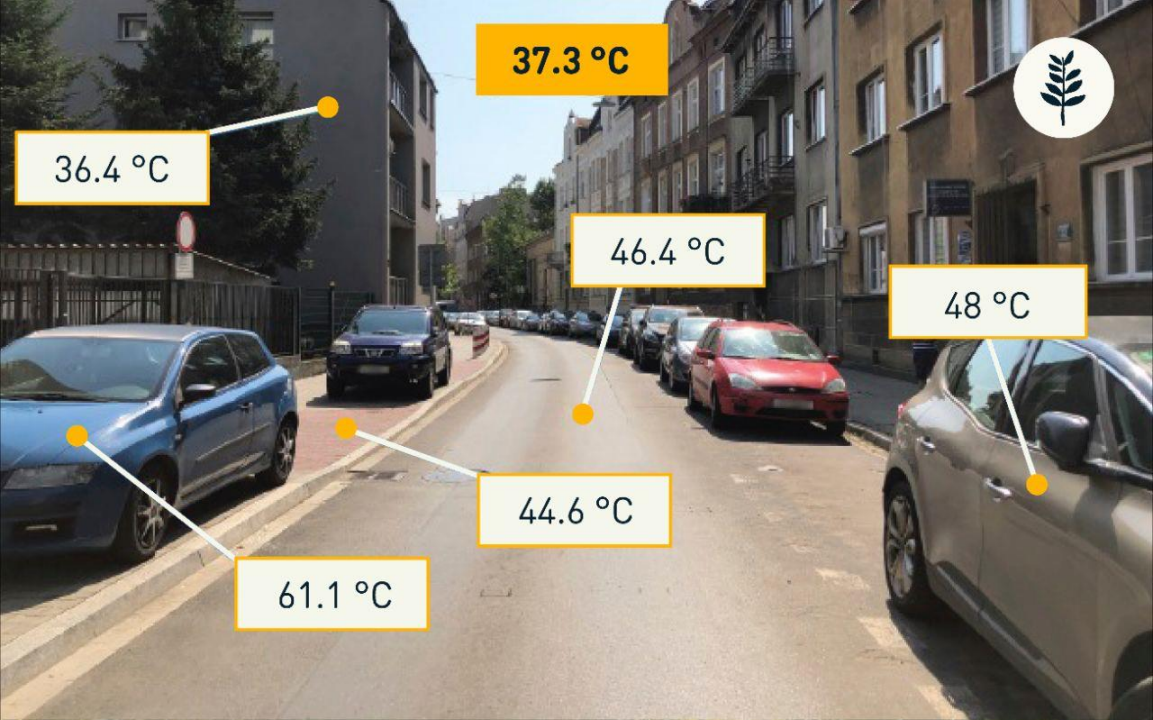


Evapotranspiration

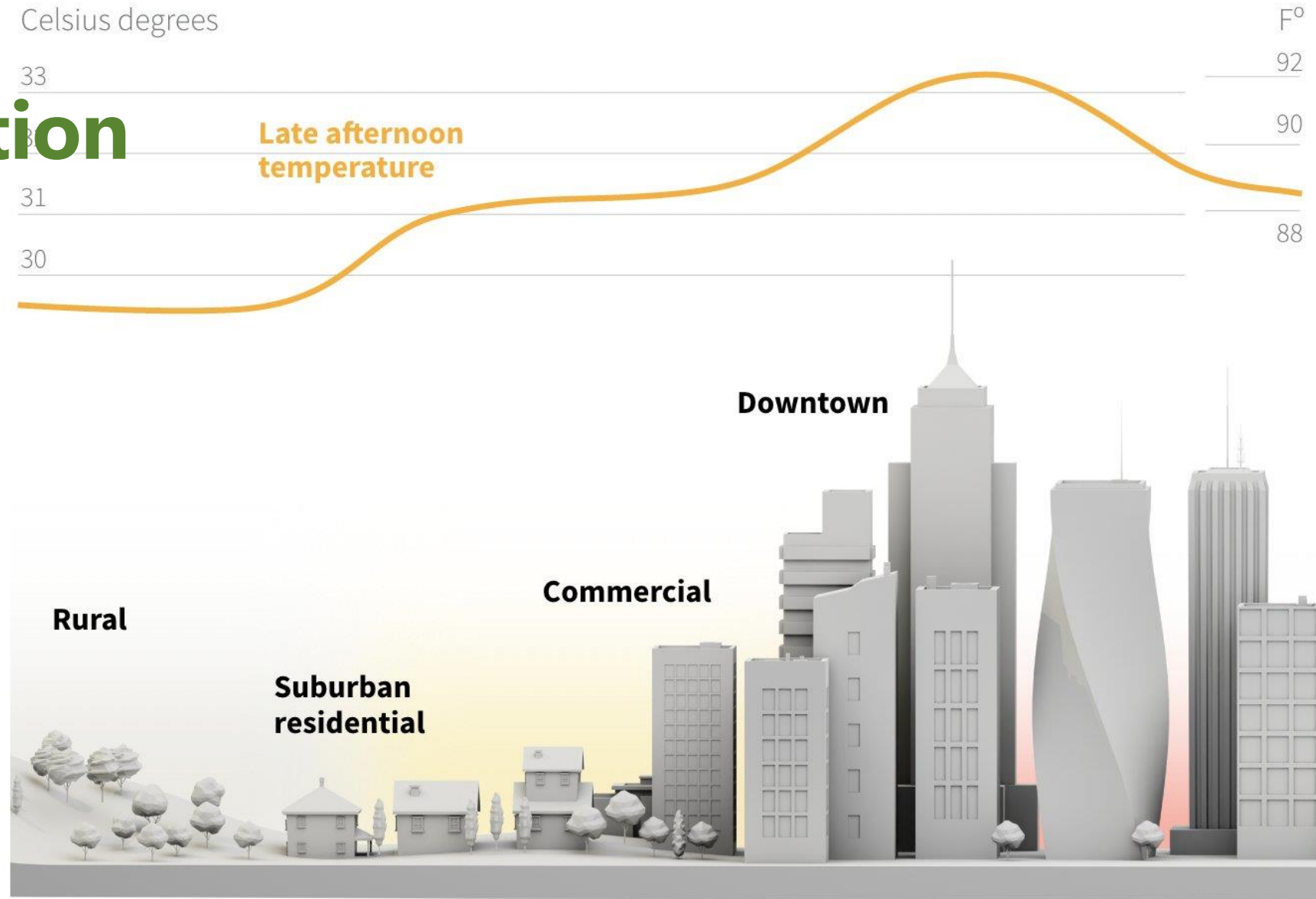
How Urban Pocket Forests Cool Cities



Evapotranspiration



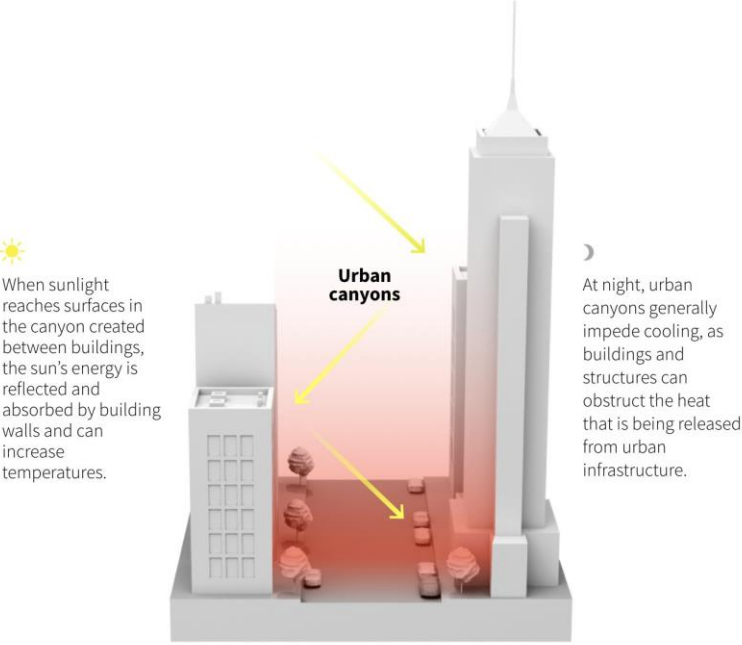
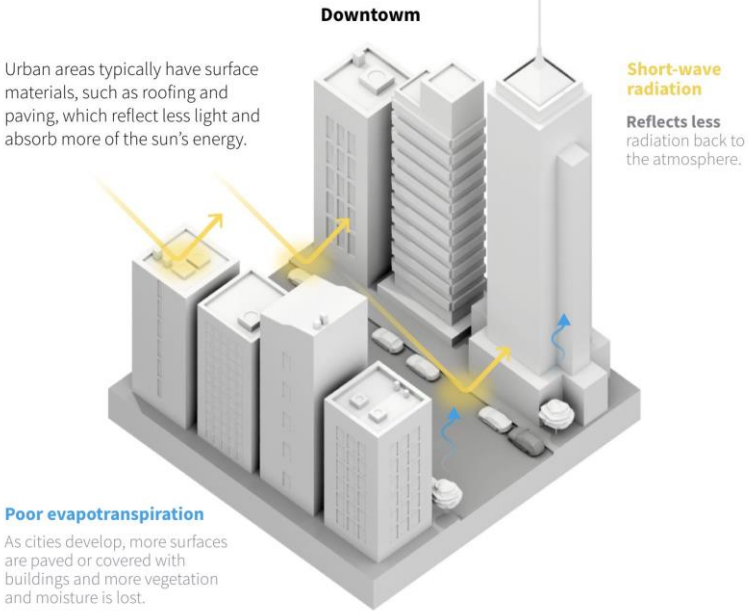
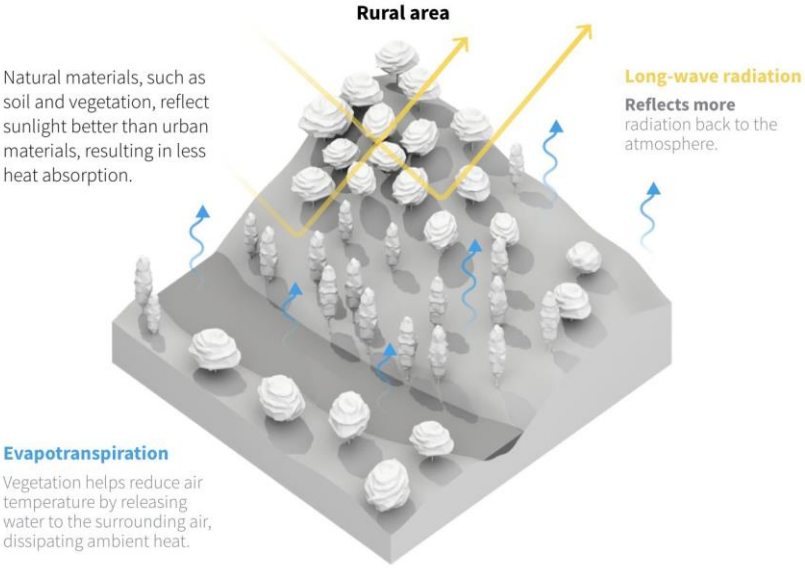
Evapotranspiration



Parks and vegetated areas, which typically have cooler surface temperatures, contribute to **cooling the air.**

Dense, built-up areas typically lead to **warmer air temperatures.**

Evapotranspiration



Whangārei is grey!



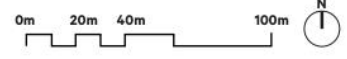
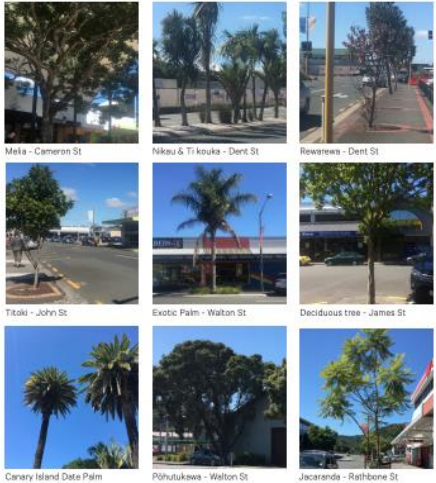
4.8 Existing Street Trees & Vegetation Distribution.

Existing Trees



Street tree numbers and variety within the city centre is limited, relying on parks and reserves, the surrounding hill and waterway, river and stream environments for green infrastructure.

Exotic species palms and deciduous trees are the dominant species, including Jacaranda, Melia, Canary Island and Phoenix palms. Pōhutukawa and other native canopy trees including Titoki are utilised as street trees along Walton and Bank streets. Recently implemented native tree plantings include Ti kouka, Nikau and Rewarewa - all of which are columnar / vertical in habit.



- Legend:**
- City Core Masterplan Project Boundary
 - Existing Park/Open Green Space
 - Existing Tree



Pocket Parks



 Heritage Forest, Kensington & Chelsea London, UK



16 MONTHS
SUGi Pocket Forest

05. Deliver a blue-green street network.

Greener streets



Complete Streets Masterplan - Catalyst Projects.



A suite of people & environment focused catalyst projects that will positively shape the future of Whangārei city.

Catalyst Projects:

- 01 Waterfront to City Stitch.**
A high amenity street for people, facilitating multi-modal transport and connecting city and waterfront.
- 02 Waterfront Development Sites.**
Potential residential-led mixed-use development area with retail / commercial / entertainment to ground floor connecting city and waterfront.
- 03 John & James Pedestrian Priority Streets.**
High amenity pedestrian priority street based waterfront connections, suitable for market activation.
- 04 Robert Green-Street Corridor.**
One of a network of green street links through the city.
- 05 Cameron Street Pedestrian Street.**
Extension and rejuvenation of the Cameron Street Mall to create a vibrant pedestrian retail environment.
- 06 Central City Carpark Redevelopment.**
Redevelopment of the carpark building to deliver active retail street frontages. Potential for redevelopment to be comprehensive to deliver a mix of uses.
- 07 Vine Street Quarter.**
Streetscape upgrade combined with redevelopment of the Vine Street car park to create a vibrant Vine Street Quarter. A city dining and retail destination.
- 08 Laurie Hall Park.**
A public park for Whangārei, Laurie Hall Park is extended to Robert Street with the creation of an urban play space and laneway car park.
- 09 Rust Avenue Civic Street.**
A street based connection between city and civic core, strengthening cycleway and pedestrian connections.
- 10 Rose Street Bus Hub.**
A high-quality, high-visibility hub for public transport. A catalyst for regeneration of the southern city area.
- 11 Waterway Arrival and Connection.**
Celebrating Whangārei's unique setting on arrival into the city across waterways. Creation of spaces for people, improved water quality and environment.
- 12 Hīhīau Fishing Reserve & Water Access.**
A streamside public space providing water access, waka mooring, and streamside planting for habitat.

Why:
 To increase visual, shade and shelter amenity within the city core.
 To contribute to environmental health and wellbeing, improving habitat, biodiversity, air and water quality.
 To deliver on wider blue-green network aspirations.
 To provide broad scale connections to surrounding open space networks.

- How:**
1. Prepare a street tree strategy plan as key component of the Complete Streets Masterplan to significantly increase the green infrastructure within the city core.
 2. Prioritise street trees as required infrastructure alongside other services.
 3. Establish multiple city centre green-street links, including Robert Street, connecting to the surrounding river and stream network.
 4. Implement sustainable urban drainage systems within the street environment as an integral part of streetscape upgrades to improve the quality of stormwater entering the surrounding waterways.
 5. Integrate a variety of trees, shrubs and groundcovers into the street network, with a focus on native species to improve biodiversity.

Whangārei City Centre Plan - Key Outcomes:



5.5 Cameron Street. Pedestrian Street.

Greener streets

Existing.

Constructed in the 1990's the Cameron Street 'mall', between Rathbone and James streets, is the only pedestrianised street within Whangarei city core. A recently installed canopy structure extends across the intersection with James Street, covering a deck structure built around a mature tree. To the east of the pedestrian mall is a recently constructed 'shared space' extending from the intersection with John Street around into James Street for half a block length. One-way vehicle traffic flows from east to west, two-way vehicle movement is retained along the remainder of James Street providing access to the car parking building.

The mall is surfaced in diagonal bands of red and yellow clay brick paving, with raised planters constructed from basalt and integrated timber seating located throughout the space. Light columns are 'Victorian' in style, and combined with the paving give a dated appearance to the street. Public art and sculpture, mature trees and planting give shade, shelter and character to the pedestrian space.

The shared space has proven confusing for users. Partly due to its limited length, its inclusion of a road junction, and it extending only part of a street block resulting in drivers having no choice but to enter the shared space. Red and yellow clay brick pavers have been retained, supplemented with concrete pavers, stone setts, and drainage channels. No clearly defined movement route for visually/mobility impaired is provided. No bollards are provided to restrict entry to one-way only.



Proposed.

At the heart of Whangārei, an extended and upgraded high-amenity pedestrian only green street for people.

The existing Cameron Street 'mall' is extended between John and Rathbone streets, with one and two-way vehicle linkages continuing west from John Street and east from Rathbone Street respectively.

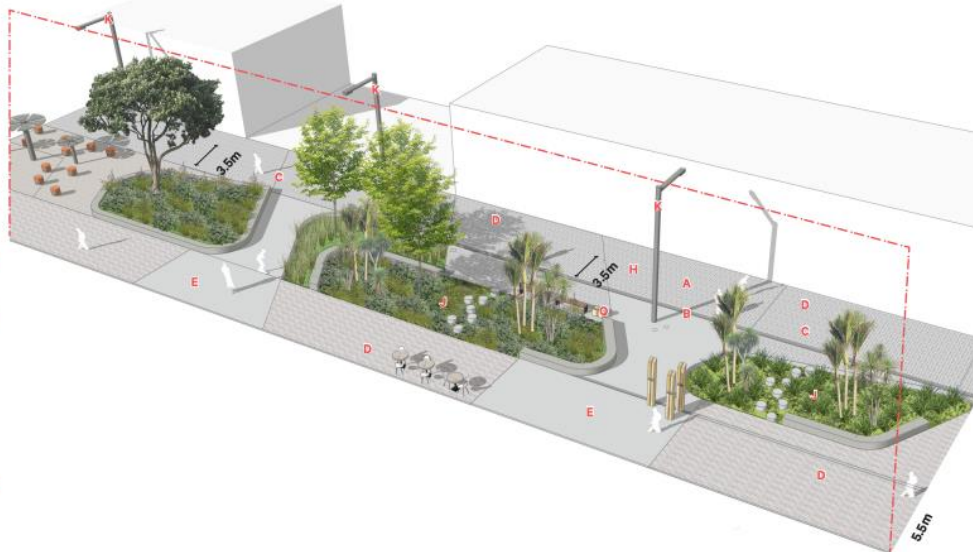
The centre of the extended pedestrian street becomes a linear park of tree, low shrub and lawn areas contained in part by seating edges, with opportunity for integrated play and sculpture elements. Retaining existing sculpture items and mature trees where possible. An interactive water play feature references Cameron Street's connection to the Raumanga and Waiarohia Streams.

Generous footpaths to either side provide space for clear movement routes and outdoor dining and activation, located with good aspect to the sun. Lighting columns define the route for service and emergency vehicles.

A by-law will be required to enable enforcement of the restriction of vehicles within the pedestrian street to emergency and service vehicles within certain hours.

Opportunities.

- The streetscape would benefit from a consistent approach to paving materials, organising of furniture and outdoor dining areas into 'activity zones' and the co-locating of elements to guide traffic movement.
- Retaining existing mature trees and selected art and sculpture items.
- Utilise high quality palette of materials consistent with main retail street and people priority space character.
- Remove the canopy (at end-of-life or earlier) to open the street environment back to the sky.
- Strategies to attract people into the city centre through use & activation, connectivity and quality of the city core. Potential for 'play as you go' facilities to activate the street.
- Pedestrianised streets would benefit from a change in designation to 'Pedestrian Mall' to remove them from mapping as vehicle routes and enable enforcement of the restriction of vehicles.



Proposed 3D view.

Key Design Principles.



Typical Existing Street Cross Section.

Section | 1:250@A3

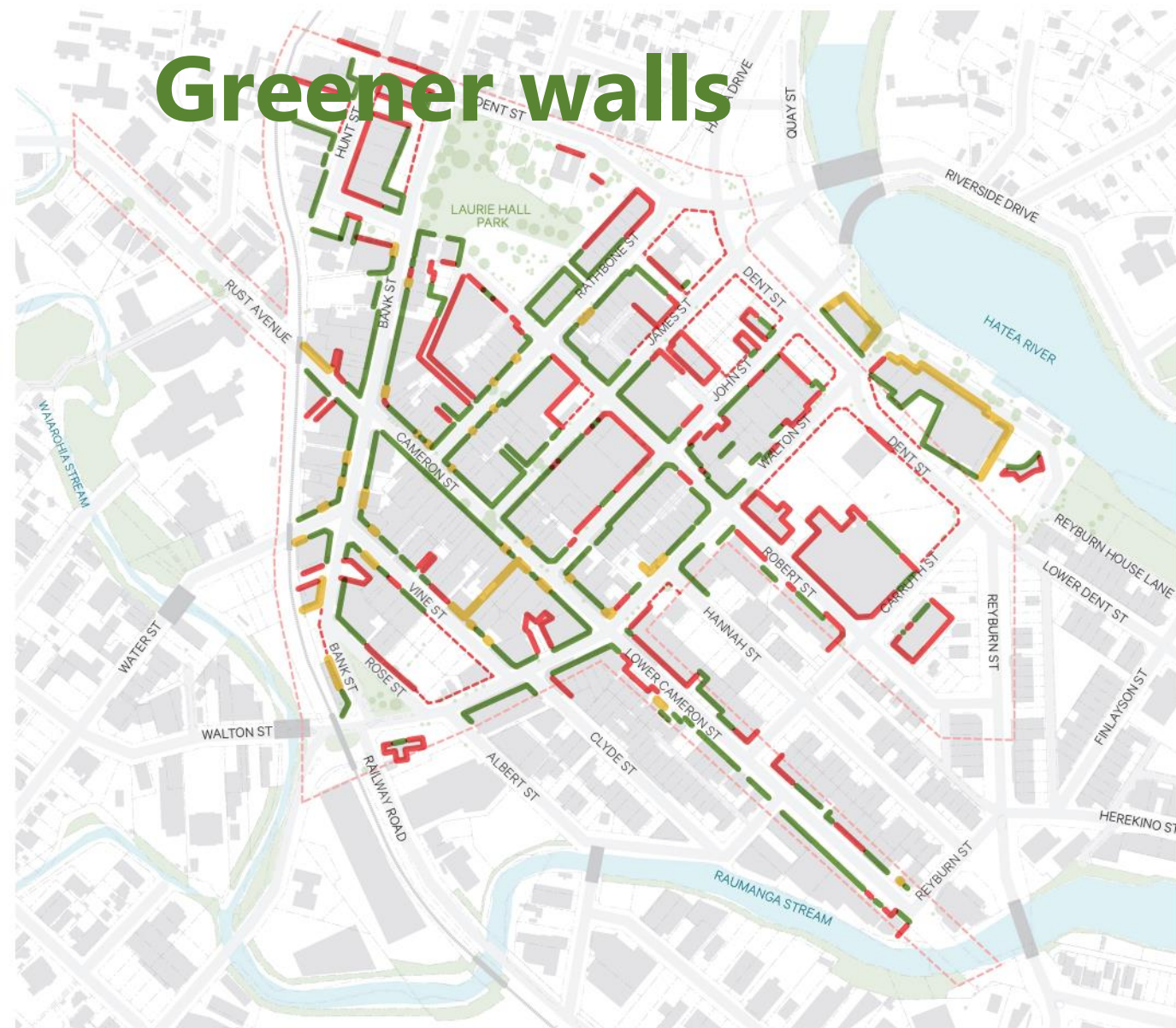


Green Walls



2.9 Ground Floor - Frontage Activation.

Greener walls



The frontage activation diagram defines the difference between an active and inactive front to a building.

In the case of this plan there are two type of active, either activated by food and beverage use i.e. cafes or restaurants, or a glazed frontage to retail. A blank wall is a inactive frontage. The desktop study, shows the concentration of where activity occurs throughout the city centre, where things are working and not working. Importantly it highlights the areas which do not activate the street front, which allows gaps to be filled or how a streetscape design might inform the success of the built form.



Legend:

- City Core Masterplan Project Boundary
- Active - Food & Beverage - street activation
- Active - Retail/ office / industry / glazed
- Inactive - blank frontage
- Off-street car park



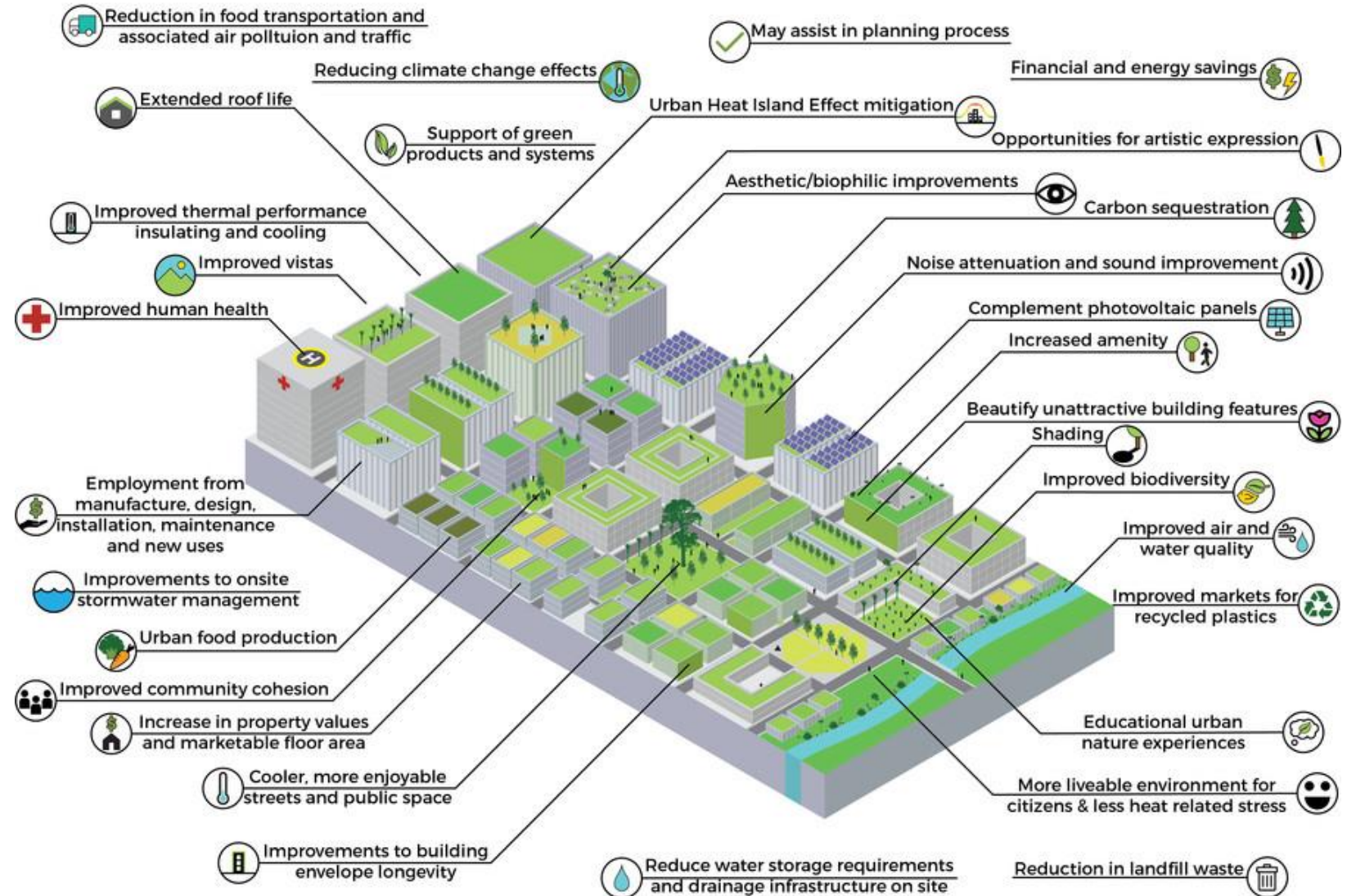
Green Roofs



Not many flat roofs to work with

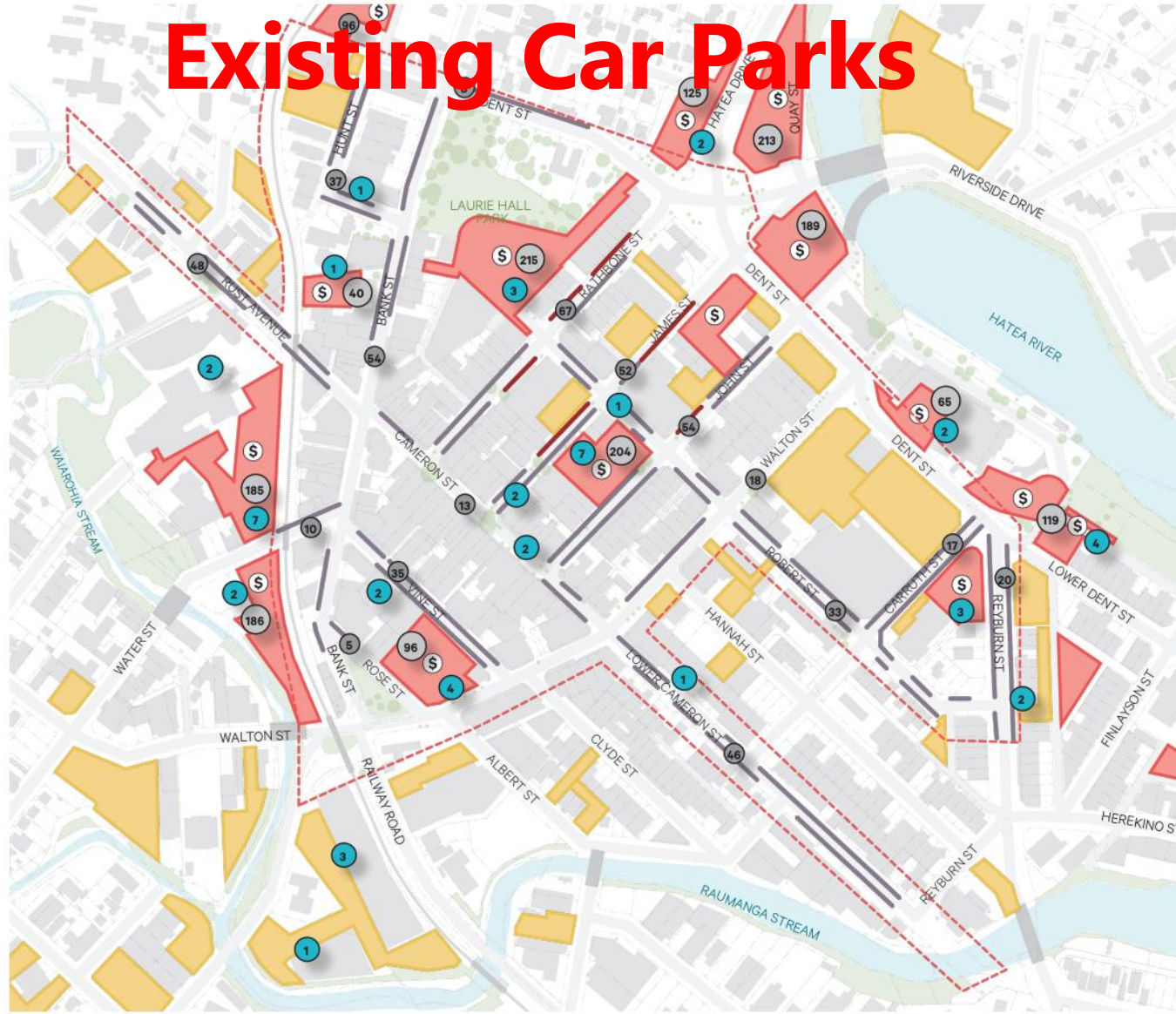


Green Roofs



3.5 City Car Parking. Existing.

Existing Car Parks

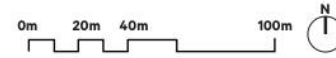


Generous provision and a variety of options for car parking are found within Whangārei city centre. Including a mix of free and paid, public and private, street and precinct based car parking.

Establishing the right balance of parking provision and spread while improving pedestrian amenity is challenging, with a strong desire, and a need in some cases to be able to park in close proximity to the destination.

Public, paid parking precincts are generally located to the perimeter of the city centre, with the exception of the central city car parking building and to the north along James Street.

Generally all the streets have kerb edge parking with the exception of Dent Street and the managed lanes along Bank and Walton streets. The central city car park encourages vehicle movement through the centre of the city and is inactive for pedestrians at street level.



Legend:

- City Core Masterplan Project Boundary
- Paid Parking
- Public Off Street Parking
- Private Off Street Parking
- On Street Parallel Parking (Inside Masterplan Project Boundary)
- On Street Angled Parking (Inside Masterplan Project Boundary)

Current Car Parking Numbers (2017 WDC Survey)

Public Off Street Parking	1733
On Street Parallel and Angled Parking	642
Mobility car parks	52



Greener car parks





Water in Whangārei

Whangārei is hard!



Storm Water

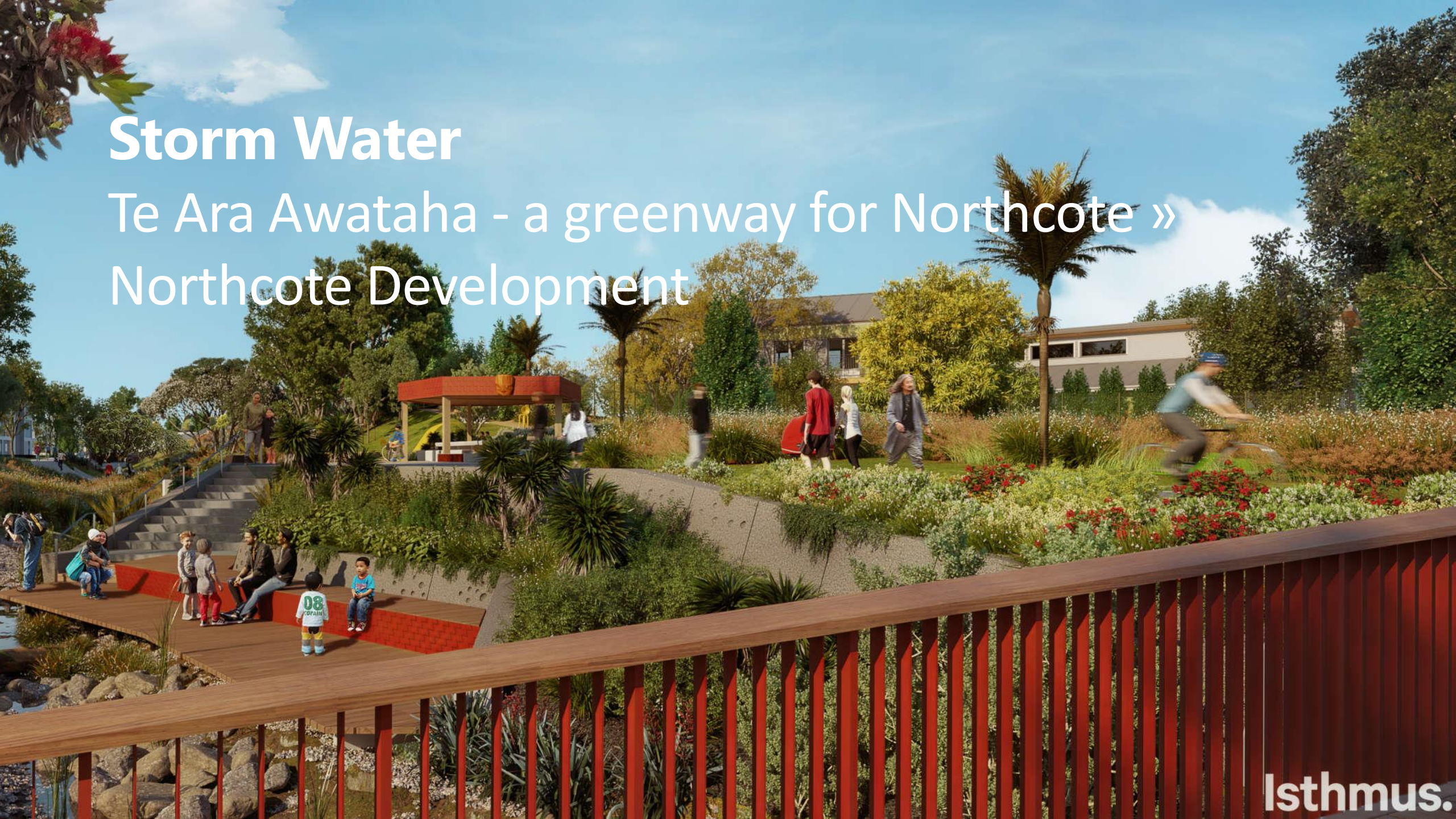


Storm Water



Storm Water

Te Ara Awataha - a greenway for Northcote »
Northcote Development



Storm Water



LAKE ROAD

NORTHCOTE INTERMEDIATE SCHOOL

ONEPOTO PRIMARY

COLLEGE ROAD

1

2

3

4

5

6

7

8

Storm Water



Storm Water

Before



After



Storm Water

PLANTS FILTER AND
TRANSPIRE WATER
WHILE ENHANCING THE
STREETScape



Storm Water



Planters clean and absorb stormwater along the street.

4.11 Water Sensitive Design.

Water sensitive design is a multi-disciplinary approach which considers the management of water, ecology and biodiversity, best practice urban design, and community values.

Whangarei city's location on low-lying partly reclaimed land, within a network of river and streams has a strong connection to water. The street-based stormwater catchment exits untreated to this system of waterways via the piped network.

The speed and quality of stormwater entering the waterways can be addressed through Water Sensitive Design (WSD). Through the use of mechanical drainage devices, and/or preferably through low impact planted raingarden type solutions. Raingardens slow and improve water quality, increasing amenity and biodiversity values. Receiving stormwater runoff from roads and pavements, passing it through filtering systems before being discharged to the conventional stormwater network and on to the Hatea River and Raumaunga Stream.

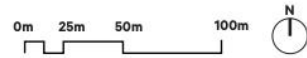
A strategy for integrating low-impact sustainable urban drainage systems (SUDS) within the street environment is illustrated opposite. The inclusion of raingardens within key streets (John, James, Robert, Cameron and Vine) with a mix of species and signature species contributing to character and amenity while addressing water quality issues.

Legend:

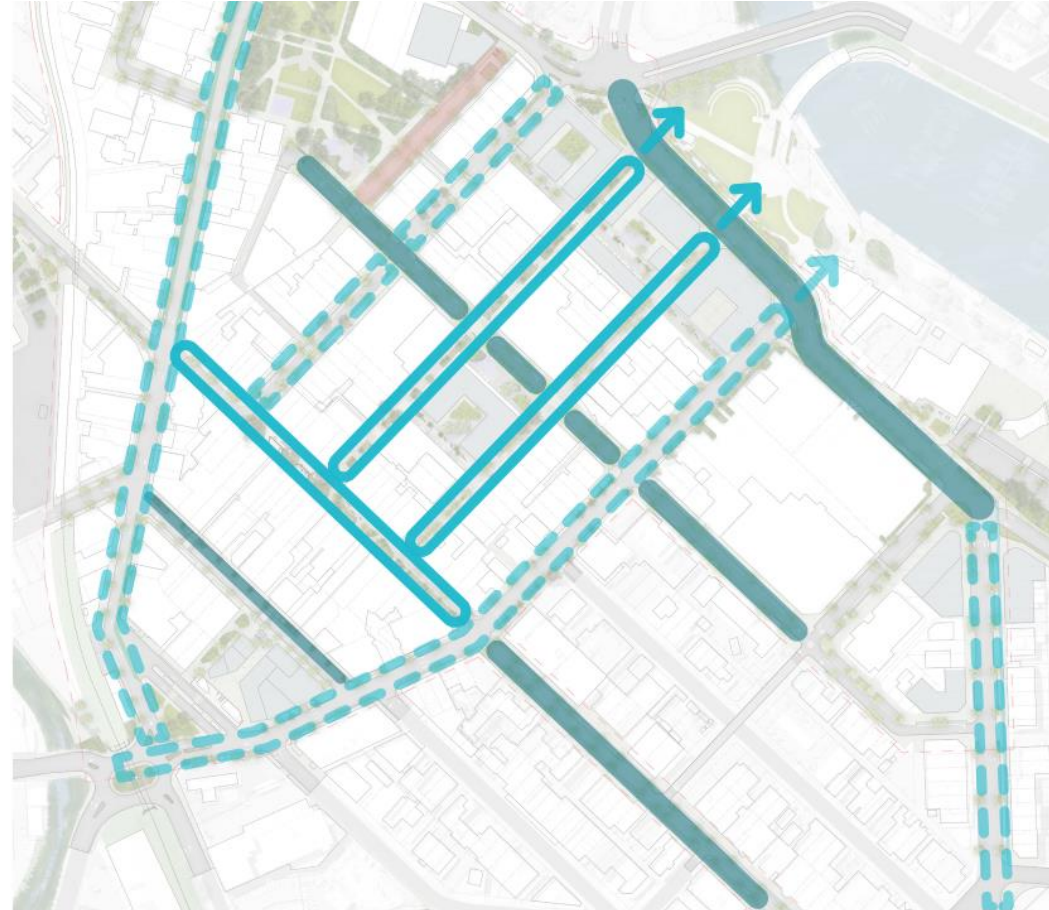
-  Raingardens within streetscape
-  Combination of mechanical treatment devices and raingardens where space allows
-  Raingardens to kerb edge / parking zone, with additional mechanical treatment devices
-  Permeable paving



Precedent images: Permeable paving (car parking) & various approaches to raingarden design



Greener streets - that deal with Water





Living in Whangārei



The Village
Whangarei

P
5

GILMORE TAYLOR
ASSOCIATES

James St



Sheffield



Grey to Green Phase 1
Completed 2016

Grey to Green Phase 2
Exchange Place/Castlegate/Snig Hill
Completed September 2020

West Bar

Law Courts

Family Courts

Magistrates Court
SY Police Headquarters

Castle Hill Future Public Space

Castle House Digital Incubator

Travel Lodge Hotel

Premier Inn Hotel

Ibis Hotel

Wicker Chemist

Wicker

Holiday Inn
Victoria Hotel

Holiday Inn Hotel

Metropolitan Hotel

Hilton Hotel

Victoria Q

ampton
Hilton Hotels

PARK SQUARE
ROUNDBABOUT

6

1

4

3

5

2

Sheffield



Sheffield



Sheffield



Curitiba - Brazil





Heilbronn-Germany

Singapore



Wellington



Leeds

this use to be a road!



Manchester



China



Benefits

1. Temperature Control
2. Noise Reduction
3. Air Purity
4. Water Management
5. Psychological Health
6. Physical Health
7. Privacy
8. Oxygen
9. Economics
10. Wildlife
11. Light Pollution
12. Aesthetics



The Cultural Tutor
@culturaltutor

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12 Reasons Why Cities Need More Trees:

1. Temperature Control

One large tree is equivalent to 10 air conditioning units, and the shade they provide can reduce street temperature by more than 30%.

2. Noise Reduction

Trees can reduce loudness by up to 50%. In urban areas filled with the sound of cars, construction, sirens, aeroplanes, and music, trees are essentially the best way to block noise and keep cities — along with the homes and workplaces in them — quieter.

3. Air Purity

Trees remove an astonishing amount of harmful pollutants and toxins from the air. In urban areas air quality is often disastrously bad — with severe consequences for our health. Trees make the air we breathe much cleaner.

4. Oxygen

And, while absorbing all those pollutants, trees also put more oxygen back into the urban environment. Oxygen levels are significantly lower in cities compared to the countryside; trees help to solve that problem.

5. Water Management

Trees do more than just shelter us and our buildings from rain — which is, in fact, extremely important. They also absorb huge quantities of water, reduce run-off, neutralise the severity of flooding, and make flooding more unlikely altogether. Not to forget that their roots absorb pollutants and prevent them from feeding back into a city's water supply.

6. Psychological Health

Studies have proven what we instinctively know to be true: that human beings are significantly happier when surrounded by nature rather than sterile urban environments. Our emotions, behaviour, and thoughts are shaped by the places we spend time — and trees have a profoundly positive effect on our psychology. The consequential benefits of being happier and more peaceful — as individuals and as a society — are immense.

7. Physical Health

Beyond all the other ways in which trees improve air quality and the urban environment, much to the benefit of our health, they also encourage people to go outside. Cycling, running, and walking are all more common in urban areas with plenty of trees. A knock-on effect of people spending more time outdoors is also social integration and stronger communities.

8. Privacy

A simple point, but not inconsequential, is that trees provide privacy.

9. Economics

The total economic benefit of urban trees is hard to calculate. There are costs, of course, including the repair of infrastructure damaged by roots and maintaining the trees themselves. But the total economic benefit — a consequence of everything else in this list and more — far outweighs the expenditure. Trees make cities wealthier.

10. Wildlife

Trees are miniature cities all of their own, serving as a habitat for hundreds of different species, including birds and mammals and insects.

11. Light Pollution

Trees don't only block the light shining down, therefore keeping us and our cities cooler — they also disrupt light shining up, from street lighting, cars, houses, and billboards. Skies are clearer in cities with more trees.

12. Aesthetics

And, finally, trees are beautiful. They break up the potential monotony of urban environments — the sharp geometry, the greyscale roads and buildings, the endless rows of cars — with their trunks, boughs, canopies, and flowers.

Just think: the gold and red of falling leaves in autumn, the white and pink blossom of spring, the vast green canopies of summer, and the branches lined with hoar-frost in winter. Every single tree is a myriad of intricacy and texture, of colour and scent, of dappled light on the pavement, mottled bark, knotted roots, of clustered leaves and delicate petals and stern boughs.

Few streets would not be improved by the kaleidoscopic aesthetic delights of a tree, not to mention the many different species of tree, all over the world, whether willow, oak, lime, cherry, aspen, maple, birch, horse chestnut, dogwood, hornbeam, ash, sycamore... the list goes on.

There are some drawbacks to urban trees, most of them context-specific, and they are not — of course — universally appropriate. But it seems fair to say that many cities would benefit from at least a few more trees here and there.



Conclusions

1. Whangārei has a lot of opportunities
 - To adapt/mitigate global heating at local level
 - Lessen the flooding effects of storms
 - Create a more pleasant and liveable urban environment
2. There are good plans in place
 - But the decisions to progress them are political
3. Walking tour tomorrow at 10.45am
 - Let's walk and talk
 - Discuss opportunities to green streets, carparks, rooftops, blank walls, add parks
 - 1 page handout with walking route



References

Resources used for this presentation:

- https://twitter.com/mariano_zafra/status/1686029204838584320
- <https://www.reuters.com/graphics/CLIMATE-CHANGE/URBAN-HEAT/zgpormdkevdl/>
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- <https://svs.gsfc.nasa.gov/5110>

He Patai / He Whakautu

