

# **Attachment A1(b)**

**Urban Design Study Part 2 – Waterloo  
Estate (South) – City of Sydney**



# The City of Sydney's Alternative Approach

The design shortcomings of the preferred masterplan, and the collective knowledge derived by the long term care maintenance and continuous making and remaking of new places, led the City to independently test an alternative approach to the redevelopment of the estate in endeavour to assist improving plan making for Waterloo.

The bases of the alternative approach are the Planning Priorities of the Eastern District Plan, Sustainable Sydney 2030, the City's Community Plan, and lessons learnt from successful high density communities in the City of Sydney.

The following Planning Priorities became Objectives for the approach:

- Providing services and social infrastructure to meet people's changing needs
- Fostering healthy, creative, culturally rich and socially connected communities
- Providing housing supply, choice and affordability, with access to jobs, services and public transport
- Creating and renewing great places and local centres, and respecting the District's heritage
- Increasing urban tree canopy cover and delivering Green Grid connections
- Delivering high quality open space
- Reducing carbon emissions and managing energy, water and waste efficiently
- Adapting to the impacts of urban and natural hazards and climate change

These intersected with and are reinforced by the strategic directions of the City's plan:

- A leading environmental performer
- Integrated transport for a connected city
- A city for walking and cycling
- A lively and engaging city centre
- Resilient and inclusive local communities
- A cultural and creative city
- Housing for a diverse community
- Sustainable development, renewal and design

The aim of the Alternative Approach is to achieve these objectives while maximising the number of people to take advantage of the accessibility of the site to high amenity with the new metro station, close proximity to the city and the successfully new development in the nearby Green Square area.

The design is formed around the making of high quality public space, parks and streets, that ensures high amenity and equity for people living in the community, critical for making successful high density places.

**CITY OF SYDNEY ALTERNATIVE APPROACH – MARCH 2019**



## Open Space Location

Based on comparative studies and the directions given in the City's Open Space Sports and Recreation Space Study, a main park of more than 2 hectares is required at Waterloo.

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### Where should the park be located?

The park location is determined by the overlapping best fit of high level criteria, a type of multi-criteria analysis.

Given the required size of the park blocks that have multiple ownership are excluded as they require more complex requirements for dedication and staging.

Parks should not be located adjacent to busy roads as the noise and pollution spoil the quiet enjoyment of people in parks, and it is not safe to locate parks that are used by children close by fast moving traffic. The park is best located away from Botany Road and McEvoy Street.

The surrounding area contains and is served by existing parks on three sides: Redfern Park to the north east, Alexandria Park to the west and Waterloo Park to the south east. The area to the north west is not as well served. The new park is best located central to the estate towards the north west.

The majority of parks uses work best on generally flat land, and this also supports access by all user groups. At Waterloo there are large areas of relatively flat land west of George Street and south of Raglan Street.

Overlaying the attribute areas provides an ideal park location. The best fit is the block bounded by Cope, Raglan, George and Wellington streets, including Cooper Street between Raglan and Wellington streets.

The area at the south west of the site is further from the existing and new park location and a supplementary small park could be located here if required.

**OPEN SPACE LOCATION**



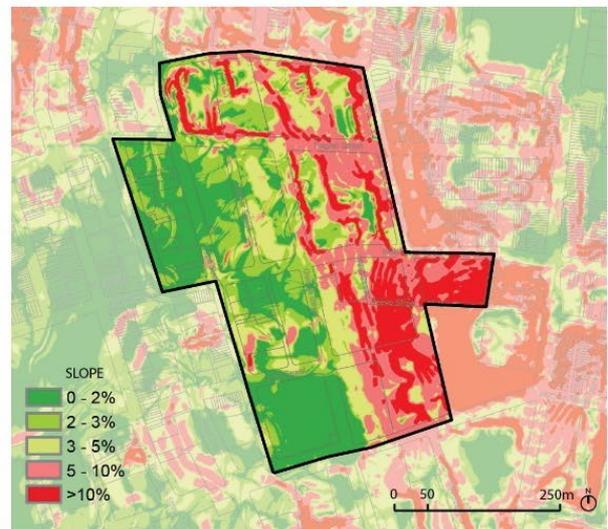
Locate park on single ownership blocks



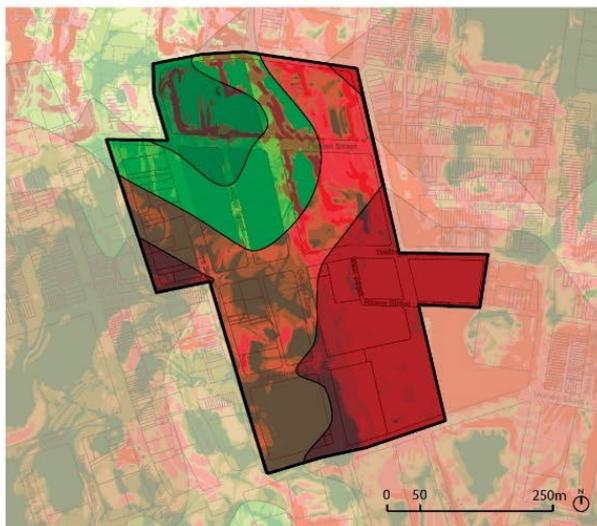
Locate park away from busy roads



Locate park in the area least well serviced by existing parks



Locate park on flat land



Park criteria overlay



Area where all park criteria are met

## The street layout

The existing street layout is the inheritance of its subdivision in the late nineteenth century and consists of three north south streets; Cope, George and Pitt; and four east west streets, Phillip, Raglan, Wellington, John and McEvoy. One chain, around 20 metres, wide, the streets support the movement of pedestrians, cyclists and vehicles and accommodate significant tree plantings. McEvoy Street is now a busy road subject to widening in part and in the north Phillip Street was added incrementally.

The streets fan and bend to integrate with the streets of other earlier developed estates that surround it. They form relatively large blocks, almost 200 metres centre to centre. As a consequence, the primary street pattern is overlaid with a series of smaller streets and lanes including Cooper, West, Reeve and Mead streets. The smaller reservations, around 6 – 9 metres do not support trees and have narrow footpaths.

In the 1970's some of the lanes and streets were resumed, closed and incorporated into new development, disaggregating and isolating the layout. The resumptions included Mead Street, George and Cooper street north of Raglan, Pitt Street south of Reeve, and several lines running north south between George and Pitt streets.

The City's Alternative Approach firstly reinstates the closed Cooper George, Mead, John and Pitt streets.

These are supplemented by the extension of West Street to the south to meet Mead Street and north to Phillip Street and the southern extension of Cooper Street.

The narrow streets are generally widened to 20 metres to match the others.

The result is more streets running north south. This is an advantage as while east west streets are more overshadowed by buildings on their north frontage, a northerly orientation ensures more year round sun access. Access to sunlight provides pedestrians with amenity in winter months and promotes more, healthier tree growth.

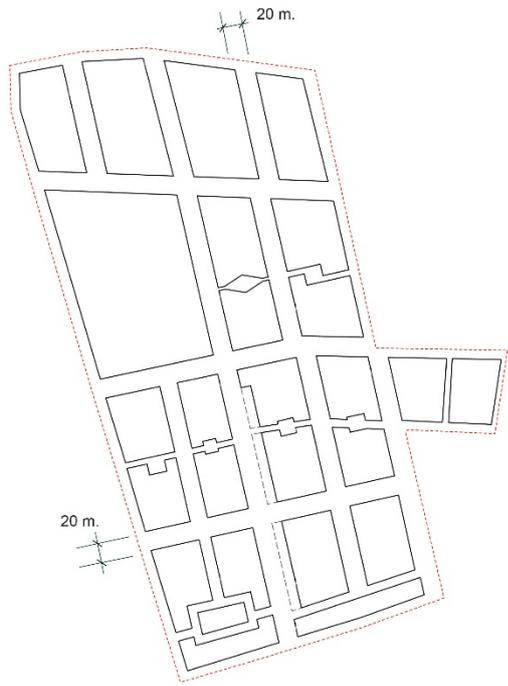
The orientation ensures that the new streets between George and Pitt run along the contour and are relatively flat so its footpaths are accessible to people of all abilities.

The street pattern is overlaid with east west midblock walkways 6 metres wide to increase the choice of walking routes and shorten the distance taken by people walking through the area.

East of George Street the walkways ascend the slope. Here they are formed by ramps to ensure access to people of all abilities.

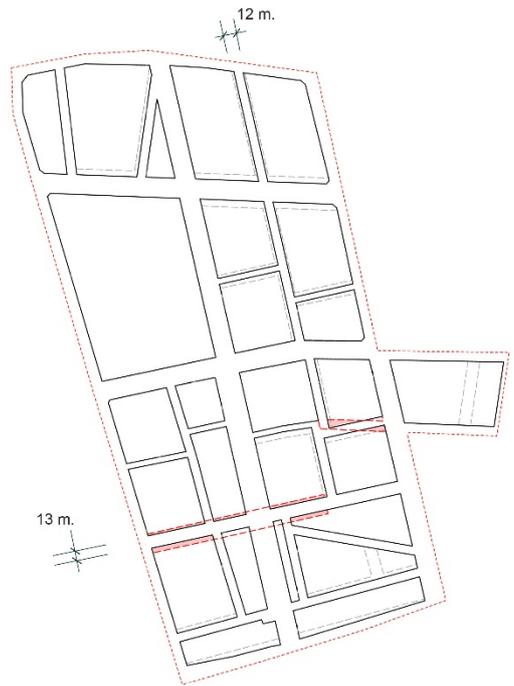
The walkways widen at the centre of blocks to small squares that have trees and are places to sit solitarily or in small groups away from the activity of streets.

### STREET LAYOUT COMPARISON



--- EXTG. STREET ALIGNMENT DELETED  
■ EXTG. PUBLIC LAND TO BE PRIVATISED  
TOTAL AREA - 71,540 sqm. (37% site area)

CoS Alternative Approach



--- EXTG. STREET ALIGNMENT DELETED  
■ EXTG. PUBLIC LAND TO BE PRIVATISED  
TOTAL AREA - 66,100 sqm. (35% site area)

LAHC Preferred Masterplan

## Community facilities

The main hub of community facilities is located in a free-standing building in the park at the north east corner of the park.

It sits among existing significant trees overlooking the park and addressing Raglan and George streets. Over three stories its spaces can accommodate a wide range of community facilities in varying sized rooms the use of which can change overtime as community needs change.

It will be used day and night throughout the year in concert with the park providing a safe and secure centre in the public space of Waterloo.



Alternative Approach scheme: view looking south east across the new park – March 2019



Alternative Approach scheme: view looking south along George Street – March 2019

## Building types

There are four proposed building types:

- Mixed use buildings with ground floor retail and commercial uses and upper level apartment buildings
- Apartment buildings
- Special noise barrier buildings along McEvoy Street
- Renovated existing social housing towers and slabs.

The buildings line the streets in ranges defining them and enclosing quiet courtyards in the interior of the blocks formed by the streets.

Building heights along the streets are generally around seven stories or just a little more than the width of the streets. This relationship ensures adequate sunlight to and view to the sky from the streets. Some have upper storey setbacks to maintain the street proportion and its sunlit character.

Around the new park and facing onto the existing Waterloo Park the buildings are taller to allow more people to share the amenity provided by the greater outlook and view to the trees and activity within the parks, concentrating more people in the areas of greater amenity.

The width of the blocks formed by the streets are generally around 51 metres. This is distributed with 18 metre wide courtyards at the centre of buildings 16.5 metres deep.

A building depth of 16.5 metres is an ideal maximum dimension for good amenity in apartments. It suits natural cross ventilation and good levels of natural light with the centre being three times the depth of the normal ceiling height of 2.7 metres. It allows multiple arrangements of apartment plans and sizes.

The streets have more light and activity while the courtyards are quiet and private. These characteristics and the building depth encourage apartment arrangements that place living areas on the street side and bedrooms on the courtyard side. This reinforces the underlying characteristics of the various elements of urban form encouraging better outcomes for everyday life. Balconies overlooking and passively surveilling the streets, people sleeping without being disturbed by the noise of café life or others enjoying a late night at home.

The roofs receive plenty of sunlight and have greater outlook and are therefore best suited for the principal usable part of communal open space. The courtyards can maximise the deep soil and be filled with trees.

The relatively even height, continuous streets of different buildings spreads the amenity given by sunlight and ventilation evenly. It allows social housing buildings to stand alongside market housing building undistinguished in any way. It ensures tenure blind buildings in a mixed tenure community. Along the shorter blocks of the east west streets the centre building of each block is lower, generally at four stories to increase the amount of light into these streets and the courtyards that they sit at the heads of.

The buildings set back and are lower adjacent to existing dwellings along Pitt, McEvoy and Cope streets to minimise overshadowing of existing dwellings.



Alternative Approach – aerial view looking north east over the new park – March 2019

### **Noise Barrier Buildings**

On McEvoy Street, thin buildings are sited as a continuous noise barrier to the busy street. The thin cross section allows apartment layouts to have habitable rooms facing away from the street and non-habitable rooms and access to be arranged along the street. This closely follows the objectives and guidance of the Apartment Design Guide for Noise and Pollution.

### **Mixed use buildings**

Ground floor retail and commercial uses surround the park and line George Street, these are the overlapping foci that form the heart of activity for Waterloo. In most ways the apartments above are the same as the other apartment buildings.

At the ground level retail and commercial uses provide continuous active frontage and pedestrians are protected from the weather by awnings. On the east side of George Street, the non-residential space can extend under the to West Street where due to the slope it will be underground to accommodate larger retail or commercial tenancies.

Either side of George Street retail areas can open onto the walkways and small squares.

### **Existing towers and slabs**

Conserving the existing towers and slab buildings may be more economic than demolishing and replacing them, it will conserve some of the existing character of the area and saves the considerable embodied energy and material of these buildings becoming waste.

The services need renewal and the apartments enlarged. In France this is normal practice and has led to cost savings when redeveloping existing housing estates. In Bordeaux the architects Lacaton & Vassal + Frédéric Druot + Christophe Hutin have added additional space, renewed the facades of large slab buildings while the residents have remained in place. Keeping people in their homes means not relocating people a positive social benefit and economic saving.

A similar operation is proposed in the City's alternative response.

**WATERLOO ESTATE – EXISTING TOWERS AND SLAB BLOCK BUILDINGS**



Study for renewing existing tower buildings - Matavai and Turanga  
(based on designs developed by Tim Williams & Associates P/L)



Study for renewing existing slab block buildings - Marton, Solander, Banks, Cook  
(based on designs developed by MAKO Architecture P/L)

# The City's Alternative Approach and LAHC's Preferred Masterplan Compared

In late 2019 The City's Alternative Approach and the Preferred Masterplan were compared in an endeavour to assist finding an acceptable plan.

Several key points of difference were identified:

- The park size, location and its access to sunlight
- George Street, its closure, the rerouting of the cycle path and its use as a parkland
- Building on existing streets, width of new streets widths, and sunlight and wind in streets
- Tower heights and their effects

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## Parks

The preferred masterplan proposed two parks each smaller than the one proposed by the alternative approach

The agreed Study Requirements for the State Significant Precinct of the Waterloo estate included a requirement to provide 15% of the land as public open space i.e. park. This is supported by the City's Open Space, Sports and Recreation Study that recommends the same amount.

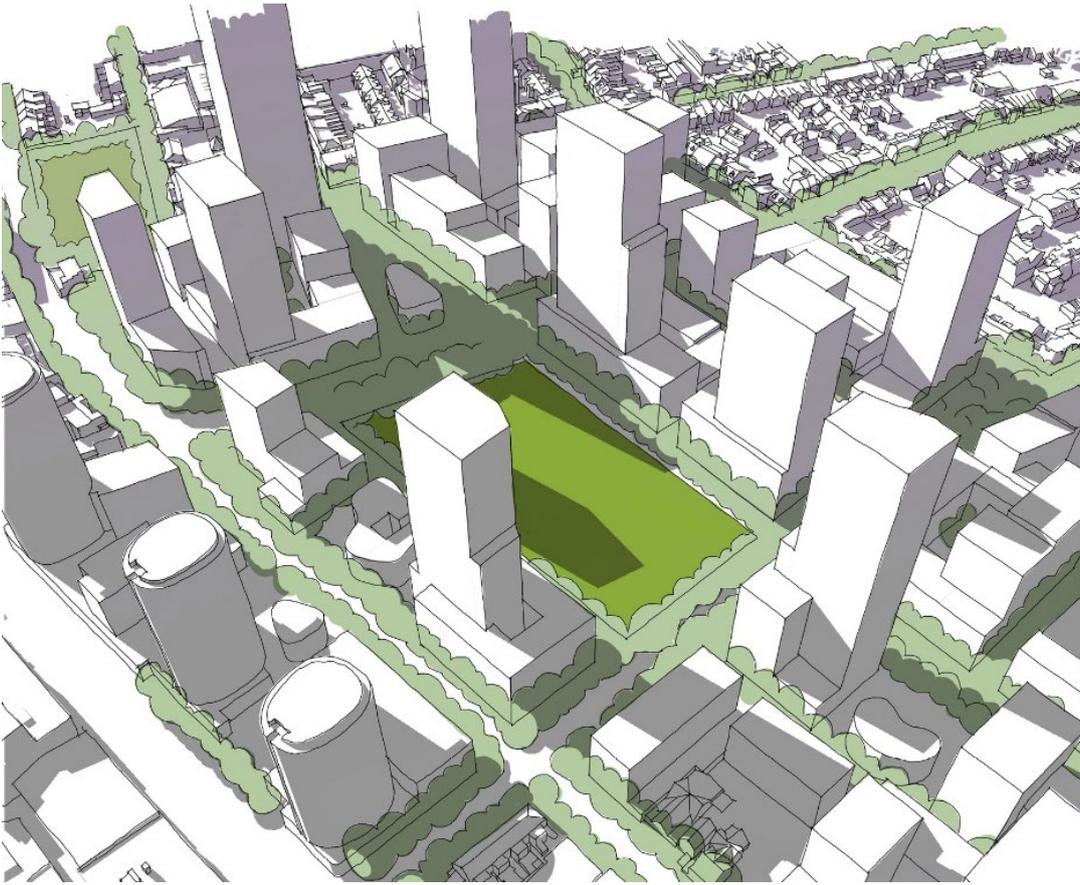
To meet this requirement, the Preferred Masterplan proposed to close George Street between Raglan and McEvoy streets – turning the street into parkland.

This is not acceptable to the City.

Closing George Street between Raglan and Wellington streets has several difficulties.

The park loses the definition of a street on its eastern side bringing park users and ground level users on the eastern frontage into conflict. The frontages need physical separation from the park for access, acoustic and visual privacy and safety [for example from a stray ball]. These conflicts are difficult to manage and usually result with alienation of the parks area or restricting its use. The alienation reduces the area available for recreation and restricting use of parks is difficult to manage and generally disobeyed creating conflict, banning ball play in a park is seen by most people as ridiculous.

Streets contain service lines owned and controlled by utilities. The utilities need be fully accessed without notice. This restricts tree planting, furniture and equipment placement and the like. These restrictions inevitably impede the planning and use of the park. This restriction is particularly unacceptable in the southern park where a large proportion of the park is centrally located in the path of George Street.



LAHC Preferred Masterplan aerial view



CoS Alternative Approach – aerial view

When combined with the need to continue to locate the regional bicycle path in the line of George Street including the street area as part of the parks is not acceptable.

It was agreed to adopt the City's preferred park location of the full block between Cope, Raglan, George and Wellington streets incorporating Cope Street. The City agreed that a smaller park is to be located in south of the site to enhance access to parkland in this area a small part of which is just over 200 walking distance from the main park.

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### Regional bicycle paths

The City's regional bicycle routes plan includes two main paths that intersect in at the centre of the Waterloo estate: north-south along George Street and east-west along Wellington Street.

The preferred masterplan did not include nor preclude the Wellington Street route.

The George Street route was planned by LAHC to be diverted around the estate via McEvoy, Cope and Phillip streets. This is not acceptable to the City and Transport for New South Wales.

Regional bicycle paths are routes that connect major destinations for many people and allow fast, safe, high capacity travel along paths separated from vehicle traffic. They are used by a variety of users including commuters and people who use bicycles for their work. The George Street path connects Green Square Town Centre to Central Sydney and is the City of Sydney's major north south regional bicycle path.

To operate successfully the route needs also to be straight and not divert, providing the most direct connection possible. Experience shows that diversions, such as that proposed by LAHC, are not followed by many users who continue to use the straight path to save time. This creates safety problems as fast travelling cyclists leave the pathways designed for their safety and the safety of other road users and conflict can result.

At Waterloo this problem exists between Phillip and Wellington streets where George Street was been removed in the 1970's by the State Government. Despite sign posting and markings that compel cyclists to divert around or dismount they continue to use the pedestrian paths in this area creating conflict. Any new plan for the Waterloo Estate is expected to solve this conflict.

Separated bicycle paths exist in George Street, the Preferred Masterplan would remove these paths and replace them with longer new paths.

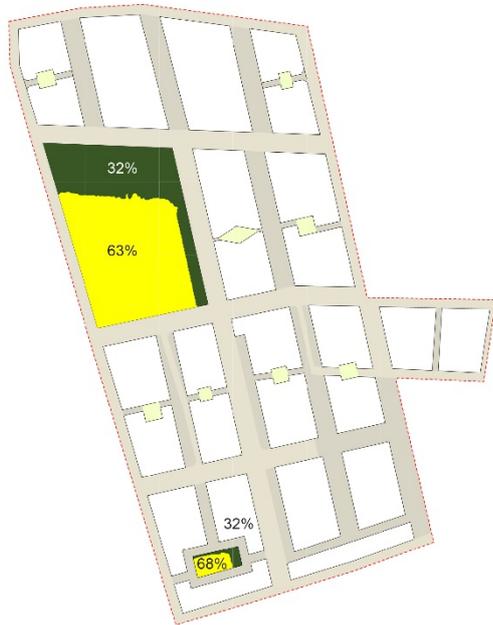
Transport New South Wales do not support adding separated bicycle paths to McEvoy Street as it conflicts with their current planning.

If the bicycle path on George Street was to remain in the Preferred Masterplan it would conflict with park users as George Street in the Preferred Masterplan is included into park areas. The conflict between fast moving cyclists and children playing in parks is a safety problem that can only be resolved by restricting park uses, restricting play in parks is difficult if not impossible to manage.

The City's Alternative Approach reinstates George Street between Philip and Raglan streets and allows separated bicycle paths to be extended in a normal fashion through the estate.

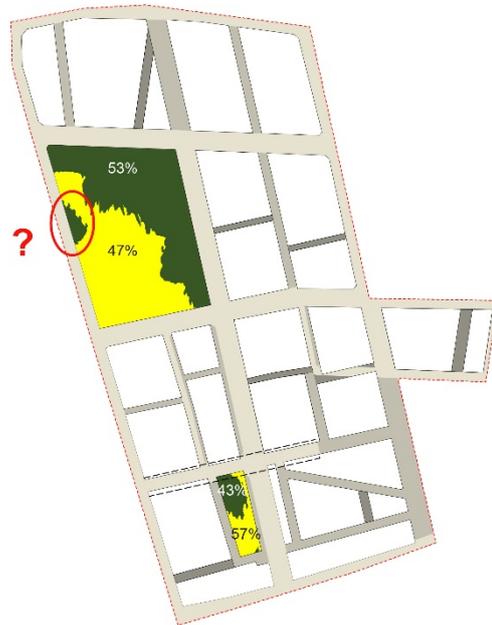
It was agreed to not move the existing regional bicycle path from George Street and to include the planned regional path along Wellington Street.

COMPARISON OF SUNLIGHT AVAILABLE TO PARKS



AREA OF PARK RECEIVING MIN. 4 hrs sunlight  
AREA OF PARK RECEIVING LESS THAN 4 hrs sunlight  
10 min. interval, 1 m. grid

CoS Alternative Approach



AREA OF PARK RECEIVING MIN. 4 hrs sunlight  
AREA OF PARK RECEIVING LESS THAN 4 hrs sunlight  
10 min. interval, 1 m. grid

LAHC Preferred Masterplan

## Street widths and sunlight to streets

Streets are the predominate public space of the city. They are open to all, connective, and accommodate multiple users and meet multiple needs. They are the primary character forming element of places.

In the City of Sydney streets support most of its trees. Street trees absorb pollutants and replenish the air with oxygen. They provide shade and cool the environment in the heat. Promoting tree growth is an important design criterion in the layout of streets. Tree growth is greatly assisted by access to sunlight.

The Alternative Approach orients most streets along a north south axis. They are 20 metre wide like the existing predominate street widths in the city, including the main existing streets in Waterloo: Raglan, Wellington, John, Cope, George and Pitt streets. Increased pedestrian permeability is provided with a series of narrower [6 metres] east west walkways between the existing streets and the inclusion of footpaths within the new and widened north south streets. The predominance of north south streets creates more intersections on the east west streets. Each intersection allows sunlight in, maximising the available sunlight to these streets. The width and orientation of the north south streets receives sunlight year round.

The Preferred Masterplan has generally narrower, with 6 and 9 metre street reservations in a generally 12 metre building to building, new streets evenly distributed in the east west and north south axes. The narrowness and the lack of hierarchy in orientation lessen the access to sunlight in these streets, particularly, in mid-winter.

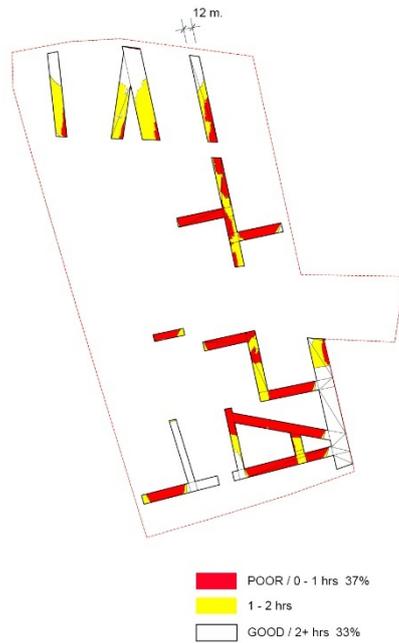
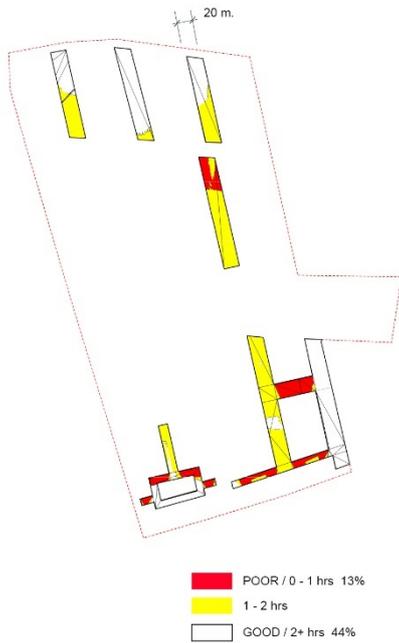
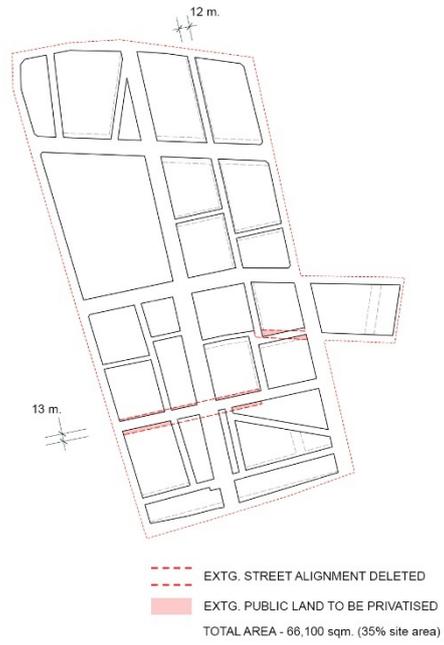
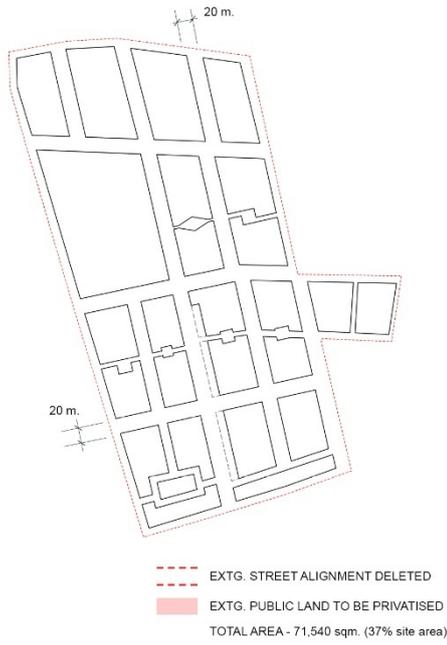
Within the 12 metre building separation the proposed the street reservations proposed are generally 6 and 9 metres wide. These widths are suitable for shared zones in low use streets – streets that are not required for access to car parks and are located where low [10kph] speed zones are likely to be approved, for example around parks, but not elsewhere.

The Preferred Masterplan includes the narrowing the existing John Street reservation, from 20 metres to 13 metres, to increase the amount of developable land. Implement the narrowing requires a street closure; a complex, time consuming, uncertain legal and bureaucratic process; followed by service relocation and tree removal. John Street is managed and controlled by the City, its agreement to the narrowing was not sought during the design process and is not likely to be agreed. It also proposed closing Reeve Street and reopening it in a slightly different position in a slightly narrower reservation. This is also not acceptable to the City.

The Alternative Approach's streets orientation and width provides more sunlight proportionally and in aggregate than the preferred masterplan. The Alternative Approach's streets have more sunlight providing better amenity and better tree growth and greater canopy cover, they are cooler in summer.

LHC agreed not to narrow John Street, not to close and reopen reeve Street and to increase the width of West Street between Reeve and John streets.

**COMPARISON OF STREET NETWORKS – WIDTHS AND SUNLIGHT ACCESS**



## Tower heights

LAHC's Preferred Masterplan includes seventeen towers of over 20 storeys, with 15 of these over 30 storeys and six of these over forty storeys.

Waterloo is affected by height limitations that provide safe landing paths, including in emergency situations and for special emergency services like the Flying Doctors Service, to Sydney Airport. The limits are derived from international air safety standards. At Waterloo this limits the heights of buildings to around thirty storeys, the forty storey buildings exceed the limit. Permission to exceed the limit is required from the airport authorities and is unlikely to be obtained. There are over 400 apartments in the Preferred Masterplan that are not likely to receive consent.

The towers contain around two thirds of the proposed apartments around the same as the number of private apartments proposed. Apartments in towers generally have better amenity with more access to sunlight, greater building separation, less apartments per floor and better outlook and privacy. Apartments in towers are more expensive to construct. Apartments in towers, even those at lower levels, have a sale price that is higher than similar apartments in lower buildings, raising the average housing price. The Preferred Masterplan the private and social does not describe the future distribution of social and private housing. A market response that seeks to maximise profit would place all the private housing in the towers and all the private housing in the low buildings. An unintended consequence of the distribution of the building form between towers and low buildings is that the social housing has less amenity and be easy to distinguish from the private housing. This result contradicts LAHC's intention to provide tender blind buildings; ie, buildings that in appearance cannot be distinguished as social or private housing.

Waterloo is exposed to strong winds from the west and the south. When these winds hit the sides of tall buildings, they produce downdrafts that create uncomfortable and sometimes unsafe environments at ground level. These conditions can be relieved by providing podium level setbacks of a minimum of 8 metres, sometimes 10 metres is required, or by providing voids within the buildings that allow the downdrafts to be diverted at a safe higher level. The Preferred Masterplan does not allow for the diversion of downdrafts by setbacks or breaks in the towers. Consequently, wind conditions on some streets and parks are unacceptable.

The only towers in the City's Alternative Approach are the existing Matavai and Turanga towers at the north end of the estate. The approach is to renovate the towers, refitting them to a contemporary standard.

The preponderance of towers in the preferred masterplan leads to shadows clumping limiting sunlight into streets and courtyards.

LAHC agreed to reduce the height of some towers to meet the operational requirements of Sydney airport.

### COMPARISON OF TOWER HEIGHTS



## Sunlight to courtyards in midwinter

Both LAHC's Preferred Masterplan and the City's Alternative Approach have street perimeter building forms that surround communal courtyards.

In both, the principal usable part of communal open space is located on the roofs of buildings where there is access to winter sunlight to meet the design criteria of the Apartment Design Guide.

The communal courtyards provide opportunity for landscaping, including trees, to meet the canopy target requirements. Therefore, the courtyard size and the amount of sunlight they receive is beneficial even though this is not subject to a design criterion in the Apartment Design Guide.

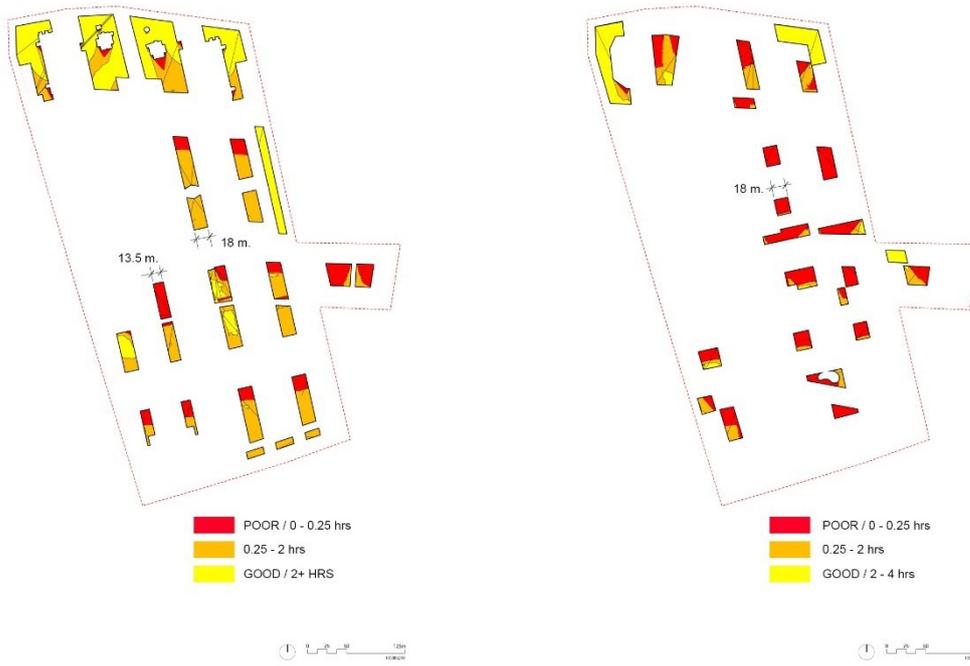
In both, the courtyards are generally 18 metres wide to meet the visual privacy building separation criteria of the Apartment Design Guide.

The City's Alternative Approach has more courtyards than LAHC's Preferred Masterplan. The City's courtyards are larger with their long axis in a north/south solar orientation. The size and length increase sunlight to the courtyards. It provides an environment for easier and more certain tree growth.

The Preferred Masterplan's courtyards are more often squarish rather than rectangular and consequently are smaller, more enclosed and receive less sunlight.

The City's courtyards receive significantly more sunlight proportionally and in aggregate.

**COMPARISON OF COURTYARDS – MID-WINTER SUNLIGHT ACCESS**



# LAHC Planning Proposal Request

In May 2020, LAHC submitted a Planning Proposal request. The Planning Proposal request is reduced in extent from the Preferred Masterplan excluding the area north east of Raglan, George and Wellington streets. The proposal contains around 3000 dwellings.

The Planning Proposal request includes some improvements from the Preferred Masterplan in response to the consultation process and the City's Alternative Approach:

- The main park is larger located between Cope, Raglan, George and Wellington streets and includes Cooper Street between Raglan and Wellington streets
- More sunlight is provided to the parks
- No development is proposed on the city's streets
- George Street is not closed or used as parkland
- The regional bicycle path on George Street remains in place
- John Street is not narrowed
- The extension of West Street is widened
- The building separation across the new street just north of and parallel to McEvoy Street is increased
- The towers have been reduced to around 30 storeys so that they do not interfere with the operational requirements of Sydney airport
- The gross density is consequently reduced



- Some new streets and walkways are not accessible to people of all abilities as they run east west up the slope, rather than north south across it. This restricts access from the west of the site, isolating Pitt, West, Reeve and Kellick streets; and, areas south and west from the Pitt and McEvoy streets intersection, to the park and future Metro station.
- A preponderance of towers; nine towers, eight of around 30 storeys and, in addition, three fifteen storey buildings remain,
  - in some places these towers are located closer together than required by Sydney Development Control Plan 2012
  - They do not have sufficient podium setbacks or other measures to protect the surrounding public spaces from wind downdraft
  - They limit sun access to streets, courtyards and lower buildings
  - They risk undermining the goal of tenure blind development
  - They limit future development to a small number of tier one developers, limiting competition and denying entry to lower cost developers including community housing providers
- East-west orientation of new street layout limits solar access into new streets, lessening amenity and tree growth
- Some buildings do not meet the building separation criteria of the Apartment Design Guide
- George Street bisects the southern park unnecessarily, decreasing the usefulness of the park while necessitating two new streets either side of it that duplicate the traffic function of George Street thereby increasing the amount of land dedicated to streets
- Several setback areas are located on corners and lack definition between the public and private space creating ambiguous places that are difficult to manage
- The lack of lots creates large parcels that are not suitable for subdivision, lessening building design diversity along streets.
- The intensity of development is unevenly spread causing peaks in density adjacent to significantly less dense lots, for example, the lot bounded by Cope, John and Cooper Streets has a density of over 11:1 and its neighbour around 3:1. The double digit density does not exist outside Central Sydney in the City of Sydney Local Government Area, it is not an appropriate density for housing in this area.
- The majority of dwellings (two thirds) are located in high rise buildings with high amenity while one third have lesser amenity risking an inequitable distribution of amenity to different housing tenures
- The failure to make a main street. The distribution of non-residential space has two characteristics, a concentrated centre with most of the space being located below or above George Street level not on grade with it and a series of small retail spaces scattered across the site. The scattered non-residential uses is generally a failed strategy and non-residential uses not on street level are always difficult to sustain
- the parks receive barely enough mid-winter sunlight and risks being undermined in future development proposals.

Although the improvements are beneficial the remaining issues of concern are not simply resolved by a series of incremental changes addressing each shortcoming.

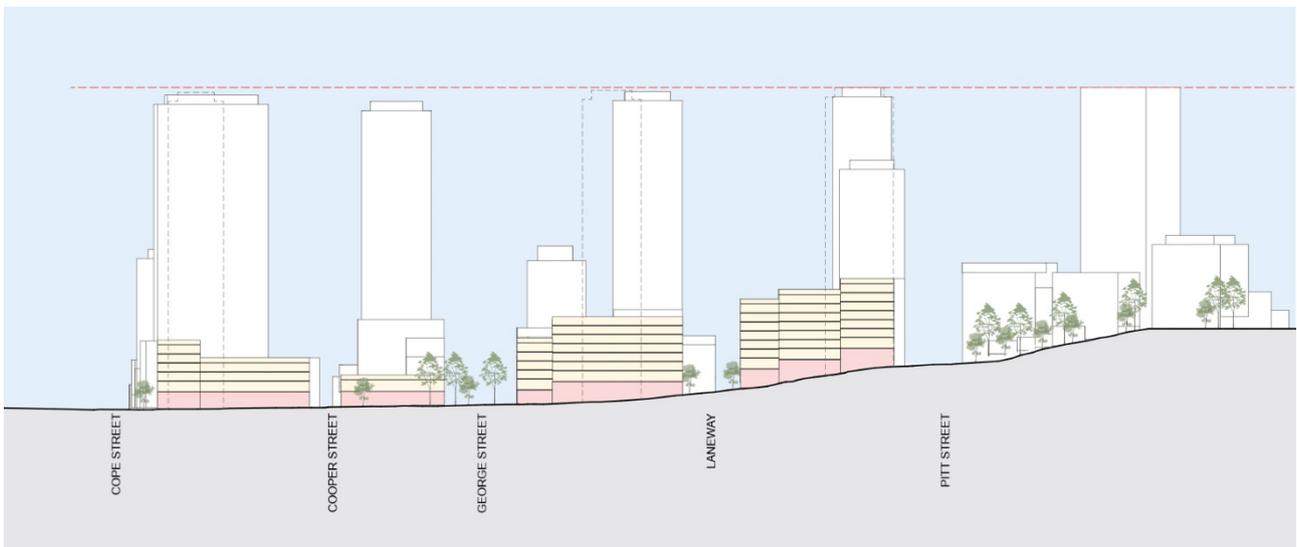
**MATTERS OF CONCERN WITH LAHC's PLANNING PROPOSAL REQUEST**



Matters of concern – streets and parks



Matters of concerns – built form



Cross section through precinct showing arrangement of towers and lower built form in the LAHC planning proposal request scheme.

# Planning Proposal and the LAHC Request Compared

When compared to LAHC's request the Planning Proposal has the following advantages:

- Access for people of all abilities is provided by -
  - The eastern extension of John Street designed as a series of pedestrian ramps
  - The new streets Mead and West Street are orientated north south along the contour and are flat and accessible
  - Walkways with easements with public right of way, the provision ramps and a the use of a lift to access a supermarket gives access for people of all abilities within and across the area including providing a choice of routes
- The new streets – Mead Street; and the extension of West, Pitt and Cooper streets are orientated north-south to enjoy greater sun access in mid-winter whereas the request new street run east west and the new streets around the small park simply duplicate and undermine the character of George Street
- Proposes less area of new streets and parks and therefore minimises the cost of construction and ongoing maintenance
- Requires less land dedication for streets and parks and thereby increases the developable area, lowering the intensity of development on average across the site
- With most buildings of a relatively even height the intensity of development is more evenly spread without peaks of density on some sites
- There are only three buildings of 15 storeys or more, it minimises the environmental effects of tall buildings – wind and overshadowing. LAHC's Proposal has eleven buildings of 15 storeys or more.
- Fits more comfortably into the existing skyline, when viewed from the main public spaces that surround Waterloo, including Redfern Park, Alexandria Park, the existing Waterloo Park, the new park and from the north and south approaches along George Street
- Wind conditions in the streets and parks are safer and more comfortable. The towers in the Planning Proposal are designed with three storey breaks to relieve wind downdraft, whereas LAHC's request has minimal podium setbacks to the towers insufficient to break the downdraft.
- The parks have a higher proportion of their area receiving four hours sunlight in midwinter
- continuous retail frontage along George Street for two full blocks makes a main street focus for the community

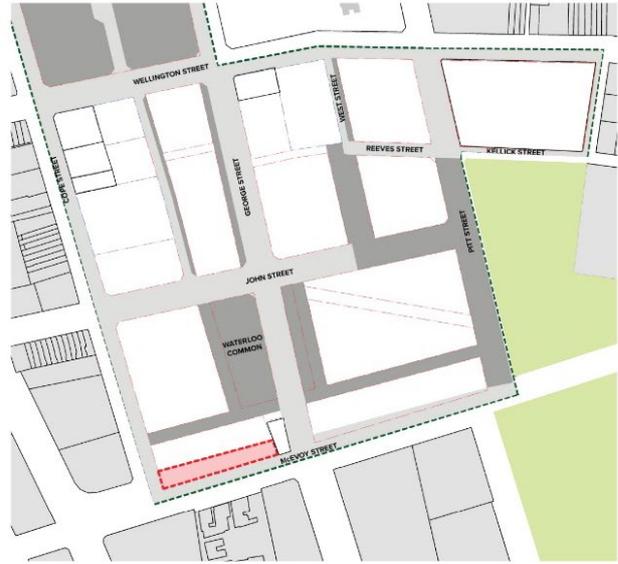
**COMPARISON OF LAND DEDICATIONS**

**CoS PLANNING PROPOSAL**



- Former streets
- Street widening - LaHC land
- Street widening - other land
- New streets and walkways
- New park areas dedicated from LaHC-owned land
- New lot boundaries
- Existing lot boundaries

**LAHC PLANNING PROPOSAL REQUEST**



- - - Proposed Lot Boundary
- - - Private Lot Boundary
- SP2 Zone to be dedicated to RMS
- Existing public domain owned and managed by the City of Sydney
- Existing private domain to be dedicated to the City of Sydney

**COMPARISON OF STREET LAYOUT AND ACCESSIBILITY**

**CoS PLANNING PROPOSAL**



- New accessible routes via ramp
- New accessible routes via lift
- New accessible routes via walkway
- Existing accessible routes
- New non-accessible routes
- Existing non-accessible routes
- 1.12 Slope

**LAHC PLANNING PROPOSAL REQUEST**



- New accessible routes via ramp
- New accessible routes via lift
- New accessible routes via walkway
- Existing accessible routes
- New non-accessible routes
- Existing non-accessible routes
- 1.12 Slope

**COMPARISON OF FLOOR SPACE RATIOS**

**CoS PLANNING PROPOSAL**



A	0.25		
S2	1.75	W3	3.88
U2	2.64	X2	4.04
U3	2.03	X3	4.09
U4	2.89	X4	4.43
V2	3.1	Z1	5.16
V3	3.14	Z2	5.57

**LAHC PLANNING PROPOSAL REQUEST**



P	1.23		
V2	3.06	Y2	4.89
V3	3.09	Y3	4.94
V5	3.27	AA3	6.55
X2	4.34	AE2	10.80

**COMPARISON OF NON-RESIDENTIAL USES**

**CoS PLANNING PROPOSAL**



	precinct boundary		park
	existing lot boundary		non-residential use
	new lot boundary (indicative)		potential location for supermarket
	through-site link (indicative)		number of levels of non-residential use

**LAHC PLANNING PROPOSAL REQUEST**



	Existing Community Facilities		Park
	Community Facilities		Retail & Commercial

**COMPARISON OF APARTMENT YIELDS PER BLOCK**

CoS PLANNING PROPOSAL



- Existing site boundary
- New lot boundary
- Right of way
- LaHC-owned site
- Dwellings per block - LaHC-owned sites
- Dwellings per lot - LaHC-owned sites
- Dwellings per lot - privately-owned sites

LAHC PLANNING PROPOSAL REQUEST



- Proposed lot boundary
- Number of dwelling units

**COMPARISON OF SUNLIGHT ACCESS TO STREETS**

CoS PLANNING PROPOSAL



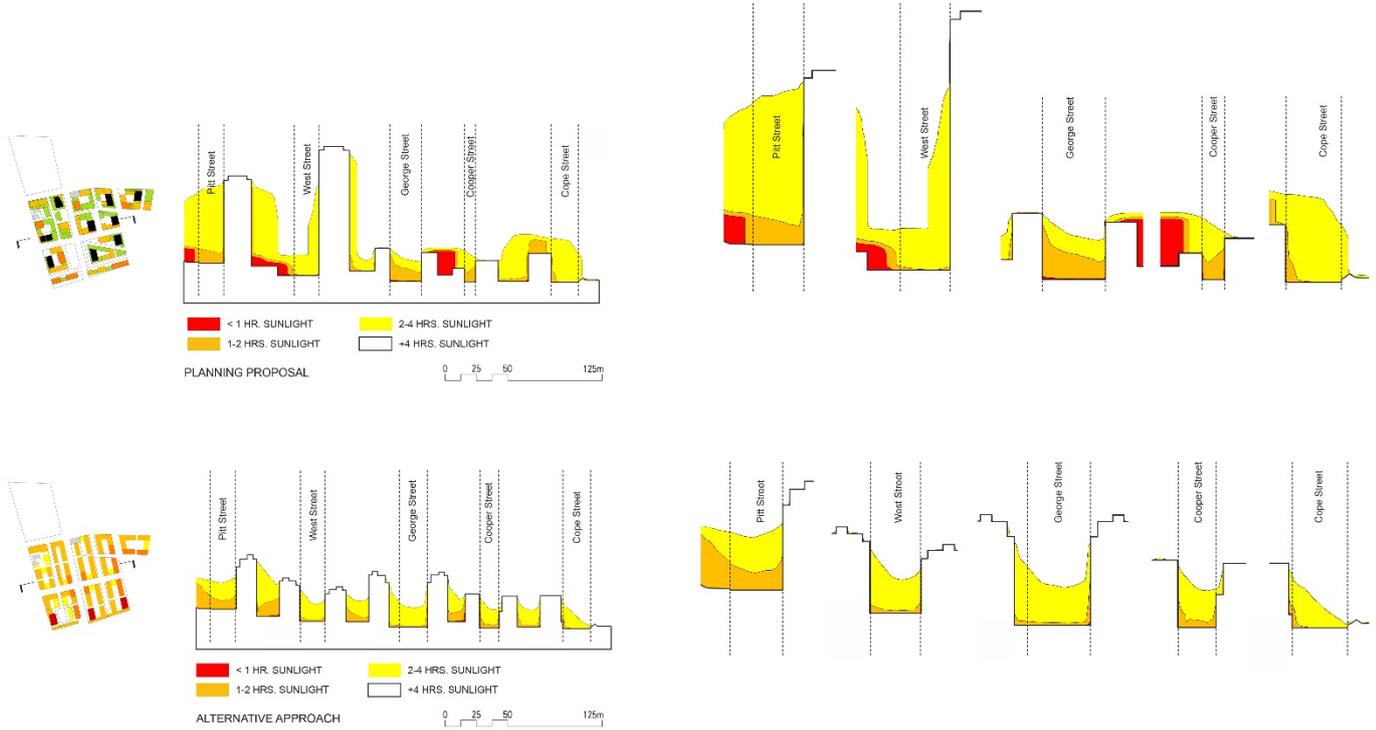
- less than 1 hr.
- 1 - 1.9 hrs.
- 2 - 3.9 hrs
- 4 hrs or more

LAHC PLANNING PROPOSAL REQUEST



- less than 1 hr.
- 1 - 1.9 hrs.
- 2 - 3.9 hrs
- 4 hrs or more

**COMPARISON OF SUNLIGHT ACCESS TO STREETS**



Cross sections through streets showing the amount of sunlight reaching street level (LAHC Planning Proposal request above; CoS Planning Proposal below)

**COMPARISON OF SUNLIGHT ACCESS TO PARKS**

CoS PLANNING PROPOSAL

LAHC PLANNING PROPOSAL REQUEST



Area of parks receiving minimum 4 hours sunlight at the winter solstice (June 22)

**COMPARISON OF BUILT FORM – HEIGHT IN STOREYS**

**CoS PLANNING PROPOSAL**

**LAHC PLANNING PROPOSAL REQUEST**



Heritage	8 Storeys
1 Storey	9 Storeys
2 Storeys	10 Storeys
3 Storeys	11 Storeys
4 Storeys	12 Storeys
5 Storeys	13 Storeys
6 Storeys	Towers
7 Storeys	

