



Fishermans Bend

Pursuing a hybrid approach to water

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Head of Fishermans Bend Strategy

26-28 March 2019



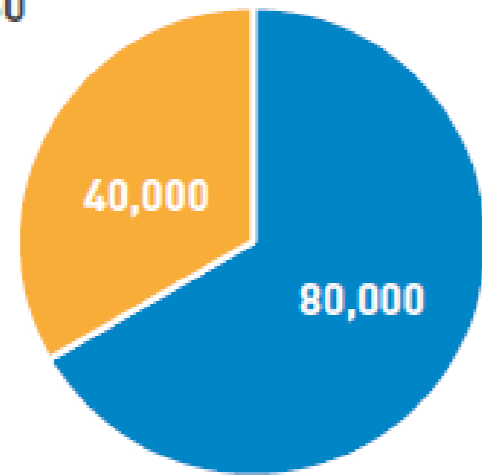
An expanding central city

Fishermans Bend

2016

17,800

By 2050



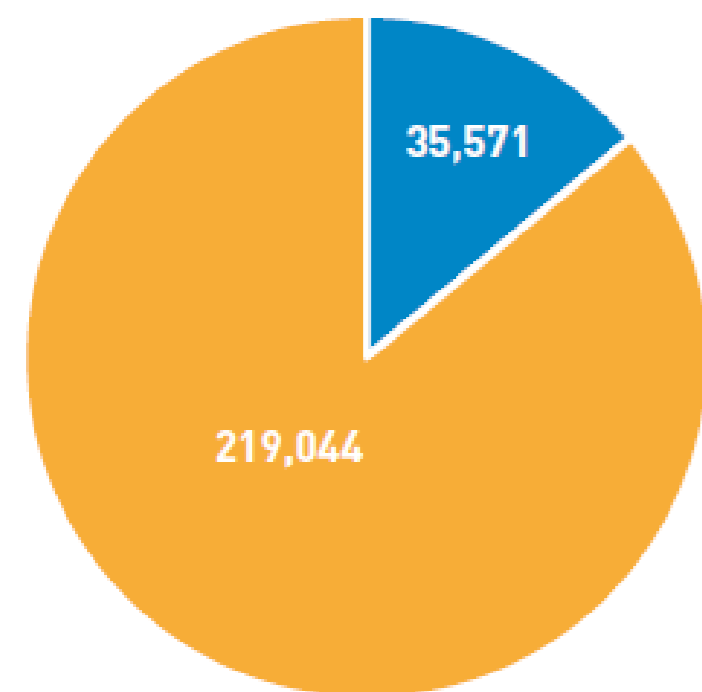
Fishermans Bend
(Excl. Employment Precinct)

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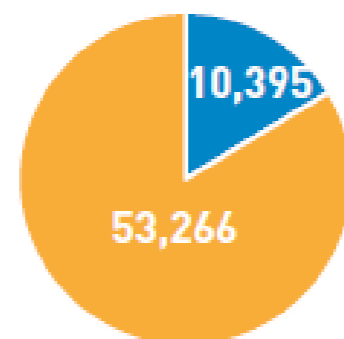
Jobs
Residents

Melbourne inner city precincts

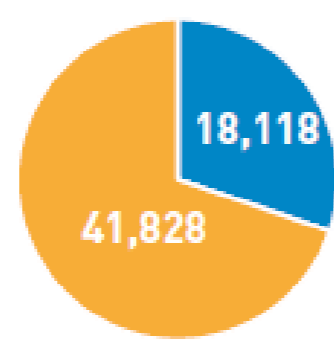
2016



Hoddle Grid
208 hectares

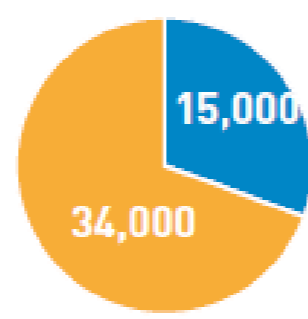


Docklands
190 hectares



Southbank
170 hectares

2035



Arden Central
(Draft Vision)
56 hectares



- Central Business District
- National employment and innovation cluster (NEIC)
- Major urban renewal precinct (2015 - 2051+)
 - Priority precinct⁽¹⁾
 - Other precinct
- Health facility
- Education facility
- Key precinct
 - 1 Port of Melbourne
 - 2 Arts precinct
 - 3 Sports precinct
 - 4 St Kilda Road precinct
- Landmark
- Public open space
- Metro Tunnel (rail)
 - New station
- State-significant road corridor
- Western Distributor (potential alignment)
- Rail network
- Train station
- Tram network
- Road network
- Waterway
- Waterbody

Source: Fishermans Bend Urban Design Strategy, Hodyl + Co

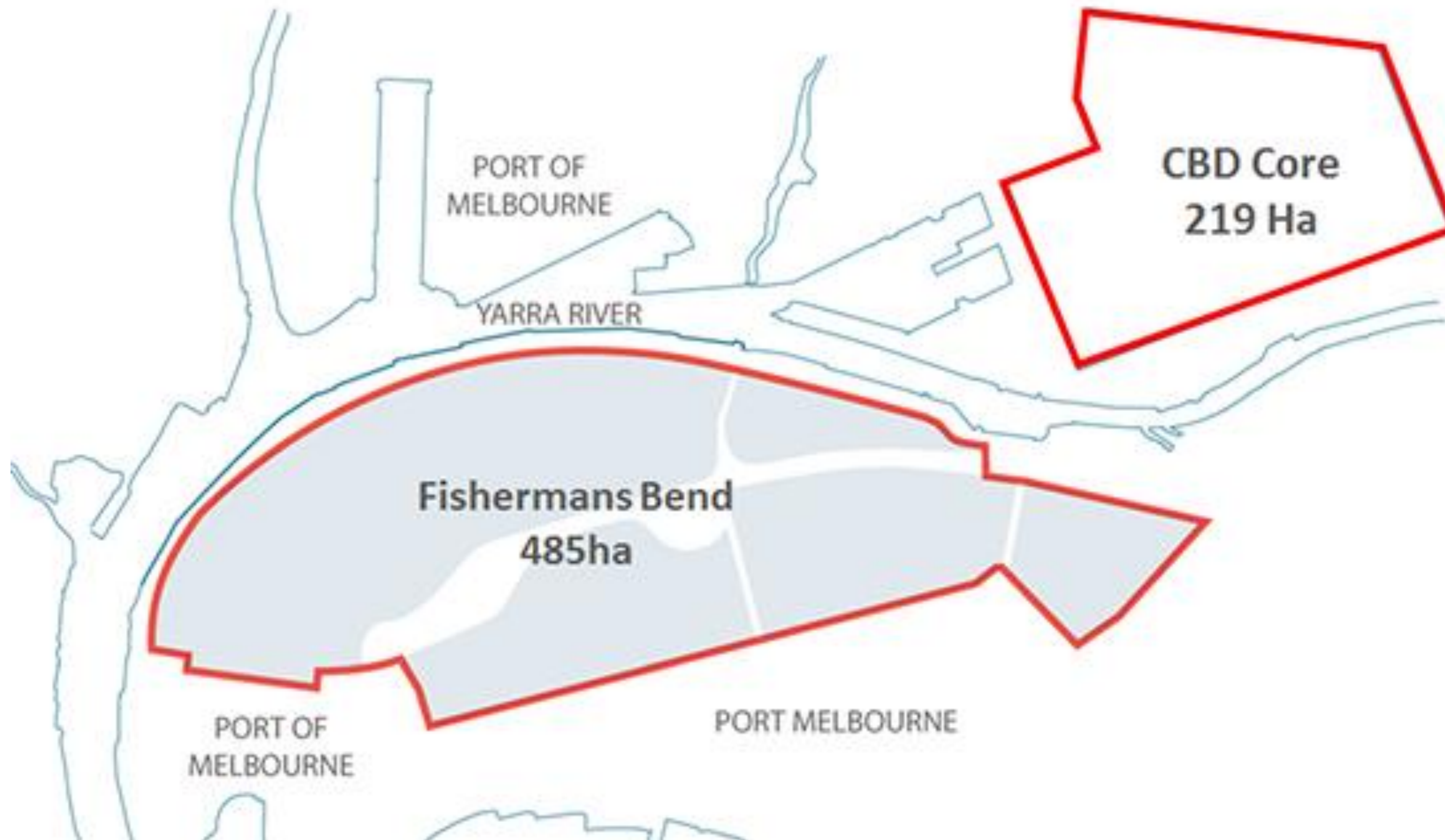


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Understanding the scale of the opportunity



An industrial past...



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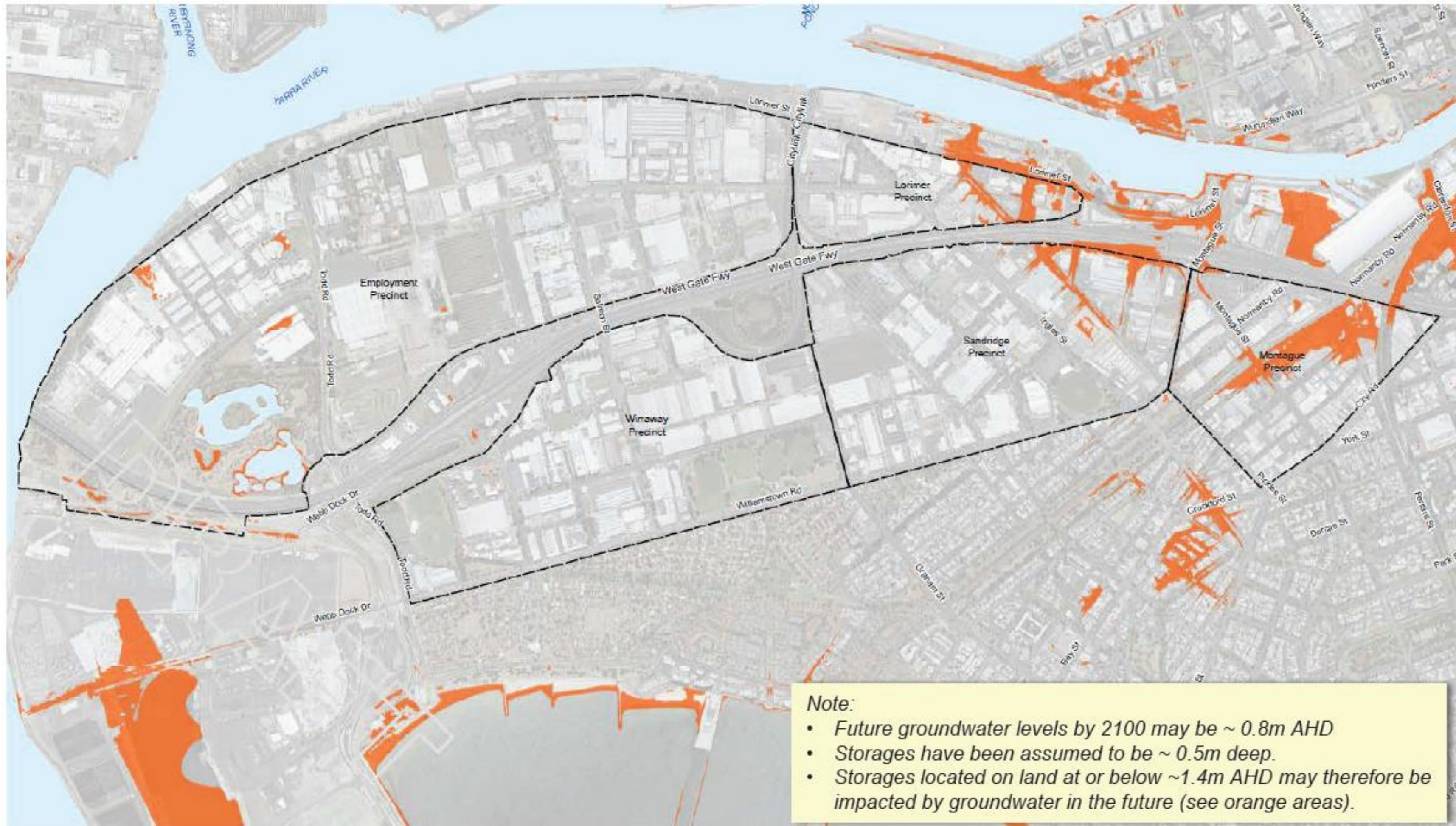
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Contamination challenges

FISHERMANS BEND FINAL REPORT



Areas with ground water



Surface Elevation
□ > 1.4m AHD
■ < 1.4m AHD
▭ Precinct boundaries

Source: Fishermans Bend Baseline Drainage Report, GHD



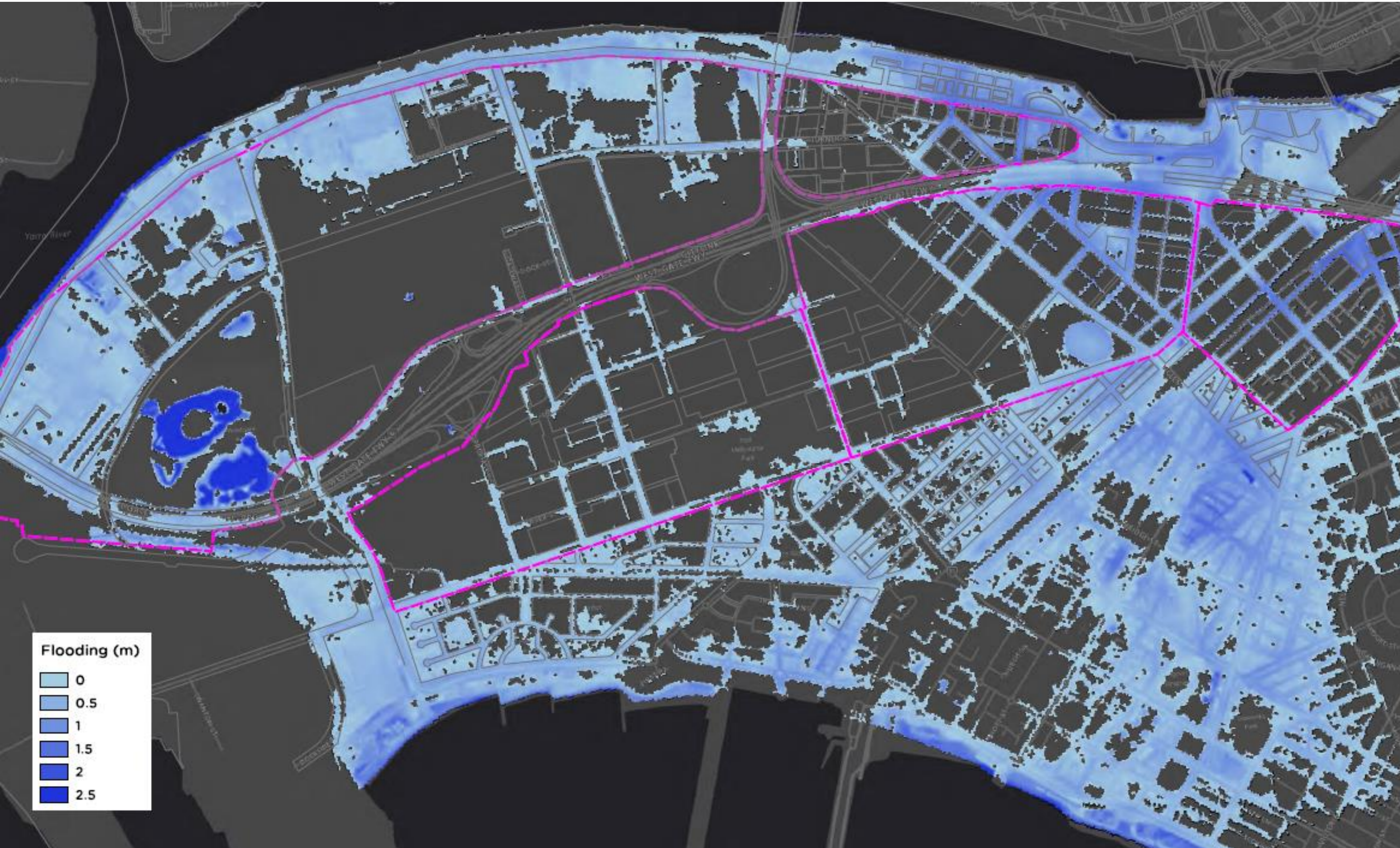
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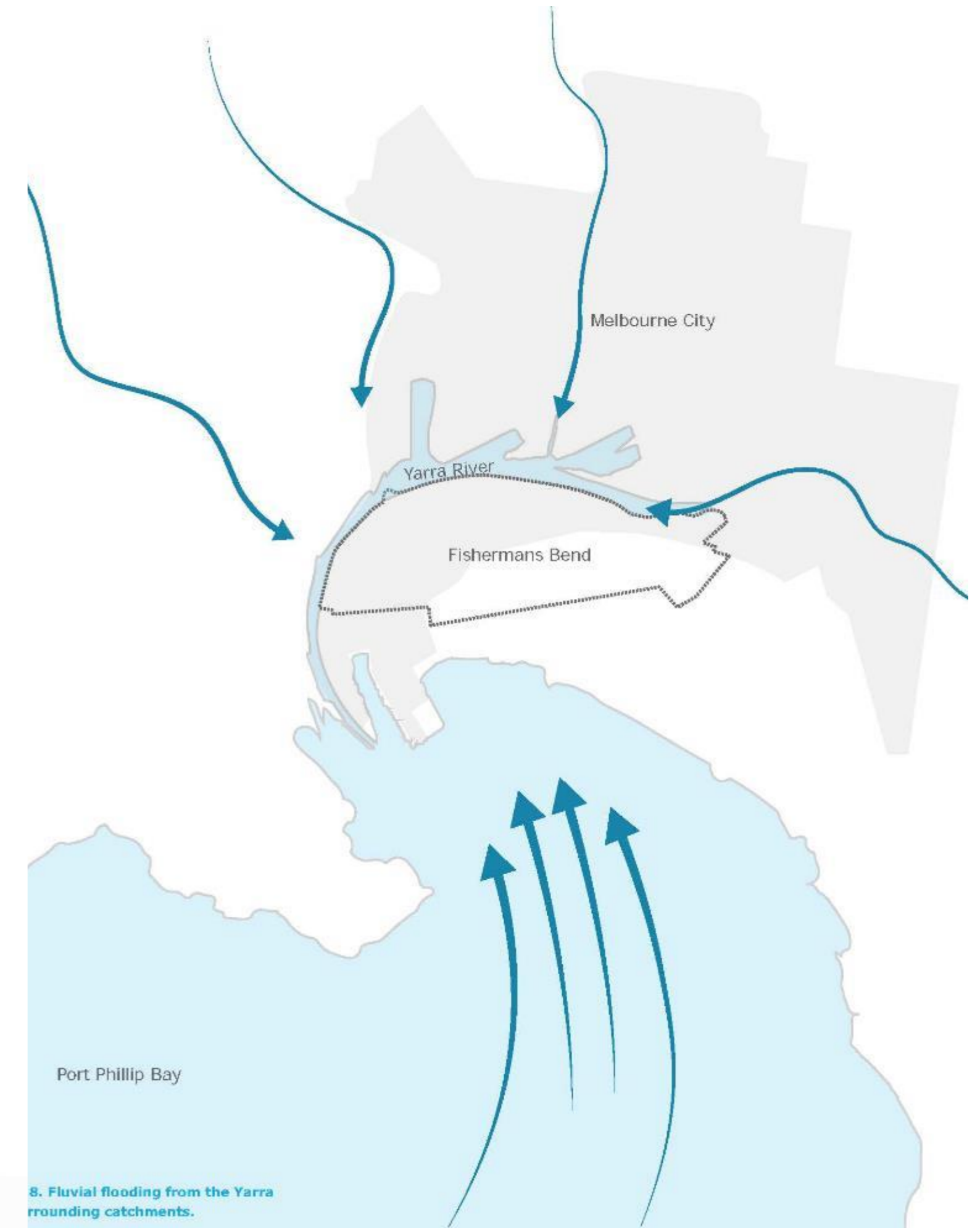
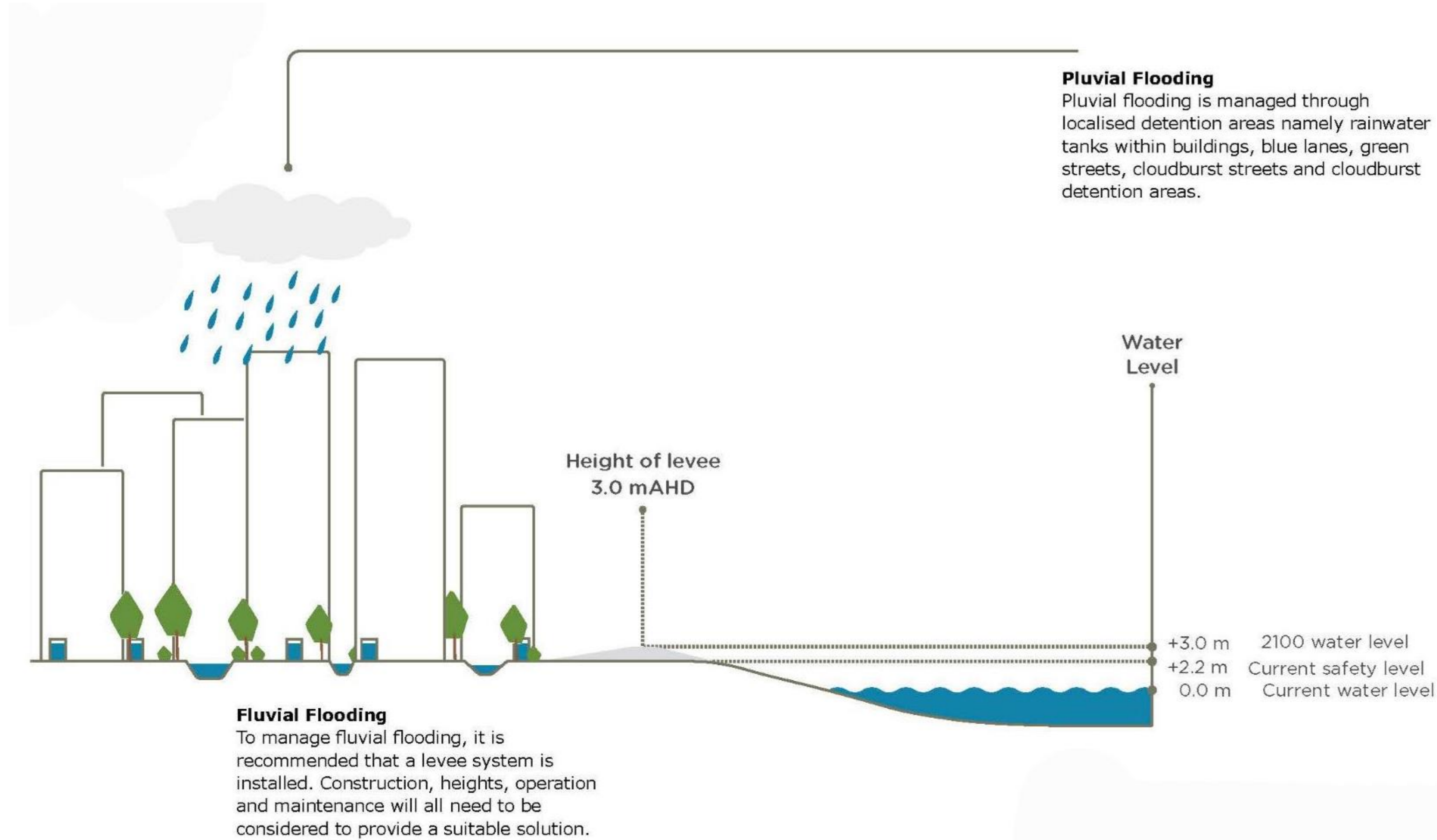
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Flooding issues

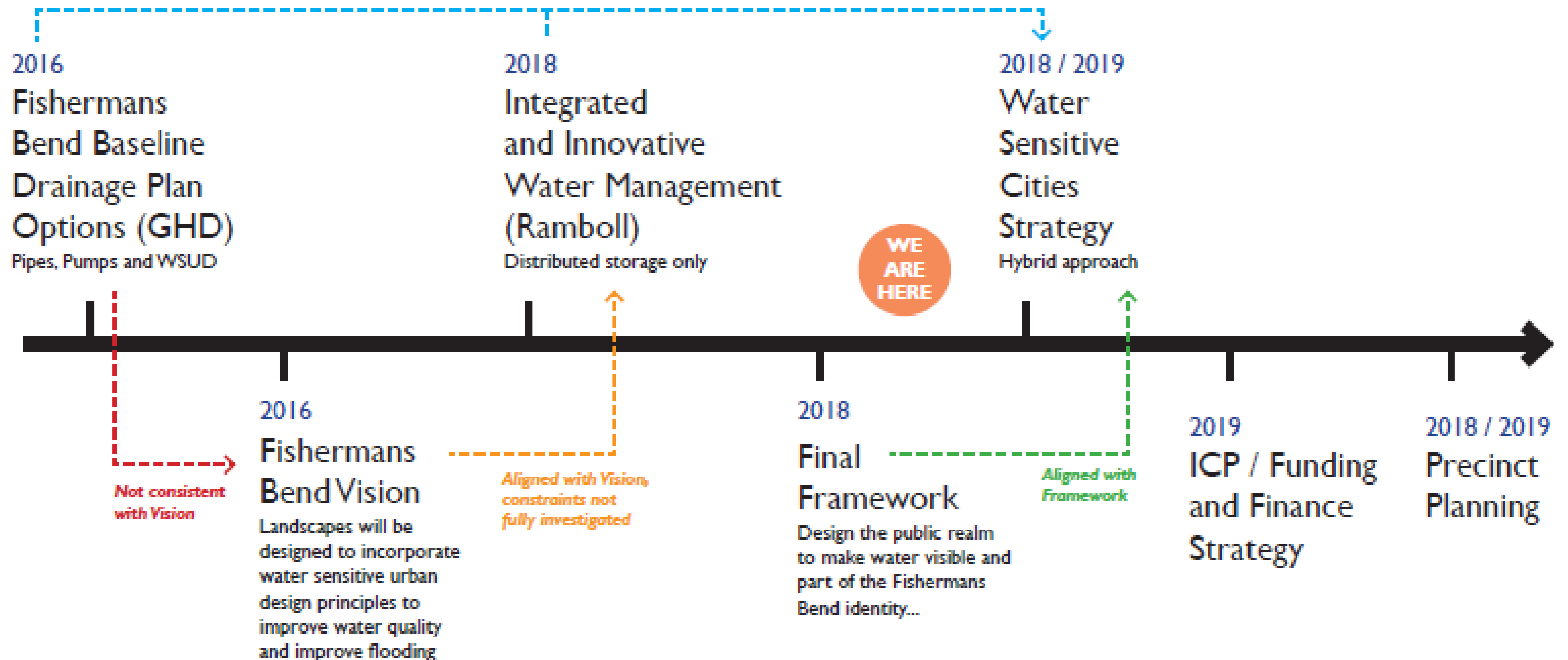


Flooding sources

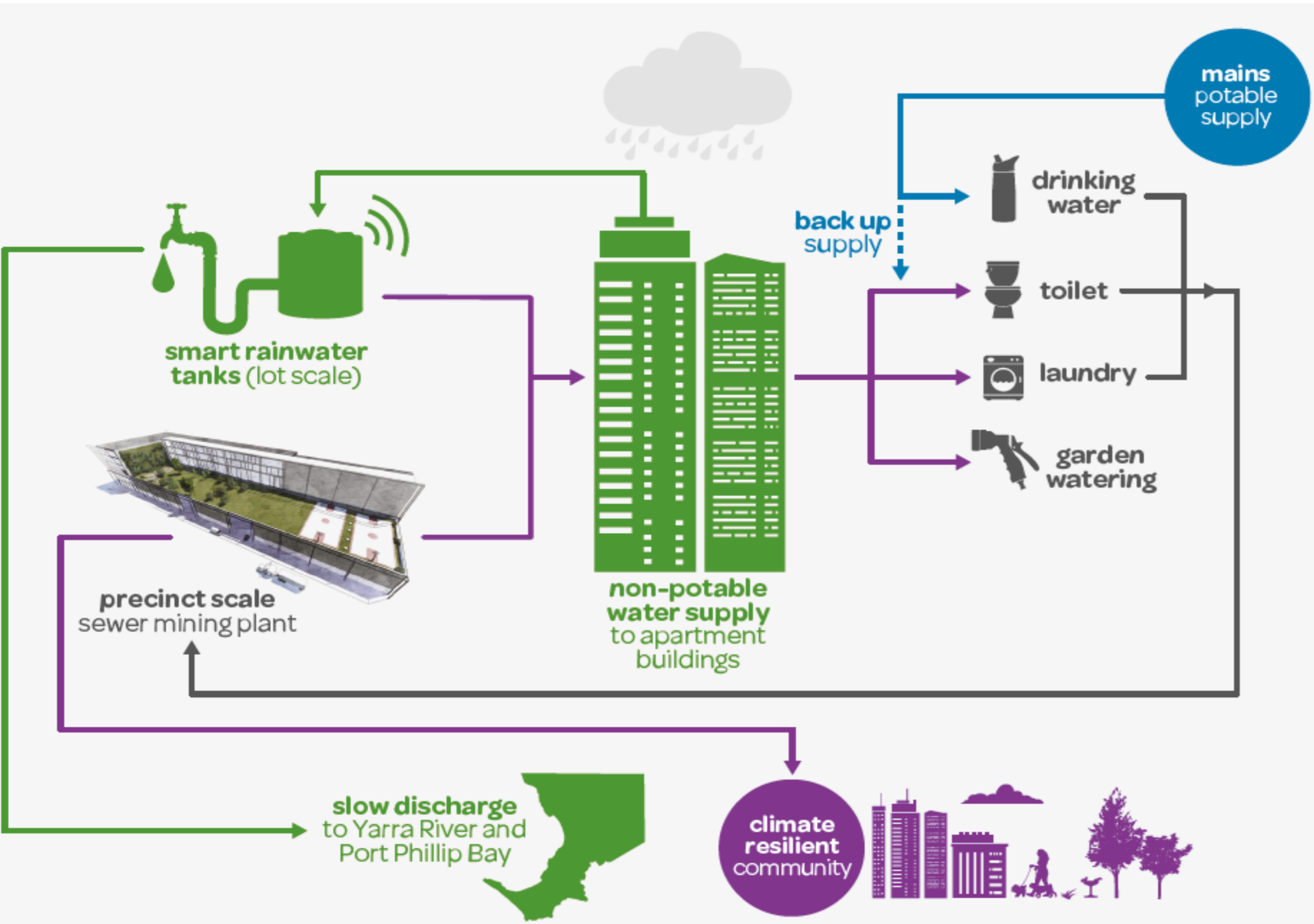


Source: Fishermans Bend Integrated and Innovative Water Management, Ramboll

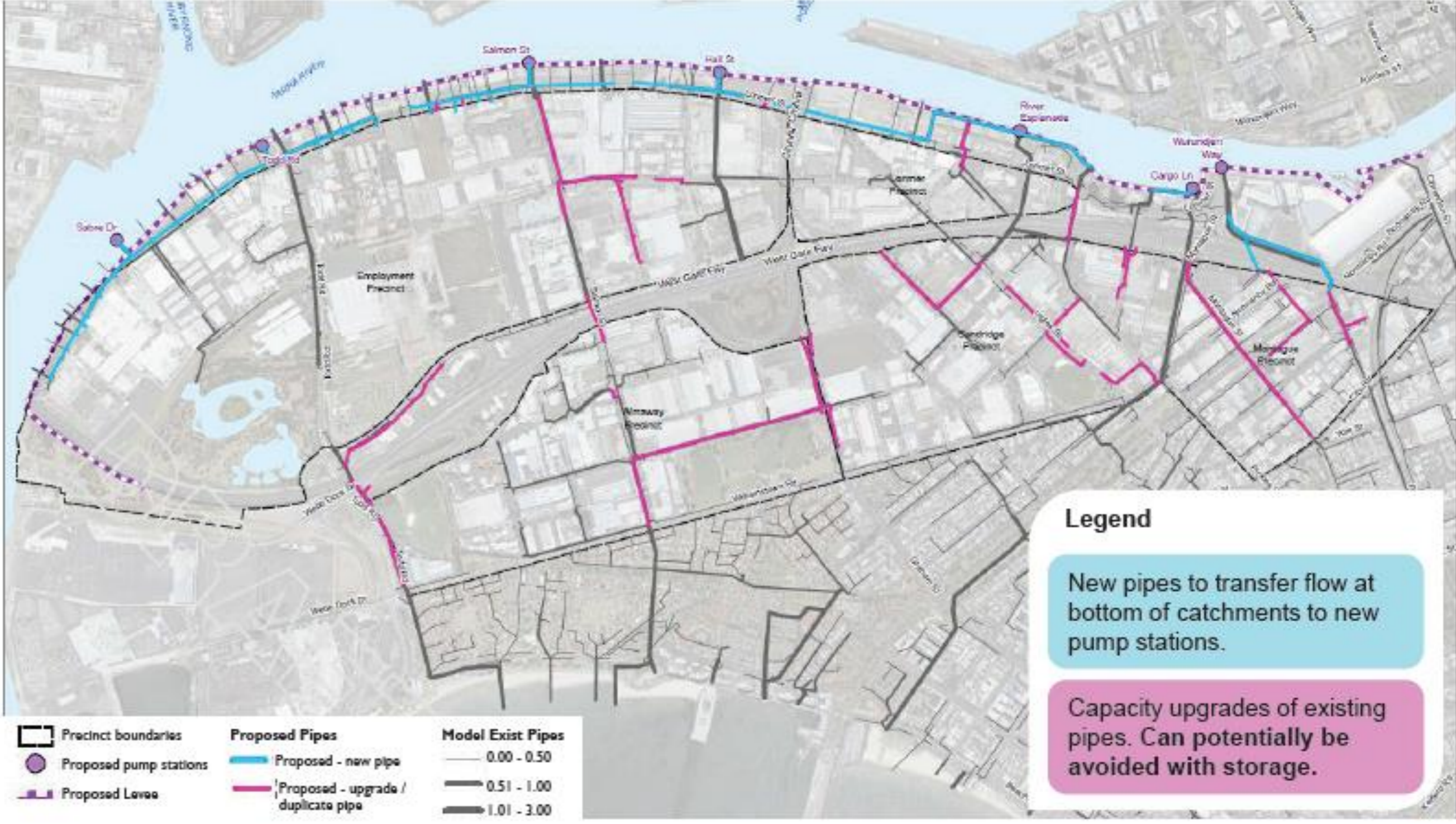
Water planning timeline



The baseline water plan



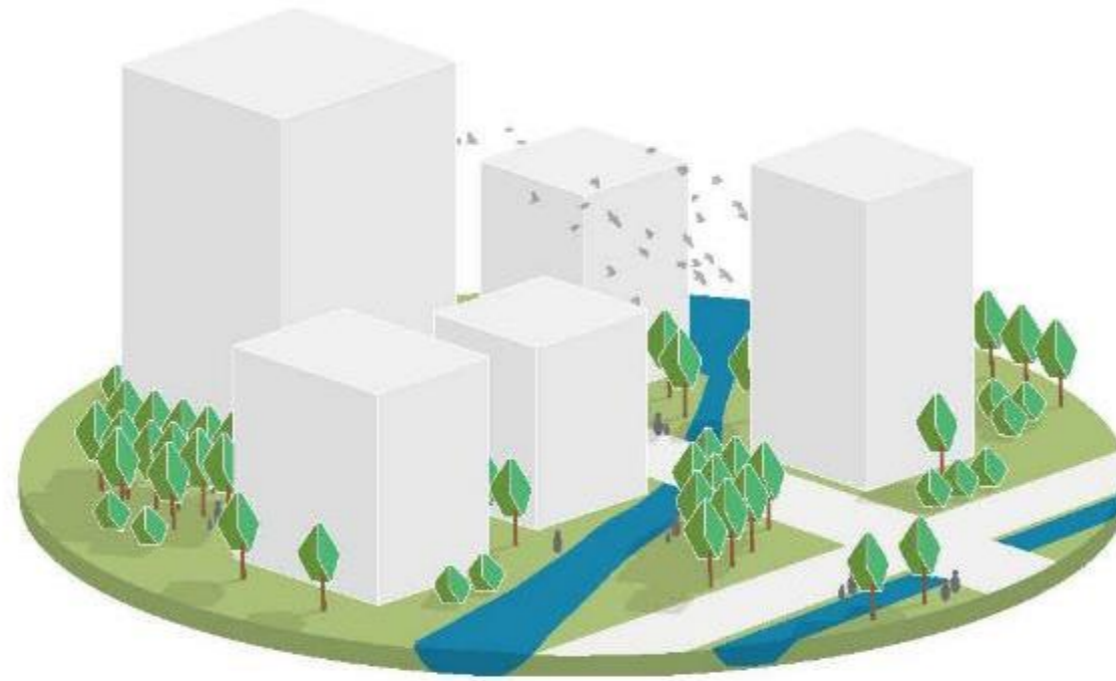
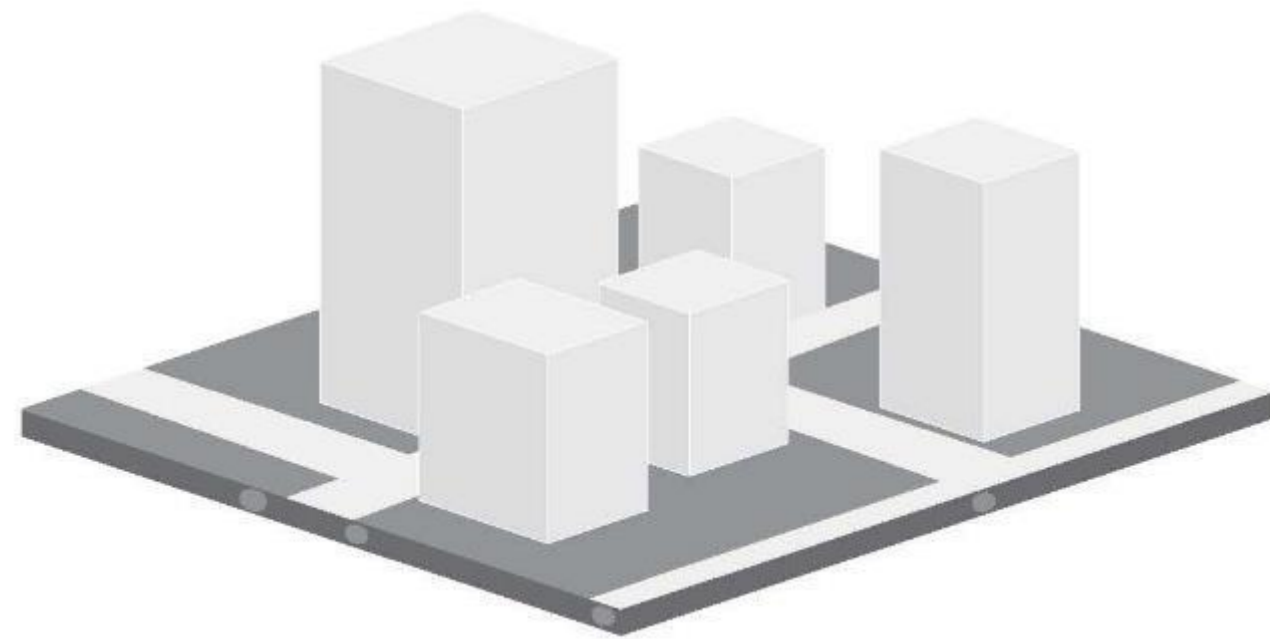
Baseline Drainage Plan Infrastructure



Source: Fishermans Bend Framework, Victorian Government

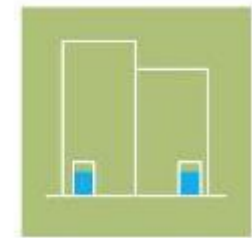
Source: Fishermans Bend Baseline Drainage Report, GHD

Turning the water challenges into an opportunity



Current Plan for Fishermans Bend

The current plan for flood management at Fishermans Bend includes the installation of a levee, installing rainwater tanks in buildings, increased pipe diameters and more pump stations. The rainwater tanks can have benefits outside flood management, however the other components have no significant benefit outside of flood management.



Building rainwater tanks

Rainwater tanks have been specified in buildings. This water will be used to flush toilets, for laundry purposes and for irrigation.



Increased pipe diameters

Larger pipe diameters have been specified in some areas to reduce localised flooding.



Pumping stations

During flood events, pumps will have been specified to remove water from Fishermans Bend to the Yarra River.

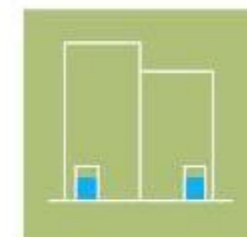


Levee

A levee has been proposed to protect the site only. Areas outside the levee have not been considered and the levee does not improve the public realm.

Proposed Plan for Fishermans Bend

The Blue Green Tools proposed have the aim of being able to increase detention across the site, decreasing flooding risk. This will be able to detain more water not only protect the site from flooding, but will also improve the liveability of the Site through increased green areas, improvement of active transport routes and improved micro-climate.



Building rainwater tanks

Rainwater tanks have been specified in buildings. This water will be used to flush toilets, for laundry purposes and for irrigation.



Improved streets

Detention of water in the street corridor will improve micro-climate through the cooling action of water and also passive irrigation.



Improved open space

Cloudburst detention areas will function for the majority of the time as public realm.



Liveable levee

The levee is proposed to be a high quality urban space to attract people to the area.



Source: Fishermans Bend Integrated and Innovative Water Management, Ramboll



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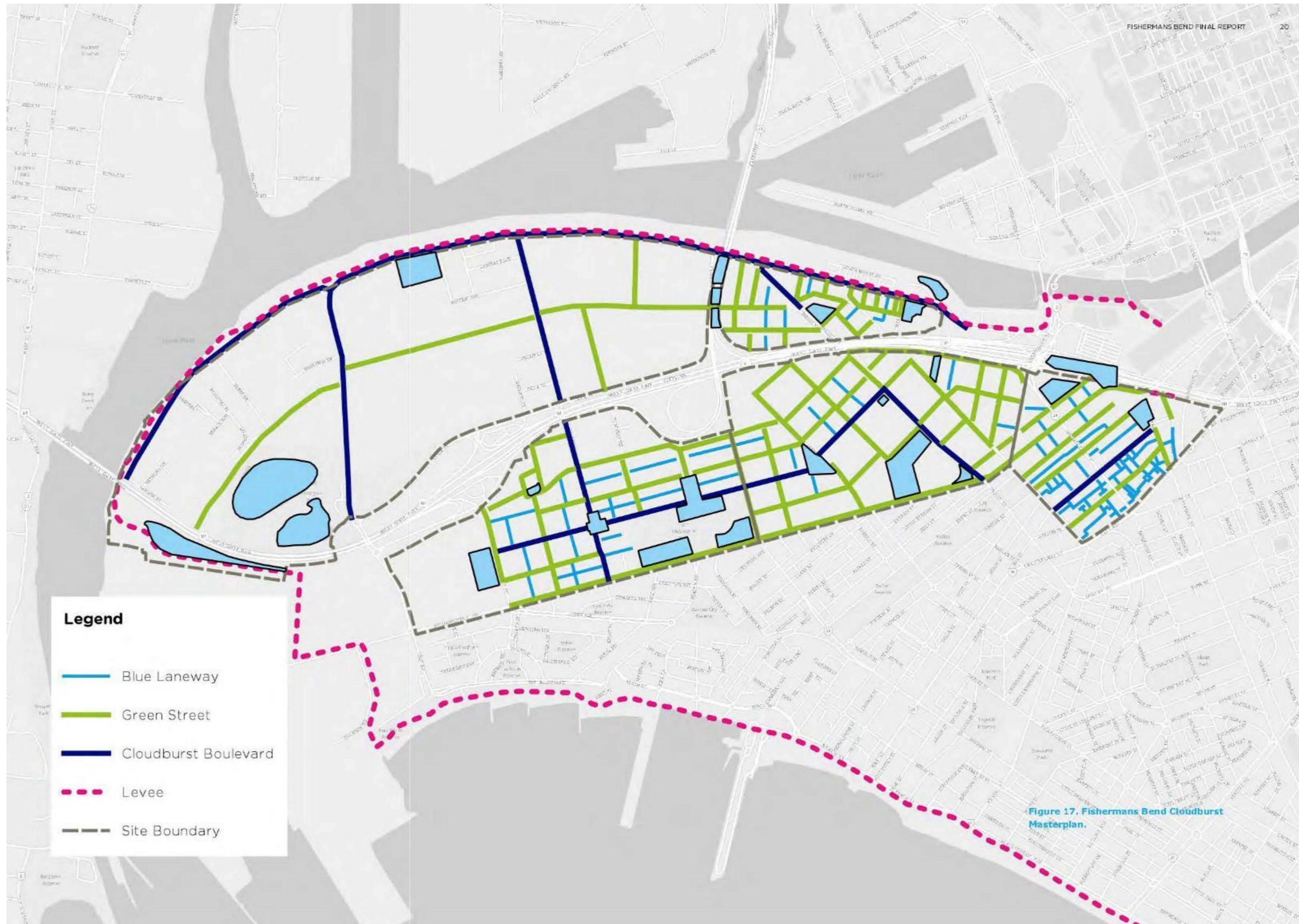
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Benefits of distributed storage over pipes

- Improved social resilience to flooding.
- Sets a precedent for urban renewal by finding a natural solution to the problem.
- Helping to define the character of the place through water being visible.
- Where drainage is a driver, it will ensure that greening happens and more quickly.
- Reduced reliance on operation of pumps in a storm event through the slow release of flood water.
- Storages provide multiples lines of defence reducing local flooding impacts.
- Easier to monitor the performance and risk of failure of above ground storage.
- Reduced cost of pipes.
- Reduced flooding impacts south of the precinct in Port Melbourne.



Turning the water challenges into an opportunity



Source:
Fishermans Bend
Integrated and
Innovative Water
Management,
Ramboll



Cloudburst Boulevards & Green Streets

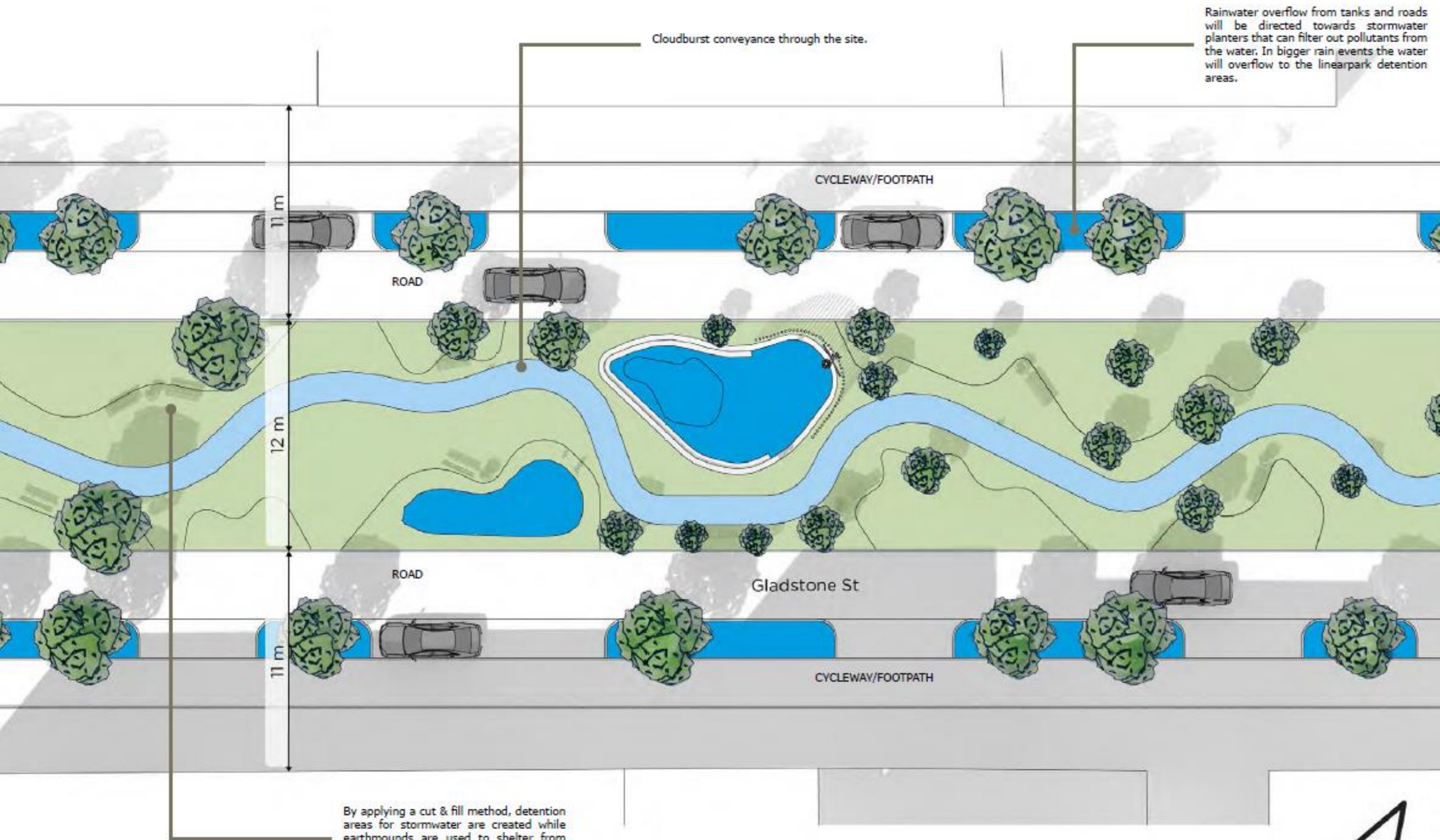


Figure 77. Plan section of Focus Area 4
Flood management in a cloudburst boulevard.

Source: Fishermans Bend Integrated and Innovative Water Management, Ramboll



Water Plaza

Priority given to more sustainable modes of transport such as public transport and bikes. Blue-green infrastructure can play a role in encouraging this by slowing traffic, providing more desirable routes and acting as a buffer between traffic and cyclists.

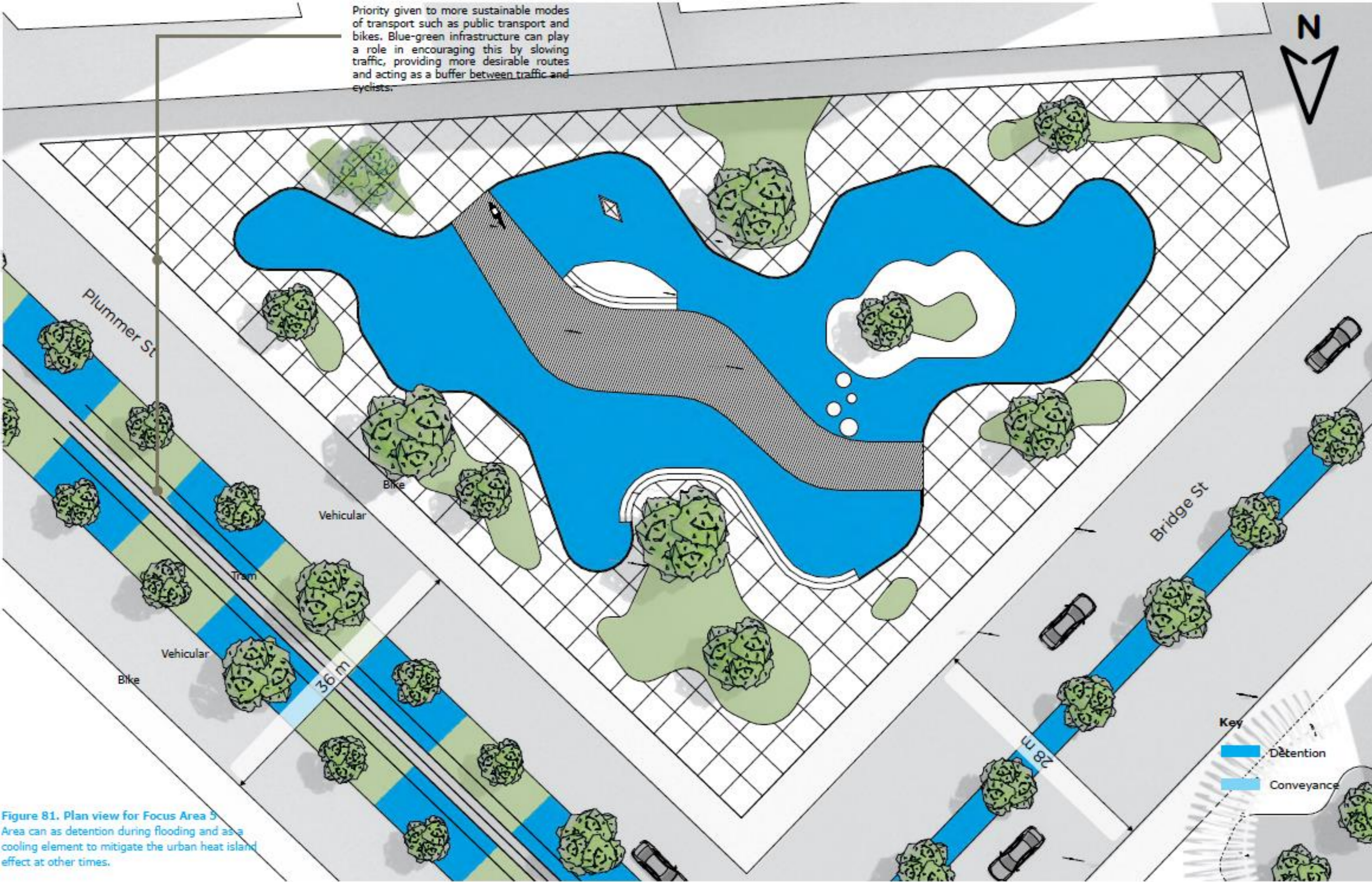


Figure 81. Plan view for Focus Area 9. Area can act as detention during flooding and as a cooling element to mitigate the urban heat island effect at other times.



Source: Fishermans Bend Integrated & Innovative Water Management, Ramboll



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Creation of the Water Sensitive City Working Group

- Multi-stakeholder working group created to work towards a hybrid between the baseline strategy and the Cloudburst Master Plan.
- Comprised members of the Fishermans Bend Taskforce, Melbourne Water, South East Water, CRC, City of Melbourne, City of Port Phillip supported by GHD.



Scope of the Working Group

– Establish agreed benefits and investigate challenges / risks of distributed water storage

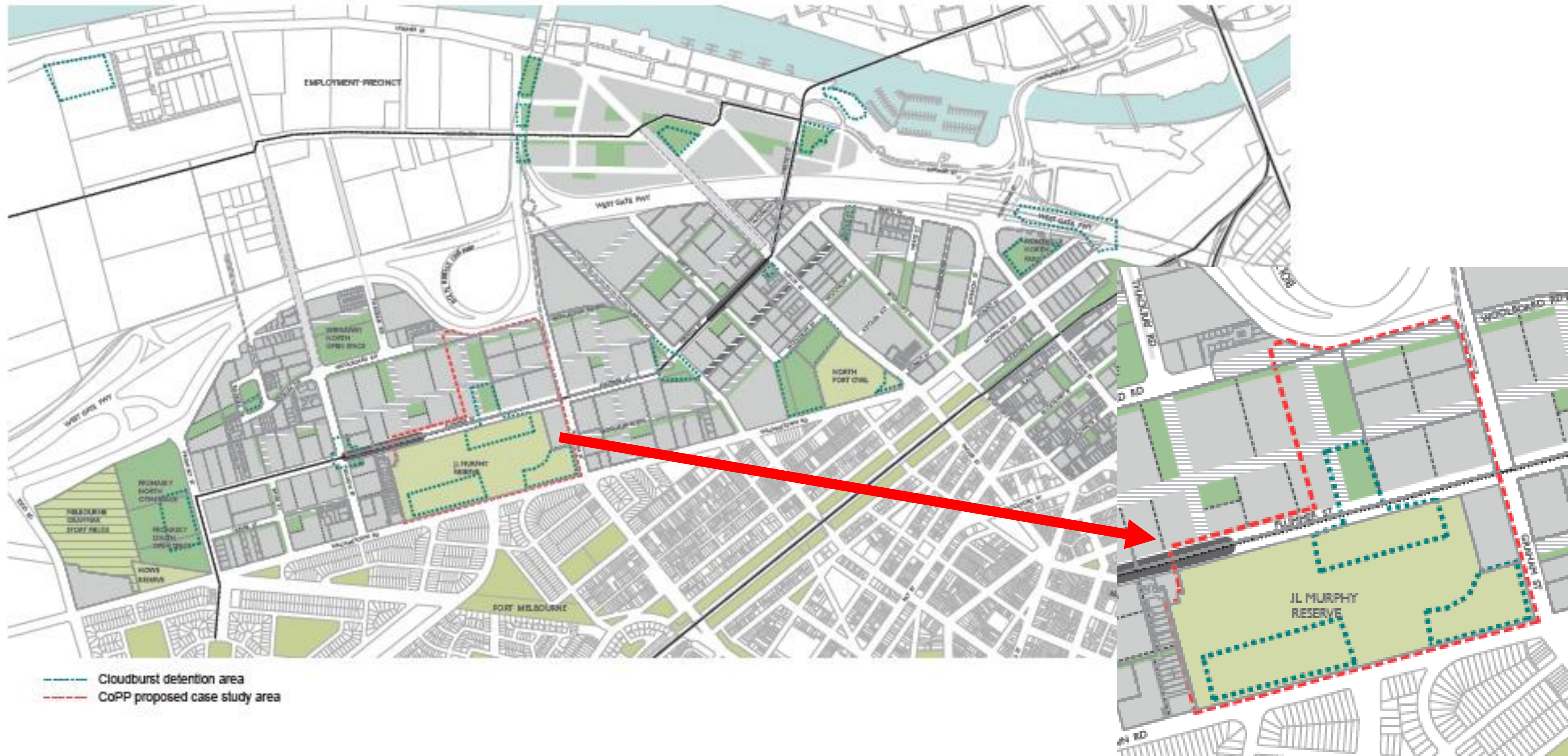
– Test where distributed storage is feasible and mitigate identified risks

– Estimate costs to feed into benefit to cost analysis

Risk	Potential Mitigations
<p>Inadequate storage achieved (rainwater tanks and/or streets)</p> <p><i>Note: rainwater tank risk applies to both options</i></p>	<ul style="list-style-type: none"> • Careful wording of planning controls and ability to update • Audit of rain tank / street storage volumes actually installed • Undertake a pilot distributed storage project to test this risk.
<p>Timing of implementation of new streets / renewals (multiple asset solution)</p>	<ul style="list-style-type: none"> • Living with unacceptable flooding (1:5 or 1:20 year) until augmentation. • Use of piped solution where flood mitigation is critical to development • Staged delivery of streets to align with likely drainage needs • Site planning controls (e.g. on-site detention, temporary works or works-in-kind).
<p>Costs of additional excavation to achieve road & open space storage are greater than assumed</p> <p><i>Note: that this issue will apply to all construction works in the precinct and therefore is a shared risk</i></p>	<ul style="list-style-type: none"> • Further on-site investigation • Allow for a process to recover additional costs if they arise • Undertake a pilot distributed storage project to test this risk.
<p>Reliance on ongoing management and maintenance of multiple assets</p> <p><i>Note: because the storage area is required to serve a drainage function it is more likely that it will be properly maintained.</i></p>	<ul style="list-style-type: none"> • Maintenance requirements outlined, costed and agreed by asset owner.
<p>Future flooding is worse than assumed</p> <p><i>Note: this risk applies to both options</i></p>	<ul style="list-style-type: none"> • Monitor and review Water Sensitive City Strategy with 5-year review of Precinct Plans and ICP (already programmed).



Water Sensitive Cities Strategy
Ramboll cloudburst detention areas and
CoPP proposed case study area



Water Sensitive Design Strategy

Sample public open space plan - JL Murphy Reserve



Passive open space along Plummer Street

Create a generous open space along the Plummer Street Civic Boulevard, which provides recreational amenity for the community. Any required sporting pavilions could be integrated into this space.

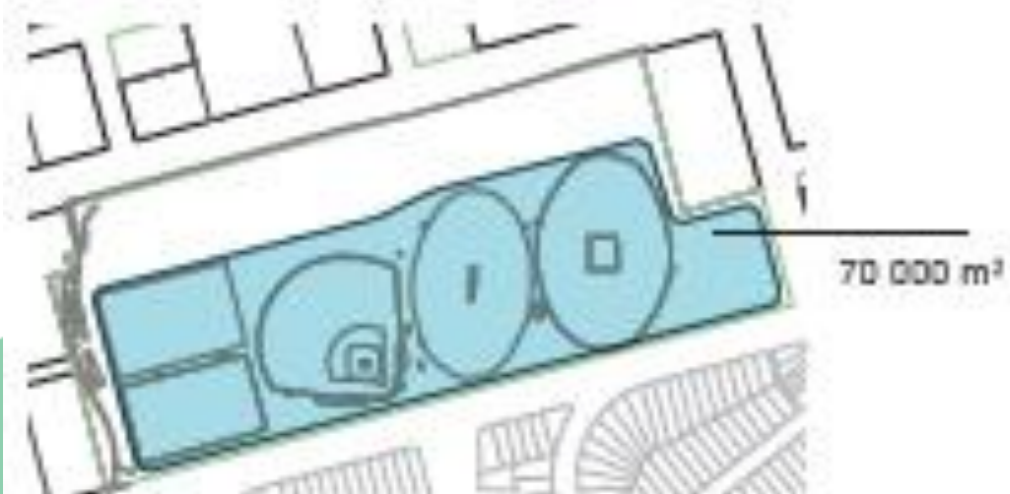


Example of passive recreation facilities

Connect the linear park across JL Murphy reserve

Lowered sporting fields / detention area

Move the sports fields to the southern part of JL Murphy Reserve and lower them to create a large detention area (up to 70,000m³). Relocate one of the existing soccer pitches to another public open space (e.g. Wirraway North or Prohasky Park).

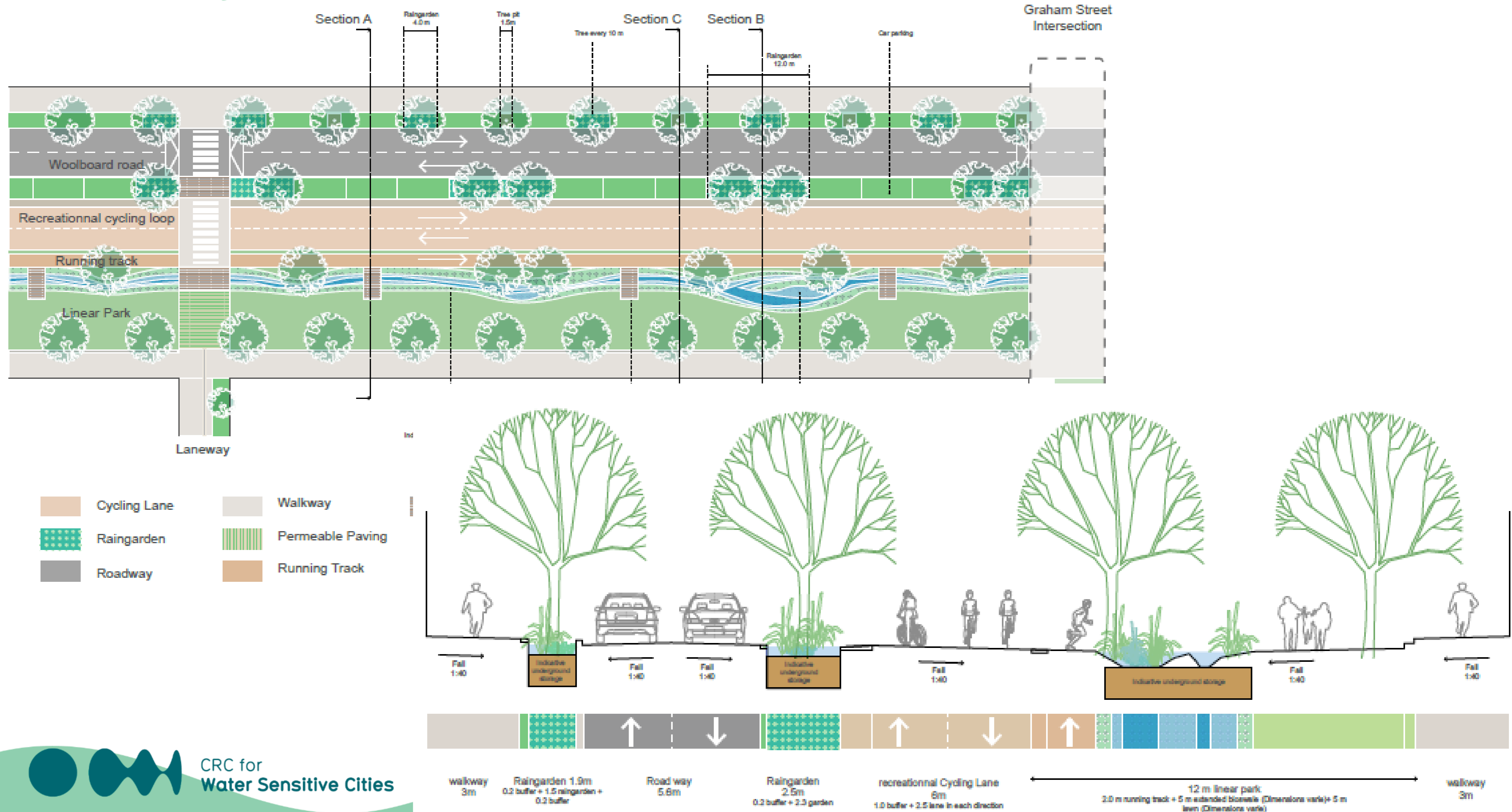


Examples of lowered sporting fields



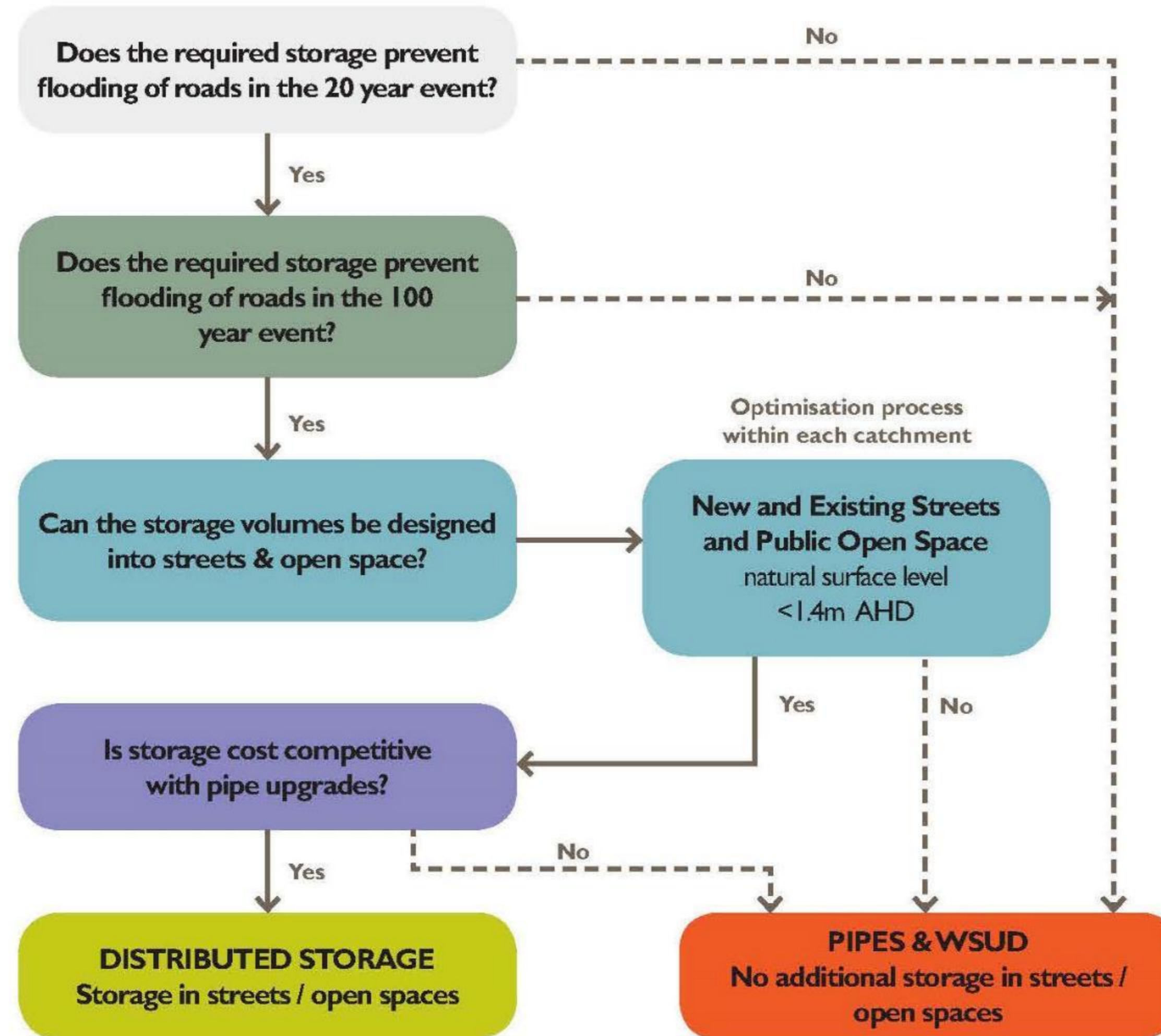
Example of passive recreation facilities

Case Study for 34 metre streets



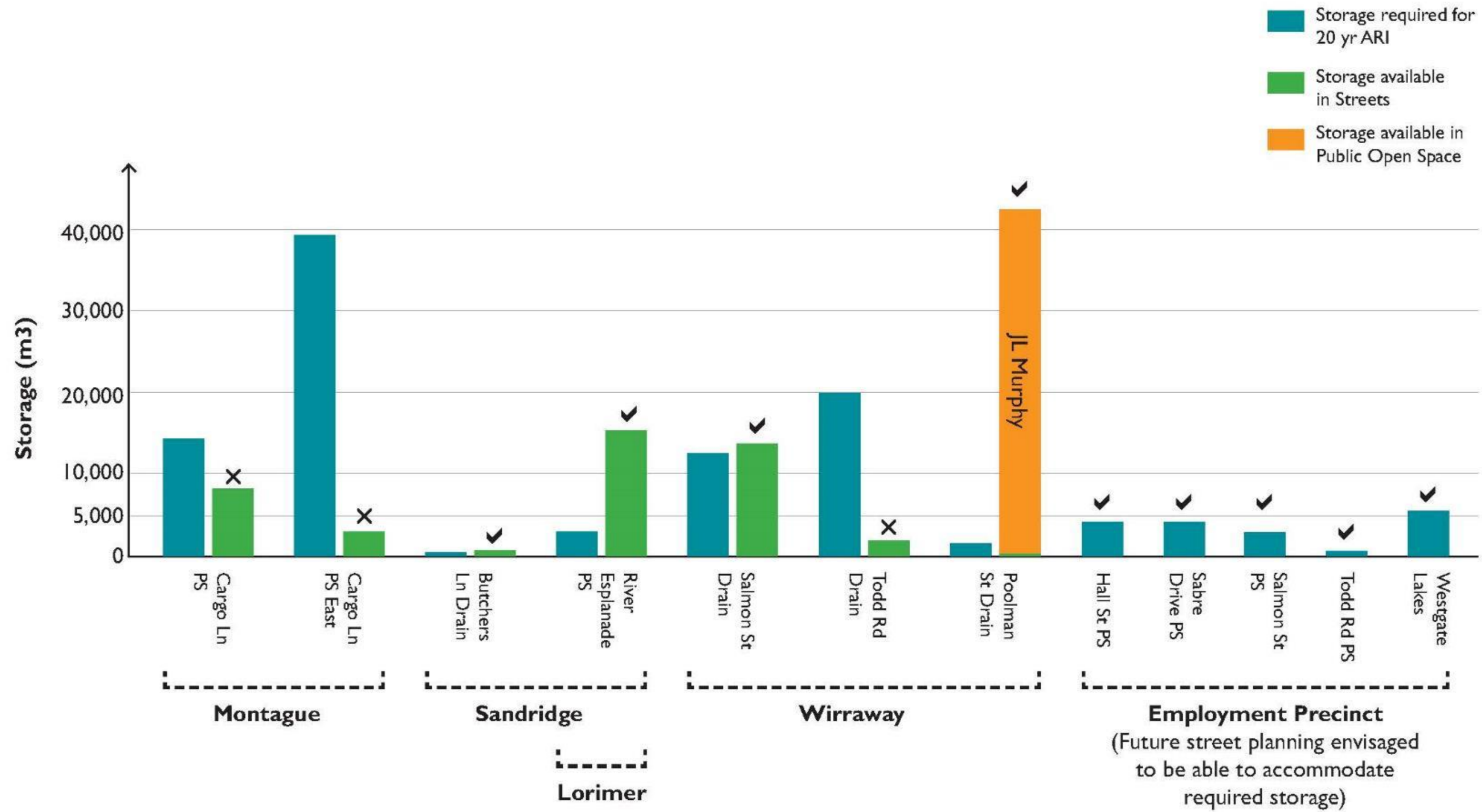
Water Sensitive Design Strategy

Decision Framework - storages in streets and public spaces

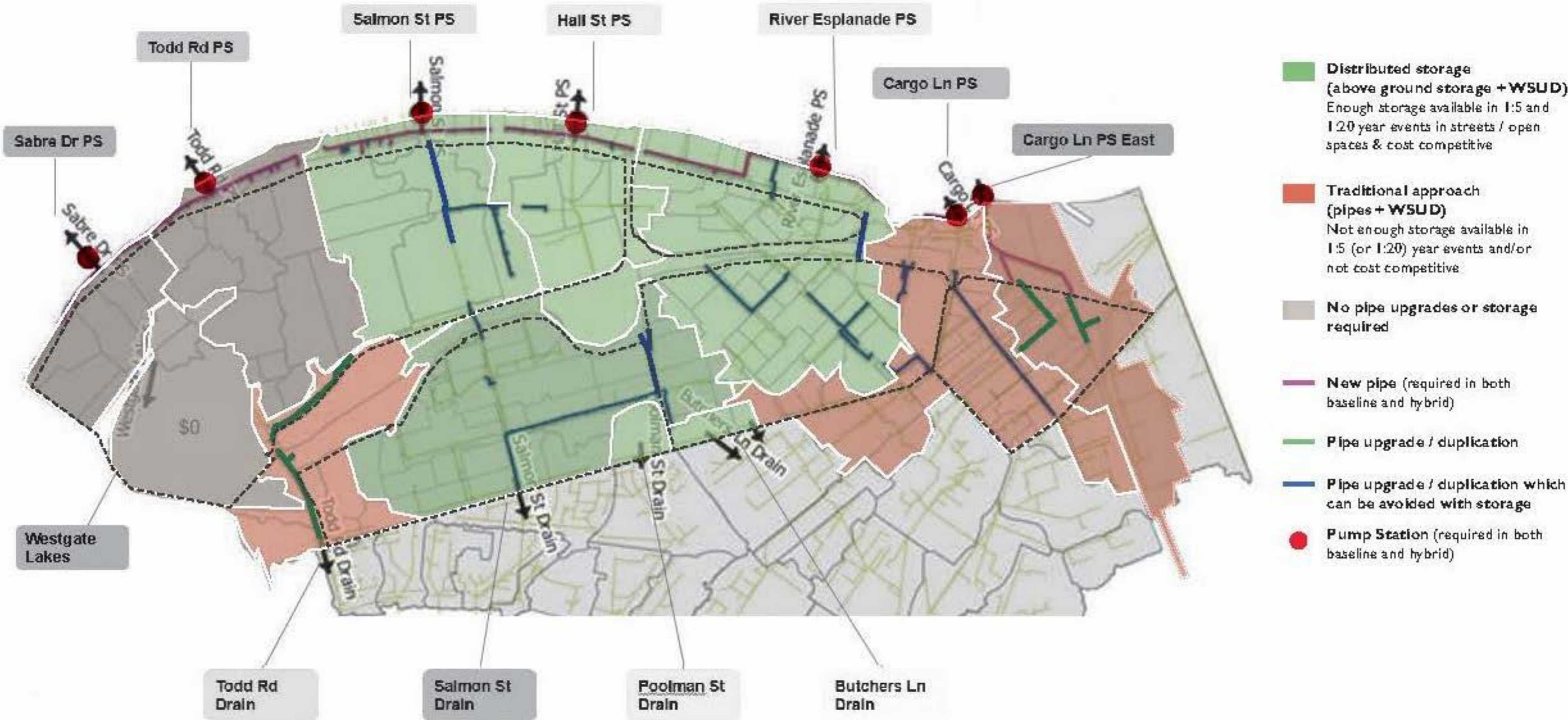


Water Sensitive Design Strategy

Storage volumes - 20 year ARI event



Water Sensitive Design Strategy Hybrid Option



Next Step – piloting distributed storage

New
Melbourne
University
Engineering
Campus at
the former
General
Motors
Holden Site

