



Shifting Climate / Shifting Places

Climate Ideas & Actions for Kurilpa Precinct: Summary Of Workshop Outcomes

| Specialising in community and urban design |
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2° Degrees: Design for Climate Adaptation

This climate adaptation co-design workshop has been prepared by John Mongard Landscape Architects and is intended to be able to be used by any group within their own neighbourhood. Grass roots action is likely to be the forerunner for governmental action. In many parts of Australia communities can prepare themselves for the shifting climate, in the coming years.

Kurilpa neighbourhood



Purpose of a neighbourhood climate strategy

In the increasingly complex and confusing world of climate change, we need shared, simple and sensible thinking about what helps us to respond effectively as a community. As we face decisions and advocate changes that affect our community, we can choose to embrace our diverse world views, engage our concerns about climate risks, and act to thrive as a community in our neighbourhood.

A climate framework

Our climate strategy focuses on resilient adaptation: an approach to climate adaptation that understands and respects the world views and the shared needs of our community and which intentionally designs and develops the urban setting to respond to our shared applications. For us this involves three community actions:

- **Resetting – Expectations**
- **Regaining – Knowledge, Skills & Assets**
- **Rebounding – From Setbacks**

For more detail about getting up a neighbourhood climate framework, refer to: The Kurilpa Climate Strategy (by John Mongard, Bob Spiers and Pam Burke, located at www.mongard.com.au).

Workshop background

By the year 2030 it is projected that our climate will have altered by 2 degrees in temperature above pre-industrial times. Our cities and places will need to be adapted for this climate shift: within ten years.

Communities, planners and designers will need to strongly alter their patterns and practices to achieve this adaptation. This workshop aims to make people think about actions required to ramp up and prepare for this climate shift.

Workshop outcomes

This report summarises the ideas and actions suggested during the summit workshop ,which was attended by over 150 people.

Designers, educators,community members and other attendees were facilitated by 8 landscape architects and planners, working in groups of 7-10 people ,and brainstorming around seven local areas within the Kurilpa Penninsula.

Workshop scenario: planning for the summer of 2030 (+2°)

The climatic shift is most likely to be of impact in our summers. In Brisbane, we will see a shift to a more hotter style climate: longer summers with more extreme heat days, less rainfall and more frequent and strong storm events. Hot dry wind will reduce humidity and increase fire risks. Impacts from flooding and overland water will likely increase in many low and water prone neighbourhoods.

Urban heat stress will increase particularly in open and hard city areas. We will find it harder to move around or cool down in our neighbourhoods. Urban heat stress will increase particularly in open and hard city areas. We will find it harder to move around or cool down in our neighbourhoods, homes and streets.

Baseline



Business As Usual



Scenario 2 interventions water sensitive city approach



Reference: CRC for Water Sensitive Cities, watersensitivecities.org.au

SUMMARY IDEAS FOR ADAPTING TO WATER /STORMS /DROUGHT

Water Sensitive Urban Design (WSUD)	Ranking	High	*****
		Medium	****
		Lower	**

Apply and utilize Water Sensitive urban Design (WSUD) principles and techniques to existing and new development. These include:

- Swales *****
- Permeable paving *****
- Channeling and harvesting overland flow within and between sites to reduce impacts of flooding, sustain vegetation and create habitat. Techniques include rain gardens, targeted tree species, ponds, billabongs and street gardens. *****
- Street tree programs that target flood and drought resistance. ****
- Urban forests
- Riverside parks that can be flooded during significant rain/storm events.

Harvesting & Capture

Utilize significant rain/storm events to capture and harvest water for purposeful reuse. This is to be achieved by:

- Designing underground water storage tanks in parks, gardens and under roads. *****
- Creating water-retaining spaces in parks such as reed beds and temporary wetlands. ****
- Neighborhood-scale overland flow collection and water quality treatment.

Scenario 1: adapting to water/storms/drought

Water and storms

Imagine we are planning for a 2030 summer in Brisbane which anticipates cyclonic storms moving southward into South-East Queensland, bringing much heavier rainfall, very strong winds and flash flooding. Looking at the flooding mapping projected for a major event such as the 2011 flood, we see impacts and changes which might be required in this neighbourhood.

- What actions can we take now in this neighbourhood, to adapt to this shift in storm and water events?
- How can development modify to reduce storm risk?
- What should we do with homes in high risk, flood prone land?

Water and drought

Imagine we have no rain for six months:

- Long hot summers will bring drought
- How do we adapt for this?
- How do we create local water resilience?
- How do we store and hold water better?

SUMMARY IDEAS FOR ADAPTING TO WATER /STORMS /DROUGHT

Biodiversity

Urban biodiversity can be protected and enhanced by:

- Creating water habitats in urban areas. ****
- Protecting mangrove ecosystems and undertaking flood tolerant planting along the river. **

Building Codes

Introduce and/or amend building codes to improve built environment resilience to impacts of extreme weather.

Improvements to building codes could include:

- Allowing for underground power systems to improve cyclone resilience.
- Requiring roof /wall framing systems and building codes to design for more frequent and intense storm, flood and drought conditions.
- Reducing building footprints on sites to enable greater scope for flood and water management.
- Creating more roof gardens with trees and native habitats.
- Using construction materials that are flood, drought and storm resilient.

Policy & Education

Implement policy and education initiatives to improve public and neighborhood scale adaptation and resilience.

Such initiatives could include:

- Policy changes to enable grey water reuse and use of tanks and site flood storage, for irrigation and other uses. **
- Community groups and agencies promoting saving water in homes and streets.
- Building regenerative urban agriculture in the city to improve carbon levels in soil.
- Carbon reduction: create policy to achieve the link between housing need and water infrastructure (refer to the Australian Housing Research Institute's research).

SUMMARY IDEAS FOR ADAPTING TO HEAT

Design & Public Space

Ranking	High	*****
	Medium	****
	Lower	**

Utilize trees and vegetation to reduce heat and provide shade in private and public space. Benefits of vegetation for cooling can be enhanced by:

- Designing cool microclimates by using large canopied shade trees and structures to create heat refuges covering broad areas of the public realm. *****
- Retrofitting and extending parks to create continuous cool, green corridors. ****
- Providing shaded walks along all key walk routes for school children. ****
- Promoting hardy, hanging plants in apartments to allow localized greening and cooling.
- Promoting vegetation species with less dry fibrous surfaces and leaves to reduce flammability risk.

Public spaces to be designed to reduce heat/albedo effect and provide refuges where possible.

Design initiatives include:

- Mandate cool paving / permeable paving systems to reduce urban heat impacts. ****
- Designing school precincts with consideration of heat impacts. These are important movement and gathering places for children during summer. ****
- Design cool and misted areas within parks and public spaces. **
- Creation of evacuation centers in times of severe heat stress. **
- Create 'misted' cinema nights in parks to allow residents to go to cool places at night.
- Provide equity of access to cooler areas: poorer people should have places to escape summer heat.

Scenario 2: adapting to heat

Imagine we are planning for a 2030 summer which anticipates 3 weeks of very hot days of 40oC+, with evenings of 30oC+.

- What actions can we take now, in this neighbourhood, to adapt to this shift in heat?
- How can we plan around increasing fire events?
- How can we reduce heat in buildings without air-conditioning?
- What materials and surfaces should we use to reduce urban heat stress in the city?
- How do we cool the city as it grows further?
- How do we adapt the rhythm of our daily life around heat?

SUMMARY IDEAS FOR ADAPTING TO HEAT

Create opportunities for water to be used as a means of cooling public and private space. Design initiatives include:

- Storing water in the local landscape to improve evaporation and cooling. ****
- Regenerating natural waterways along gullies to achieve neighborhood cooling. **
- Using roof top pools to assist with neighborhood and site specific cooling.
- Using river water for emergency planning to help fight fires quickly.

Building Codes/ Planning

Planning provisions, policies and building codes at various levels to be developed to allow greater capacity to address impacts of heat in the built environment. These could include:

- Planning policies that mandate a minimum required percentage of tree canopy cover in public spaces and streets. ****
- Better thermal insulation and provision of shade in new buildings, allowing cross ventilation and utilization of surrounding landscapes. New buildings could be designed with greater reference to vernacular Queensland architecture eg. high ceilings, wide eaves, ventilated and free flowing spaces. ****
- Upgrading old building stock to conform to new building codes around heat management. **
- Adoption of building setbacks to allow for perimeter shading. **
- Upgrading standards and legislation to quickly and efficiently deal with fire, heat and associated hazards. **
- Designing roof areas to be accessible, green refuges. **
- Promoting green roofs to absorb and reduce interior heat, and use of color and reflectivity to reduce heat load.
- Promoting forms of fencing that allow breezes and cooling across sites.
- Retrofitting cooling towers on old buildings to be more efficient and sustainable.

SUMMARY IDEAS FOR ADAPTING TO HEAT

Policy & Education

Develop and implement policy and education initiatives to better prepare the community for more frequent and intense heat events. Such initiatives could include:

- Sharing learning and experience from the Indigenous community about burning and bush fire management. **
- Promoting local community awareness on bushfire planning and health impacts of increasingly hot summers. **
- Making Musgrave Park Pool and other public swimming pools free during hot times.
- Providing free sunscreen dispensing machines in parks.

Lifestyle/Work Change

Changes to lifestyle and working practices may be required to adapt to rising temperatures. These could include:

- Introducing staggered work and trade times to deal with intense heat periods during hotter, longer summers. This could take the form of a 'siesta' lifestyle to allow safe access to shops and facilities. *****
- Adapting the way we live our daily lives to heat could lead to solutions such as staggered commuting, or evening community events. ****
- Establishing public wifi hubs in cooled and air conditioned spaces. **
- Creating sustainable forms of transport to reduce urban heat: electric /self drive cars; bikes; non-motorised modes with low carbon footprints and few emissions. **
- Introducing daylight saving to stagger commutes into cooler times.

SUMMARY IDEAS FOR ADAPTING OUR LANDSCAPE & VEGETATION

Design (Building)

Ranking	High	*****
	Medium	****
	Lower	**

Develop and Implement planning and design initiatives that aim for improved landscape and vegetation outcomes. These include:

- Reviewing and changing development provisions, conditions and codes which are unfavorable to landscape and creating new 'green' development. *****
- Promoting options for larger shared and communal gardens in backyards.
- Using existing technology to achieve water harvesting in new developments.
- Utilizing Aeroponics by encouraging vertical and horizontal gardens in high-rise development.
- Designing new buildings with community car storage.
- Pedestrianizing the heart of West End.
- Adopting proportional/percentage contributions for green space (eg.10%).
- Reducing building footprints and heights along river.

Design (Landscape)

Create and utilize opportunities for using vegetation at various scales to improve landscape amenity, supplement local food supply, provide improved habitat and mitigate the effects of heat. Techniques and design solutions to achieve these outcomes include:

- Creating wide drought resilient verge plantings throughout the neighborhood. *****
- Mapping the need for, and providing shade trees on streets and within new developments. *****
- Promoting the creation of food landscapes within public and private places. ****

Scenario 3: adapting to landscape & vegetation

Imagine we are planning for a 2030 summer with all the changes described earlier. Our landscapes, ecologies and vegetation will alter toward a warmer climate. This will impact fauna and biodiversity.

- What actions can we take now in this neighbourhood to adapt to this shift in our landscapes and vegetation?
- How can we build food resilience into our cities and places?
- How do we retain our native flora and fauna in the growing city?
- What actions can we do to increase landscape in the urban landscape?

SUMMARY IDEAS FOR ADAPTING OUR LANDSCAPE & VEGETATION

- Using fruit trees as streetscape trees. ****
- Building local and indigenous plantings that support native flora and fauna. ****
- Introducing more native bird / bee loving species where possible. ****
- Encouraging 'wild' areas in gardens and public spaces. **
- Protecting mangroves along the river to reduce erosion along banks. **
- Designing deep absorption areas with permeable gardens. **
- Bringing more nature play areas into parks. **
- Replacing asphalt in large parks with permeable/cool paving. **
- Establishing urban forest pockets in Musgrave Park / large parks. **
- Considering best plants for each purpose: some weed species may be more robust in the future.
- Thinking about succession in planting schemes by designing evolving landscapes.
- Creating bush food gardens around Indigenous centre in Musgrave Park.
- Providing cool gathering areas and shade structures in Musgrave Park.
- Providing more Bicycle storage in parks.
- Encouraging Brisbane State High School to plant vegetable/fruit gardens.
- Creating garden islands in centre of roads.
- Promoting design and use of chicken coups within community garden areas.
- Designing Pocket orchards.
- Creating seed banks for plants.
- Design and use of seasonal flowers for pollinators within public spaces.
- Designing and creating Rainforest areas.
- Designing mixed use open spaces.

Policy & Education

Implement policy and education initiatives to improve adaptability of neighborhood landscapes and vegetation.

Initiatives could include:

- Creating maps and information to identify areas suitable for large trees. ****

SUMMARY IDEAS FOR ADAPTING OUR LANDSCAPE & VEGETATION

- Providing incentives for developers to create greener project outcomes. **
- Promoting vegetable and productive planting in community areas. **
- Providing incentives and education to enable residents to achieve continuous landscapes and wildlife corridors across backyards. **
- Creating better maintenance plans and budgets for parks and streets. **
- Promoting native bee hives in parks to assist with pollination.
- Encouraging composting in private gardens.
- Protection for heritage listed trees in parks and streets.
- Identifying the public cost of not complying with green space standards.
- Recognise and educate around the health and amenity value of green space.
- Creating a community education programme around sustainable local landscapes.
- Promoting awareness of public health issues associated with bats and achieve better management.
- Create awareness raising campaigns regarding domestic cats and their impacts.

Community Networking

Community networking is an integral part of adaptation strategy. Initiatives for community networking include:

- Establishing better community food networks:
- Facilitating communication hubs to teach about food and biodiversity in gardens
- Supporting the creation of local care groups and land care projects for parks and neighborhood green spaces.

Biodiversity

Neighborhood biodiversity is to be improved by:

- Planting vegetation that supports local habitat and is climate resilient. ****
- Creating more ecological diversity in the streetscape; trees and shrubs provide habitat ****
- Looking after native flora and fauna in public and private spaces. ****

SUMMARY IDEAS FOR ADAPTING OUR COMMUNITY

Design of Public Space

Ranking

High *****
Medium ****
Lower **

Improvements in design for adapting public space are to be achieved through:

- Designing well known, safe and quickly accessible disaster gathering areas and event/meeting places. *****
- Creating mixed-use areas that serve as community hubs. People can meet each other without spending money. ****
- Providing shady walkable streets with frequent seats and drink fountains. ****
- Creating a local community power source when power is cut. **

Emergency Procedures/Policy

Initiatives for disaster response and emergency procedures as applying to the local area include:

- Promoting a neighbourhood 'buddy' system to help others locally. ****
- Disaster plans specific to local needs and clearly communicated to all residents and businesses. ****
- Identifying possible hazardous substance isolating areas. **
- Mapping where vulnerable people live and create assistance strategies. **
- Creating sand bagging hubs for flood events. **
- Creating practical evacuation hubs in Musgrave Park and other large parks.
- Designating safety wardens and leaders within our communities for coordinating major events.
- New BCC bridges designed/located to act as 'escape' routes and places.
- Moving people in need into underutilized local hotels during disasters.
- Creating pocket parks along roads for emergency meeting points.

Scenario 4: adapting our community

Imagine in the summer of 2030 there is a major climate event such as the 2011 flood or a major cyclone.

What actions can we take now in this neighbourhood to manage such events within the community?

Who are people most vulnerable and where might they go in such an event?

What safe access and escape routes can be anticipated?

What infrastructure needs protection?

What do we do about waste and hazardous materials likely in the neighbourhood (paints, pesticides)?

How do we tell people or engage them about future climate risks?

SUMMARY IDEAS FOR ADAPTING OUR COMMUNITY

Policy & Education

Initiatives for local level policy and education include:

- Community education targeted at disadvantages residents. **
- Allowing more temporary street closures and events. **
- Bringing climate awareness to local schools and shopping areas.
- Improving engagement to develop ideas for local implementation.
- Promoting libraries as hubs during events.
- Establishing and distributing a data base of community interest groups.

HAMPSTEAD ROAD PRECINCT Scenario 1: adapting to water /storms /drought

WATER

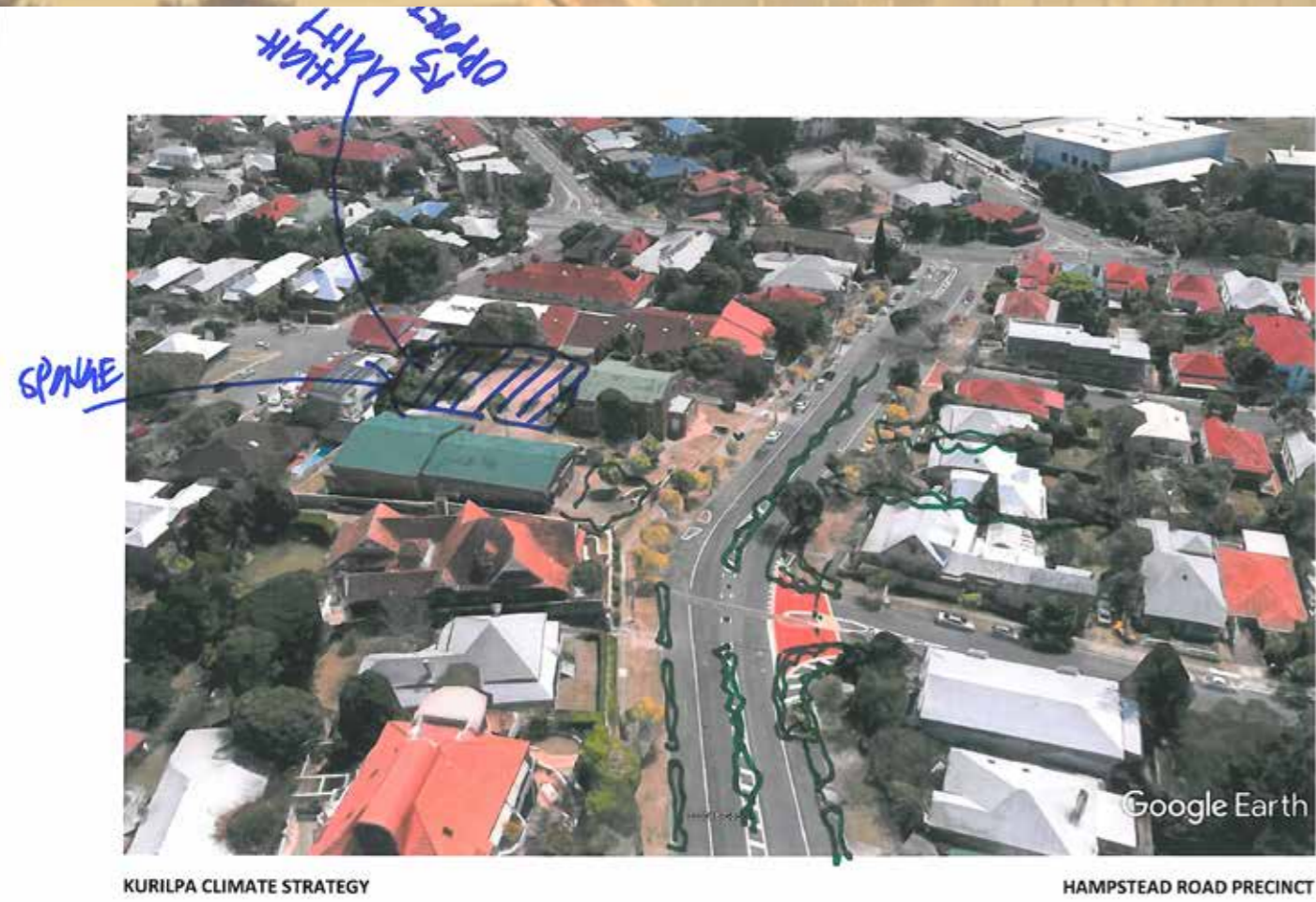
<ul style="list-style-type: none"> • HARVESTING WATER IN WET TIMES <ul style="list-style-type: none"> ↳ UNDERGROUND TANKS / GARDENS TREES WATER • STORE IN TANKS UNDERGROUND • STORE IN GARDENS • USING V/SCAPE TO MANAGE WATER <ul style="list-style-type: none"> - CREATE POOLS & WATERG ↳ REDEVELOPMENT OPP. ↳ INCREASE IN BIODIVERSITY & ↓ HEAT • CAPTURE WATER ALL THE WAY DOWN • TANKS IN PARK AT TOP. • DIRECT FLOWS IN GARDENS & TREES • TOO MUCH BROWN. 	<ul style="list-style-type: none"> • BACK OF CHURCH - SPONGE <ul style="list-style-type: none"> ↳ RESUME? • PREF. PARTNERSHIP DEAL → GET CHURCH COMMUNITY INVOLVED → COLLECT OVERLAND FLOW ACROSS BACKYARDS <ul style="list-style-type: none"> ↳ TREAT FOR WATER QUALITY ↳ STORAGE OPTIONS: <ul style="list-style-type: none"> ↳ OLD ROOMS OWNERS • PROPERTY OWNERS NEED TO CONSIDER OVERLAND FLOW BETWEEN PROPERTIES - <ul style="list-style-type: none"> → LOOK AT BROADER IMPACT → CO-ORDINATION SURROUNDING APPROVAL. ↓ MIN. GET BACKS * → REQUIRE RULES FOR WATER
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1' HAMPSTEAD

<ul style="list-style-type: none"> • USE PERMEABLE PAVING - IN BACK YARDS & IN DEVELOPMENTS <ul style="list-style-type: none"> ↳ INCENTIVISE PLT PLANNING ↳ ACCOUNT FOR OVERLAND FLOW * IN EVERY DEVELOPER HAS IMPROVE THE CATCHMENT WATER SITUATION BY 10% → TAKE WATER FROM ROAD & STORE IN GARAGE (UNDER) → USE OTHER OR ADJOINING SITES TO ACCOMMODATE CATCHMENTS → REDUCE FOOTPRINTS TO ACCOM. FLOW <ul style="list-style-type: none"> ↳ CAN ∴ BUILD HIGHER 	<ul style="list-style-type: none"> → RELATE LAND COVER TO FLOOD MITIGATION → CHANGE EXPECTATION AROUND LIFESTYLE. → HEDGE HARD PAVEMENTS → CONVERT TO SOFT SCAPE. → STRATEGIC PLANTING OF TREES ALONG FOOTPATH. → BOTTOM OF HILL COMMUNITY AMENITIES <ul style="list-style-type: none"> → LAUNDRY / TELEVISION ↳ SHARED RESOURCES. AMENITIES → CREATE A COMMUNITY SPOT. <ul style="list-style-type: none"> ↳ WORK WITH RESOURCES THAT PEOPLE CAN GO TO.
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2' HAMPSTEAD

HAMPSTEAD ROAD PRECINCT Scenario 1: adapting to water /storms /drought



HAMPSTEAD ROAD PRECINCT Scenario 3: adapting to heat

HEAT.

- CANOPY TREES
- STORING WATER IN LANDSCAPE
 - ↳ IMPROVE. ~~FAIR~~ EVAP T/FEK.
- GREEN ROOF
- ↳ BETTER INSULATION
- ~~NETBACK~~ AS LANDSCAPE BENEFIT TO HOUSE COOLING
- FIVE APPROX AVAILABLE & USABLE ON URBAN DEVELOP.
- * NEED GREEN/VEG INST.
- PROVIDE CORRIDORS ALONG LINES OF PREVAILING WINDS

- INCREASE ALBEDO.
 - REFLECTION
 - REFLECTION
- CONCRETE ROOFS
- PAINT ROOFS.
- LIGHTER COLORS
- VEGETATION CORRIDORS.
- USING TRADITIONAL BUILDING FORMS.
- BAN-GOLD FINISHES
- ↳ BUILDINGS THAT 'BREATHE'
- ↳ VENTILATE
- ↳ COMMUNITY AWARENESS → INFORMATION ON BETTER HOUSING DESIGN
- ↳ STANDARD OF SUSTAINABILITY RATING
- LEGISLATE

HAMPSTEAD!

- COMMUNITY AWARENESS →
- BETTER UNDERSTANDING OF OPTIONS
- ↓
- PERMISSANCE
- ↓
- BETTER UNDERSTANDING
- ADAPTING THE WAY WE LIVE OUR DAILY LIVES TO HEAT.
- ↳ WOULD LEAD TO DOUBLE COMMUTE →
- NEEDS TO BE WELL PLANNED & THOUGHT OUT
- NEEDS TO ~~BE~~ CONSIDER SCHOOL.

- STOP ON LINE.
- PUBLIC TRANSPORT
 - ↳ WE HAVE LIMITED OPTIONS
 - ↳ LINE RAILWAY IS TRYING TO FILL VOID FROM AIR TRAIN TO HOME.
 - ↳ OTHER FORMS OF TRANSPORTS
 - ELECTRIC SELF DRIVE CARS
 - BIKES.
 - ↳ CREATED LINES FROM MAJOR POINTS & HUBS OF TRANSPORT
 - IE TRAINS → THEN TO BUS THEN TO LOCAL BUS
 - TO MORE DROP OFF POINTS

HAMPSTEAD 2

HAMPSTEAD ROAD PRECINCT Scenario 2: adapting to landscape & vegetation

LANDSCAPE & VEGETATION

- PLANT MORE TREES
- RIGHT KIND OF VEGETATION NOT BEING PLANTED.
 - ↳ NOT HELPING MILDURE OF CLIMATE
 - ↳ CREATE DIVERSITY IN STREET SCAPE
 - ↳ SMALL/SHORT TREES & SHRUBS
 - MIX IT UP.
- ? WHAT WE NOW THINK OF AS WEEDS MIGHT BE MORE ROBUST IN FUTURE
- THINK ABOUT SUCCESSION IN PLANTING - EVOLVING LANDSCAPES
- LOCAL COMMUNITY GROUPS, NURSERIES CAN CONTRIBUTE TO MONO CULTURE IN LANDSCAPE
- TAP BACK INTO LOCAL INDIG. PLANTING, DIVERSITY WITH A FOCUS ON DROUGHT.
 - ↳ WHAT WAS IN THE AREA IN THE PAST THAT IS NON APPROPRIATE
 - NATIVE DROUGHT RESISTANT
 - VEGETABLE PLANTING IN COMMUNITY ZONES
 - THINK ABOUT CREATING LARGER COMMUNITY GARDENS IN BACKYARDS
 - ARE WE REALLY SERIOUS ABOUT FOOD RESILIENCE IN CITIES?
 - ↳ BIG CHANGE IN THINKING
 - NO, HOBBY FOOD ONLY → LARGE SCALE FOOD PROD. ELSEWHERE

- IF THEY TAKE AWAY → THEY MUST PUT BACK
 - ↳ REINSTATE WHAT YOU HAVE TAKEN AWAY WITH DEVELOPMENT.
 - BIG TREES UNK OVER
 - GREEN ROOFS
 - GREEN WALLS

DEVELOPMENT

- USE EXISTING TECHNIQUE ON WATER HARVESTING

HAMPSTEAD

- CURRENTLY GROW ENOUGH FOOD
- WE HAVE A WASTE PROBLEM NOT A FOOD PRODUCTION ISSUE.
 - ↳ LETS CONCENTRATE ON BIODIVERSITY, FLOODING & DROUGHT.
- HAVE CONTINUOUS LANDSCAPE ALONGSIDE BACK YARDS & FRONT YARDS
- REDUCE EDGE
- REAR BUILDING TO WALK PAST A HOUSE THAT HAS YARD WITH TREES & SHRUBS.
- A TINY NUTTER ALONG FOOTPATH & IN MEDIAN IS BETTER THAN NOTHING
- USE FRUIT TREES IN STREET SCAPE
- ALL STREET TREES
- BE AWARE OF PUBLIC HEALTH ISSUES AROUND BATS.
- DEFOLIATION, PRED. PERKS.
- ↳ BUILDING LANDSCAPE FRIENDLY BUILDINGS
- ROADS, GREEN WALLS
- IF WE CAN'T GET AWAY FROM CLEARING
- ADAPTING RULES TO ~~GET~~ GET WAYS FOR EG GET BACK ZONES TO BENEFIT THE OCCUPANTS.
- VALUE ISSUE ABOUT THE RIGHT TO TAKE AWAY LANDSCAPE

HAMPSTEAD

HAMPSTEAD ROAD PRECINCT Scenario 2: adapting to landscape & vegetation

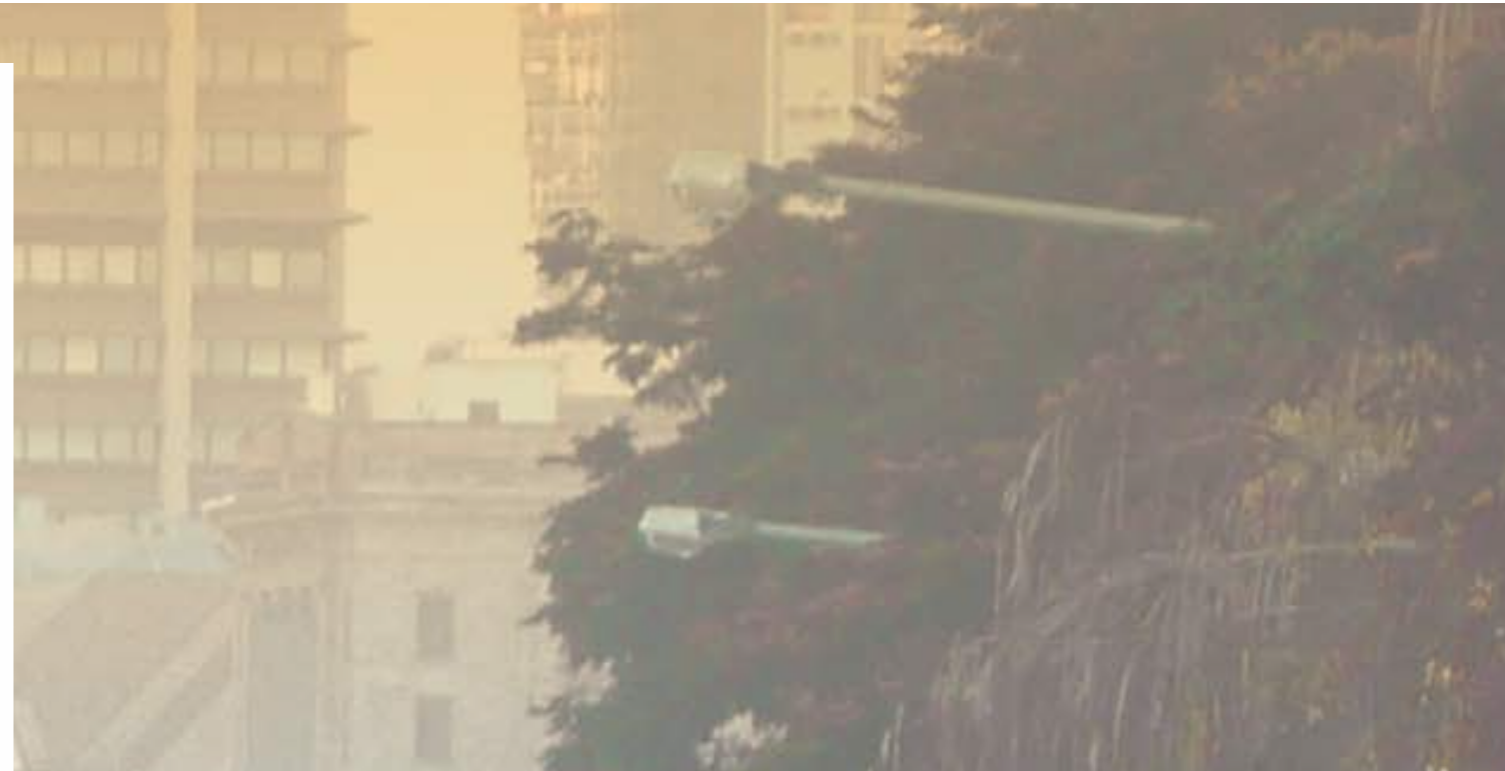


KURILPA CLIMATE STRATEGY

HAMPSTEAD ROAD PRECINCT

* MAKING SURE
CEPTS & LIGHT VINES
LANDSCAPE ARE ALL OK

- VARIETY
OF SPECIES/
TREES FOR
DIVERSITY



KURILPA CLIMATE STRATEGY

HAMPSTEAD ROAD PRECINCT

TREES / VARIETY / LANDSCAPE
BOTH SIDES & CENTER

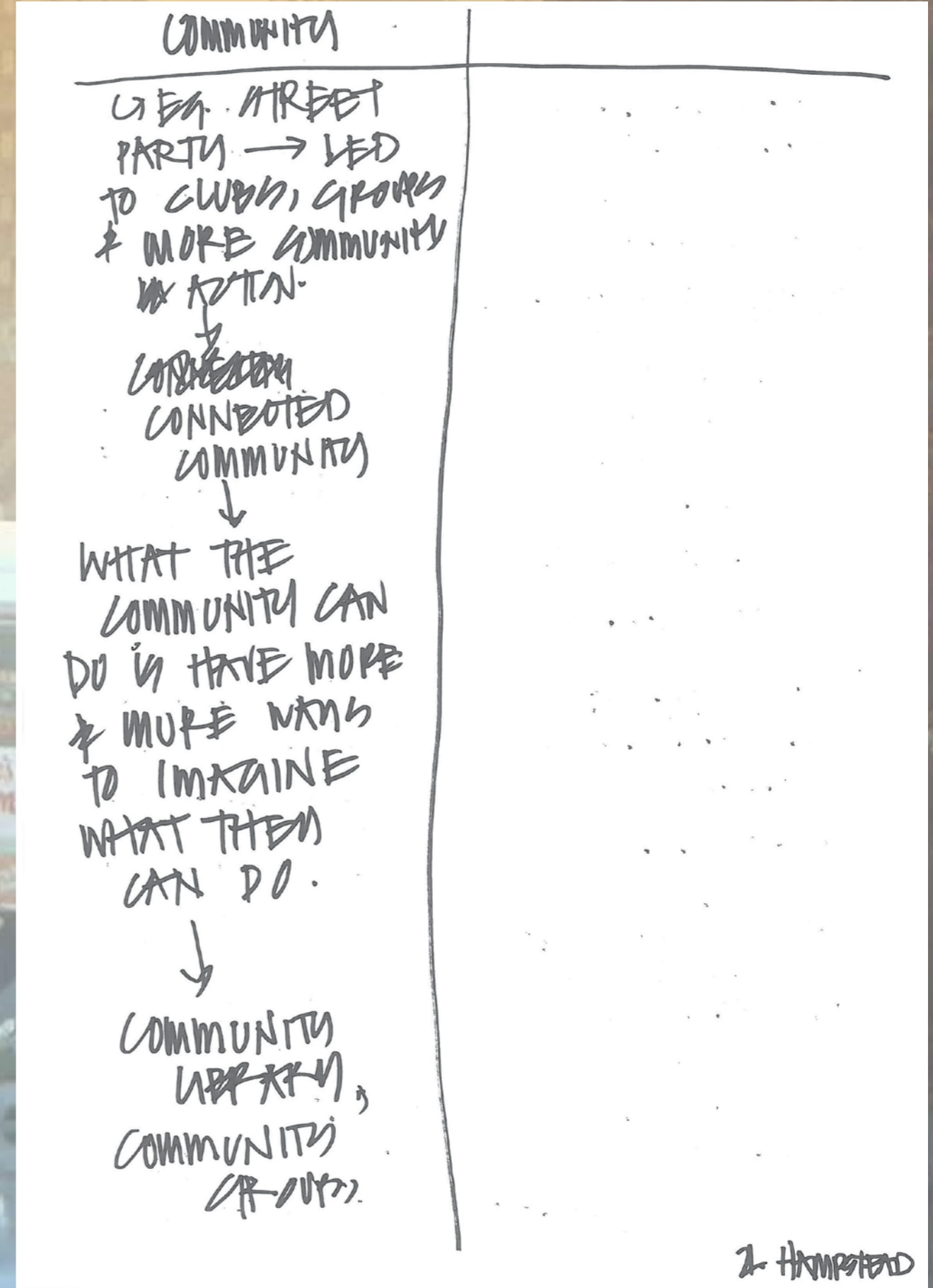
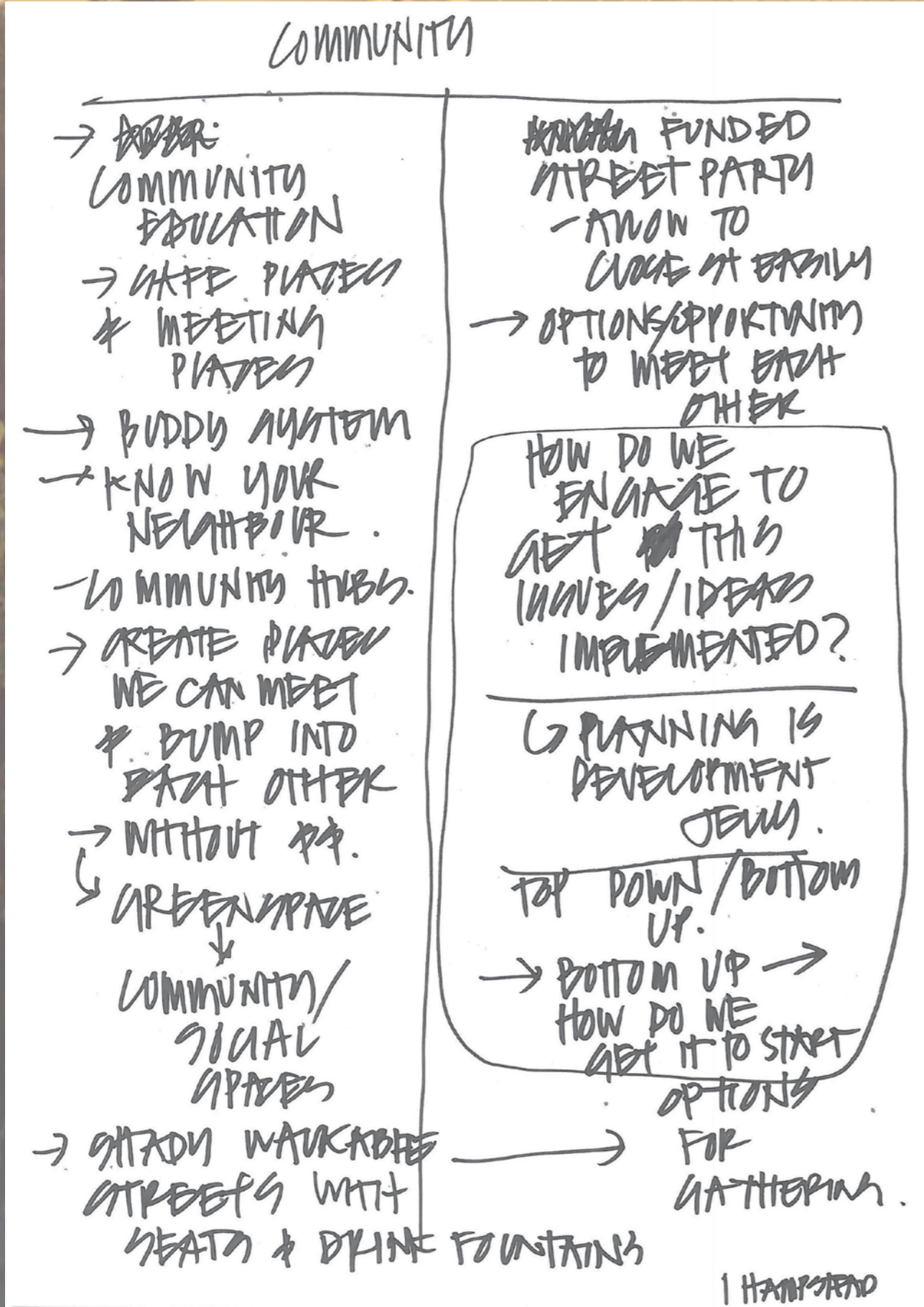
INCREASE
CONNECTIVITY

CREATE
CORRIDORS
FOR
LANDSCAPE
CONNECTIVITY




CORRIDORS
REDUCE EDGE



HAMPSTEAD ROAD PRECINCT Scenario 4: adapting community



BRIGHTON ROAD PRECINCT Scenario 1: adapting to water /storms /drought

Water / Storms	Victoria St
More storms + Flooding	Less water / more drought
<ul style="list-style-type: none"> - Slowing + capturing water.  - Swales - Bio-retention <p>Water sensitive urban Design</p> <ul style="list-style-type: none"> - Permiabke pavement - Reducing large + hard surfaces - Adapting Architecture  - Community Gathering Point: for emergencies!!! - Securing loose items - Adapt housing standards to conditions. - Amend roof framing for serious wind conditions. <ul style="list-style-type: none"> - steps for tie down issues? 	<ul style="list-style-type: none"> - Holding + capturing water - Permiabke paving - Grass with pavers  - Water tanks / water storage - Cleaning out gutters - More trees



heat + fire	Brighton Road precinct.
<ul style="list-style-type: none"> • Siesta • tele commuting - so people can work at home. - improved broadband. • public wifi in air conditioned spaces. • green coloured roofing is better Co₂ heat absorbing? • new developments with higher ceilings - tropical architecture - min 9 foot ceiling - eaves. • awareness around building rebits - eaves, insulation, fans. 	<ul style="list-style-type: none"> • upgrade to building codes • retrofit cooling towers to existing buildings.



Garvin / 3

BRIGHTON ROAD PRECINCT Scenario 2: adapting to landscape & vegetation

Landscape + Vegetation / Nature / Food	Brighton Road precinct.
<ul style="list-style-type: none"> • Green roofing on new developments. • Aeroponics - growing plants in 10-15m high tubes as vertical & horizontal gardens. <small>Lightweight.</small> • Locally grown mushroom cultivation. • Conserve backyard tree corridors - map green corridors and provide incentives for owners to retain trees. • plant selection for biodiversity • verge gardening policy to include edibles. 	<ul style="list-style-type: none"> • remove rampant weed species • cats inside home ↳ awareness raising campaign. • Encourage 'gardens growing wild'. • community car storage. • design new building for car obsolescence in 30 years time.



Community	Brighton Road precinct
<ul style="list-style-type: none">• designate a community disaster gathering area and raise awareness• identify potential gathering hubs / emergency areas for times of disaster.• proposed BCC pedestrian bridges designed / located as 'escape routes' to higher ground.• community disaster strategy communicated to all residents / business	<ul style="list-style-type: none">• bring climate awareness - 2030 - into local schools.• move people into unoccupied hotels rooms, who are affected by disaster.



MUSGRAVE PARK PRECINCT Scenario 1: adapting to water /storms /drought

WATER/STORMS
 more storms + flooding
 How to keep water in smaller micro-climate areas -

- Many more trees irrigated through rain water harvesting from buildings surrounding park.
- Water storage in roads.
- take away hard spaces + introduce soft spaces with captured stormwater.
- How to stop the water, diversion -
- Brooke mentioned carpark -
- McCartner Avenue Newstead.

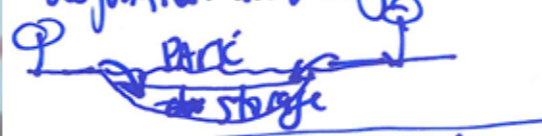
MUSGRAVE PARK AREA
 LESS WATER / MORE DROUGHT.

- limit concrete to one car pad per yard to avoid water on concrete.
- preserved into the future at West End / main park + cultural asset.
- capturing grey water from home / apartments / buildings to tanks under parks.
- need water systems - grey water biolix.
- policy so that can happen. Mandatory policy for grey water exchange incentive incentivised.
- credit for providing grey water for irrigation.

WATER/STORMS
 more storms + flooding

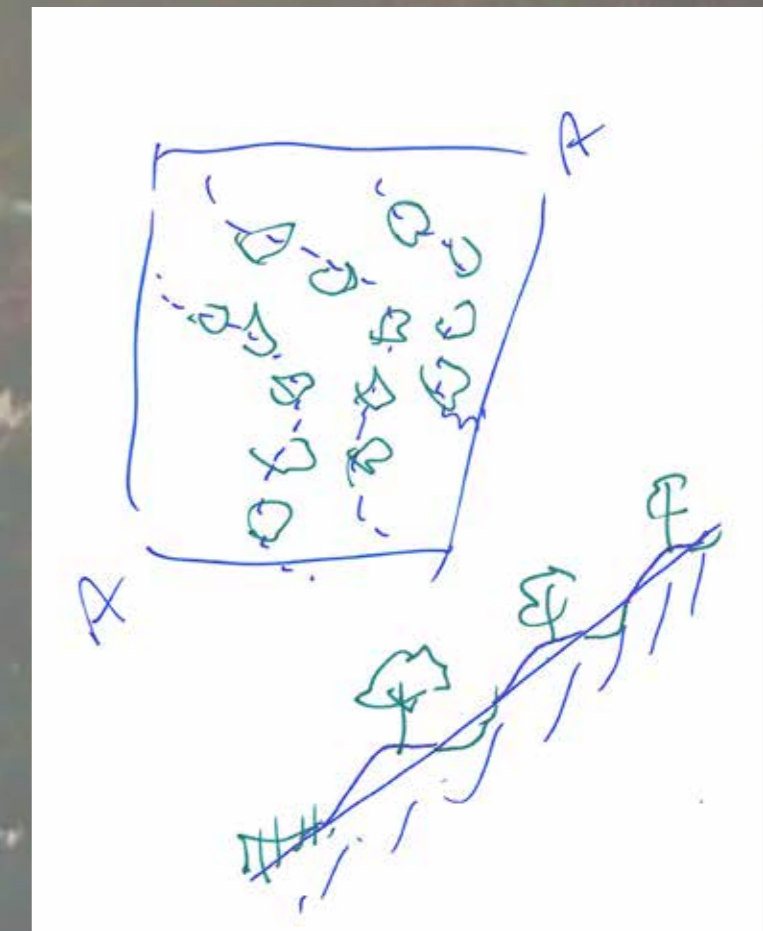
most important meeting places are the trees -


- take inspiration from other places like Netherlands + Venice.
- What can we save, what can we not do??
- What are we happy to lose + what must stay.
- Musgrave Park has existing drains that run through.
- Indigenous cultural heritage - change some of the grading to stop rainwater from properties to create sponge.
- drought affecting soil - degradation after major events.



MUSGRAVE PARK AREA
 LESS WATER | MORE DROUGHT.

- emergency water storage structure
- working with traditional owners.
- Central Sink - like central park + Victoria Park.
- how water moves - raise some buildings to allow water to move through.
- properties on stilts for visual function of water moving.
- trapping water in contours - permaculture ideas... regenerative agriculture... to build up carbon levels in soil.
- 10% extra carbon
- water by design - max trees + rain gardens
- bring community to process - school children.
- set of swales
- pool strategy for an event is there one??
- community management site in an event.



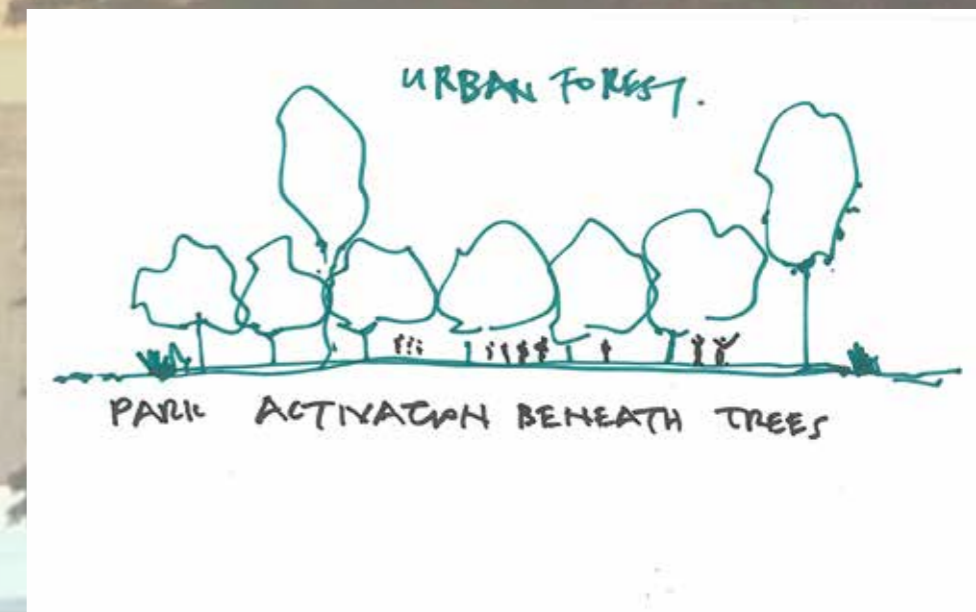
fire / heat.	? name why?? Musgrave Park Area.
<ul style="list-style-type: none"> water storage tanks used as safe zones after water used for fighting fires. 	<ul style="list-style-type: none"> Provision of shaded walking for school children to BSTS. green roofs with good GOAT. 
<ul style="list-style-type: none"> 101 Musgrave preserve 	
<ul style="list-style-type: none"> Cool paving / permeable make swimming pool free changing daily rhythm. safety - no go area. more activity / safety. More trees / plants Spray area / sprinklers. misters over park. + covered lighting united cinema nights permeable paving + giant trees / broader to shade footpaths + roads to cool entire microclimate 	<ul style="list-style-type: none"> or solar panels on buildings. make room for natural breezes - directing breezes. reducing planning code regs. raising buildings off ground to breezes under building uses. way finding connectivity green fingers for safety to West End / South Bank. changing mindset urban environment built around parks. connecting parks new local rules / regulations walking in shade between.

fire heat	Musgrave Park Area.
<ul style="list-style-type: none"> INFO stands about temperature Ux levels. sunscreen dispensing machines (free). community / Jagera centre sharing learnings about cool burns and bushfire management. fire evacuation centre in park vertical planting where space is limited in root zone. 	

MUSGRAVE PARK PRECINCT Scenario 2: adapting to landscape & vegetation

Landscape/nature/food	MUSGRAVE PARK AREA
<ul style="list-style-type: none"> Park to be preserved into the future as a key asset/cultural area. mapping areas suitable for large trees. Heritage listed trees in Musgrave Park. Council's responsibility to protect our trees in park. tree succession plan into the future; similar to Orisk. community involvement + sense of ownership to help establish street trees. Care group/landcare project. talking to traditional owners to oversee. veg-bushfood garden around cultural centre. Indigenous learning centre community understanding that the park is an important asset. 	<ul style="list-style-type: none"> generating own food - less food waste reducing carbon footprint with composting hubs. green walls on buildings around + in park. native bee hives in park. looking at tree plantings along all paths, water around park. Policy setting for new trees - Maintenance plans - educate people to love leaves + love untidy - Mixed eco systems. Layered plantings re-bushing sections. take away asphalt and go for permeable paving. Rain gardens with permeable paving running into. networks & channels - carefully chosen species that won't fall during a major event.

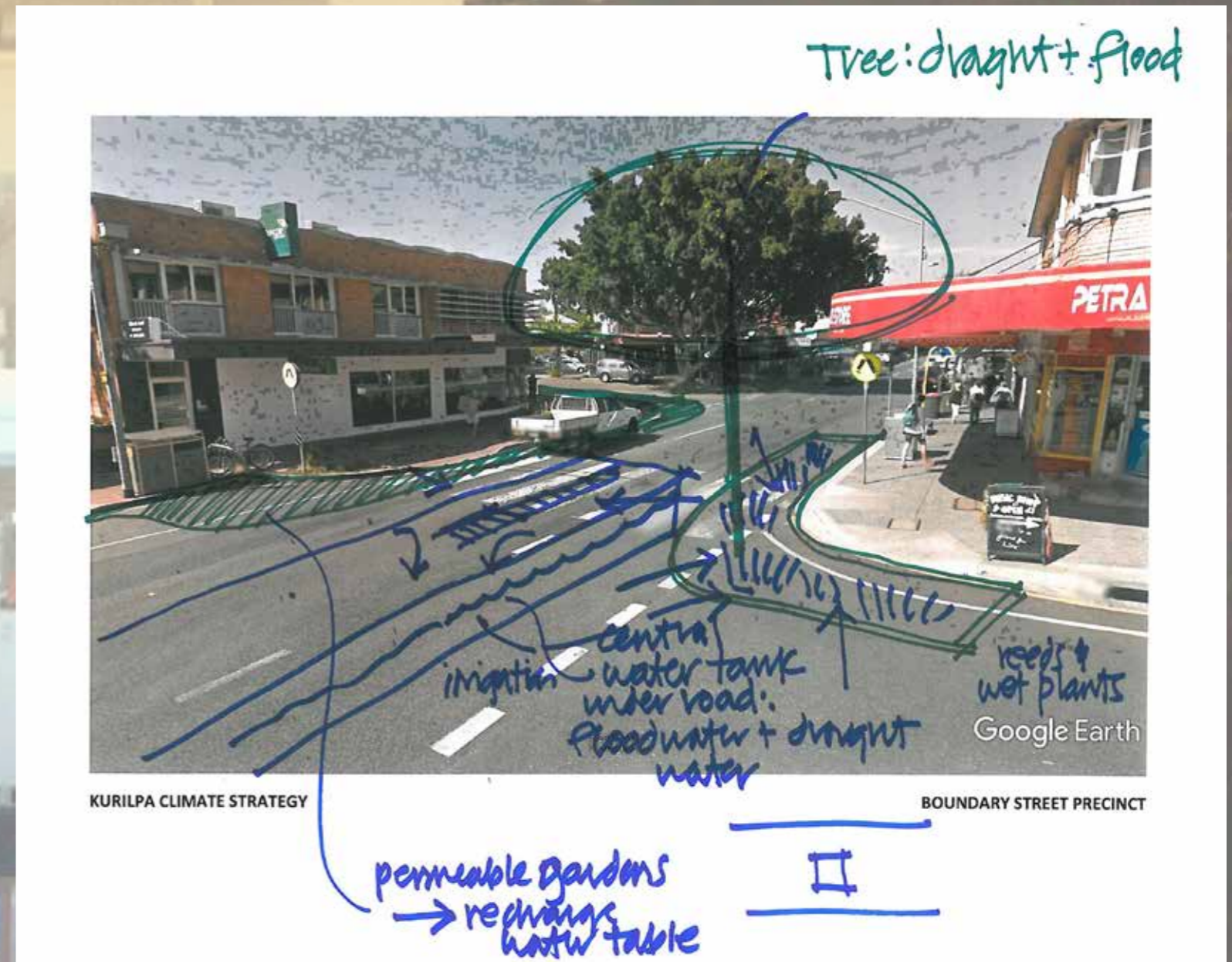
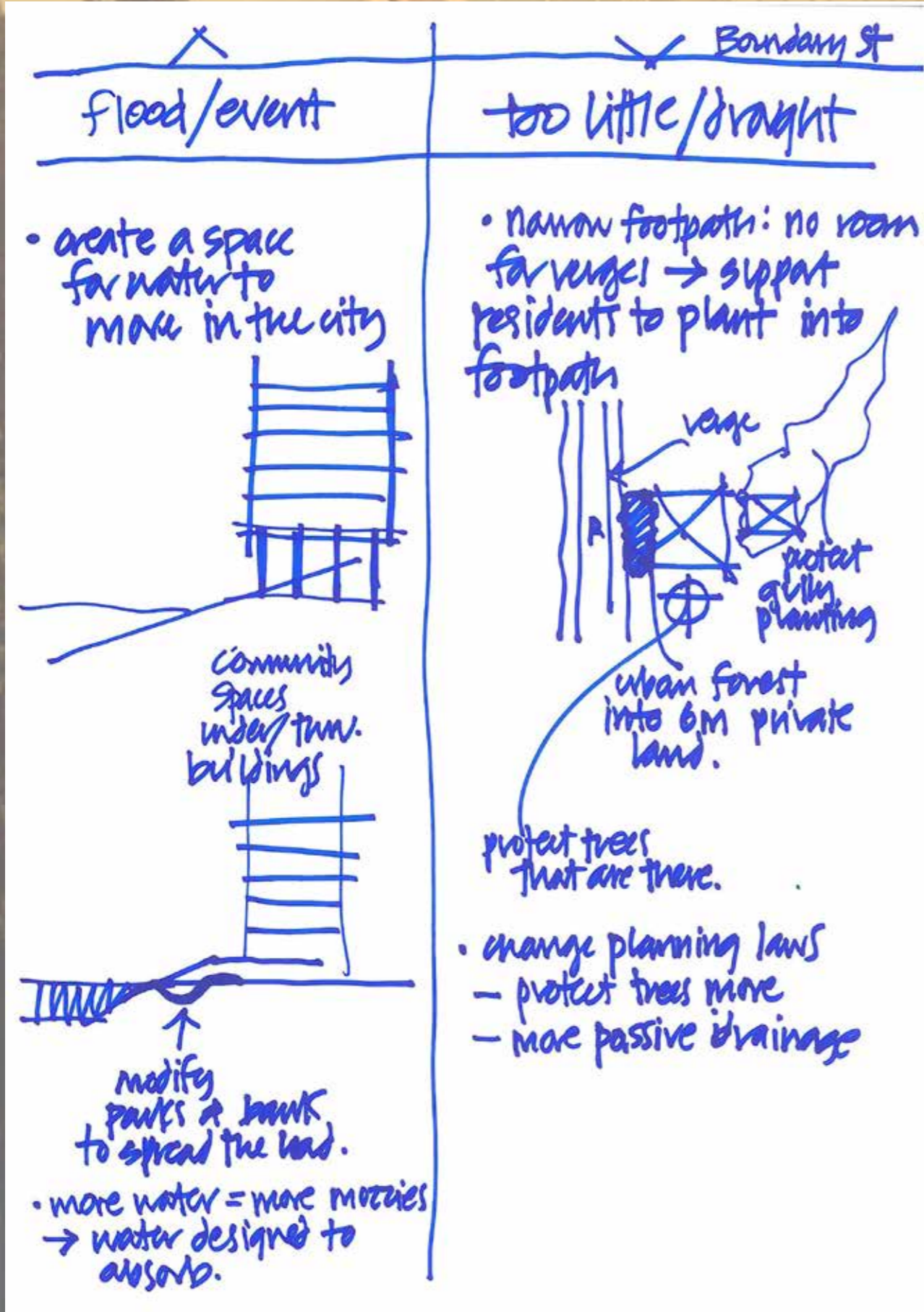
Landscape/nature/food	Musgrave Park Area
<ul style="list-style-type: none"> Council planning Scheme to provide good outcomes - code based changes uniqueness when thinking about planting. Shade structures in park to allow for more gathering spots. more bicycle storage spaces in park to allow for people to arrive. more adventurous + more courageous about our plants for the park - Native flora + fauna - look after. green my street UK - look up - bird loving - bee friendly species for food/production. 	<ul style="list-style-type: none"> food garden for greek centre. BSMS School kids + involved in new planting Urban forest concept links to BSMS grounds + gardens / proximity local businesses and connected by being involved with planting/maintenance pop up veg gardens to activate. veg gardens. green walls vertical garden rain water tanks everywhere. 101 preserved Park engage traditional owners / strategy to implement with community on board.



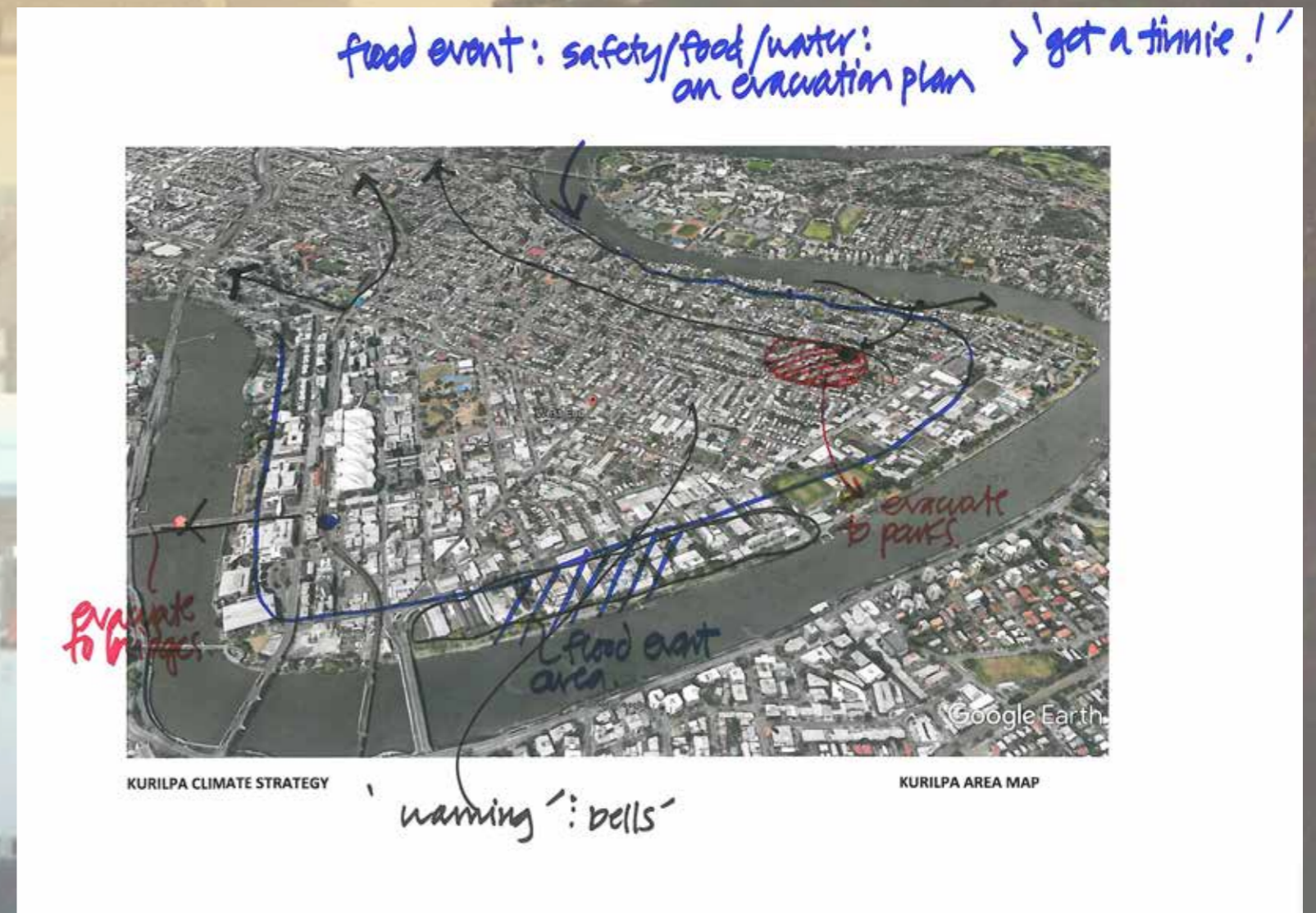
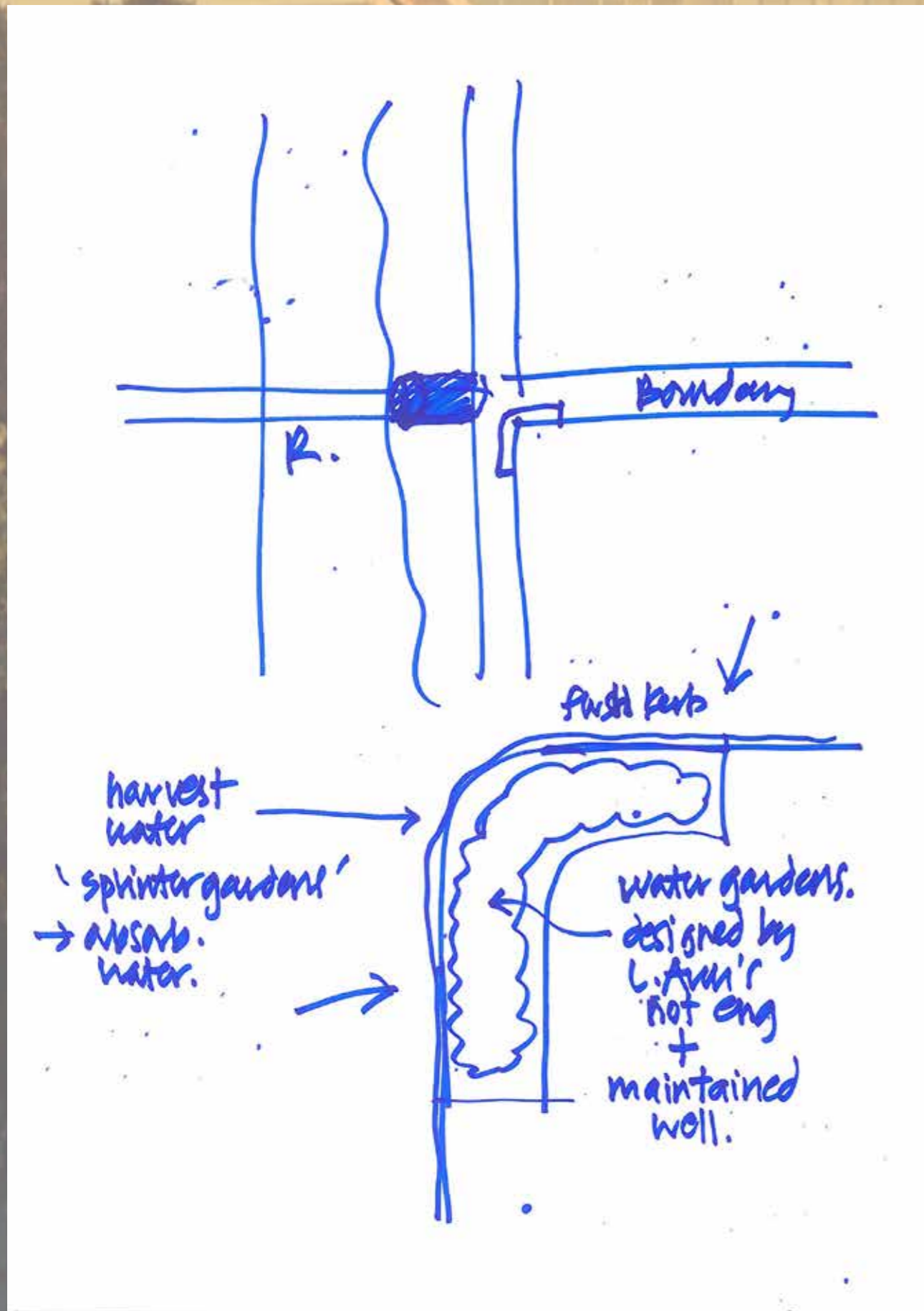
Community	Musgrave Park Area.
Houseboat living where residents are displaced - along Orleigh.	Notes Create safety wardens + leaders within community in an a major event.
Safety issues around park - lighting - activity.	levels of buddies for vulnerable people.
Jetty-type situations along Orleigh - mariner = river courier services along river.	thinking about apartment, multi-occupancy buildings, assembling in emergency, risk management plan.
Graton community, has a great emergency action plan after 2011 floods.	hazardous materials - removal + isolating them in our park.
Strengthening community enjoyment to provide avenues to tie in groups for an emergency situation.	
Knowing where vulnerable people are - a hub in park to bring people together.	
Data of community interest groups in hub at Musgrave Park	



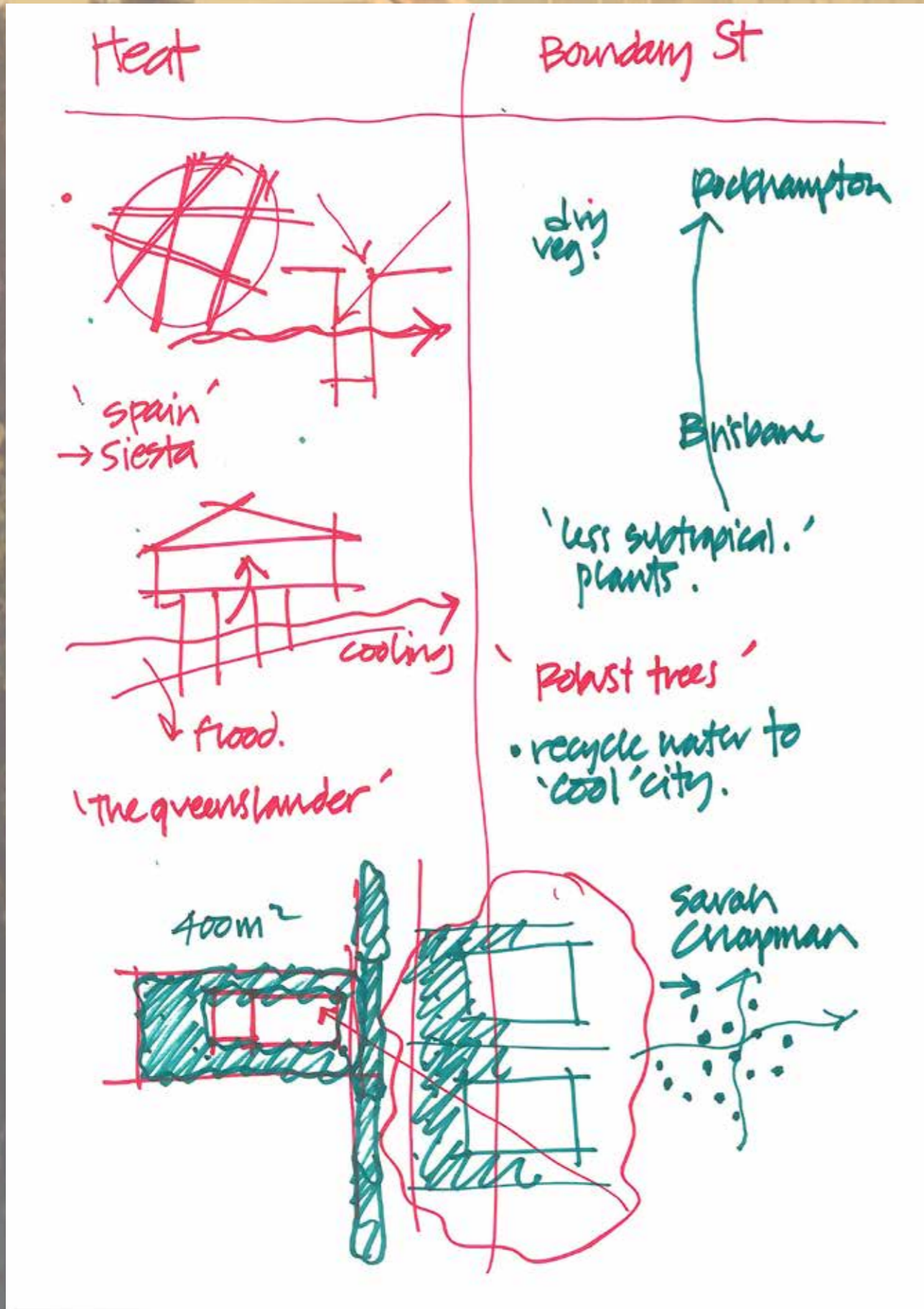
BOUNDARY STREET PRECINCT Scenario 1: adapting to water /storms /drought



BOUNDARY STREET PRECINCT Scenario 1: adapting to water /storms /drought



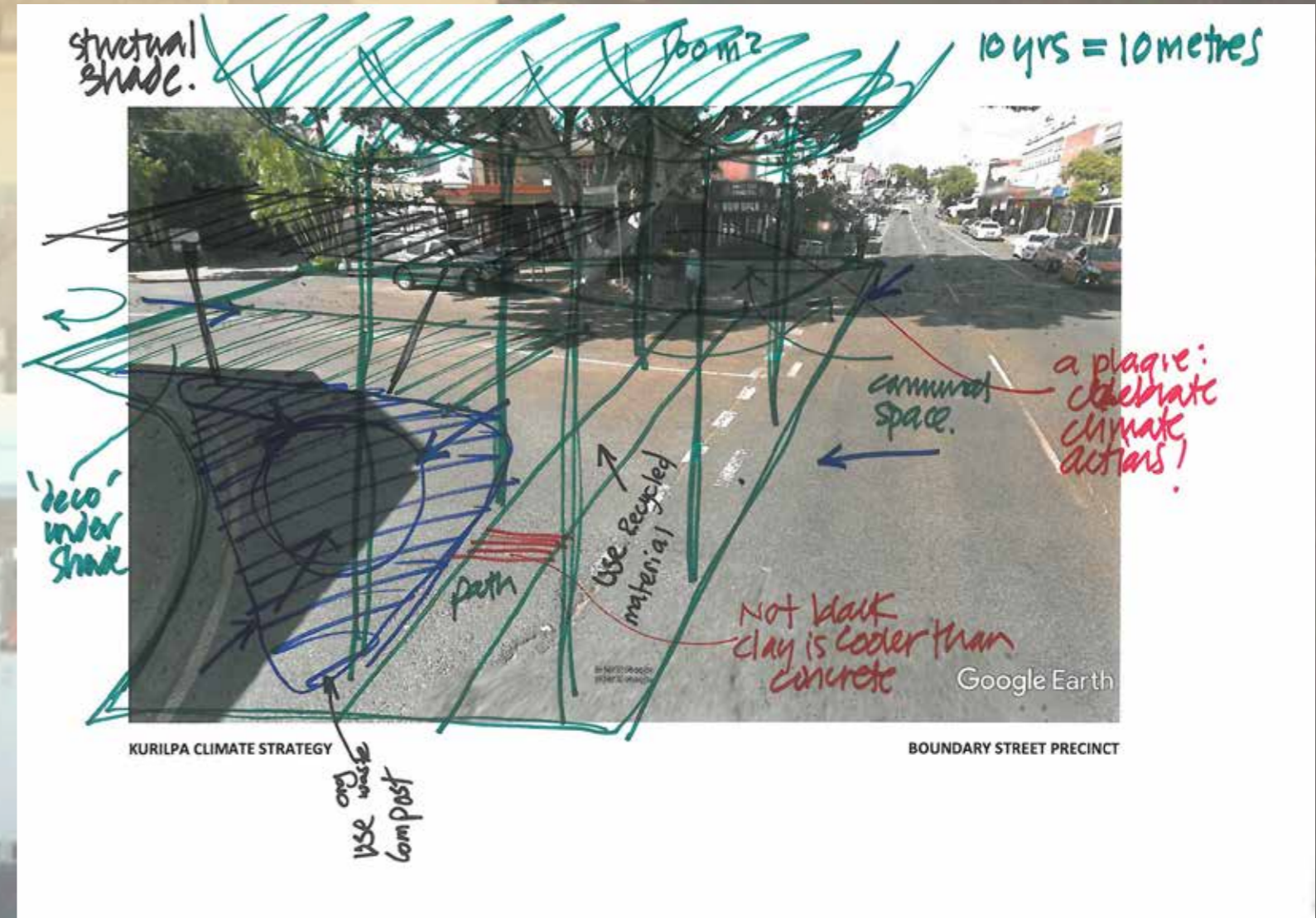
BOUNDARY STREET PRECINCT Scenario 3: adapting to heat



BOUNDARY STREET PRECINCT Scenario 3: adapting to heat

HEAT & TEMPERATURE

- AIR CONDITIONING + ENERGY + PERSONAL HEALTH.
- STATE'S FRAMEWORK & POLICIES AFFECT THESE OUTCOMES.
- SHADING WALLS.
- PLANTING TO SHADE WALLS & ROADS.
- SOLAR ROOFS.
- GREEN ROOFS.
- STREETS HAVE TO BE SHADED.
- CREATE A "PEDESTRIAN PLAN"
- ELECTRIFY BIKE NETWORK
- HEAT'S 'DIS'INCENTIVISE USING A BIKE



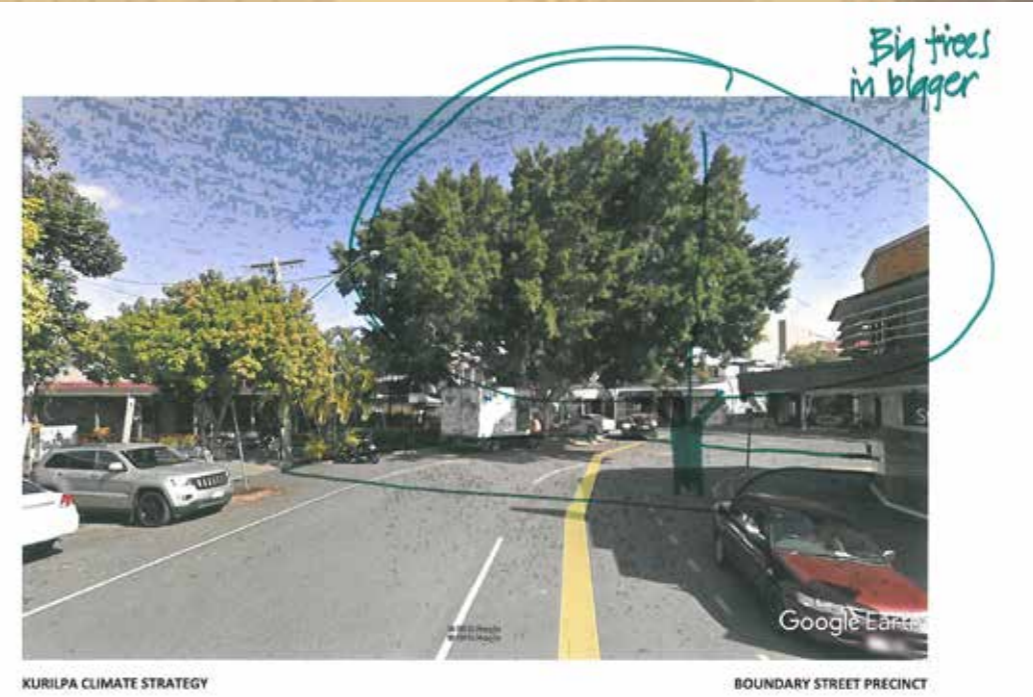
BOUNDARY STREET PRECINCT Scenario 2: adapting to landscape & vegetation

Landscape/nature/food

Boundary St Precinct

- integrated planning: designers don't have money / infrastructure folk have money → join them up.
- the engineers don't have the right plans.
- The traffic solution is the green solution
- roads dominate: we need their money.
- Use the commons which is free land and plant landscape!
- manage D.A conditions !! Biggest constraint on green development
- incentivise developers.

- cost of dev → identify cost of not complying
- Not enough pushback on normal dev't.
- an outreach officer to help grow food on back yards.
- make heart pedestrian
- open up
- large sites: ramp up
- more trees & mangroves to reduce erosion along banks
- permeable gardens



LANDSCAPE

- GREENSPACE HAS AN ECONOMIC VALUE.
- HEALTH & WELLBEING
- ECONOMIC RATIONALE THROUGH HEALTH.
- 10% OPEN SPACE MECHANISM.
- TREE COVER VS FOOD TREE'S
- INTEGRATION OF GREEN WITHIN DEVELOPMENTS
- FOOD GROWING AS A SOCIAL TOOL IN STREETS.
- 1. MAP THE 'NEEDS' FOR TREES THAT PROVIDE COVER & SHADE
- 2. MAP THE 'NEEDS' FOR URBAN BIODIVERSITY
- 3. MAP THE 'NEEDS' FOR FOOD TREES.

- TREES SHOULD BE VALUED FINANCIALLY, SOCIALLY & ENVIRONMENTALLY
- BIO-DIVERSITY BUILDS RESILIENCE
- PLANT TREES THAT PROVIDE FOOD FOR BOTH ANIMALS & PEOPLE
- TREES THAT ARE NATIVE WHICH PROVIDE FOOD.
- REDUCE ROAD PAVEMENT FOR A GREATER SOIL VOLUME TO GROW LARGER TREES.
- PLACE TREES WHERE THEY CAN GROW
- TREES ON ROOFTOPS.
- STREETS HAVE THE GREATEST OPPORTUNITY ~~FOR~~ & NEED FOR LARGE SHADING TREES



BOUNDARY STREET PRECINCT Scenario 4: adapting community

- evacuation centres
- sandbagging
- 'pre-notice'
 - heat → fire
 - flood
- Disaster plans don't get read
- politically: can't talk about climate change.
- industries:
 - ramp up / beam up / contain hazardous materials on site.



VICTORIA STREET PRECINCT Scenario 1: adapting to water / storms / drought

Water/Storms	Victoria St
<p>More storms + Flooding</p> <ul style="list-style-type: none"> - Slowing + capturing water. - Swales - Bioretention Water sensitive urban Design - Permeable pavement - Reducing large + hard surfaces - Adapting Architecture - Community Gathering Point: for emergencies!!! - Securing loose items - Adapt housing standards to conditions. - Amend roof framing for serious wind conditions. - Steps for tie down issues? 	<p>Less water / more drought</p> <ul style="list-style-type: none"> - Holding + capturing water - Permeable paving - Grass with pavers - Water tanks / water storage - Cleaning out gutters - More trees

Power Storage Community Battery. Securing loose items

Slowing... WSVD

Building Regulations Stronger Building

storm

Buildings that breathe open, passive design. Community Driven Guidelines

Incentives to plant trees.

Flexible places

Food/nature security

Shade
↓
Insulation
↓
Building Design
↓
Community Solar Scheme..
↓
"Resource" Rich Street

Green verge/food + Vertical Greenery

Permeable Roads/Parking/Driveways

WSVD

Remove OHPower.

Plant "right" trees / storm damage?

Plant right trees.

Google Earth

KURILPA CLIMATE STRATEGY

VICTORIA STREET PRECINCT

⊙ Food vertical/roof Compost

⊗ Food connections Storage

Fire / Heat


- Trees! → Large shade trees
- Breathable buildings + insulation (cross flows)
- Clothing + culture
- Open design
- fences (open fences for breezes)
- People willing to pay for air + veg in apartments
- Solar panels to make profit
- Heritage vs adaptation
↓
Will eventually become uninhabitable.
- Awareness of performance of building.
- roof top pools
- Come out at night to go outdoors.

Victoria St

- Shape the day around cooler times
- Day light savings
- Siesta



VICTORIA STREET PRECINCT Scenario 2: adapting to landscape & vegetation

Landscape / nature / food	Victoria St
<ul style="list-style-type: none"> - Landscape of road space - Move services ^{underground} such as powerlines to accommodate more trees - Larger shade trees at base of road. - Policies for green roofs <ul style="list-style-type: none"> - Amending Architecture standards - Green walls! - Amending policies to allow for large tree canopy <ul style="list-style-type: none"> - shorter setbacks for trees! - Riparian upgrade! <ul style="list-style-type: none"> → Planting veg that breaks down toxic chemicals. 	<ul style="list-style-type: none"> - Half road vegetation - Garden islands in centre of road. - Be aware of nature strip verge! - No grass! → maintenance + water sink. - Community sense of food production → vegie garden - Community composting - Connecting communities through food. <ul style="list-style-type: none"> ↓ <u>App?</u>  Food network must walk or waste production + drop - Community chickens - Sharing + eating meals together → <u>Communication!</u> <p style="text-align: center;">Food connect.</p>



Adapting our Community

→ Hot weather = Davies Park

→ Storm event = Musgrave Park
↳ Nominating a store for relief.

→ Community power source
→ Water facilities!

- More public space for flood relief/meeting point.

↳ Take land where water catchment/flow occurs.

→ Pocket parks along Montague Rd for meeting point + reduce urban tension.

• Marque

→ More places!
(not necessarily big)



RIVERSIDE DRIVE PRECINCT Scenario 1: adapting to water / storms / drought

① WATER / STORMS	RIVERSIDE DRIVE
<p>MORE STORMS + FLOODING</p> <ul style="list-style-type: none"> • REDUCE OVERTFLOW • ROOFGARDENS + TREES • REDUCE POPULATION • SPREAD OUT SOCIAL ASSETS • MACRO LA SOLUTIONS • REDUCE BUILDING FOOTPRINTS • PERMEABLE SURFACES • COMPLEX PLANTING • POWER INFRASTRUCTURE • WATER STORAGE • URBAN FOREST • INCREASED SHADE CORRIDORS • MANGROVE PRESERVATION • PRESERVE TREES • RESISTANT MATERIALS • HABITAT ZONES 	<p>LESS WATER / DROUGHT</p> <ul style="list-style-type: none"> • FRESH WATER TANKS / STORAGE TO KEEP GREEN SPACE GREEN • WATER WALLS • HARVESTING • RAIN WATER CAPTURE • FLOOD TOLERANT PLANTING. • SPONGE PARKS. • MORE VENTILATION • BAO AC. • DESIGN MICRO-CLIMATES • RECYCLED WATER • WATER Retention system on soil (i.e. mulch) following contours of land ①



③ FIRE / HEAT

RIVERSIDE

- VERTICAL GREEN SHADE ELEMENTS W/ HANGING PLANTS FOR SHADE.
- MORE NAPS + SIESTAS + CHANGED WORK HOURS
- REDUCED AC USAGE
- INCREASED SHADE CANOPY
- LESS HARDCAPES + REDUCED RADIANT HEAT SURFACING
- MISTERS COOLING COURTYARDS
- REESTABLISH NATURAL WATERWAYS TO COOL URBAN AREAS

- EQUITY OF ACCESS TO COOLER AREAS.
- BUSHLAND MANAGEMENT TO REDUCE FIRE RISKS
- BUFFER AREAS ON URBAN FRINGE
- ~~USE~~ GOOD STRATEGIC PRUNING + MANAGEMENT OF BUSH FIRE AREAS.
- DRAW WATER FROM RIVER TO FIGHT FIRES.
- ~~PLANTING~~
- LOW BURN PLANTING



② LANDSCAPE / NATURE FOOD	RIVERSIDE
<ul style="list-style-type: none"> • NATIVE BEES • NEW SPECIES TYPE • PESTICIDE BAN • EDUCATION ON SPECIES TYPE • FRUIT TREES THAT ARE DROUGHT TOLERANT (BUSHY TREES) • FARMER CONNECTIONS • BETTER TREE MANAGEMENT • PERMACULTURE PRINCIPLES IN PLANNING. • PRESERVE STRONG COMMUNITY NODES • USE LOCAL KNOWLEDGE FOR FRUIT TREES. • POCKET ORCHARDS 	<ul style="list-style-type: none"> • "LOOP GROWERS" CONNECTING <u>W</u> GRASS • ROOFTOP AGRICULTURE • ENCOURAGE NATURAL REGENERATION OF PLANTS FROM SEEDBANK • SELF SUSTAINING LANDSCAPES • MORE COMPLEX STREETSCAPES • WIDER VERGES • LESS CONCRETE • REFUGE PLANTING FOR BIRDS • ISLAND REFUGES + "LIKE" AREAS • SEASONAL FLOWERS FOR POLLINATORS • VOLUNTEER "KIOSKS" TO SHARE KNOWLEDGE



④ COMMUNITY

- COMMUNITY REFUGER AREAS IN HIGH RISE BUILDINGS
- PROMOTION OF CURRENT MODELLING TO PREPARE PEOPLE FOR RISKS / TRAINING / EDUCATION
- BETTER EDUCATION
- PHONE USED AS RADIO
- GREATER CONNECTION BETWEEN PEOPLE (LOCALLY + REGIONALLY)
- NETWORKS + SOCIAL CAPITAL
- SMALL SCALE
- ASSIGNED RESPONSIBILITIES
- MANAGEMENT PLANS
- INFRASTRUCTURE
 - EVACUATION CENTRE(S)
 - CRITICAL ROADS / ROUTES
 - SOCIAL INFRASTRUCTURE (HOSPITALS, N'HOOD SAFE PLACES)
- EMERGENCY SERVICE FACILITIES (FIRE, GAS, ETC.)
- DISASTER MANAGEMENT (STATE, DISTRICT, LOCAL)



VULTURE STREET PRECINCT Scenario 1: adapting to water / storms / drought

WATER + FLOOD.

- BIOLOGICAL SLOWING OF WATER
- PHYSICAL SLOWING OF WATER.
- WATER CAN BE HARVESTED UNDER ROADS.
- FRICTION SLOWS WATER.
- WATER IS A VALUABLE RESOURCE.
- BACKYARD GARDENS
- STORE WATER HIGHER USE IT LOWER.
- JOIN BACKYARDS TO HOLD WATER
- CONNECT WATER & GREEN SPACES
- STORE WATER + CAPTURE IT IN BOTH BACKYARDS & WITHIN STREETS
- PLACE SPECIFIC SOLUTIONS.
- RAINWATER TANKS.

- SHARING RENTING & OWNERSHIP RESPONSIBILITY
- INCORPORATE INCENTIVES TO ENCOURAGE RENTERS + OWNERS DELIVER
- BUILDING CODES UPDATES TO ENCOURAGE ON WATER STORAGE.
- CARBON REDUCTION → LINK BETWEEN HOUSING NEED & WATER INFRASTRUCTURE → AUSTRALIAN HOUSING RESEARCH INSTITUTE.

