

# SYSTEMS INFRASTRUCTURE

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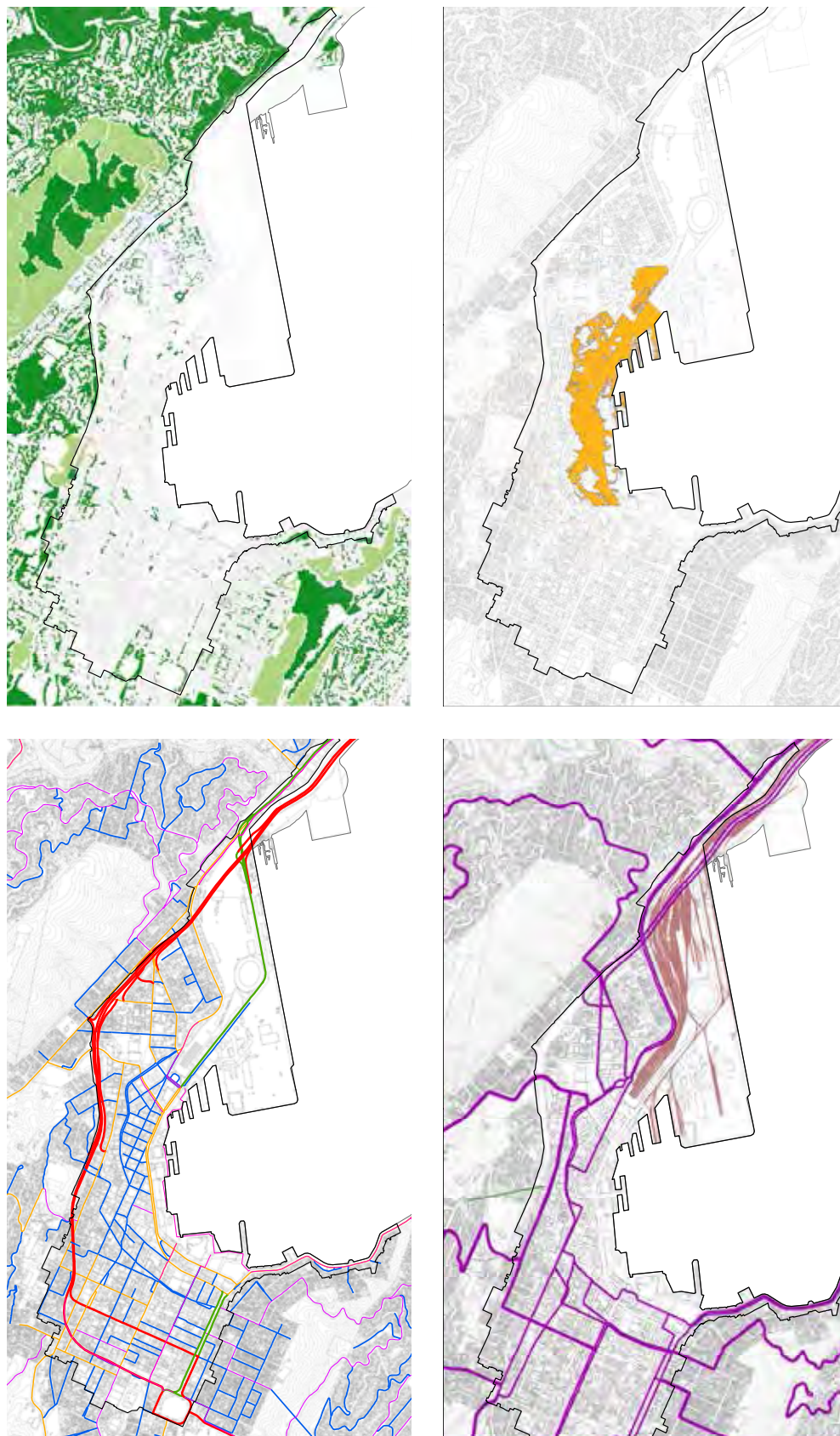
Natural systems including movement, water, wastewater, energy and climate are a part of city life. Their impacts have been modified over time as the provision of core infrastructure – roads, pipes, drains, power, seawalls etc – became more secure.

Climate change, earthquakes, biodiversity loss, growth and emerging technologies now provide a new context to consider the long-term viability and security of supply of some of this infrastructure.

An aim of this project is to enhance the long-term resilience of the city in response to these factors. This will be achieved by:

- embedding responses within the projects.  
For example, pocket parks provide additional places for people to congregate during emergency events
- undertaking studies and research into best practice and local conditions
- raising public awareness of the importance of managing these systems for our quality of life.

- **Create an eco inner-city**
- **Make our streets green**
- **Accommodate growth and change**
- **Tell our stories**



**Figure 37.**  
Layered systems  
analysis will be  
the basis of all  
the research and  
project work.

# GREEN INFRASTRUCTURE

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Green infrastructure is the interconnected network of open spaces and natural areas, such as parks, reserves, wetlands and native plant vegetation, that naturally manages stormwater, reduces flooding risk and improves water quality. Green infrastructure usually costs less to maintain when compared to traditional forms of infrastructure.

There are opportunities to incorporate more green infrastructure into Wellington's central city. This is in keeping with Wellington's aspiration to become an eco-city and will contribute to Wellington becoming a model for sustainable living.

As well as promoting green infrastructure in specific areas of the city, there are broadly applicable initiatives that can integrate soil and plant systems throughout the city's paved areas. Dispersed areas of green infrastructure would provide for the cumulative rehabilitation of the urban environment by intercepting dust, moderating ambient air temperatures and wind velocities, and treating air and water quality.

## Areas of opportunity

### Sustainable water management standards

The project will consider improvements in all areas such as buildings, open space and the way we collect stormwater in streets. This will also set design standards and relate to the Public Space Design Manual.

### Green network plan

The development of a legible green network of spaces and links. This will include vegetation and systems both within public spaces such as streets and parks and also look at how private development can play a role.

## Potential actions

Identify 'gaps' within our infrastructure standards and guidelines.

Develop best practice guidance in conjunction with the public space policy and other relevant infrastructure policies.

Develop guidance on the design response to natural systems for streetscapes and open space design.

Develop citywide vegetation plan including investigation into appropriate species.

Develop network plan in conjunction with landscape focus areas and precinct plans to ensure multi-functional open space.

Consider the uses of open space in environmental emergencies and ensure they provide refuge.



**Figure 38.** Innovative ways to provide green infrastructure within buildings will be investigated, the example above slows the water on its path to the stormwater system by using planting.



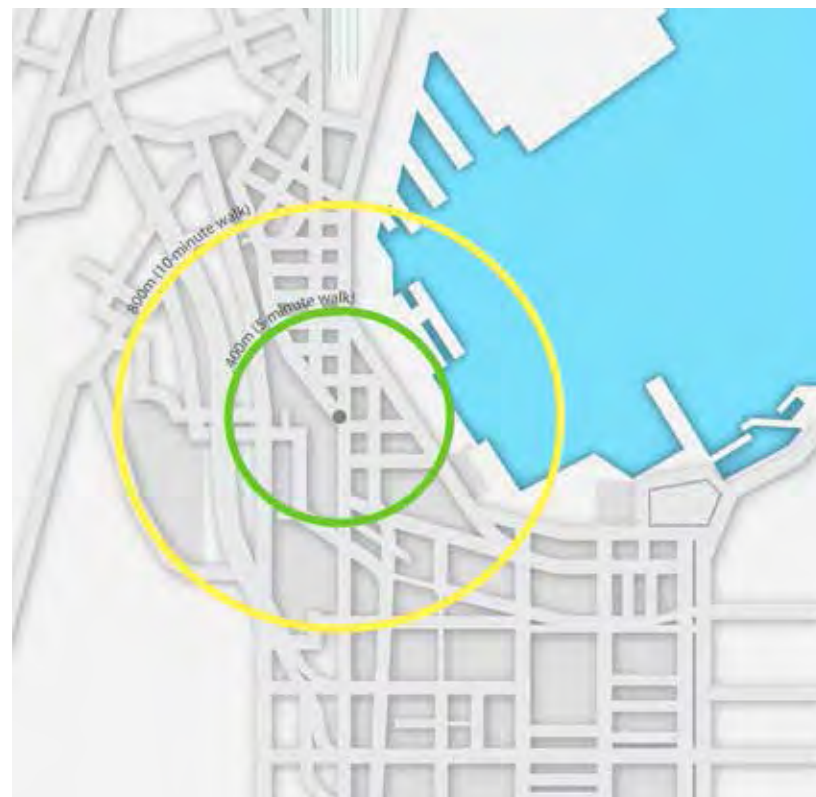
**Figure 39.** Green areas show existing parks spaces, blue dashed lines show indicative location of historic streams.

# MOVEMENT

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Wellington's transport network carries large volumes of people and goods into, out of, and through the central city safely and efficiently. However, to ensure this continues, Wellington's street network will need to be continuously monitored to ensure efficiency for all modes.

**Figure 40.** Wellingtonians walk further than people in other New Zealand cities. We need to ensure this continues by providing pedestrians a pleasant environment to be in.



## Areas of opportunity

### Accessibility improvement plan

Factors such as the one-way system, the placement of furniture, traffic islands, and slip lanes can all affect the quality of the environment for pedestrians and cyclists and can present barriers to those in wheelchairs. Reducing or eliminating the negative affects of these, while still acknowledging their need to perform their traffic carrying role efficiently, will be a focus of the accessibility plan.

## Potential actions

- Identify problem areas.
- Work with transport team to develop improvements.
- Develop a new works programme related to upgrades and renewals.
- Incorporate design standards into the Public Space Design Manual.
- Review existing and develop new engineering quality standards.

### Movement economy impact study

Understanding the economic impact of improved 'wayfinding' for vehicles and studying the distribution of traffic across the network (rather than concentrated on one or two streets).

- Identify areas of conflict.
- Identify contributing factors.
- Work with transport team and researchers to provide solutions.

### Urban design and transport integration plan

Assessing the alignment between the role and function of each street within the city centre and the location of public transport routes, parking locations and the best places to walk and cycle.

- Identify areas of conflict.
- Work with transport team to develop a description for each central city street that meets the needs of all transport modes and identifies focus areas on specific streets.

### Comprehensive cycling lan

A cycling plan to align with open-space structure, key destinations and feasible through routes.

- Review the Cycling Policy.
- Undertake research that identifies key movement routes for cyclists and potential future routes.
- Develop new works programme for landscape and streetscape improvement for appropriate enhancements for cyclists.
- Investigate new modes of short-term hire for bicycles.

### State highway integration

The state highway and the way it integrates with the city requires attention, not only to mitigate the current proposals but to ensure that as the transport agency plans further projects we have a proactive role.

- Work with NZTA to ensure integration of Memorial Park and the Basin Reserve infrastructure projects.
- Open-space design for unused areas adjacent to highway such as the Willis, Ghuznee and Arthur Street intersections.
- Develop a strategy to reduce motorway impacts and introduce boulevard strategy along the quays.

### A comprehensive parking plan

People use their vehicles in the city for different purposes. A comprehensive parking plan will ensure that we provide adequately for vehicle use in strategic locations as well as other modes.

- Review Parking Policy.
- Identify strategic parking areas within the city.
- Investigate methods of providing parking.
- Investigate means of delivery.

# CLIMATE

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Wellington experiences high winds. The city topography, the heights of buildings and the width and orientation of the streets and open spaces also combine to dictate wind speeds and the level of sun or shade to public places.

These factors also influence the extent to which light can penetrate into city buildings. The growth in city living means the city environment is becoming the 'backyard' for many people. Access to quality open spaces, sun and shelter are important to the quality of the living experience and the long-term sustainability of this aspect of Wellington's future.

As well as our existing climatic conditions, we are also faced with adapting to and mitigating climate change.



### Areas of opportunity

#### A wind and climate study

This will help across all projects especially in determining how built-form and landscape can be used holistically to mitigate the wind effects on streets.

### Potential actions

- Commission comprehensive study.
- Align and evaluate all project work against this study to ensure mitigation through holistic design.

#### Green building code

As described in 4.2.1 *Building quality* the aim of this code will be to increase the environmental performance of buildings. This code will also integrate with the *Building Resilience Guide*.

- Integrate Green Building Code with existing regulatory mechanisms.

#### Address rising water levels

As identified within the Climate Change Action plan we will need to adapt in response to the changing climate. One of the drivers is the rising sea level and the water table. Although we need to find solutions, we must consider ways to maintain the vibrant street life Wellington is known for.

- Investigate areas identified as being 'vulnerable' within the central city.
- Develop options for how we might adapt our buildings, streets and open spaces.

