



1.0: Introduction



1.1 What is a Greenway?

A greenway is a corridor of open space that is managed for environmental and recreational benefits. Greenways can follow natural land or water features, like streams or coastlines, or human landscape features like streets, motorways or rail corridors. They can link ecological sites, parks, beaches, cultural and historic sites, schools, community facilities and town centres with each other. Greenways can enhance habitat and food opportunities for native wildlife, improve stormwater quality and reduce flooding events, and provide people with access to outdoor recreation and enjoyment close to home.

1.2 Why develop Greenways?

There are many benefits from developing greenways, including:

Environmental – reducing the reliance on fossil fuels by providing attractive and safe alternative transport choices, improving stormwater quality and reducing flooding events through low impact design measures such as swales and rain gardens, and by enhancing ecosystems and biodiversity

Social providing opportunities to be engaged with a diverse range of communities and linking people to community facilities

Health providing opportunities for activity and fitness

Education through providing opportunities to learn about the plants, wildlife, history and people of the landscapes the greenways traverse through

Economic developing greenways would create employment opportunities and would entice people and businesses into an area. Greenways can also provide a great tourist destination for international and national visitors.



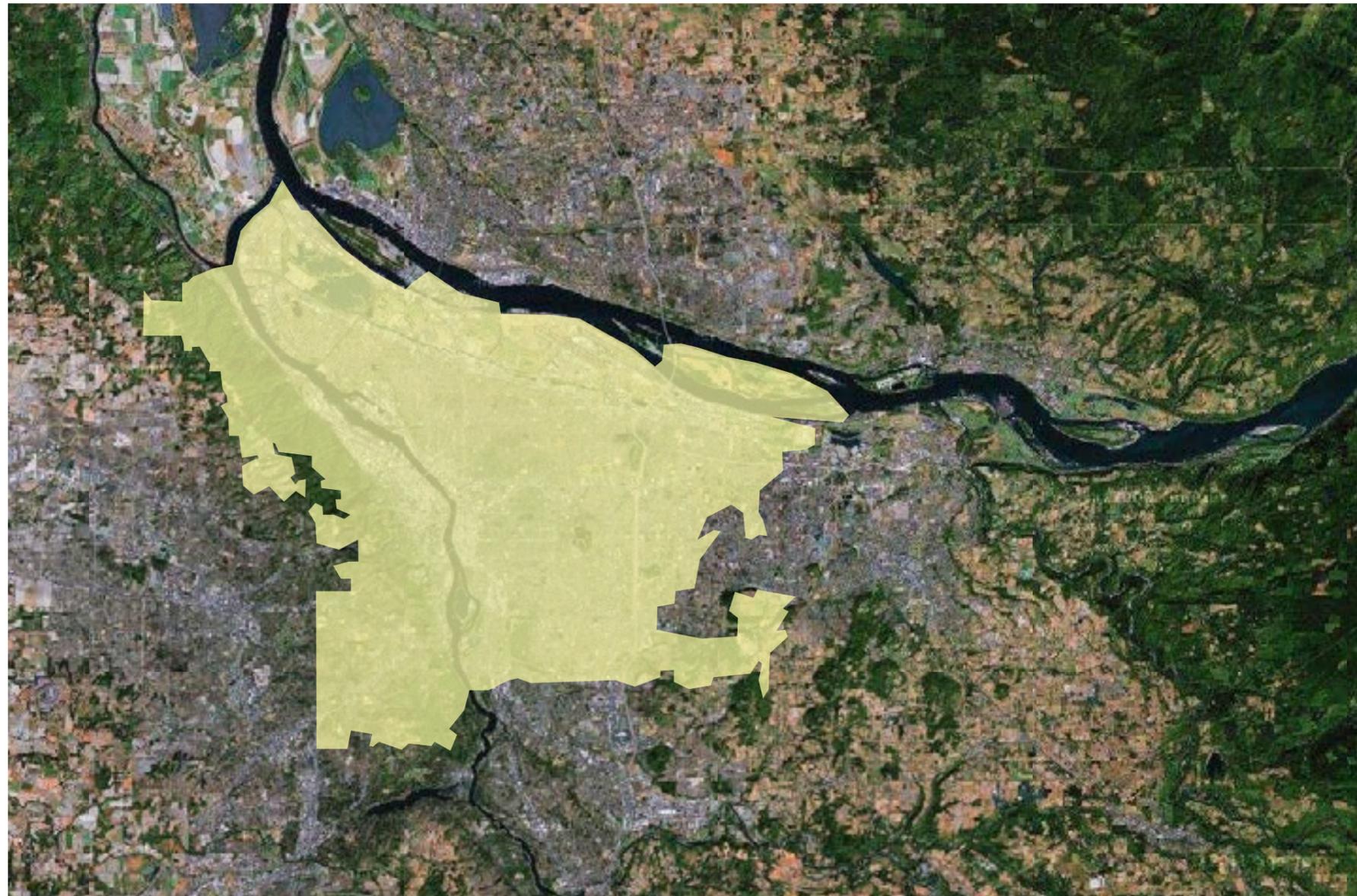
1.3 Puketapapa Greenways

The Puketapapa Greenways network builds on the existing SH20 cycleway, parks and coastal walkways within the area by proposing further greenways or enhancing existing greenways to create continuous connections linking communities to its local open space, community facilities and places of interest. The alignments of these interconnecting greenways are based on the unique and defining landscapes within the area, broadly categorised as either coastal, volcanic or stream.

Related to each of these categories, a greenway vernacular would be developed to enhance both visitors and local's relationships, experiences and interactions with the unique Puketapapa landscapes. For example, where greenways follow streams there are opportunities for stream restoration, day-lighting, riparian planting and improving water quality. The volcanic greenways can provide opportunities for archaeological and cultural conservation and education. The coastal greenways can provide revegetation opportunities to improve the abundance of food for native wildlife, including the kaka, kereru and tui.

The Puketapapa Greenways look to utilise existing open spaces and streets. Improvements to existing open spaces and streets within the network would seek to enhance public experiences and enjoyment through such measures as new or improved paths, signage, planting, safe crossings and low impact design measures, such as swales and rain gardens.

The Puketapapa Greenways would link together schools, shopping centres, parks, rest homes, beaches, community facilities, volcanoes, train stations and streams. They would be an enjoyable way to get around, get active and get engaged with nature and the community.



5km

1.4 Greenway Case Studies

1.4.1 International Case Studies

CASE STUDY: PORTLAND GREENWAYS
OREGON, U.S.A

In 1903, a loop of cycleways, walkways and parklands encircling the city of Portland were proposed by well-known landscape architects the Olmsted Brothers - commissioned to investigate opportunities for the upcoming World's Fair. This concept - visionary at a time when the area was still largely meadows and forested hillsides has now become a significant tourism drawcard, as well as a popular recreational asset for the city's residents.

"Parks should be connected and approached by boulevards and parkways...They should be located to take advantages of the beautiful natural scenery. This [initiative] would form an admirable park system for such an important city as Portland is bound to become."

Olmsted Brothers - Landscape Architects
1904 - Portland, Oregon

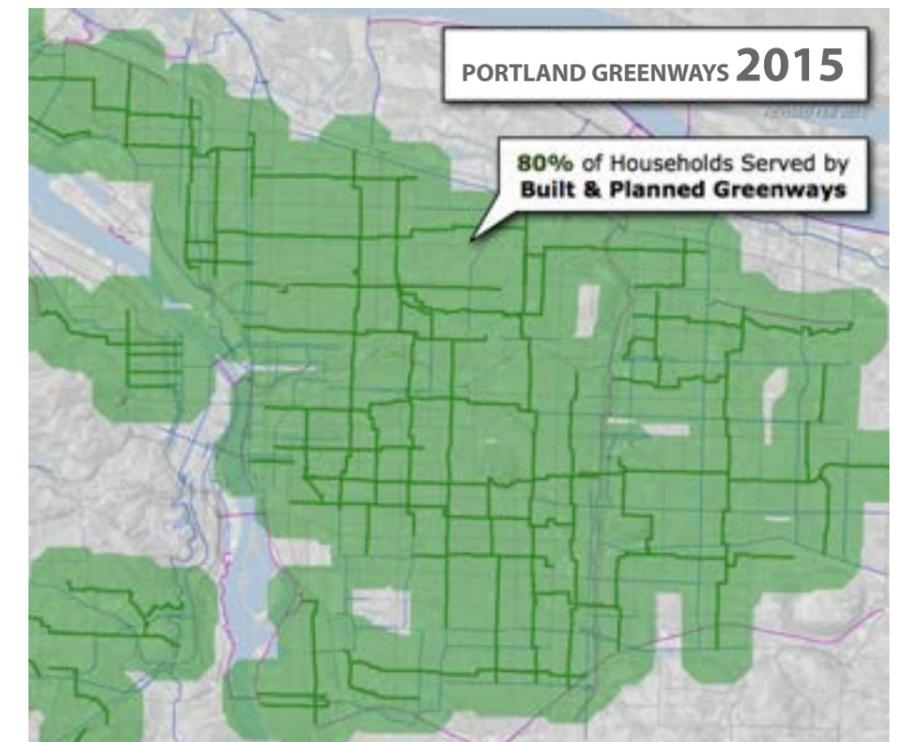
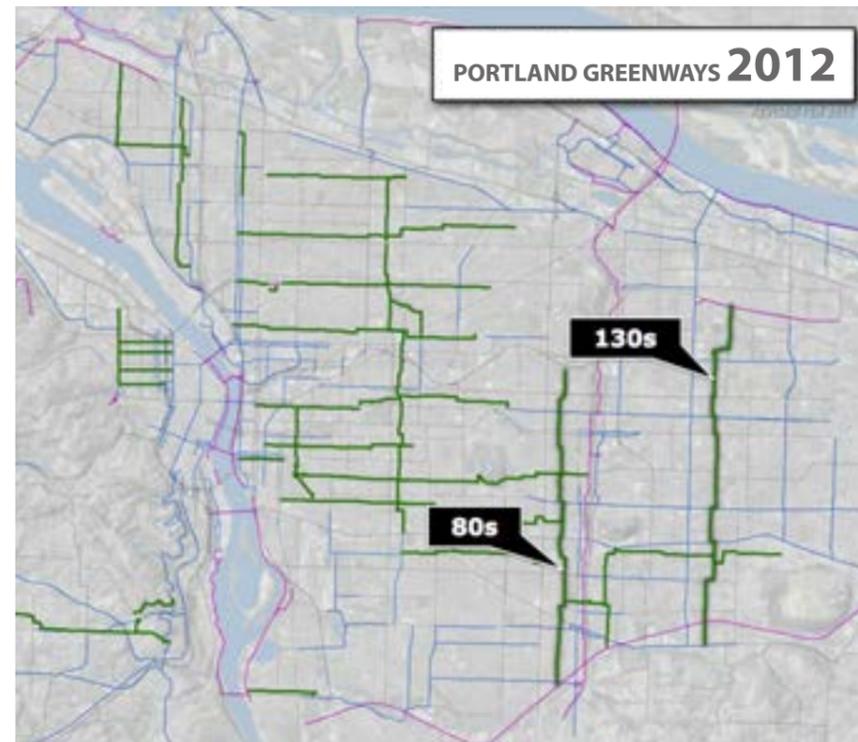
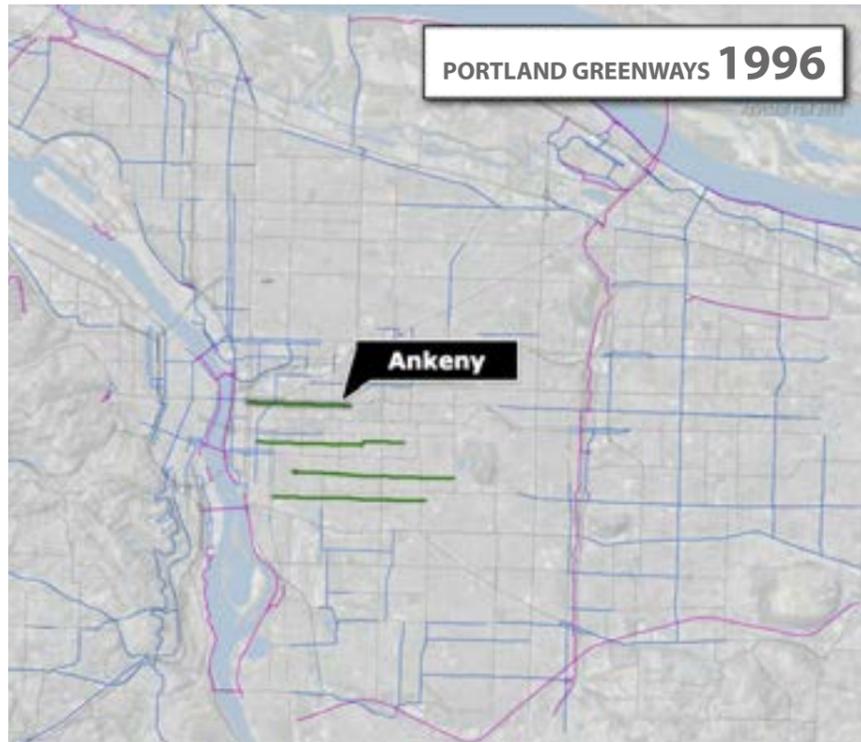
More recently, this popular concept has been extended into the urban environment, via a new initiative called Portland's 'Neighbourhood Greenways', which seeks to place 80% of the city's households within 800 metres of an interconnected slow-speed, high amenity walking and cycling route - usually by converting existing neighbourhood streets into places where pedestrians and cycles have priority. This is being done via a suite of design and regulatory initiatives, and form's part of the city's ambitious aim goal of increasing bicycle mode share from 8 to 25 percent by 2030.

By 2012, over 30 street upgrades will have been completed, and the neighbourhood greenways have become a safe and peaceful walking/cycling experience. These have become spaces for families where children bike to school, and there is a constant buzz of activity at all times of the day.

"They're on a quiet street, where that boulevard is prioritized for the bike, not the car."

Sam Adams, Portland Mayor

In addition to amenity items such as wider footpaths and increased planting, broader strategies are included, such as reducing the speed limit on these streets to 20 miles per hour, phasing of traffic lights and 'flipping' stop signs to



allow a smoother cycling experience. These initiatives shift priority from the private motor vehicle to cyclists and pedestrians, and form part of an effort by the city to halve car trips on the neighbourhood greenways.

Benefits:

- Areas of play and other forms of recreation in urban refuges
- Loci for carbon sequestration
- Watersheds
- Continuous wildlife corridors
- Reduce private motor vehicle 'cut through' (rat-running)
- Provide safer walking and cycling connections
- Reduce auto speeds
- Improving crossing safety
- Improved legibility
- Increasing 'eyes on the street' (passive surveillance), and hence public safety

CASE STUDY: PORTLAND GREEN STREETS
OREGON, U.S.A

In a related initiative to the Portland greenways project, the city also developed a green streets policy – the goal of which is:

The City of Portland will promote and incorporate the use of green street facilities in all public and private development.

Specifically, this policy states that green street facilities must be incorporated into *“all City of Portland funded development, redevelopment or enhancement projects as required by the City’s Stormwater Management Manual”*
Green Streets Policy 1a

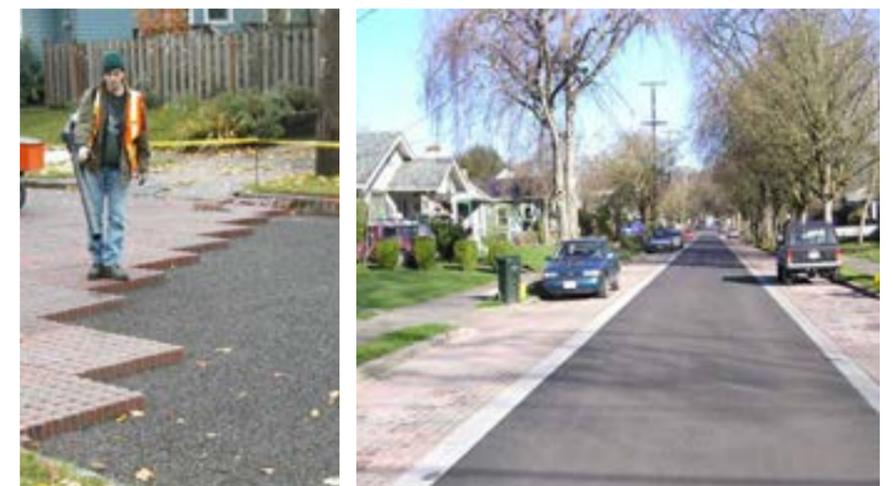
If this is not fully incorporated into each Infrastructure Project, then an off-site project or mitigation compensation is required. Any compensation goes towards other planned ‘Green Streets’ initiatives.

This project shows how, with innovative thinking and strong leadership, traditional streetscapes can be reinvestigated to provide a range of beneficial outcomes. Not only can green streets improve connections and legibility between open spaces within a greenways network but they can also provide:

- Treatment and filtering of impurities from the road carriageway and associated impervious surfaces (including heavy metals, oil and general waste)
- Detention of rainwater flows, and a reduction in flood peak levels.
- Reduction in loading on any combined stormwater/sewer systems, reducing sewer overflows into the harbour
- Improved biomass and habitat
- Reduced maintenance costs by bringing underground utilities to the surface
- Improved amenity and community pride
- Carbon dioxide sequestration
- Improved local property values
- Replenished groundwater supplies
- Reduced impervious area

The experience in Portland has shown that these projects need not necessarily be grand gestures and high cost – significant gains can be made for instance by simply cutting into the kerb, and excavating the front berm to create a recessed, well drained growing medium. A network of green streets linking open spaces builds legibility of the broader network in a way that does not necessarily require a proliferation of signage.

In terms of the Puketapapa project, it is this ‘branding’ and connecting of the open space network in a way that utilises existing corridors and minimises private property acquisition that would be of great benefit. The green streets would become one of the more recognisable elements of the project, and likely a source of great community pride that could set the Local Board Area apart from others.



Pre-development: Water Use Conditions



2050: Per Plan Water Use Conditions



2004: Existing Water Use Conditions



LESSONS LEARNT: PORTLAND GREENWAYS AND GREEN STREETS

- Utilise the raw material that your city already has, and use it to your best advantage.
- Grow the ethic of being 'comfortable' in urban place and nature - especially children.
- Support and encourage new trials and initiatives - don't hold out for perfection at the first attempt
- Encourage the walking experience. Never, ever overlook how it feels simply to walk down the street.
- Reinforce the connection between green development and transportation.

"Portland is targeting the 60 percent of Americans who say they're interested in biking more, but nervous about being on streets with roaring traffic. That's why the city is putting an emphasis on creating more cycle tracks, which provide a buffer between bikes and cars, and low-traffic neighborhood greenways sometimes called "bike boulevards."

What We Can Really Learn from Portland, William Fulton

- Strengthen the informal aspects of city life - the quirky and human-scale things
- Adding green infrastructure increases quality of life and moves towards achieving a semibalance of ecological sustainability and providing habitat for wildlife within a rapidly densifying Urban Growth Boundary.



1.4.2 Local Case Studies

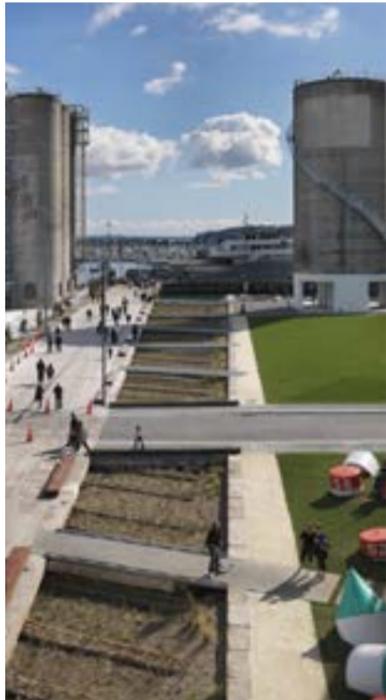
CASE STUDY: JELICOE STREET
AUCKLAND CBD, NEW ZEALAND

VISION:

- Integrate Best Practice Stormwater Design and the efficient use of water resources
 - Re-use existing structures and infrastructure where possible
 - Generate renewable energy on site
 - Preserve coastal water quality and protect waterfront ecologies
 - Protect air quality and reduce traffic congestion
 - Improve permeability and establish pedestrian priority and safety
 - Facilitate better access and circulation between transport modes
 - Sight lines should enable visual connections through the precinct to the water
 - Promote Pedestrian and cycle activity
- Wynyard Quarter Urban Design Framework 2007

LESSONS LEARNT: JELICOE STREET

- Where rain gardens and swales abut areas of parking, some consideration needs to be given to passengers exiting out of the footpath side of the vehicle.
- Such treatment devices work best when incorporated into adjoining areas of open space.
- Growing and drainage medium is critical in order to ensure plant success.
- Developing new initiatives in high-use areas is a great way to educate people about shared space and green infrastructure networks.



CASE STUDY: STONEFIELDS
AUCKLAND, NEW ZEALAND

VISION:

“To create an attractive place where residents can enjoy all the benefits of an urban environment, while still having easy access to its history and an extensive network of green spaces.”

- Specific attributes of this green space network include:
 - A modern primary school that is accessible and within safe walking distance for the entire Stonefields community;
 - A five hectare lake and wetland system to treat the water on site. The lake is already a haven for birdlife and provides walking tracks and educational experiences.
 - Utilisation of stormwater for re-use in garden taps at each private residence.
 - A range of eleven neighbourhood parks are situated so that every home at Stonefields is within a short five minute walk to a neighbourhood park.
 - A heritage trail that will circumnavigate Stonefields, providing interesting walking paths and panoramic views across the lake area and suburb beyond.
 - Housing that is located near to a range of public transport facilities, including cycle paths and bus routes linking to train stations beyond.
- Excerpts from the Stonefields Master Plan listed above

LESSONS LEARNT: STONEFIELDS

- Adding green space increases value and desirability of residential properties
- Stormwater devices can become enjoyable public spaces - always look for opportunities to incorporate new solutions rather than standard devices.



1.4.3 Comparison of Puketapapa and Portland Greenway Areas



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