DISCOVERY REPORT

ChillOUT

Smart Social Spaces
Creating Connected Green Places

This paper was released by Street Furniture Australia on 8 February 2019.

GEORGES RIVER COUNCIL

UNSW SYDNEY

sf street furniture australia

Table of Contents

Introduction **02**
Objectives 03
Timeline 04
The Team 06
Street Furniture Australia's Mission 07

Background Information **08**
Council Vision 09
Technology Review 10
Case Studies 12
Existing Solutions 14
Workshop 15

The Sites and User Research **17**
Summary 18
Belgrave St, Kogarah 21
Macquarie Place, Mortdale 29
Timothy Reserve, Hurstville 38

The Grand Challenge **45**

Appendix **50**

Introduction

This report presents the findings of the Discovery phase of ChillOUT: Smart Social Spaces Connecting Green Places. It is prepared by Street Furniture Australia with assistance from collaborative partners the University of New South Wales and Georges River Council.

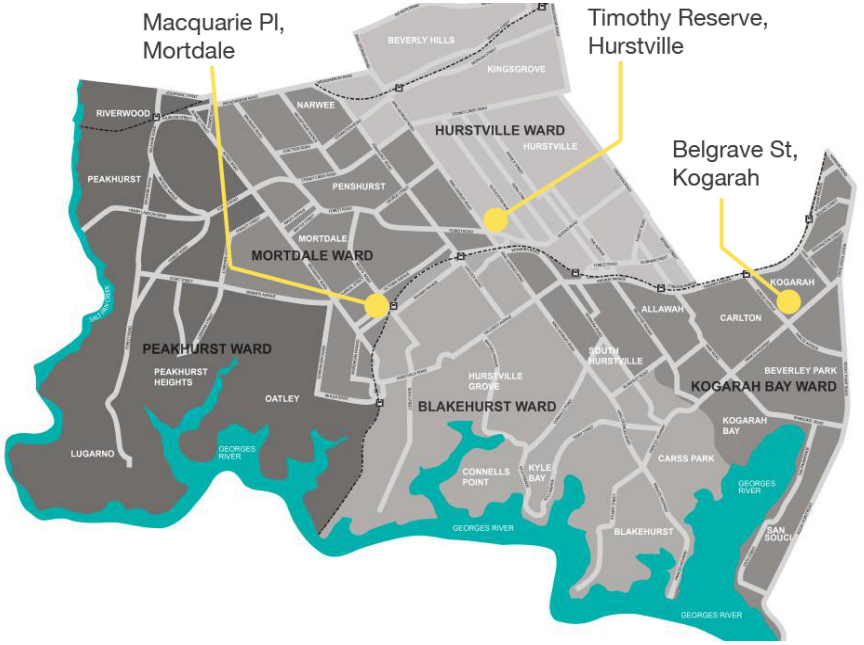
The Discovery phase seeks to deeply understand the end-users of each of the three ChillOUT sites through qualitative research. The report includes rich detail about the lives and needs of people from the communities of each place. It is compiled to inform the development process for the smart hub prototypes.

This project will design, produce and test smart open-air community spaces in three locations in the Georges River Council local government area.

The ChillOUT hubs will be wired-up and fully IT-enabled with smart furniture, solar power and charging points.

They will increase **community connectivity**, **enable knowledge exchange**, and provide **flexible spaces to meet, work and play**.

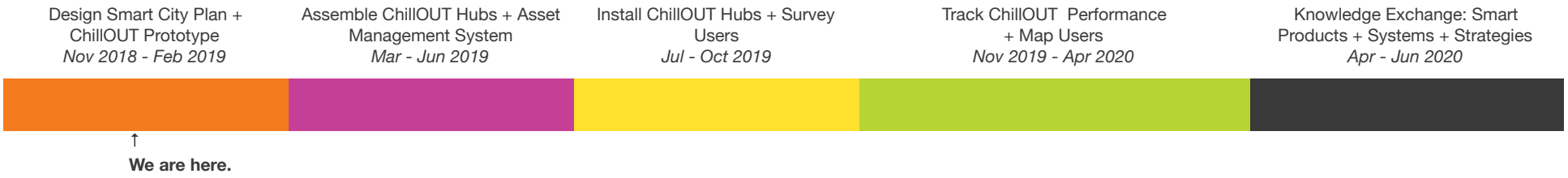
The multi-functional smart hubs will also include environmental IoT sensors to capture data on urban heat microclimate status and the public space performance.



The three locations are:

- An urban streetscape on Belgrave Street, Kogarah.
- A suburban town centre at Macquarie Place, Mortdale.
- A suburban park at Timothy Reserve, Hurstville.

Project Milestones



1. Design Smart City Plan + ChillOUT Prototype

November 2018 - February 2019

- Finalise project parameters, goals and smart outputs.
- Draft a Georges River Council Smart City Plan.
- Engage with Council's Digital Services Committee.
- Liaise with Tel Aviv as Smart City Adviser.
- Test prototype with identified user groups.
- Design ChillOUT prototype and IT components.

2. Assemble ChillOUT Hubs + Asset Management System

March - June 2019

- Finalise ChillOUT design and IT components.
- Assemble ChillOUT hubs.
- Collaborate in an online workshop with Tel Aviv Smart City Managers and other experts.
- Design interface with Georges River Council's Smart Asset Management System.
- Finalise the exact locations of ChillOUT hubs in selected areas.

3. Install ChillOUT Hubs + Survey Users

July - October 2019

- Install ChillOUT hubs in the three locations identified.
- Collect data from sensors for a total of six consecutive months.
- Survey users and non-users of the ChillOUT spaces.
- Finalise the Georges River Council Smart City Strategy Draft for stakeholder consultation.

4. Track ChillOUT Performance + Map Users

November 2019 - April 2020

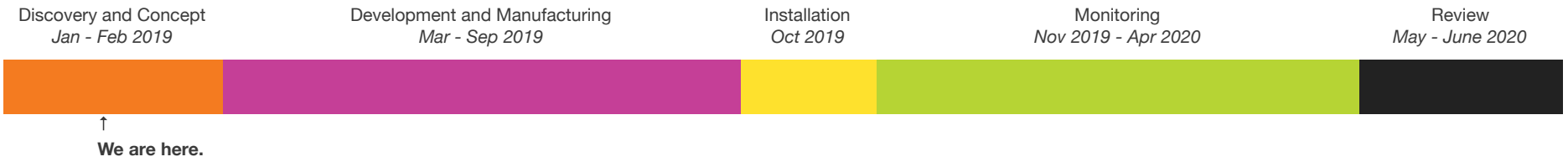
- Engage with stakeholders on Smart City Plan Draft.
- Collect data from sensors for a total of six consecutive months.
- Behaviour map users of the ChillOUT spaces.
- Analyse user data from surveys and sensors.
- Run a hack-a-thon with project collaborators and other experts to de-bug and test the system.

5. Knowledge Exchange: Smart Products + Systems + Strategies

April - June 2020

- Redesign ChillOUT based on performance and user feedback.
- Upgrade and upscale Georges River Council's Smart Asset Management System.
- Upscale and expand the new IP behind the ChillOUT hubs.
- Knowledge exchange: hold workshops with project partners including Tel Aviv advisers and other Australian councils.
- Finalise Georges River Council's Smart City Plan.
- Attend conferences and write journal articles to promote the project.

Street Furniture Australia Design Development



Phase 1 Discovery and Concept
January - February 2019
Site visit, three-week discovery phase, brief and scope finalisation, co-design workshop for concept generation, final concept and mock up.

Phase 2 Development and Manufacturing
March - September 2019
Prototype testing, technical development, part and technology sourcing, engineering drawings, internal testing - of strength, sensors, electricals, connection to ASM. Manufacture three hub units, briefing and handover to UNSW and Georges River Council.

Phase 3 Installation
October 2019
Deliver ChillOUT hub units, support Georges River Council and UNSW on site with the installation and sensor setup.

Phase 4 Monitoring
November 2019 - April 2020
Provide an assessment after three months. Street Furniture Australia will begin the product modification process.

Phase 5 Review
May - June 2020
Support UNSW and Georges River Council in finalising the project and shaping the way forward. Continue technical development for commercialisation.

Georges River Council

Local Government

- Team leader.
- Develop Smart City Plan.
- Liaise with project partners and advisers from Tel Aviv.
- Installation and maintenance.

University of New South Wales

Practice-Based Research Partner

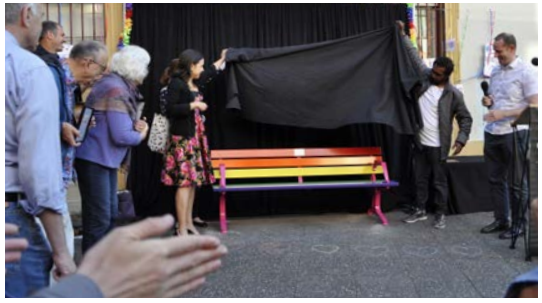
- Behavioural research.
- Design consulting and support.
- Asset management dashboard.
- Data collection and analysis.

Street Furniture Australia

Industry Partner

- Product design.
- Environmental IoT sensor procurement.
- Prototyping and testing.
- Manufacturing.
- Delivery and aftercare service.

Introduction | Street Furniture Australia's Mission



Our purpose is to bring lasting enjoyment to public places.

We believe that street furniture plays a central role in animating and connecting places. It ensures a place is vital, accessible and enriching for its community.

Our active research and development program puts users at the heart of everything we do. Since 1986 we have furnished more than 30,000 places in Australia and around the globe.

Together with our design, custodian and contracting partners, we strive to make public places enjoyable for all.

We are committed to:
→ Creating spaces that make smiles.
→ Improving enjoyment of the public domain.
→ Ensuring public spaces are accessible for everyone.
→ Partnerships that help custodians to create a sense of place.
→ Long-term thinking, so our business and the spaces we help to create endure.

Background Information

To examine the ChillOUT objectives and survey the current environment and emerging technologies. To inspire and widen our creative field.

Background Information | Council Vision

This project is underpinned by a strong philosophical orientation shared by Georges River Council, Street Furniture Australia and the University of New South Wales research team towards **supporting people and place and healthy urban living through smart technology**.

Once designed, this project offers a new commercial product, ChillOUT. No similar product exists in the marketplace in Australia.

The smart, open air flexible and mobile ChillOUT hubs align to a vision of smart precincts that can make a community **more liveable, productive, sustainable and safe**. This design solution responds directly to recent community feedback.

The ChillOUT hubs will increase **community connectivity, enable knowledge exchange,** and provide **flexible spaces to meet, work and play.**

These hubs can provide localised cool spots to ameliorate the increasing extreme heat events and reduce the urban heat microclimate.

Climate data collected from micro sensors will inform Council of any inclement weather patterns such as extreme heat events. This enables Council to manage the risks and develop strategies that help minimise impacts and improve urban health.

Producing a Smart City Strategy and continuing to build on Council's smart asset management system addresses the priority area of smart planning and design by building an adaptable and resilient city.

By opening up the raw data from the sensors, analysis and forthcoming visualisation of the data, particularly the relationship between different types of data collected, councils, researchers and technology entrepreneurs will have access to the data on several platforms for their future use. This will act as an evidence base for future open space design decisions.

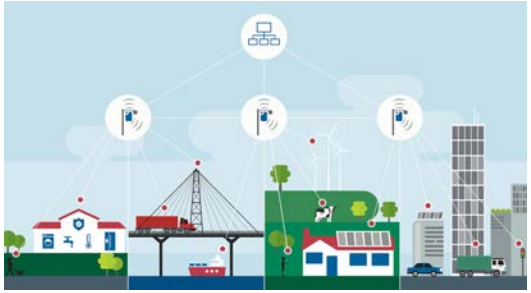
This project will establish Georges River Council as a leading smart city in Australia and internationally, as a strategy, design and technology case study.

IoT sensors

Track how often amenities in public spaces are used, such as seats and benches, water, electricity, barbecues and play equipment. A wide range are applicable such as pressure, vibration, motion, sound and light.

IoT enabled networks

Low Power Wide Area Networks (LPWAN), Wireless Local Area Networks (WLAN) and 5G can be used to connect the Internet of Things. LPWANs are popular as they transmit small data packages with low battery draw.



Mac address tracking

Monitoring how many phones and devices are in an area by their attempts to connect to WiFi can be a reliable way to record site use, and track changes before and after an activation. The tracking is anonymous.

Video analytics

Patented computer vision software can provide anonymous analytics about the movement of pedestrians, bicycles and vehicles. Gender, age, wheelchairs and prams, sitting and walking can be recorded.

Weather stations

Sensors may include a thermometer to take temperature readings, a barometer to measure the pressure in the atmosphere, and others to measure rain, wind, humidity and more.

Solar

Solar power continues to develop in 2019, with new technologies and panels such as clear and bifacial emerging. Street Furniture Australia is investigating incorporating solar technology into street furniture products.

Trees

The urban heat microclimate can be offset with trees, particularly where there is an intense canopy. They do this through direct shade, by storing less heat than concrete, and cooling the air through transpiration.

Trees can also act as wind barriers, they can soften spaces and positively impact physical and mental health.

Image Source: Greenpeace

DigiTel, Tel Aviv

Card holders can access a personalised web and mobile platform with daily updates such as road closures and events, receive discounts from local businesses, and share their needs with their municipality.

The aim was to adopt a citizens-first approach and use smart tools to improve their quality of life.

Since implementing DigiTel - now used by 60% of the city's eligible population, "We can see a tremendous change in the participation of residents in various community activities, greater involvement in city life and greater satisfaction from Tel Aviv municipal services," says Zohar Sharon, Chief Technology Officer.

Smart Social Spaces, Sydney

A project by Georges River Council, the University of New South Wales and Street Furniture Australia. Grant recipient from the $50m Smart Cities and Suburbs Program. PowerMe charging tables, eBins, a multi-use smart pole and new street furniture were installed at an urban square and suburban park. Sensors then mapped user behaviour.

"With this data we will develop, with Georges River Council, a testing system of smart urban governance through street furniture. Day-to-day, this will provide information about maintenance, waste and use. Ultimately this system could provide hard evidence to inform decisions about open space, urban design and public infrastructure," said Dr Nancy Marshall, UNSW.

Be an Outsider at Work, New York

Outdoor retailer LL Bean and co-working space Industrious built a functioning outdoor workplace at Madison Square Park. It featured office furniture set up in conference rooms, single desk areas, residential-style soft seating and picnic benches, as well as an area for team building activities. There was also a pod of cycling desks. Anyone could book workspaces in advance online—the group spaces filled quickly—but walk-ups could check in with event staff.

A research study commissioned for the campaign found that "people who had a setting to work outdoors—nothing fancy but a place where they could plug and play—were more likely to perceive the workplace outside as productive because they could see it and experience it," said workplace strategy expert Lee Stringer.

"Space can shape our perceptions or nudge us to do what really makes sense."

Sidewalk Lab, Toronto

Sidewalk Labs (an Alphabet Company) and government-appointed nonprofit Waterfront Toronto will develop 12 acres of public land downtown, to build a neighborhood, Quayside, "from the internet up."

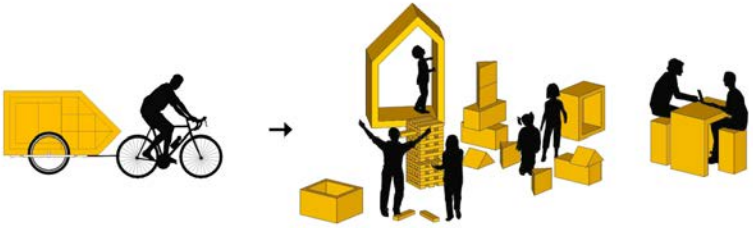
Proposals for the city include ground-floor spaces, or "stoa" (ancient Greek for a covered public walkway), that can adapt to different uses by businesses, entrepreneurs and community groups through the physical design, financing, digital services and management of programs.

Quayside's streets would be designed for walking, not vehicles, with sidewalks that flow curb-free into bike-friendly streets and a connection to Toronto's light-rail system. Traffic data will manage flows and prepare the space for autonomous vehicles. An underground tunnel system will facilitate freight delivery and waste removal. Digital infrastructure will collect data to streamline urban life.

Landscape Forms

Landscape Forms

Vestre



Kit of Parks

Soofa

Strawberry

Meeting at Georges River Council, Hurstville

Monday December 10, 2018. We discussed values and design principles for the ChillOUT hubs.

Attendees

UNSW: NM, LC, KB, ST, HR, Luke.

GRC: Hayley, Laura Mehew, Emily (communication), Adam (recreational, sports services), Daniel (sustainability), Andrew Latta (engineering operations), Scott Andrew (community and cultural development).

SFA: June, Francis, Mark Armstrong (design director), Danny Cheung (principal industrial designer), Michael Morony (senior associate architect from SFA affiliate company CM+).

(Design) Principles

- Context, location.
  - Site compatibility with work activities.
- Types of users.
- Inclusive, equitable access, social equity and affordability.
- Economic development, night-time economy.
- Mobility.
- Flexibility, adaptability, responsive.
- Modular (similar modules, different configurations).
- Smart.
- Sustainable.
- Systems thinking, scalability.
- Human-centred.
- Low maintenance, vandal proof, robust, for 24/7 use.
- Safe, secure, passive surveillance.
- Co-design.
  - Interview users to identify activities that can be provided.
  - Aspirational identity of sites (eg. Kogarah as scientific hub).
- Prototyping, fail early.
- Aesthetically pleasing.
- Comfortable, ergonomic.
- Fun, joy, uplifting.
- Responsive to demographic characteristics and identity of the site. Council's community profile website can be used for data on this.
- Future-proof.
- Cool material.
- Intuitive.
- Size, capacity.
- Multi-purpose, multi-use.
  - Café, street library.

Contents (smart and non-smart features)

- Tap on, tap off.
- Urban heat microclimate sensors.
- WiFi.
- Solar power (wind, others?).
- Seating.
- Shade, shelter.
- Workstation, desks.
- Water stations.
- Green spaces, planting, outdoor greenery.
- Rainwater collection.
- Public art (changing), digital screens.

Others

- Site selection.
  - Can be based on urban heat microclimate analysis.
- Potential solution: temporary installation of one prototype in three sites?
- Enclosed or open (depending on the site).
- Budget, time.
- Alignment with GRC strategy, "Cool Places, Urban Oasis."
- SFA responsibility.
  - Return design brief.
  - Design and identify amenities, functions and sensors.
  - Engineering and detail drawings.
  - Outsource electrical engineering.
  - Manufacturing.
  - Delivery.

Idea Bombing

The Sites and User Research

The Discovery team visited each site to make detailed notes about how people use the spaces, and to conduct one-on-one empathy interviews.

The interviews are essential primary research tools in user-centred design. Conducted on weekdays and weekends at different times of day, they provide a window into the lives of place users, how they feel about the site, their journeys and needs. Interviewees are encouraged to share personal stories and perspectives.

The team also observed where people walked, where and how they sat, and interactions with furniture and other park users.

From this research we then built design Personas that characterise the key users of each site, and envisioned some of their journeys as they pass through each place.

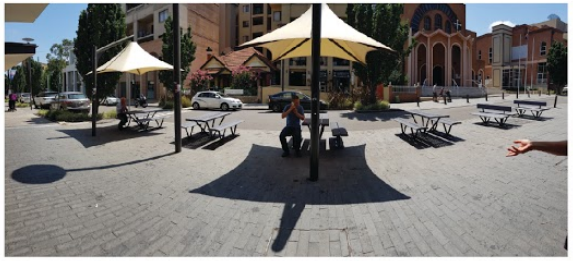
This connects the Discovery team to the community, to better understand their needs and promote user-centred design outcomes.

The Sites | Summary

A snapshot of the three sites:

Belgrave Street, Kogarah

The urban streetscape.



The Kogarah site is located on Belgrave St which is just outside the library. It is a culturally diverse area with high density living, hospitals and health clinics all around and a train station.

6,752
Estimated Resident Population

Birthplace - Overseas born
1. Chinese
2. Nepal
3. India

28%
Young workforce (25-34)

19%
Work in Health Care and Social Assistance

Timothy Reserve, Hurstville

The suburban park.

Timothy Reserve is a suburban park offering an enclosed playground, picnic shelters & BBQ's all next to St George's Cricket club (Hurstville Oval). It is close to Hurstville city centre which has a high population of Chinese people.

23,666
Estimated Resident Population

51%
of people have Chinese background

12.5%
Work in Accommodation and Food Services

Macquarie Place, Mortdale

The suburban town centre.

The Mortdale site of Macquarie Place is situated in the town centre, just off Morts Rd which offers many shops and services to its residents. The train station is closeby and it has a good community feel.

10,740
Estimated Resident Population

Birthplace - Overseas born
1. Chinese
2. Nepal
3. UK

28%
Parents and homebuilders (35-49)

12%
Work in Health Care and Social Assistance

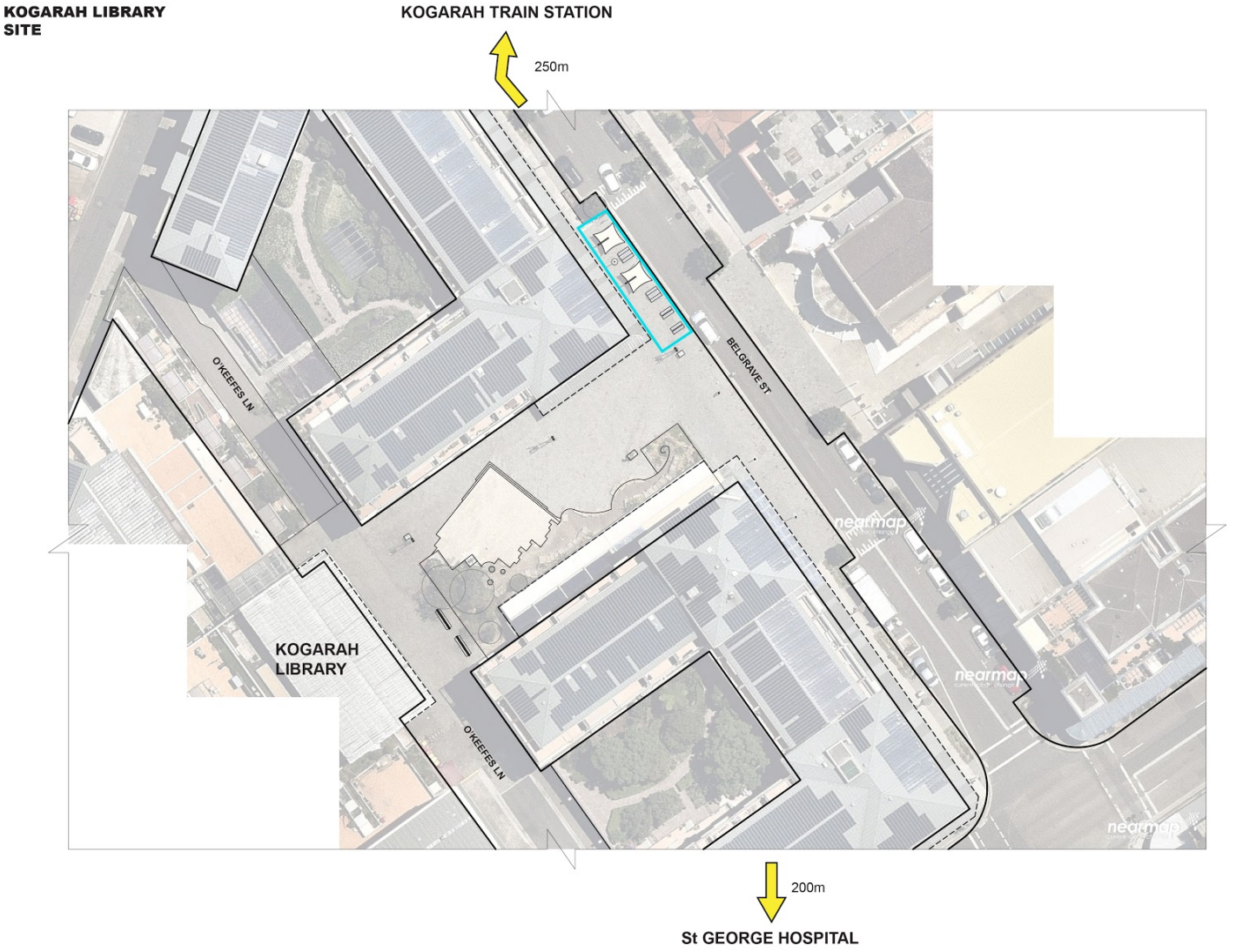
The Sites | Summary

A total of 6 site visits were made for observation and empathy interviews. More details are available in the appendix.

Site	Weekday	Weekend
Belgrave Street, Kogarah	Friday 25 January 2019 Morning 10am-12pm Weather: Hot and sunny.	Saturday 2 February 2019 Morning 9-11am Weather: Overcast.
Macquarie Place, Mortdale	Friday 1 February 2019 Morning 8-11am Weather: Overcast.	Saturday 2 February 2019 Morning 8-11am Weather: Overcast.
Timothy Reserve, Hurstville	Wednesday 30 January 2019 Afternoon 3-5pm Weather: Sunny.	Saturday 2 February 2019 Morning 9-10am Weather: Raining.

The findings were then reviewed in a group workshop.

The Sites | Belgrave St, Kogarah



The Sites | Belgrave St, Kogarah

Observations

Community Profile data
(obtained from GRC website)

Kogarah

6,752
Estimated Resident Population

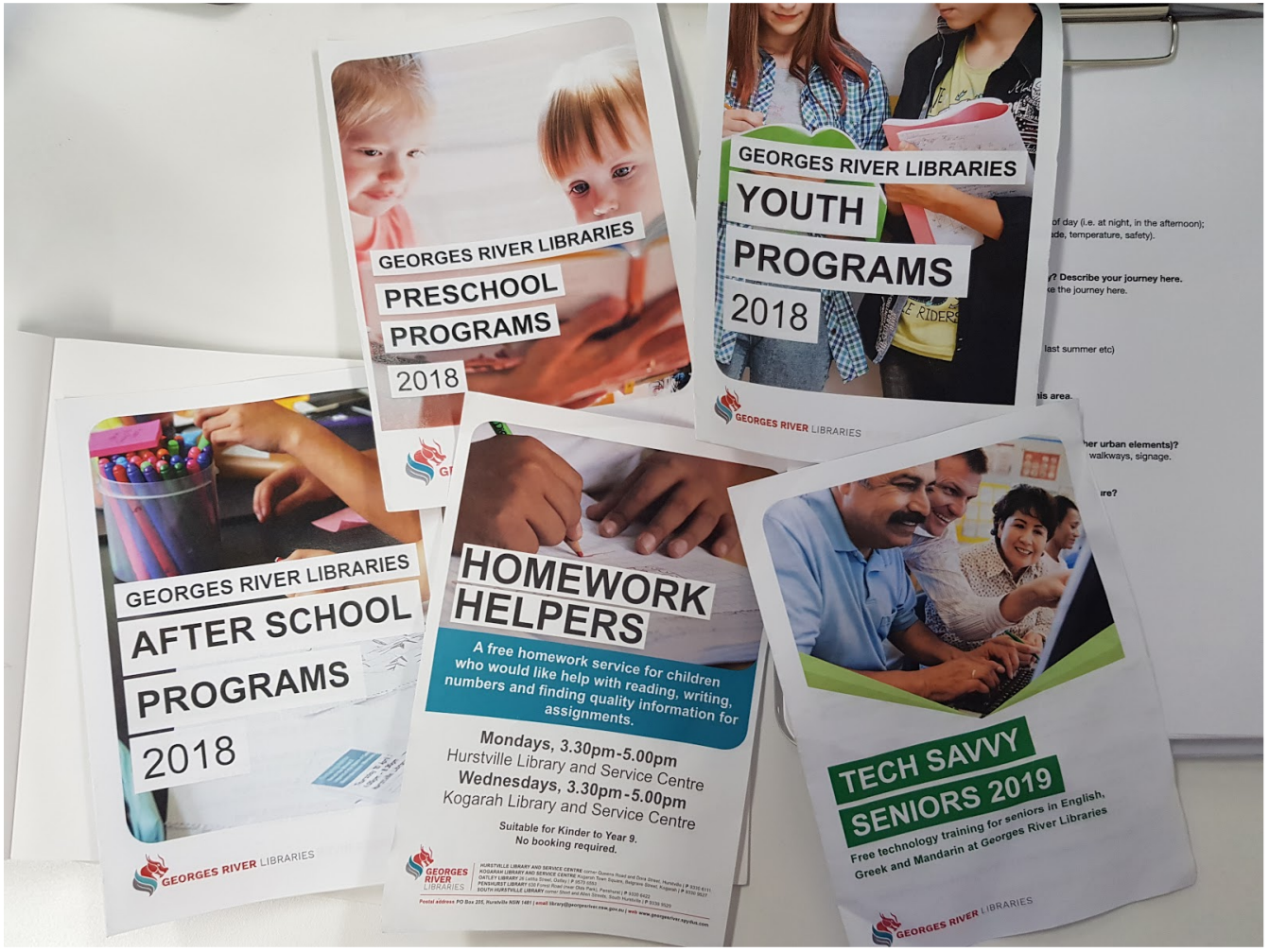
28%
Young workforce (25-34)

19%
Work in Health Care and Social Assistance

81%
of the dwellings were medium or high density

The Sites | Belgrave St, Kogarah

Observations - Library Events



The Sites | Belgrave St, Kogarah

Insights from Empathy Interviews

SAY	THINK
“It’s not too bad” “It’s quite safe and has a nice vibe” “It’s dirty, but you can’t expect much from it.” I wouldn’t ever stop to eat, as I can just walk back to the hospital. “Everything is close by: cafes, pubs, hospital, schools, train and parks” “It has a lot of cafes, hospital, and everything.” “It has multicultural sense” “During the day there’s lots on. “After 8pm, it’s dead. There are only 3 places open for food.”	“Best: everything is close by, not polluted.” “It’s not too crowded.” This place is “a means to an end.” Usually this is just a meeting area. Learning opportunities at the library are fun. “Not my choice of place on Saturday” “It’s barren.” “It’s dirty.” “It’s very sparse, barren.” “The buildings are ugly.”
DO	**FEEL**
I was buying groceries and I’m on my way back home. I dropped my daughter at the hospital and now I want to get a coffee. I come here three times a week, to the library and medical appointments. I live round the corner. I go to Hurstville RSL, then come home again. What I like to do here depends on the weather. I work at the hospital and am on my way to the charcoal chicken shop around the corner. I walk past the plaza on the way to the station. I come past here frequently on the way to and from the hospital. I park and walk past on my lunch break. Every second day I eat lunch here. I went to Church today.	“I love this area.” “There is nothing too special here but I just love this area.” Inside the library, “deeply happy” - providing kids with learning experiences. In the afternoons I feel happy, because people are using the space. “This place makes me feel overwhelmed.” “I feel indifferent.” “Sad” - driving more, sitting here on the seats.

The Sites | Belgrave St, Kogarah

PAINS	GAINS
“You need to have something to do in the square” Lack of cafes and a place where kids can play. At night it’s “a waste of space,” it’s not utilised. For me to come out to eat here, it “has to be a nice day” “It’s way too hot, I would never hang out here.” Worst: “I wouldn’t go out on a very hot day.” “You’re at the mercy of the elements” “In summer it’s unbearable” I’d like it to be cooler. Needs more shade. “It’s very hot.” “Blistering!” It’s windy. The heat! “It’s very grey and hard.” The furniture looks dated. I’d like better furniture. Accessibility and ergonomics is important. More water, bubblers, or another fountain. Some areas can feel unsafe, for example there can be crime on Derby Street. Security at night. I avoid it at night. Worst: I used up my data and I was trying to find a place with WiFi. Worst: Hard to find parking space, rent is quite expensive. Worst: “Parking is a nightmare” You can’t park.	I like European-style spaces, where kids play with cafes for parents to sit and eat. Community vibe. Diverse, with the community coming together for events. Best: People are friendly. Socialising with business owners. It would be good to have book hubs. “I like going to the park with my kid” Cafes would make it welcoming. Best: good food, Vietnamese. Build something nice. Make it a destination. More user-friendly. Make people care. Child-friendly. Protection from the elements, the sun and rain. “Soften it up, maybe with artificial lawn or something.” More greenery. I’d like to see better seating. Address the feeling of safety at night. “There are many students in the area, technology will benefit them. “More technology sounds good.” Extend the WiFi to the street.

"It's not too crowded"
"it's not too bad"
"it's not polluted"
"i avoid it at night"
"it's multicultural"
"a waste of space at night, it's not used"
"not my choice of place on a Saturday"
"in summer it's unberable"
"the vietnamese restaurant is great"
"blistering!"
"some areas can feel unsafe"
"it's very hot"
"the heat"
"in the afternoons I feel happy, because people are using the space"
"it's barren"
"after 8pm, it's dead. Only three places are open for food"
"it's way too hot, I would never hang out here"
"need more water, bubblers, or another fountain"
"everything is close by: cafes, pubs, the hospital, schools, the train station and parks"
"during the day there's lots on"
"parking is a nightmare"
"it's quite safe and has a nice vibe"
"it's dirty"
"it's windy"
"working in the library makes me deeply happy"
"i wouldn't go out on a very hot day"
"i feel overwhelmed."
"it's dirty, but you can't expect much from it"
"you need to have something to do in the square"
"it's very grey and hard"
"needs more shade"
"there's good food"
"it has to be a nice day for me to come out to eat here"
"there is nothing too special here but I just love this area"
"this place is a means to an end"
"the furniture looks dated"
"i am indifferent."
"usually this is just a meeting area"
"it's barren"
"you're at the mercy of the elements"
"it's ugly"
"in the afternoons I feel happy, because people are using the space"
"you need to have something to do in the square"
"sitting on these seats makes me feel sad"

Personas

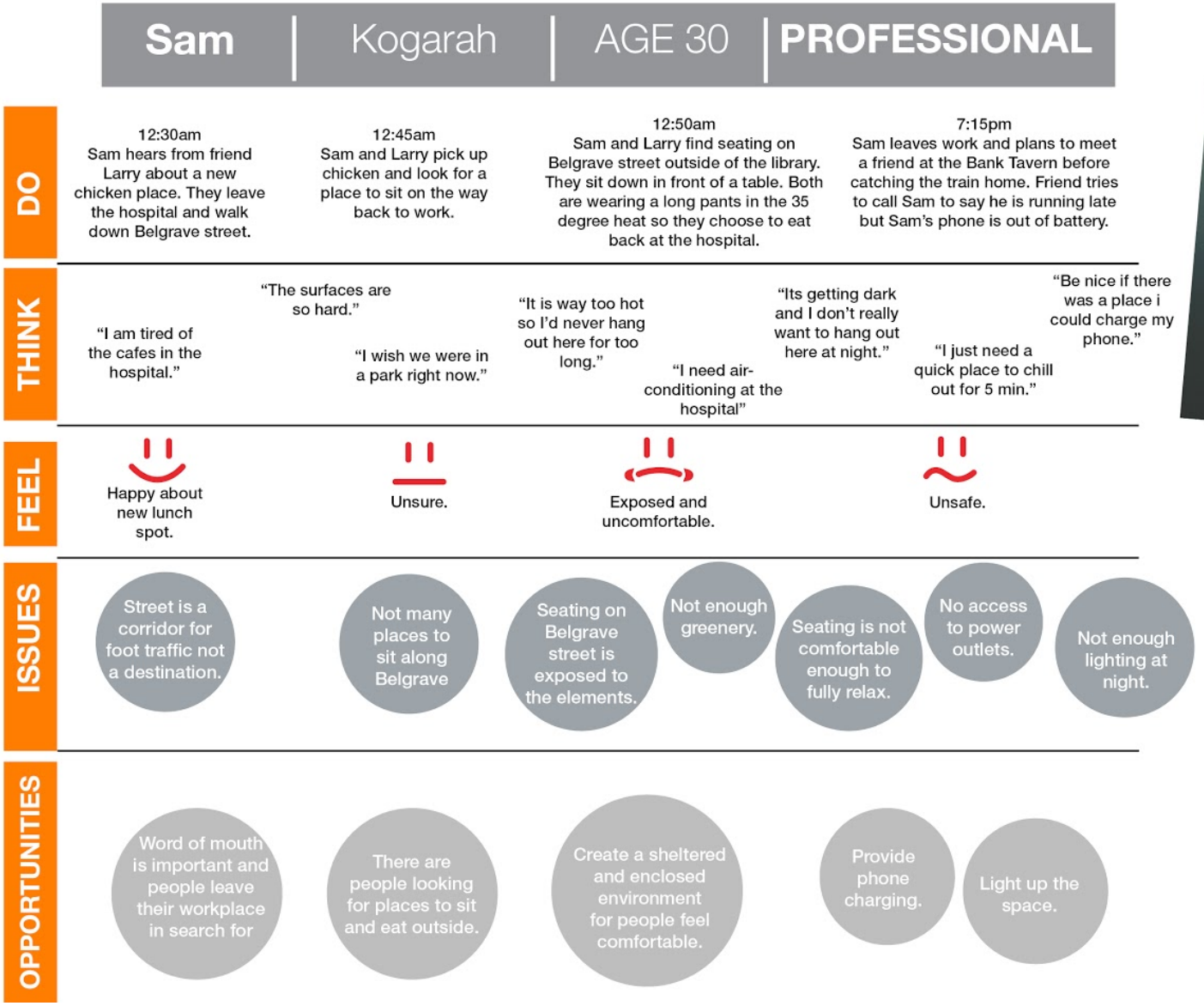
Petra | Kogarah | AGE 63
'I am visiting a friend. Just stopping for a coffee and flowers.'
The
HOSPITAL VISITOR
People who are not from the area and are visiting for the day.

Sam | Kogarah | AGE 30
'I walk down Belgrave street daily to get to work. Sometimes I also go to get lunch but I mostly eat at my desk.'
The
PROFESSIONAL
People who work during the day and have lunch in Kogarah.

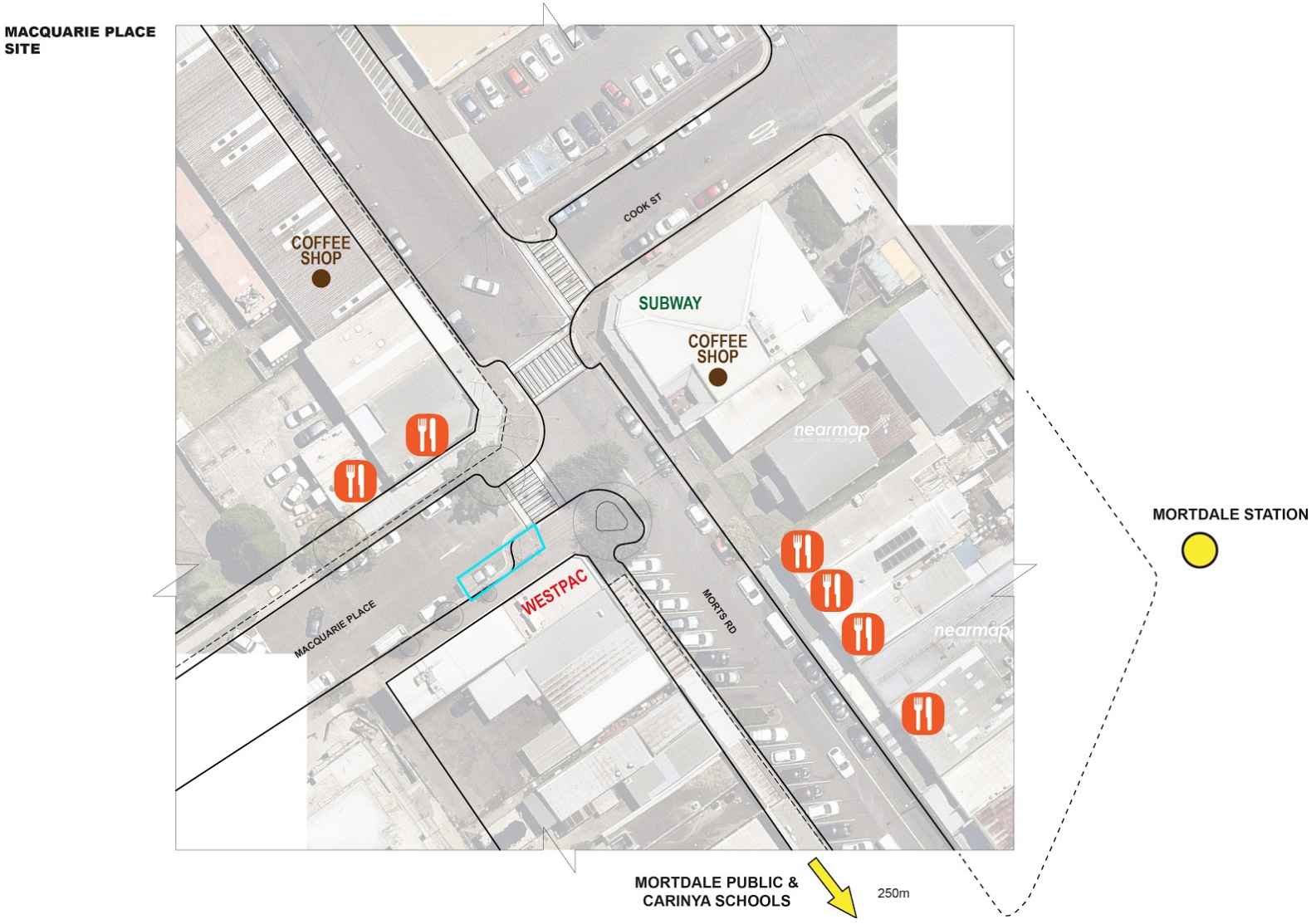
Petra Kogarah AGE 83
'I have been coming here for 30 years. I mainly come for church and to shop for specialty items. I like trees and greenery - there could be more around.'
The
RETIREE
Older people who regularly spend time in Kogarah.

The Sites | Belgrave St, Kogarah

Journey Map

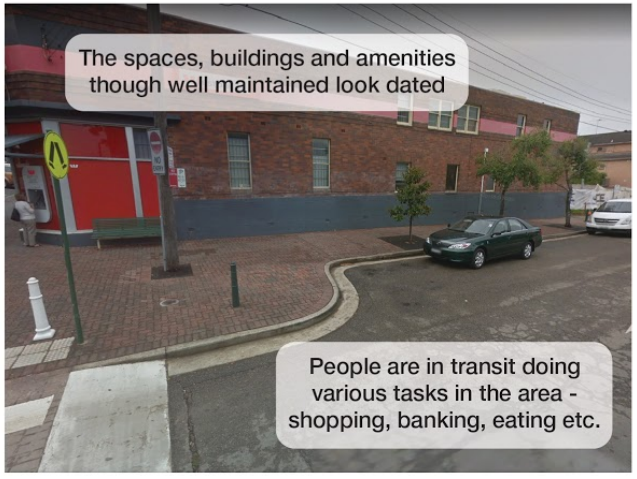


The Sites | Macquarie Place, Mortdale



The Sites | Macquarie Place, Mortdale

Observations



Community Profile data
(obtained from GRC website)

Mortdale

10,740
Estimated Resident Population

22.5%
Parents and homebuilders (35-49)

12%
Work in Health Care and Social Assistance

58.3%
of the dwellings were medium or high density

Observations - Parent with child

The Sites | Macquarie Place, Mortdale

Insights from Empathy Interviews

SAY	THINK
Everyone knows each other. There's a good community here. I've lived here for 10, 30, 40, 80 years. I've lived here my whole life. Good local area and community. We all know each other and say hi on the street. I know that person, and that person, and that person. Worst: tripping on the gutter when I was drunk. Best: it's like a small country town, you know everyone. Best: when people are pleasant to you. Best: the people and the shops.	It is convenient to park and shop. It's very convenient. Mortdale has had a reputation at night - I don't know about now. People are set in their ways around here. I take it for granted. No one local goes to the new cafe, they go to the same one as always. Best: finding something difficult in a shop. I like Mortdale more than Penshurst, I come here specially. I like old-fashioned things, retro furniture. The place is a bit old-fashioned. It's not a rush, which is better than the city. It's got everything we need.
DO	**FEEL**
I'm having my cigarette. I cross the road to sit here and smoke.I like to sit in the shade and watch people, talk with the locals. I do my groceries here, pay my bills. I own a cafe here. I like to have my coffee here. Running errands. I do my shopping here. I go to the bank. I come here for the specialty shops. Sometimes I might sit here to wait for a friend coming on the train. Shopping at the IGA, visiting the opp shop to make a donation. Take my daughter to ballet classes.	I feel good here. It's a friendly place. I enjoy the exercise. I always enjoy my visits here.

The Sites | Macquarie Place, Mortdale

PAINS	GAINS
It could do with a face lift, it's not that attractive. There's no shade or shelter from the sun. The wind coming off Macquarie Place can be very bad and damaged my business and two trees recently. There's nowhere for kids to play here. I don't like when cafes put their seats out, it clutters up the pathway. I like it to be neat. The bins tend to smell. Fix the pavers. Worst experience: I saw a car accident on this corner. The traffic is bad, with people trying to park. The road is too narrow.	I'm inspired by trees and greenery, it makes me feel calm and relaxed. More shade might be good. The shade under the tree is nice. More trees. Kids are important. Places to play would improve the space.

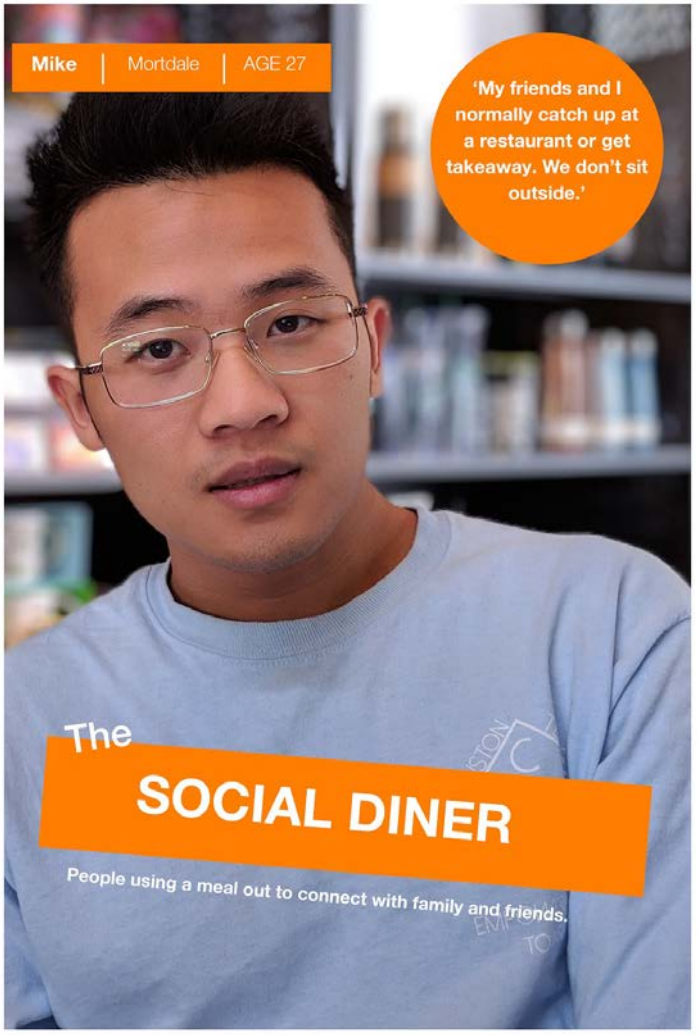
"wind tunnel"
"i come here specially"
"it's got everything we need."
"traffic is bad"
"i've lived here for 10, 30, 40, 80 years."
"i run errands here, do the shopping, go to the bank"
"i always enjoy my visits here"
"it's like a small country town"
"i know that person, and that person, and that person"
"i feel good here"
"we all say hi on the street"
"it's not a rush, it's better than the city"
"we all know each other here"
"it's very convenient to park and shop"
"people are set in their ways around here."
"i've lived here my whole life"
"it's a friendly place"
"there's no shelter from the sun"
"it's a bit old-fashioned"
"i take it for granted"
"i like to sit in the shade and watch people"
"it could do a face lift"
"i enjoy the exercise"
"i like to have my coffee here"
"there's a good community here"
"i come for the specialty shops"
"places for kids to play would improve the space"

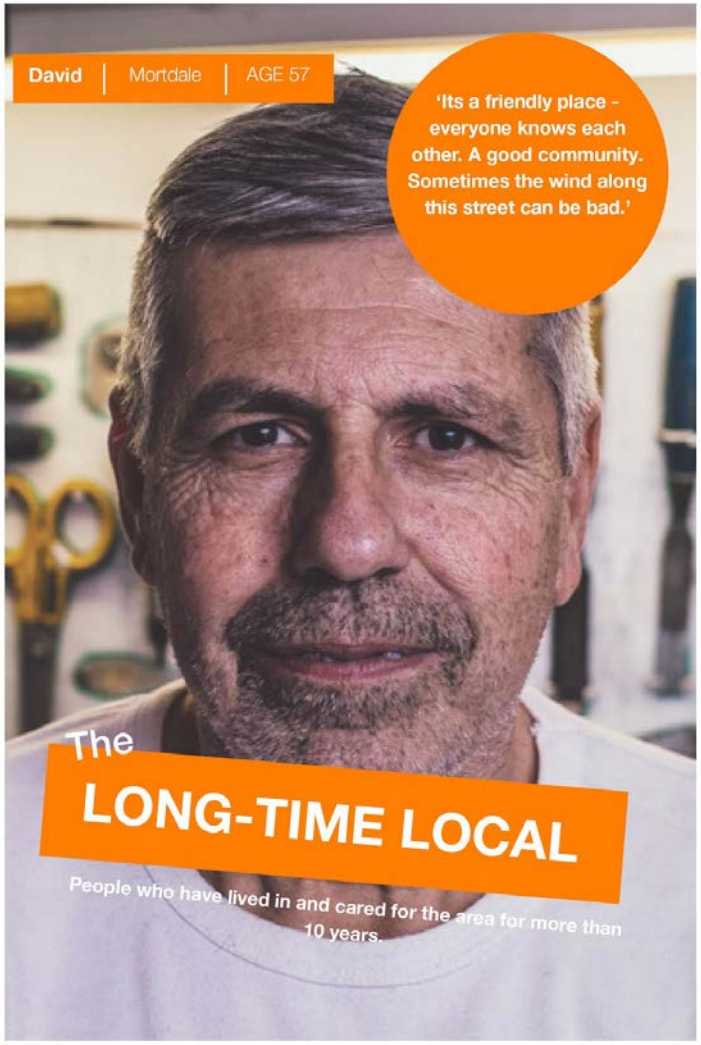
Personas

Kayley | Mortdale | AGE 32
'I am here for my weekly shop and to donate clothes to the op-shop. I like Mortdale because of its community feel. But the area could do with a face lift' '
The
SHOPPER
People buying groceries and visiting specialty shops.

Daniel | Mortdale | AGE 36
'Taking Daisy to ballet class. Mortdale is great because it has everything you need. It would be nice to have a place for the kids to play.'
The
WEEKEND PARENT
Busy people doing weekend chores and activities.

Personas


Mike | Mortdale | AGE 27
'My friends and I normally catch up at a restaurant or get takeaway. We don't sit outside.'
The
SOCIAL DINER
People using a meal out to connect with family and friends.


David | Mortdale | AGE 57
'Its a friendly place - everyone knows each other. A good community. Sometimes the wind along this street can be bad.'
The
LONG-TIME LOCAL
People who have lived in and cared for the area for more than 10 years.

Journey Map

David | Mortdale | AGE 57 **LONG-TIME LOCAL**

DO

1:10pm
Drives to Mortdale to get groceries. Decides to visit a cafe because he knows the owner. Buys a muffin and a coffee to takeaway.

1:30pm
Goes to IGA and picks up some groceries.

1:50pm
Bumps into old friend on the sidewalk. They look for the nearest place to sit and rest shopping bags.

2:12pm
The two friends chat and watch people go by from a park bench. It starts to feel windy.

THINK

"Its nice to feel part of the community."

"I prefer to shop here because it is easier than going into the city."

"This place needs an update."

"Wish there was a meeting point so I bumped into friends more often."

"I wish there was a nice place to sit with a table and eat this muffin."

"This street has turned into a wind tunnel."

FEEL

Feels a sense of belonging

Happy about convenience but unsure about state of area.

Connected. Unsure about seating.

Exposed and Uncomfortable.

ISSUES

Locals go to the same cafe's.

Need a place to stop and rest between errands.

Not enough color.

Seating is not comfortable enough to fully relax.

Macquarie place turns into a wind tunnel.

Seats are not arranged to face each other.

OPPORTUNITIES

There is a strong community who cares about there area.

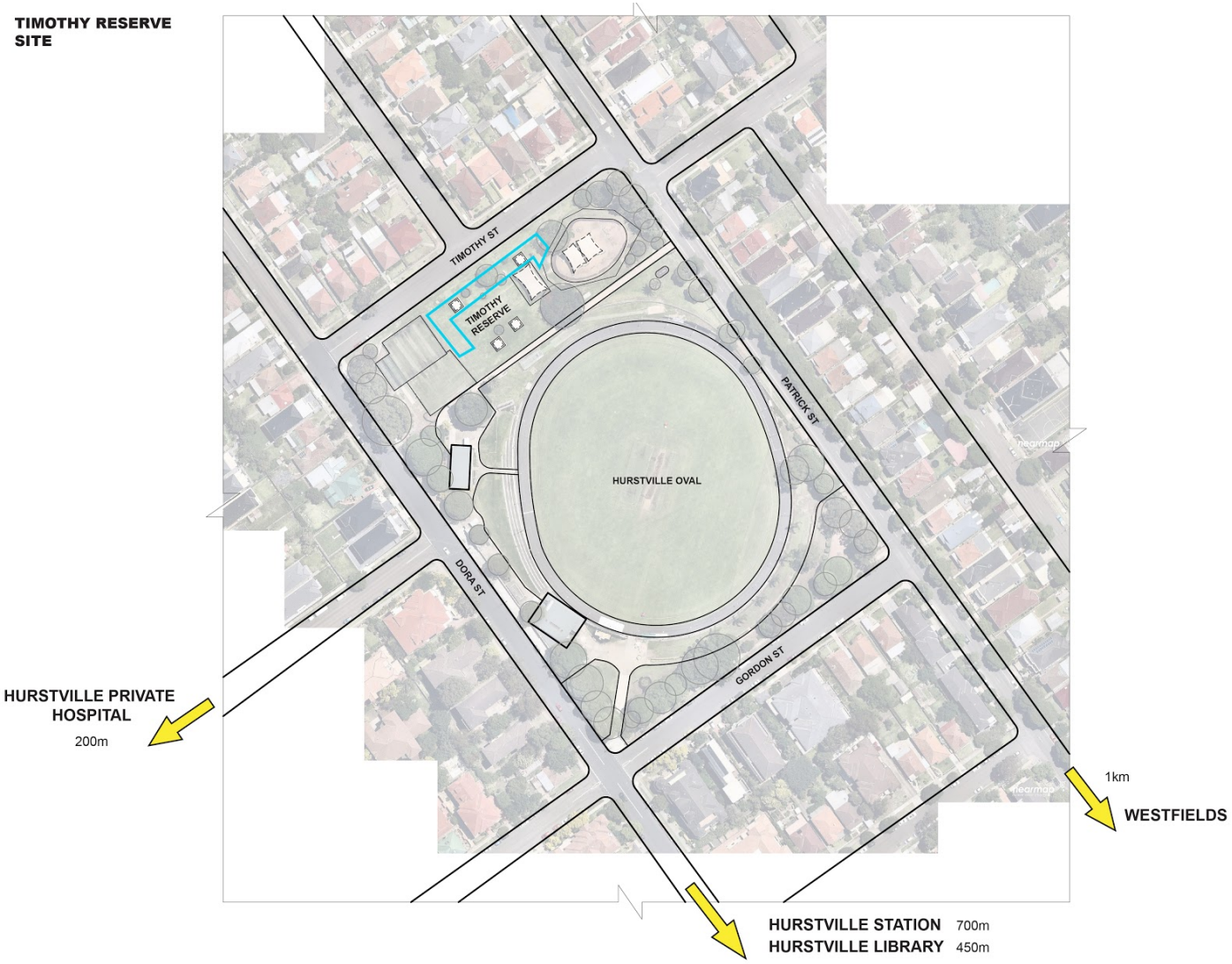
Create a posting board for community events and new businesses.

Get the community involved in paint the streets with more color.

Create a meeting point for locals to connect and socialize.

Make a place for people to meet that is homely.

The Sites | Timothy Reserve, Hurstville



The Sites | Timothy Reserve, Hurstville

Community Profile data
(obtained from GRC website)

Hurstville
(Remainder section)

23,666
Estimated Resident Population

21.6%
Young workforce (25 to 34)

12.5%
Work in Accommodation and Food Services

58.2%
of the dwellings were medium or high density

The Sites | Timothy Reserve, Hurstville

Insights from Empathy Interviews

SAY	THINK
Best: it's always full of people. I want Council to keep this park safe. I love using the power pole in Hurstville Square, that's where I charge my laptop and phone. There's tai chi here in the mornings.	Green. I like that in Hurstville they are using a large block for a park, not another building. This space is ok at the moment, considering the number of users.
DO	**FEEL**
I'm here to escape the pollution. I came from the library to get some fresh air and exercise. I enjoy bringing my daughter to the park, to be outside and play. I bring my kids to the park after school.	Refreshed. I feel good here. If the community feels good, it's contagious.

The Sites | Timothy Reserve, Hurstville

PAINS	GAINS
The furniture could be improved. The seating is not adequately shaded.	Homify and make the space comfortable: shaded, powered, clean. Refresh and renew.
I never have a power point, I'm always on the move. I saw kids here at this picnic bench - they had to leave to charge their speakers.	
There's nowhere to safely keep a bike. Sometimes there's rubbish around. There's no exercise equipment. The bathrooms are not a good experience.	Increase amenity for key users.
When it's raining, you can't come out here. It's hard to park in the afternoons. It's desolate late at night.	Provide shelter and wet-weather options.

"i feel good here"

"there's no exercise equipment"

"it's desolate at night"

"fresh air"

"the bathrooms are not a good experience"

"i'm here to escape the pollution"

"i bring my kids here after school"

"green"

"sometimes there's rubbish around"

"refreshed"

"if the community feels good, it's contagious"

"there's nowhere to charge"

"i never have a power point, I'm always on the move"

"the seats need more shade"

"i enjoy bringing my daughter to play outside"

"it's always full of people"

"exercise"

"tai chi"

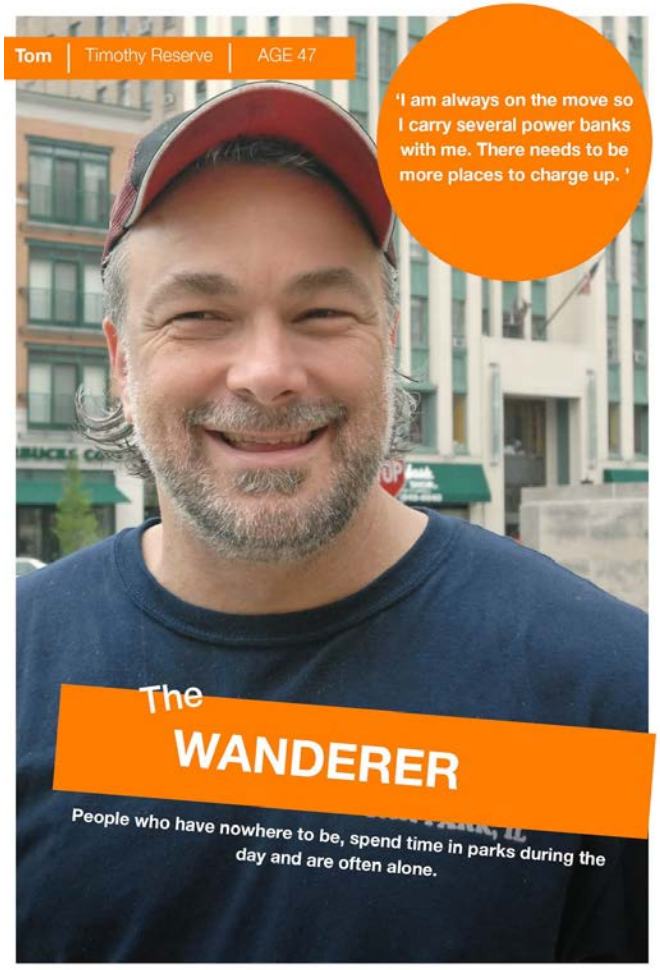
"when it's raining, you can't come out here"

"it's okay at the moment"

Personas

Kim | Timothy Reserve | AGE 32
'I bring my daughter here on nice days to be outside. There could be more shade and seating near the playground.'
The
STAY-AT-HOME MUM
People with young children and regularly engaged in family activities.

Victor | Timothy Reserve | AGE 71
'I wake up early in the morning to do tai chi. Getting outside is good for your health. Its nice to connect with nature."
The
ACTIVE SENIOR
Older people who engage in outdoor exercise activities.


Tom | Timothy Reserve | AGE 47
'I am always on the move so I carry several power banks with me. There needs to be more places to charge up. '
The
WANDERER
People who have nowhere to be, spend time in parks during the day and are often alone.

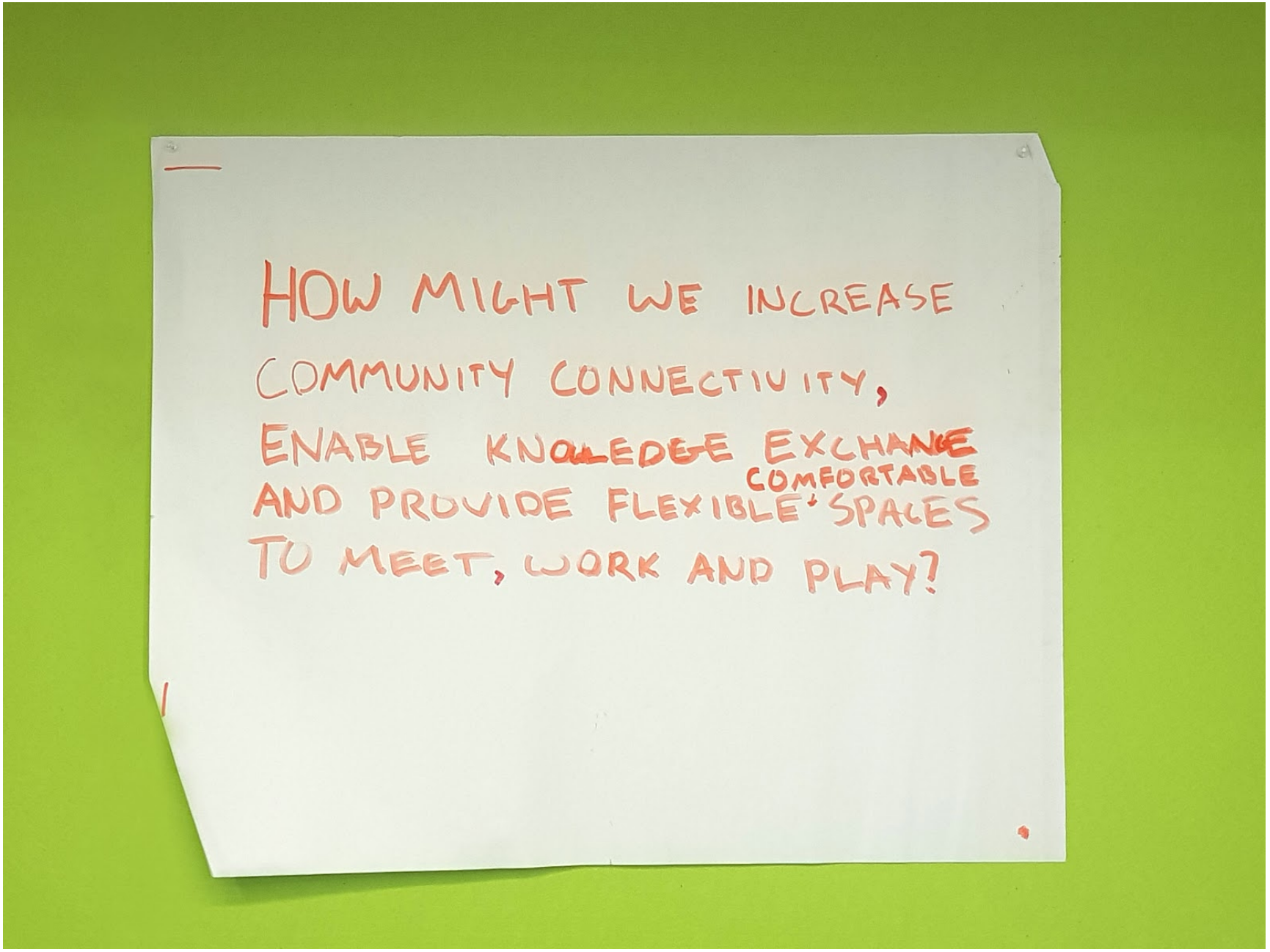
Journey Map

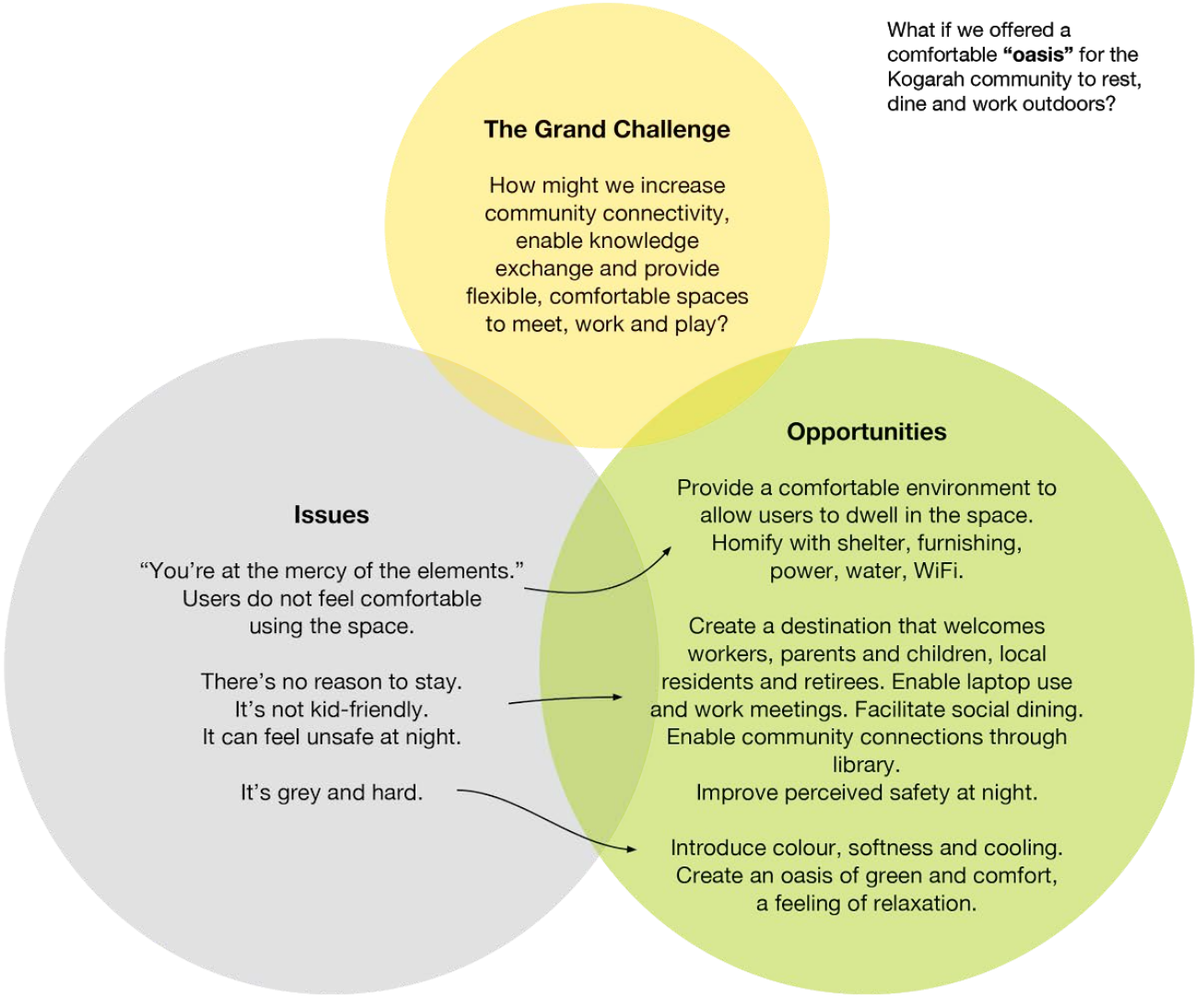
Kim | Timothy Reserve | AGE 32 **STAY-AT-HOME MUM**

DO	7:20am Jerry wakes early on a Saturday morning to secure a picnic table and shelter for daughter Ava's birthday party.	10:00am Family comes to set up the space. And they all bring equipment to make sausage sandwiches on the barbecue.	11:15am Some parents leave the party area to watch their kids in the playground, which is a little far away.	11:30am Ava has to go to the bathroom. Kim and Ava make the trek.	12:10am The weather changes and a wind blows several plates on the table. Moves the party back to Kim's house.	
THINK	"Will I get a table? Will the weather hold up?"	"How are we going to fit 24 people around this table."	"It would be nice if there was an area for the kids to play within sight of the birthday area."	"I wish there was better and closer amenities and bathrooms."	"I wish we could have spent the whole day at the park."	"It would be nice if there was a barrier from the wind."
FEEL	Worried.	Unsure.	Tired.	Frustrated.	Upset.	
ISSUES	No guarantee you will get a comfortable space for a large gathering.	Not enough preparation space.	No convenient access to water.	Not enough seating near the playground.	No alternative play areas next to tables.	Not enough amenities for small children.	Not enough transparency about weather.
OPPORTUNITIES	Way of booking or knowing there is a space available.	Create more space to prepare food and create easy access to water.	Make a separate play space near tables.	Better place for changing and feeding.	Monitor and communicate weather conditions of the space.	

The Grand Challenge

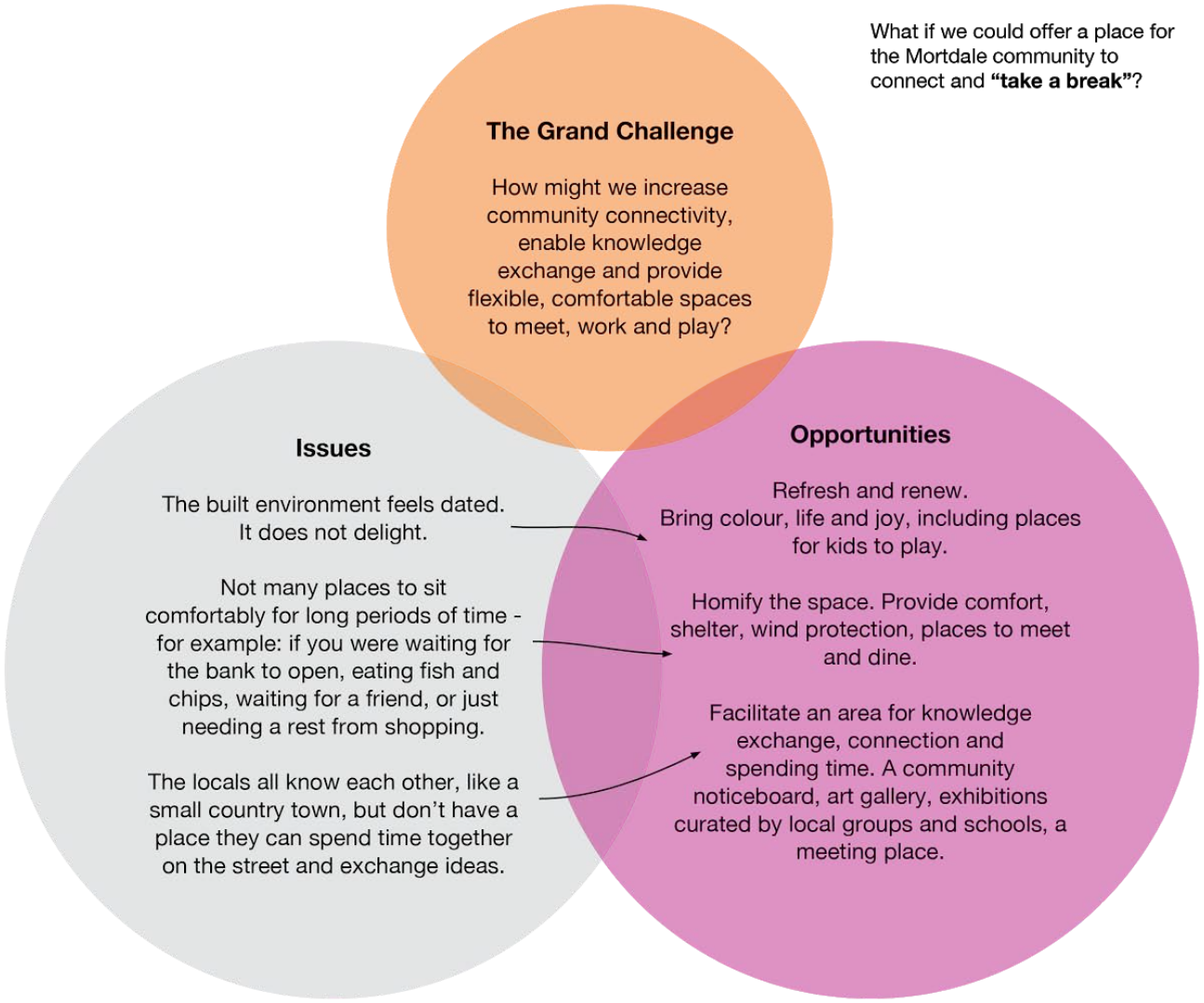
The grand challenge defines the design brief. Issues and opportunities are distilled to inform the development of the activations for each site in Kogarah, Hurstville and Mortdale.


HOW MIGHT WE INCREASE
COMMUNITY CONNECTIVITY,
ENABLE KNOWLEDGE EXCHANGE
AND PROVIDE FLEXIBLE COMFORTABLE SPACES
TO MEET, WORK AND PLAY?

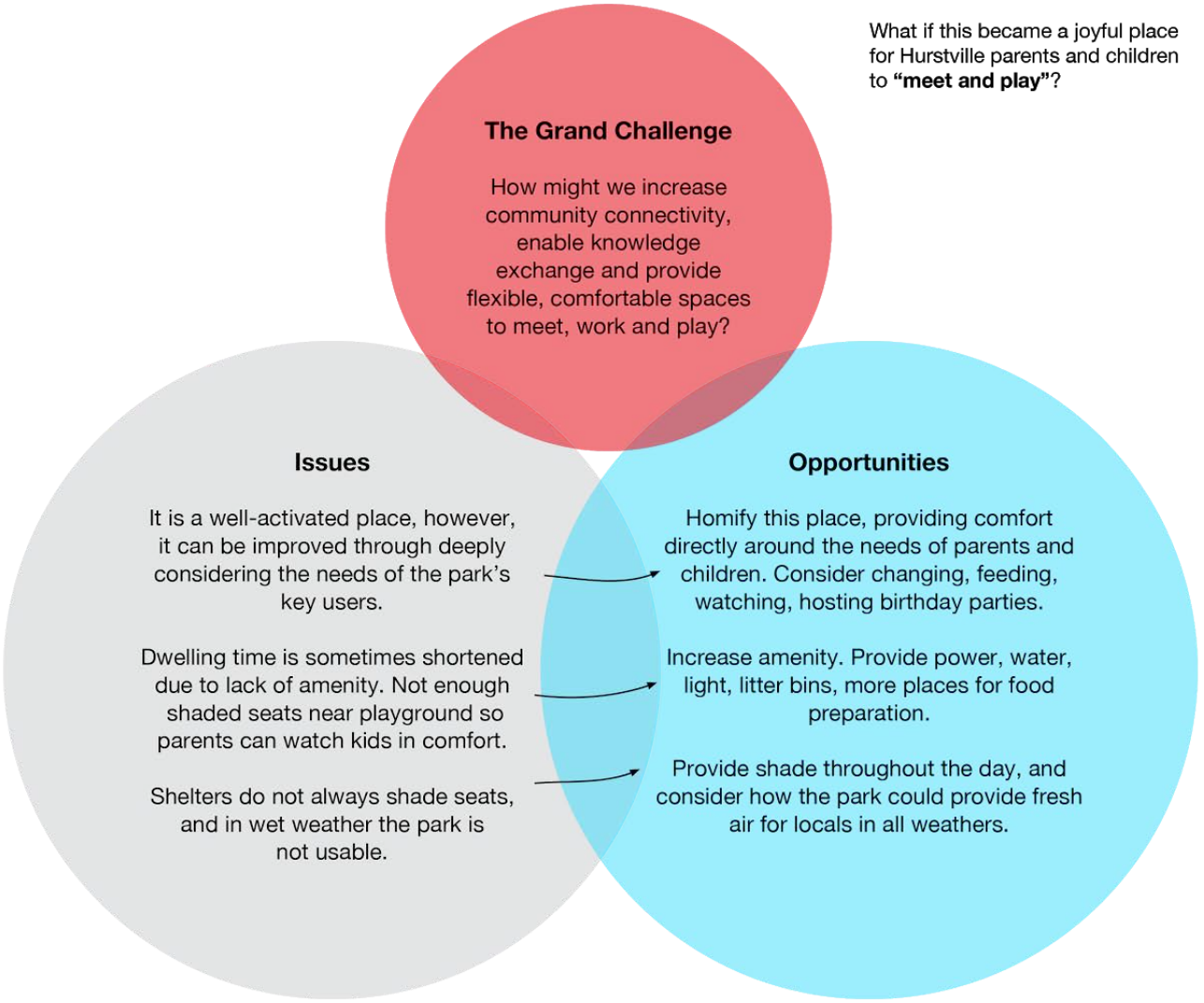

What if we offered a comfortable **"oasis"** for the Kogarah community to rest, dine and work outdoors?
The Grand Challenge
How might we increase community connectivity, enable knowledge exchange and provide flexible, comfortable spaces to meet, work and play?
Issues
"You're at the mercy of the elements." Users do not feel comfortable using the space.
There's no reason to stay. It's not kid-friendly. It can feel unsafe at night.
It's grey and hard.
Opportunities
Provide a comfortable environment to allow users to dwell in the space. Homify with shelter, furnishing, power, water, WiFi.
Create a destination that welcomes workers, parents and children, local residents and retirees. Enable laptop use and work meetings. Facilitate social dining. Enable community connections through library. Improve perceived safety at night.
Introduce colour, softness and cooling. Create an oasis of green and comfort, a feeling of relaxation.

The Grand Challenge | Macquarie Place, Mortdale

What if we could offer a place for the Mortdale community to connect and **“take a break”**?



What if this became a joyful place for Hurstville parents and children to **“meet and play”**?



Appendix

Included in this section are the ChillOUT grant submission, empathy interview questions and interview summaries.

Appendix | ChillOUT Grant Submission

Project title:
ChillOUT: Smart Social Spaces Creating Connected Green Places

Project description:
Georges River Council (GRC) is positioning its community as a smart Local Government Area (LGA) by planning and designing a healthy, green and 'smart' built environment. This project will design, produce and test smart, mobile, open-air community spaces. These multi-functional smart hubs, fully IT-enabled with smart furniture, solar power, charging points, and environmental sensors will also capture data on the LGA's urban heat microclimate status. The ChillOUT hubs will increase community connectivity, enable knowledge exchange, and provide flexible spaces to meet, work and play. Networked into Council's emerging smart asset management system, they will be embedded in a Smart City Strategy produced with the help of the City of Tel Aviv, an award-winning smart city.

Summary of activities and outcomes:

Urban Challenge
Councils struggle to provide public open spaces that combat urban heat microclimate effects while offering places and infrastructure that are people-friendly and beneficial to the livability of the broader community.

Solution
ChillOUT hubs are 'wired-up', open-air public spaces that provide accessible inter-generational community places for use 24/7. ChillOUTs are enabled with environmental IoT sensors (to measure urban heat microclimate indicators and public space performance) arranged in a wireless network, linked into Council's city management system.

ChillOUTs will be placed in three locations across the LGA. Users will 'tap on and off' with smart phones to activate the smart technologies in the hub, at no cost.

Outcomes
ChillOUTs offer innovative, creative and collaborative smart spaces where people can connect – technologically, professionally, socially. They also collect urban heat microclimate data.

Project plan:

Team Approach
This team was the recipient of a Round 1 Smart Cities and Suburbs Grant for designing smart social spaces in this LGA. Our projects are underpinned by a strong philosophical orientation towards supporting people and place and healthy urban living through smart technology. Our team represents a successful collaboration between local government (Georges River Council), private industry (Street Furniture Australia) and a practice-based research team (UNSW Faculty of Built Environment People and Place Research Cluster).

Our team believes that:

1. Councils are well-placed to partner with researchers and industry partners in identifying and solving real-world problems affecting their local community.
2. Industry players can experiment and improve their products in a real-world setting for both social and economic benefit.
3. Researchers are able to identify innovations, latest directions of research and practice and evaluate the smart city space. Evidence-based and people-focused design enhances community benefit, council management and commercial products.
4. Collaboration among these three groups increases the effectiveness of efforts and initiatives that aim to make cities smarter.
5. International exemplars provide verified approaches, such as Tel Aviv, Israel, awarded the Best Smart City at the 2014 World Congress Smart City Expo (Barcelona) and acknowledged internationally as a leader in city technology and citizen engagement.

If successful in this Round 2 Smart Cities and Suburbs Grant application, this next project will greatly benefit from an established set of relationships and working procedures among the team, increasing the efficiency, reliability and effectiveness of the new project's implementation. It will also continue the strong philosophical orientation of the team's work in supporting healthy living and smart social spaces for community benefit.

Governance
The team will be led by Georges River Council. Each Project Partner will have a Team Lead: Dr Nancy Marshall from UNSW's Faculty of Built Environment and June Lee Boxsell, Street Furniture Australia's Design Manager. These three collaborating teams means this group can 'hit the ground running'. Each Lead has a team of experts in support who have been part of the successful implementation of the first-round grant in all cases.

Timeline

Please see the Milestones and Key Activities section below.

Milestones	Nov18 – Feb 19	Mar 19 – Jun 19	Jul 19 – Oct 19	Nov 19 – Apr 19	Apr 20 – Jun 20
Milestone 1: Design Smart City Plan + ChillOUT Prototype	■				
Milestone 2: Assemble ChillOUT Hubs + Asset Management System		■			
Milestone 3: Install ChillOUT Hubs + Survey Users			■		
Milestone 4: Track ChillOUT Performance + Map Users				■	
Milestone 5: Knowledge Exchange: Smart Products + Systems + Strategies					■
All of Team Meetings (1 per month)	■	■	■	■	■

Data Management

All data will be managed centrally by UNSW strict ethics protocols. The team will ensure the data is backed up regularly on UNSW computer systems.

Expertise and Roles of Georges River Council, UNSW, Street Furniture Australia:

Georges River Council Capacity

A supportive Mayor, Council and Executive team.

Gail Connolly (General Manager) is supportive of this project and has signed off on Council's commitments. Gail brings more than 20 years of local and state government experience in Smart Cities, managing urban growth, infrastructure and transport planning to this project.

Marissa Racomelara (Director Transformation and Change) is overseeing the project. With over 20 years' experience working to serve local communities. Marissa is a keen champion of innovation, delivering community outcomes and business improvement.

An Officer will lead the project team and be responsible for ensuring the project is managed to completion within budget and according to Council plans and commitments. This position will liaise with UNSW, Street Furniture Australia and project advisers from Tel Aviv.

Service Divisions.
Engineering Operations will be responsible for final sign off of installation of the hubs for safety and certifications for compliance of equipment standards.

Assets and Infrastructure Services will ensure the hubs are in accessible and public locations and linked to the Mortdale Town Centre Redevelopment Project. The team bring a suite of systems and processes to support the management of Smart Cities technology.

Environment and Open Space Projects will ensure the hubs are sited in the community according to open space plans.

The Finance Department will be responsible for supporting the reporting and acquittal process. This team brings expertise and experience in managing Smart Cities contracts in addition to their grant management capability.

Strategic Planning will begin to embed the Smart Cities Plan into Council's core business practice and ensure all plans and community visions are aligned.

UNSW Capacity

Dr Nancy Marshall (0.1 FTE) will lead the UNSW BE team and ensure it stays on task, on schedule with staff resources and within budget. Marshall is a city planner with 25 years of experience working for a local council, in an urban planning consultancy and at UNSW.

Dr Christian Tietz (0.05 FTE) will be responsible for operationalising the technical systems and installation. He is an industrial designer with 25 years experience in private industry and as an academic.

Dr Miles Park (0.05 FTE) will assist with designing the sensor data systems and smart street furniture. Park is an industrial designer with 25 years experience in private industry and as an academic.

Dr Kate Bishop (0.05 FTE) will manage the Behaviour Mapping and Surveying exercises in the public domain. Bishop is an environment behaviour expert who has 20 years of experience working in private industry, for NSW state government and as an academic.

A/Professor Linda Corkery (0.05 FTE) will provide landscape design oversight with respect to the public domain. Corkery, with 35 years of experience, is a city planner, landscape architect (National President of the Australian Institute of Landscape Architecture) and an academic.

Professor Susan Thompson (0.05 FTE) will advise on the healthy built environment impacts and policy contributions of the project. She is a city planner and leading expert on healthy cities with 35 years of experience working in local government and at UNSW.

Dr Christine Steinmetz (0.05 FTE) will lead the knowledge exchange component. She has links to smart city experts in Tel Aviv who will act as advisors. With 15 years experience, she has business and marketing expertise and is now an academic.

Research Assistant (0.5 FTE) for the entirety of the project will be working closely with the Officer. This RA will manage the data from the sensors and surveys, and ensure open access to the data with Council. This position will be funded by the Smart Cities Grant.

Street Furniture Australia Capacity

June Lee Boxsell (Design Manager) will lead the Street Furniture Australia team to develop ChillOUT products. Boxsell has 13 years of experience in design, digital and product management. She is the lead designer of our Round 1 Smart Cities and Suburbs Grant.

Mark Armstrong (Senior Project Advisor) will oversee the design and development of ChillOUT. Armstrong is a Practice Professor in Design at Monash University, a Fellow of the Design Institute of Australia and an inductee into the Design Hall of Fame.

Danny Cheung (Senior Industrial Designer) will work on the design and development of ChillOUT. He has more than 20 years experience in industrial design, project management and design engineering.

Francis McArdle (Industrial Designer) will work on the design and development of ChillOUT. He has broad experience delivering consumer products to market and investigating new technologies and materials. He is a key industrial designer of our Round 1 Smart Cities and Suburbs Grant.

Mahsa Hirbod (Engineer) will work on the engineering and technical development of components of the ChillOUT hubs.

Chris Morgan (Operations Manager) will be responsible for final production, assembly and delivery. He has 20 years experience leading improvement programs in a range of manufacturing fields.

Project milestones and key activities:

Milestone 1: Design Smart City Plan + ChillOUT Prototype
- Finalise project parameters, goals and smart outputs.
- Draft a Georges River Council Smart City Strategy.
- Liaise with Tel Aviv as Smart City Adviser.
- Design ChillOUT prototype and IT components.

Milestone start date	Milestone end date
15 October 2018	31 December 2018

Milestone 2: Assemble ChillOUT Hubs + Asset Management System
- Finalise ChillOUT design and IT components.
- Assemble ChillOUT hubs.
- Collaborate in online workshop with Tel Aviv Smart City Managers and experts.
- Design interface of Georges River Council's Smart Asset Management System.
- Finalise the exact locations of ChillOUT hubs in selected areas.

Milestone start date	Milestone end date
01 Jan 2019	31 May 2019

Milestone 3: Install ChillOUT Hubs + Survey Users
- Install ChillOUT hubs in three locations: eg.park, town centre, health precinct.
- Collect data from sensors (for a total of 6 consecutive months).
- Survey users and non-users of the ChillOUT spaces (July 2019).
- Finalise the Georges River Council Smart City Strategy Draft (for stakeholder consultation).

Milestone start date	Milestone end date
01 June 2019	01 August 2019

Milestone 4: Track Performance of ChillOUT Performance + Map Users
- Engage with stakeholders on Smart City Strategy Draft.
- Collect data from sensors (for total of 6 consecutive months).
- Behaviour Map users of the ChillOUT spaces (Aug - Dec 2019).
- Analyse user data (surveys and sensors).
- Run hack-a-thon with project collaborators and experts to de-bug, test system.

Milestone start date	Milestone end date
01 August 2019	31 December 2019

Milestone 5: Knowledge Exchange: Smart Products + Systems + Strategies
• Redesign ChillOUT based on performance and user feedback.
• Upgrade and upscale Georges River Council's smart asset management system.
• Knowledge Exchange: hold workshops with project partners including Tel Aviv advisers and other Australian councils.
• Finalise Smart City Strategy.

Milestone start date	Milestone end date
01 January 2020	30 June 2020

Project duration:
Start Date is 15 October 2018. Completion date is 30 June 2020.

Merit criterion one:
This project is underpinned by a strong philosophical orientation shared by Georges River Council, Street Furniture Australia and the UNSW research team towards supporting people and place and healthy urban living through smart technology and aligns with Australia's Smart City Plan as noted below.

Innovation and the Advanced Application of Smart Technology
The innovation of this project is in the design and testing of a new smart community hub. We will use our collective knowledge and collaborative skills to invent, test and build small-scale, flexible infrastructure; design an IoT of environmental sensors to monitor use; and software that enables the public to 'tap on-tap off' to access Council's emerging smart asset management system. Tel Aviv – an acknowledged smart global city – will advise in developing a Smart City Strategy and embedding smart city thinking for the benefit of our community.

Once designed, this project offers a new commercial product, ChillOUT, which aligns with Australia's Smart Cities and Suburbs' priority areas of smart infrastructure and its desire to 'improve the delivery and maintenance of infrastructure and essential services.' No similar product exists in the marketplace in Australia. The smart, open air flexible and mobile module aligns to the priority area of smart precincts with making a community 'more liveable, productive, sustainable and safe.' This design solution responds directly to recent community feedback. The hubs can provide localised cool spots to ameliorate increasing extreme heat events and reduce urban heat microclimate effect at micro level. Finally, producing a Smart City Strategy and continuing to build on Council's smart asset management system addresses the priority area of smart planning and design by 'building an adaptable and resilient city.' This project uses technology with innovative spatial and structural design to create a display and showcase tool.

Promotes Open Data
The project will promote open and accessible data. The data collected during this project is extensive. Data from the environmental sensors embedded in the ChillOUT hubs will tell us how the community space is used 24 hours a day, 7 days a week. The IoT sensors' data will be triangulated with data collected through traditional surveys and behaviour mapping to give us a complete picture of why the space and its infrastructure is used or not used.

Climate data collected from micro sensors inform Council of inclement weather patterns such as extreme heat events. This enables Council to manage risks and develop strategies that help minimise impacts and improve urban health.

By opening up the raw data from the sensors, analysis and forthcoming visualisation of the data - particularly the relationship between different types of data collected - councils, researchers, and technology entrepreneurs will have access to the data on several platforms for their future use. This will form an evidence base for future open space design decisions.

Use of Open Standards
Sensor data will be interoperable and based on open-source IoT hardware and protocols and available to other API developers. Our data processing and interpreting will aim to achieve interoperability among different IoT solutions used in the project. All data collected will be added to the emerging 'city dashboard' to identify trends and patterns in the use of its smart infrastructure. The team will transform raw (sensor and survey processes) data into 'context information' to better understand the ChillOUT places and users. This ensures data is not collected for 'data collection sake.' The data can be presented on an online platform, i.e. a website linked to social media for anyone to use. By providing and opening-up sensor data and linking it to social networks (through promoting the use of social media by citizens), local residents can be encouraged to share their experiences of using the new infrastructure.

Although the infrastructure is designed for Georges River Council, smart street furniture can be placed in any city area to make it smarter. The process of how our Council altered public spaces will be shared with other Australian councils and published in professional outlets such as list serves, websites and in academic journals. We will also use social media to promote the project nationally and internationally.

Merit criterion two:
The social, environmental and economic benefits of ChillOUT hubs for local communities are extensive. These spaces will offer equitable, inclusive access to wired-up facilities for community members of all ages, abilities and cultural backgrounds at no cost.

Social Benefits

- Provides an innovative, accessible social space in the community for use by a range of target groups and for a range of purposes.
- Provides free and equitable access to wifi and IT-enabled infrastructure in the LGA.
- Facilitates social opportunities for the community: from professional networking to street corner conversations.
- Provides a safe place for people, including young people, to engage with the built environment and each other.
- Activates selected precincts and brings to life public space that is currently unutilised.
- Promotes community safety and connectivity.

Health Benefits

- Provides users with physiological benefits such as contact with fresh air, sunlight and nature, important for mental and physical health.
- Provides a forum for social and professional exchange which enhances community participation and assists with social and physical isolation.
- Affords a creative space that is connected in the community, which is good for mental health and well-being.
- Could include a 'Healthy Living Hardware' pole (designed and installed by the Round 1 Smart Cities and Suburbs grant process) which provides users with access to water and small food preparation tables, power outlets, enhancing liveability.

Environmental Benefits

- Tests a 'light development' which is flexible, moveable, with a small carbon footprint. Can be installed with minimal impact to the surrounding infrastructure or landscape, yet it provides a new and useful public amenity for many community members.
- Provide an activated, safe, accessible and smart social space that facilitates efficient streetscapes and public domain, built of recyclable materials.
- Is substantially self-supporting through solar power.
- Converts grey spaces into greener spaces which improves amenity and contributes to the use of public space for the Council and community.
- Collects data on the micro-climate of public spaces, and pedestrian thermal comfort. This provides evidence for reducing the urban heat microclimate.

Economic Benefits

- Promotes a culture of a dynamic, mobile and networked workforce.
- Activates the streetscape in areas of commercial activity, day and night.
- Supports people who are experiencing financial challenges with limited access to funding for services like internet at home, with access to economic opportunity, educational and social services that any other community member can access.
- Provides a 'third space' for local business meetings, students and networking opportunities. Could also be used as a venue for business promotions, advertising and recruiting exercises.

Capacity for Replication and Up-Scaling Locally and Nationally

Several aspects of this project can and will be replicated and up-scaled: small-scale, smart street infrastructure as a new commercial product; the asset management system being built at Georges River Council; and the process of creating collaborative smart city strategies between local government, researchers, private industry and international experts.

Smart, multi-functional outdoor products can be replicated, refined and rolled out across any local government area. The team believes there is a need and a commercial opportunity for outdoor hubs in Australia. The grant will pilot and evaluate the functionality for a module design, enabling the team to learn how it can be used most effectively for the greatest community benefit. Once the test design is finalised there are no limits to up-scaling or replication. This innovative hub will be the first of its kind in Australia. It has both commercial and social value for communities around Australia.

As Georges River Council evolves into a smart city, it is developing its asset management system to be low-cost, manageable and effective. Council is currently piloting a range of small-scale infrastructure with environmental sensors (rubbish bins, weather stations, ash receptacles, picnic tables, sound sensors, and the Healthy Living Hardware). It is creating an IoT data system and will be further developing its public interface in this project. Council is learning from the Round 1 project and will continue to upscale its system across time.

Smart city planning and design strategies, by their very nature, need to be collaborative. All parts of (and its many service divisions) need to consciously think about smart policies, projects and processes, for Council to embed 'smart thinking' throughout the core business. The team has therefore included a final step in this application: to run knowledge exchange workshops with other local governments in Australia (including the Smart City Deal cities) and our Tel Aviv experts. Having Australian local government learn from each other will place Australia at the fore of smart cities innovation.

Merit criterion three:

Citizen Engagement, Community Needs and Livability

This project is directed at improving the opportunities of urban public space and what it can offer to users. The project uses people-focused design to help solve the urban challenge that public space does not currently support a flexible and mobile workforce, nor does it enable equitable access to technology. Cities are becoming compact, with high density

living becoming the norm, which puts great pressure on public space and its amenities. The move to more smart cities and the use of smart technology can maximise the potential of all these spaces in our communities.

This project offers multiple opportunities to increase the amenity, safety and activation of public space in LGAs. In a recent 'PlaceScore' survey residents valued the natural environment, cleanliness of public space and safety in the community as top priorities for the LGA. Specific resident ideas for improving town centres included: increasing street trees, planting green spaces, cleanliness and open space maintenance, public safety, and creating community spaces for socialisation. This project responds directly to these requests.

Certain areas need to be redeveloped. One of the ChillOUT hubs will be placed in Mortdale Town Centre which is scheduled for a upgrade in the 2019-2020 and 2020-2021 financial years. A small-scale intervention such as this can inform long-term and large-scale investments on innovative community developments. A second module will be put in a local park, which will extend this new type of environment into nature-based spaces adding obvious health benefits. Bringing people out into their community, into nature, sunlight and fresh air has direct health outcomes. The third ChillOUT space will be in the medical precinct in Kogarah in effort to build up a social and economic network in this health district.

Developing smart street furniture and landscape design supports healthier social interactions and will increase the opportunity for people to meet each other. For small businesses, increasing human interactions fosters innovation; for individuals, it decreases social isolation and improves mental wellbeing.

Project Alignment with Council Plans and Approaches

Georges River Council has recently undertaken extensive consultation with its broader community as part of its Community Plan process. It has identified communities in the precinct whose needs for public space activation, improvement and upgrade require attention. The communities of Mortdale, Kogarah and Hurstville are the suburbs within the LGA identified as sites for this project. The project responds directly to the citizen engagement completed as part of the community planning process.

Georges River Council wants to be a smart city and a healthy city. A Smart City Strategy for the Council will direct our future development and systems to be effective and efficient with smart thinking embedded through the administration. The project team includes a 'healthy built environment expert' whose expertise will help Council identify ways to optimise its medical precincts (facilities and services) for economic benefit to the entire LGA. One of the ChillOUT hubs will be tested in the Kogarah health precinct.

Measuring Project Success

The project seeks to change public behaviour by promoting a civic conversation about public amenities. Local residents will respect, protect and maintain the local infrastructure if they are involved in the co-design of their public domain and know their voice has been heard through consultation. This will be tracked through Council administration's feedback loops with residents (calls, written submission, social media comments and survey and mapping processes). Particularly, local businesses that benefit from the space activation.

Data from the traditional Survey and Behaviour Mapping methods alongside the extensive data gathered from the environmental sensors built into the ChillOUT hubs will tell us how and why the outdoor office space is used or not. This will show us the success of the ChillOUT module itself.

The Smart City Strategy will also be a measure of success. Outputs of knowledge exchange will be another metric used for tracking success (workshop attendance, conferences attended and papers written, at UNSW's cost), and whether Street Furniture Australia (a local Australian company) commercialises its IP with an innovative, new smart product.

Merit criterion four:

Team Skills, Experience and Collaborative Capacity to Deliver the Project

This project team has a strong working relationship and successful track record as a result of a Round 1 Smart Cities and Suburbs Grant.

Georges River Council has a very supportive Mayor, administering Council, and General Manager. To become a smart LGA, a series of smart spaces will improve livability and economic productivity. We are keen to lead this project as it offers opportunities to co-design better and smarter public spaces and infrastructure.

This project will have an Officer attached to operationalise it within Council. Our greater team includes city administrators, accountants, city planners, our Major Projects team, infrastructure engineers and parks crews.

The UNSW BE team of researchers all come from a design practice background. All team members have particular expertise of direct relevance and benefit to the project. They include industrial designers, city planners, a healthy built environment expert, a landscape architect, environmental psychologist and an architect.

As an institution the university has systems in place that contribute small product prototyping in its Fabrications Lab, research incidentals, grants management advice,

knowledge exchange through teaching and conferences, and legal for commercialising a new product, at no cost to the project. UNSW is known to have an excellent practical and urban research culture.

Street Furniture Australia includes a team of industrial designers, marketers, engineers, graphic designers, and production staff. This Australian company makes all street furniture on-site in their warehouse in Sydney. They also collaborate with subconsultants who are experts in sensor IoTs, computer engineers and other technology specialists.

Street Furniture Australia believes design matters. They are committed to R&D to deliver the best in safety, ergonomics, functionality, low maintenance and vandal-resistance to clients. They are committed to urban open space solutions that improve the quality of daily life of public citizens. Their range is made and quality-controlled in Australia, and uses environmentally sustainable processes, such as LEAN manufacturing principles to minimise waste. They use 100% recyclable materials in products and packaging.

Project Risk Management and How to Extend its Outcomes

This section should be read in concert with the Project Plan and Key Milestones.

Staff changes, if they were to occur, are always a risk, but in a team with such depth, it would only slow the project rather than derail it. The team's range of skills could cover the areas of expertise needed for completion. Difficulty with the prototype of the ChillOUT hub is possible but the team has been through this piloting process with the Round 1 Smart Cities and Suburbs Grant and managed to overcome all challenges without losing project time or increasing costs. This previous experience reduces the risk of this problem.

Extending Outcomes

Our plans to extend project outcomes have been mentioned previously. The final step of this project plan focuses on cross-sectoral knowledge exchange that enhances local governments' understanding of public space and smart technology.

It also includes activating an ongoing professional relationship with the Tel Aviv Municipality and the Tel Aviv Foundation, running for two years based on mutual interests in smart cities.

This will include online exchanges with these groups throughout the project. Two experts from Tel Aviv (Zohar Sharon, Knowledge Officer and Hila Oren, Director General of the Tel Aviv Foundation) will travel to Sydney to hold a workshop with the project team and local councils in the final stage of the project. They will also help to facilitate the hack-a-thon to test and fortify our smart technology used in the ChillOUT hub and asset management system.

Tel Aviv's expertise on city-branding and its Digi-Tel smart card will benefit the project through knowledge exchange, advice on our Smart City Strategy, help rebrand our image with the community, and embed a smart city culture in the workplace. This will position Georges River Council among the smartest cities nationally and will help locate Australia as a leader in smart city planning.

Additionally, Street Furniture Australia hopes to fully commercialise and mass-manufacture the products developed during the project.

Appendix | Empathy Interview Questions

Tell me a little bit about yourself.
What do you do? What inspires you? Why?

How does this place make you feel?
Understand why. Ask about the different times of day (i.e. at night, in the afternoon);
Ask about his or her comfort level (i.e. wind, shade, temperature, safety).

Why are you passing through this area today? Describe your journey here.
Also understand when and how often they make the journey here.

What are the things you like to do here?
Ask about the other times of year. (i.e. winter, last summer etc)

Describe your best/worst experience in this area.

What do you think about the street furniture (and other urban elements)?
Seats, bins, lighting, greenery, shade structures, colour, walkways, signage.

How would you like to see this space change in the future?

Appendix | Empathy Interview Summaries

Belgrave Street, Kogarah
Saturday 2 February 2019
9-11am

Person 1
Male / 25-35 / Student + Worker / Young Dad
Tell me a little bit about yourself.
International student, live in Kogarah area for 5-6 years with family.
How does this place make you feel?
'I love this area. Everything is close: cafes, pub, hospital, schools, train and parks"
Why are you passing through this area today? Describe your journey here.
I was buying some groceries and on my way back home.
What are the things you like to do here?
'I like going to the park with my kid'
Describe your best/worst experience in this area.
Best: everything is close by, not polluted.
Worst: Hard to find parking, rent is quite expensive, but you get something good.
'There is nothing too special here but I just love this area.'
'It has multicultural sense'
'I was living in Auburn before, but it was too crowded, unlike here'
What do you think about the street furniture (and other urban elements)?
'Not enough seats and shades at the bus stations'
'There are many students in the area, technology will benefit them'
How would you like to see this space change in the future?
More technology sounds good.

Person 2
Female / 40-50 / Full-time worker / Mum
Tell me a little bit about yourself.
I'm a business analyst and I was living in this area couple years ago.
How does this place make you feel?
'It's not too bad'
'It's quite safe and have a nice vibe'
It has a lot of cafes, hospital, and everything.
Why are you passing through this area today? Describe your journey here.
I was dropping off my daughter to the hospital and I want to get a coffee.
What are the things you like to do here?
'Not much, nothing.' Usually just meeting area.
Describe your best/worst experience in this area.
'Not my choice of place on Saturday'
Worst: 'Parking is a nightmare'
How would you like to see this space change in the future?
'I don't know'

Person 3
Male / 30-40 / Father
How does this place make you feel?
Lack of cafe and plaza
Why are you passing through this area today? Describe your journey here.
Went to the church
What are the things you like to do here?
'I like European-style spaces with plazas where kids can play with cafes where parents can sit and eat'
Describe your best/worst experience in this area.
Lack of cafe and places where kids can play
What do you think about the street furniture (and other urban elements)?
'You need to have something to do on the square'

Friday 25 January 2019
10am-12pm

Person 1
Female / 65-75 / Ex-Council, now a Writer
Tell me a little bit about yourself.
I used to work at the Council, now I'm a writer. I do historical research about the local area, where I live. I'm a long-time resident. Lived here since the seventies.
How does this place make you feel?
"Crowded," buildings. This place is a "means to an end". "Not open"
Why are you passing through this area today? Describe your journey here.
I come here 3 times a week. I come to the library occasionally, if not, medical appointments.
Describe your best/worst experience in this area.
You can't park - you have to be extremely lucky. Cafes make it welcoming. Windy.
What do you think about the street furniture (and other urban elements)?
It looks a bit dated. Accessibility and ergonomics is important.
How would you like to see this space change in the future?
I'd like to see better seating. More user-friendly. The heat.
Community vibe. Diverse, community coming together, events. Room to improve.

Person 2
Male / 80 / 25-35 / Retired
Tell me a little bit about yourself.
I'm retired. I live in Kogarah.
How does this place make you feel?
"After 8pm, dead." Only 3 places open for food. During the day - lots on.
Why are you passing through this area today? Describe your journey here.
I live round the corner. Going to Hurstville RSL and then come home.
What are the things you like to do here?
Depends on the weather. Going to the pub.
Describe your best/worst experience in this area.
Best: People are friendly. Socialising with business owners.
Worst: Dealing with local governments.
If you work hard you can make money.
What do you think about the street furniture (and other urban elements)?
Book hubs, screens to see book collection. WiFi extended to the street. Perhaps a network extension as part of the activation.
How would you like to see this space change in the future?
Location is adequate at the moment. Needs more parking. One-way streets.
Child friendly. More greenery.

Person 3
Male / 25-35 / Library Worker
Tell me a little bit about yourself.
I'm not a resident, I live in Alexandria. Library coordinator for 3 years. Events and community.
Learning opps fun. VR archaeology.
2 degrees in music - got a job at the library as a storyteller.
When we get it right, "I wish I had that when I was a kid."
"Robotics tech with kids."
Kogarah - Hurstville.
How does this place make you feel?
"Deeply happy" - kids learning experiences.
"Sad" - driving more, sitting here on seats.
"Barren, dirty, ugly buildings, overwhelmed"
"Bird poo at the station"
Afternoons - good, happy, people using the space.
Night - "waste of space," not utilised.
Why are you passing through this area today? Describe your journey here.
Lucky I can drive. Park here. "In summer it's unbearable."
Make people care.
Build something nice.
Surry Hills library. Would go to these places.
Destination.
What are the things you like to do here?
I come out here to eat "has to be a nice day"
"At the mercy of the elements"
Describe your best/worst experience in this area.
Worst: some areas can feel unsafe.
"Derby St crime."
Security at night.
Avoiding.
Best: good food, Vietnamese.

Person 4
Male / 30s / Nurse
How does this place make you feel?
"It's very sparse, barren." "It's very hot." It is way too hot so I'd never hang out here.
Why are you passing through this area today? Describe your journey here.
I work at the hospital and am on my way to the charcoal chicken shop around the corner. I walk past the plaza on the way to the station.

What are the things you like to do here?
I walk past to go buy food.
I wouldn't ever stop to eat, as I can walk back to the hospital.
Describe your best/worst experience in this area.
Worst: "I wouldn't go out on a very hot day." Needs more shade.
What do you think about the street furniture (and other urban elements)?
I'm not a big fan of public WiFi - security. Could do with more shade. "I like the seating"
How would you like to see this space change in the future?
I'd like it to be cooler. More water, bubblers, or another fountain.

Person 5
Male / 29 / Doctor
Tell me a little bit about yourself.
I work at the hospital.
How does this place make you feel?
"Indifferent"
Why are you passing through this area today? Describe your journey here.
I park nearby and walk past on my lunch break. Every second day I eat my lunch here.
What are the things you like to do here?
Eat lunch.
"It's dirty but you can't expect much from it."
Describe your best/worst experience in this area.
Worst: I used up my data and I was trying to find a place with WiFi.
How would you like to see this space change in the future?
Nothing too different. Protection from the elements, the sun and rain.
If there was a power outlet, it might attract homeless people.

Person 6
Female / 60s / Hospital worker
Tell me a little bit about yourself.
I work in the hospital.
How does this place make you feel?
"Hot" "Blistering!"
Why are you passing through this area today? Describe your journey here.
I come past here very frequently. I walk up and down this road on the way to and from the hospital.
What are the things you like to do here?
I just walk past.
What do you think about the street furniture (and other urban elements)?
"It's very grey."
How would you like to see this space change in the future?
The surfaces are so hard. "Some artificial lawn to soften it up."

Macquarie Place, Mortdale
Friday 1 February 2019
8-11am

Person 1
Male / 30-40 / Cafe owner
Tell me a little bit about yourself.
Cafe Owner 10 years - I live locally
How does this place make you feel?
Good. It's a friendly place, everyone knows each other, good community
Why are you passing through this area today? Describe your journey here.
I am having my cigarette. I walk across the road to sit here and smoke.
What are the things you like to do here?
I do my groceries here, pay my bills. I like to sit here in the shade, smoke and watch people, talk with locals.
Describe your best/worst experience in this area.
Best: the shade under the trees is nice.
Worst: The wind coming off Macquarie place can be very bad and caused damage to my business and 2 trees recently.

What do you think about the street furniture (and other urban elements)?
The road is too narrow and the traffic is bad with people trying to park. More shade might be good. Don't think about it much.
How would you like to see this space change in the future?
Never thought about it. More shade might be good

Person 2
Female / 65 / Retired
Tell me a little bit about yourself.
I am retired. I come to do my shopping here. It is convenient to park and shop.
How does this place make you feel?
Normal. Not really think about it.
Why are you passing through this area today? Describe your journey here.
I get a park very close by and I walk a short distance. Always get a good park.
What are the things you like to do here?
I am going to the bank with my daughter and some shopping (groceries). I have cafe closer to where I live.
Describe your best/worst experience in this area.
Afternoon traffic here is very bad
What do you think about the street furniture (and other urban elements)?
Always room for improvement - make it newer.
How would you like to see this space change in the future?
More trees

Person 3
Male / 82 / Retired
Tell me a little bit about yourself.
I am retired. Lived my whole life here, seen a lot of changes.
How does this place make you feel?
I just go to the florist to pick up flowers for my wife and go to the chemist. I don't have these in Penshurst where I live. I know a lot of people here, all the locals.
Why are you passing through this area today? Describe your journey here.
Caught a bus then get flowers and go to chemist. It's very convenient.
Describe your best/worst experience in this area.
No bad experiences. Maybe too many cars but that's life. Mortdale has always had a reputation at night - I don't know about now.
What do you think about the street furniture (and other urban elements)?
I don't mind it - keep it as it is.
How would you like to see this space change in the future?
I suppose a place with shade might be good but the locals wouldn't use it.

Person 4
Female / 41 / Stay at home Mum
Tell me a little bit about yourself.
I'm a stay at home mum. I like to have my coffee and go to a few grocery shops here every day. I grew up here.
How does this place make you feel?
Good local area and community. We all know each other and say hi on the street. Sometimes talk. Feels good knowing everyone. No one goes to the new cafe only visitors. All the locals go to the same ones as always. People are set in their ways round here.
Why are you passing through this area today? Describe your journey here.
I walked from my apartment on this road to the cafe, then I went to this shop and the next. I know this person and that person and that person. (Pointing.) Now I'm getting me smokes.
What are the things you like to do here?
Having coffee every day. Running errands.
Describe your best/worst experience in this area.
Worst: Tripped and fell off the gutter when I was drunk. Best: knowing all the people in the community - it's like a small country town.
What do you think about the street furniture (and other urban elements)?
I've always loved it except when they change the 2 way into a 1 way.

Person 5
Female / 70s / Retiree
Tell me a little bit about yourself.
I live in Peakhurst. I'm retired. I'm inspired by trees and greenery, because it makes me feel calm and relaxed - rather than angry and frustrated. Not that I have much to be angry about!
How does this place make you feel?
I've been coming here for 30 years, so I suppose I take it for granted.
Why are you passing through this area today? Describe your journey here.
I come here to go to the bank and to the specialty shops, like the bread shop. Sometimes I might sit here to wait for a friend coming on the train. I park nearby, walk to the specialty shops, do the shopping, go back to the car and go home.
What are the things you like to do here?
Just the shopping. It's not the only place I shop, just for specialty items.
Describe your best/worst experience in this area.
Worst: Cars, trouble parking, seeing a car accident on this corner.
Best: Finding something difficult in a shop. And when people are pleasant to you.
What do you think about the street furniture (and other urban elements)?
There's not much seating - no shade or shelter from the sun. The bins tend to smell, it was hot yesterday. Trees would improve the street.

I was up at the North Coast on holiday, I saw tables with snakes and ladders on them for the children. The snakes might have been too realistic! Something like that would be nice here.
How would you like to see this space change in the future?
I don't like it when the cafes put their seats out on the footpath. It clutters up the footpath. I don't like to have to walk around them. I like it to be neat.

Saturday 2 February 2019
8-11am

Person 1
Male / 30s / Local
Tell me a little bit about yourself.
I'm shopping at IGA and visiting the opp shop. I like friendly people. Greek and Australian. I can't afford a car.
How does this place make you feel?
I like Mortdale more than Penshurst, and come here specially. I love it in Mortdale, there are kind hearted people here. I feel content here. And appreciative.
Why are you passing through this area today? Describe your journey here.
I'm visiting the opp shop to make a donation. I'm walking to the shops. I don't have a car but I enjoy the exercise. The main reason for my visit is shopping. I will stay for about 30-40 minutes. I will visit the bank.
What are the things you like to do here?
I like old-fashioned things. Retro furniture. It makes me feel good.
Describe your best/worst experience in this area.
I always enjoy my visits here.
What do you think about the street furniture (and other urban elements)?
The place is a bit old fashioned. I like classical stuff that is timeless.
How would you like to see this space change in the future?
Pavers.

Person 2
Male / 30s / Father
Tell me a little bit about yourself.
I'm a father of two. I live in Lugarno, come to Mortdale to take Daisy to ballet.
How does this place make you feel?
It's a nice area, a welcoming space. It could do with a face lift, it's not that attractive.
Why are you passing through this area today? Describe your journey here.
I'm taking my daughter to ballet classes. I drove from Lugarno, parking was ok.
What are the things you like to do here?
My best experience here has been the people and the shops. It's not a rush, which is better than the city. It's got everything we need.
How would you like to see this space change in the future?
Kids are important. Places to play would improve the space.

Timothy Reserve, Hurstville
Wednesday 30 January 2019
3-5pm

Person 1
Male / 25-35 / Tourist
Tell me a little bit about yourself.
Temporarily here on a holiday from China. Here to escape the pollution
How does this place make you feel?
Refreshing. Green.
Why are you passing through this area today? Describe your journey here.
Came from the library for some fresh air and to get some exercise.
How would you like to see this space change in the future?
More exercise equipment.

Person 2
Male / 35-45 / Dad / Active (cyclist) / Positive
Tell me a little bit about yourself.
Visiting parents, has a 4 year old daughter, enjoy bringing her to the park. Parents have lived here around 10 yrs, I live in the city.
How does this place make you feel?

‘Good!’ ‘If the community feels good it’s contagious’
Why are you passing through this area today? Describe your journey here.
Live in the city, come here often Wednesday’s to visit parents with daughter.
What are the things you like to do here?
Bring my daughter here to be outside and play.
Describe your best/worst experience in this area.
No worst experience - ‘worst time is when it’s raining and we can’t come out here’
Best - ‘It’s always full of people’
What do you think about the street furniture (and other urban elements)?
‘Could be improved.’ ‘Sometimes there’s some rubbish around’
How would you like to see this space change in the future?
‘Keep it as it is.’ ‘Keep it safe. ’ ‘Bike locks / stop offs for people’
‘I like that in Hurstville they are using a large block to build a park not another building.’

Person 3
Female / 30-40 / Mother / Stay at home
Tell me a little bit about yourself.
I’m a mother, stay at home, 2 young primary school children
How does this place make you feel?
Hard to park in the afternoons.
Why are you passing through this area today? Describe your journey here.
Bring the kids to the park after school, depends on parking.
What are the things you like to do here?
Kids to the park only.
Describe your best/worst experience in this area.
Bathrooms are not a good experience.
What do you think about the street furniture (and other urban elements)?
Shade is good for play equipment but needs more for the seating.
Bathrooms need to be fixed.
How would you like to see this space change in the future?
Never thought about it. Ok at the moment considering the amount of users.

Person 4
Male / 30-40 / Various jobs / Possibly homeless / Carried lots of powerbanks
Tell me a little bit about yourself.
I do a bit of accounts work and web design, but from Newcastle.
How would you like to see this space change in the future?
‘I love using the pole that’s in Hurstville Square, I charge my phone and laptop there’
‘Council needs to provide more power outlets out there’
‘I never have a power point, I’m always on the move’
‘I saw kids here at this picnic bench and they had to leave to charge their speakers’
‘Desolate late at night’
‘Tai chi here in the mornings’

Saturday 2 February 2019
9-10am

The team returned on a Saturday morning.
It was raining, no one was using the site.