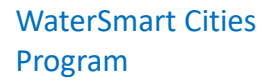


Ideas for Sydenham to Bankstown

Workshop One: The Corridor

WHO WAS THERE?



About this document

This document summarises the key outcomes of a workshop held on 5th and 6th of September 2018 with the agencies who are planning water services and infrastructure for the Sydenham to Bankstown growth corridor.

This first workshop (of three) applied the concepts of a water sensitive city to identify sustainability, resilience and liveability opportunities that could be integrated into broader corridor planning. These ideas provide a context for more detailed discussions at the precinct scale in subsequent workshops.

The workshops series itself has been convened to provide guidance, advice and resources to assist the two councils of Canterbury Bankstown and Inner West. This planning and advice will also be of use to Sydney Water, Dept. of Planning and the WaterSmart Cities program.

About the Workshop

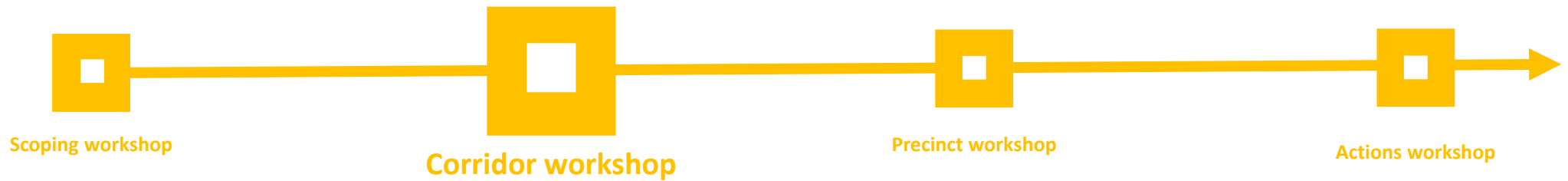
The workshop created a forum for collaboration and research translation. It brought together the research of the CRC for Water Sensitive Cities (CRCWSC) with the experience of two councils, Sydney Water, Dept. of Planning and other agencies to apply this knowledge to the context of urban redevelopment and with a specific grounding in the Sydenham to Bankstown corridor.

The workshop approach included:

- Visiting the site to appreciate the 'as is' context, and hearing from the councils and other stakeholders about their drivers, aspirations and challenges in the corridor.
- Inviting research and practice experts to share current water sensitive city research findings, developments and thinking.
- Using group work and collaboration to interpret these insights, to generate a framework for planning the corridor and to scope initial ideas to be further developed for each council area.



WHERE ARE WE NOW?



- What water challenges and opportunities are facing the corridor?
- What would a 'water sensitive city' look like at this corridor scale?
- What principles can be tailored for the corridor to inform planning at the precinct scale?

Workshop one focused on the corridor scale, allowing **nine elements** of planning to be identified as a framework for integrated water and energy performance across the corridor. From these discussions, a series of **principles** and **ideas** were developed.

The **principles** translate the workshop conversations into urban planning outcomes to ensure the process of redevelopment and, particularly the delivery of water services, delivers the corridor vision. The **ideas** highlight some of the opportunities to apply these principles on the ground.

Further work is required to fine tune these principles and to investigate how they might be translated in each of the subsequent case study areas.

To do this, specific and tangible expressions of the principles will be developed at the second workshop, focusing on the case study areas in Campsie and Marrickville.



The Sydenham to Bankstown Urban Renewal Corridor Strategy

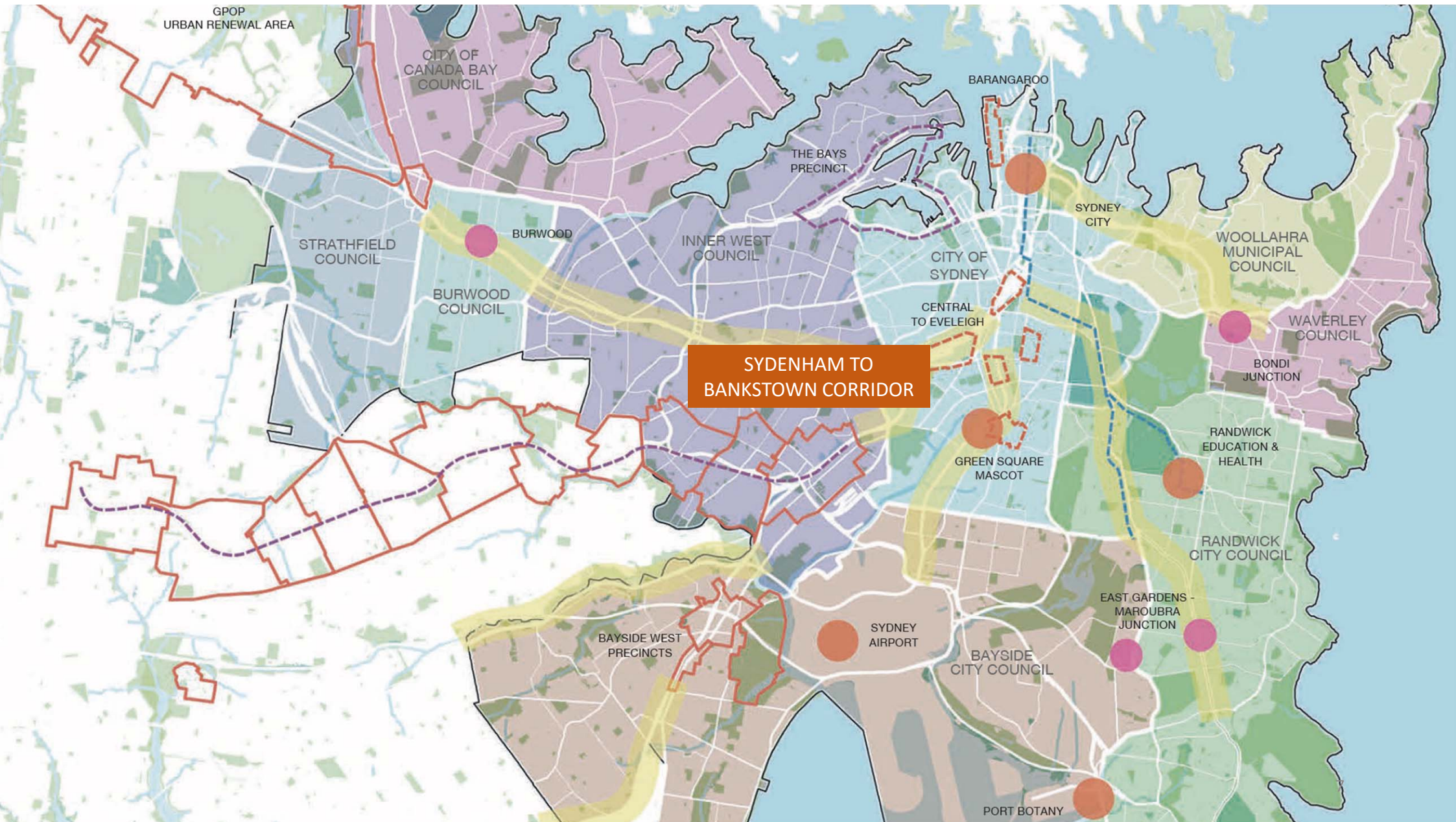


The Sydenham to Bankstown Urban Renewal Corridor Strategy plans for 35,400 new homes and 8,700 jobs over the next 20 years and infrastructure to support this community's needs.

The Strategy builds on the Sydney Metro City and Southwest project and provides a coordinated approach to infrastructure delivery and development across the corridor. The station precincts in the corridor are already great places to live, and have their own unique qualities. The Strategy will enhance these precincts by valuing neighbourhood character, renewing town centres, and providing improved open spaces as well as community services and facilities.

There is already considerable demand for housing in this corridor. Between 2011 and 2016 approximately 2,600 new homes were built, with almost half of these new dwellings in the Campsie and Canterbury Station Precincts. Development is expected to continue growing along the Corridor with the introduction of Sydney Metro, and a further 4,500 homes are expected to be built within the corridor over the next 2-3 years. It is therefore essential that growth is planned in a holistic and coordinated manner to ensure infrastructure such as open space, water supplies, drainage and streets are delivered to meet the demands of the community. These water, waterway and urban greening decisions can directly influence the sustainability, liveability and climate resilience of these new urban areas, and will therefore be critical to the success of this planning.

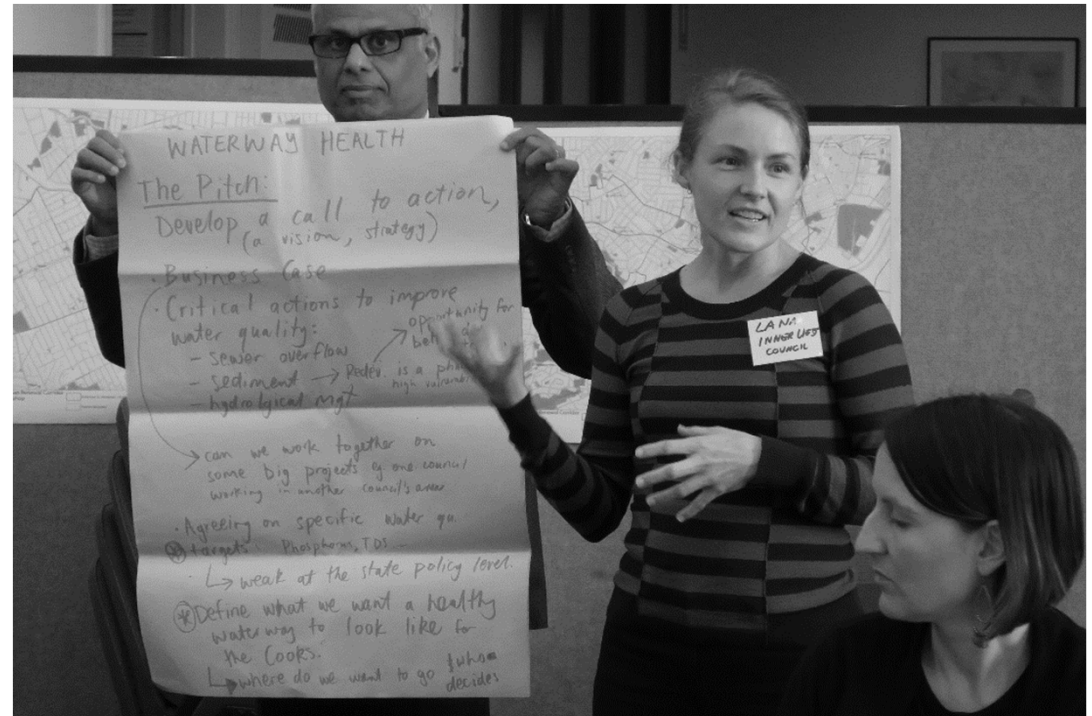
Adapted from: DPE, Sydenham to Bankstown Sydenham to Bankstown Urban Renewal Corridor Strategy
<https://www.planning.nsw.gov.au/-/media/Files/DPE/Plans-and-policies/sydenham-to-bankstown-urban-renewal-corridor-strategy-2017-06-part-1.ashx>



A nine point framework

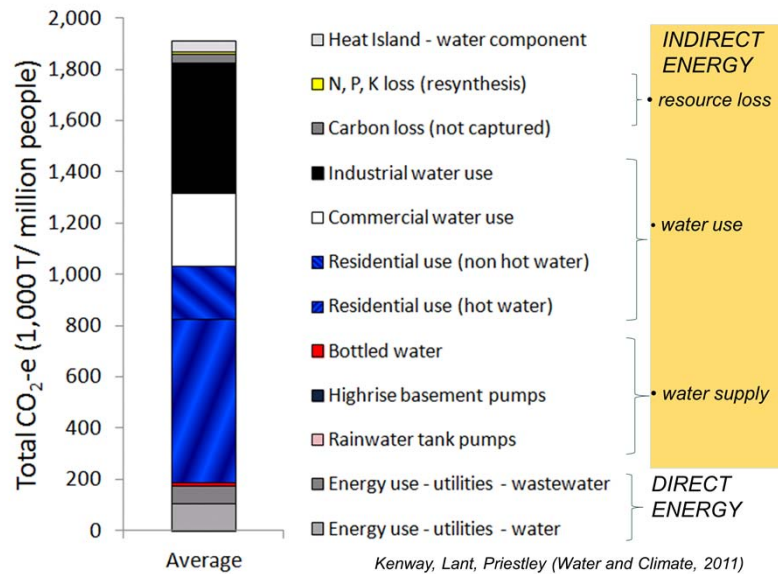
Nine points serve as a guide for urban planning, water servicing and catchment management across the corridor.

1. Circular economy
2. Water servicing
3. Green grid
4. Waterway health
5. Flooding
6. Design of the public realm
7. Design of buildings
8. Communities
9. Governance



Circular economy

A circular economy is regenerative and offers an alternative to the linear pattern of consuming and disposing of resources. This approach can be applied to water and energy to measure a city's performance and its impacts on waterway health, pollution and urban heat.



Water-related energy and GHG in the “average” Australian city

Insights

- Current performance measures for water services do not align. As a result, actions are not integrated.
- The corridor imports a large volume of potable water. Stormwater and wastewater pass through without being harnessed as resources.
- A metabolism approach includes all flows of water, and promotes integrated opportunities.
- It also aligns measures to a common scale, allowing the performance of the corridor as a whole to be measured. This drives metrics such as the level of dependence on external catchments (i.e. centralised water and wastewater systems).
- A metabolism approach also allows the energy signature of water to be assessed. This is critical as water treatment is amongst the biggest users of energy in cities, and avoiding these costs will be a growing driver for water sensitive cities.
- A circular economy requires new business models (e.g. integrated services); new targets (e.g. at the system scale); and alternative governance models (e.g. sharing assets and co-funding).

Outcomes

- Greater visibility of the corridors' water performance.
- The corridor is less dependent on external resources and centralised systems.

Ideas

1. Develop corridor performance targets that influence integrated planning of services.
2. Develop a waste solution for sediment collected from waterways
3. Trial bold targets for waste, water and energy separately in different precincts.
4. Showcase what solutions look like at the scales of corridor, precinct and local/building.

Principles

- Principle 1:** Measure performance (i.e. targets) of the water cycle, rather than its individual elements.
- Principle 2:** Regenerative design by reframing wastes as resources, co-location of land uses and building design.

Water Servicing

Managing the different parts of the urban water cycle – drainage, water and waste water – as an integrated service, and seeking opportunities to use local systems within the corridor.

Insights

- Cities – and the corridor – face growth, asset capacity constraints and aging infrastructure.
- Centralised systems for water, wastewater and drainage follow a familiar investment pattern – periodic, large investments to respond to population growth. These investments are delivered once the system reaches a critical point – when the additional demand begins to affect levels of service.
- These investments are then reflected in prices – with the inevitably large increases causing ‘price shock’ for customers.
- Some symptoms of centralised systems servicing the corridor reaching critical points can already be seen. Examples include compliance issues with sewer overflows into waterways and planned upgrades of Sydney Water systems by 2036.
- With enhanced greening, water demand is likely to increase further.
- A water sensitive approach allows progressive investment in smaller scale infrastructure to keep pace with growth and thus defer large augmentations. The avoided upgrade costs represent a benefit of a water sensitive approach – and act as a driver for innovation in long term planning.

Outcomes

- The corridor reduces its reliance on external water services and defers Sydney Water capital expenditure.
- The water utility has sufficient confidence in future customer demands for alternative water to invest in alternative water supplies.

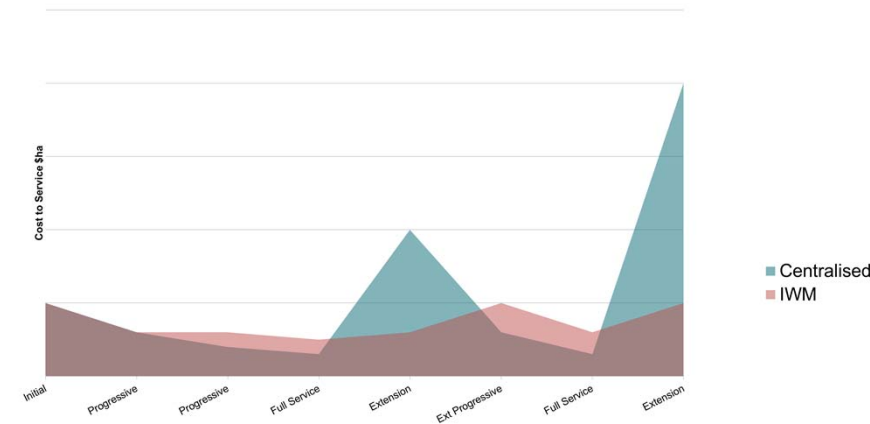
Ideas

1. Improve end-user water conservation.
2. A metric for future infrastructure upgrade savings (\$/ML/Year)
3. Incentivise solutions at multiple scales (not just centralised system upgrades).
4. A compliance system to ensure decentralised systems are implemented and maintained in perpetuity.
5. Each development provides in-building connection point and internal plumbing to support water reuse.
6. Incentives for high performance buildings.

Principles

Principle 3: Defer future augmentations of centralised water services systems.

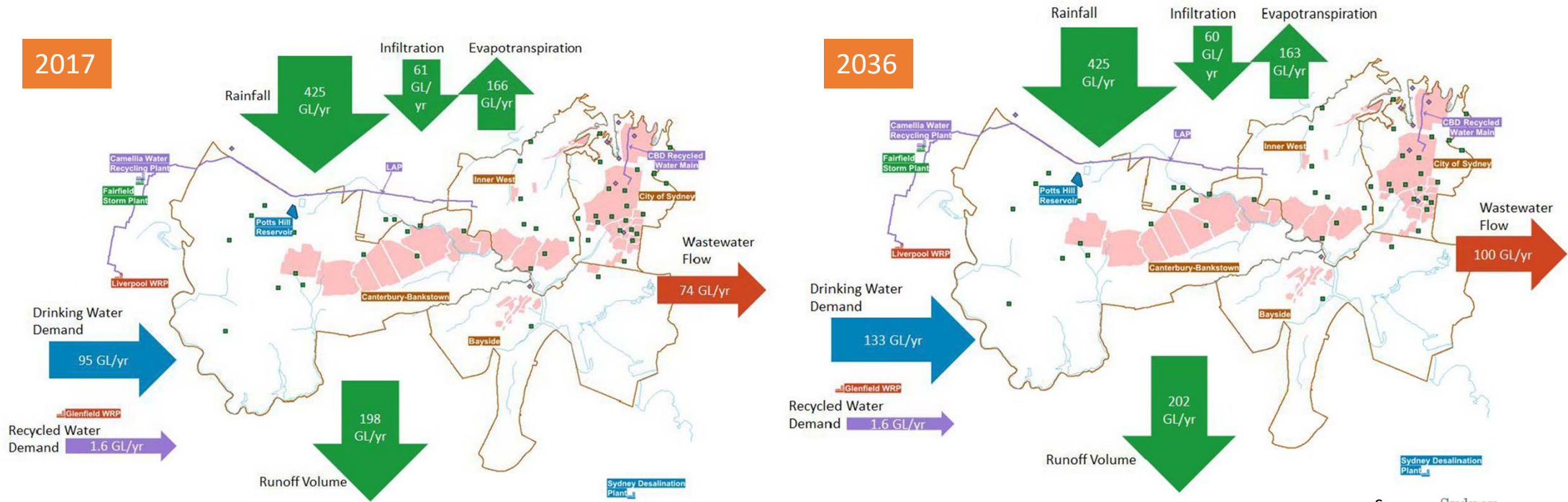
Principle 4: Preference local scale options; use centralised infrastructure as a last resort.



Regional water balance – future conditions

Regional water services will experience growth of 40% in water demand and 35% in wastewater generated by 2036.

Corridor scale opportunities to generate new water, or to reuse wastewater, can defer regional Sydney Water infrastructure upgrades.



Source Sydney WATER

Green lines

Developing a network of major and minor 'green lines' that deliver ecological as well as community outcomes.

Insights

- The concept of a green grid has been proposed by the NSW Government Architect.
- The corridor has numerous good examples of greening, however these are not linked together into a simple, single line(s) that connects with the river system.
- Within the corridor, the Cooks River and the railway corridor can form the basis of this green grid.
- Further, green lines will be multifunctional, having biodiversity and liveability objectives.
- There is an opportunity to work with Metro on green line design.

Outcomes

- Green lines create delightful and liveable places – waterways, streets and public spaces.
- Urban cooling.
- Improved biodiversity by incorporating existing habitat 'patches' and 'nodes'.
- Benefits of a green grid permeate the corridor.
- Agencies and developers have clear targets for greening and investment is coordinated.

Ideas

1. Set greening targets for the corridor.
2. Develop a nested hierarchy of 'green lines'. Major = river (and associated corridor) and railway lines (council land adjacent to this); Minor = connecting streets and pocket parks connecting long blocks.
3. Develop a major greening opportunity at the Intersection of two major green lines- river and railway – at Tasker Park.
4. Increase the target for the area of deep soils on lot.
5. Development within river riparian zone (e.g. 100m on either side) will have a higher ecological focus (e.g. be landscaped from river side property line to extend green areas back into urban areas)
6. Railway stations are surrounded by a 500m radius green zone.

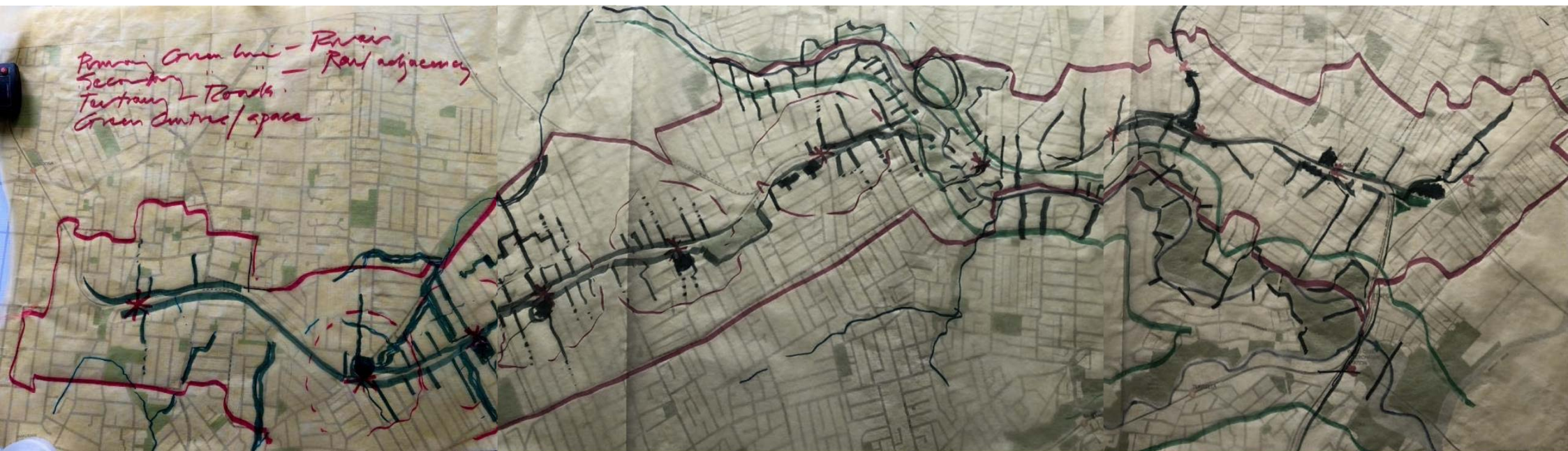
Principles

Principle 5: Green grid delivers both ecosystem services (amenity, cooling, connectivity) and ecological functions (biodiversity, riparian corridor).

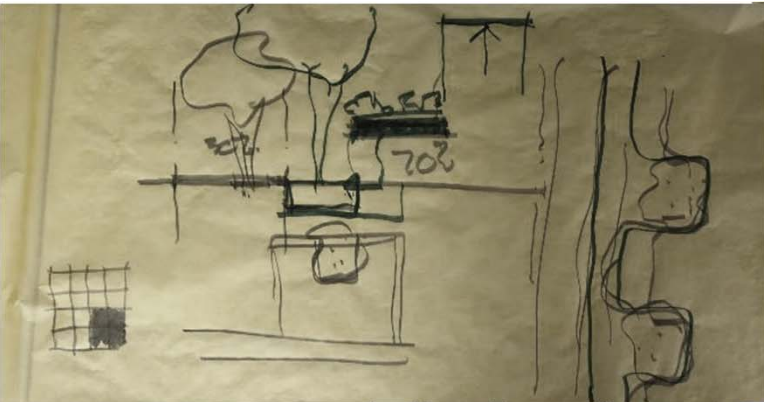
Principle 6: Greening opportunities will be pursued where strategically important, whether in private (e.g. setbacks, building design) or public (linear open space) domains.



The NSW Government Architect proposes a Green Grid of interconnected and high performance green infrastructure.

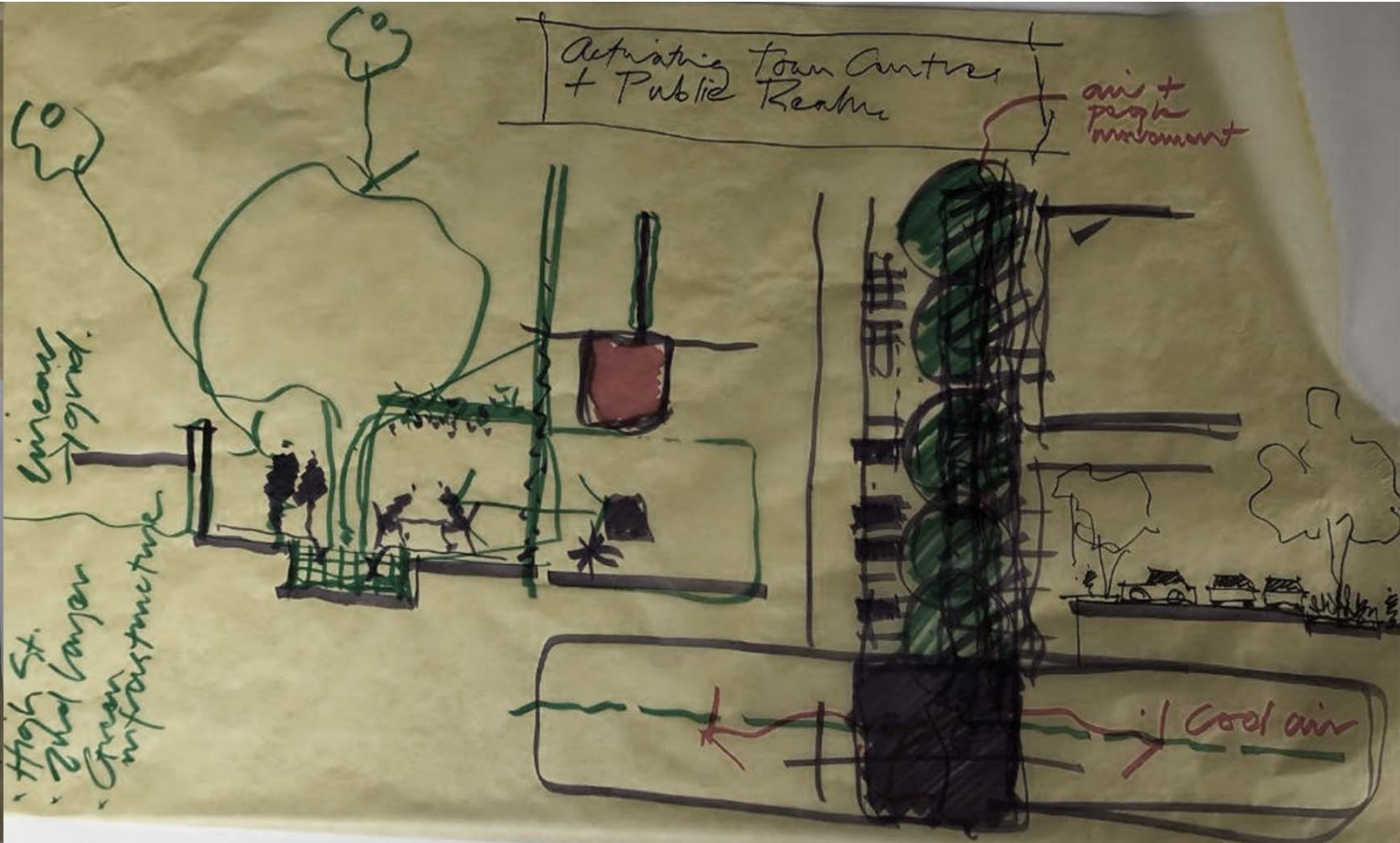


Major and minor green line concepts can be applied to translate the “Green Gird” to the Sydenham to Bankstown corridor



- Planners
- o NEW controls (BOLD!)
 - o Getting opportunities locked in up front
 - o ~~X%~~ 20%
 - o Incentives for developers
 - o training DA Planners.

- Deep Green stripe / Vertical Green Grid
- o Collective spaces
 - o Efficient Bldgs (third pipe)
 - o Block by Block
 - o Integrated green corridor
 - o Bldgs to address river appropriate ground floor uses.



Buildings and public realm can be activated through greening that integrates with a green grid

Waterway health

The waterway is a critical element of the green corridor. It must perform well to deliver these functions and meet the needs of the community.

Insights

- State policy is weak in setting targets to protect waterway health. There are no stormwater management objectives.
- There are early signs of a waterway system recovery across the corridor based on the work of Cooks River Alliance and others. These actions have delivered a series of successful but discrete projects.
- Existing projects are valued by the community. The Cup and Saucer wetland demonstrates how to connect people to place.
- Priorities for further recovery include:
 - Reducing the number, frequency and severity of sewer overflows.
 - Sediment contributes to flooding.
 - Reducing the impact of catchment imperviousness.
 - Tributary waterways remain highly channelised.
 - Several local flooding hotspots coincide with areas marked for redevelopment and present an opportunity to reduce flood risk.
 - The edge condition and riparian zone presents a physical barrier to public access to waterways.

- Where the river is fenced it is effectively a drain. Cycle ways along waterways are well used- but few people are using the water's edge.
- Regenerated habitat nodes along waterways can be incorporated in the green lines.

Outcomes

- Tangible progress is made towards swimmable goals.
- Reduced flooding.
- Improved biodiversity.
- Local targets influence State level planning.
- Increased community visitation to waterways.
- Councils are co-investing in strategic projects.

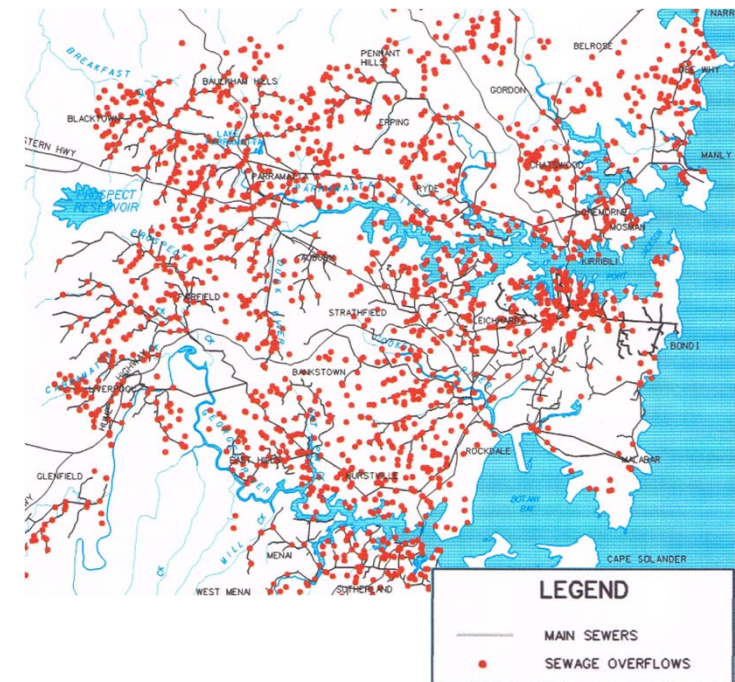
Ideas

1. Embed council-level actions (e.g. WSUD) in higher level planning principles to enable greater action and co-investment.
2. Collaborative, large scale projects that address critical issues of sewer overflows, sediment from construction sites, catchment hydrology and the edge condition of the Cooks River.
3. Leveraging private investment in waterway amenity projects from those who directly benefit.
4. A strategic approach to connect communities to their waterways.

Principles

Principle 7: Prioritise strategic and collaborative waterway and catchment projects.

Principle 8: Connect the community to their waterways.





Tasker Park sits at the intersection of two potential green lines: the river and the railway line.

Flooding

Responding to flooding by retreating, adapting or defending land uses and infrastructure through the process of redevelopment.

Insights

- Resilience to flooding can be achieved by striking a balance between investment in infrastructure and social resilience. Social resilience refers to individuals' flood literacy – how they understand their risk of flooding, how they prepare, knowing what to do in a flood and how to recover quickly.
- There is a growing realisation in developed cities that the more we build infrastructure resilience, the more we design out social resilience (and further increase reliance on infrastructure).
- For land uses and infrastructure identified as being at risk from flooding there are further choices to retreat, adaptation or defend.
- Making clear decision about what and where to retreat, adapt or defend avoids moving from crisis to crisis.

Outcomes

- There is a long term pathway to adapt land uses and assets to future flood risk. This provides certainty to developers and community.
- Citizens understand flood risk, how to prepare, what to do in a flood and how to recover.

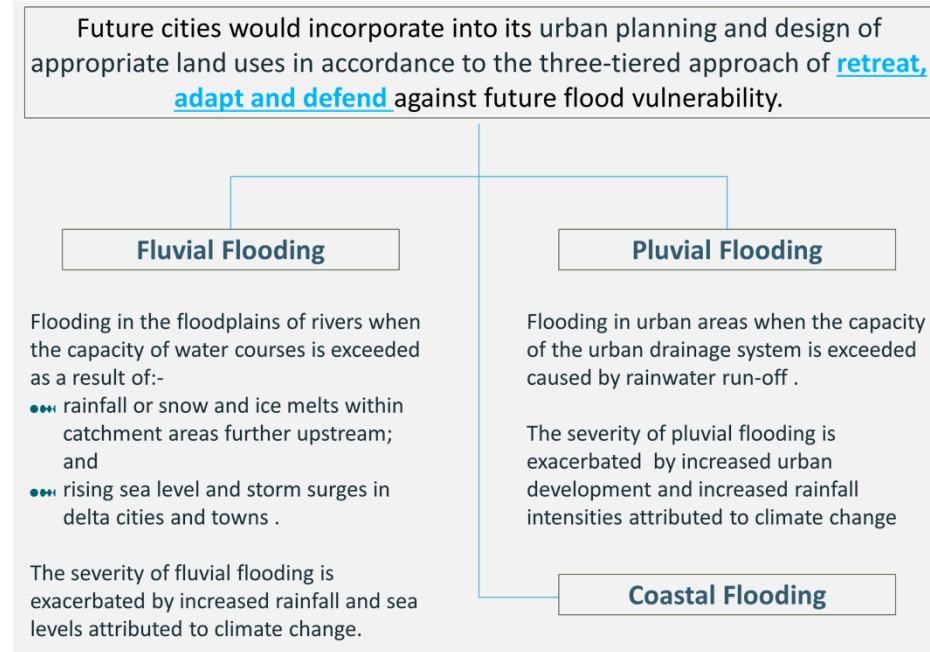
Ideas

- Apply an adapt, retreat, and defend framework in planning:
 - Retreat – making room for flood water, in part by creating a better interaction between riparian zones and the river.
 - Adapt – appropriate built form, building uses and social resilience.
 - Defend - using urban waterways and green corridors, along with pumps and pipes, to defend priority land uses.
- Use this strategy to identify land use areas that need to adapt to future flooding, and areas where ecological services to manage flooding are required.

Principles

Principle 9: Plan for resilience.

Principle 10: Balance infrastructure resilience and social resilience to avoid over reliance on either.



Flood resilience can be developed following a framework of adaptation, retreat and defence

Activate town centres and public realm

Harnessing the roles of water and greening to enhance the activation of streets and open spaces.

Insights

- Greening, water and cooling do not yet feature in the design of high profile public places, such as Anzac Mall.
- There is limited canopy and mid storey vegetation in the corridor.
- Campsie has a deficit of green space – there are a number of pocket parks but limited large open space.
- This is an opportunity for a new street typology – streets as linear parks, with climate resilient canopy cover. Streets – which typically occupy 30% of urban areas - provide an opportunity to create linear places for people as well as cars. Nature strips are currently a misnomer, representing a space for services rather than providing an 'nature' outcomes. An aim may be to dedicate 30% of streets to:
 - Flood Mitigation
 - Management of Stormwater
 - Pollutant capture/cleansing
 - People places - pocket parks
 - Ecological connection
 - Urban Heat Reduction
- The interface between buildings and public realm provides a further opportunity to enhance greening and cooling.

Outcomes

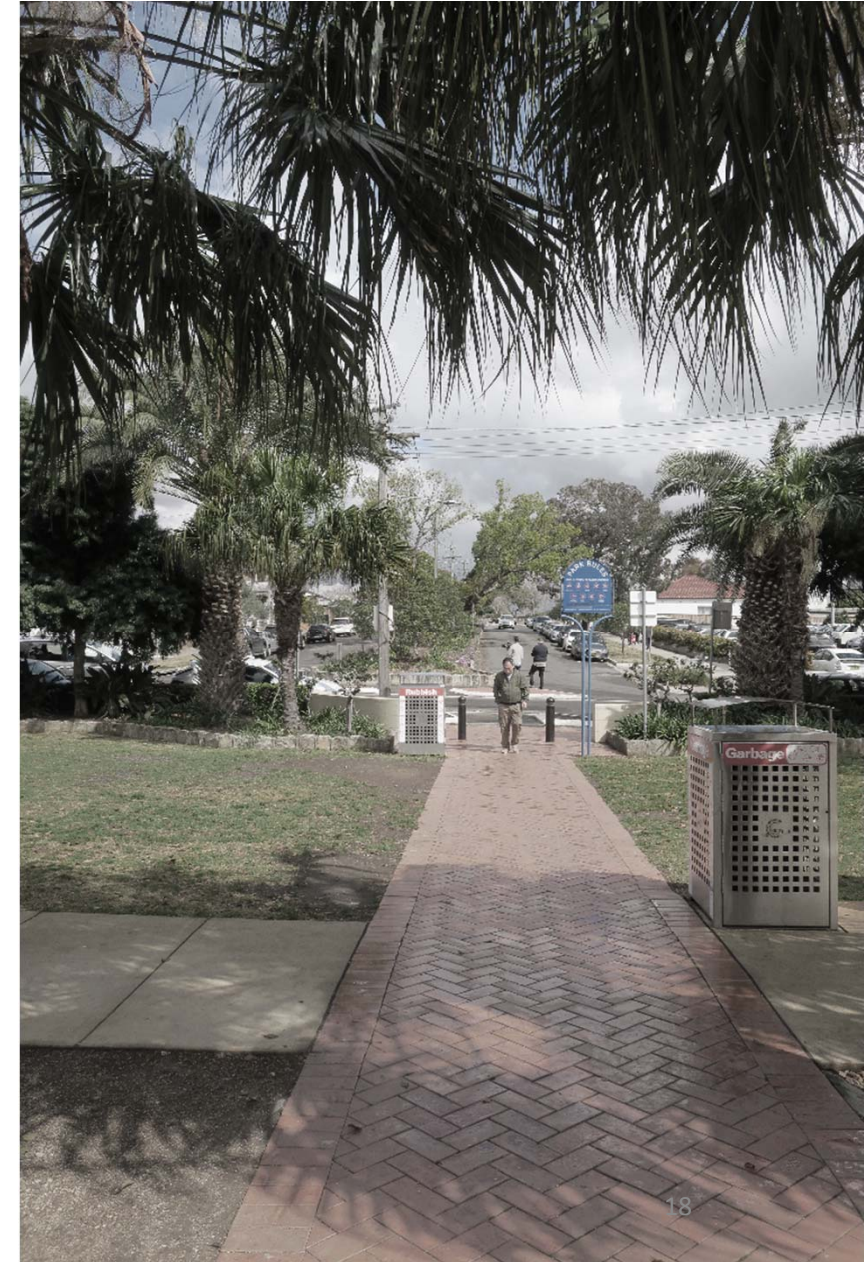
- Cooling of highly used public realm areas
- Activation of streets and public areas.
- The corridor is known for its collection of delightful and liveable places – waterways, streets and public spaces.
- There are clear targets for greening.

Ideas

1. Maintain character by managing vehicle access and encouraging street level activation.
2. Establish greening targets for Marrickville, and show how individual developments contribute
3. Establish greening projects for lateral streets along the Campsie main street to create comfort nodes, as well as street corridor designs to introduce cooling into the precinct.
4. Provide understorey planting as well as canopy cover.
5. Address issues with overhead power lines that constraint tree canopy growth.
6. Landscape mid-block pedestrian connections with small shops and offices.
7. Relocate and reconfigure kerb side car parking to provide space for tree planting.

Principles

Principle 11: Streets are key infrastructure to achieve canopy, infiltration, and cooling targets.





Campsie



Marrickville

Public realm heat mitigation opportunities

Building design

Water outcomes at the lot/building scale through better design.

Insights

- As an example of a recent development, the Revolution Building in Marrickville appears quite brutal. It represents a missed opportunity to contribute to streetscapes that people can occupy by influencing urban heat through facade greening. This likely to be because its design was not informed about living facades that contribute to both streets and internal living.
- Better transitions are required from the built to natural environments and to provide permeability between medium density buildings.
- The majority of current high rise development is exacerbating the heat island effect.
- Buildings along the river represent a barrier to access and ecosystems services.
- Future thinking can conceive buildings as a layered canopy that introduces greenery at each level to contribute to urban ecology, and as a new topography that captures water at every level. These aspects cannot be retrofitted and must be planned up front.
- Buildings can employ a design response to improve residents' water use efficiency by including efficient appliances and digital meters that provide education about usage patterns. This provides both water and energy benefits: 1/3 of internal water use is in the shower, 1/3 energy use is in heating water, and improving efficiency across the planned 4500 expected dwellings provides a large corridors scale benefit.

Outcomes

- Buildings harvest water and solar resources.
- Buildings contribute to corridor habitat.
- Deep soil zones on private land are strategically positioned to connect with the streets / public domain and compliment to street planting.
- Clear targets for greening, water performance of buildings

Ideas

1. Increase the target for areas of deep soils on lot. Require contiguous deep soil zones across adjacent developments.
2. Align building scale open space provisions with public realm greening actions to create connected spaces.
3. Develop constructed greening options to be implemented where space is limited – designs (eg irrigated trellis structures) and zoning regulations.
4. Build visual connections and way finding to the river along adjacent and connecting streets.

Principles

Principle 12: All buildings are part of the catchment topography of the corridor – to harvest water and increase greening.



Communities

Creating engaged and empowered water sensitive citizens.

Insights

- The corridor vision can include ‘water sensitive citizens’ who understand how their behaviours affect water and waterway outcomes, and are resilient to flooding.
- The process of redevelopment provides an opportunity to build water sensitivity. In doing so, attention will be paid to the corridor’s highly diverse and international community.
- The current community is highly engaged, and actively involved in projects such as revegetation projects.
- Further engagement can be targeted to different community segments to ensure communication is effective.
- Communities respond to government messages about their role versus the role of infrastructure solutions in solving sustainability challenges. Embedding co-design and co-delivery will support water sensitive citizens.
- The planning process can incentivise design responses that enable water sensitive behaviours. Examples include allowing water come into the landscape as a feature, rather than hiding flooding, as a cue they live in a floodplain; or providing data via digital meters and apps to allow tracking of water usage.

Outcomes

- The community’s role in planning is clear.
- Co-designed neighbourhoods – with associated public health and wellbeing benefits.
- Greater end-user water efficiency
- The community is prepared for flooding, heat waves and droughts – reducing the economic and social impact of these events.

Ideas

- Model water sensitive behaviours, and embed these ‘by design’ into the corridor.
- Segment the community to understand who the champions are and who is likely to be disengaged. Design engagement accordingly.

Principles

Principle 13: Increase water literacy, and encourage water sensitive behaviours, by design.

Principle 14: Enable community interaction with waterways.

Principle 15: Make it easy for community to participate.





The current waterway edge condition and character present a physical barrier to the community.

Governance

This concerns the way we collectively plan, deliver and manage development and infrastructure.

Insights

- Working across state agencies is a challenge in NSW.
- Governance can be fit-for-purpose. Shared policy can be achieved with informal governance arrangements (e.g. network collaboration). Shared investment may be achieved with an MoU. Risk sharing requires formal structures such as a taskforce or an authority.
- This workshop has created an alliance with a common interest in integrated planning for multifunctional infrastructure and liveable cities. Transitioning this into a more formal, ongoing structure may be a separate, future action.
- Governance includes the community as a stakeholder.

Outcomes

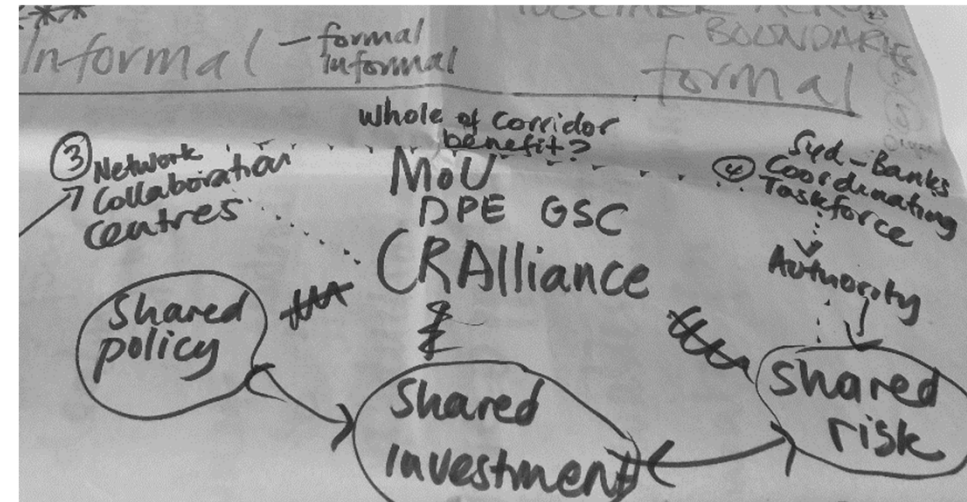
- Co planning and co investment is occurring.
- Social capital is being built and maintained –the community is empowered to participate in decision making.

Ideas

1. Establish metrics for shared outcomes to provide accountability for collaboration.
2. Enable an evolutionary governance model that builds the Sydenham to Bankstown workshop into a community of practice, a taskforce and then as a formal entity recognised by the Dept of Planning.

Principles

- Principle 16:** Governance is integrated across agencies and disciplines to provide integrated solutions.
- Principle 17:** Focus on solutions that are best-for-community rather than best-for-agency.
- Principle 18:** Governance structures are fit-for-purpose.



Summary of principles

Circular Economy

- Principle 1: Measure performance (i.e. targets) of the water cycle, rather than its individual elements.
- Principle 2: Regenerative design by reframing wastes as resources, co-location of land uses and building design.

Water servicing

- Principle 3: Defer future augmentations of centralised water services systems.
- Principle 4: Preference local scale options; use centralised infrastructure as a last resort.

Green lines

- Principle 5: Green grid delivers both ecosystem services (amenity, cooling, connectivity) and ecological functions (biodiversity, riparian corridor).
- Principle 6: Achieving greening outcomes will be pursued where strategically important, whether in private (e.g. setbacks, building design) or public (linear open space) domains.

Waterway health

- Principle 7: Prioritise strategic and collaborative waterway and catchment projects.
- Principle 8: Connect the community to their waterways

Flooding

- Principle 9: Plan for resilience.
- Principle 10: Balance infrastructure resilience and social resilience to avoid over reliance on either.

Activating town centres and public realm

- Principle 11: Streets are key infrastructure to achieve canopy, infiltration, and cooling targets.

Building Design

- Principle 12: All buildings are part of the catchment topography of the corridor – to harvest water and increase greening.

Communities

- Principle 13: Increase water literacy, and encourage water sensitive behaviours, by design.
- Principle 14: Enable community interaction with waterways.
- Principle 15: Make it easy for community to participate.

Governance

- Principle 16: Governance is integrated across agencies and disciplines to provide integrated solutions.
- Principle 17: Focus on best-for-community solutions rather than best-for-agency.
- Principle 18: Governance will be fit-for-purpose.