

## **ATTACHMENT A**

**DRAFT GREEN SQUARE  
INFRASTRUCTURE STRATEGY AND PLAN,  
MARCH 2015**





Sydney2030/**Green/Global/Connected**



# Green Square

## Draft Infrastructure Strategy and Plan

March 2015

*city of villages*

# Contents

<b>1.0 Introduction.....</b>	<b>6</b>
1.1 Purpose of the Infrastructure Strategy and Plan .....	6
1.2 Strategic context .....	7
1.3 Methodology .....	9
<b>2.0 Location, history and the future .....</b>	<b>12</b>
2.1 A place with rich history.....	12
2.2 Planning for Green Square.....	14
2.3 Strategy and principles for renewal .....	16
2.7 The vision.....	19
2.8 Neighbourhoods.....	20
<b>3.0 The population.....</b>	<b>24</b>
3.1 Introduction .....	24
3.2 Green Square and City South Village.....	24
3.3 Development Capacity for the wider Green Square.....	26
<b>4.0 Streets and transport systems .....</b>	<b>29</b>
4.1 Integrated transport planning.....	30
4.2 Transport strategies and policies.....	31
4.3 Public transport .....	32
4.4 Traffic management .....	36
4.5 On-street car parking.....	41
4.6 On-site car parking.....	42
4.7 Cycling and walking .....	43
<b>5.0 Public domain .....</b>	<b>47</b>
5.1 Public domain plans and strategies .....	48
5.2 Stormwater management infrastructure.....	49
5.3 Open space and outdoor recreation (existing and future).....	53
5.4 Public art.....	58
<b>6.0 Sustainability .....</b>	<b>60</b>
6.1 Ecological sustainable development.....	60
6.2 Urban ecology .....	61
6.3 Energy .....	61
6.4 Water .....	62
<b>7.0 Social infrastructure.....</b>	<b>66</b>
7.1 Social infrastructure supporting community wellbeing .....	66
7.2 Local social infrastructure provision by the City of Sydney .....	66
7.3 Social Infrastructure and services typically provided by NSW Government .....	78
7.4 Affordable housing as social infrastructure .....	82



<b>PART 3:</b> .....	<b>84</b>
<b>INFRASTRUCTURE PLAN DELIVERY</b> .....	<b>84</b>
<b>8.0 Implementation</b> .....	<b>84</b>
8.1 Implementation plan and timeline .....	84
8.2 Funding and delivery mechanisms .....	84
8.3 Partnership with the private sector for the provision of infrastructure .....	86
8.4 Partnership with government .....	89
8.5 City of Sydney positioning and advocacy .....	90
8.6 Implementation Action Plan .....	90
8.8 Community and stakeholder engagement .....	93
<b>APPENDIX 1</b> .....	<b>95</b>
Population and Demographic Profile .....	95
<b>APPENDIX 2</b> .....	<b>100</b>
Future Provision of Green Square Social infrastructure, SGS Economics and Planning 2014 .....	100
<b>Bibliography</b> .....	<b>126</b>

## EXECUTIVE SUMMARY

This Infrastructure Strategy and Plan (the Plan) gives a comprehensive overview of the strategies, plans and studies that support and guide the growth of the Green Square Urban Renewal Area (Green Square), in the context of the wider City South area. Within this framework, the Plan seeks to ensure that the necessary social and physical infrastructure is clearly identified and understood so that it can be in place as development occurs.

Green Square is one of Australia's largest urban renewal projects. It is strategically located within one of the most important economic corridors in the country, sitting between Central Sydney, Kingsford Smith International Airport and Port Botany. Green Square covers 278 hectares of land and has been recognised as a Strategic Centre in the NSW Government's 2014 metropolitan strategy *A Plan for Growing Sydney*. It includes the suburbs of Zetland and Beaconsfield and parts of Alexandria, Waterloo and Rosebery. The future Green Square Town Centre, a site of about 14 hectares, is at its heart, served by the Airport Link's Green Square rail station. It will be the focus for living, shopping and commerce for Green Square and beyond.

The City's *Sustainable Sydney 2030: The Vision* (Sydney 2030) sees the City's southern area "as an opportunity for considerable growth, infrastructure improvements and redevelopment over the next 20 years and beyond, to contribute significantly to Sydney's sustainability". Green Square will make a significant contribution to Sydney 2030's vision, targets and directions for urban renewal, design excellence, sustainable forms of transport and affordable housing.

By 2030, Green Square is expected to provide 22,000 jobs and house 53,190 residents. From the 3,000 people who lived there in 1999 when most of the area was rezoned, the population has risen to 21,200 in 2014. Green Square is being transformed from being one of Sydney's oldest industrial area into a diverse and revitalised village, with a rich and unique history, for people to live, work and visit.

Critical to the successful transformation of Green Square is the provision of the appropriate level of supporting social and physical infrastructure to sustain the existing and new communities. Appropriate infrastructure will achieve the City's Sydney 2030's goal to integrate the City's urban renewal areas into the fabric of the City, to create an environment that invites the community to:

- walk and cycle;
- use and enjoy public spaces, cultural and recreational facilities;
- enjoy well-connected streets;
- use convenient and integrated public transport connections and services;
- celebrate high quality public spaces as the focus of activity; and,
- have good access to housing, including affordable rental housing, shopping, commerce, services and employment.

Many studies, detailed investigations and plans have been undertaken for Green Square over the last two decades to address significant physical and social infrastructure gaps. These have informed the planning controls and actions that have shaped the renewal. More recent documents have focused on the delivery of the Green Square Town Centre and the network of civil infrastructure works, facilities and services to support the rapid growth of the centre and adjacent neighbourhoods.

The Plan gives an overview of the more recent strategies policies, studies and plans that have influenced decision making to date. Whilst some of the documents and actions described in the Plan are specific or single issue based they are linked, and aim to achieve the co-ordinated delivery of works and services by the City, NSW Government agencies and developers.

Since the first planning framework for the renewal of Green Square came into effect in 1999, many pieces of public infrastructure have been built: the Airport Link Line and the station at Green Square (which opened in late 2000 with its station access fee being removed in 2011); 11 new parks with leisure facilities; new landscaped streets; new pedestrian and bike networks; stormwater management works incorporating Water Sensitive Urban Design treatments; additional bus services; and a library and neighbourhood service centre at the 'Tote' in Zetland. The City's social programmes and community development projects have accompanied these. In addition, private infrastructure such as child care centres, leisure facilities and new retail precincts offering shopping and personal services, have been delivered by developers and are scattered throughout the area.

The Plan recognises that some services, such as public transport, education and health provision are not the responsibility of the City, but where it can, the City is funding facilities, services and civil infrastructure to support its community, to facilitate development and to ensure high quality design, amenity and services. Around \$440 million is committed for the Town Centre and over \$800 million across the wider Green Square. Approximately half of the City's Town Centre investment is for streets and drainage and half for new community facilities and open spaces. To fast track these projects the City has committed the bulk of this expenditure in its Long Term Financial Plan to the financial years 2014/2015 to 2018/2019.

However, the pace of redevelopment has been very rapid with about 18,000 new residents moving into Green Square since 2000. Although the City has facilitated and committed major funding for facilities to keep pace with this rate of growth to support its community, the delivery of the infrastructure needed cannot be done by the City and developers alone. Significant public infrastructure, most notably schools, public transport and health services are needed. These are the responsibility of the NSW Government. The City's assessment of state provided social infrastructure clearly indicates some facilities and services have not kept pace with the growth.

The Plan highlights infrastructure provision and prioritisation across both the City and the NSW Government agencies, to optimise community benefit and ensure that the different levels of Government are well placed to respond to the emerging challenges and demands associated with the growth of Green Square. The Plan identifies who is responsible for the provision of infrastructure and seeks to offer a framework to work with the relevant agencies to ensure the delivery of infrastructure is provided in an efficient, integrated and timely way.

The Plan has been prepared by the City with inputs from an in-house working group made up of specialists in planning, stormwater engineering, social planning, infrastructure design and delivery, transport planning, traffic operations and community engagement. Some input from the relevant NSW agencies has also been sought, however further input is necessary to confirm and verify the NSW Government's analysis and commitments for infrastructure delivery. The Plan also covers those issues which were derived from comments made by the community during the 'Have your say' consultations undertaken by the City and other community feedback received through various sources such as surveys, and as identified where relevant in this Plan.

The Plan is in three parts. Part 1 provides an introduction to Green Square, its location, history, the vision and demographic characteristics. Part 2 includes information on specific subjects, what has been done so far and highlights any gaps or next steps for infrastructure provision. Part 3 covers governance/partnerships, community and stakeholder engagement, and the implementation of the Plan.

Infrastructure elements integral to the sustainable redevelopment of Green Square covered include:

- public transport and traffic management;
- stormwater management;
- open space and outdoor recreation (existing and future);
- public art;
- urban ecology;
- energy;
- water;
- community development services;
- community wellbeing; and
- affordable housing.

The Implementation Action Plan (Action Plan) in Part 3 summarises infrastructure items required, the responsible delivery agent and timeline of when the infrastructure should be provided. The Action Plan will provide a basis for ongoing discussions with the relevant agencies to seek commitments for timely delivery.

It is intended that the Plan will be kept up-to-date so that that all parties have a clear understanding of issues being addressed and/or being planned for. The Plan will be a 'living' document that will be reviewed and updated regularly by the City's internal working group. The review process will involve liaison with stakeholders, including NSW agencies. The review will include updating the status of projects, initiatives and the prioritisation of issues and projects in the Action Plan to ensure it responds to development pressures, timeframes and funding availability.

The City seeks continued partnership with the agencies to ensure the delivery of infrastructure occurs in an efficient, integrated and timely way. A key component of the Plan is the communication, partnership and engagement explained in Part 3. The participation and engagement of all stakeholders are key, and clear communication of the actions needed underpins the aim of the Plan. The Plan is to be used as a framework for ongoing discussions with the relevant NSW agencies in particular, to comprehensively understand the scale and pace of redevelopment in Green Square and to provide input into recommended actions and timeframes.

This Plan and updates are publicly available in the City of Sydney website.



## 1.0 Introduction

The Green Square Urban Renewal Area (Green Square) is 278 hectares in size. It includes the suburbs of Beaconsfield and Zetland and parts of Alexandria, Rosebery and Waterloo within the City of Sydney Local Government Area. It is located just four kilometres from central Sydney (two stops on the train), three kilometres from some of Sydney's best beaches, and four kilometres from Sydney's Kingsford Smith airport. A rich heritage, excellent golf courses and regional open spaces are just a few of the strengths of the area.

Green Square is one of the largest urban renewal projects in Australia in one of Sydney's oldest industrial areas. At its heart is the new Green Square Town Centre (the Town Centre), a site of about 14 hectares, centred at the Green Square train station on the Airport Link railway line. The Green Square and Town Centre boundaries within the context of the larger Sydney region are shown in Figure 1.



**Figure 1: Green Square and Town Centre boundaries**

Green Square's largely industrial past and its highly accessible location made it a prime location for urban renewal. However this poses significant challenges, as the infrastructure in place at the start of the renewal reflects the limited requirements of industrial land uses. Substantial new and upgraded physical (or 'hard') and the social (or 'soft') infrastructure is needed for the mixed uses that Green Square is to accommodate.

Some of this new infrastructure is now in place, particularly where large sites have been redeveloped, and there is significant new planned infrastructure in the pipeline. Green Square will only deliver on the City's aspirations for urban renewal if all the necessary infrastructure is realised.

### 1.1 Purpose of the Infrastructure Strategy and Plan

This Infrastructure Strategy and Plan (the Plan) provides a comprehensive overview of strategies, plans and studies that identify both, the physical and the social infrastructure required to support the growth of Green Square, within the context of the wider City South area. The Plan seeks to ensure that the necessary infrastructure is clearly understood so that it can be in place as development occurs.

This Plan also seeks to identify opportunities to strengthen infrastructure provision and prioritisation across both the City and the NSW Government agencies, to optimise community benefit and ensure that the different levels of Government (and their responsibilities) are best placed to respond to the emerging challenges and demands associated with the growth of Green Square. The Plan seeks continued partnership with the agencies to ensure the delivery of infrastructure is provided in an efficient, integrated and timely way.

## 1.2 Strategic context

The technical investigations, planning and development of Green Square date back to the mid 1990s following the announcement of the Airport Link Line and the Green Square railway station in 1994. The announcement was the catalyst for a new planning framework for redevelopment and renewal so as to capitalise in Green Square's strategic location between the Sydney Central Business District (CBD), Sydney (Kingsford Smith) Airport and Port Botany. The strategic context is shown in Figure 2.



Figure 2: Strategic context of Green Square

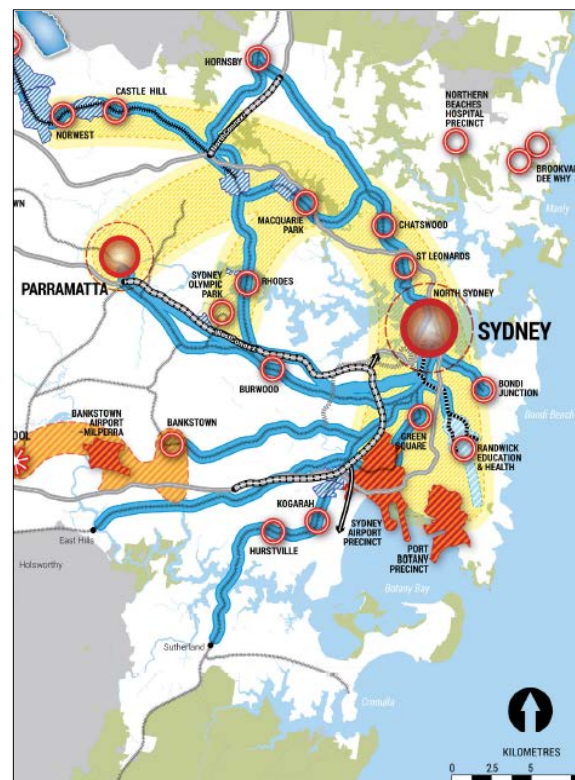


Figure 3: Global Economic Corridor (A Plan for growing Sydney 2014, NSW Government)

Green Square has been the focus of regional and local planning for two decades. It is situated within the 'Global Economic Corridor', which extends from Port Botany through to Macquarie Park, as shown at Figure 3. Under the NSW Government's metropolitan strategies, Green Square has for many years been identified as a planned major centre to include retail, commercial, residential and other uses.

The Global Economic Corridor is Australia's dominant area of economic activity with 'Global Sydney' (Sydney CBD and North Sydney) at its core. Employment lands in Green Square and the City's southern employment lands also play a vital role in supporting the corridor servicing manufacturing and freight activity at the port and airport as well as service-sector industries in the Sydney CBD. The Draft Metropolitan Strategy also sees Green Square as a 'strategic centre' as the focus of medium and high density housing and business and commercial growth, with supporting infrastructure.

In December 2014, the NSW Government published *A Plan for Growing Sydney*, a new overarching strategic plan for the Sydney metropolitan area for the next 20 years. The plan follows the exhibition in March 2013 of the draft *Metropolitan Strategy for Sydney to 2031*.

This new strategy applies to 41 council areas, divided into six subregions, locating the City of Sydney within the 'Central' subregion, together with 10 other councils.



The strategy includes updated residential and employment targets of 664,000 homes and 689,000 jobs by 2031 for the whole of the Sydney metropolitan area – slight increases from the draft Strategy targets of 545,000 homes and 625,000 jobs. However, it does not break these targets down by subregion or local government area, nor does it include any targets for such things as affordable housing, the environment and social infrastructure.

The strategy recognises the crucial role of Sydney in driving the national economy and prioritises intensive development of strategic locations, including the Sydney CBD, Green Square, the Global Economic Corridor, Greater Parramatta and Sydney's Gateways – the port and airports. It sees growth in these locations as being critical to sustaining and expanding the economy and supporting more jobs closer to where people live.

To deliver the goals of the strategy, subregional plans will need to be developed in consultation with local councils, the community and the private sector. An independent 'Greater Sydney Commission' (the Commission) will be established and will have the task of coordinating, implementing and monitoring the progress of the strategy. The Commission will work with councils and State agencies to ensure that growth is aligned with infrastructure and delivered in a timely manner.

It is expected that subregional housing and employment targets will be developed as part of the subregional planning process to follow, and that Green Square will provide a significant number of those new dwellings in the City of Sydney. However detailed targets for sub-regions are absent from the strategy.

The strategy also commits to a monitoring and reporting process to check on the progress of the actions. The Commission will have the responsibility for this review process which will comprise annual update reports, triennial outcomes reports, and a review of the strategy every five years.

The City strongly supports the commitment to annual reporting, as this will provide evidence to evaluate the efficacy of the strategy. However, other than outlining a broad framework for ongoing monitoring, the strategy does not provide sufficient details on the performance measures that will be used, other than a preliminary list of indicators.

Performance measures and targets should be developed in consultation with local councils to ensure appropriate monitoring and how individual targets are being met by councils within the subregions. This Plan can form a significant input in informing the ensuing discussions to set targets and infrastructure requirements.

At a local level, the City's *Sustainable Sydney 2030: the Vision* (Sydney 2030) sees the southern part of the City including Green Square as an opportunity for considerable growth, infrastructure improvements and redevelopment to contribute significantly to Sydney's sustainability.

Green Square presents an opportunity to make a significant positive contribution to the vision. From its industrial past, Green Square is emerging as a place of innovative housing design, bespoke businesses and retail, and creative and engaged communities proud of their area's past and future. When complete it will have delivered many of the City's aspirations for its communities, with new homes, places to work, shop and to recreate, streets, public open spaces, stormwater management, pedestrian and cycle links and community facilities and services.

Approximately \$8 billion of private investment will have been spent over the next 10 years to regenerate Green Square. In addition to private investments, the City has allocated a budget of \$440 Million over the next 10 years towards Green Square to build world-class community facilities and infrastructure, focusing on high-quality design and creating a welcoming, exciting and connected precinct. The budget will facilitate the delivery of key infrastructure in the Town Centre and adjoining neighbourhoods, including a library and public plaza, community centre and halls, aquatic centre and public and open spaces, land acquisition and essential infrastructure, such as road, footpaths and transport corridors, drainage, utilities and services network, and landscaping. The works proposed is a major undertaking which will transform the City's southern areas.

It is anticipated that by 2030 Green Square will accommodate approximately 27,000 dwellings and 22,000 permanent jobs. By 2030, its population will have risen from the current 21,200 people in 2014 to about 53,000 people.

### 1.3 Methodology

The successful transformation of Green Square must be accompanied by the appropriate level of supporting social and physical infrastructure to support the new and existing community. This Plan identifies:

- the infrastructure that has already been delivered and that is required;
- if available, the indicative timeframe at which it is required;
- if available, the indicative costs; and,
- the responsibility for its delivery.

Informing the preparation of this Plan is a background of NSW and local strategies, plans and studies that to different degrees set the direction for infrastructure delivery and are of influence to the Green Square renewal. Many of these are listed in the bibliography in this Plan. The key documents are shown in the diagram at Figure 4.

This Plan has been prepared by the City with inputs from an in-house working group made up of specialists in planning, stormwater engineering, social planning, infrastructure design and delivery, transport planning, traffic operations and community engagement. Some input from the relevant NSW agencies has also been sought, however further input is necessary to confirm and verify the NSW Government's analysis and commitments for infrastructure delivery. The Plan will be updated in the first instance to incorporate the agencies' input. Subsequently, the City will undertake regular reviews and updates as described below.

The Plan also covers those issues which were derived from comments made by the community during the 'Have your say' consultations undertaken by the City and other community feedback received through various sources such as surveys, and as identified where relevant in this Plan.

The Plan was developed by undertaking a review of the strategies and policies that apply in Green Square. A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis for redevelopment was also undertaken to identify the positive and negative aspects associated with redevelopment, and to provide clarity on the vision and strategy for Green Square. The SWOT analysis also highlighted what, and where, the risks associated with redevelopment are.

This allows the City to then measure how effectively it is responding to changes in priorities or demands, both from internal and external factors as development progresses. Each chapter focuses on a different subject,

The Sydney 2030 Directions are used to set the objectives for development in Green Square and the benchmark from which infrastructure delivery is assessed. Each chapter details the relevant Sydney 2030 Direction, highlights the risks for infrastructure delivery, and any recommended further actions to ensure infrastructure is provided.

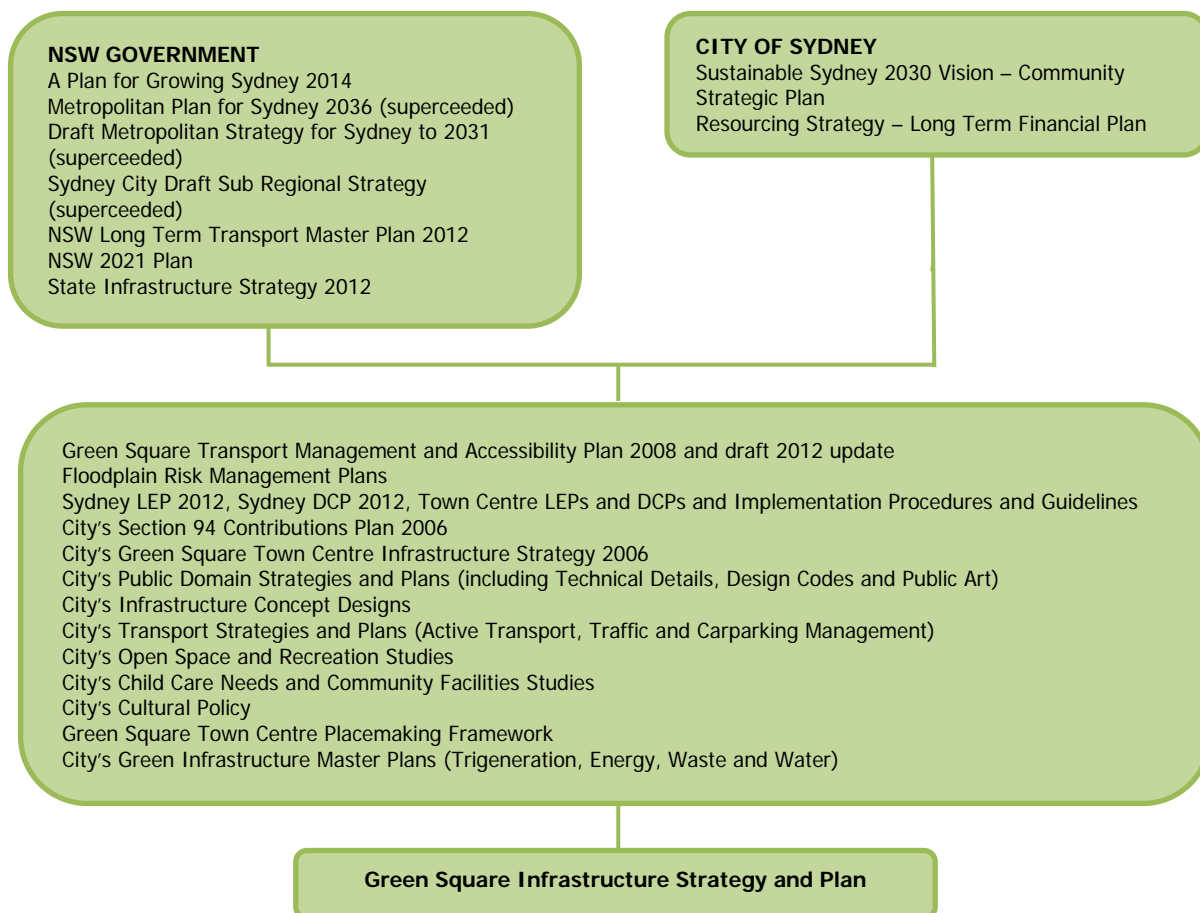
The Plan is in three parts:

1. Part 1 provides an introduction to Green Square, its strategic context, its history, the vision and demographic characteristics;
2. Part 2 includes information on specific subjects – streets and transport systems, public domain, sustainability and social infrastructure. It examines what infrastructure has been provided to date, that which is underway or programmed, and which is required. It also details who is responsible for the delivery and, where possible, the timeframe for its delivery. Risks and actions are highlighted linking to the Implementation Action Plan (Action Plan) in Part 3.
3. Part 3 discusses governance/partnerships, community and stakeholder engagement and the implementation of the Plan, including an Implementation Action Plan. The Action Plan summarises the items of infrastructure that are still required, the agency that is responsible for their delivery, and, where possible, the costs and any further recommended actions for delivery at the appropriate time.

The Plan details specific issues that are to be addressed and where possible what actions are being taken to address them. These issues have been assessed against current policies, projects and general operational services to establish if there is a sufficiently established process in place to deliver infrastructure to meet the increased demand associated with development. Those services that are not the responsibility of the City, public transport provision for example, are highlighted as items to be addressed with the relevant NSW agencies.



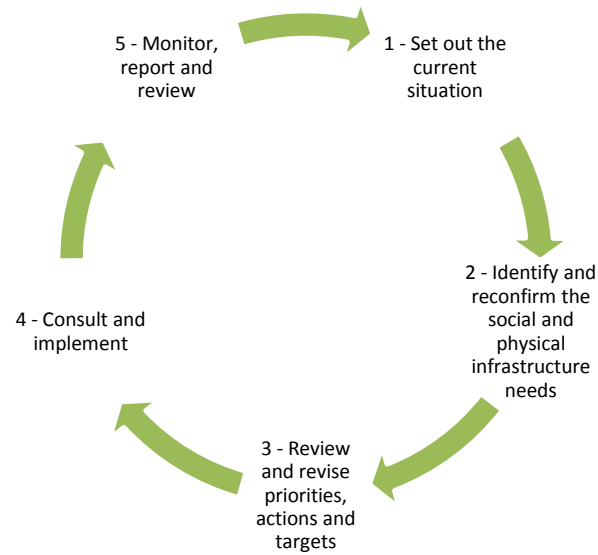
A key component of this Plan is its communication and engagement strategy covered in Part 3. The delivery of the infrastructure needed cannot be done by the City alone. The participation and engagement of all stakeholders and clear communication of the actions needed underpins the aim of this Plan. It is intended that the Plan is made available for review to all stakeholders and updated on a regular basis.



**Figure 4: Recent background documents to the Infrastructure Strategy and Plan**

In particular, engagement with the relevant NSW agencies and commitment in the delivery of improved services to meet demand will be an ongoing process. Progress will be captured in the regular review of the Plan.

The evolution of this Plan will be an iterative process; as renewal progresses, the actions will need to be reviewed and updated. The process for developing and maintaining the accuracy and relevance of this Plan is illustrated at Figure 5.



**Figure 5: Plan preparation and review process**

## PART 1:

# AN INTRODUCTION TO GREEN SQUARE

## 2.0 Location, history and the future

### 2.1 A place with rich history

Green Square has a rich and unique history which is being overlayed with new urban development. The diverse neighbourhoods of Green Square are rich in history – particularly from the periods of the early settlers and working classes who established themselves in the area from about the 1840s, as evidenced by old factories that are being reused for retail and food outlets, the terraces of former workers cottages that are now dedicated conservation areas and those factories that made a wide range of famous Australian products such as ‘Minties’, ‘Jaffas’, ‘Akubra’ hats, and ‘Kooka’ ovens. This history will be expressed in the streets via interpretive public art, creative installations and street and park names that reference the rich characteristics and people of the area.

#### Indigenous history

Green Square has a long indigenous history. The natural environment was sandhills, fresh water creeks and wetlands which provided abundant and varied food and materials for the Carrahdigang clan (Cadigal and Gadigal are also used), of the Eora nation who are the traditional owners of the area now commonly known as Green Square. The Carrahdigang people, who are from the Darug language group, were amongst the first Aboriginal people to make contact with Europeans in 1788, and were led by renowned Bidjigal warrior, Pemulwuy, in their resistance to British occupation.

#### European settlement

The prevalence of wetlands and creeks in this area, which initially restricted development by Europeans, gave way to some industrial development in the area, being in close proximity to the growing city provided irrigation, transport, and power for the early mills and. The reliance on this water supply soon drained the wetlands and by 1869 the environment had changed radically.

The natural run off system from Waterloo Swamp to Shea’s Creek, the Cooks River and Botany Bay provided a waste drain for industry, and has resulted in the polluting of the Alexandra Canal, a problem which still exists today.

The area was also used as a waste drain for sewage. From 1882 to 1916 the southern outfall sewer system carried the southern suburbs’ human waste from Surry Hills to a sewerage farm on the northern bank of the mouth of the Cooks River. Part of this system was an uncovered channel.

During the 19th century almost all of the area known as Alexandria, Beaconsfield, Waterloo, Zetland and Rosebery was owned by Daniel Cooper, a convict turned businessman. By the 1850s the ‘Cooper Estate’ had flourished into an industrial suburb. Along with brickworks, candle and soap factories, tanneries, breweries and wool washing firms, schools and churches were established.

In the 1880s small residential subdivisions were being established as workers’ housing, particularly on the slightly higher ground in Zetland, Waterloo and Beaconsfield. A map of the Parish of Waterloo at that time is shown at Figure 6. The break-up of the Cooper Estate then, provided large areas of land for purpose built factories, and after the Second World War the area expanded even further with large scale ‘planned’ factories. By 1943 the Municipality of Alexandria was the largest industrial municipality in Australia, and was known as the “Birmingham of the Southern Hemisphere” with 550 factories employing 22,238 people.

Many of these residential subdivisions are now conservation areas identified in the planning controls which serve to protect the heritage of these suburbs.

### Other settlers

The area was not only inhabited by Europeans, many Lebanese and Chinese people also migrated into the area. The first Lebanese church in Australia, St Michael's Melkite Church, was built in 1895 in Waterloo and in 1909 the Chinese Temple was built in Retreat Street, Alexandria. The area surrounding Retreat Street has been the site of continuous Chinese occupation since at least the 1870s. The precinct accommodated the highest concentration of Chinese market gardeners in Sydney during the 1880s and early 1900s. There was also a large dairy which provided milk for much of the Eastern Suburbs.

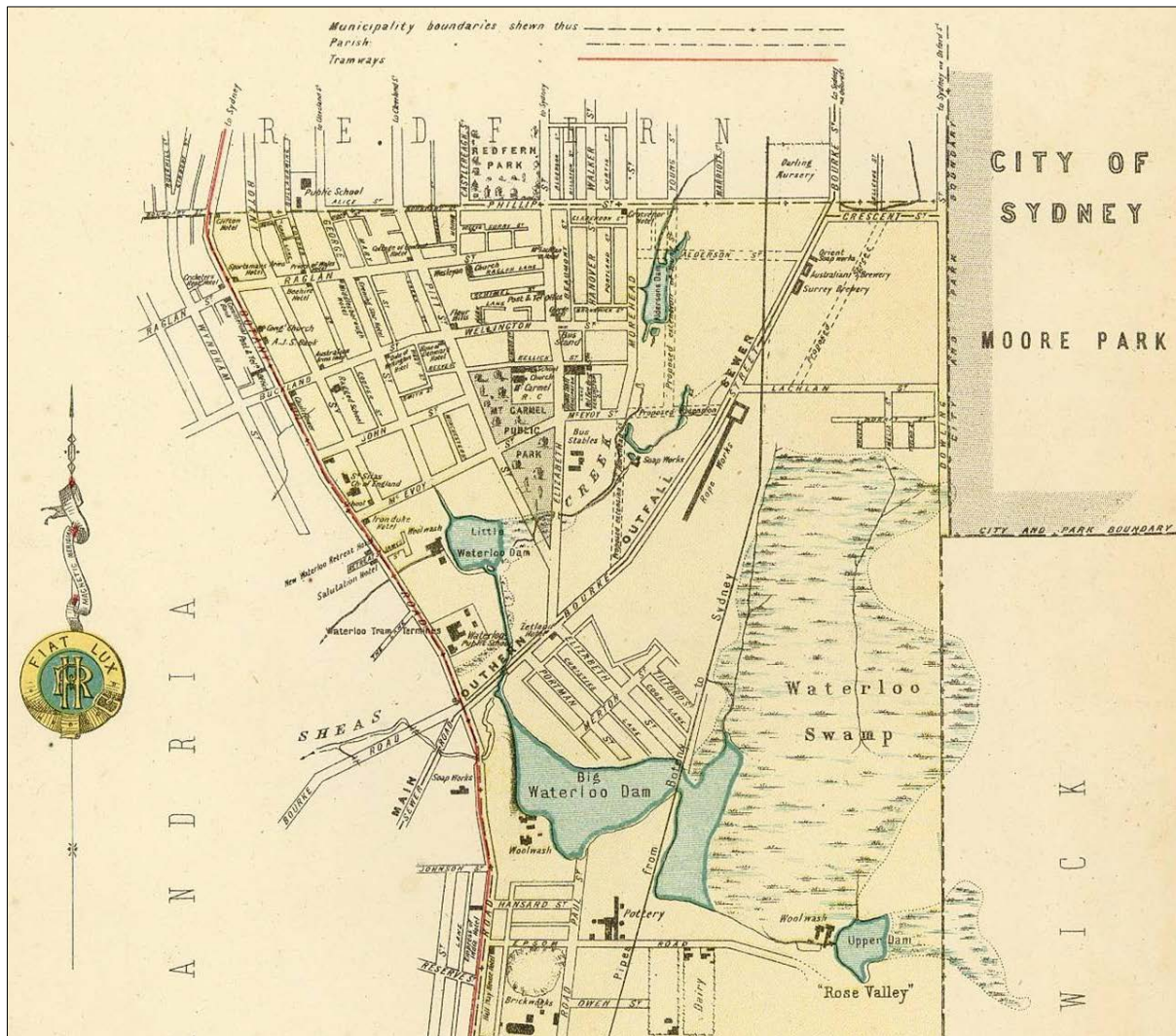


Figure 6: Map of Parish of Waterloo 1890

### Significant landmarks and developments

Other significant landmarks within Green Square included the Victoria Park Racecourse which was created in 1906 on former swampland in Zetland by the Mayor of Sydney, Sir James Joynton Smith (refer to Figure 7). During the 1950s the site was bought by British Motor Corporation for industry and today is the Victoria Park residential, retail and commercial development. The original totalisator building, "The Tote", remains on Joynton Avenue, and today it houses the Green Square Library and Customer Service Centre.

The suburb of Rosebery was developed in 1911 and promoted as 'Sydney's model residential and industrial suburb' – the factories were separated from housing by parklands and no two adjacent houses were of the same design. Like Zetland and Beaconsfield it also became one of a number of close knit communities where 'everyone knew everyone'. As part of the preparations for the 150th Anniversary of Governor Phillip's Landing, O'Riordan Street was reconstructed in 1938, with a new landscaped grass area being created. This open space, was named Green Square after the Mayor of Alexandria, Alderman Frederick Green, and can still be seen adjacent to the Airport Link Line railway



This aerial photograph shows a residential neighborhood with a large, oval-shaped field or park in the center. The field is surrounded by streets, including O'Leary Avenue to the north, Dowling Street to the east, and Eastern Distributor to the south. Other streets visible include O'Riordan Street, Johnson Street, Epsom Road, Botany Road, and various smaller streets like O'Leary Avenue, Dowling Street, and Eastern Distributor. The area is densely packed with houses and buildings, with the field providing a large open space in the middle.

14



**Figure 8: Green Square Structural Masterplan 1998 layout**

urban area.

The vision was to bring forth a dynamic, diverse, and sustainable urban place through the concept of mixed land uses. Implementation mechanisms for public domain infrastructure were also proposed in the form of floor space bonuses and section 94 developer levies. Central to the realisation of the vision was successful urban design controls and high design quality, both in the built form and public domain.

The plan preparation process that followed was a collaboration between the former South Sydney City Council and the NSW Government's South Sydney Development Corporation. The process involved engagement with the community and landowners, workshops, design competitions, technical investigations and detailed urban design and public domain analysis. The key concepts and vision set by the Masterplan were integrated into this work.

### Planning controls framework

Most of Green Square was first rezoned for urban renewal in 1999 with specific provisions under the *South Sydney Local Environmental Plan 1998* and *South Sydney Development Control Plan 1997: Urban Design*. At that time the council also approved the masterplans for the two largest single ownership sites in Green Square – 'Victoria Park' in Zetland (former Leyland factory site) and 'Crown Square' in Waterloo (former 'ACI' site) – both now almost fully redeveloped.

The current planning controls (excluding the Town Centre) are contained in *Sydney Local Environmental Plan 2012* (Sydney LEP 2012) and *Sydney Development Control Plan 2012* (Sydney DCP 2012). The controls carry forward the vision and principles identified in the early planning of Green Square and refine them in line with current NSW Government's and Council plans and policies. The controls establish the infrastructure framework and integrate the many strategies, studies, analysis, concept designs and development approvals that apply to Green Square. These are discussed throughout this Plan.

The Town Centre was 'deferred' (excluded) from the Green Square rezoning in 1999 so as to allow for the preparation of a specific masterplan to ensure the coordinated development of such a critical site and to develop a robust strategy for infrastructure funding. The first conceptual Town Centre masterplan was completed in 2000. A second detailed masterplan supported by an implementation plan and a draft local environmental plan (LEP) was publicly exhibited in 2003.

The Masterplan proposed land use patterns, a public domain structure, social infrastructure, ecological sustainable strategies, and movement networks to guide the urban renewal. It formed the basis of planning controls that guide redevelopment.

The Masterplan sought to establish a community based strategic planning framework for the new "suburb" of Green Square, based on an urban design vision underpinned by the four key concepts of:

- Diversity of land uses, building types, public spaces and housing choice.
- Connectivity of public spaces and public streets which integrate existing and future landscapes and buildings.
- Interdependency and compatibility of land uses, and the social and physical environment.
- Long-term renewal and growth expressed in a strategy for the renewal of Green Square into a compact sustainable

Further analysis and technical investigations followed to establish an appropriate built form and public domain structure for the Town Centre, with particular regard to complex land ownership, the scale of development, the site's interaction with the adjacent street network and the scale and funding of infrastructure needed to support redevelopment. A new LEP, development control plan (DCP) and infrastructure strategy were adopted by Council and the Central Sydney Planning Committee (CSPC) in 2006.

Significantly, the plans adopted in 2006 established a model for securing the commitment to contribute to the delivery of critical infrastructure necessary to support redevelopment. The model is referred to as the “deferral” model, based on the process the planning legislation under the *Environmental Planning and Assessment Act 1979* sets out for not progressing an LEP to come into force. Even though the new Town Centre LEP was approved and published in the NSW Government's legislation website, it was held ‘deferred’ (or inactive) until land owners request the “un-deferral” of the planning controls (or the activation of the planning controls) so as to allow high density mixed use development in accordance with the new LEP. Until such time the land can continue industrial land uses permitted under the old controls in place. Such request is voluntary and dependant on a landowner commitment to contribute to the delivery of the essential infrastructure needed for the Town Centre.

The 2006 planning controls were later reviewed and refined by the City to bring them in line with the *Sustainable Sydney 2030* vision, the NSW Government's *Standard Instrument LEP* template and to integrate the design of the infrastructure and public domain the City undertook to establish a robust and coordinated framework for new development to be built upon. The review also involved the detailed assessment of the increased density requested by Landcom (now UrbanGrowth NSW) and their selected development partner, the Green Square Consortium, composed of Mirvac Projects and Leighton Properties. The Consortium partners control about 40 per cent of significant land at the core of the Town Centre. They argued that the Town Centre was not viable without increased density.

The current new planning controls for the Town Centre were adopted by Council and the CSPC in 2012. The “deferral” model continues to be key to ensure the essential infrastructure can be funded and delivered. The model is further discussed in Part 3. More than half of the Town Centre lands have now been ‘un-deferred’, including the UrbanGrowth NSW land.

## 2.3 Strategy and principles for renewal

The urban form and structure of Green Square is characterised by key elements that play and will continue to play a major role in influencing its redevelopment. These key elements are:

- The strategic location of Green Square, as part of the City south region, between the Sydney CBD, Port Botany and the airport, to be strengthened by encouraging a strong and diverse employment base in the area.
- The transport system of major roads, streets and the Airport Link Line, providing good accessibility to Green Square from the CBD, the airport, Port Botany, and excellent amenities like golf courses, parks and sporting venues.
- Topographic features including the hilltops of Zetland and Beaconsfield, valleys and drainage lines, and view corridors providing distant and local vistas.
- A rich cultural and artistic base that can be drawn upon to create an appreciation of the diverse history of the area, an awareness of residents' rich contemporary cultural diversity, the need to provide diverse and affordable housing and a sense of place for the renewal.
- A system of underground and exposed drainage channels, tributaries to Alexandra Canal, and associated open space corridors, providing future links to local and regional parks including Moore Park, Centennial Park and Sydney Park.
- Activity centres and focal points with the future Town Centre at its core, and local nodes including Danks Street in Waterloo, Botany Road/ Epsom Road in Beaconsfield, “East Village” in Zetland, and Fountain Street/ McEvoy Street in Alexandria.
- The existing traditional residential neighbourhoods of Zetland, Beaconsfield and parts of Alexandria, and neighbourhoods such as Victoria Park, Zetland, and Crown Square, Waterloo, which have recognisable characteristics in terms of built form, land use, street pattern and landscape qualities.

- A diversity of building types, from traditional Victorian terraces, to warehouses, industrial and public buildings, many of which contribute to the cultural and heritage diversity of the area and offer opportunities for adaptive reuse and employment generating businesses.
- A history of local and NSW Government provided services and facilities such as the former South Sydney Hospital site, the Green Square public school, the Fire Brigade training facility and local council depots which create opportunities for public infrastructure and facilities.

The strategy for the redevelopment of Green Square is based on building upon, reinforcing and supplementing these defining elements. It is based on an appreciation of its existing and future role at a local, sub-regional and regional level. It aims to establish a transit oriented sustainable and harmonious community, based on a mixed use urban environment with a balance of residential and employment generating activities.

At the core of this strategy is the realisation of the new Town Centre as the commercial, retail, entertainment and cultural hub.

The strategy has evolved from the 1998 Masterplan, as the area redevelops and further reviews and studies are undertaken. The following principles continue to guide the renewal:

- Environmentally compatible mixed uses with vertical and horizontal integration of activities, which can provide for working and living.
- Active street frontages and ground level activity.
- A variety of housing types, including affordable rental housing for very low to moderate income households.
- A vibrant community supported by shops, community facilities, civic spaces, public buildings, offices, recreation facilities.
- A built form striving for design excellence.
- A high quality public domain as the physical setting for buildings, which is safe and accessible and can be enjoyed by residents and workers.
- Open space that integrates recreation needs with stormwater management and water sensitive urban design.
- Maximising use of public transport, walking and cycling, and managing road traffic to allow for essential private and commercial travel.
- An active business core around the Green Square station that supports the Green Square population and Global Sydney.
- Use of innovative technologies and design, including recycled water systems and trigeneration to achieve environmental outcomes above the 'business-as-usual' scenario.
- Long-term growth facilitating gradual transformation and allowing for existing employment based activities to continue to operate with an emphasis on environmental compatibility between new and existing uses.

The strategy is largely put into effect through the implementation of the planning controls. It is diagrammatically expressed in the Structure Plan under Sydney DCP 2012 shown at Figure 9. Together with the detailed built form and public domain controls in both the LEP and DCP it provides the continuity and coordination needed to guide change over the long term.



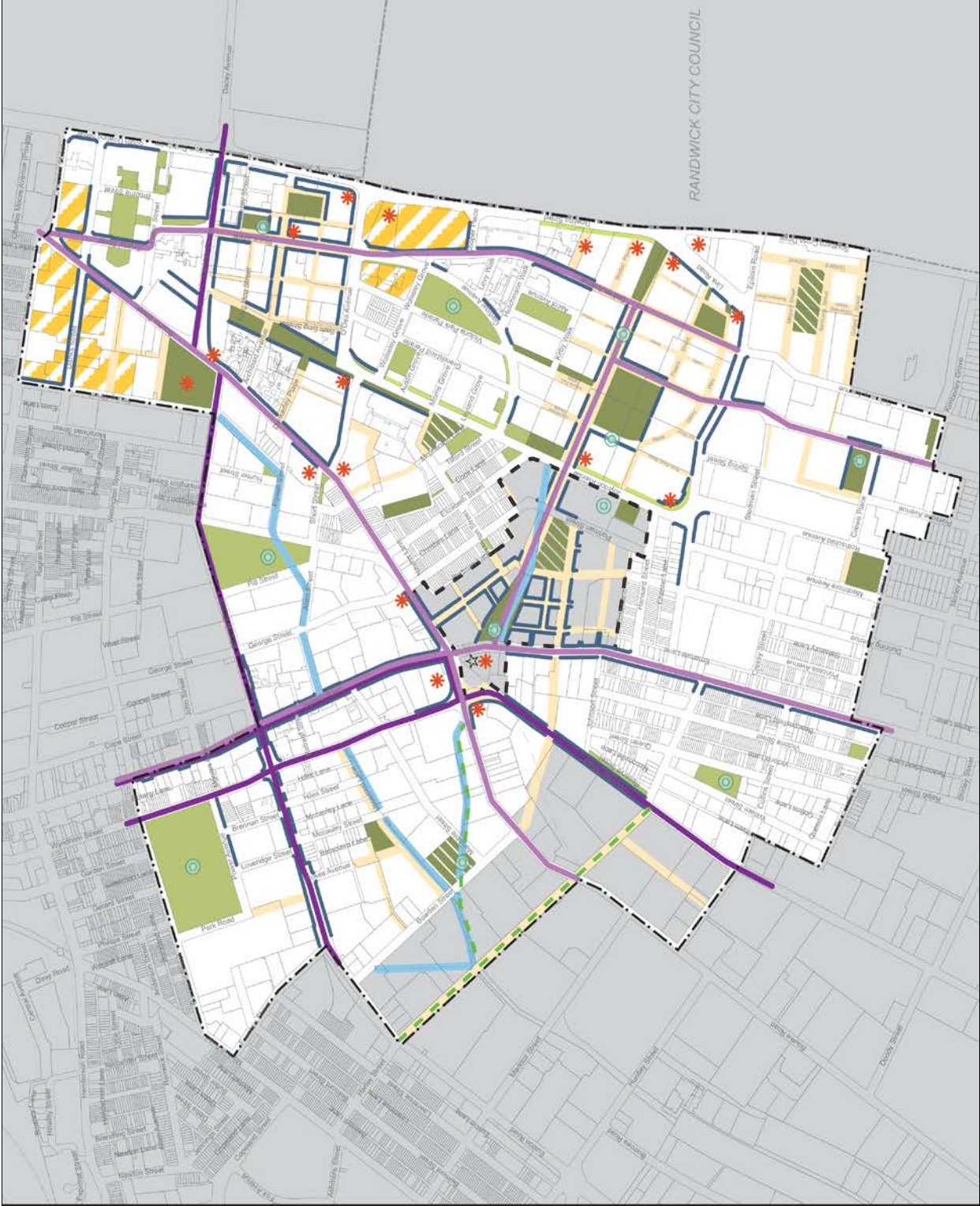


Figure 9: Green Square Urban Strategy - Sydney DCP 2012

## 2.7 The vision

Green Square is the City of Sydney's showcase urban renewal project. The largest in Australia, it will see a transformation from a gritty industrial area into an urban, vibrant inner-city hub for people to live, work and play.

**A leading urban renewal project** Green Square will have a role as the heart of a new and evolving inner-city area of South Sydney, blending new development with existing buildings, heritage and cultural identity. Green Square is made up of neighbourhoods and each will feature a main street, parks and community focal points. These evolving neighbourhoods will be easily accessible via cycle routes, interconnected pedestrian pathways and public transport – buses, trains, and in the longer term, also light rail. They will offer both visitors and locals a range of community and lifestyle services and experiences.

**A new town centre** At the heart of Green Square will be a progressive town centre serving the surrounding neighbourhoods and suburbs – a 21<sup>st</sup> century, state of the art place that provides a range of exciting retail experiences as well as new creative centre, library, child care centre, parks, and public art. The Town Centre will be a high density, high quality live/work environment.

No other town centre in Sydney has such easy access to a range of retail, cultural and community facilities and amenities all 'at the doorstep', within reach by foot or bike.

**Green** Sustainability is a key part of development in Green Square and the Town Centre. The City's vision is to enable, through planning controls and guidelines, growth and development that is sustainable as well as innovative. Connectivity will be achieved through sustainable transport modes, including through cycleways and pedestrian routes. Public transport is a priority – with a focus on buses and train services in the short term. Buildings in the Town Centre will be designed and constructed ready for connection to green infrastructure such as a recycled water network.

There is a strong emphasis on a green environment. This is through planting native vegetation in public spaces to support and protect local biodiversity. Rainwater will be harvested from roofs, or swales in the streets to help clean water run off before it enters the main drainage system. Green infrastructure – water reuse, trigeneration and waste management will set new benchmarks for large scale urban renewal.

**Location, location** Just three stops from the Sydney CBD and two stops from Sydney's International and Domestic airport terminals, Green Square is excellently positioned as an accessible and convenient location for today's frequent-flying, global workforce.

The location also provides benefits to visitors to Sydney, who will have the opportunity to choose to stay in Green Square or the Sydney CBD, or to spend a few hours stopover wandering around the parks or enjoying a coffee in one of the numerous food outlets which have been developed within former industrial buildings that echo Sydney's industrial past.

A stopover in Green Square will offer a different experience to visitors to the City, as an interesting alternative or addition to the traditional CBD stopover.

**A place for business and learning** Green Square's commercial hub will evolve at the Green Square train station. Together with the City's southern employment lands, Green Square will take advantage of its strategic location within the 'Global Economic Corridor' to offer opportunities for a mix of employment uses – educational establishments, offices, creative industries, health care facilities, showrooms.

**Distinct neighbourhoods** Green Square comprises distinct neighbourhoods, each providing community focal points including parks and retail areas that will have their own character, and reflect neighbourhood's history and community.

Diversity will be expressed through the architectural style, community facilities on offer and/or the variety of experiences they have to offer. This is seen in Danks Street at Waterloo with its mix of food, restaurants, art galleries and specialist shopping, and in Victoria Park with Joynton Park and the new shopping village.

**Socially inclusive** Green Square will be a place that is inclusive. It will represent what living in modern Australia is about with its rich and diverse population. A mix of homes will be created from traditional terraces and townhouses, affordable housing and apartments catering for a wide range of the population's needs and circumstances.

Facilities and services will cater for the cultural diversity of the community. Community programs will provide a range of opportunities for the community to connect and build strong social ties.

The Town Centre will offer activities that will appeal to a broad spectrum of the population – parents with children, young professionals, university students, empty-nesters. It will be a place with night time activities and services late into the night, reflecting the changing patterns of work and recreation.

An emphasis on safety will be embedded in buildings, parks and streets. Green Square prides itself on being a place where anyone is welcome to come and share the open spaces, cycleways and community facilities.

**A place with a rich history** The diverse neighbourhoods of Green Square are rich in history – particularly from the periods of the early settlers and working classes who established themselves in the area from about the 1840s, as evidenced by old factories that are being reused for retail and food outlets and the terraces of former workers cottages.

Although many of the factories have now disappeared and there is no evidence of indigenous history, this history is expressed in the streets via interpretive public art, creative installations and street and park names that make reference to the rich characteristics and people of the area. Interpretation of the past is visible in many of the neighbourhoods, which supports new and long-term residents to connect to the place, for instance the Chinese community through their history with market gardening in the area.

**Space to share and relax** Green Square and the Town Centre will provide a range of open spaces including parks and plazas which will offer places for relaxation and recreation that feel safe. Attractive new parks will be created with sustainable urban drainage features incorporated where practicable. Residents will have all the convenience of apartment living, coupled with attractive, leafy streets and easy access to green open space.

**A place of design excellence** All significant development will undergo a competitive design process, to achieve the highest standard of architectural, urban and landscape design and ensure the quality of design befit the aspirations for Green Square.

The City's reputation for award winning architectural excellence will be demonstrated through its new community facilities, including a new library that will become the civic focus for the Town Centre, the community buildings hub in the former heritage-listed Royal South Sydney Hospital –a community hall, creative centre, community shed and childcare centre– and an aquatic and health centre in the Epsom Park neighbourhood.

## 2.8 Neighbourhoods

A key aspect of the vision for Green Square is its evolution into distinct neighbourhoods, each with community focal points including parks and retail areas with their own character, reflecting their history and community.

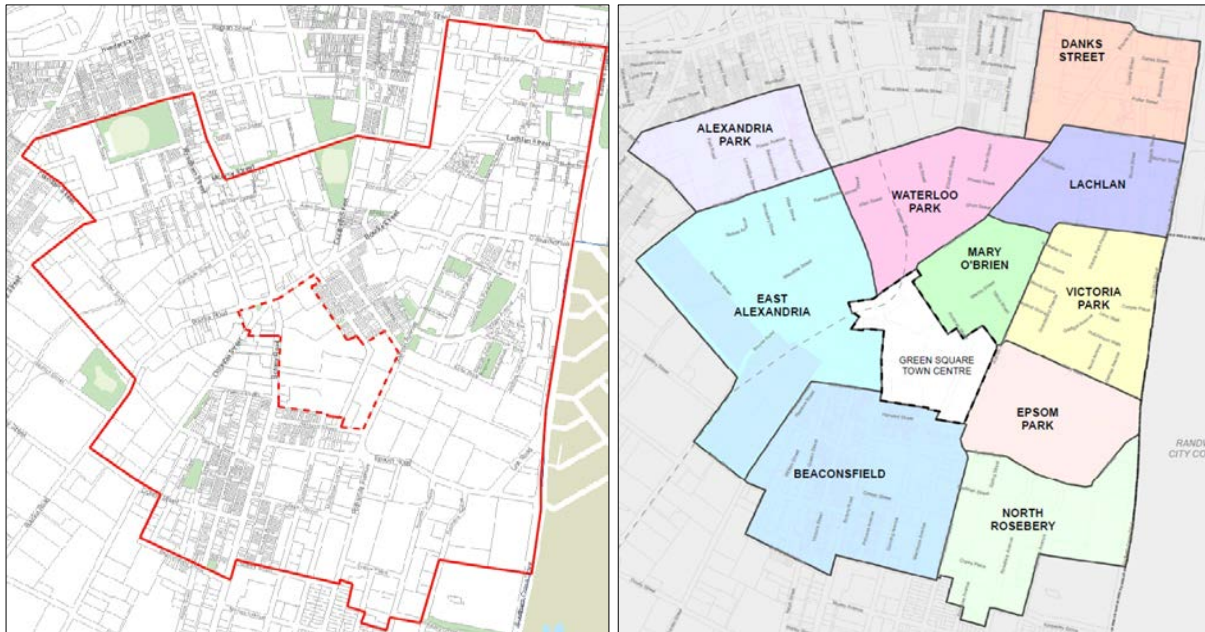
The boundaries of these neighbourhoods will evolve over time. Some boundaries will be defined by many factors such as a major road, the character of the built form development or the activities a neighbourhood contains. The boundaries are unlikely to be clear-cut.

In planning for Green Square, the City has divided the area into 11 neighbourhoods to articulate and define the individual character of the different neighbourhoods that make up such a large urban renewal area. They are shown at Figure 10.

It is noted the creation of the neighbourhoods is a planning tool only to refine a vision and a desired future character to guide new development. Over time, as these planned neighbourhoods evolve and new buildings, infrastructure and activities emerge, the boundaries will likely be adjusted or the neighbourhoods could be subsumed into the existing suburb names.

It is not proposed that these neighbourhood names be formally adopted. Any naming proposal would have to follow the NSW Geographical Names Board guidelines and will be subject to community input.





**Figure 10: Green Square and its neighbourhoods**

### Alexandria Park

Bound by Buckland Street to the north, McEvoy Street to the south, Fountain Street to the west and Botany Road to the east, this neighbourhood is within the suburb of Alexandria.

This will be a predominantly low scale residential neighbourhood that draws its character from the existing terrace houses, Alexandria Park and the surrounding tree lined streets.

The main community focal point of this neighbourhood is Alexandria Park which features sports fields, tennis courts and a fenced children's playground. The Alexandria Park Community School is an important focus of activity with a wide community catchment. A retail hub offering cafes and food stuffs has also emerged in Fountain Street on the western boundary of the neighbourhood.

Redevelopment in this neighbourhood is limited with some potential for small scale infill developments on Botany Road and Wyndham Streets.

### Beaconsfield

Bound by Johnson Street to the north, Rothschild Avenue to the east, Beaconsfield and Queen Streets to the south and O'Riordan Street to the west this neighbourhood is within the suburbs of Beaconsfield and Rosebery.

This area currently accommodates a variety of land uses. Future development will be guided by the existing fine grain and low-scale residential developments in particular the Hillview Conservation Estate in Beaconsfield and the Hansard Conservation Area in Zetland.

The community node in this this neighbourhood is around Beaconsfield Park, bought by Council for a park in 1937. The boundaries were defined by an ornamental stone fence and entrance. This park includes a children's playground, tennis court, garden seats that are under the shade of mature trees. It is popular park for locals to gather, walk the dog or have a BBQ.

A new park is to be delivered in the eastern boundary of the neighbourhood, bound by Mentmore Avenue, Rothschild Avenue and Cressy Street.

Redevelopment opportunities in this neighbourhood are predominantly to the east of Botany Road, within the larger lots which currently contain predominantly light industrial uses. Some smaller scale infill development is likely to continue in the lower scale conservation areas such as Victoria Street, Queen Street, Hansard Street and parts of Epsom Road. There are opportunities for commercial development in those areas where a less established character exists.

### Danks Street

Bound by Philip and Crescent Streets to the north, South Dowling Street the east, Lachlan Street to the south, and Young Street to the west this neighbourhood is within the suburb of Waterloo.

Danks Street is one of Sydney's most interesting and vibrant villages with art galleries, café and restaurants located west of Bourke Street. The main village centre with retail services extends to Potter Street and includes a supermarket.

This neighbourhood has already experienced a great deal of urban renewal, though some developments are considered to be less successful in terms of their lack of variety in scale and architectural design than others.

Further redevelopment in this neighbourhood is likely to occur in the area bounded by Young Street, Bourke Street, McEvoy Street and Danks Street, and is likely to develop into predominantly residential uses. The City's planning controls have identified a new park for in this area, on land that is currently owned by Sydney Water, and houses a heritage listed water pumping station.

### East Alexandria

Bound by Mandible Street, Wyndham Street, Botany Road, Johnson Street, O'Riordan Street and the Sydney Water easement between O'Riordan Street and Bourke Road this neighbourhood is within the suburb of Alexandria.

This neighbourhood is in transition with a predominantly employment nature that is in transition between traditional industrial land uses and higher density commercial and business support services development. It will continue to accommodate a wide variety of industrial uses that are integral to the operation of the wider Sydney economy and support the business and residential communities in the wider Green Square area. It will also accommodate opportunities for 'creative' industries, the 'knowledge economy' and flexible office and retail uses.

The character of the existing industrial buildings is likely to change over time with an extended street network and improved public domain making the locality an attractive location for new businesses. The industrial nature of the area should not compromise on the attractiveness of the setting, the landscape improvements of the open stormwater channel network to extend new open space, bike and pedestrian links. New east-west streets will provide improved connectivity and street frontages for new development. Two new parks will add to the amenity of the neighbourhood.

The neighbourhood will have taller commercial buildings closer to the Town Centre and within walking distance of the facilities and public transport options within the Town Centre.

### Epsom Park

Bound by Kirby Walk to the north, South Dowling Street and Link Road to the east, Epsom Road to the south and Joynton Avenue to the west this neighbourhood is within the suburb of Zetland. This neighbourhood is currently characterised by car showrooms and lots, some light industrial businesses and depots for Ausgrid and the City.

Epsom Park will be a new medium density neighbourhood with access to good public transport links, open parklands, and speciality retail. It will also be the location for the Green Square Aquatic Facility an all-inclusive physical activity hub, and a 1.5 hectare recreation park (Gunyama Park). The state-of-the-art aquatic leisure facility is likely to meet the health, fitness and recreational needs of the large and diverse local community of residents and workers both from the Epsom Park neighbourhood and the adjacent neighbourhoods and suburbs.

Like Victoria Park to the north it will be a predominantly residential neighbourhood. The main community node will be at the intersection Defries Avenue and the proposed Zetland Avenue – a 36 metre wide street which will be a defining feature that connects to the neighbourhoods to the north and the Town Centre to the west. The extension of Gadigal Avenue from Victoria Park and Zetland Avenue will create a new dedicated transport corridor that connects to Central to the north and westwards towards the Town Centre.

### Green Square Town Centre

In the suburb of Zetland, the Town Centre will be the residential, commercial and retail centre of Green Square. It will have excellent access through walking, cycling or public transport. The new dedicated transport corridor that connects Green Square to Central will make the Town Centre highly accessible to the eastern neighbourhoods.

Key features will be its generous plaza areas that provide a civic focal point. New open spaces will also be created, with community facilities including a creative centre, a community shed and childcare centre in the heritage listed former South Sydney Hospital. A state of the art new library will feature in the main plaza area that will be called Green Square.

The proposed Ebsworth Street will be the main retail strip offering traditional 'high street' type retail experiences including a supermarket, with the plaza areas also providing shopping and eating experiences.

The Town Centre will host events and activities late into the night, with social gathering opportunities and programmed events. Public art will feature heavily within the public domain to assist in creating this exciting new neighbourhood's character.

### Lachlan

Bound by Bourke Street to the west, Lachlan Street to the north, South Dowling Street to the east and O'Dea Avenue to the south this neighbourhood is within the suburb of Waterloo.

The Lachlan neighbourhood is currently going through a transition from former light industrial uses to residential uses, with recent developments including "Divercity", "Viking" and "Wulaba Park". New residential developments will be predominantly of medium scale, with some tall towers within well design street blocks. New parks including The Rope Walk, Wulaba Park and Dyuralya Park will be created. The extension of Gadigal Avenue from Victoria Park will create a new dedicated transport corridor that connects to Central to the north and southwards towards the Town Centre. Archibald Avenue will be the main street offering shops and cafes.

### Mary O'Brien

Bound by O'Dea Avenue to the north, Bourke Street to the west, Joynton Avenue to the east and the Town Centre to the south this neighbourhood is within the suburb of Zetland.

This is a relatively small neighbourhood with a predominant residential character. It is characterised by the existing low scale residential terraces of the Zetland Estate Conservation Area around Portman, Merton and Elizabeth Streets, and more recent apartment development on Joynton Avenue and O'Dea Avenue such as the 'Emerald Park' development. A doubling of the existing Mary O'Brien Reserve is proposed for this neighbourhood and a new park with frontage to McPherson Lane.

### North Rosebery

Bound by Epsom Road to the north, South Dowling Street to the east, Kimberly Grove and the Rosebery Estate to the south, and Rothschild Avenue to the west this neighbourhood is within the suburb of Rosebery.

The neighbourhood is in transition from light industrial to a medium density residential area. Development is of medium scale with lower buildings close to the existing residential Rosebery estate. Two parks delivered with redevelopment of large sites are planned for this neighbourhood, at the corner of Cressy and Rothschild Avenue and Garraway Park close to the junction of Southern Cross Drive and Epsom Road.

### Victoria Park

Bound by South Dowling Street to the east, Lachlan Street to the north, Joynton Avenue to the west and Kirby Walk to the south this neighbourhood is within the suburb of Zetland.

Gadigal Avenue, the major street in the neighbourhood, will become part of a new dedicated transport corridor that connects the Town Centre to Central.

Victoria Park is one of the first large scale redevelopments in Green Square. It has established a benchmark of high quality design in the area and sets the standard for other neighbourhoods. It provides good amenity for the residents with high quality streets, parks and a strong landscape character. This neighbourhood commenced construction in the early 2000s and is nearing completion. The City's neighbourhood centre located in the heritage "Tote" building, Tote Park and Joynton Park are key focal points for the community. The "East Village" centre which opened in 2014 including a full-line supermarket, gym, childcare facility and a medical centre completes the neighbourhood's planned facilities.

### Waterloo Park

Bound by McEvoy Street to the north, Bourke Street to the east, and south and Botany Road to the west this neighbourhood is within the suburb of Waterloo.

The existing Waterloo Oval and skate park and youth centre is a major attractor to the neighbourhood.

The character of Waterloo Park is a low to medium scale built form with the redundant industrial sites being converted to primarily medium density residential development. Re-use of industrial buildings and business uses will be encouraged in this mixed use neighbourhood.

## 3.0 The population

### 3.1 Introduction

The City provides a socio-economic analysis of residents in the “Green Square and City South Village” area based on 2006 and 2011 data from the Census of Population and Housing released by the Australian Bureau of Statistics. Census data and forecasts are converted into a story by consultants Forecast .id to inform the City about this area now and into the future.

This profile covers a range of areas including resident population, ethnicity, education, employment status, occupation, industry sectors of employment and income. Information in this profile is presented in tables and charts with concise factual commentary to answer three important questions:

1. What are the characteristics of the residents who live here?
2. How are they changing?
3. How do they compare to the entire City of Sydney?

This provides the basis for making evidence-based decisions about how to provide services for the Village community as it changes over time.

This section of the Plan provides a snapshot of the population characteristics of the Green Square and City South Village. More detailed information is included at Appendix 1. Projections for Green Square based on total development capacity are also discussed in this section.

### 3.2 Green Square and City South Village

The Green Square and City South Village is located in the southern part of the City of Sydney, with boundaries adjoining Botany Bay City Council, Marrickville Council and Randwick City Council. It is bounded by Gardeners Road in the south, South Dowling Street and Southern Cross Drive to the east and Euston Road/ Sydney Park in the west.

Green Square and City South Village encompasses the suburbs of Beaconsfield and Zetland, the City of Sydney parts of Rosebery and St Peters, and much of Alexandria and Waterloo. Figure 11 shows the Green Square and City South Village boundaries.

Green Square as shown in Figure 10 has defined neighbourhoods for planning purposes with their own character, as discussed in Section 2.

Although the Green Square and City South Village covers a much wider area, Green Square currently represents a high 90 per cent of the residential population of the entire Village. In particular, the growth in Green Square is anticipated to represent about 95 per cent of prospective growth in the Village.

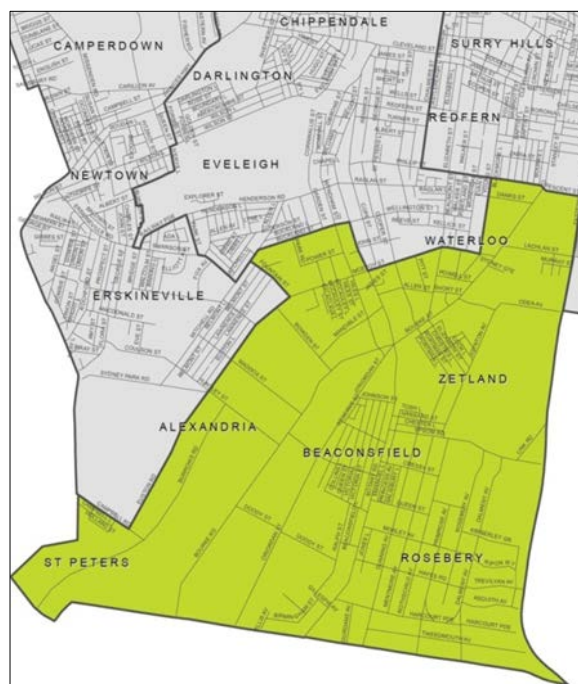
As a consequence, it is reasonable to forecast age-specific changes in Green Square based on demographic projections for the Village area, and similarly for other population characteristics.

#### What is the Population?

The Green Square and City South Village Estimated Resident Population in 2011 is 20,103 residents, or 11.0% of City of Sydney population.

Of these:

- 9.9% are children (0-14 years of age);



**Figure 11: Location of Green Square and City South Village**



- 84.8% are working age residents (15-64 years of age); and,
- 5.3% are of retirement age (65 years of age and older).

Within those broad age categories, the following 'service' groups constitute the largest share of the population:

- 'Young Workforce' (25-34 years); 6,724 residents (33.4%); and,
- 'Parents and Homebuilders' (35-49 years); 4,574 residents (22.8%).

### How is the Population Changing?

Between 2006 and 2011 the population increased by 35.8% (or 5,301 residents). The following service groups contributed to population growth in particular:

- Tertiary Education and Independence (18-24 years); increase of 777 residents (30.0%); and,
- Young Workforce (25-34 years); increase of 2,013 residents (42.7%). Parents and Homebuilders (35-49 years); increase of 1,188 residents (35.1%).

The population is estimated to increase by 169.5% by 2031 (34,069 additional residents). The greatest increases are anticipated in the following service groups:

- Young Workforce (24-34 years); increase of 10,174 residents (151.3%); and,
- Parents and Homebuilders (35-49 years); increase of 9,201 residents (201.2%).

### Key facts

53.4% of Green Square and City South Village residents are born overseas. 41.8% of all residents come from countries where English is not the first language (compared with 34.8% in City of Sydney). At home, 45.7% of residents speak a non-English language either exclusively, or in addition to English. In City of Sydney this figure is 34.4%.

Tertiary qualifications are held by 65.9% of residents aged 15 years and over, compared to 68.4% for City of Sydney. 26.1% of residents attend an educational institution. 16.2% of the population is attending University or TAFE, compared to 16.8% for the City of Sydney.

### Employment

Of the Green Square and City South Village labour force 94.0% are employed (72.0% full-time). The largest occupational group is Professionals at 34.1% of employed residents aged 15 years and over.

The two largest industries of employment are Professional, Scientific and Technical Services and Financial and Insurance Services.

The median individual income for residents is \$964 per week, 6.5% higher than the City of Sydney weekly median of \$888. The median household income is \$1,855 per week, 13.9% higher than City of Sydney weekly median of \$1,629.

### Household type

The most common households in Green Square and City South Village are:

- Couples without children households (30.8%) and Lone person households (27.5%);
- 34.3% of householders have a mortgage on the property in which they live, compared with 23.5% in City of Sydney;
- 83.3% of dwellings are high density, compared with 74.5% in City of Sydney;
- 85.3% of homes have a broadband internet connection, compared to 77.7% for City of Sydney; and,
- 82.3% of households own a motor vehicle, compared to 59.5% in City of Sydney.

### 3.3 Development Capacity for the wider Green Square

The City has undertaken projections for population increase in Green Square. These projections are based on the current planning controls including the maximum permissible density of development sites (floor space ratio), maximum building heights and land use zoning. The development capacity projections assume that all development sites will be redeveloped and to the maximum the planning controls allow.

This work has found that there is likely to be a higher population than those predicted for the 'Green Square and Village South' area using Census and Forecast .id. figures. The total development capacity of Green Square alone would result in 53,190 residents by 2030, compared with the projected 54,170 residents for the entire 'Green Square and the City South Village Area'.

Projections (as at June 2014) are calculated for each neighbourhood within Green Square (described in section 2). The analysis has assumed an average dwelling size of 100 square metres, and 1.95 people per dwelling. These figures are consistent with analysis of size of dwellings for a range of development applications and census information for occupancy in this area.

Other factors that were taken into consideration were those residential developments that have been completed over the past 15 years, such as Victoria Park, Zetland and Crown Square (former 'ACI' site), Waterloo, and those developments that are nearing completion. Apartment numbers were also used for sites that have development consent but construction has not started.

The total population and dwellings projected for each neighbourhood based on maximum development capacity are shown in Figure 12.

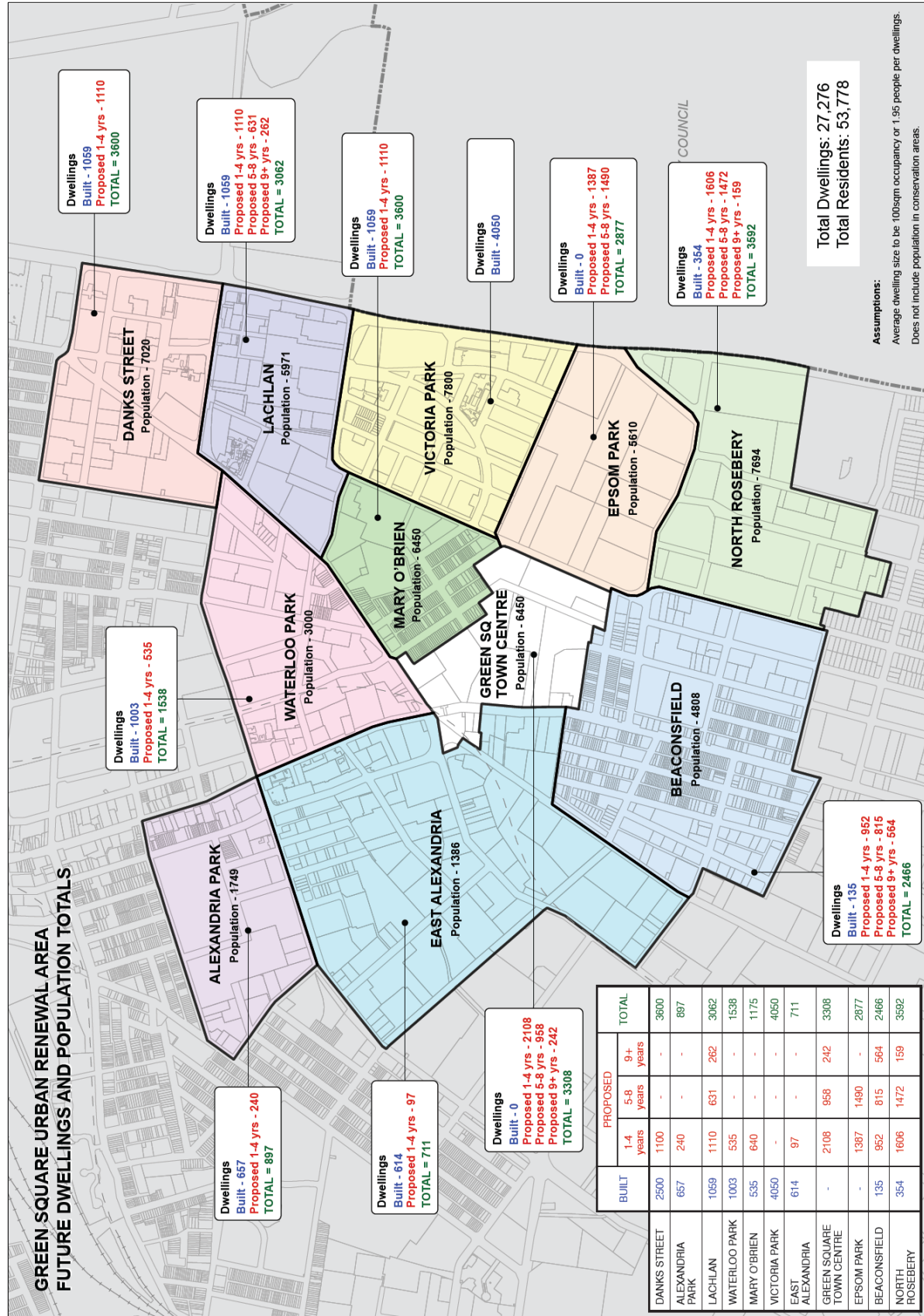
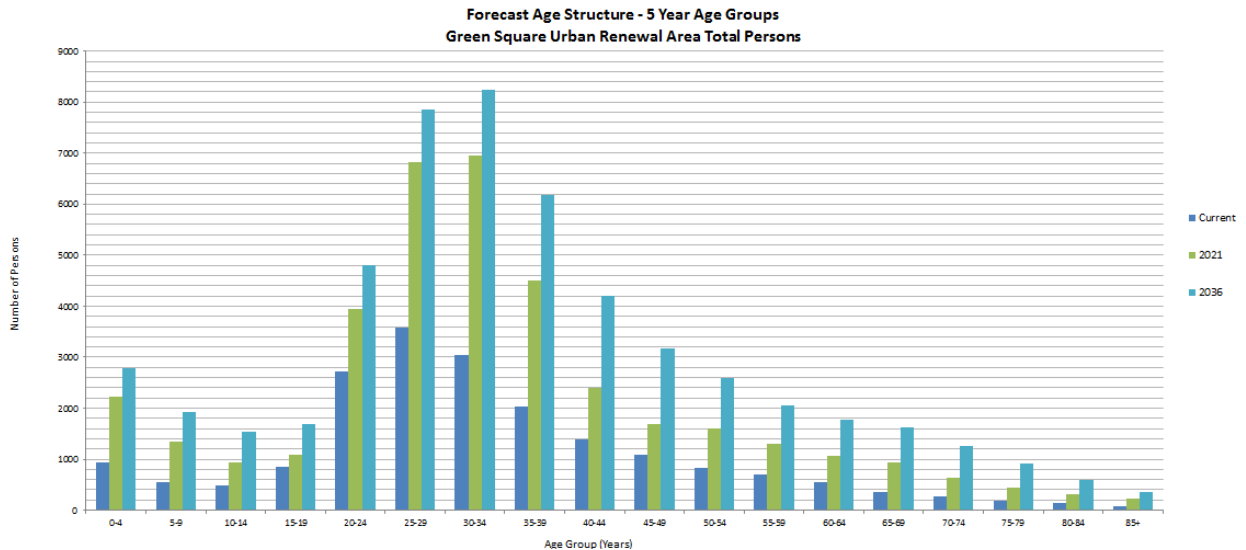


Figure 12: Green Square total development capacity – dwellings and resident projections

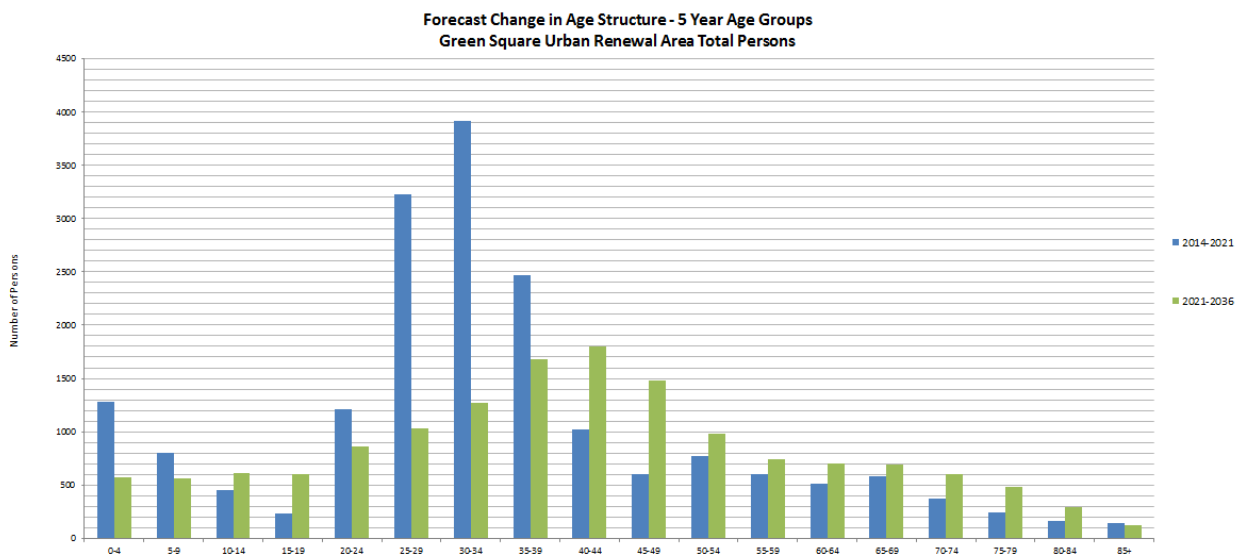
The period of 1-4 years for development is based on discussions with landowners and on recent transactions for land holdings. Development for 5-8 years and 9+ years assumes that the current high demand and pace of development continues. Predictions for development rates after 2018 become harder to predict with significant accuracy.

The forecast population age structure for Green Square is detailed in Figure 13.



**Figure 13: Forecast Age Structure (Current - 2036)**

The change in population age structure is detailed in Figure 14. It highlights that the period for 2014-2021 will see significant increases in population, and in particular for the ages groups between 20-39 years.



**Figure 14: Forecast Change in Age Structure (Current - 2036)**



## PART 2:

# THE INFRASTRUCTURE

### 4.0 Streets and transport systems

#### **SUSTAINABLE SYDNEY 2030 STRATEGIC DIRECTIONS**

Direction 3. Integrated Transport for a Connected City

Direction 4. A City for Walking and Cycling

Direction 9. Sustainable Development, Renewal and Design

#### **RISKS**

- Poor support from NSW agencies to improve public transport options.
- Public transport is not the responsibility of the City.
- Rail capacity on the Airport Line will not keep pace with development and passenger demand from Green Square.
- Bus capacity is not keeping pace with development and passenger demand from Green Square.
- No commitment from NSW Government to implement mass transit corridor (light rail).
- Arterial roads compromise pedestrian movements and amenity particularly around the Green Square train station.
- Increased congestion on arterial roads means that passing through traffic Green Square may use local/neighbourhood routes.
- Achievement of a well-connected street network may be delayed as it heavily depends on landowner's redevelopment timeframe.

The scale of redevelopment of Green Square requires a co-ordinated approach to the management of traffic and public transport as this determines how people and businesses will connect to the places they want to be – from the weekday commute, to weekend sports matches, shopping, entertainment and time with friends and family, suppliers and markets.

Central to achieving sustainable outcomes for Green Square and the surrounding neighbourhoods is the integration of land uses and transport. This is heavily reliant on the timeframes for the delivery of key transport infrastructure and services.

Green Square's strategic location between the Sydney CBD, the airport and the port means that managing travel patterns has local and regional consequences. The existing network of motorway, arterial and sub-arterial roads, the train station and the Botany Road strategic bus corridor result in the high concentration of trip-generating activity into the catchment of Green Square.

Various transport studies undertaken indicate the road network will likely operate at or close to capacity. The future local and regional traffic growth through the Green Square area would result in significant delays to motorists and commercial traffic at many intersections. Increasing the capacity of the local road network through widening would reduce future local amenity and would only provide temporary congestion relief.

Unless transport demand generated by Green Square's development is concentrated around high capacity public transport infrastructure, the road traffic generated is likely to severely congest the key strategic corridors. These include corridors linking the CBD to the Airport, freight corridors to Port Botany, and key east-west road corridors between the medical, educational and population concentrations in the inner west and south-eastern suburbs.

Concentrating activity around public transport is also economically responsible. It ensures maximum return on the NSW Government's investment in the Airport Link Line, including investment to remove the station access fee for customers. Realising the full potential of this line by raising frequencies to 20 trains per hour is a key benefit of the Sydney Rapid Transit project, which will be one of the largest ever public transport investments in Sydney.

Transport mode share targets need to reflect an increased mode share for public transport and active transport (supported by appropriate investment in services and infrastructure). Minimising car trip generation from current and new residents and businesses is central to the Green Square strategy – encouraging walking and cycling for local trips and public transport for further destinations on the network.

Supporting the strategy, and key to a people priority public realm, is the delivery of well-connected streets, diverse spaces and safe pedestrian environments. Requirements relating to the provision of new streets and transport routes within Green Square are detailed in the DCP and in the public domain strategies and documentation described in section 5. These requirements have evolved over time, being informed by: numerous studies and reviews; assessment of developments completed and their success or otherwise; City-wide strategic directions such as *Sustainable Sydney 2030: Vision*; and further detailed design undertaken for the Town Centre and masterplanned neighbourhoods.

The approach described above provides the rationale influencing the delivery and management of streets and transport systems discussed in this and section 5 of the Plan. It is also

## 4.1 Integrated transport planning

For more than fifteen years there has been ongoing liaison between the City of Sydney and NSW Government agencies including the Department of Planning and Environment (DoPE), UrbanGrowth NSW (formerly Landcom), Transport for NSW, Roads and Maritime Services (RMS), Sydney Trains and Sydney Buses. Liaison with these agencies has been at both strategic planning and implementation stages. The agencies have given input, to various degrees, into studies, traffic modelling, the development of the planning controls, street design, site specific masterplans and development applications. In addition, specifically, their role has been as follows:

- UrbanGrowth NSW as a key stakeholder in Green Square;
- Transport for NSW regarding Strategic Bus Corridors and mass transit;
- RMS in respect of road network improvements (including plans for the reconfiguration of the Green Square railway station intersection within the Town Centre);
- Sydney Buses regarding preparation of a new Bus Network Plan, as required under its contract with Transport for NSW; and,
- RailCorp regarding future rail development and train services through Green Square.

The City of Sydney and Landcom established in 2006 a partnership to progress the development of the Town Centre through a Joint Project Policy Committee, working in collaboration with NSW agencies to achieve sustainable outcomes for the Town Centre and the wider Green Square area. A Green Square Steering Group, chaired by the Department of Premier and Cabinet was subsequently established in 2011, to progress cross-agency coordination and commitment to infrastructure delivery. The steering group was reformed in 2013 into the Green Square Transport Steering Committee.

In late 2013 a new Green Square Transport Working Group was established to provide cross-agency coordination between the NSW Government and the City of Sydney in the strategic planning and delivery of Green Square transport and road projects and the interrelationship of other major infrastructure and urban renewal projects within and outside Green Square, including the Ashmore Precinct. The working group is chaired by the City of Sydney. Its membership includes the City, Transport for NSW, RMS and UrbanGrowth NSW.

A key purpose of the working group is to ensure transport infrastructure is provided for residents and businesses across the urban renewal areas and that the timelines for delivery and implementation of transport and road projects are met, including setting up a framework to expedite approvals. In addition to coordinating infrastructure delivery in the Town Centre, the City has a key role in providing accurate and detailed employment and population forecasts to the group.

The working group reports to the Green Square Transport Steering Committee chaired by UrbanGrowth NSW. It is intended to refer this Plan to the working group for input by member agencies, for the Plan then to be considered by the steering group.

## 4.2 Transport strategies and policies

There are many transport strategies, plans and strategies that have been prepared by both the NSW Government and the City over the last 15 years during which Green Square has evolved. These documents had or currently have various degree of influence to integrated transport outcomes for the area. The most current are discussed in this section.

At the wider metropolitan level, as mentioned in section 1, the NSW Government's Metropolitan Strategy and Draft Metropolitan Plan for Sydney identify Green Square as a 'Planned Major Centre'. Other documents of regional relevance that influence the transport management approach in Green Square are described below.

### NSW 2021

The NSW Government's *NSW 2021* (2011), a 10-year plan, contains targets for improving transport services and shifting trips away from private vehicles towards public transport, walking and cycling. It refers to Green Square as a particular target for growth supported by improvements in transport. The plan also calls for job growth in centres close to where people live.

For major centres, the plan sets mode share targets for public transport. While no specific target is given for Green Square, a 2016 target is given to increase the proportion of total journeys to work by public transport in the Sydney Metropolitan Region to 28%. For work trips into Sydney CBD, public transport is given a target of 80% of journeys. It advocates increasing walking and cycling, with targets to more than double cycling's mode share and increase walking trips to 25% of all trips by 2016.

### NSW Long Term Transport Master Plan

The *NSW Long Term Transport Master Plan* (2012) is a comprehensive and integrated strategy for all modes of transport across NSW. The plan identifies a clear direction for transport over the next 20 years by addressing key challenges around population growth, job creation and the need for a transport network that maximises the benefits to the economy and aligns with land use.

The plan identifies the Sydney Airport to CBD corridor as one of Sydney's most important corridors but also one experiencing high constraint. It recognises that managing the growing demand within and alongside this strategic corridor will be essential to securing Sydney's future economic growth and success.

Green Square is recognised as Australia's largest urban renewal site and the plan identifies the future transport challenges in meeting the needs of the future residents and employees in the area.

### The Green Square Transport Management and Accessibility Plan

The need to prepare a Transport Management and Accessibility Plan (TMAP) for Green Square was identified to arrive at a common understanding of actions and responsibilities to manage transport infrastructure delivery and timeframes by key stakeholders. Completed in 2008, the Green Square TMAP identifies opportunities for establishing travel demand management strategies, encouraging active transport modes and developing effective policy to manage parking provision to reduce the growth of car based trips over time in the area.

The TMAP 2008 was prepared by Transport for NSW in conjunction with NSW agencies and the City of Sydney. Aiming to achieve a 'no car growth' target, it identifies measures to improve accessibility, particularly by sustainable modes, and measures to limit the growth in private vehicle demand on the congested road network. Responsibility for programs and infrastructure delivery is assigned to relevant NSW agencies or the City of Sydney.

Planning controls for Green Square have evolved since the TMAP 2008, including an increase in residential development potential in the Town Centre, and changes to NSW Government's planning strategies and infrastructure priorities. On this basis the TMAP 2008 target of 'no car growth' is considered a significant challenge and there is a high risk of it not being achieved.

The 2008 TMAP aims to achieve the following public transport and active transport (walk/cycle) mode share of:

- 70% for residents and 65% for workers in the Town Centre; and
- 60% for residents and 35% for workers in Green Square outside the Town Centre.

The TMAP 2008 was updated in 2012. The updated TMAP identifies significant transport implications of the changed plans and policies. These include:

- An increase of 65-75% in residents and employees travelling to and within the area;
- Proportionally higher potential growth in areas outside the Town Centre, such as in the City's southern employment lands and around Mascot railway station;
- Growth in activities that generate higher rates of travel, both into and out of Green Square;
- A shift in the balance between inbound and outbound trips during the morning and afternoon peaks; and,
- A strong patronage response to the removal of the station access fee at Green Square.

Despite the TMAP being updated in 2012 it has still not been publicly released. This is a critical issue for transport in Green Square (both public and private) as the TMAP 2012 details the transport measures that need to be implemented and the likely timeframe. There is not clear commitment to implement the TMAP measures. The City continues to request its public release and this Plan provides a further opportunity to seek its release.

It is also noted that the TMAP 2012 uses population projections prepared in 2011. The City has revised these projections with a predicted further 5,000 people in the wider area to a total population of 53,190 people. The projections have been referred to Transport for NSW. The predicted growth should be incorporated into the TMAP for any measures and timeframes for delivery.

#### **PROJECT T.1 TMAP 2012**

##### **Action:**

- Public release of TMAP 2012 by Transport for NSW with timeframes for delivery of key actions

**Responsibility:** Transport for NSW (lead) and RMS

**Timeframe:** 2014

### **4.3 Public transport**

#### **Rail Services**

Green Square rail station is served by Sydney Trains' Airport and East Hills Line. Services on this line originate on the East Hills Line (at Revesby or East Hills) or in Sydney's growing south-west suburbs (Macarthur or Campbelltown). During the AM Peak, there are ten trains per hour on the Airport Line, with four to eight in the off-peak.

Patronage on the Airport Line is growing rapidly, spurred by the 2011 abolition of the station access fee at non-airport stations, and the delivery of thousands of new dwellings and jobs at Wolli Creek, Mascot and Green Square. Sydney Airport also continues to grow, contributing to patronage at Domestic and International stations.

There is a risk that rail capacity on the Airport Line will not keep pace with demand from Green Square, at least in the medium term. Until such time as a second harbour rail crossing (Sydney Rapid Transit) is completed, capacity constraints on the City Circle will limit the potential train frequency on the Airport Line to an increase of only two to four trains per hour above 2014 levels (i.e. from the current 10 to 14 trains per hour).

Given the long lead time required to deliver the Sydney Rapid Transit, Green Square is likely to be substantially complete well before the new rail infrastructure is available. This means passenger demand equivalent to at least 20 trains per hour will have to contend with only 12 to 14 trains. The resulting shortfall will necessitate more buses, with potential downstream impacts on congestion in the CBD. It is also likely to increase road traffic on the arterial network in southern Sydney. The impact on light rail is discussed further below.

#### **PROJECT T.4 Forecast and implement rail service increases**

##### **Action:**

- Plan service increases in line with development and increased demand

**Responsibility:** Transport for NSW (Sydney trains)

**Timeframe:** Ongoing

#### **Bus services**

Green Square is served by a number of scheduled bus routes, operated by the State Transit Authority on contract to Transport for NSW. Bus routes operated by Sydney buses to and from Green Square are detailed in the Table 1 below.



**Table 1: Bus services to and from Green Square**

Route	To/from	Operating hours
301	City to Eastgardens via Mascot	daily
302	City to Eastgardens via Kingsford	daily
303	City to Sans Souci via Mascot	daily
308	Railway Square to Stamford Plaza Hotel (close to Domestic airport station)	peak hours
309	City to Port Botany	daily
L09	Redfern to Port Botany	peak hours
310	City to Eastgardens via Botany	daily
343	City to Kingsford	daily
X43	City to Kingsford	peak hours
345	City to Zetland	peak hours
348	Bondi Junction to Alexandria	peak hours
355	Marrickville Metro to Bondi Junction via Alexandria	daily
370	Leichhardt to Coogee	daily
M20	Gore Hill to Mascot via City	daily

Planning for new bus routes and additional bus services is being undertaken by Transport for NSW and the City of Sydney.

Existing services are reviewed regularly by Transport for NSW to monitor patronage and service hours. Under the NSW Government's 'Growth Buses' program, additional service kilometres can be introduced in areas of high demand. Recent changes include extra late morning services on the M20, improved service frequency and operating hours on the 370 route (Leichhardt – Coogee), and extra peak services on the 301/302 route (City – East Gardens). On the fringe of Green Square, significant improvements have been made to the 308 route (Railway Square – Stamford Plaza Hotel), and the 418 route. Further planned improvements in 2014/2015 include the introduction of weekend services on the 348 service (Bondi Junction – Alexandria) and some improvement to the 301 (City – East Gardens) route in peaks and the evenings.

Growth in bus patronage in Green Square has been moderated by the attractiveness of rail services at Green Square station. However, as more development is completed further from the station, bus patronage is likely to increase significantly. Unless services are increased to match new growth, crowding on buses will affect not only Green Square residents, but upstream and downstream bus passengers in Redfern and Surry Hills, as well as downstream passengers in Rosebery, Beaconsfield and Mascot.

#### **PROJECT T.5 Forecast and implement bus service increases**

##### **Action:**

- Plan and implement bus service increases in line with development and increased demand

**Responsibility:** Transport for NSW (Sydney Buses)

**Timeframe:** Ongoing

#### **Eastern Transit Corridor and light rail**

The need for high capacity surface transport in Green Square was recognised early in the planning. For this reason, the City's planning controls already safeguard a corridor on new streets from the Town Centre to Phillip Street, Redfern, and then to central Sydney. The corridor is referred to as the Eastern Transit Corridor (ETC) in the TMAP 2008. The corridor provides a north-south public transport route linking Central station to areas of very high residential density that are predominantly outside the 800 metre walking catchment of the Green Square rail station.

It follows planned or completed local new roads running north-south from Crown Square, in the northernmost Green Square neighbourhood, through the Lachlan, Victoria Park and Epsom Park neighbourhoods, to then run east-west through the Town Centre where it terminates. The southern branch of the corridor is planned to continue into North Rosebery. The indicative corridor alignment is shown at Figure 15 within the context of the eastern residential neighbourhoods.

The corridor is suited for buses or light rail. The corridor is exceptionally well suited to light rail. Covering a distance of only 5km, the light rail corridor would pass within 400 metres of a projected population of more than 35,000 people, and within 800 metres of a projected population of more than 45,000 people. It would allow interchange with a number of east west bus routes, as well as with Sydney Trains' Airport Line.

Delivery of the corridor is contingent upon securing the full connected corridor, which ensures maximum priority for bus and future light rail services.

The City has acquired two parcels of land in the Lachlan neighbourhood section of the corridor to facilitate the link between the Lachlan and Victoria Park neighbourhoods. A third parcel (former Woollahra Council depot site) would complete the corridor land required in this section. The site is currently being planned for redevelopment by the new landowner and it is anticipated the land portion of the site needed will be delivered in the short term.

The City continues to advocate strongly for the NSW Government to assist with securing other land for the corridor, including a critical parcel within the Epsom Park neighbourhood owned by AusGrid.

In addition, the City is undertaking investigations to understand the feasibility and likely patronage of light rail to Green Square and the integration of light rail with the existing bus, light rail and road network. These investigations will form the basis for more detailed analysis of the likely costs and benefits of the project. The City has asked Transport for NSW to participate in these investigations.

#### **PROJECT T.2 Eastern Transit Corridor Action Plan**

**Action:**

- Progress detailed corridor action plan between the Town Centre and Central Sydney with timeframes for delivery
- Secure Eastern Transit Corridor land reservation

**Responsibility:** Transport for NSW (lead), RMS and City

**Timeframe:** 2015

#### **PROJECT T.3 Light Rail**

**Action:**

- Undertake feasibility study to confirm routes and financial viability

**Responsibility:** City (lead) and Transport for NSW

**Timeframe:** 2015



**Figure 15: Indicative Eastern Transit Corridor proposed alignment**



## 4.4 Traffic management

The Green Square urban strategy includes a typology of public streets that are frequent, with high pedestrian and cycle permeability and choice of routes through the locality for local traffic. Public transport is integrated into the major east-west and north-side axis, and includes the transit corridor. This strategy originates in the *Green Square Structural Masterplan* and the early site-specific masterplans and is reflected in the DCP controls and the public domain strategies.

These documents specify details on street layout, design and configuration, including minimum widths and kerbside parking, bicycle lanes, footpath widths, transit corridor width and landscape zones and medians. Setbacks are also identified for several new streets to provide for widened footpaths to achieve improved pedestrian amenity. This level of detail ensures proposed streets are able to accommodate their intended function (such as local traffic, public transport route, share way), contribute to the liveability of the area and integrate with surrounding areas.

### WestConnex

WestConnex is a NSW Government project that seeks to integrate an M4 extension, M5 East expansion and inner west bypass. It was announced in the State Infrastructure Strategy 2012-2032 *First Things First*.

In December 2014, the NSW Government announced changes to the planned extension to bring the motorway closer to the CBD by linking the M4 with Victoria Road and the ANZAC Bridge. This will include a major new interchange at St Peters for the M5 expansion, which will widen Campbell Street and Euston Road to four lanes, including loss of parkland, and create a major new road across Alexandra Canal to Bourke Road and Gardeners Road.

Financing is based on private vehicle tolls. The roads are expected to carry more than 90 per cent private traffic. This means there is likely to be further growth in surface traffic in local neighbourhoods particularly in the City's southern suburbs of Alexandria and Erskineville, and in Green Square.

The City engaged SGS Economics and Planning to review the project proposal and understand the impacts WestConnex will have in the City's southern suburbs. A Lord Mayor's Minute presented to Council on 23 February 2015, details the findings of the SGS report *Strategic Review of the WestConnex Proposal*. Their findings summarised below indicate that WestConnex:

- will impact on traffic in Green Square, which already has serious congestion and is expected to have about 53,000 residents by 2030;
- will deliver substantial additional traffic to neighbourhoods around the planned St Peter's interchange, including Newtown, Erskineville, Alexandria, Waterloo and Redfern;
- will widen and extend motorways, directing increased traffic onto already-congested inner-Sydney roads, especially because the links to Sydney Airport and Port Botany are unfunded;
- related traffic will seriously impact on King Street, one of Sydney's most successful main streets, which could lead to clearways and destroy businesses; and
- will involve the carving off of part of Sydney Park to widen Euston Road isolating the park by fast moving traffic, making it harder to access.

Detailed traffic modelling and a better understanding of the associated road upgrades is required to fully understand the extent of the impact WestConnex may have on Green Square. This information has to date not been forthcoming from the NSW Government.

### PROJECT T.6 WestConnex

#### Action:

- City to work with NSW Government to understand required road upgrades
- City to assess the impact of WestConnex on Green Square neighbourhoods and investigate traffic management measures to mitigate negative impacts, should WestConnex go ahead

**Responsibility:** City (lead) and RMS

**Timeframe:** 2015

### Green Square Town Centre



Given the significance of the Town Centre and its location at the junction of major regional roads, the City is undertaking further traffic management analysis as part of the detailed design of the Town Centre infrastructure. The public domain in the Town Centre has to provide a safe and efficient transportation network that meets the needs of the residents, retail and commercial users of the precinct. This includes road and bus users, cyclists and pedestrians, with the future light rail.

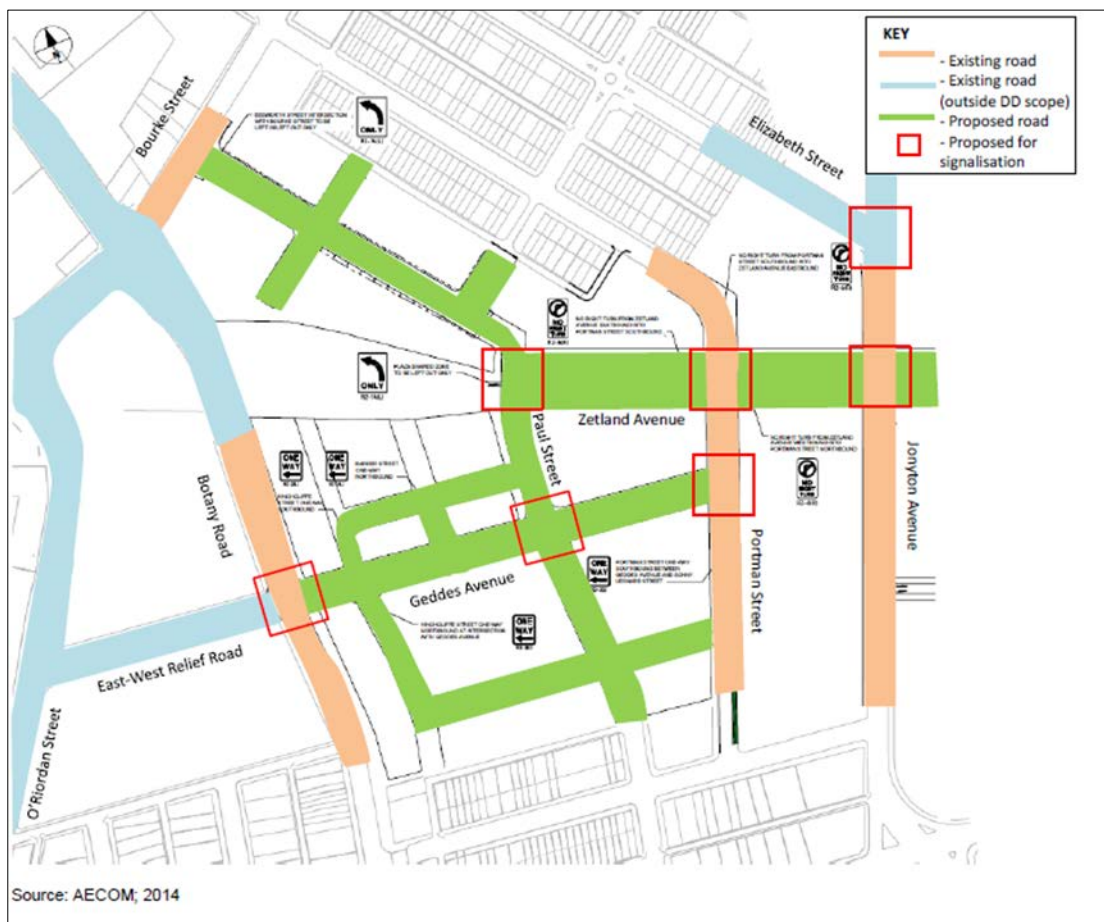
The Town Centre is proposed to be a 50km/h zone with the exception of the northern component around the plaza which, due to the high level of retail and pedestrian activity, is designated as 40km/h.

Pedestrian priority is included in the design of public domain with pedestrian crossings on all approaches at each signalised intersection and separated cycleways on Zetland Avenue, Portman Street and Geddes Avenue. The George Street cycleway (at Bourke Street) forms a regional connection which links to the wider Green Square area to the Sydney CBD.

The City has undertaken a number of studies to understand the likely impacts of additional traffic and how best to manage this additional traffic. Bitzios Consulting were commissioned by the City to undertake a parking and traffic study to assess the traffic effects of the proposed development in the Town Centre. The findings were to align with a suitable parking policy and to develop a plan for appropriate road infrastructure to address the increases in traffic volumes expected.

The findings of this study were then investigated further by AECOM, also commissioned by the City to progress the Essential Infrastructure development approval which includes the alignment and configuration of new roads and intersections, and assesses the performance of intersections across the Town Centre precinct and surrounding road network. This study was required by RMS as part of the condition of consent for the Essential Infrastructure development application. RMS has requested the assessment must capture 2031 network demands and provide performance statistics for key intersections.

The proposed street network and signalised intersections are shown in Figure 16.



**Figure 16: Green Square Town Centre – proposed street network and signalised intersection**

AECOM used a micro simulation model known as Paramics to understand likely traffic generation up to 2031, and how best to mitigate impacts. Provision for the future east-west bus routes through Zetland Avenue, Geddes Avenue and Botany Road is also included in the model projection.

The modelling results show that the road network surrounding the Town Centre will be constrained in future years particularly as the network reaches its capacity when other nearby developments such as the Epsom Park neighbourhood are nearing completion.

## Existing Network Performance

The existing performance of the network was examined to establish the existing intersection capacity and traffic volumes. The modelling shows that in the AM peak hour period the majority of links within the network operate at Level of Service (LoS) 'A', 'B' or 'C'. Exceptions to this are the south western approach to the intersection of O'Riordan Street/Wyndham Street, southern and eastern approaches to the intersection of Botany Road/Epsom Road and northern approach to the intersection of Elizabeth Street/Bourke Street, all of which operate at either LoS 'E' or 'F'.

Table 2 shows the criteria for the different LoS levels.

**Table 2: Level of Service (LoS) criteria for intersections**

Level of Service	Average Delay/ Vehicle (secs/veh)	Traffic Signals   Roundabout	Give Way   Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays Roundabouts require other control mode	At capacity; requires other control mode
F	>70	At capacity; at signals incidents will cause excessive delays Roundabouts require other control mode	At capacity; requires other control mode

Source: Guide to Traffic Generating Developments, Roads and Maritime, 2002

In the PM peak hour, as was noted in the AM peak hour, the majority of network links perform at LoS 'A', 'B' or 'C'. Exceptions to this are southern and eastern approaches to the intersection of Botany Road/Epsom Road and southern approach to the intersection of Epsom Road/Joynton Avenue, both of which operate at LoS 'F'.

To establish the performance of the road network the modelling is based on a number of assumptions:

- timing of traffic signals at intersections, and impacts of pedestrian/cycle phases;
- parking restrictions to assist with traffic flows at key intersections;
- traffic generation (0.19 trips per unit);
- traffic distribution;
- background traffic growth; and,
- impacts on traffic from the realignment of Bourke and O'Riordan Streets.

Analysis indicates that the surrounding road network is subject to congestion and sensitive to delays and changes in traffic patterns across the network. The road corridors of Botany Road, O'Riordan Street, Epsom Road and Bourke Road are key routes which provide permeability for regional traffic not just the traffic generated from the Town Centre development. While outside the scope of the Town Centre assessment, these routes play a key role in the functionality and performance of the road network within the Town Centre.

The results of the modelling are detailed in Table 3. They show generally that at 2031, there is a LoS no worse than a category 'D' which is (generally deemed to be acceptable) during the AM and PM peak hour periods. The exceptions are, the PM peak at Botany Road/Bourke Road (east) and Wyndham Street/O'Riordan street intersection (west).

**Table 3: 2031 AM and PM Peak Hour Intersection Performance**

Intersection	Vehicles	Average Delay	Level of Service	Vehicles	Average Delay	Level of Service
	AM Peak Hour			PM Peak Hour		
Botany Road / Geddes Avenue / EWRR	2,985	40.7	C	2,960	30.9	C
Zetland Avenue / Paul Street	346	28.3	C	404	26.3	B
Geddes Avenue / Paul Street	1,025	20.2	B	1,307	25.3	B
Zetland Avenue / Joynton Avenue	2,538	49.3	D	2,039	33.0	C
Joynton Avenue / Elizabeth Street	2,302	23.8	B	1,989	23.4	B
Zetland Avenue / Portman Street	965	33.5	C	812	22.3	B
O'Riordan Street / EWRR	2,710	28.7	C	2,881	37.7	C
Bourke Road / EWRR	1,142	13.2	A	1,150	13.6	A
Botany Road / Bourke Road (H-intersection east)	4,180	52.2	D	4,308	62.8	E
Wyndham Street / O'Riordan Street (H-intersection west)	2,462	65.1	E	2,475	52.3	D
Bourke Street / Portman Street	2,367	19.1	B	2,586	20.3	B
Geddes Avenue / Portman Street	580	8.9	A	512	7.2	A

Source: AECOM; 2014

### Access and circulation in other neighbourhoods

In addition to the Town Centre, the City has developed detailed access and circulation plans for the Lachlan and Epsom Park neighbourhoods which are experiencing or about to experience high development activity. The main purpose of these plans is to integrate measures that assist in calming traffic speed and limit traffic volumes (including through-traffic) in local residential streets. The plans also recognise that in some circumstances temporary traffic management measures may need to be in place through the development phase of the neighbourhood.

Traffic speeds within the precincts are predominantly managed by appropriate road design. The design principles include limiting carriageway widths and intersection sizes to produce a general sense of constraint for drivers to slow down. Considerations were given to waste collection routes to ensure the large vehicles can manoeuvre safely through the precinct.

Traffic volumes within the precincts are limited through attention to the road functions and connectivity both within the neighbourhood and the wider road network. The design principles include one-way street and turn movement bans to discourage through traffic from short-cutting. Shared zones are also proposed at strategic locations to promote shared environments, speed reductions, good connectivity of streets and footpath links for pedestrians.

The design principles for the precincts discussed above seek to provide a safe environment for all road users, good access to public transport facilities, reduce travel demands and increase the rate of participation in social activities. The access and circulation for the Lachlan and Epsom Park neighbourhoods is shown in Figures 17 and 18.

The access and circulation strategies that were established through the preparation of these plans sets the framework for the management of traffic through other neighbourhoods in Green Square.

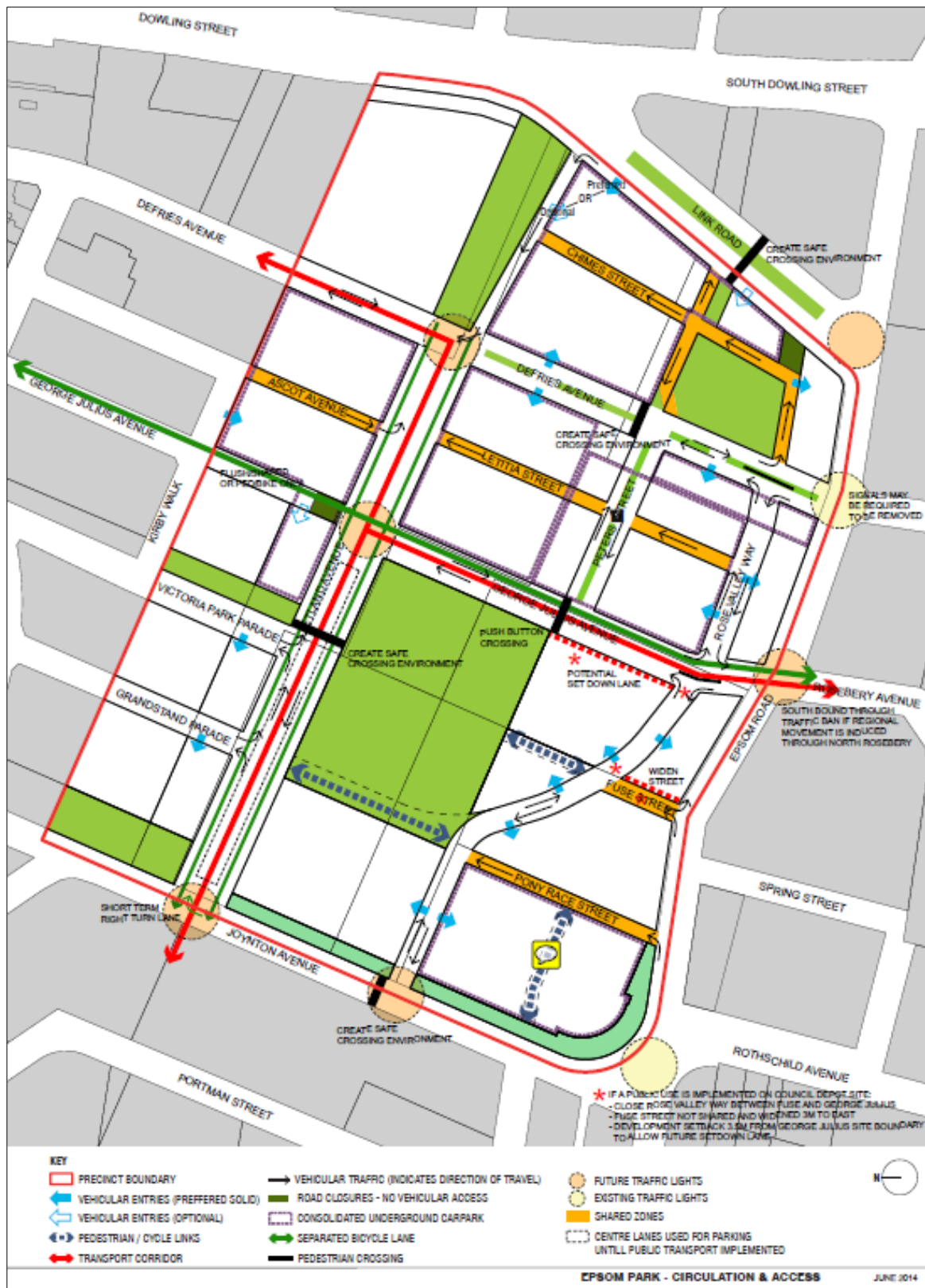


Figure 17: Epsom Park neighbourhood – Access and Circulation



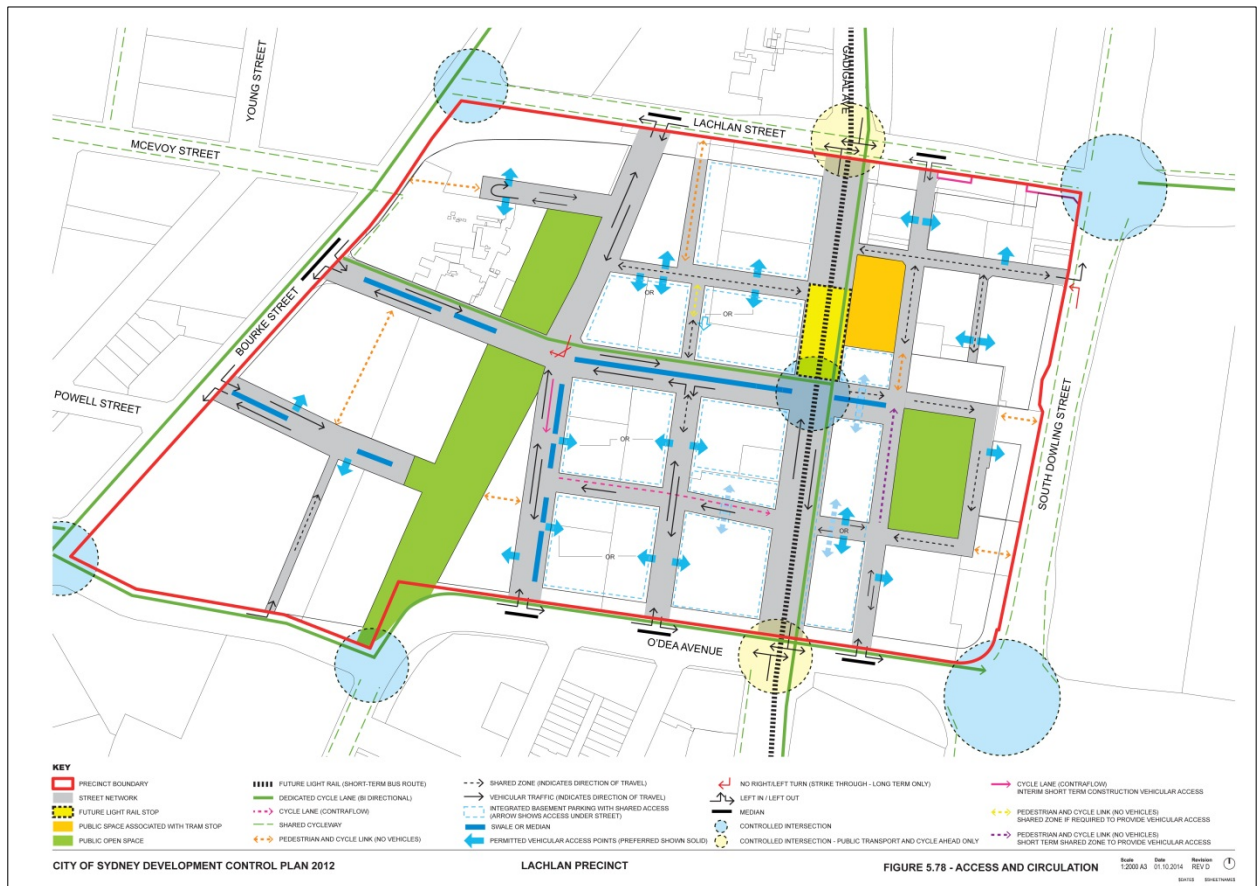


Figure 18: Lachlan neighbourhood – Access and Circulation

### PROJECT T.9 Access and circulation concept plans

#### Action:

- Progress as needed preparation of neighbourhood-specific access and circulation concept plans to improve local accessibility and manage traffic intrusion to protect local amenity.

**Responsibility:** City (lead) and RMS

**Timeframe:** Ongoing

## 4.4 On-street car parking

The City manages local roads and kerbside parking under the authority delegated to it by the NSW Government. The management of parking controls and enforcement is governed by NSW legislation, regulations and guidelines.

The administration of parking permits by the City of Sydney is guided by the Permit Parking guidelines issued by RMS. The City adopted its neighbourhood parking policy in May 2014. This policy seeks to adopt a consistent approach and improve clarity in the management of street parking.

The parking policy seeks a fair balance between resident access and the needs of visitors, cultural venues and the viability of local businesses. The policy is intended to balance sustainability objectives with the fair and consistent management of kerbside parking. To protect the liveability of the neighbourhoods for a diverse population, the City prioritises use of parking space for residents, businesses and their visitors and customers. To maintain this priority requires that commuter parking on-street in residential neighbourhoods and commercial precincts are actively discouraged.

Parking controls in residential areas should balance the long stays parking needs of permit-holding households, with the need of all households to use street space for accommodating visitors, family, carers and tradespeople.

Two hour parking controls are the preferred parking controls in residential and mixed use streets because they allow reasonable access for short visits, without the need for permits. It may, however, be appropriate in certain circumstances to adopt different parking controls in response to local conditions.



Parking controls in and around mixed use or retail facilities are typically a 2P (two hour) or ticketed 2P. Such controls are in place as they should encourage a turnover consistent with the local business mix and expected duration of stay by customers.

Ticket parking in commercial, office showroom areas can be used to improve compliance and encourage turnover, particularly in areas where commuter parking is discouraged. Prices for kerbside parking should be set at a cost consistent with adequate turnover for local business.

Most households are eligible for parking permits, however, the following households or dwelling types are not eligible:

- A household which occupies a new or converted residential flat building approved on or after the adoption of the policy in May 2014.
- A household which occupies a new or converted residential flat building approved since 8 May 1996 (former South Sydney) or 1 May 2000 (for City of Sydney).
- A household which occupies a dwelling approved with a condition that no parking permits are to be issued.
- A household which occupies premises not approved for residential use.
- Hotels, backpackers hostels, guesthouses and serviced apartments.
- A household occupying any other no-residential premises.

The policy is being rolled-out throughout the City, including Green Square, over a period of 12 months and will work with other strategies described in this Plan to encourage increased use of public transport, walking and cycling.

#### 4.5 On-site car parking

The amount of car parking permitted is regulated under the Sydney LEP 2012. The LEP specifies the maximum number of parking spaces for a range of land uses, including private dwellings, retail facilities, offices and visitor car parking. This number varies for a particular use, depending on location and proximity to local facilities and public transport services.

Limiting the number of car parking spaces within a development allow to manage car dependency amongst new residents, workers and visitors in an area.

The City's car parking policy is relatively restrictive in comparison to other local government areas. Applying restrictive parking rates to new development tends to reduce demand to use private vehicles, and can create a shift towards more sustainable modes of transport such as walking, cycling and using public transport when travelling to, from or within the area. In Green Square this approach is fundamental to its core transport and public domain principles to achieve high amenity, reduce traffic congestion and community well-being.

The City is reviewing the car parking controls that apply to development Green Square, including the Town Centre. This review will assess the accessibility of a neighbourhood against the level of public transport available and the land uses in the area. The review will take into account a number of improvements to transport accessibility and trends over recent years that act to influence travel behaviour. These factors include for example: the removal of the Green Square train station access fee that has made public transport for some residents more accessible; more frequent pedestrian and cycling connections that have made walking and cycling more attractive; and major growth in 'car share' schemes that have made alternate car use models much more attractive.

This review is in line with Green Square TMAP measures that seek to manage parking so as to discourage private car use and reduce trip generation. It is a key component of achieving the public transport mode share targets set in the TMAP mentioned earlier in section 4.2. The City intends to complete the review in 2015. Any amendment to the car parking controls will be publicly exhibited before it becomes effective.

#### **PROJECT T.10 Private parking within developments**

##### **Action:**

- Undertake a review of the parking rates in Green Square (including the Town Centre)

**Responsibility:** City (lead), RMS and Developers

**Timeframe:** 2015

## 4.6 Cycling and walking

### Improving pedestrian and cycle accessibility

The City plays a significant role in planning and delivering walking and cycling related infrastructure. This is particularly important in Green Square because of its former industrial lands being broken up into large blocks restricting through movements, and making moving around through the area for pedestrians and cyclists unattractive and lengthy. Creating new connections through these large blocks makes the area more comfortable and accessible for people to walk or cycle to reach their local destinations in particular.

Redevelopment of sites in Green Square provides opportunities to open up areas of land through the construction of new roads, separated cycleways, footpaths and plazas. The redevelopment of areas such as Victoria Park in Zetland and Crown Square and the Lachlan neighbourhood in Waterloo have significantly increased pedestrian and bike connections throughout Green Square.

The framework for the street network and other pedestrian and bike links guiding development in Green Square is detailed in the Sydney DCP and public domain strategies which incorporate the directions of other strategies such as the cycle strategy and the 'Liveable Green Network'.

Accessibility Plans are an additional tool that can contribute to making walking and cycling more inviting and show residents, visitors and workers how it can be quicker, convenient and easy to walk or cycle. They also identify strategic routes, and highlight where upgrades, such as providing more space for walking and cycling, are required. For example the new streets in the Green Square Town Centre will improve access to the Green Square train station, especially for the many residents who live in adjacent neighbourhoods such as Victoria Park, cutting their walking time to or from the station by up to ten minutes.

### Walking Strategy

The City of Sydney is expecting an additional 100,000 residents and 110,000 additional jobs by 2030 and walking trips are expected to at least double from 2011 to 2030. Approximately 2.6 million trips per day will occur in the City Centre by 2030 based on population and job growth. As population density increases the need for efficient transport becomes more critical to the prosperity of a city.

Walking is the primary mode of transport within the City Centre – 93% of all trips made are completed by walking (1.3 million trips per day) and 46% of all trips in the City of Sydney are made by walking. However this mode share is not equally reflected across the LGA, for example:

- Only 6% of all trips to work in the City Centre are by walking; and,
- Only 28% of residents in the City of Sydney walk to work.

The City has recently exhibited a draft *Walking Strategy and Action Plan* to outline benefits, set targets, actions and implement improvements for walking and includes all areas of the City including Green Square.

The strategy is intended to support and guide the creation of a walkable city. This aligns with the *Sustainable Sydney 2030* vision for a globally competitive and innovative city with integrated transport and land use, and a focus on creating a city for walking and cycling. Further, it reflects a trend in other global cities to encourage walking in acknowledgement of the health, economic and environmental benefits.

This strategy also seeks to further influence the NSW Government to unlock potential for local government to deliver walking infrastructure, through improved guidelines and technical directions for walking related infrastructure. Further, the strategy will assist in addressing a national increase in obesity rates – in 2010/2011, over 60% of the Australian population was overweight or obese – which, if trends continue, is predicted will increase to over 80%.

The strategy will also build upon other strategies, policies and action plans, including:

- Connecting our City
- Corporate Plan
- Neighbourhood Parking Policy
- Car Share Policy
- Economic Development Strategy
- Retail Strategy

- Tourism Strategy
- Liveable Green Network
- Wayfinding Strategy
- History and Culture Walks
- 'OPEN' Sydney
- The Sydney LEPs and DCPs and DCPs
- Cycle Strategy and Action Plan
- NSW State Government City Centre Access Strategy
- NSW State Government Walking Strategy released in December 2013.

#### **PROJECT T.8 Establish walking facilities improvement programme**

##### **Action:**

- Improve amenity and security through upgrades to signage and lighting and align networks with public transport routes
- Continue to improve walking accessibility for emerging new neighbourhoods in Green Square

**Responsibility:** City (lead), RMS and Developers

**Timeframe:** 2015

#### **Cycle Strategy**

The City's Cycle Strategy and Action Plan provides for a network of safe, connected, separated cycleways to accommodate the of future demand for cycling likely to be generated by development. Infrastructure such as separated cycleways allows people of all bike-riding ability to choose to use a bicycle to safely travel through Green Square and the adjacent neighbourhoods. It connects between homes, community facilities, place of work and retail areas.

The City prioritises separated cycleways for bike riders to maintain the safety of all road users. These can be through dedicated lanes where street widths allow, short links using shared paths with pedestrians, shared zones and contraflows where expected number of users will be low. Bike riders are provided for at intersections, given priority where possible and given their own phase at traffic signals to ensure compliance.

The City's broader cycle network connects with Green Square and is linked to regional routes that will connect bike riders to major trip generators including Central Sydney, Sydney Airport, the Inner West and Eastern Suburbs, as well as the three nearby universities. Way-finding signage gives directions to bike riders and provides other information, such as distances. Links to major transport hubs are being examined with improved cycling facilities at these locations including high density, secure bike parking at railways stations like Green Square station.

The strategy is a major consideration from the planning through to the detailed design and is incorporated in the traffic management and public domain plans discussed in this Plan.

#### **PROJECT T.7 Implement local and regional cycle plans**

##### **Action:**

- Continue extension to cycleways to Town Centre and coordinate regional cycling connections
- Continue to improve cycle accessibility for emerging new neighbourhoods in Green Square

**Responsibility:** City (lead) and RMS

**Timeframe:** Ongoing

### Liveable Green Networks

The Liveable Green Network is part of the City's plans to link neighbourhoods and make them green. It aims to create a pedestrian and cycling network that connects people with the City and village centres as well as major transport and entertainment hubs, cultural precincts, parks and open spaces. The focus of the Liveable Green Network is active transport by making walking and cycling more attractive particularly for short trips, and a viable alternative transport choice to using the private motor vehicle.

It is important that residents, workers and visitors are able to walk and cycle around a city as large and diverse as Sydney. Many global cities have cycling and pedestrian networks with a focus on recreation and leisure, which often frame parklands, foreshores and other scenic attractions.

*Sustainable Sydney 2030* sets goals to improve the local area's sustainability by 2030 by encouraging 10% of local journeys to be made by bicycle and at least half to be made on foot by 2030. The City also wants residents to be within walking distance to services and facilities such as fresh food markets, child care, health care and public parks.

The *Liveable Green Network Strategy and Masterplan* report develops and refines the *Sustainable Sydney 2030* project idea by undertaking background research and case studies, reviewing previous cycle and pedestrian network planning studies, and undertaking route assessments to identify network gaps and amenity shortfalls.

There is significant potential for greater walking and cycling paths under the Liveable Green Network. Every day in metropolitan Sydney people make more than 16 million trips that are less than 10km, including 392,000 bicycle trips – more than the number of ferry trips each day. The cycling share for trips less than 10km has grown from 1.9% to 2.5% since 2010 and since 2006 the number of people riding to work has increased by 50%.

These are considerable figures and highlight the need for the Liveable Green Network to be rolled out across the City of Sydney. The City is working towards building a 200km cycling network including 55km of separated cycleways.

Routes laid out for the Liveable Green Network will encourage cycling and walking. Improvements will include separated cycleways, lower speed limits, widened footpaths and improved crossings. Cycling routes will be clearly marked with easy-to-read maps and signage. More seats, bubblers and bike parking will be built along major cycling paths.

*Sustainable Sydney 2030* identifies 10 prime corridors that form the basis of the Liveable Green Network. These corridors traverse both north-south and east-west across City in an equal distribution grid. The corridors also align with the historic drainage channels which cut through Green Square into the Alexandra Canal. The network is shown at Figure 19.

Similar to other strategies discussed in this Plan, the Liveable Green Network is a major consideration from the planning through to the detailed design and is incorporated in the traffic management and public domain plans discussed in this Plan.





**Figure 19: City of Sydney 'Liveable Green Network'**



## 5.0 Public domain

### SUSTAINABLE SYDNEY 2030 STRATEGIC DIRECTIONS

Direction 6. Vibrant Local Communities and Economies

Direction 7. A Cultural and Creative City

Direction 9. Sustainable Development, Renewal and Design

Direction 10. Implementation through Effective Governance and Partnerships

### RISKS

- The City/NSW Agencies may not be able to provide or implement all infrastructures necessary in a timely manner to support or keep pace with the scale of redevelopment.
- Some key sites may not be redeveloped in time or in a form to achieve integrated public domain improvements.

Critical to the successful transformation of Green Square is the provision of the appropriate level of supporting public domain infrastructure. The appropriate infrastructure will achieve *Sustainable Sydney 2030*'s goal to integrate the City's urban renewal areas into the fabric of the City, to create an environment that invites the community to:

- walk and cycle;
- use and enjoy public spaces, cultural and recreational facilities;
- enjoy well-connected streets;
- use convenient and integrated public transport connections and services;
- celebrate high quality public spaces as the focus of activity; and,
- have good access to housing, including affordable rental housing, shopping, commerce, services and employment.

The overarching public domain objectives for Green Square are:

- Provide a range of local facilities and programs to provide retail and business opportunities to support the existing and new population.
- Foster community participation and understanding of the local environment, including influences from past occupants of Green Square, natural history and landforms, past uses, location and climate.
- Establish a centrally located north-south public transport corridor to provide short term priority bus services and future light rail connections to the Sydney CBD, the Town Centre and Rosebery.
- Provide a balanced traffic environment where high consideration is given to public transport, cycling infrastructure, pedestrian movements and public activities.
- Ensure streets are well-connected, safe and universally accessible.
- Create public spaces with high amenity, including design considerations such as function, safety, recreational opportunities, micro climates, circulation and selection of materials.
- Achieve well integrated interpretive water elements, ecological sustainable design and public art to create an engaging and culturally diverse public domain.
- Recognise the importance of green corridors in supporting diverse and abundant ecosystems in an urban environment.
- Establish street tree canopies and understorey planting that will reinforce the visual and physical hierarchy of the street network, creating visual patterns and rhythm appropriate to specific urban and climatic conditions.
- Contribute to the integrated Water Sensitive Urban Design treatment of urban stormwater and meet best practise water quality objectives for reuse and/or discharge.

Public domain planning for Green Square seeks to provide a structure to organise large areas of multiple lots of post-industrial land into a cohesive, finer-grain legible framework. This structure is critical given the diverse landownership patterns, the long term renewal anticipated and therefore staging of development.

## 5.1 Public domain plans and strategies

To deliver on the public domain objectives in an integrated and coordinated manner, the City produces public domain strategies, as a matter of priority in particular for the neighbourhoods that are undergoing substantial redevelopment. The strategies guide and define the public domain design and construction. They integrate and synthesise related areas of policy, investigation and design across civil engineering, planning, urban design, public art, sustainability and transport.

The City's public domain framework includes strategic plans, planning controls, policy codes and technical specifications that together form a holistic vision for the City. The framework is summarised at Figure 20.

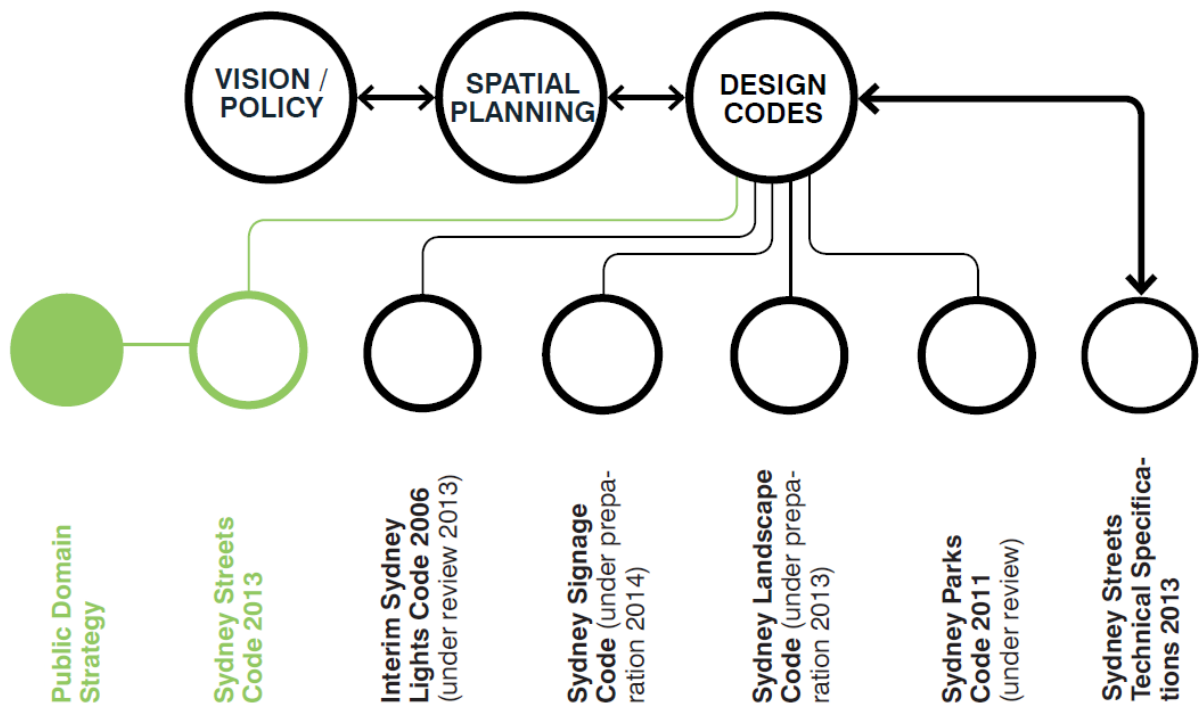


Figure 20: Public domain framework

The public domain strategies are also informed by the detailed masterplanning of neighbourhoods, and specific sites, development approvals and constructed works. In particular, they are intended to provide concept design documentation for public domain infrastructure works to be delivered by developers. How the works are valued and delivered in Green Square is discussed in section 9.

The masterplanning, preparation of the public domain concept plan and standard of works delivered in the Victoria Park site in Zetland has significantly contributed to the evolution of the vision for public spaces in Green Square. The site was masterplanned in 1999/2000 and most of the public domain was delivered by 2005. Desirable outcomes such as the median swales in the east-west streets to filter stormwater run-off from pollutants, landscaped setbacks and park design were translated into the wider DCP requirements and public domain plans. The site has set a base benchmark for the quality of public domain expected.

The preparation of concept design and detailed design for the Town Centre infrastructure and public domain are also of great influence in setting the direction for the wider Green Square, in particular the treatment of Zetland Avenue, the major east-west boulevard connecting the Town Centre to Epsom Park, and the transit corridor it will carry.

The City is progressively preparing public domain strategies, giving priority to the neighbourhoods that are undergoing or about to undergo the fastest renewal. Strategies have been prepared for the Town Centre and the Lachlan neighbourhood, and Epsom Park is being prepared.

The strategies detail the design overlays, urban elements and materials palettes necessary to develop a consistent high quality public domain. They provide illustrative designs, concepts plans and technical requirements for key public spaces and streets that underpin the public domain delivery.

### PROJECT PD.1 Public domain strategies

#### Actions:

- Progress as needed preparation of neighbourhood public domain strategies and infrastructure concept designs
- Ensure public domain delivery is of high quality

**Responsibility:** City and Developers

**Timeframe:** Ongoing

## 5.2 Stormwater management infrastructure

The NSW Government released a Flood Prone Land Policy as part of the *Floodplain Development Manual 2005*. The policy aims to reduce the impact of flooding on individual owners and occupiers of flood prone property and to reduce private and public losses resulting from floods. It is directed towards providing solutions to existing flood problems in developed areas and ensuring new development is compatible with the flood hazard and does not create additional flooding problems in other areas.

The policy recognises the benefits of use, occupation and development of flood prone land. The policy promotes a merit based approach to balance social, economic, environmental and flood risk aspects. It states that individual councils have the primary responsibility for floodplain risk management and the NSW Government will, if required, provide technical and, in some cases, financial support.

The *Floodplain Development Manual 2005* sets out a six stage process for identifying flood risk and management:

1. Formation of a Committee by the councils and to include community representatives and NSW agency specialists.
2. Data collection such as historical flood levels, rainfall records and land use.
3. Preparation of a Flood Study to identify the nature and extent of flooding.
4. Preparation of a Floodplain Risk Management Study to investigate and evaluate available flood mitigation solutions or options with respect to both existing and proposed development.
5. Formulation of a Floodplain Risk Management Plan, including preferred solutions and/or options and formal adoption by the council.
6. Implementation of the Floodplain Risk Management Plan.

Since its early European history, the prevalence of wetland and creeks in the Green Square area has restricted development. Parts of Green Square are located on a floodplain and during periods of heavy rainfall, significant flooding problems have been identified which affect the ability for both public infrastructure and private development to take place. Green Square is within the Alexandra Canal drainage catchment which is the largest in the City of Sydney, comprising 43 per cent (1,141 hectares) of the City's land area. The catchment includes the suburbs of Alexandria, Rosebery, Erskineville, Beaconsfield, Zetland, Waterloo, Redfern, Newtown, Eveleigh, Surry Hills and Moore Park. The catchment and the 1 in 100 year flood levels are shown at Figure 21.

In 2008 Council established a Floodplain Risk Management Committee to assist the City in the development and implementation of Floodplain Risk Management Plans. The preparation and implementation of Floodplain Risk Management Plans are critical components in improving the way the City plans and manages flood risks, including the requirements for infrastructure design and upgrades.

The City completed in 2014 the preparation of the Floodplain Risk Management Plan and preceding stages for the Alexandra Canal catchment area.

The City also completed the *Green Square - West Kensington Catchment Floodplain Risk Management Plan* which is a sub-catchment of the Alexandra Canal catchment. The sub-catchment primarily covers the Town Centre and the Epsom Park neighbourhood.

The plan was completed in 2013, ahead of the Alexandra Canal plan, to identify early floodplain management measures that can be implemented to facilitate in particular development of these two significant areas. A key measure identified is a flood mitigation solution for these affected areas - the construction of a 2.5 kilometre trunk stormwater drain from Link Road, Zetland to the Alexandra Canal.

The works involved are described below. Other measures involve the construction of detention basins in existing parks and augmentation of drainage pipes.

It is intended that the cost of implementing the Flood Risk Management Plan will be funded by allocations made within the City's Long Term Financial Plan, NSW and Federal Government Grants and contributions from developers. The City's Long Term Financial Plan has allocated \$59 million for drainage capacity upgrade works arising from flood risk management plans over the next 10 years. \$57 million has been allocated for Green Square essential infrastructure drainage improvements.

**PROJECT SM.2 Alexandra Canal Flood Plain Risk Management Plan and Strategies****Action:**

- Implement Flood Plain Risk Management Plan actions
- Ensure drainage upgrades are delivered in time to facilitate redevelopment and improve existing conditions

**Responsibility:** City, Sydney Water, other NSW Agencies and Developers

**Timeframe:** TBC/Ongoing







### Green Square Trunk Drain Upgrade

Generally in Green Square stormwater drains into a series of underground pipe networks. In heavy storms with heavy rainfall, flows can exceed the capacity of the existing pipe network and are carried along streets, lanes and footpaths, open spaces and in some instances, private property. Stormwater will collect in trapped low points or depression areas where there are no drains or buildings block the flow of water.

A key measure to manage flooding identified in the Green Square - West Kensington Floodplain Risk Management Plan is the construction of a large trunk stormwater drain from Link Road, Zetland to the Alexandra Canal, and through the Town Centre. The alignment is shown at Figure 22. The trunk drain will:

- reduce high hazard flooding on Joynton Avenue and Botany Road;
- mitigate flood risks in the Town Centre and Epsom Park Precincts; and,
- provide opportunities to improve flooding in Victoria Park and Lachlan precincts.

If a flood mitigation solution is not implemented, development in areas such as the Town Centre could be severely hindered. The City and Sydney Water recognised the importance of this flooding solution to facilitate the development of the Town Centre and in particular new residential, retail and commercial development. A Project Agreement to jointly deliver the new trunk drain was established in November 2013. Key terms are documented detailing each parties' share of the project cost, asset ownership share, procurement model to deliver the project and governance model.

Together with Sydney Water, the City has carried out a number of stormwater modelling investigations and planning related works to establish the feasibility of constructing a trunk drain of this size. This work also established the best alignment for the proposed trunk drain.

Both parties have allocated and secured funds to support the delivery for it to be fully operational by December 2017. The City's share is 54% of the project cost. The project is currently being tendered for the design and delivery of the trunk drain.

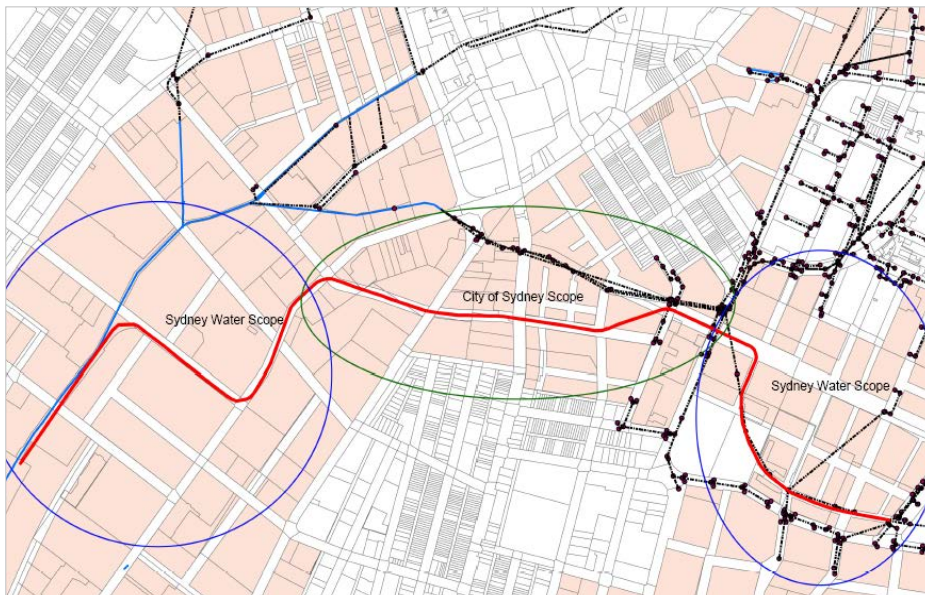


Figure 22: Indicative Green Square Trunk Drain alignment (shown in red line)

#### PROJECT SM.1 Green Square Trunk Drain upgrade

##### Action:

- Ensure construction is staged and completed in time to facilitate major projects along its alignment

**Responsibility:** City and Sydney Water

**Timeframe:** 2017/2018

### 5.3 Open space and outdoor recreation (existing and future)

The City is recognised as a leader in delivering high quality open spaces that cater for a range of uses and activities. The provision of open spaces is essential to ensure a healthy, vibrant and sustainable community and will be key to the liveability of Green Square.

#### Open Space Provision

The City's residents, workers and visitors have access to approximately 380 hectares of regional and local open space. This equates to a relatively low ratio of open space per head of population (approximately 2 hectares per 1,000 residents).

The City's parks provide crucial recreational opportunity for the City's large, and growing, population. The limited amount of space available means that all open spaces have to be flexible to cater for a wide range of needs.

The City generally relies on development to provide smaller local parks. In Green Square the new open spaces are identified in the planning controls. The distribution of existing and proposed open space and their facilities are shown in Figure 23. The total area is approximately 215,000 square metres, and equates to 3.95 square metres per person. This figure does not include the regional open spaces of Moore Park or Sydney Park. As with other areas in the City of Sydney, this is a relatively low figure when compared with other cities in Australia and internationally.

As sites become increasingly scarce and parks that are dedicated to the City as part of a development dedication are usually small, it may be prudent for an acquisition strategy to target sites over 1 hectare, though sites over 1 hectare are rare, and expensive.

Table 4 details those parks that have been delivered in the Sydney LGA since 2007, with only two in Green Square created since, totalling 0.5 hectares.

**Table 4: Parks delivered 2007-2014**

Park name	Size	Location
Pirrama Park	1 ha	Pymont
Waterfront Park (SHFA)	1.2 ha	Pymont
Rope Walk (stage 1)	0.3 ha	Green Sq
Chippendale Park (CUB)	0.6 ha	Chippendale
Paddington Reserve Gardens	0.3 ha	Paddington
Ballaarat Park (SHFA)	0.4 ha	Pymont
Metcalfe Park (SHFA)	0.7 ha	Pymont
Corning Park	0.2 ha	Green Sq
Harmony Park	0.7ha	Surry Hills
<b>Total</b>	<b>5.3 ha</b>	

**Table 5: Parks to be delivered 2014-2015**

Park name	Size	Location
Rope Walk-stage 2	0.4 ha	Green Sq
Barnal Way	0.1 ha	Erskineville
Harold Park	3.8 ha	Glebe
Sweetacres Park	0.5 ha	Rosebery
The Grange	0.3 ha	Darlinghurst
Mary O'Brien Reserve	0.4 ha	Green Sq
Wulaba Park	0.4 ha	Green Sq
<b>Total</b>	<b>5.9 ha</b>	

Table 5 details those parks to be delivered by 2015, with another three due to be delivered in Green Square. This equates to 1.7 hectares including Sweetacres Park (# 32) in North Rosebery and Wulaba Park (# 8) in the Lachlan neighbourhood. Other planned parks expected to be delivered through redevelopment of sites include Garaway Park (# 29) located close to Epsom Road and Link Road, and the park (# 27) with frontage to McPherson Lane.

All new parks built in Green Square to date have been the result of a planning agreement between the City and the developer, and have been delivered through negotiation, as discussed in the 'community infrastructure' floor space scheme in Part 3. These include for example Joynton, Tote and Nuffield Parks and Mary O'Brien Reserve in Zetland, and Crystal, Crown and Corning Parks and The Rope Walk in Waterloo.

Generally the new parks are very popular and well used, but their relatively small size means that they are generally used for predominantly passive recreation.

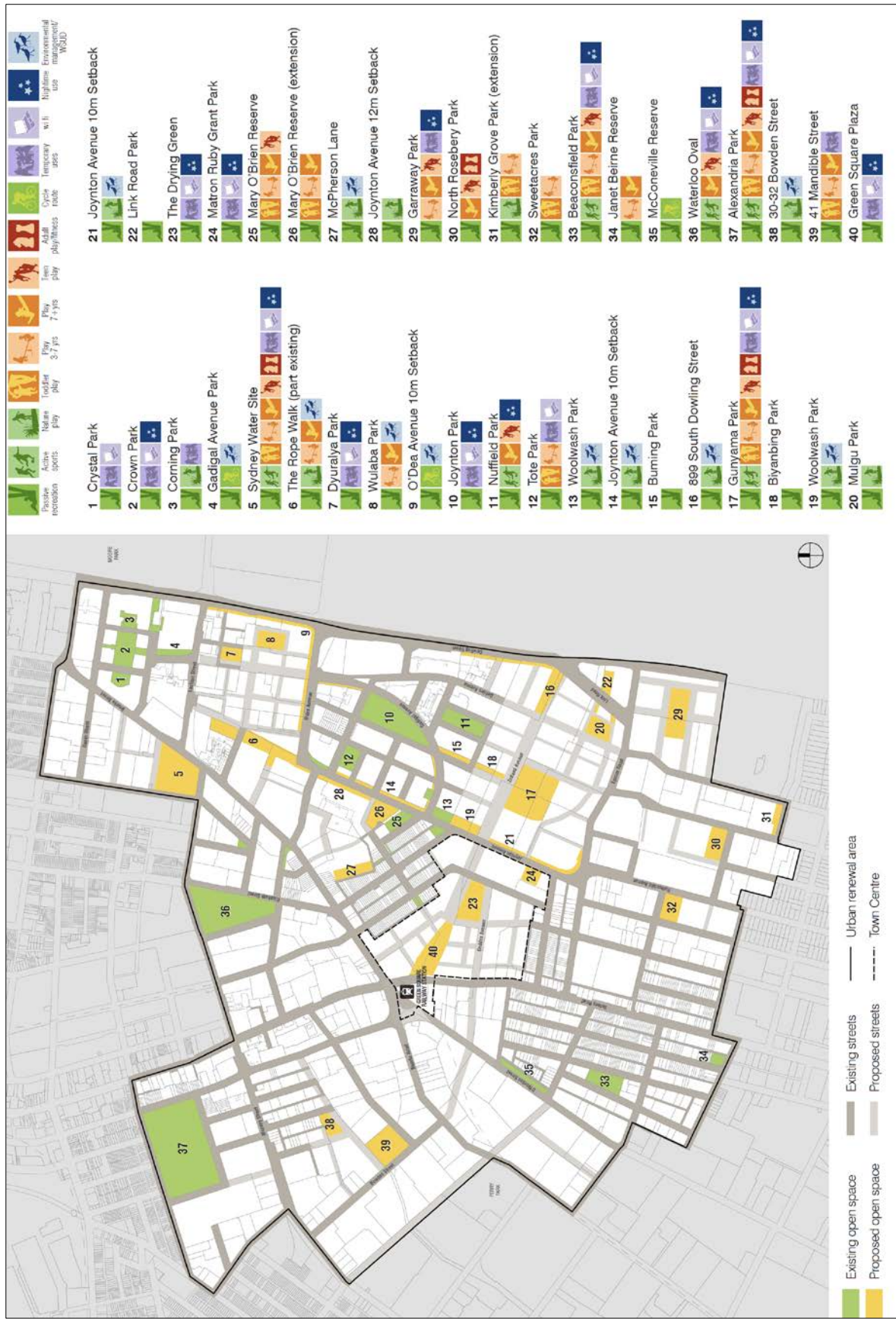


Figure 23: Green Square area existing and planned public open space



The City announced in November 2014 the winning design for a park, Gunyama Park (# 17) with an aquatic centre, a multi-purpose sports field and a range of recreation activities. The park and pool will be built in the Epsom Park neighbourhood on Joynton Avenue, opposite the former South Sydney Hospital site. The layout of facilities proposed in Gunyama Park is shown at Figure 24. The City will also be creating a new 5,500 square metre park in the Town Centre, The Drying Green (# 23), and a smaller park, Matron Ruby Grant Park (# 24), will be created on the former South Sydney Hospital site.



**Figure 24: Future Green Square Aquatic Centre and Gunyama Park - Landscape Plan** (image courtesy of Andrew Burges Architects)

It is recognised that more open spaces will need to be created in Green Square and that the existing open spaces will need to 'work harder' to meet the demands of the growing population. The City is currently investigating options for the delivery of open space, particularly in the southern precincts.

#### Open Space and Recreation Needs Study

The City commissioned Stratcorp Consulting in 2007 to undertake the *Open Space and Recreation Needs Study*. This study provides objectives, directions and recommendations for the future planning, provision, development and management of the City's public open space and recreation facilities.

The comprehensive study has provided the City with a framework for the delivery of a cohesive, linked and well-managed system of open space. It addresses the full range of recreation needs from sporting opportunities to quiet passive space for relaxation, and assesses the requirements for open space across the City against the following criteria:

- quantity of space;
- distribution of space;
- range of activities being provided;
- accessibility;
- quality;
- community consultation;
- demographic analysis;
- assessment of recreation trends; and,

- the policy framework.

This study provides recommendations against the criteria. Where applicable the recommendations for Green Square were integrated into planning controls, specifically by defining open space catchment precincts with a recommendation for the amount of open space required and suggested recreation activities.

The study was completed in 2007, and is due for a review to update in particular the recommendations on the quantum of open spaces in each neighbourhood, having regard to those that have been constructed since 2007.

### Draft Sports Facilities Demand Study

The draft *Sports Facilities Demand Study* was undertaken by Parkland Environmental Consultants in 2013/4 for the City. It examines current and evidence based sports participation including the use of facilities such as sporting fields, indoor courts and outdoor courts within the City of Sydney.

The aim of the draft study is to support decisions on resource allocation for the design and construction of facilities, as well as for their ultimate use once built. It also examines the supply and demand for sporting fields and indoor and outdoor sports courts. The objectives of the study are to:

- Review existing sports facility provision and utilisation within the City of Sydney and advise on supply and demand.
- Review the use of existing sports facilities in adjoining local government areas, Centennial Parklands and The Domain and advise on their impacts to the City.
- Review existing studies on sporting facility provisions and advise on the recommendations that are relevant to the City.
- Interview existing sporting groups, associations and facility managers in the City of Sydney area and obtain their views on the provision of sporting facilities.
- Provide an assessment of the extent of unbooked use of the City's facilities.
- Prepare a report advising on the supply, demand and future usage of sporting facilities.

The draft study includes surveys and interviews with sporting groups and associations, recreation facility managers and operators, disability groups, adjoining councils, schools and City staff. The recommendations have been developed based on participation rates, demographic projections, comparative assessment, expressed demand and planning provision benchmarks.

Key points identified in the study include:

- Participation in sport has key benefits to the community, including improved physical and mental health, increased self-esteem, personal development, social inclusion and connectedness.
- Demand for sporting facilities often exceeds supply, which is underscored by a high population of young people (18-39 years) in the City of Sydney and 95% of residents living in medium-high density housing.
- The City is experiencing changes to the way sport is played and the way sports fields are used. The trend to casual sport – “show up and play” – has seen an increase in the popularity of small team, half-size field sports such as 6-a-side soccer, touch football and Oztag.
- There is growing demand in soccer, AFL, rugby league, rugby union and cricket.
- There are 36 fields (including restricted-use fields) within the City of Sydney, of which 13 are managed by the City.
- By 2031 the number of additional fields required compared to current provision could be as high as 28.5 fields. It is unlikely that this level of provision is possible in the constrained urban environment of the City.
- Sporting fields in the City experience a high rate of use which impacts on their condition and suitability for sport.
- There are currently 101 full-sized outdoor courts in the City of Sydney catering for tennis, basketball, netball and other sports.
- An additional 20-25 multi-use courts will be required by 2031.

- The City of Sydney area currently has 19 indoor sports courts, some of which are constrained in use hours or limited for use due to design issues. The City manages five of these courts.

The City is considering the draft study outcomes to inform its approach towards open space delivery and upgrades.

### The Open Space Delivery Plan

The City is currently reviewing its *Section 94 Contributions Plan 2006*. As part of this review open space delivery mechanisms are being investigated to ensure open space targets set out in a new plan are realistic and land is acquired to achieve the targets.

This work will result in an Open Space Delivery Plan. This plan will be a working interim document for the City to guide its approach to open space delivery, until the update of the *Open Space and Recreation Needs Study 2007* has been completed.

The plan will also establish funding options and guide allocation of funding to ensure the City can proactively acquire sites.

### Defining Character of Open Space

In 2013, the City commissioned Gallagher Studio to undertake the *Open Spaces in the Southern Urban Renewal Areas* study. This study defines the character of identified/proposed public open spaces in Green Square and the Ashmore precinct renewal area, and establishes their purpose and function. It also identifies opportunities for an integrated open space network across the southern urban renewal areas of the City and makes recommendations on how existing open spaces could be better utilised. The study takes into consideration:

- the likely future population's open space needs;
- the type of activities/facilities that are likely to be required by the new and existing community;
- the quantum and distribution of open space currently being delivered;
- potential gaps in the quantum and distribution of open space;
- an appropriate distribution of activities/facilities throughout the study area; and,
- indicative required timeframe/staging for delivery of open spaces to match the needs of the growing population.

The study also assesses the current distribution and size of existing and proposed open space and how the proposed locations for new open spaces in the City's planning controls link to existing open spaces.

Some key study findings are:

- The Lachlan, North Rosebery, Town Centre and Danks Street neighbourhoods do not achieve 50% of the required open space that is prescribed in the City's *Section 94 Contributions Plan 2006*.
- While the study area is close to regional parklands (Sydney and Centennial Parks) accessing these parks is currently challenging due to surrounding arterial roads which carry high traffic volumes.
- East-west connections will be improved in the long term through implementation of the City's Liveable Green Network strategy though timeframe for complete delivery is not programmed.
- Targeted access improvements such as increased crossing points on McEvoy Street, O'Riordan Street and Bourke Road can improve resident access to larger scale parks particularly Sydney Park.
- Destination parks within 10 minutes' walk from the Town Centre such as Perry Park and Joynton Park have the potential to be highly utilised.
- Neighbourhoods will require careful consideration of the streetscape design to ensure the neighbourhoods have a strong landscaped and 'leafy' character.
- Prioritising east-west routes and streetscape improvements will improve residents' access to local parks.
- Existing parks need to be better programmed so they 'work harder'.
- Adaptive reuse of Sydney Water easements and reserves to provide pedestrian and cycle links will improve accessibility to neighbourhoods close to Green Square such as Ashmore, and improve connectivity for pedestrians and cyclists.

The study was completed in 2014. The outcomes of the study will inform, together with other work the City is undertaking as described above, the approach towards open space delivery and upgrades.

### Quality of Open Space

The City is preparing landscape character plans for certain neighbourhoods to ensure landscape quality and liveability. This involves developing a holistic landscape approach to the emerging new neighbourhoods, which is already seen in the Victoria Park neighbourhood. These landscape character plans provide landscape recommendations related to streets, lands and landscape setbacks with public and private land. This could inform future planning controls and public domain strategies for neighbourhoods, and inform the City's Landscape Code.

The analysis will also develop some general principles for enhancing landscape character will also be developed providing key principles for landscape treatments as well as guidance on street verge dimensions and landscape setbacks, which will inform future masterplanning of new neighbourhoods.

This study will also examine what the barriers are to accessing (by walking or cycling) the larger open spaces (Alexandria Park, Sydney Park, Moore Park). It will review street conditions and access points across South Dowling Street, Bourke Road, O'Riordan Street, McEvoy Street and Botany Road.

#### PROJECT PD.2 Open Space and recreation

##### Actions:

- Produce an open space delivery plan to guide the City's funding allocation for new open space.
- Continue to investigate opportunity sites for provision of open space including potential leasing of Sydney Water channel corridors.
- Undertake a review of the City's *Open Space and Recreation Needs Study 2007* to integrate the findings from the Sports Facility Demand study

**Responsibility:** City, Developers and Sydney Water

**Timeframe:** 2015/2016

## 5.4 Public art

The integration of public art into the built environment over the long as well as short term will reflect the growth of Green Square as an emerging area. The purpose of public art in Green Square is to:

- Engage with the local and new community of residents, workers and visitors.
- Identify and highlight issues of art and the Green Square ecology.
- Address the historical and cultural elements of Green Square.

The City proposes an ongoing programme of temporary public art projects as well as permanent site-specific installations. These are guided by the *Green Square Public Art Strategy 2012* endorsed by Council in March 2013. Public Art is a key action of Sustainable Sydney 2030 to create a "lively and engaging city", "a cultural and creative City" and be a "leading environmental performer".

Introducing high quality public art into the Town Centre's public domain will give a sense of place and identity to the area helping to create an engaging and vibrant place for the community and future residents and workers.

A program of permanent and temporary public art projects are being developed to link the main public domain areas of Green Square including the Green Square Library and Plaza, The Drying Green park, former Royal South Sydney Hospital site, Aquatic Centre and Gunyama Park with future new developments in the Town Centre and the broader Green Square. There are three key themes for Public Art in Green Square:

- Art and Ecology;
- Art and Community; and,
- Art and Site.

The City has appointed a Curatorial Advisor for public art who oversees the development and implementation of public art projects in line with the Public Art Strategy.

The Curatorial Advisor in collaboration with City staff has developed the *Green Square Public Art Implementation Plan 2013* which provides the framework for the delivery of integrated, high quality public art projects across Green Square. It builds on the themes and opportunities outlined in the Public Art



Strategy, including additional information regarding priority projects, budget allocations, indicative timeframes and procurement processes.

Artists will address the key themes, but as these themes are not mutually exclusive, an artist may address all themes, or may address only one.

The projects listed in the implementation plan are listed below in Table 6.

**Table 6: Green Square Public Art Implementation Plan 2013**

Type	Project	Budget	Timeframe
1. The Drying Green	Permanent public art commission integrated into The Drying Green park design	\$500 000	Artist selection 2013 Design development 2014 Construction TBC
2. Connecting projects	A series of permanent public art commissions across the Town Centre's public domain to interlink public domain sites (Library and Plaza/The Drying Green/Royal South Sydney Hospital Site, Aquatic Centre and Gunyama Park)	\$2.55M	Artist Selection commencing 2014 Design development 2014 - 2018 Construction TBC
3. Former Royal South Sydney Hospital site	Permanent public art commission with opportunities for community engagement and artist/s in residency	\$500,000	Artist Selection 2014/2015 Design Development 2014/2015 Construction TBC
4. Temporary Projects	Temporary projects in construction phase and completion of sites across the Town Centre	\$450,000 (\$150,000 p.a.)	Artist Selection 2014 - 2017
Total		\$4M	

### PROJECT C.7 Public Art

**Action:**

- Implement *Green Square Public Art Implementation Plan 2013* in line with established timeframes

**Responsibility:** City

**Timeframe:** 2013 - 2017

## 6.0 Sustainability

### SUSTAINABLE SYDNEY 2030 STRATEGIC DIRECTIONS

Direction 2. A Leading Environmental Performer

Direction 9. Sustainable Development, Renewal and Design

Direction 10. Implementation through Effective Governance and Partnerships

### RISKS

- Legislative framework restricts targets for sustainability outcomes.
- Impacts of urban renewal on the environment are not appropriately managed.
- Landscaping does not always meet needs of natural/local biodiversity.

### 6.1 Ecological sustainable development

Achieving sustainable urban renewal is a major consideration that shapes the evolution of Green Square. Although no specific targets for achieving sustainability outcomes were set for Green Square, the targets adopted by the City in *Sustainable Sydney 2030* guide the development.

In NSW, *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* (the BASIX SEPP) mandates provisions that aim to reduce consumption of mains-supplied potable water, reduce emissions of greenhouse gases and improve thermal comfort in all residential development. The BASIX SEPP sets the minimum standards that a development is to achieve. The BASIX SEPP also mandates that the City cannot include provisions which require a development to exceed the minimum standards.

However, where voluntarily proposed, the City encourages development to exceed minimum BASIX scores and encourages development that implements the principles of ecologically sustainable development (ESD) in the proposed development. Implementing the principles of ESD means the development will be designed and constructed so that it complies with the following objectives:

- Greenhouse gas emissions will be reduced.
- The use of cogeneration and tri-generation systems will be increased.
- Energy that is used will be renewable and low carbon.
- Potable water use will be reduced.
- Development can adapt to climate change.
- Waste will be reduced.
- Recycling of waste and use of products from recycled sources will be increased.
- Indoor environmental quality will be improved.
- The environmental impact from building materials will be reduced through reduction, re-use and recycling of materials, resources and building components.
- The biodiversity will be improved.

### PROJECT S.1 Continue to implement BASIX requirements

#### Action:

- Work with developers to go beyond BASIX requirements for development

**Responsibility:** City and Developers

**Timeframe:** Ongoing

## 6.2 Urban ecology

The City's *Urban Ecology Strategic Action Plan 2014* is based on a survey of the plants and animals that live in the local area and outlines the best ways to keep them there and help them thrive. Whilst it is recognised that biodiversity in Green Square has been greatly reduced from its original state, there is potential to improve or enhance vegetation and fauna species, alongside with improving community awareness and appreciation of biodiversity.

The plan aims to restore and conserve resilient ecosystems. A key component of this in Green Square is to ensure the management of existing biodiversity as redevelopment occurs. This is undertaken through planning controls with specific planning provisions that seek to protect and conserve biodiversity, and through the creation of new open spaces and landscaped setbacks by ensuring appropriate species are planted that encourage ecosystems to flourish.

### PROJECT S.2 Ecology

#### Action:

- Continue to implement planning controls and work with the community

**Responsibility:** City and Developers

**Timeframe:** Ongoing

## 6.3 Energy

### Trigeneration

Trigeneration can establish infrastructure within the City of Sydney which will improve energy efficiency and energy security, reduce electricity network investments, enabling businesses and residents to benefit, and contribute towards the City's Sustainable Sydney 2030 energy and climate change targets. It also provides the opportunity for a transition to a 100 per cent renewable energy with the ability to replace natural gas fuelling the trigeneration network with renewable gases from waste.

The 'tri' in trigeneration refers to three simultaneous outputs from the gas-fired engines: low-carbon electricity, hot water to heat buildings and chilled water to cool buildings. A trigeneration engine runs on natural or renewable gases producing low-carbon electricity. The engine, which is about the size of a shipping container, generates heat that is captured to make hot water. Hot water can be converted to chilled water for air-conditioning by a secondary piece of equipment called an absorption chiller. Hot water or chilled water, called thermal energy, can be distributed to nearby buildings through a network of underground pipes.

The City's Decentralised Energy Master Plan – Trigeneration 2010-2030 establishes that, if fully developed, trigeneration could reduce electricity consumption by 30 per cent and electricity peak demands by 60 per cent in the City of Sydney and up to 32 per cent reduction in total greenhouse gas emissions by 2030.

The City's plan for precinct-wide, low-carbon trigeneration in the Town Centre has been made difficult by Federal and NSW Government regulations that do not allow energy to be transported to adjoining owners.

Trigeneration remains necessary to deliver the 70 per cent reduction in greenhouse gas emissions to fully meet the Sustainable Sydney 2030 target for the City of Sydney. The City has revised its strategy and will progress programs to establish trigeneration. In the Town Centre the City will preserve the option for future installation of trigeneration by allocating space in City buildings for trigeneration and in public streets for thermal reticulation network pipes until a more favourable regulatory environment is in place.

A trigeneration plant was investigated for the proposed Aquatic Centre in Green Square in accordance with the City's revised trigeneration strategy. The Aquatic Centre is proposed to be a year-round facility. Trigeneration has been demonstrated to be an effective method of providing low emission pool heating and electricity to aquatic centres by other councils in NSW, including Leichhardt, North Sydney, Willoughby, Hornsby and Wagga Wagga.

If trigeneration is installed in the proposed Aquatic Centre, it will be connected to 'private wire' (see discussion below), which would also supply electricity to other City buildings and facilities in the South Sydney Hospital site, as well as providing heat energy to the Aquatic Centre.

### Solar PV

The City is investigating the deployment of solar PV (photovoltaic panels) on out-buildings and facilities in Green Square to supplement local energy needs with zero emission generation. Battery storage is also under investigation to optimise the chosen solar solution. This will prevent the need to export energy at a potential loss during peak solar periods, whilst also reducing the volume of import required during peak periods.

### Private Wire

The former South Sydney Hospital site and a number of other nearby sites in or adjoining the Town Centre are being redeveloped to provide a range of City buildings and facilities. These include a child care centre, community facilities, aquatic centre, recycled water plant, a library, urban open space, Gunyama Park and public lighting. A 'business-as-usual' approach to the provision of electricity to each of these facilities would involve separate connections to the Ausgrid electricity network for each facility.

The private wire consolidates individual connections into a single connection providing the benefit of reduced network connection charges and lower network tariffs. It also provides the flexibility to connect a trigeneration plant in the future to supply electricity to the City's own facilities "behind the meter", and supply thermal energy to the new Aquatic Centre to heat the pools.

Low voltage private wires are commonly used for public facilities in a campus setting. The operating former South Sydney Hospital was serviced via a private wire, and the site remains currently serviced by a single Ausgrid connection for all buildings on the site.

Consolidating the individual connections will allow renewable electricity from solar photovoltaic arrays installed on City buildings and facilities to be shared between these buildings "behind the meter", further reducing network charges.

#### PROJECT S.3 Trigeneration/Solar PV/Private Wire

**Action:**

- Continue investigations for Trigeneration, Solar PV and Private Wire connections to supply the City's community facilities in the Green Square Town Centre and Epsom Park neighbourhood

**Responsibility:** City**Timeframe:** Ongoing

## 6.4 Water

The management of water is a key element of the City achieving its *Sustainable Sydney 2030* Direction 2 – A Leading Environmental Performer. The direction establishes a vision for water in the City, namely that by 2030:

- Water is celebrated and retained for re-use.
- Increasing the use of recycled water.
- Integrate Green Infrastructure throughout the City by using the City's streets and public domain for reticulation.
- Implement the Decentralised Water Master Plan to reduce pollutants and increase resource re-use.
- Renew stormwater infrastructure by installing water sensitive urban design (WSUD) measures in the catchment.
- Encourage the accelerated retrofitting of existing buildings for better environmental performance.

### Decentralised Water Master Plan targets

The City has prepared a *Decentralised Water Master Plan 2012-2030* to provide a blueprint to achieve its environmental performer directive. The actions identified are:

- Reduce mains water consumption across the City of Sydney by 10% of 2006 levels by 2030 through water efficiency programs.
- Reduce mains water consumption in Council's own buildings and operations to 10% below 2006 levels by 2030 through water efficiency and connection to non-potable water supplies.
- Replace 30% of mains water demand across the City of Sydney with recycled or alternative non-potable water generated from local water resources by 2030.



- Reduce 50% of sediments and suspended solids and 15% of nutrients currently discharged into the waterways from stormwater run-off generated within the City of Sydney by 2030.

Green Square provides a unique opportunity to substantially contribute to meeting the targets outlined *Decentralised Water Master Plan 2012-2030* and *Sustainable Sydney 2030*. The ambitious targets will require private land and the current and future public domain to be transformed to being water sensitive and this will be achieved by WSUD. Table 7 shows these targets.

**Table 7: DWMP Targets shown as values based on the benchmark (2006) water consumption and pollution generation of the City. Actual reductions will need to reduce from the estimated 2030 levels.**

2030 / DWMP Target	2006 Benchmark	2030 (estimated)	Reduction from 2030 (estimated) to meet target	2030 Target
10% reduction in potable water demand in the City due to efficiency	33GL	43.8GL	3.3GL	28.4GL
30% reduction in potable water reduction due to recycled water			11.9GL	
10% reduction in the City's own potable water consumption *	410ML	540ML	170ML	370ML
50% reduction in the sediment load	3,000 tonnes of suspended solids		1,500 tonnes of suspended solids	1,500 tonnes of suspended solids
15% reduction in the nutrient load	7 tonnes of phosphorus		1 tonne of phosphorus	6 tonnes of phosphorus
	56 tonnes of nitrogen		8 tonnes of nitrogen	48 tonnes of nitrogen

\* Note the predicted 2030 water consumption for City is 43.6GL and meeting the 2030 target of 28.4GL would come from both water conservation 3.3GL and water recycling 11.9GL. The 2030 target would represent a total reduction of 15.2GL or 35% from the 2030 consumption of 43.8GL. The predicted 2030 consumption for the City's property portfolio is ~540ML and meeting the absolute target of 370ML would represent a total reduction of 170ML or 30% of the 2030 consumption.

## Water Sensitive Urban Design

Water Sensitive Urban Design (WSUD) is the sustainable management of water in urban areas through intelligent and integrated design. It takes into account all of the elements of the urban water cycle including: potable (drinking quality) water, rainwater, wastewater, stormwater and groundwater.

WSUD includes a suite of technologies such as water efficient fittings and appliances, and rainwater tanks to reduce potable water consumption and costs, recycled water, as well as bio-retention systems (raingardens), swales, wetlands, vegetated roofs and vertical gardens (green roofs and walls), to reduce the pollution from stormwater ending up in local waterways.

There are multiple benefits implementing WSUD such as:

- Improve the quality of stormwater runoff entering local waterways.
- Reduce potable water demand.
- Minimise wastewater generation.
- Integrate stormwater management into the landscape to influence microclimates, and maximise the visual and recreational amenity of urban development.

WSUD is grouped into two fields for Green Square: reducing mains water demand; and improving the quality of stormwater entering local waterways.

Due to the interconnectivity of WSUD many actions have cross over benefits.

## Reducing mains water demand

### Water Efficiency

Reducing mains water consumption through water efficiency is a central component of the City's *Decentralised Water Master Plan 2012-2030*. Water efficiency in new builds will be achieved largely through meeting BASIX requirements with the installation of water efficient fixtures and fittings and appliances. In addition all apartment buildings will feature individual potable water metering to better track and communicate water consumption and to attach a price signal to resident consumption.

### Recycled and Alternate Non Potable Water

Green Square provides a unique opportunity to design and construct infrastructure that replaces mains water demand with recycled or alternative non-potable water generated from the precinct or from surrounding precincts or future recycled water grid. The Town Centre Water Reuse Scheme is major project that demonstrates the City's commitment to reaching the set targets.

### Green Square Town Centre Water Reuse Scheme

The Town Centre Water Reuse Scheme has been developed in response to meeting the targets set out in *Sustainable Sydney 2030* and the *Decentralised Water Master Plan 2012-2030*. The construction stage is currently being implemented.

The works will see base flows harvested from the urbanised Sheas Creek culvert catchment collected, treated and distributed to residents of the Centre through the new recycled water network.

The scheme's initial delivery capacity is for 900 kL per day of treated stormwater to supply the network. This will supply the predicted non-potable water demands for the Town Centre.

The reuse scheme is part of the Green infrastructure to which buildings are to be connected. This requirement is set out in the Planning Agreements with landowners/developers in the Town Centre established through the "un-deferral" process discussed in sections 2 and 9 of this Plan.

The project is a major commitment by the City and this will provide a direct contribution the directions details in *Sustainable Sydney 2030* by:

- Replace mains water demand with recycled water in the Town Centre.
- Reduce stormwater pollution load in the Cook's River Catchment.
- Demonstrate leadership in the delivery of Green Infrastructure.

### Expansion of the Recycled Water Network

The City is currently investigating expansion of the recycled water network and examining alternative sources of water supply. These include:

- Sewer Mining from sewers owned by Sydney Water.
- Sewer Mining from sewers owned by another utility owner.
- Managed Aquifer Recharge and Recovery.

The City is investigating options for the ownership of water infrastructure (recycled water supply and sewer) that may facilitate the viability of an expanded recycled water network.

### Dual Plumbing in Buildings

Dual plumbing in buildings will play a vital role creating the viability of an expanded recycled water network. Buildings that are located along the future recycled network would install dual plumbing in the new buildings and provide infrastructure for the connection to the recycled water network.

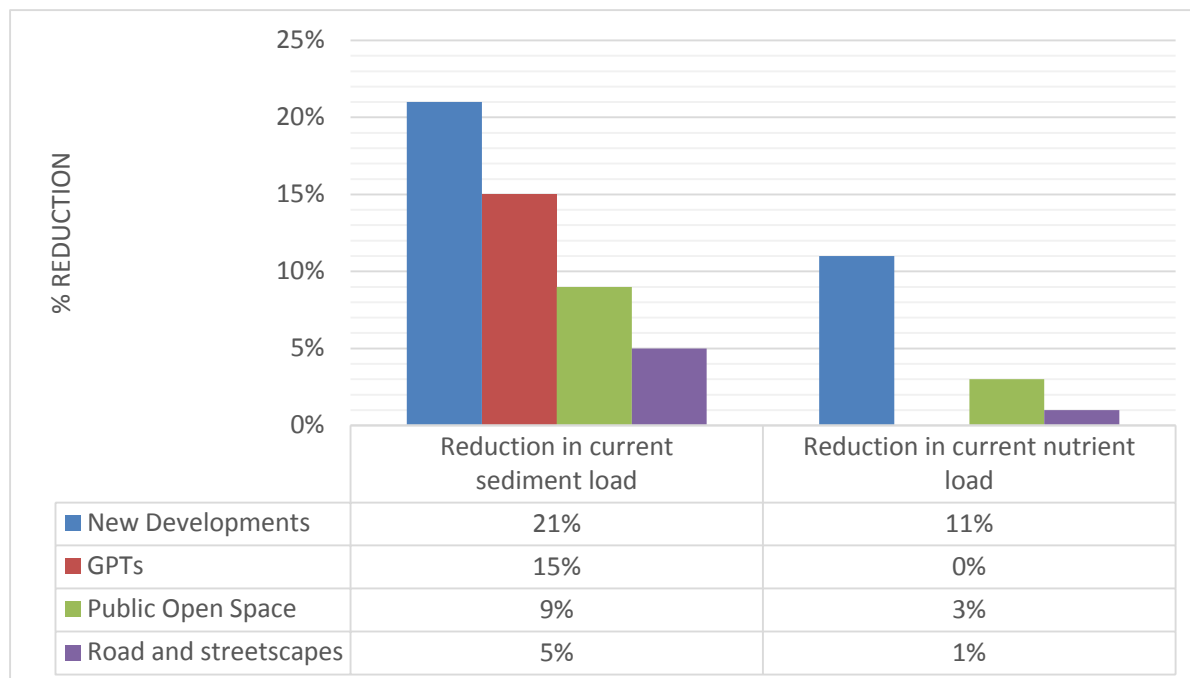
## Improving the quality of stormwater runoff entering local waterways

The attainment of the stormwater pollution reduction targets of 50% reduction in suspended solids and 15% reduction in of nutrients has been defined in the *Decentralised Water Master Plan 2012-2030* as being met by four key activities, namely:

- WSUD in new development.
- Retrofitting of the drainage network with gross pollutant traps.
- Retrofitting of public open space with a combination of raingardens, swales and wetlands in at least 10% of the opportunities.

- Incorporating WSUD during at least 10% of opportunities presented by renewal of road and other streetscape projects.

The extent to which each of these activity areas meets the pollution reduction targets is shown at Figure 25. New development presents the City with the greatest opportunity to address pollution reduction including the reduction of suspended solids by 21% and nutrients by 11%, or 42% and 44% of the totals respectively.



**Figure 25: Pollution reduction targets identified in the *Decentralised Water Master Plan 2012-2030* for each of the key activity areas.**

### Water Sensitive Urban Design in new development

The Sydney DCP 2012 requires that development of a site greater than 1,000 square metres must undertake a stormwater quality assessment to demonstrate that the development will achieve the post-development pollutant load standards indicated below:

- reduce the baseline annual pollutant load for litter and vegetation larger than 5mm by 90%;
- reduce the baseline annual pollutant load for total suspended solids by 85%;
- reduce the baseline annual pollutant load for total phosphorous by 65%; and,
- reduce the baseline annual pollutant load for total nitrogen by 45%.

To achieve pollution reduction targets WSUD measures such as raingardens, wetlands, swales, tree pits, gross pollutant traps (GPTs) and rainwater tanks will need to be incorporated in the design of private land and the current and future public domain.

### PROJECT S.4 Water

#### Actions:

- Complete construction of Town Centre Water Reuse Scheme and provide recycled water to buildings by 2015/2016
- Ensure Town Centre buildings are designed for and connected to recycled water network
- City is to continue investigations on expansion of the recycled water network
- Implement WSUD measures to achieve water pollution reduction targets through City and developer delivered infrastructure

**Responsibility:** City and Developers

**Timeframe:** Ongoing

## 7.0 Social infrastructure

### **SUSTAINABLE SYDNEY 2030 STRATEGIC DIRECTIONS**

Direction 6. Vibrant Local Communities and Economies

Direction 8. Housing for a Diverse Population

Direction 10. Implementation through Effective Governance and Partnerships

### **RISKS**

Provision of community facilities and services may not keep pace with population growth.

Some services, such as education and health provision are not the responsibility of the City.

Differing cultural backgrounds, beliefs and traditions can potentially lead to cultural isolation.

Placemaking strategies and programmes may not respond to community needs.

### **7.1 Social infrastructure supporting community wellbeing**

Social sustainability can be broadly defined as the maintenance and improvement of social wellbeing for current and future generations. In the context of Green Square, social sustainability is about supporting the development of a community that is strongly connected through a shared sense of trust and vision of the future.

Supporting the communities of Green Square involves nurturing and celebrating qualities of existing communities and neighbourhoods, as well as incoming communities. It relies on effectively addressing the social impacts of the urban renewal process and associated population growth.

Social infrastructure and services play a critical role in supporting community connectedness and the development of social capital. This is particularly important in the case of a community that is rapidly growing and changing. The social infrastructure needed to serve a community depends on the size and characteristics of that community, including age and cultural background.

Social infrastructure is typically provided on the basis of applied service planning methodologies, which may include particular population or geographic benchmarks or catchments. Some social infrastructure, such as child care centres, libraries and community centres, are delivered on a local basis, whereas other forms of social infrastructure, including tertiary education facilities and hospitals, are delivered on a regional basis or catchment, serving a larger population.

Social infrastructure is funded and delivered by a range of organisations, including local, state and federal governments, the not-for-profit and private sectors. For example, schools are delivered by state government, whereas child care centres are delivered by local government, the not-for-profit and private sectors, with some funding provided by state and federal governments.

The Green Square community will need access to a range of local and regional social infrastructure. The following section discusses the key forms of social infrastructure needed to serve this community.

### **7.2 Local social infrastructure provision by the City of Sydney**

The City's vision is for the delivery of a diverse network of community facilities distributed across the City's neighbourhoods and four Service Planning Areas (North, South, East and West) to provide relatively equal access to all members of the community. This network includes an appropriate balance of large integrated, multi-purpose community "hubs" and smaller localised "satellite" facilities, along with specialist facilities such as libraries, aquatic facilities, creative cultural facilities and children's services such as childcare.



The City's strategic community facilities planning is focused on ensuring that facilities will continue to meet the social, cultural and recreation needs of current and future populations. The *Creative City, Cultural Policy and Action Plan 2014-2024*, adopted in August 2014 guides the cultural development of the City over the next decade and the facilities planning. This plan provides foundation principles and a 10-year action plan with a series of initiatives and proposed investment across six priority areas: precinct distinctiveness and creativity in the public domain; new avenues for creative participation; sector sustainability; improving access, creating markets; sharing knowledge; and global engagement.

Planning for facilities is undertaken on a long term basis, taking into account forecast population growth and change to 2030, with interim provision targets for the short to medium term (to 2021).

The City needs to balance supply and demand across a wide geographic area. In the short to medium term, delivery of new supply is focused on the Green Square and City South Village Group, due to the relative population growth associated with this area compared with other parts of the City. Significant new supply of facilities is also needed because the transformation of Green Square from a predominantly industrial to a mostly residential environment which means that current social infrastructure provision is limited and inadequate to support a growing residential population and workforce.

The City's Cultural Policy expands on *Sustainable Sydney 2030* Direction 7 - A Cultural and Creative City, which recognises the importance of culture and creativity to our community and its centrality to the daily life of the City. The development of the Cultural Policy has been a critical step in articulating community priorities and creating a road map for their delivery.

Green Square together with the City's southern employment lands offer a number of opportunities for expanding the cultural offer of the City. A particular challenge for cultural activities is their inability to financially compete with residential or commercial uses for floor space, that is, they often cannot afford the rents of floor space in the inner-city. In those areas where residential uses are not permitted, floor space is likely to remain relatively affordable and can offer more opportunities to accommodate cultural uses. In addition, the 'just out of centre' location of some parts of these lands, means they enjoy easy access to the services and amenities generally located in the Green Square Town Centre, but at much lower rents.

The *Cultural Policy and Action Plan 2014* identifies that the City's property portfolio and infrastructure assets can be used effectively to support its cultural and other infrastructure goals.

Some of the new facilities that will be delivered by the City at Green Square, including the new aquatic centre, creative arts facilities and open spaces, are expected to draw people from a wider geographic area than the local neighbourhood. They have been designed to accommodate this wider demand.

Primarily, localised facilities and services are being delivered by the City in Green Square with the intention of delivering excellent local amenity and supporting the current and incoming communities in connecting with each other and enjoying a high quality of life.

### Community development

The position of Community Development Urban Renewal Co-ordinator was created in the City to help facilitate community integration. The full-time role has been principally set for three years in Green Square, then transitioning to include other urban renewal areas including Ashmore and Central Park.

The role acts to foster co-operative relationships and establish partnerships between communities, non-government organisations, the City and the broader Sydney community, with a strong focus initially on the Green Square community. The purpose of the role is to work collaboratively with the different units within the City to ensure coordination of social and community matters and programmes.

Key outcomes from this role to date have been:

- Project managing interim social activation programmes dedicated to place making, capacity building and cultivation of leaders.
- Pilot info-hub: a collaborative space designed for meaningful engagement/ participation (internal and external stakeholders).
- Trial: Welcome Tote Pack targeting new apartment dwellers – building social connection/ knowledge of local business and understanding of strata/ Council services.
- Represent segment of community interests/ concerns through internal planning forums advocating for timely/ transparent consultation and co-design.
- Internal capacity: Community economic development through Sirolli Institute – leading to employment of two enterprise facilitators with Settlement Services Australia and associated resource board.

- Internal capacity: Asset based community development leading to greater comprehension of local government role in place making.
- Community business partnerships: brokerage of six partnerships ranging from wicking bed funding, design and creation between Green Square Growers and Martin Properties, to the Green Square Good Food month event in Joynton Park now generating \$100k in its second year in partnership with Yaama Dhiyaan hospitality school.
- Facilitation of over six matching grant applications and delivery on community led programs ranging from change making, cultural intelligence and neighbourhood meet ups to children's playgroups and promotion of Green Square's diversity.
- Support and facilitation of research partners such as a pilot Social Cohesion Survey in partnership with UNSW leading to a longitudinal study of Green Square.
- Activation of public domain and underutilised City assets.
- Establishment of community database.
- Documentation and dissemination about the needs/ interests of the community across low and higher density sections of Green Square.

The City now includes place-based City Space teams which consist of multidisciplinary approaches seeking to integrate use of community facilities to reflect the four pillars of sustainability. The City is committed to transitioning policies and staff skill sets from welfare to community led practice and the community development co-ordinator role is essential in brokering and enabling these outcomes in urban renewal settings.

Community integration of the new and existing Green Square community is an important aspect to the social sustainability of Green Square. This is a busy role that is likely to get busier in response to the rapid growth, particularly the Town Centre, Epsom Park, Lachlan and North Rosebery neighbourhoods.

However re-development in the City is not only in Green Square. It is likely that this role will need to branch out to other urban renewal areas such as Ashmore, Harold Park and Central Park. This could have impacts on resourcing to effectively build partnerships between communities, organisations, the City and the broader Sydney community.

An important challenge will be the integration of the new community with the existing community, particularly older members of the community, groups from lower socio-economic households and social housing tenants, to ensure that these members of the community continue to have access to social and economic opportunities and are not polarised.

It will be important to ensure that future programmes and initiatives are designed to ensure that all members of the Green Square community and surrounding suburbs feel welcome and able to participate in their area of interest or need.

## **PROJECT C.6 Community Development**

### **Action:**

- Continue and monitor the work being undertaken by the Community Development co-ordinator.

**Responsibility:** City

**Timeframe:** Ongoing

## **Placemaking**

Placemaking encompasses a broad range of ideas and philosophies, but it is a concept that combines both tangible elements, such as hard infrastructure and physical assets, with intangible attributes, such as community spirit, lifestyle and character, to deliver a place or neighbourhood, that is appropriate to the area, to its residents, and to its visitors and workers. It is a process that promotes community ownership, is often community driven and can gear a community with the knowledge and ability to create public places that have character, will provide a range of lifestyle opportunities, promotes activation, uniqueness and individuality and a sense of wellbeing.

The City recognises the importance of developing neighbourhoods that foster community resilience, and develop capacity and community ownership. It is also committed to implementing a set of strategies and actions to achieve this long term vision for Green Square, whilst promoting and encouraging community participation and growth.

There is a strong desire to see Green Square become a revitalised, urban area with commercial, retail and residential offerings. Its location within the Global Economic Corridor makes it essential for the area, and the Town Centre, to be developed in such a way that it is distinctive and identifiable, and the significant amount of investment that is planned to be spent in developing the Town Centre places a strong obligation for everyone to make the development a success.

Placemaking plays a key role in making the Town Centre in particular a unique destination point and in enhancing its present circumstances, from a light industrial area, with limited infrastructure, services and community offerings, to a future state of being a vibrant, sustainable village for people to live and work.

From a focus on planning and physical project delivery the City is increasingly focusing on placemaking strategies and programmes appropriate to Green Square. The City is developing the *Placemaking Framework and Action Plan* that focuses predominantly (but not exclusively) on the Town Centre. The framework provides a roadmap to assist and guide the City in creating a town centre that is vibrant, sustainable, cultural and creative whilst creating community partnership, sustainability, resilience and character. It confirms the City's goals, objectives and strategies for Green Square and documents the strategies, actions and resources to create and deliver a town centre that has a strong sense of identity and is aligned with the City's and the community's needs and desires.

### PROJECT C.8 Placemaking

#### Action:

- Led by the City's Green Square place manager, continue to develop and implement placemaking strategies and programmes.

**Responsibility:** City (lead), NSW Government agencies and Community

**Timeframe:** Ongoing

### Key issues informing local community facilities planning for the urban renewal area

- The residential population of the Green Square and City South Village is expected to grow by 169.5% between 2011 and 2031, increasing by an estimated 34,070 residents to a total of 54,190. The majority of this growth will occur before 2021, resulting in significant demand for new community facilities to be factored into renewal area planning.
- The Green Square will be home to a relatively young population of working professionals, families and tertiary students. Facilities will need to cater to strong demand from the young adult and working age population, with 25-34 year olds being the most dominant population age group, along with 18-24 year olds (forecast to comprise 32 per cent and 11 per cent of the population of the Green Square and City South Village Group respectively by 2031). These populations will require good access to recreation, cultural/creative and multipurpose facilities – in particular those open later at night.
- Facilities catering to working families with young children will be particularly critical, associated with the high proportion of residents aged 35-49 (forecast to comprise 26 per cent of the population of the the Green Square and City South Village Group by 2031). Facilities including libraries, child care centres, and aquatic and recreation facilities are critical to support this population's social wellbeing. The accessibility of these facilities to professionals who may work long hours during weekdays must be considered through management and programming, including extended operating hours to ensure facilities are available during early mornings and late evenings.
- The forecast strong growth in the number of young children aged under 11 years, particularly 0-4 year olds, in the Green Square and City South Village Group will drive demand for childcare, early childhood health centres and 'out of school hours facilities' (OOSH). It will also require all facilities to be child-friendly in their design and operation. The Green Square and City South Village Group is expected to have some of the highest demand for childcare anywhere in the City of Sydney. The current identified supply/demand gap of more than 350 places identified through the City's *Child Care Needs Analysis Study 2013* will continue to rise without significant new supply of child care centres to meet the needs of both local residents and workforce.
- Local facilities suitable and accessible to the growing number of older people aged 60-plus living in the Green Square and City South Village Group will be required, including libraries and spaces providing passive and active recreation and lifelong learning opportunities, for example through programs run through community centres.

- Community facilities and associated programs and services will need to be culturally appropriate, given the high proportion of overseas-born residents expected to live in Green Square in 2031, particularly those from Chinese and other Asian backgrounds. More than half of residents of the Green Square and City South Village Group (53.4 per cent) are born overseas, with over three-quarters of those residents coming from non-English speaking backgrounds. Meeting the needs of these communities will include cultural considerations informing the design of spaces, signage, information provision in languages (both written and verbal), as well as through the delivery of culturally appropriate community programs and services.
- Community facilities must be accessible to the Aboriginal and Torres Strait islander community living in nearby neighbourhoods of Redfern and Waterloo; the inclusion of culturally appropriate spaces, such as spaces for elders and outdoor meeting places, will be an important consideration.
- Green Square will be a high density live/work environment, in which local community facilities will play an important role as “community living rooms” – spaces for people to relax and socialise outside their homes, which support social connectedness. This is alongside community facilities’ critical function as spaces for the delivery of social programs and services.
- Community facilities developed in Green Square are expected to attract users from surrounding communities. It will be important to ensure they are accessible to disadvantaged members of these communities, including lower income residents and those living in public housing estates in nearby Redfern and Waterloo. Lower income groups are traditionally relatively high users of community centres, which provide free public spaces to socialise and access social services and programs.

### Identified priorities for local community facilities and services provision

Analysis of population growth and change along with existing facilities supply in Green Square and wider service planning catchment has informed the City’s following priorities for facilities and services provision:

- **Child care** – both delivered directly by the City and facilitated through private development (see also Section 8.5 below).
- **Integrated community hubs** – providing a range of co-located community spaces and services to meet the needs of a wide range of people, and which are accessible during extended hours.
- **Cultural/creative facilities** – including facilities providing areas for active creative participation and workshop spaces; Green Square provides an opportunity to meet wider regional needs for large scale cultural/creative workshop space.
- **Indoor recreation facilities** – providing a range of facilities and services suitable for both the young population and growing older population.
- **Library** – including programming for children and families, and spaces for young people to socialise.
- **Spaces and infrastructure for night time events** – for example night markets and open air cinemas, including in the public domain.

As part of the City’s strategy for the supply of new facilities, the need to upgrade, repurpose and review the uses of the existing small, standalone facilities in and around Green Square is identified. Decisions on these facilities would only be made after further analysis, including through community engagement.

### Social Indicators

There is a growing consensus in many contexts around the world that traditional economic indicators of ‘growth’ are not adequate to provide a balanced assessment of progress. The City is currently developing a set of community indicators that have the potential to measure the success of infrastructure in Green Square compared to other areas of the local government area. The indicators cover five areas:

- Social (healthy, safe and inclusive communities)
- Cultural (culturally rich and vibrant communities)
- Engagement (democratic and engaged communities)
- Economic (dynamic, resilient, local economies)
- Environmental (sustainable environments).

These indicators will assess holistically the community wellbeing over time by bringing together a diverse range of information from internal and external sources such as community surveys and census data.



This will allow ongoing tracking and should be able to provide a comprehensive evaluation of community need to assist in prioritising of infrastructure, services and activities.

It is anticipated that the City-wide community indicators work will be reported to Council in 2015, and can be used in subsequent reviews of this Plan.

## PROJECT OS.2

### Action:

- To develop a set of social indicators that will assess holistically the community wellbeing over time.

**Responsibility:** City and Community

**Timeframe:** 2015

### A note on the delivery of child care centres in Green Square:

The City's *Child Care Needs Analysis Study 2013* concludes that a range of strategies are urgently needed to increase the supply of child care places to meet the current and growing shortfall across the city, including increased delivery by the private and not-for-profit sectors, in part facilitated by the City, and increased action at all levels of government. The study identified that at 2013 there was a gap of 353 places between supply and demand in the Green Square and City South Village.

The City has committed to investing \$55 million to fast track the direct delivery of new child care centres, and will continue to facilitate delivery of new centres by the private sector through its planning instruments.

The re-development of Green Square provides opportunities for the location and provision of child care facilities through new developments, including emerging neighbourhoods such as Epsom Park and Lachlan. Some developments in Green Square are starting to provide spaces for child care facilities as part of a larger residential or commercial development. These centres will be operated by private or not-for-profit sector organisations.

The City is continuing to encourage delivery through the development sector, and detailed design and planning to ensure provision is suitable is undertaken on a site-by-site basis.

Design and management of child care services is governed by a National Quality Framework and Regulations. The City's preferred criteria for the delivery of new child care facilities are:

- proximity to public transport;
- buildings that can suitably accommodate a childcare facility, including appropriate provision of indoor and outdoor space to meet Regulations; and,
- proximity to open spaces.

### Social Infrastructure to be delivered by the City by 2022

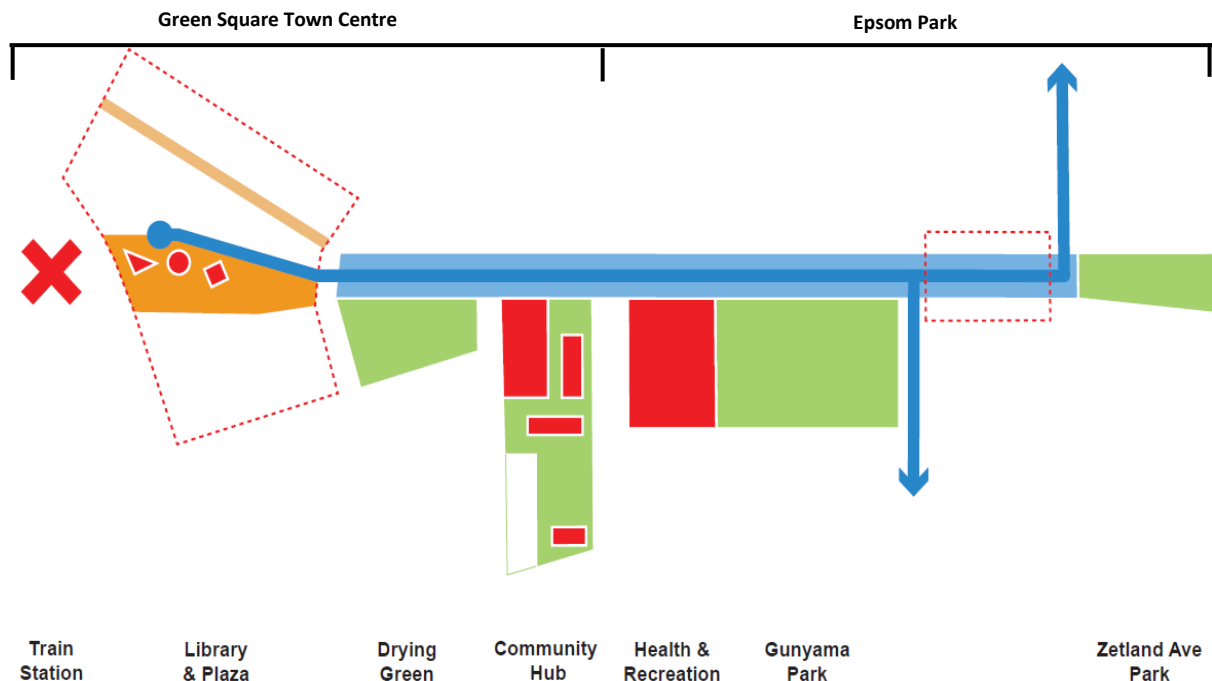
Informed by these considerations, the City will deliver the following range of community facilities at the Green Square Plaza and adjoining former South Sydney Hospital site, in the heart of Green Square by 2022:

- **Library** – The Green Square Library is a branch library in the City's network with a large floor area of 2,500 square metres and includes a Neighbourhood Service Centre, a computer training room, music rehearsal space, function and meeting rooms and an amphitheatre. Will be delivered by 2018.
- **Community hub** – The Stage Two community hub will be delivered by 2022 and include a community multipurpose hall, community kitchen, program space for older residents, theatre/theatrette, rehearsal spaces and associated uses.
- **Creative centre** – The Green Square Creative Centre includes artist and creative spaces, classrooms, community hire space and an outdoor function space. The 900 square metres facility will be delivered by 2017.
- **Child care centre** – This Childcare centre will accommodate up to 65 children from ages 0-5. It will be delivered by 2017.
- **Aquatic and recreation centre** – The Aquatic Centre includes an outdoor synthetic playing field of approx. 6,500 square metres, public amenities, playground (1,500 square metres) and a park of 20,000 square metres, pool and fitness centre (3,370 square metres – 3,375 square metres internal floor space and 1,700 square metres external floor space), includes a 50 metre pool, along with a hydrotherapy pool and sauna. The centre will be delivered by 2019.

This is along with new parks and open spaces, which are addressed in section 5 of this Plan.

The diagram at Figure 26 outlines the major public facilities and structuring elements from the Green Square station along the Zetland Avenue and future light rail corridor.

Facilities planned for Green Square are discussed and illustrated in the following sections.



**Figure 26: Key public facilities along Zetland Avenue and the light rail corridor**

### **Green Square Library at the Green Square Plaza**

The Green Square Library will be located in the Green Square Plaza, bordered by Botany Road in the west and Paul Street in the east. It will be an integral feature of the plaza providing a civic focus for both the town centre and the wider Green Square area.

The design of the state-of-the-art library is the result of an international design competition (refer to Figures 27 and 28). It will offer a range of services and activities, including an indoor public space for reading, meeting, learning and interacting. It will operate as a local branch library, connected to the City's existing library network, and it will also include a local Neighbourhood Service Centre (NSC).

The NSC will provide professional services to customers through a one-stop-shop model, including servicing a range of payments, parking permit enquiries, rates enquires, DA lodgment and general planning advice and support. This NSC will be additional to the three currently operating across the city.



Figure 27: Green Square Library



Figure 28: Green Square Library and Plaza

#### PROJECT C.1 Green Square Library and Plaza

##### Action:

- Ensure delivery of Green Square library and plaza area

##### Responsibility: City

##### Timeframe: 2017

#### Creative Centre

The development of the Creative Centre (refer to Figures 29, 30 and 31) will involve the adaptive reuse of two heritage buildings (Esme Cahill and Pathology buildings) on the former South Sydney Hospital site to provide facilities and spaces to meet the cultural, social, recreation, and information needs of the local and wider regional community.

The centre will support a range of uses, with proposed art workshops and artists' studios, a community hire space, multi-purpose spaces, art classrooms, creative offices and a community shed. The new precinct will be connected by a new park – Matron Ruby Grant Park – and a community garden.



The design of the facility will provide covered outdoor space, which will extend the indoor spaces and provide for additional programming areas in warmer months, and is due to be completed by 2017.



Figure 29: Oblique angle view of the Community and Creative Facilities (former South Sydney Hospital site)



Figure 30: Creative Centre Outdoor Room, 'Esme Cahill' building (former South Sydney Hospital site)





Figure 31: Joynton Avenue entry, Creative Centre, 'Esme Cahil' building (former South Sydney Hospital site)

### **PROJECT C.3** Former South Sydney Hospital site – Creative Hub

**Action:**

- Ensure delivery of Green Square Creative Hub

**Responsibility:** City

**Timeframe:** 2017

### **Child Care Centre**

A single-storey child care centre, which will provide between 74 and 79 places, is proposed to be developed through the adaptive reuse of the former Outpatients Building on the former South Sydney Hospital site (refer to Figures 32 and 33).

A development application was lodged in August 2014 for planned earthworks (ground preparation), remediation, and alterations and additions to the existing building. The works include a refurbished building, a new outdoor play space delivered in two stages, and improvements to public domain between the building and Joynton Avenue. It is due for completion in 2017.

Child care provision is also addressed in section 8.3, since this is a service funded by NSW and Federal Governments and delivered by the not-for-profit and private sectors, as well as the City.

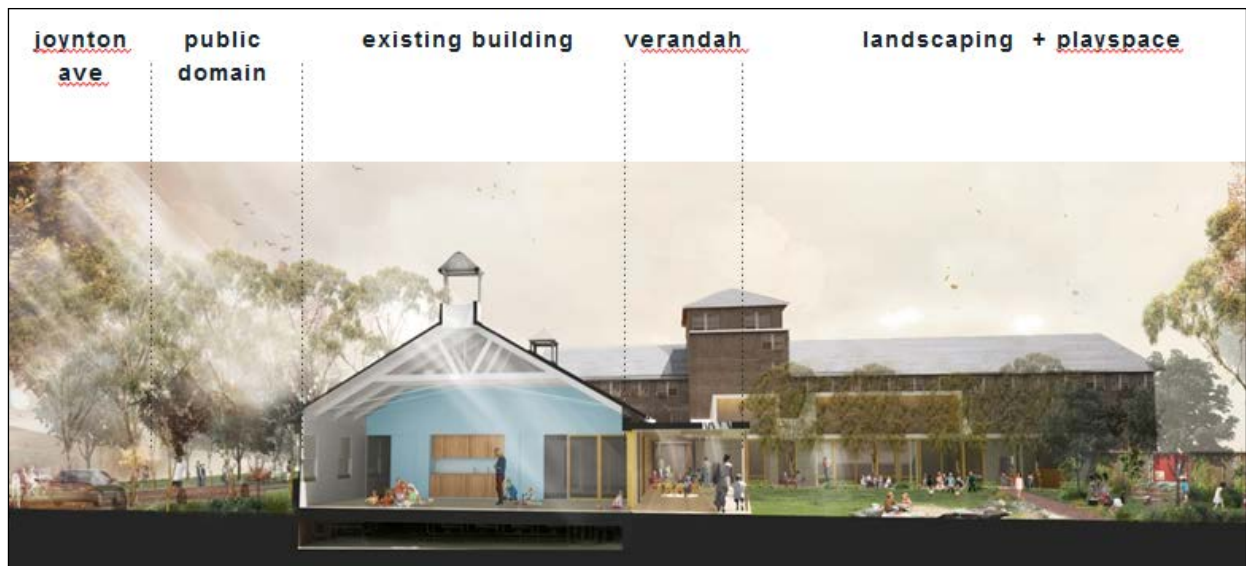


Figure 32: Child Care Centre, 'Outpatients' building (former South Sydney Hospital site)



Figure 33: Interior of Child Care Centre, Outpatients' building (former South Sydney Hospital site)

### PROJECT C.2 Former South Sydney Hospital site – Childcare facility

#### Action:

- Ensure delivery of childcare facility

**Responsibility:** City

**Timeframe:** 2017

### PROJECT C.5 Childcare provision

#### Actions:

- Continue to work with developers and not-for-profit organisations to maximise opportunities for childcare in developments
- Continue to deliver childcare in accordance with budget allocations

**Responsibility:** City and Developers

**Timeframe:** Ongoing



### Green Square Aquatic Centre

Located at 140 Joynton Avenue, Zetland, the proposed Green Square Aquatic Centre and Gunyama Park development is an all-inclusive physical activity hub. A 15,500 square metres recreation park that combines a state-of-the-art aquatic leisure facility will be built by the City to meet the health, fitness and recreational needs of the local community – both residents and workers.

In 2013 the City invited submissions for an international design competition to create these facilities. The winning design, shown at Figures 34 and 35, was announced in November 2014. The design features:

- A 50 metre heated outdoor pool with space for lap swimming and play;
- A 25 metre program pool for swimming lessons;
- An indoor leisure pool with a range of interactive toys, including water spraying devices and tipping buckets;
- A hydrotherapy pool;
- A crèche with indoor and outdoor play areas;
- A full-size outdoor synthetic multipurpose sports playfield;
- A fully equipped gymnasium and outdoor training circuit;
- An outdoor playground and boardwalk; and,
- Plants and landscaping inspired by the area's indigenous heritage.

It is anticipated that this facility will be completed by 2019.



**Figure 34: Green Square Aquatic Centre winning design by Andrew Burgess Architects with Grimshaw and T.C.L**



**Figure 35: Gunyama Park promenade and playground winning design by Andrew Burgess Architects with Grimshaw and T.C.L**

#### **PROJECT C.4 Green Square Aquatic Centre**

##### **Action:**

- Ensure delivery of Green Square Aquatic Centre

**Responsibility:** City

**Timeframe:** 2019

### **7.3 Social Infrastructure and services typically provided by NSW Government**

Additional to the network of local community facilities and services provided by the City, a range of regional and other social infrastructure will need to be delivered by NSW Government, along with the not-for-profit and in some cases private sector, to meet the needs of the fast-growing Green Square community.

The City has commissioned research into the benchmarks applicable to the range of essential social infrastructure typically delivered by state government. This study provides an evidence base for advocacy with key state agencies to seek to ensure adequate provision of infrastructure to support community wellbeing.

This section of the *Essential and Social Infrastructure Plan* is based on the commissioned study, undertaken by the consultancy SGS Economics and Planning. The study is provided at Appendix 2 of this Plan.

#### **Key infrastructure types and recommendations for provision**

The following sets out an assessment of the required level of provision of key facilities and services typically the responsibility of NSW Government agencies to meet the needs of the community by 2031. This includes health and education services and a range of community services, including aged care, early childhood health and allied health services.

These recommendations for infrastructure provision by 2031 are based on the application of service/facility provision benchmarks to the population of the Green Square and City South Village Group, which encompasses Green Square. Table 8 summarises the findings.

In considering Table 8 it is noted that numeric benchmarks for social infrastructure provision represent somewhat of a blunt instrument for the purposes of undertaking a supply gap analysis. Benchmarks do not take into account all aspects of agencies' facilities and services planning methods.

Further, numeric benchmarks for social infrastructure provision are not always available, and in some cases are not available for an urban context. Benchmarks applied in greenfield areas, where no social infrastructure exists, reflect a context quite different to Green Square.



For these reasons, Table 8 should be interpreted as a broad guide to provision only, and not as a highly accurate set of recommendations.

**Table 8: Recommendations for Future Provision of Social Infrastructure (SGS Economics & Planning 2014)**

Service/ Facility	Benchmark	Future Provision Requirements
Primary Schools	1 primary school for 500 students.	Assuming every child in Green Square and City South Village attends a public primary school, at least one new school by 2016 and four new schools by 2031 will be needed. DEC has advised the City it has capacity in existing buildings to accommodate projected increases in primary school student enrolments for at least the next 10 to 12 years.
Secondary Schools	1 government high school for up to 1200 students	Alexandria Park Community School is the local school and has a capacity of between 320 and 370 students. Based on the benchmark, the Green Square City South Village may require another secondary school by 2031, or expand capacity within the existing secondary school.
Before and After School care	1 place for every 25 children aged 5-12 years.	Using 45 children for each before and after school care, by 2031 a further 1-2 before and after school care facilities are required. This should be linked to provision of new primary schools.
Childcare	As in separate Child Care Needs Analysis Report 2013	There are nine day care centres located in Green Square City South Village with a total capacity of 396 (averages 44 spaces per centre). The projected gap between child care supply and demand in the Green Square & City South village is:  353 places in 2013 617 places in 2016 1079 places in 2021 1440 places in 2031 <sup>1</sup>
TAFE	1 TAFE to cater for a population of 300,000 – 500,000	Even using the low provision rate of one TAFE per 300,000 people, it is possible to conclude that there is no projected demand for a TAFE campus within Green Square and City Switch Village. It is important to consult with key state and regional bodies on the provision of new campuses on a regional scale.
University	1 university for every 150,000 people	Using the benchmark of providing one university for every 150,000 people, there is a no demand on a local level for an added campus. It is important to consult with key Commonwealth, State and regional bodies on the provision of new campuses on a regional scale.
Hospitals	2.3 beds per 1,000 people	Using the benchmark of 2.3 beds per 1000 people, it is likely that by 2031 an additional 124 beds will be required by the Green Square and City South Village population. The high number of elderly people projected may increase this demand. These additional beds could be provided in an existing hospital or in a new facility.
Primary Health Care Centre (including mental health)	1 new primary care centre per 50,000 people	Benchmark is 1 new centre per 50,000 of the population, so the Village will not require any additional centres through to 2031. Note, however, the inner city location of Green Square, means centres may be utilised by people who work nearby.
GP Medical Centres	1 GP per 4,000 people	Using the benchmark of 1 in 4000 people there may be demand for an additional two GPs by 2031.
Children's Health Services	1 early childhood nurse per 2,000 children	Benchmark for providing one early childhood nurse per 2,000 children, shows there is already demand in 2011 for one child health nurse. This increases to three by 2031.
Aged Care	88 places per 1000 people 70+	Using the benchmark of 88 aged care places per 1000 people over 70+, there will be a need for 257 extra beds for City Switch and Green Square residents by 2031. Existing facilities could accommodate some of this. However projected growth of people over 70 in Green Square and City South, increase demand for another facility within the village.
Ambulance Services	1 ambulance station per 105,000 people	The benchmark is one ambulance station per 105,000 people. It is possible that by 2031, one new ambulance station may be required in Green Square and City South.
Fire Services	1 fire station for every 60,000 people	The benchmark of one facility for every 60,000 people, by 2031 there will still be adequate provision of fire services for Green Square and City South Village.
Police	1 police station for every 108,000 people	Using the current benchmark of one police station for every 108,000 people, no new police stations will be required even at 2031.

<sup>1</sup> City of Sydney Child Care Needs Analysis, 2013

## Additional information on key infrastructure provided by other levels of government

### Primary and secondary schools

NSW Department of Education and Communities (DEC) has responsibility for ensuring sufficient primary and secondary school places are available to meet local communities' needs.

DEC's provision of primary and secondary schools is based on a service planning methodology that firstly involves enrolment demand management, through adjustment (narrowing) of school catchment boundaries. DEC's service planning methodology takes account of forecast capacity of existing schools, with regard to enrolment trends and schools' specified geographic catchments.

DEC is currently preparing a strategy for inner Sydney primary and secondary schools to meet projected demand for teaching space to 2026. This strategy includes the Green Square. The work is informed by an Inner City Schools Working Group, which includes school and community representatives. The City supports this work through assisting with information on forecast population growth, as well as information on sites that may be suitable for new schools in the City of Sydney.

It is highly likely that the re-development of Green Square will create an increased demand for an additional primary and secondary public school spaces. The City has experienced the fastest growth in residents of any local Government area in NSW over the past decade, and is experiencing a significant increase in development applications which indicates that this growth is likely to continue into the foreseeable future. Most of this development is happening in Green Square and in the Ashmore precinct in Erskineville.

The population of primary school aged children (5-11 years) in the Green Square and City South Village Group is forecast to more than triple from 775 children to 2,680 children between 2011 and 2031. The population of secondary school aged children (12-17 years) in the Green Square and City South Village Group is also forecast to more than triple to from 536 to 1,748 children between 2011 and 2031.

DEC's analysis indicates there is a current utilisation rate of 68 per cent within the three primary schools in the Green Square catchment area: Alexandria Park Community School (primary school campus), Bourke Street Public School and Gardeners Road Public School. Note the only school in Green Square is Green Square School on Botany Road, and is a special needs school.

DEC has advised the City that it has the capacity within existing buildings to accommodate projected increases in student enrolments for at least the next 10 to 12 years. Its enrolment projections for the primary and secondary schools are based on a number of data sources, including data provided by the City of Sydney.

DEC has advised that it will continue to monitor student enrolment growth in and around Green Square and that it is undertaking planning for the provision of appropriate school accommodation in the area in the short to medium term.

The City is concerned to ensure that if a longer term need for new schools is identified now, sites of sufficient size to accommodate new schools are acquired by DEC before they are acquired for residential or commercial development. As noted with open space provision, large sites in Green Square are being bought up at a rapid rate, impacting on strategic opportunities for DEC to plan for long term growth.

#### PROJECT E.1 Provision of school places

##### Actions:

- City continues to participate in Inner City Schools Working Group
- Continue to liaise at officer level
- Ensure DEC are aware of population growth and projections to ensure sufficient services are in place to meet needs of the new community

**Responsibility:** DEC (lead) and City

**Timeframe:** Underway

### Health Services, including Hospitals, Primary Health Care Centres and Allied Health Services

NSW Government health services are now delivered on a localised basis through Local Health Districts, which are supported by local boards. Green Square is located within the Inner West Sydney Medicare Local. This network includes GPs, hospitals and allied health services. The clinical service, including psychological services, affordable paediatric speech therapy, and dental services for health care card holders, will complement existing public, private and NGO services.

In September 2013, services provided by NSW Family and Community Services (FACS) were restructured to a localised delivery model aligned with local health district boundaries, and the Green Square locality is now serviced through the Sydney Local FACS District and its Director. The District

Director is responsible for housing, disability and community services service planning and development. Through this structure, FACS provides services to:

- Aboriginal and Torres Strait Islanders;
- Children and young people;
- Families;
- People who are homeless;
- People with a disability, their families and carers;
- Women; and,
- Older people.

The City will continue to work with the relevant stakeholders in the Sydney South FACS District and also with the Inner West Sydney Medicare Local to help ensure that appropriate and effective services are available to the Green Square community.

#### **PROJECT H.1 Provision of healthcare services**

##### **Actions:**

- Resurrect the City/NSW agency Social Services Working Group
- Ensure relevant agencies are aware of population growth and projections to ensure sufficient services are in place to meet needs of the new community.

**Responsibility:** City and NSW Government agencies

**Timeframe:** Ongoing

#### **Post Office services**

The renewal area is currently not well served by Australia Post postal services.

The nearest Post Office service and parcel collection point is Strawberry Hills Post Office on Cleveland Street, which is not within ready walking distance. There is also a parcel locker located at 10-12 Ralph Street, Alexandria.

A full Post Office will be required in the renewal area or a potential service centre/parcel collection locker as part of the commercial town centre development.

It is understood that the future role and functions of Australia Post are currently under review, as a result of a substantial decline in letter volumes. This is likely to impact on the future number and role of post offices and Australia Post franchises. Options currently being considered include the use of Post Offices as locations for the delivery of Medicare and Centrelink services as well as postal services.

#### **PROJECT OS.1 Police/Fire/Post**

##### **Action:**

- Ensure relevant agencies are aware of population growth and projections to ensure sufficient services are in place to meet needs of the new community

**Responsibility:** NSW Government agencies (lead) and City

**Timeframe:** 2015

#### **The City's role in advocating for state level infrastructure**

The City plays a role in advocating on behalf of the community for the provision of adequate state-level social infrastructure.

The City shares its population forecasts with key agencies, to ensure they are aware of the level of resident and workforce population growth forecast in the short to medium term, and over the longer term to 2031. The City also participates in cross-government forums. In recent years, it participated in an inter-agency Steering Group coordinated by the NSW Department of Premier and Cabinet, which was established to consider the social infrastructure needs arising from redevelopment in Green Square. This group included representatives from a range of agencies including NSW Health, NSW Police and NSW Department of Education and Communities.

The City understands that the re-establishment of this working group is currently being considered by relevant agencies. The City will seek to continue to participate in these discussions, along with those associated with the NSW Department of Education's Inner City Schools Working Group, which is considering demand for new schools across the inner city.

The City is committed to ensuring that relevant NSW agencies are aware of development in Green Square and are able to plan for adequate facilities services to be funded and delivered in a timely manner as development occurs.

## 7.4 Affordable housing as social infrastructure

Affordable housing refers to 'reasonable' housing costs in relation to income. A common benchmark is that affordable housing is housing that does not absorb more than 30 per cent of a very low, low or moderate income household's gross income. Affordable housing is not social housing. It can be private or publicly owned, but available at a price that is less than 30 per cent of household income.

Affordable rental housing is dwellings for rental which are affordable to very low, low and moderate income households. These households typically comprise key workers such as childcare workers, cleaners and bus drivers. Because of the cost of private accommodation in the City, it is unlikely that 'affordable rental housing' will be delivered by the market. Moreover, any 'affordable' accommodation will not necessarily be accessed by very low, low or moderate income households.

Affordable housing is a critical part of the social infrastructure that will facilitate the social sustainable growth of Green Square and the City more broadly.

Gentrification of inner city neighbourhoods has exacerbated relative inequality among those who can and cannot afford housing. In the City the market is becoming virtually inaccessible to those on very low to moderate incomes who are increasingly being forced out of the City, relocating to outer suburbs and commuting further distances to employment. In addition, there is a dimension of generational inequality, as younger people (typically first home buyers) are priced out of the market. The effect is increasingly divided communities.

Declining socio-economic diversity in the inner city also has significant economic impact. The growing loss of lower income households results in essential employment sectors finding it increasingly difficult to fill employment vacancies and staff shifts, hampering business productivity and economic growth.

The City's *Sustainable Sydney 2030 Vision* and the *Affordable Rental Housing Strategy* establish an ambitious target for the City that in 2030, 7.5 per cent of housing will be social housing and 7.5 per cent of housing will be affordable housing. Currently, housing supply in the City comprises 9.8 per cent social housing and 0.7 per cent affordable housing, with about another 8,000 affordable housing dwellings required to achieve this target.

The strategy sets out the City's actions to help not-for-profit organisations and other housing providers deliver the targets. These actions recognise the role state and federal governments and the private and the non-for-profit sectors need to play in delivering affordable housing.

In Green Square, where the majority of housing within the City of Sydney will locate over the next 20 years, the Green Square Affordable Housing Scheme (the Scheme) applies a levy to all development for the purpose of providing affordable housing. The Scheme will deliver 330 units in Green Square, with 206 already completed or commenced.

The legislative basis for the levy is in *State Environment Planning Policy No. 70 – Affordable Housing (Revised Schemes)*, which identifies the Sydney Local Government Area as having need for affordable housing. The Sydney LEP 2012 provides that 3 per cent of residential and 1 per cent of non-residential floor space of development make contribution to affordable housing.

The *Green Square Affordable Housing Program* provides the operational requirements of the Scheme. The contribution can be made by way of 'in-kind' contribution, where finished affordable housing units are dedicated to the eligible community housing providers, or by monetary contribution which is passed to City West Housing, the preferred community housing provider, to build affordable housing. To date, only monetary contributions have been made under the Scheme.

To the south of Green Square, where it overlaps with the City's southern employment lands, two new approaches to delivering affordable housing are being investigated. The first permits affordable housing in the B7 Business Park zone where residential development is otherwise not permitted. It is expected this would create a commercial advantage for community housing providers who are often priced out of the inner Sydney market because of the prohibitive cost of land.

Secondly, land bound by Bowden Street to the south, McEvoy Street to the west, Wyndam Street to the north and Mandible Street to the east has been identified as an 'investigation area' where the City will enter into negotiations with landowners seeking to rezone their land for residential purposes. Rezoning may be supported where the proposal can be supported on planning merit and where adequate infrastructure, including affordable housing, forms part of the proposal.



A simple calculation would indicate that around 2,000 affordable housing dwellings are required to be delivered in the urban renewal area if the target of 7.5 per cent is to be achieved. This number increases when considering opportunities to deliver affordable housing are more constrained in other more established parts of the City.

**PROJECT OS.3 Affordable Housing****Actions:**

- Continue to monitor affordable rental housing delivery through the Green Square Affordable Housing Scheme
- Continue to develop initiatives to increase delivery of affordable rental housing in Green Square and adjacent areas

**Responsibility:** City, Community Housing Providers, NSW Government agencies and Developers

**Timeframe:** Ongoing

## PART 3:

## INFRASTRUCTURE PLAN DELIVERY

## 8.0 Implementation

## 8.1 Implementation plan and timeline

Appropriate funding and timing for the delivery of infrastructure is critical to the success of the Green Square. This Plan provides a comprehensive overview of the physical and social infrastructure required to support the growth of Green Square so that its complexity and scope is understood, to ensure it is anticipated, planned and delivered as development occurs.

Indicative staging of growth assuming development to total capacity is shown in Figure 12, together with population growth. The Town Centre development timeline is shown at Figure 36, matched with the projects the City will be delivering.



**Figure 36: Green Square Town Centre growth and development timeline**

Through the review and update of the Plan and engagement with NSW Government agencies in particular, opportunities will be created to strengthen infrastructure provision and prioritisation across both the City and the agencies. This will optimise community benefit and ensure that the different levels of Government (and their responsibilities) are best placed to respond to the emerging challenges and demands associated with growth. The Plan seeks continued partnership with the agencies and to ensure the delivery of infrastructure is provided in an efficient, integrated and timely way.

## 8.2 Funding and delivery mechanisms

This Plan highlights that substantial new infrastructure is needed to accommodate the anticipated growth and to ensure Green Square's successful transformation. In particular, the provision of new public streets, pedestrian and bike links, parks, community facilities and stormwater management, will support a sustainable regeneration and high liveability.

Since the first planning framework for the renewal of Green Square came into effect in 1999, many pieces of public infrastructure have been built: the Airport Link Line and the station at Green Square (which opened in late 2000 with its station access fee being removed in 2011); 11 new parks with leisure facilities; new landscaped streets; new pedestrian and bike networks; stormwater management works incorporating Water Sensitive Urban Design treatments; additional bus services; and a library and neighbourhood service centre at the 'Tote' in Zetland. The City's social programmes and community development projects have accompanied these. In addition, private infrastructure such as child care centres, leisure facilities and new retail precincts offering shopping and personal services, have been delivered by developers and are scattered throughout the area.

However, the pace of redevelopment has been very rapid with about 18,000 new residents moving into Green Square since 2000. It is critical that the whole of the infrastructure needed is built to keep pace with such rapid growth.

The City is funding facilities, services and civil infrastructure to support its community, to facilitate development and ensure high quality design, amenity and services. Around \$440 million is committed for the Town Centre and over \$800 million across the wider Green Square. Approximately half of the City's Town Centre investment is for streets and drainage and half for new community facilities and open spaces. To fast track these projects the City has committed the bulk of this expenditure in its Long Term Financial Plan to the financial years 2014/2015 to 2018/2019.

Some of the City's expenditure in Green Square has been on the purchase of land in the Lachlan neighbourhood to facilitate the realisation of the transit corridor described in section 4. The City has also purchased land west of the Town Centre to realise the construction of the east-west transport route that will link Green Square to the Ashmore neighbourhood.

Some of the infrastructure is funded and delivered through developer levies under the City of Sydney *Section 94 Contributions Plan 2006* (the Section 94 Plan), as updated from time to time. The Section 94 Plan identifies some key works such as the major new transit corridors and public open spaces. However, the scope of the Section 94 Plan is not sufficient to fund the entire infrastructure necessary to support the scale of redevelopment planned.

Other mechanisms applied in Green Square to ensure the delivery of the necessary infrastructure with redevelopment of sites are described in the following sections.

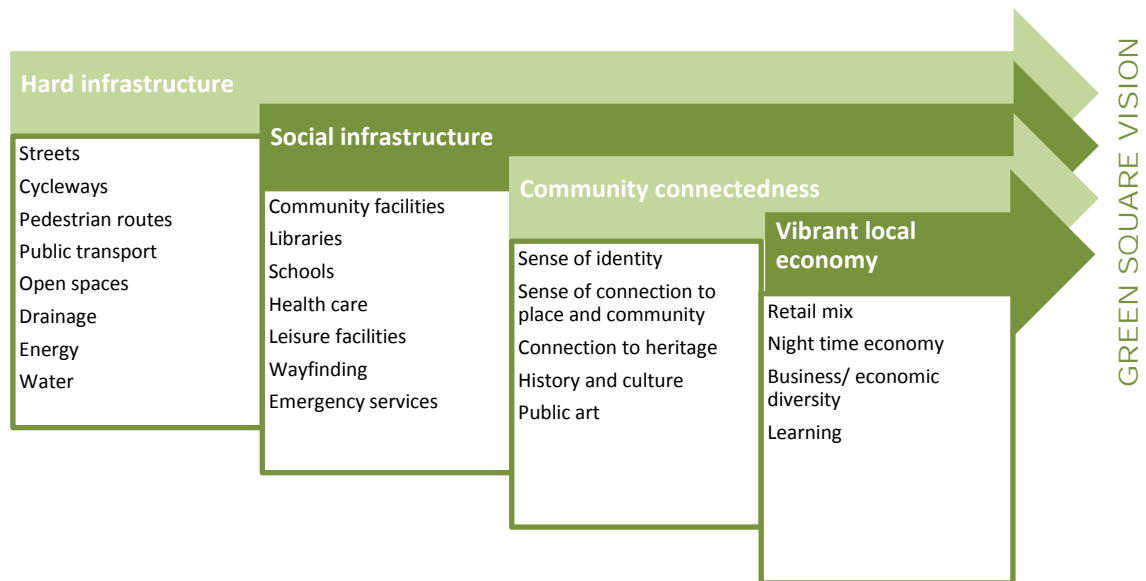
### Green Square Placemaking Framework

The City recognises the importance of developing neighbourhoods that foster community resilience, and develop capacity and community ownership. It is committed to implementing a set of strategies and actions to achieve this long term vision for Green Square, whilst promoting and encouraging community participation and growth.

From a focus on planning and physical project delivery the City is increasingly focusing on placemaking strategies and projects appropriate to Green Square. Placemaking plays a key role in making the Town Centre in particular a unique destination point and in enhancing its present circumstances, from a light industrial area, with limited infrastructure, services and community offerings, to a future state of being a vibrant, sustainable village for people to live and work. The diagram at Figure 37 maps out the progression which will tie in with and deliver the vision for Green Square.

Placemaking draws on the assets and skills of the community and through strong local partnerships aims to create dynamic, healthy public places that serve the community. Public spaces are a shared responsibility among all parties with a vested interest in Green Square, including developers, local and NSW Government agencies, community groups, individuals, workers and residents.

Central to place-making are processes that identify and catalyse local leadership, funding, and other resources. The process of placemaking requires various elements to ensure workers, visitors and residents are able to contribute meaningfully to community life and its built form. It equips stakeholders through the urban renewal process with knowledge and skills to create thriving places with character; to provide for a range of lifestyle opportunities; to promote place-based uniqueness and individuality, and, support a sense of wellbeing within the community



**Figure 37: A progression towards the Green Square vision**

The City is developing the *Placemaking Framework and Action Plan* that focuses predominantly (but not exclusively) on the Town Centre. It will assist and guide the City in continuing to develop partnerships, sustainability, resilience and character. The framework:

- reiterates and confirms the City's goals, objectives and strategies for Green Square;
- documents the actions and implementation strategies to create and deliver the Town Centre with a strong sense of identity and is aligned with the City's and the community's needs and desires; and,
- details the expected resources required to complete the actions.

The placemaking framework will be supported by a detailed implementation strategy, with the City as the lead party responsible for coordinating and carrying out the actions documented. Contributions from developers, other levels of Government, private organisations and the community of residents and workers will be critical to this process.

The core outcome of the placemaking action plan will not only be to establish a gateway for the creation of a strong, resilient and unique community, but also the fostering of community participation and ownership that will contribute towards the ongoing development of the Town Centre and community. The City created a senior Green Square place manager position in late 2014 to develop the implementation strategy. The position will commence early in 2015.

### 8.3 Partnership with the private sector for the provision of infrastructure

The community infrastructure needed in Green Square is of a scale that, despite the City's capital works funding and access to Section 94 levy contributions, requires supplementary funding.

A partnership approach with the developer for the delivery of this infrastructure is therefore necessary, and allowing development of a floor space incentive where appropriate, in return for the provision of additional infrastructure is key to the successful growth of Green Square. Within the Town Centre an "un-deferral" mechanism is used to ensure the essential infrastructure is committed to before development can occur. These approaches are described below.

#### 'Community Infrastructure' floor space in Green Square

In general, 'community infrastructure' refers to civil infrastructure, public domain and physical facilities that support the built environment and benefit the population within the immediate vicinity of a site as well as the wider Green Square population. For example, by providing new roads the accessibility and permeability of an area increases for pedestrians, cyclists, cars and public transport. Landscape setbacks as an extension to the road reservation can offer a green buffer to development fronting the road, whilst they can provide a pleasant walking and cycling experience for the wider community, and a habitat corridor for plants, insects and birds.



The 'community infrastructure' referred to in this context and as set out in the Sydney LEP 2012 and Sydney DCP 2012 includes:

Roads	Streetscape, bike and pedestrian improvements such as widened footpaths and landscaped setbacks, local parks, pedestrian and bike paths, overpasses and underpasses, landscape works and lighting. Traffic management works such as road entry thresholds, nodal treatments, pedestrian crossings, road realignment and intersection upgrades. Bus and traffic turning lanes.
Public open space	Embellishment works to new or existing open space, including upgrades to existing open space such as new play equipment, lighting, sports facilities, furniture, public art and landscape works.
Drainage and stormwater management	Drainage amplification, integrated water treatment facilities, large scale detention systems, overland flow path works and stormwater channel improvements.
Public transport	Works that facilitate and enhance existing public transport facilities such as bus layovers and turning lanes, bus and light rail stops.
Public community facilities	Recreation facilities (indoor and outdoor) such as sporting, recreational, cultural and social facilities and including basketball courts, community buildings and meeting rooms, exhibition and performance spaces, child care centres.
Land dedication	Land dedicated for any of the above works.
Other	Other works or improvements within the broad categories listed above, at the discretion of the consent authority.

### How is the appropriate Community Infrastructure Identified

The Floor Space Ratio (FSR) Map under *Sydney Local Environmental Plan 2012* identifies the maximum FSR permissible for each site. The LEP outlines the amount of additional FSR (above that shown in the map) that sites are potentially capable of achieving if 'community infrastructure' is provided with the development.

The additional FSR achievable on a site has been calculated to ensure the desired built form outcome for an area. Proposed development must be acceptable in terms of environmental capacity, compliance with development controls and must have little or no impact on adjoining properties and the surrounding area. The development proposal must be acceptable on a merit assessment before the City can agree to a package of 'community infrastructure' associated with the development. The proposed 'community infrastructure' is to be acceptable to the City and it must meet the social, physical and environmental vision for Green Square. It is to be of an appropriate value.

The City uses a dollar rate to establish the value of the additional floor space and the 'community infrastructure'. This ensures an equitable and transparent process assessment of the infrastructure being provided by a developer. The total dollar value of the infrastructure package is calculated based on the type of use and amount of additional floor space that is being proposed in a development. The dollar rates per square metre of additional floor space are as follows:

- Residential floor space \$475 per square metres (excl. GST).
- Retail floor space \$275 per square metres (excl. GST).
- Other non-residential floorspace \$200 per square metres (excl. GST).

The City adjusts the above rates from time to time.

As part of the 'community infrastructure' package a rate of \$100 per square metres (excl. GST) is included as a monetary contribution towards the Town Centre. As the Town Centre will have flow on benefits for the wider Green Square, including improved land values, this monetary contribution is allocated towards the delivery of the Town Centre essential infrastructure.

The City and the developer both enter into a legal agreement, known as a voluntary Planning Agreement (VPA) which lists what 'community infrastructure' the developer will deliver as part of a development. The VPA is publicly exhibited for at least 28 days. Both the City and the developer must come to a mutual agreement on the infrastructure package before the VPA can be finalised and signed and registered on the title of the land subject to the development.

The redevelopment of some major sites like Victoria Park and Emerald Park in Zetland, and Crown Square and Diversity in Waterloo has resulted in significant parks, streets and some stormwater management works. Other sites such as Wulaba Park in the Lachlan neighbourhood and Otto in North Rosebery will be completed in 2015/2016. The 'community infrastructure' scheme together with Section 94 developer levies have been crucial in delivering this physical infrastructure.

### Green Square Town Centre infrastructure delivery

As mentioned in section 2 of this Plan, the Town Centre was 'deferred' (or excluded) from the Green Square rezoning in 1999 so as to allow for the preparation of a specific masterplan to ensure the coordinated development of such a critical site and to develop a robust strategy for infrastructure funding.

A new LEP and DCP were adopted in 2006. Significantly, these plans were underpinned by the *Green Square Town Centre Infrastructure Strategy* (the Infrastructure Strategy) which sets out together with the planning controls a new model for securing the delivery of critical infrastructure necessary to support redevelopment.

The 2006 LEP and DCP were replaced by new controls in 2013 following the City's extensive review of building envelopes and public domain layout triggered by UrbanGrowth NSW/Mirvac/Leighton's request to amend the plans. The Infrastructure Strategy continues to underpin the 2013 plans.

The model is referred to as the 'deferral' model, based on the process the planning legislation under the *Environmental Planning and Assessment Act 1979* sets out for not progressing an LEP to come into force. Even though the Town Centre LEP has been approved it is held 'deferred' (or inactive) until land owners request the 'un-deferral' of the planning controls (or the activation of the planning controls) so as to allow high density mixed use development in accordance with the new LEP. Until such time the land can continue to be used for industrial uses permitted under the old controls in place. Such request is voluntary and dependant on a landowner's commitment to contribute to the delivery of the essential infrastructure (including land) needed for the Town Centre.

A VPA entered into between the landowner and the City of Sydney is the mechanism used to secure this commitment and other public benefits relating to the development. Once the 'un-deferral' is approved and the agreement is executed and registered on title, the site is effectively rezoned and development can proceed in accordance with the Town Centre LEP and DCP.

This 'deferral' model is adopted to ensure development only occurs if the necessary level of essential infrastructure is achieved to accommodate the development.

The Infrastructure Strategy sets out the process for funding through development, the delivery of the civil infrastructure and public domain required to service the Town Centre.

It sets a required contribution for each development site defined in the Town Centre LEP, based on a potential total gross floor area (GFA) for that site and land use mix. The contribution is based on what the strategy describes as the 'Development Rights Scheme', where the identified level of contribution (at 2005 \$ figures) relates to a dollar rate per square metre of floorspace of a particular type – residential, commercial and retail. The scheme therefore correlates the floor space on each development site to its intensity of use and the necessary infrastructure.

The essential infrastructure elements described in the Infrastructure Strategy include roads and pavements, public plazas, water features, parks and essential services works, such as sewer, stormwater, water supply and electricity. "Soft costs" are also included, such as professional and project management costs and contingencies for remediation. The Infrastructure Strategy identified initially a budget of \$103M for infrastructure and public domain works, funded as follows:

- \$73M – Development Rights Scheme;
- \$15M – Floor space contributions ('community infrastructure' floor space from the surrounding Green Square area); and,
- \$15M – Section 94 levy contributions.

Other costs, such as those associated with the delivery of community facilities and green infrastructure are not covered by the Infrastructure Strategy.

The City updated the cost of the Town Centre infrastructure and public domain works in 2011 on the basis of the development applications approved by Council which provided a relatively detailed and accurate scope of works. The cost escalated by 15 per cent from \$103M (at December 2005) to \$118M (at December 2010). The City uses the Consumer Price Index used to update the cost as it reflects cost escalation fairly accurately and is an appropriate long term average for a project of the magnitude of the Town Centre, which will evolve over a significant period during which refinements and design adjustments are likely to occur.

To date close to 50 per cent of the Town Centre lands have been 'un-deferred' and are subject to staged development applications. Significantly these include the UrbanGrowth NSW sites at the core of the Town Centre that will deliver the land required for the construction of major community facilities by the City – Green Square Library and Plaza and The Drying Green park.

## 8.4 Partnership with government

### Green Square steering and working groups

Although the City has facilitated and committed major funding for these works and facilities to keep pace with this rate of growth so as to support its community, the delivery of the infrastructure needed cannot be done by the City and developers alone. Significant public infrastructure, most notably schools, public transport and health services are needed. These are the responsibility of the NSW Government. The City's assessment of state provided social infrastructure clearly indicates these facilities have not kept pace with the growth.

The City has been pursuing partnership with the NSW Government as a means of ensuring the timely funding and delivery of infrastructure and services delivered by the Government. As mentioned in section 4, the City of Sydney and Landcom established in 2006 a partnership to progress the development of the Town Centre through a Joint Project Policy Committee, working in collaboration with NSW agencies to achieve sustainable outcomes for the Town Centre and the wider Green Square area.

A Green Square Steering Group, chaired by the Department of Premier and Cabinet, was subsequently established in 2011, to progress cross-agency coordination and commitment to infrastructure delivery. The steering group at that time was the umbrella group to which sustainability, transport and social services working groups reported. The steering group was reformed in 2013 into the Green Square Transport Steering Committee.

In late 2013 a new Green Square Transport Working Group was established to provide cross-agency coordination between the NSW Government and the City of Sydney in the strategic planning and delivery of Green Square transport and road projects and the interrelationship of other major infrastructure and urban renewal projects within and outside Green Square, including the Ashmore Precinct. The working group is chaired by the City of Sydney. Its membership includes the City, Transport for NSW, RMS, and UrbanGrowth NSW.

A key purpose of the working group is to ensure transport infrastructure is provided for residents and businesses across the urban renewal areas and that the timelines for delivery and implementation of transport and road projects are met, including setting up a framework to expedite approvals. In addition to coordinating infrastructure delivery in the Town Centre, the City has a key role in providing accurate and detailed employment and population forecasts to the group.

The working group reports to the Green Square Transport Steering Committee chaired by UrbanGrowth NSW. It is intended to refer this Plan to the working group for input by member NSW agencies, for the Plan then to be considered by the steering group.

The Social Services Working Group that was established in 2011 considered the social infrastructure needs arising from redevelopment in Green Square. This group included representatives from a range of agencies including NSW Health, NSW Police and NSW Department of Education and Communities.

The City understands that the re-establishment of this working group is currently being considered by relevant agencies. The City will seek to continue to participate in these discussions, along with those associated with the NSW Department of Education's Inner City Schools Working Group, which is considering demand for new schools across the inner city.

### Sydney Water Alliance

In October 2013, the State Government increased its commitment to fund the delivery of the stormwater culvert that will run from Link Road, Epsom Park through to the Alexandra Canal. With consultants KPMG Sydney Water and the City established the most suitable procurement model and governance framework

to deliver the stormwater culvert. A competitive alliance procurement model which is generally used for large projects has been set up as it offers:

- better transparency and management of project uncertainties and project risks;
- the ability for the City and Sydney Water, as the project sponsors, to influence the design and construction issues, as well as stakeholder and community issues, as they arise;
- value for money;
- shorter timeframe for delivery of the project;
- opportunities to implement innovative solutions; and,
- good quality outcome.

Early in 2014 the City and Sydney Water entered into a Project Agreement which covers items relating to the procurement methodology, project governance, project scope, funding responsibilities and asset ownership.

The competitive alliance procurement model involves the City and Sydney Water working as the project sponsors, engaging one or more non-owner participants (being the selected alliance participants, with the City and Sydney Water as owner participants) to deliver the design and construction aspects of the project.

Sydney Water has assumed the lead project management role in the delivery and the City will provide support throughout the project. Sydney Water is also responsible for preparing the necessary tender documentation, and managing the engagement of external consultants and third party service providers.

## **8.5 City of Sydney positioning and advocacy**

To deliver this Plan, the City will be charged with a number of responsibilities. Some of these refer to direct responsibilities, where the City will undertake to deliver tasks and actions, and others may be of a more indirect nature, where the City's role will be to advocate, lobby and support various initiatives to be undertaken by external parties.

The core roles to be assumed by the City throughout the implementation and delivery of this action plan will include:

- Planning, designing, delivering and maintaining assets and infrastructure that creates places for people;
- Initiating and implementing ideas, programs and strategies that creates a sense of place for the Town Centre. City Life plays a key role in this area;
- Fostering relationships, partnerships and alliances with stakeholders from government and private sectors and community members to deliver the vision for Green Square;
- Promoting and advocating participation and collaboration with NSW Government agencies, private sector organisations, including developers, private residents and workers to deliver the vision for Green Square;
- Advocating and supporting community initiatives and programs that will support the growth and development of Green Square; and,
- Supporting existing businesses (both within Town Centre and the surrounding areas) through the services provided by City Operations such as the City's cleaning and public domain services to ensure existing and new customers find the quality of the public domain attractive and appealing to do business. The quality of these services contributes to the community identity and well-being.

## **8.6 Implementation Action Plan**

This Plan gives an overview of the necessary infrastructure that will support the growth of Green Square and seeks to establish when the infrastructure needs to be in place. The Implementation Action Plan identifies infrastructure items required, who is responsible for their delivery and timeline for delivery.

The Action Plan seeks to establish continued partnership with the relevant agencies to ensure the delivery in an efficient, integrated and timely way.



List of abbreviations used:

City	City of Sydney
DEC	Department of Education and Communities
P&C	Department of Premier and Cabinet
RMS	Road and Maritime Services
TfNSW	Transport for NSW

**Table 9: Implementation Action Plan**

PROJECT	DELIVERY TIMEFRAME	RESPONSIBILITY	ACTION
<b>C. COMMUNITY</b>			
C.1 Green Square Library and Plaza	2017	City	Ensure delivery of library and plaza area
C.2 Former South Sydney Hospital site – Childcare facility	2017	City	Ensure delivery of childcare facility
C.3 Former South Sydney Hospital site – Creative Hub	2017	City	Ensure delivery of Green Square Creative Hub
C.4 Green Square Aquatic Centre	2019	City	Ensure delivery of Green Square Aquatic Centre
C.5 Childcare provision	Ongoing	City Developers	Continue to work with developers and not-for-profit organisations to maximise opportunities for childcare in developments  Continue to deliver childcare in accordance with budget allocations
C.6 Community Development	Ongoing	City	Continue and monitor work being undertaken by the Community Development co-ordinator
C.7 Public Art	2013 – 2017	City	Implement <i>Green Square Public Art Implementation Plan 2013</i> in line with established timeframes
C.8 Placemaking	Ongoing	City (lead) NSW Government agencies Community	Led by the City's Green Square place manager, continue to develop and implement placemaking strategies and programmes
<b>H. HEALTH</b>			
H.1 Provision of healthcare services	Ongoing	NSW Government agencies City	Resurrect the City/NSW agency Social Services Working Group  Ensure relevant agencies are aware of population growth and projections to ensure sufficient services are in place to meet needs of the new community
<b>E. EDUCATION</b>			
E.1 Provision of school places	Underway	DEC (lead) City	City continues to participate in Inner City Schools Working Group  Continue to liaise at officer level  Ensure DEC are aware of population growth and projections to ensure sufficient services are in place to meet needs of the new community
<b>OS. OTHER SOCIAL</b>			
OS.1 Police/ Fire/ Post	2015	NSW Government agencies (lead) City	Ensure relevant agencies are aware of population growth and projections to ensure sufficient services are in place to meet needs of the new community
OS .2 Social Indicators	2015	City Community	To develop a set of social indicators that will assess holistically the community wellbeing over time

OS.3 Affordable Housing	Ongoing	City Of Sydney Community Housing Providers  NSW Government agencies  Developers	Continue to monitor affordable rental housing delivery through the Green Square Affordable Housing Scheme  Continue to develop initiatives to increase delivery of affordable rental housing in Green Square and adjacent areas
<b>T. TRANSPORT</b>			
T.1 TMAP 2012	2014	TfNSW (lead) RMS	Public release of TMAP 2012 by TfNSW with timeframes for delivery of key actions
T.2 Eastern Transit Corridor Action Plan	2015	TfNSW (lead) RMS City	Progress detailed corridor action plan between the Town Centre and Central Sydney with timeframes for delivery  Secure Eastern Transit Corridor land reservation
T.3 Light Rail	2015	City (lead) TfNSW	Undertake feasibility study to confirm routes and financial viability
T.4 Forecast and implement rail service increases	Ongoing	TfNSW (Sydney trains)	Plan service increases in line with development and increased demand
T.5 Forecast and implement bus service increases	Ongoing	TfNSW (Sydney Buses)	Plan and implement bus service increases in line with development and increased demand
T.6 WestConnex	2015	City TfNSW (lead) RMS WestConnex delivery Authority	City to work with NSW Government to understand required road upgrades  City to assess the impact of WestConnex on Green Square neighbourhoods and investigate traffic management measures to mitigate negative impacts, should WestConnex go ahead
T.7 Implement local and regional cycle plans	Ongoing	City (lead) RMS	Continue extension of cycleways to Town Centre and coordinate regional cycling connections  Continue to improve cycle accessibility for emerging new neighbourhoods in Green Square
T.8 Establish walking facilities improvement programme	2015	City (lead) RMS	Improve amenity and security through upgrades to signage and lighting and align networks with public transport routes  Continue to improve walking accessibility for emerging new neighbourhoods in Green Square
T.9 Access and circulation concept plans	Ongoing	City (lead) RMS	Progress as needed preparation of neighbourhood-specific access and circulation concept plans to improve local accessibility and manage traffic intrusion to protect local amenity
T.10 Private parking within developments	2015	City (lead) RMS	Undertake a review of the parking rates in Green Square (including the town centre)
<b>PD. PUBLIC DOMAIN</b>			
PD.1 Public domain strategies	Ongoing	City Developers	Progress as needed preparation of neighbourhood public domain strategies and infrastructure concept designs  Ensure public domain delivery is of high quality
PD.2 Open space and recreation	2015/2016	City Developers Sydney Water	Produce and open space delivery plan to guide the City's funding allocation for new open space  Continue to investigate opportunity sites for provision of open space including potential leasing of Sydney Water channel corridors  Undertake a review of the City's <i>Open Space and Recreation Needs Study 2007</i> to integrate the findings from the Sports Facility Demand study

<b>SM. STORMWATER MANAGEMENT</b>			
SM.1 Green Square Trunk Drain upgrade	2017/8	City Sydney Water	Ensure construction is staged and completed in time to facilitate major projects along its alignment
SM.2 Alexandra Canal Flood Plain Risk Management Plan and Strategies	Ongoing	City Sydney Water/ NSW agencies Developers	Implement Flood Risk Management Plan actions Ensure drainage upgrades are delivered in time to facilitate redevelopment and improve existing conditions
<b>S. SUSTAINABILITY</b>			
S.1 Continue to implement BASIX requirements	Ongoing	City Developers	Work with developers to go beyond BASIX requirements for development
S.2 Ecology	Ongoing	City Developers	Continue to implement planning controls and work with the community
S.3 Trigeneration/ Solar PV/ Private Wire	Ongoing	City	Continue investigations for Trigeneration, Solar PV and Private Wire connections to supply the City's community facilities in the Green Square Town Centre and Epsom Park neighbourhood
S.4 Water	Ongoing	City Developers	Complete construction of Town Centre Water Reuse Scheme by and provide recycled water to buildings by 2015/2016 Ensure Town Centre buildings are designed for and connected to recycled water network City to continue investigations on expansion of the recycled water network Implement WSUD measures to achieve water pollution reduction targets through City and developer delivered infrastructure

## 8.8 Community and stakeholder engagement

The City has undertaken an extensive programme of engagement and communication for Green Square development commenced in the late 1990s. This has included the local community, landowners, NSW agencies and other stakeholders on the preparation and refinement of the planning controls.

It is recognised that there is a need for ongoing engagement to ensure the impacts of redevelopment are monitored and addressed in a strategic and coordinated manner.

This Plan has been developed with input from a working group within the City made up of specialists in diverse fields including planning, stormwater engineering, social planning, infrastructure design and delivery, transport planning, traffic operations and community engagement. Consultation with NSW agencies is to be undertaken to update the Plan.

This Plan is a key communication tool designed to keep the community informed while providing a mechanism to identify and record changing community priorities and needs throughout the redevelopment of Green Square. The Plan is also an important tool for engaging with NSW infrastructure and services delivery agencies and will be available on the City's website for wide access to it by the community and other stakeholders.

It is important to keep the Plan up-to-date so that that all parties can be assured that issues are being addressed and/or are being planned for. The Plan will be a 'living' document that will be reviewed and updated regularly by a City's internal working group. The review process will involve liaison with the local community and other stakeholders, including NSW agencies. This review will include updating the status of projects, initiatives and the prioritisation of issues and projects in the Implementation Action Plan to ensure it responds to development pressures, timeframes and funding availability.

The Plan recognises that some services, such as public transport, education and health provision are not the responsibility of the City. The City will continue to regularly liaise with the responsible agencies identified to ensure timely provision, and will update the timing and provision of these services.

### Green Square Community Engagement and Communications Strategy and Action Plan

The City's *Green Square Community Engagement and Communications Strategy and Action Plan* has been developed to respond to the need for ongoing communication and marketing, community engagement, and associated capacity-building activities in a strategic, consistent, coordinated and effective manner.

It is based on the City's experiences of communication, consultation and community development activities throughout the City of Sydney and in Green Square, as development progresses and intensifies. It is run by a multi-discipline team comprising of community engagement, communications, marketing, planning and customer services staff.

The City recognises the opportunities and challenges for residents living in medium and high density development. A number of activities and programs have already been implemented to provide the community with information and education, as well as opportunities to foster community connections through place-making activities, events and local groups. The City also provides opportunities for residents to participate in planning for important community facilities through community consultation. The plan documents and co-ordinates the strategies of the City to ensure information on development are made available to the Green Square, and wider community. These strategies include:

- **Communication, Branding and Marketing**

With the City's estimated expenditure of more than \$440 million on Green Square infrastructure, community facilities, open space and Green Infrastructure, there is a need to communicate the City's role and promote its projects to ensure the City is recognised for its leading role in this significant urban renewal project, and to articulate the role of the City of Sydney in relation to other government and private stakeholders.

A marketing strategy will also showcase the unique character of Green Square that profiles local businesses, personalities and sustainability initiatives.

The City needs to work further in developing its brand approach for Green Square. This initiative is included in the *Green Square Town Centre Placemaking Framework and Action Plan* and will be separate from the private developers.

- **Community Information and Notification**

There is a need to provide the community with centralised, sustained and accessible information about Green Square developments, including new community facilities as well as the program of works to be undertaken by private developers in the Town Centre and the greater urban redevelopment area.

There is a significant volume of information that will be communicated over the development time-frame, including development applications.

In addition, works to be undertaken by public bodies will need communication strategies in place to notify in advance of, and to support residents during construction and implementation of development, especially in relation to noise and disruption. Information is made available in community languages for existing and incoming residents, including Chinese.

- **Community and Stakeholder Engagement**

The City of Sydney has a strong commitment to community engagement, as outlined in its Community Engagement Strategy for the *Community Strategic Plan* (2013). The City has an opportunity to engage the community in the range of capital works projects being planned for the Town Centre.

When multiple activities are occurring at the same time, synergies and opportunities for coordination are identified and managed. The City also plays a broader role in liaising with the community about the broader private development program in Green Square, including staging and issues management.

- **Online Services**

The City of Sydney's online community consultation hub, *SydneyYourSay.com.au* has been established as a key point of information for Green Square. The Green Square page on the City of Sydney website and the community hub *greensquarehub.com* are also important online communication channels.



## APPENDIX 1

### **Population and Demographic Profile**

## Green Square and City South Village Population

Australian Bureau of Statistics (ABS) official estimates for 2011 put the Green Square and City South Village resident population at 20,103, constituting 11.0% of the total City of Sydney population.

The most populous groups span 18-49 years of age and can be broken into three service age groups:

- Tertiary Education and Independence (18-24 years);
- Young Workforce (25-34 years); and,
- Parents and Homebuilders (35-49 years).

Figure 1 Proportion of 2011 Population in Service Age Groups details the age range specifics of the service groups and the proportions each of these groups represent in the Green Square and City South Village population, compared with City of Sydney figures. It shows that, relative to City of Sydney, there is a somewhat greater concentration of children and younger residents (0-17 and 18-34 years) and a markedly lower concentration of older residents (50 years and older).

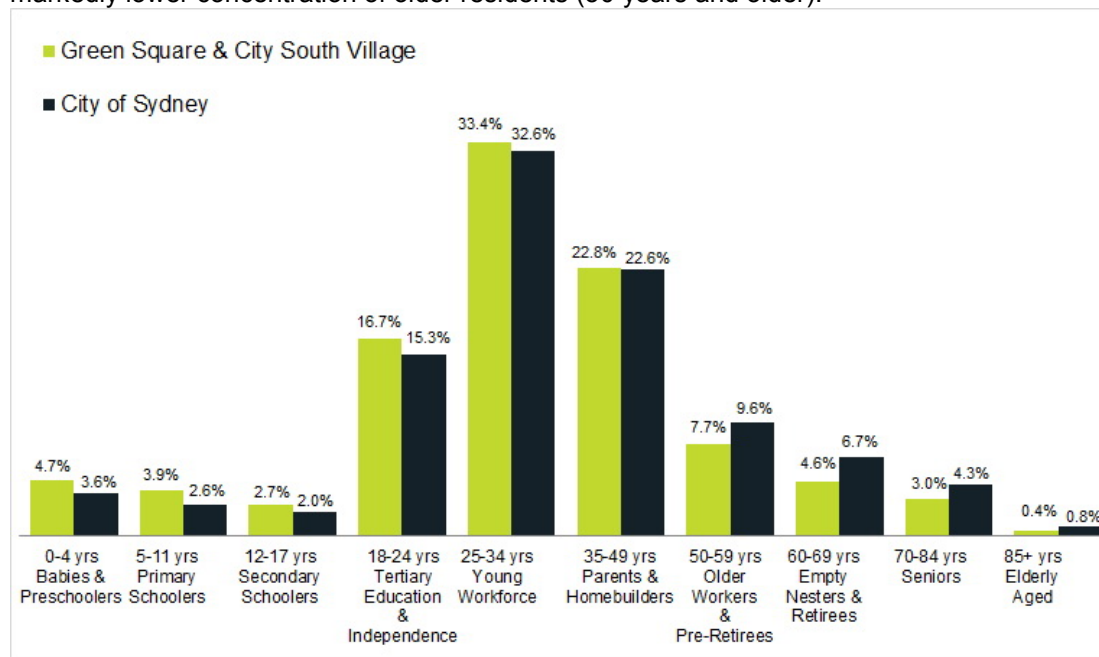


Figure 1: Proportion of 2011 Population in Service Age Groups

## Broad Age Groups

Table 1 shows the 2011 population estimates for Green Square and City South Village, by broad age groups, and the percentage of the population that each group represents. It provides insight into the level of demand for services and facilities that target residents at different stages in their lives. It is an indicator of Green Square and City South Village's residential role and function and how it has changed since 2006.

Table 1: Population by Broad Age Group

Broad Age Group	2011			2006			Change
	Village count	Village %	City of Sydney %	Village count	Village %	City of Sydney %	
Children, 0-14 years	1,992	9.9	7.1	1,560	10.5	6.9	+432
Working Age, 15-64 years	17,044	84.8	85.0	12,447	84.1	85.3	+4,597
Retirement Age, 65 years +	1,067	5.3	7.9	795	5.4	7.8	+272
<b>Total population</b>	<b>20,103</b>			<b>14,802</b>			<b>+5,301</b>

Source: Australian Bureau of Statistics, Estimated Resident Population.

The Green Square and City South Village population increased by 35.8% (or 5,301 residents) between 2006 and 2011, compared with 10.8% growth in the City of Sydney population. The Young Workforce service group contributed the largest share of population growth (38.0%) to Green Square and City South Village.

All ten of the service groups in Green Square and City South Village experienced an increase in numbers from 2006 to 2011, although Secondary Schoolers and Elderly Aged service groups grew by the smallest amounts.

## 1. Population Forecasts to 2031

The population of Green Square and City South Village is expected to increase by 169.5% by 2031, increasing by an estimated 34,069 residents to a total of 54,172.

The greatest increase in the proportional share by age groups between 2011 and 2031 are expected in the 35-49 years age group. The greatest declines in the proportional share by age groups between 2011 and 2031 are forecast in the 18-24 years age group and the 25-34 years age group.

## 2. Ethnicity - Country of Birth

As shown at Table 2, 41.8% of residents in Green Square and City South Village were born in countries where English is not the first language, compared with 34.8% in City of Sydney. Country of birth data indicates the level of cultural diversity and historical settlement patterns and can also reflect how Australia's immigration program has changed over time. Table XX details the proportion of residents by top nine countries of birth in Green Square and City South Village and how they compare with City of Sydney.

**Table 2: Birthplace - Ranked By Size**

Country(s) of birth	2011		2006		Change
	Village %	City of Sydney %	Village %	City of Sydney %	Village 2006-11 diff. in %
Australia	46.6	50.9	50.2	53.9	-3.6
'Other Asia'*	13.5	14.8	14.1	13.9	-0.6
China (including Hong Kong)	12.3	7.5	8.9	6.3	3.4
United Kingdom	4.4	6.6	4.2	6.7	0.2
New Zealand	2.9	3.8	2.9	4.0	0.0
Greece	1.8	0.6	2.7	0.8	-0.9
United States of America	1.4	1.5	0.9	1.2	0.5
Saudi Arabia	1.3	0.3	0.5	0.1	0.8
Ireland	1.3	1.2	0.8	0.9	0.5
<b>Overseas born total</b>	<b>53.4</b>	<b>49.1</b>	<b>49.8</b>	<b>46.1</b>	<b>3.6</b>
<b>Non-English speaking total</b>	<b>41.8</b>	<b>34.8</b>	<b>39.6</b>	<b>32.2</b>	<b>2.2</b>
<b>Mainly English speaking total</b>	<b>11.6</b>	<b>14.3</b>	<b>10.2</b>	<b>13.9</b>	<b>1.4</b>

\* 'Other Asia' countries includes: Thailand, Cambodia, Vietnam, Burma, Malaysia, Singapore, Philippines, Indonesia, South Korea, Japan, Taiwan, India, Pakistan, Bangladesh, Sri Lanka, Nepal.

Source: Australian Bureau of Statistics, Census of Population and Housing 2011 and 2006 (Usual Residence data).

Overall, 53.4% of Green Square and City South Village residents are born overseas, with over three-quarters of those residents coming from non-English speaking backgrounds. In particular, residents from Asian countries are well-represented.

The major differences between the countries of birth of the population in Green Square and City South Village and City of Sydney are:

- Proportionally fewer residents are born in Australia.
- Proportionally fewer residents are born in the United Kingdom.
- Proportionally more residents are born in non-English speaking countries.
- Proportionally more residents are born in China and Hong Kong.

Of the non-English languages spoken at home in Green Square and City South Village, Chinese languages and Other Asian languages dominate (25.9% combined). The major differences between the languages spoken at home for residents of Green Square and City South Village and City of Sydney in 2011 are:

- Proportionally fewer residents speak only English at home.
- Proportionally more residents speak Chinese languages at home.
- Proportionally more residents speak Greek at home.

Between 2006 and 2011 the proportion of Green Square and City South Village residents born overseas has increased, marginally above the trend for City of Sydney. The proportion of residents born in China and Hong Kong rose significantly between 2006 and 2011 and residents speaking only English at home have decreased slightly whilst the use of Chinese languages has increased.

### 3. Qualifications

As shown at Table 3, 65.9% of residents in Green Square and City South Village have a tertiary qualification compared to 68.4% in City of Sydney (in this context, educational qualifications are post-secondary qualifications gained by residents 15 years and over).

This data gives a strong indicator of socio-economic status and is useful for identifying skill gaps in the labour market and evaluating economic opportunities. Table 3 details the categories of qualifications held and the proportions of Green Square and City South Village residents holding them, compared with City of Sydney figures.

**Table 3: Highest Qualification Achieved**

Qualification level	2011		2006		Change
	Village	City of Sydney	Village	City of Sydney	Village 2006-11 diff. in %
Bachelor or Higher degree	43.5	48.3	36.0	43.6	7.5
Advanced Diploma or Diploma	11.2	10.6	10.7	10.2	0.5
Certificate Level	11.2	9.5	12.9	10.4	-1.7
No qualification	34.1	31.6	40.4	35.8	-6.3

Source: Australian Bureau of Statistics, Census of Population and Housing 2011 and 2006 (Usual Residence data).

The most commonly held educational qualification in Green Square and City South Village is a Bachelor or Higher degree. Residents holding Diplomas, Advanced Diplomas and Certificate level qualifications, meantime, constitute 22.4% of the population compared with 20.1% for City of Sydney. Major differences in the qualifications held by Green Square and City South Village and City of Sydney residents were:

- Proportionally fewer residents hold a Bachelor or Higher degree qualification.
- Proportionally more residents have no qualifications.

Between 2006 and 2011 the proportion of residents with a Bachelor or Higher degree qualification has increased, while the proportion of residents with no qualifications has declined.

### 4. What do we do – Employment Status

As shown at Table 4, 94.0% of the Green Square and City South Village labour force is employed with 72.0% of the labour force being employed full time (residents of 15 years of age and over are counted as being 'in the labour force').

The median individual income was \$964 per week, compared with \$888 per week for City of Sydney residents.



Table 4: Occupation of Employment – in Rank Order

Occupation	2011		2006		Change
	Village %	City of Sydney %	Village %	City of Sydney %	Village 2006-11 diff. in %
Professionals	34.1	39.6	30.4	37.5	3.7
Managers	17.8	16.8	17.5	16.6	0.3
Clerical & Administrative Workers	14.9	13.3	15.2	14.3	-0.3
Community & Personal Service Workers	9.7	9.4	9.3	9.3	0.4
Technicians & Trades Workers	9.3	7.8	9.8	7.6	-0.5
Sales Workers	8.7	7.6	9.5	8.5	-0.8
Labourers	3.4	4.0	4.4	4.3	-1.0
Machinery Operators & Drivers	2.1	1.5	3.9	1.9	-1.8

Source: Australian Bureau of Statistics, Census of Population and Housing 2011 and 2006 (Usual Residence data).

The three most populous occupation groups in Green Square and City South Village, Professionals, Managers and Clerical and Administrative Workers, collectively account for 66.8% of employed residents with proportionally more residents are full-time employed than the average for the City of Sydney.

The major difference between occupations employing Green Square and City South Village residents and City of Sydney residents is that fewer residents record themselves as Professionals, however, between 2006 and 2011 the proportion of Green Square and City South Village residents employed in Professional occupations has increased. The largest proportional decreases occurred in the occupations of Machinery Operators and Drivers and Labourers.

## APPENDIX 2

### **Future Provision of Green Square Social infrastructure, SGS Economics and Planning 2014**

## Future Provision of Green Square Social Infrastructure

### Final Report

City of Sydney

18 September 2014



# ATTACHMENT A



This report has been prepared for the City of Sydney. SGS Economics and Planning has taken all due care in the preparation of this report. However, SGS and its associated consultants are not liable to any person or entity for any damage or loss that has occurred, or may occur, in relation to that person or entity taking or not taking action in respect of any representation, statement, opinion or advice referred to herein.

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## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2</b>	<b>DEMOGRAPHIC CONTEXT</b>	<b>2</b>
2.1	The Green Square and City South Village	2
2.2	Population Projections 2011-2031	3
2.3	Dwelling Projections	5
<b>3</b>	<b>DESKTOP AUDIT OF PRIORITY SOCIAL INFRASTRUCTURE</b>	<b>6</b>
3.1	Education and Child Care	6
	Primary Schools	6
	Secondary Schools	7
	Before and After School Care	7
	Day care	7
	TAFEs	8
	Universities	8
3.2	Health, Aged Care and Disability Services	8
	Hospitals	8
	Primary Health Care Centre	8
	Children's Health Centre	8
	Aged Care Facilities	8
3.3	Emergency, Fire and Police Services	9
	Ambulance Stations	9
	Fire Services	9
	Police Services	10
	Other Social Infrastructure	10
<b>4</b>	<b>SOCIAL INFRASTRUCTURE FUTURE DEMAND</b>	<b>11</b>
4.1	Education	12
	Primary Schools	12
	Secondary Schools	12
	Before and After School Care	13
	Day Care	13
	TAFEs	14
	Universities	14
4.2	Health, Aged Care and Disability Services	14
	Hospitals	14
	Primary Health Care Centres	15
	Children's Health Centre	15
	Aged Care Facilities	16
4.3	Emergency, Fire and Police Services	16
	Ambulance Station	16
	Fire Services	17

# ATTACHMENT A

	Police Services	17
<b>5</b>	<b>CONCLUSION</b>	<b>18</b>

## LIST OF FIGURES

FIGURE 1. GREEN SQUARE AND CITY SOUTH VILLAGE CONTEXT WITHIN THE CITY OF SYDNEY	2
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## LIST OF TABLES

TABLE 1. OVERALL POPULATION PROJECTIONS	3
TABLE 2. BABIES AND PRE-SCHOOLERS (0-4) POPULATION PROJECTIONS	3
TABLE 3. PRIMARY SCHOOLERS (5-11) POPULATION PROJECTIONS	3
TABLE 4. SECONDARY SCHOOLERS (12-17) POPULATION PROJECTIONS	4
TABLE 5. TERTIARY EDUCATION AND INDEPENDENCE (18-24) POPULATION PROJECTIONS	4
TABLE 6. YOUNG WORKFORCE (25-34) POPULATION PROJECTIONS	4
TABLE 7. SENIORS (70-84) POPULATION PROJECTIONS	5
TABLE 8. ELDERLY (85 AND OVER) POPULATION PROJECTIONS	5
TABLE 9. DWELLINGS PROJECTIONS 2011- 2031	5
TABLE 10. PRIMARY & SECONDARY SCHOOLS IN GREEN SQUARE AND CITY SOUTH VILLAGE AREAS	6
TABLE 11. BEFORE AND AFTER SCHOOL CARE CENTRES IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT	7
TABLE 12. DAY CARE CENTRES IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT	7
TABLE 13. GP MEDICAL CENTRE IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT	9
TABLE 14. FIRE RESCUE STATIONS IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT	10
TABLE 15. SERVICE PROVISION NEEDS AND BENCHMARKS	11
TABLE 16. DEMAND PROJECTIONS PRIMARY SCHOOLS 2011- 2031	12
TABLE 17. DEMAND PROJECTIONS SECONDARY SCHOOLS 2011- 2031	13
TABLE 18. DEMAND PROJECTIONS BEFORE AND AFTER CARE 2011- 2031	13
TABLE 19. DEMAND PROJECTIONS TAFES 2011- 2031	14
TABLE 20. DEMAND PROJECTIONS UNIVERSITIES 2011- 2031	14
TABLE 21. DEMAND PROJECTIONS HOSPITAL BEDS 2011- 2031	15
TABLE 22. DEMAND PROJECTIONS PRIMARY HEALTH CARE CENTRES 2011- 2031	15
TABLE 23. DEMAND PROJECTIONS PRIMARY HEALTH CARE CENTRE 2011- 2031	15
TABLE 24. DEMAND PROJECTIONS CHILD HEALTH CARE CENTRE 2011- 2031	16
TABLE 25. DEMAND PROJECTIONS AGED CARE FACILITIES 2011- 2031	16
TABLE 26. DEMAND PROJECTIONS AMBULANCE STATIONS 2011- 2031	16
TABLE 27. DEMAND PROJECTIONS FIRE STATIONS 2011- 2031	17
TABLE 28. DEMAND PROJECTIONS POLICE STATIONS 2011- 2031	17
TABLE 29. RECOMMENDATIONS FOR FUTURE PROVISION OF SOCIAL INFRASTRUCTURE	18

# 1 INTRODUCTION

The purpose of this report is to recommend the future requirements for various types of social infrastructure within the Green Square City South Village, located in the City of Sydney. These recommendations will be based on both the population projections and current social infrastructure present in Green Square City South Village.

The report is structured as follows:

- Chapter 2 outlines current geographical, population and dwelling projection data for the Green Square City South Village.
- Chapter 3 provides a desktop audit of priority social infrastructure types within the Village, noting infrastructure outside the Village boundaries where appropriate.
- Chapter 4 outlines how the projected population changes between 2011 and 2031 will impact demand for the specified priority social infrastructure services and facilities, and suggests future provision requirements.

This report should be read in conjunction with the report *Social Infrastructure Benchmarks* and associated tables, prepared by SGS Economics and Planning as Stage 1 of this work.

Future requirements for child care identified in this report are based on information in a separate Child Care Needs Analysis undertaken for the City of Sydney in 2013.

Many of the social infrastructure benchmarks that are available, and have been used as input to these reports relate to planning for greenfield developments. Benchmarks intended for use in greenfield areas need to be applied with caution when used in the context of infill development, given that there may already be extensive social infrastructure provision in established areas.

The social infrastructure benchmarks used in this report generally relate to the resident population. COS have advised that in planning for open space and community facilities, they generally make an addition allowance of 20 per cent of workforce demand in addition to resident demand.<sup>1</sup> The workforce in the COS is projected to increase from 434,820 in 2013 to 557,760 by 2031. This includes an increase of 13,202 in the workforce in Green Square & City South. Around 60% of all City residents who are in the labour force both live and work in the City of Sydney LGA.<sup>2</sup>

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<sup>1</sup> Advice provided in an email from Allison Heller, COS, 4 September 2014.

<sup>2</sup> City of Sydney Child Care Needs Analysis 2013, page 8.



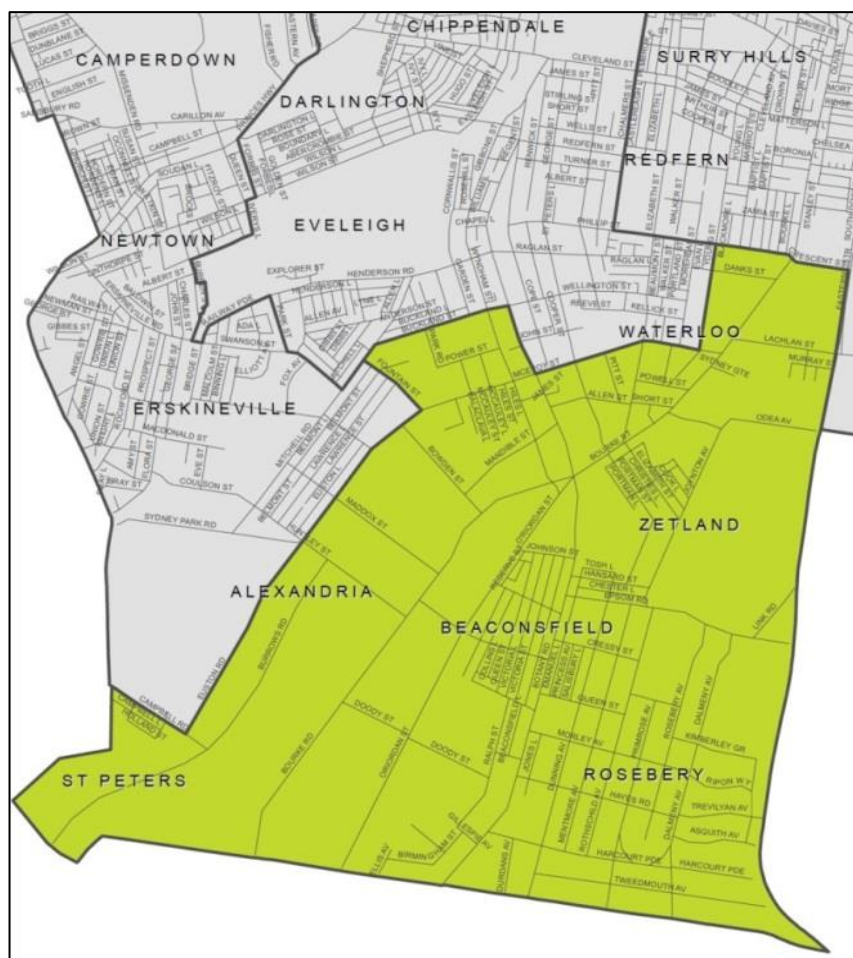
## 2 DEMOGRAPHIC CONTEXT

This section reviews current available geographical, population and dwelling data for the Green Square and City South Village. For each demographic area, data on Green Square and City South Village is presented in comparison to demographic projections of the wider Southern Sydney area. Southern Sydney is an amalgamation of Green Square and City South Village, King Street Village and Redfern Street Village.

### 2.1 The Green Square and City South Village

Figure 1 below identifies the Green Square and City South Village within its local context.

FIGURE 1. GREEN SQUARE AND CITY SOUTH VILLAGE CONTEXT WITHIN THE CITY OF SYDNEY



Source: City of Sydney, 2014

The Village encompasses the neighbourhoods of Zetland, Rosebery and Beaconsfield, which are well established and renowned for their high amenity and heritage homes. The Village also contains the suburbs of Alexandria and St Peters which has a mix of low and high density housing intermingled with light industry. Alexandria Park, Sydney Park and Moore Park provide green space within the village (City

of Sydney, 2014). The Green Square Town Centre is the largest urban renewal project in the southern hemisphere.

## 2.2 Population Projections 2011-2031

The tables below outline various population projections for the Green Square and City South Village, showing expected population numbers currently (2011), in the short term (2016), medium term (2021) and longer term (2031).

Between 2011 and 2031, the Green Square and City South Village population will increase by 169%. Much of this growth is expected to occur by 2016, however there is still high levels of growth projected up until 2031. In this same timeframe, wider Southern Sydney is projected to increase in population by 90%, albeit with a more evenly distributed rate of growth through the short, medium and long term timeframes.

TABLE 1. OVERALL POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	20,103	30,499	41,113	54,172
% change in population between years	-	52%	35%	32%
<b>Southern Sydney</b>	60,777	77,917	94,656	115,602
% change in population between years	-	28%	21%	22%

Source: City of Sydney, 2014

As Table 2 shows, the population of babies and pre-schoolers is set to dramatically increase within the Green Square and City South Village, with a population increase between 2011 and 2031 of 207%.

TABLE 2. BABIES AND PRE-SCHOOLERS (0-4) POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	950	1654	2395	2921
% change in population between years	-	74%	45%	22%
<b>Southern Sydney</b>	2647	3604	4692	5582
% change in population between years	-	36%	30%	19%

Source: City of Sydney, 2014

As shown below, the number of children between the age of five and eleven will also increase radically from 2011 to 2031. Southern Sydney will also experience strong growth in this age demographic yet at a lower rate than Green Square and City South Village.

TABLE 3. PRIMARY SCHOOLERS (5-11) POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	775	1186	1887	2680
% change in population between years	-	53%	59%	42%
<b>Southern Sydney</b>	1994	2515	3513	4691
% change in population between years	-	26%	40%	34%

Source: City of Sydney, 2014

Table 4 below outlines the large increase expected for children of secondary school age within the Green Square and City South Village. Between 2011 and 2031, this age cohort will grow by 226%.

TABLE 4. SECONDARY SCHOOLERS (12-17) POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	536	803	1109	1748
% change in population between years	-	50%	38%	58%
<b>Southern Sydney</b>	1316	1562	1962	2830
% change in population between years	-	19%	26%	44%

Source: City of Sydney, 2014

Overall, there is projected to be a large increase in children from ages 0-17. If realised, this increase in child population will affect the provision of a number of facilities in the Green Square and City South Village including schooling, health care and other social services. This is further explored in chapter 4.

As shown in the table below, Green Square and City South Village will experience less growth in the tertiary education and independence age group than wider Southern Sydney. This is likely due to the location of three major universities being located in other areas close by.

TABLE 5. TERTIARY EDUCATION AND INDEPENDENCE (18-24) POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	3363	4242	4728	5653
% change in population between years	-	26%	11%	20%
<b>Southern Sydney</b>	10,104	13,144	14,353	15,547
% change in population between years	-	30%	9%	8%

Source: City of Sydney, 2014

The table below demonstrates the dramatic population increase that is projected for the young workforce in Green Square and City South village. This is likely due to the growing availability of accommodation within the area that is seen as attractive for inner city workers. From 2011 to 2031, the population of the young workforce (ages 25-34) will increase by 151%.

TABLE 6. YOUNG WORKFORCE (25-34) POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	6724	11,338	14,785	16,898
% change in population between years	-	69%	30%	14%
<b>Southern Sydney</b>	19,005	25,867	31,089	34,506
% change in population between years	-	36%	20%	11%

Source: City of Sydney, 2014

As well as the young population experiencing large levels of growth, the senior and elderly populations of Green Square and City South Village are also projected to rise. The 70- 84 cohort will rise by a staggering 320%, and will increase from 2021 to 2031 alone by 72%. This in part is due to Australia's overall population, however Green Square and City South village is expected to increase in age at a larger rate than the wider Southern Sydney.

TABLE 7. SENIORS (70-84) POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	613	945	1499	2575
% change in population between years	-	54%	59%	72%
<b>Southern Sydney</b>	2342	3049	4201	6250
% change in population between years	-	30%	38%	49%

Source: City of Sydney, 2014

This trend is also echoed in the age cohort of 85 and over; with Green Square and City South seeing a 91% increase in the elderly population between 2011 and 2016.

TABLE 8. ELDERLY (85 AND OVER) POPULATION PROJECTIONS

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	89	170	254	351
% change in population between years	-	91%	49%	38%
<b>Southern Sydney</b>	340	426	557	728
% change in population between years	-	25%	31%	31%

Source: City of Sydney, 2014

An ageing population has implications for the provision of key services, including Aged Care, hospitals, emergency services and general health care. The provision of these services will be further explored in section 4.

## 2.3 Dwelling Projections

The following tables depict future dwelling projections within the Green Square and City South Village compared to Southern Sydney. Dwellings in Green Square and City South are predicted to increase by 179% between 2011 and 2031. The comparatively large increase in dwellings in Green Square and City South is what is driving the large population increase seen in the area.

TABLE 9. DWELLINGS PROJECTIONS 2011- 2031

Area	2011	2016	2021	2031
<b>Green Square and City South</b>	9183	14,069	19,110	25,480
% change in dwellings	-	53%	36%	33%
<b>Southern Sydney</b>	28,827	35,942	44,123	54,933
% change in dwellings	-	25%	23%	24%

Source: City of Sydney, 2014



### 3 DESKTOP AUDIT OF PRIORITY SOCIAL INFRASTRUCTURE

This section provides a desktop audit of priority social infrastructure types within the Green Square and City South Village.

#### 3.1 Education and Child Care

##### Primary Schools

There is one primary school located within the Green Square and City South Village boundary. Gardeners Road Public School currently has 264 enrolments. Green Square School is also located within the Green Square and City South Village Catchment. Green Square School is a National Partnerships Low Socio Economic Status special school catering for students with significant behavioural difficulties for students aged 10-15 year (year 5 to year 10).

Provision of primary and secondary schools by the Department of Education and Communities is based on a service planning methodology that firstly involves enrolment demand management, through adjustment of school catchment boundaries. The Department's service planning methodology takes account of forecast capacity of existing schools, with regard to enrolment trends and schools' specified geographic catchments.

There are currently three primary schools in the Green Square catchment area: Alexandria Park Community School (primary school campus), Bourke Street Public School and Gardeners Road Public School.<sup>3</sup>

Alexandria Park Community School is an R to 12 school across two campuses. The main primary school campus is on the corner of Park Road and Power Avenue and the secondary school campus is on Mitchell Road, Alexandria.

TABLE 10. PRIMARY & SECONDARY SCHOOLS IN THE GREEN SQUARE ENROLMENT CATCHMENT AREA

No.	School name	Address
<b>Primary school</b>		
1	Alexandria Park Community School	Park Road, Alexandria (primary school campus)
2	Bourke Street Public School	590 Bourke Street, Surry Hills
3	Gardeners Road Public School	827 Botany Rd, Roseberry
<b>Secondary school</b>		
1	Alexandria Park Community School	Mitchell Road, Alexandria

Source: NSW Department of Education and Communities, 2014

<sup>3</sup> Advice provided in an email from Allison Heller, COS, 9 September 2014.

## Secondary Schools

There is one secondary school within the Green Square and City South Village, Alexandria Park Community School. It is a R to 12 school, located at the northern boundary of the Green Square and City South Village.

There is one education facility for Indigenous Adults; the Aboriginal Education Council located at Alexandria Park Community Centre, Corner of Park Rd and Power Ave. The Aboriginal Education Council offers educational scholarships for Aboriginal students who have fallen outside the net of any other assistance.

## Before and After School Care

Before and after school care services are provided at Gardeners Road Public School. The SMOOSH program can cater for 60 children after school finishes and 45 children in before school commences.

TABLE 11. BEFORE AND AFTER SCHOOL CARE CENTRES IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT

No.	Name	Address	Description	Capacity
1	SMOOSH Before, After, Vacation Care	Cnr Gardeners & Botany Rd, Rosebery	Gardeners Road Public School. Provides out of school hours care and vacation care for primary school aged children.	60 places after school, 45 in the morning.

Source: NSW Department of Education and Communities, 2014

## Day care

There are nine day care centres located in the Green Square and City South Village, each with varying capacity levels and age groups that they cater for. Most are located within the suburb of Rosebery. This high number of centres may be attributed to people who don't live in the area but work in the city and hence use these day care facilities for ease of drop off and pick up.

TABLE 12. DAY CARE CENTRES IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT

No.	Name	Address	Description	Capacity
1	Angels of the Bay	34-36 Dalmeny Ave, Rosebery	Pre-School for children aged 2 and above	59
2	Froebel - Alexandria	Suite 7105/177-219 Mitchell Rd, Alexandria	Long Day Care for children aged 6 weeks to 6 years	44
3	Kimberley Long Day Care	83-93 Dalmeny Ave, Rosebery	Long Day Care for children aged 0-6 years	41
4	Learn and Laugh	Unit 330, 4 Stedman St, Rosebery	Long Day Care 6 weeks to 6 years	41
5	Moore Park Children's Early Learning Centre	319/5 Potter St, Waterloo	Long Day Care for children aged 6 months to 5 years	39
6	Moore Park Early Learning Centre 2	10 Broome St, Waterloo	Long Day Care for children aged 6 months to 5 years	77
7	Rosebery Child Care Centre	1 Harcourt Pde, Rosebery	Long Day Care, for children aged 6 weeks-5 years	40
8	Rosebery Cottage	101 Rothschild Ave, Rosebery	Childcare for children aged 0- 3 years	35
9	Rosebery Cottage Pre-school	103 Rothschild Ave, Rosebery	Pre-School care for children aged 3-5 years	20

Source: NSW Department of Education and Communities, 2014

## **TAFEs**

There are no TAFE campuses within the Green Square and City South Village. As TAFEs are planned on a regional level it is important to factor in facilities located nearby. There are three TAFEs located within a three kilometre radius, being:

- TAFE NSW in Redfern
- TAFE NSW – The Design Centre in Enmore
- Randwick TAFE.

## **Universities**

Universities are also planned on a regional level and such it is necessary to both look within and outside Green Square and City South Village to understand the community access to these facilities. There are no university campuses within the Green Square and City South boundary, however situated close by (within a two kilometre radius) there are three campuses:

- The University of Sydney in Camperdown
- University of Technology in Ultimo
- The University of New South Wales.

## **3.2 Health, Aged Care and Disability Services**

### **Hospitals**

There are no hospitals located within the catchment area. However within a 3km radius there are four hospitals; being

- Royal Prince Alfred Hospital
- St Vincents Hospital
- Bondi Junction Private Hospital
- Prince of Wales Private Hospital.

Green Square and City South village residents could access these facilities.

### **Primary Health Care Centre**

There are five primary health care centres located within Green Square and City South Village. Their capabilities range from general practice to psychology and naturopathy services.

Alpha Health Clinic which is also located within Green Square in Alexandria, provides general, emergency dental as well as other dental procedures.

### **Children's Health Centre**

There is no children's health centre located within Green Square and City South Village. The nearest Early Childhood Health Centre is at 228 Illawarra Rd Marrickville. However, the Life Medical Clinic and Singer Medical Practice list paediatric care in their offered services. Despite this, there are no designated child health professionals located in the Village.

### **Aged Care Facilities**

There are no aged care facilities located within the Green Square and City South Village. There are however the four located close to the Village boundary, being:

- Annie Green Court in Redfern
- Frederic House in Waterloo
- Castellarozian Nursing Home in Kensington
- St Josephs Aged Care Facility for Religious, in Kensington.

TABLE 13. GP MEDICAL CENTRE IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT

Site name	Address	GPS	Specialist Services
Green Square Medical Practice	2/3 Defries Ave Zetland	2 (plus 2 specialists)	General Practice Preventative Health Services Family Health Aged care services Sexual Health Surgical Procedures Counselling
Life Medical Clinic	Shop 162, 822 Bourke St, Waterloo	5 (plus 3 specialists)	General Practice Antenatal Shared Paediatric care Women's Health, Men's Health, Sexual Health Skin checks & minor surgery Mental Health Care Workers Compensation Addiction Pathology
Med West Medical Centre	230 Botany Road, Rosebery	2 (plus 1 allied health professional)	Family Health Immunisations Skin Cancer Checks Workers Compensation Naturopath Services
Singer Medical Practice	242 Gardeners Rd, Rosebery	1	Aged, chronic and complex care Antenatal care, women's health Child health and immunisation Health promotion, nutrition Men's health Mental health, drug and alcohol Pathology, in-house investigation Travel vaccinations Work Cover
Sonic Health Plus Alexandria	Shop 1, 85 O'Riordan Street, Alexandria	Not available (at least 1)	Occupational Health Injury Management Employment Medicals Drug and Alcohol Testing Travel Medicine General Practice Seasonal Vaccination

Source: City of Sydney, 2014, various.

### 3.3 Emergency, Fire and Police Services

#### Ambulance Stations

There are no ambulance stations located in Green Square and City South Village. However three Ambulance station are located within a 5km radius, being:

- Paddington Ambulance Station
- Mascot Ambulance Station
- St John Ambulance Glebe Division.

#### Fire Services

There is one fire rescue station located in Green Square and City South Village, located in the suburb of Alexandria. Redfern Fire Station is also located close by.



TABLE 14. FIRE RESCUE STATIONS IN GREEN SQUARE AND CITY SOUTH VILLAGE CATCHMENT

Site name	Address
Alexandria Fire Station	189 Wyndham St, Alexandria

### Police Services

There are no police stations in Green Square and City South Village, however there are eight within a five kilometre radius, being:

- Marrickville Police Station
- Newtown Police Station
- Leichhardt Police Station
- Surry Hills Police Station
- Paddington Police Station
- Waverley Police Station
- Randwick Police Station
- Mascot Police Station.

### Other Social Infrastructure

Other community facilities located in the Green Square and City South Village are:

- Three Aquatic and Recreation Facilities
- Six community centres (including one youth centre)
- One library (The Green Square Library and Customer Service Centre).

## 4 SOCIAL INFRASTRUCTURE FUTURE DEMAND

This section outlines how the projected population changes between 2011 and 2031 will impact demand for the specified priority social infrastructure services and facilities, and suggests future provision requirements. It will also include information on the need for specialist services based on demographic information.

The following table provides the benchmarks of social infrastructure provision based on population levels identified in the Stage 1 report. These benchmarks will be used so as to estimate the number of facilities required in the present (2011), short term (2016), medium (2021) and longer term (2031) timeframes.

TABLE 15. SERVICE PROVISION NEEDS AND BENCHMARKS

Service or Facility Type	Benchmark.
Primary Schools	1 primary school caters for around 500 students.
Secondary Schools	1 government high school caters for up to 1200 students
Before and After School care	1 place for every 25 children aged 5-12 years.
Childcare	As in separate Child Care Needs Analysis Report 2013
TAFE	1 TAFE to cater for a population of 300,000 – 500,000
University	1 university for every 150,000 people
Hospitals	2.3 beds per 1,000 people.
Primary Health Care Centre (including mental health)	1 new primary care centre per 50,000 people.
GP Medical Centres	1 GP per 4,000 people
Children's Health Services	1 early childhood nurse per 2,000 children
Aged Care	88 places per 1000 people 70+.
Ambulance Services	1 ambulance station per 105,000 people
Fire Services	1 fire station for every 60,000 people
Police	1 police station for every 108,000 people

## 4.1 Education

### Primary Schools

The benchmark for primary schools is to provide one school per 500 students. Making the assumption that every child in the Green Square and City South Village will attend a public primary school within the village boundary, it is possible to suggest that the Village will require at least one new school by 2016 and up to four new schools by 2031.

However in reality there will be some children that attend other public and indeed private schools. Children from other villages may also attend public schools in this village.

Further analysis is therefore required to understand the need for future schools in this village.

TABLE 16. DEMAND PROJECTIONS PRIMARY SCHOOLS 2011- 2031

Year	2011	2016	2021	2031
Population Ages 5-11	775	1186	1187	2680
Infrastructure benchmark	1: 500	1: 500	1: 500	1: 500
Primary Schools required	1.55	2.37	2.37	5.36
<b>Adjusted based on current provision*</b>	<b>1.05</b>	<b>1.87</b>	<b>1.87</b>	<b>4.86</b>

Source: SGS Economics and Planning

The current enrolments (264) of Gardeners Road primary school is smaller than the benchmark capacity of 500 students, resulting in a lower starting capacity than one full school. Gardeners Road primary school is therefore represented as 0.5 schools.

Analysis undertaken by the Department of Education and Communities indicates there is a current utilisation rate of 68 per cent within the three primary schools in the Green Square catchment area: Alexandria Park Community School (primary school campus), Bourke Street Public School and Gardeners Road Public School.

It has advised the City that it has the capacity within existing school sites to accommodate projected increases in student enrolments for at least the next 10 to 12 years, including through expansion of those premises. The Department's enrolment projections for primary and secondary schools in the catchment are based on a number of data sources, including data provided by the City of Sydney.<sup>4</sup>

### Secondary Schools

There is one secondary school in this area – the Alexandria Park Community School. This is a dual campus, partially selective, co-educational Kindergarten to Year 12 School. The total capacity of the secondary component of Alexandria Park Community School is between 320 and 370 students, according to the Department of Education and Communities. This capacity is not fully taken-up through present enrolments.

Using the benchmark of one government secondary school catering for up to 1200 students, it is possible to suggest that the Green Square City South Village Group may require one secondary school by 2031. However an expansion of Alexandria Park Community School, which is within the catchment area, may enable this school to continue to service demand into the future. A regional assessment is required to fully understand the need of school provision in the future for this area.

<sup>4</sup> Advice provided in an email from Allison Heller, COS, 9 September 2014.

TABLE 17. DEMAND PROJECTIONS SECONDARY SCHOOLS 2011- 2031

Year	2011	2016	2021	2031
Population Ages 12-17	536	803	1109	1748
Infrastructure benchmark	1: 1200	1: 1200	1: 1200	1: 1200
<b>Secondary Schools required *</b>	<b>0.44</b>	<b>0.67</b>	<b>0.92</b>	<b>1.45</b>

Source: SGS Economics and Planning

It is noted that this has not been adjusted to account for the current secondary school capacity of Alexandria Park Community School. Further clarification is being sought from the Department of Education and Communities as to the precise capacity of this school and current enrolment demand.

### Before and After School Care

Currently, there is one before and after school care facility in Green Square and City South Village with provision for 45 children (in the morning). The benchmark for before and after care is 1 place for every 25 child aged 5-12 years. Using a capacity number of 45 children for each before and after school care, by 2031 there may be a need to accommodate 1-2 more before and after school care facilities. Note that the below population figures are for school aged people which include children aged 5-11. Provision of before and after school care places will also need to be linked to the provision of additional primary schools.

TABLE 18. DEMAND PROJECTIONS BEFORE AND AFTER CARE 2011- 2031

Year	2011	2016	2021	2031
Population Ages 5-11	775	1186	1187	2680
Infrastructure benchmark	1:25	1:25	1:25	1:25
Places required	31	47.44	47.48	107.2
<b>Adjusted places required based on current provision</b>	<b>-14</b>	<b>2.44</b>	<b>2.48</b>	<b>62.2</b>

Source: SGS Economics and Planning

### Day Care

There are nine day care centres located in Green Square City South Village with a total capacity of 396. The average capacity of day care centres is 44.

In 2013 the COS funded the preparation of a comprehensive analysis of current and future child care and early education need for children aged 0 to 5 years in the COS. This study identified a current and projected gap between child care supply and demand in the Green Square & City South area as follows:

- 353 places in 2013
- 617 places in 2016
- 1079 places in 2021; and
- 1440 places in 2031<sup>5</sup>.

These figures take into account the demand for child care resulting from workers in the City of Sydney area, as well as residents. The City of Sydney Child Care Needs Analysis 2013 used as a benchmark one child care place for every two resident children aged 0-5 years, based on a set of assumptions, including utilisation rates. The Needs Analysis also applied a workforce benchmark of one place per 195 workers in the CBD, and one place per 75 workers in other Village Groups.

<sup>5</sup> City of Sydney Child Care Needs Analysis, 2013

## TAFEs

The benchmark for TAFEs is to provide one TAFE per 300,000 to 500,000 people. Even using the higher provision rate of one TAFE per 300,000 people, it is possible to conclude that there is no projected demand for a TAFE campus within Green Square and City Switch Village. There are three TAFEs within a five kilometre radius of the Village, being:

- TAFE NSW in Redfern
- TAFE NSW – The Design Centre in Enmore
- Randwick TAFE.

TAFEs are planned on a regional level, making it important to consult with state and regional authorities when considering the need for additional campuses on a regional scale.

TABLE 19. DEMAND PROJECTIONS TAFES 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	1:300,000	1:300,000	1:300,000	1:300,000
<b>New TAFEs required</b>	<b>0.06</b>	<b>0.10</b>	<b>0.13</b>	<b>0.18</b>

Source: SGS Economics and Planning

## Universities

There are no university campuses within Green Square and City South Village, however there are three situated quite close (within a 2km radius) of the village boundary, being:

- The University of Sydney in Camperdown
- University of Technology in Ultimo
- The University of New South Wales.

Using the benchmark of providing one university for every 150,000 people, there is a no demand on a local level for an added campus. Like TAFEs, Universities are planned on a regional level and even state level. It is important to consult with key state and regional bodies on the provision of new campuses on a regional scale.

TABLE 20. DEMAND PROJECTIONS UNIVERSITIES 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	150,000	150,000	150,000	150,000
<b>New university campus required</b>	<b>0.13</b>	<b>0.20</b>	<b>0.27</b>	<b>0.36</b>

Source: SGS Economics and Planning

## 4.2 Health, Aged Care and Disability Services

### Hospitals

Although hospitals are regional and state-wide infrastructure, it is important to understand the impact that large increases in population will have on the availability of beds to residents on a smaller scale. Using the benchmark of 2.3 beds per 1000 people, it is likely that by 2031 an additional 124 beds will be required by the Green Square and City South Village population. It is important to note that the Green Square and City South village has been projected to experience a large increase in the elderly population. This may increase the number of beds that is required by this area.



TABLE 21. DEMAND PROJECTIONS HOSPITAL BEDS 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	2.3:1000	2.3:1000	2.3:1000	2.3:1000
<b>Beds required</b>	<b>46.23</b>	<b>70.14</b>	<b>94.55</b>	<b>124.59</b>

Source: SGS Economics and Planning

### Primary Health Care Centres

There are five primary health care centres already located within Green Square and City South Village. Using the benchmark of 1 new centre per 50,000 of the population, the Village will not require any additional centres through to 2031. It is important to note that due to the inner city location of Green Square, primary health care centres may be utilised by people who work nearby. This may increase demand significantly and would explain the high number of health care centres already present in the village.

TABLE 22. DEMAND PROJECTIONS PRIMARY HEALTH CARE CENTRES 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	1: 50,000	1: 50,000	1: 50,000	1: 50,000
Centres required	0.40	0.60	0.82	1.08
<b>Adjusted centres required based on current provision</b>	<b>-4.6</b>	<b>-4.4</b>	<b>-4.18</b>	<b>-3.92</b>

Source: SGS Economics and Planning

The other benchmark available to measure the demand for health care is the ratio of general practitioners per person, which is one GP per 4000 people. There are at least 11 GPs located within the Green Square and City South Village. Using the above benchmark, there may be demand for an additional two GPs by 2031. These GPs can likely be accommodated in existing facilities.

TABLE 23. DEMAND PROJECTIONS PRIMARY HEALTH CARE CENTRE 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	1: 4000	1: 4000	1: 4000	1: 4000
GPs required	5.02	7.62	10.27	13.54
<b>Adjusted GPs required based on current provision</b>	<b>-5.98</b>	<b>-3.38</b>	<b>-0.73</b>	<b>2.5</b>

Source: SGS Economics and Planning

### Children's Health Centre

There are no child health care centres located in Green Square City South Village. Using the benchmark of providing one early childhood nurse per 2,000 children, there is already demand in 2011 for one child health nurse. This increases to three by 2031. It is important to note that two health care centres within Green Square City South Village list paediatric care in their service offer. This may be satisfying demand at present. However, given the levels of population growth expected for children, further research is required to understand the level of demand for a standalone service.

TABLE 24. DEMAND PROJECTIONS CHILD HEALTH CARE CENTRE 2011- 2031

Year	2011	2016	2021	2031
Population Ages 0-17	2261	3643	5391	7349
Infrastructure benchmark	1: 2000	1: 2000	1: 2000	1: 2000
<b>Child health nurses required</b>	<b>1.13</b>	<b>1.82</b>	<b>2.69</b>	<b>3.67</b>

Source: SGS Economics and Planning

### Aged Care Facilities

There are no aged care facilities within Green Square and City Switch Village however there are four within a five kilometre radius; being:

- Annie Green Court in Redfern
- Frederic House in Waterloo
- Castellorizian Nursing Home in Kensington
- St Josephs Aged Care Facility for Religious, in Kensington

Using the benchmark of 88 aged care places per 1000 people over 70+, there will be a need for 257 extra beds for City Switch and Green Square residents by 2031. It is possible that the existing facilities could accommodate some of this. However with the large projected growth of people over 70 in Green Square and City South, there may be demand for another facility located within the village.

TABLE 25. DEMAND PROJECTIONS AGED CARE FACILITIES 2011- 2031

Year	2011	2016	2021	2031
Population Ages 70+	702	1115	1753	2926
Infrastructure benchmark	88: 1000	88: 1000	88: 1000	88: 1000
<b>Places in Aged Care required</b>	<b>61.77</b>	<b>98.12</b>	<b>154.26</b>	<b>257.48</b>

Source: SGS Economics and Planning

## 4.3 Emergency, Fire and Police Services

### Ambulance Station

There are no ambulance stations located within Green Square and City South Village. However there are three within a five kilometre radius, being:

- Paddington Ambulance Station
- Mascot Ambulance Station
- St John Ambulance Glebe Division.

Using the benchmark of delivering one ambulance station per 105,000 people, it is possible to suggest that by 2031, one new ambulance station may be required in Green Square and City South. Planning for ambulance services needs to take into account the needs of visitors and workers as well as residents.

TABLE 26. DEMAND PROJECTIONS AMBULANCE STATIONS 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	1:105,000	1:105,000	1:105,000	1:105,000
<b>New Ambulance Stations required</b>	<b>0.2</b>	<b>0.3</b>	<b>0.4</b>	<b>0.5</b>

Source: SGS Economics and Planning

### Fire Services

One fire station is located within Green Square and City South Village in the suburb of Alexandria. The current benchmark for fire stations is one facility per for every 60,000 people. Using this benchmark, by 2031, there will still be adequate provision of fire services for Green Square and City South Village. Planning for fire services needs to take into account the needs of visitors and workers as well as residents.

TABLE 27. DEMAND PROJECTIONS FIRE STATIONS 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	1:60,000	1:60,000	1:60,000	1:60,000
New fire stations required	0.33	0.50	0.68	0.90
<b>Adjusted due to current provisions</b>	<b>-0.67</b>	<b>-0.5</b>	<b>-0.32</b>	<b>-0.1</b>

Source: SGS Economics and Planning

### Police Services

There is no police station within the Green Square and City South Village, however there are eight within a five kilometre radius of the area; being:

- Marrickville Police Station
- Newtown Police Station
- Leichhardt Police Station
- Surry Hills Police Station
- Paddington Police Station
- Waverley Police Station
- Randwick Police Station
- Mascot Police Station.

Using the current benchmark of one police station for every 108,000 people, no new police stations will be required even at 2031. Planning for police services needs to take into account the needs of visitors and workers as well as residents.

TABLE 28. DEMAND PROJECTIONS POLICE STATIONS 2011- 2031

Year	2011	2016	2021	2031
Total Population	20,103	30,499	41,113	54,172
Infrastructure benchmark	1:108,000	1:108,000	1:108,000	1:108,000
<b>New police stations required</b>	<b>0.2</b>	<b>0.3</b>	<b>0.4</b>	<b>0.5</b>

Source: SGS Economics and Planning

## 5 CONCLUSION

This report has recommended future requirements for facilities based on both the population projections and current social infrastructure present in Green Square City South Village. It is important to note that these suggestions are based on the population projections likely for Green Square. They therefore do not incorporate future population growth outside the Village which may put added pressure on social infrastructure if not catered for elsewhere. For regionally significant facilities, further analysis is required to understand the demand across wider geographical locations to ensure new social infrastructure is placed in the best location.

The table below summarises the suggestions for each social infrastructure type.

TABLE 29. RECOMMENDATIONS FOR FUTURE PROVISION OF SOCIAL INFRASTRUCTURE

Service or Facility	Benchmark	Future Provision Requirements
Primary Schools	1 primary school cater for around 500 students.	The benchmark for primary schools is to provide one school per 500 students. Making the assumption that every child in the Green Square and City South Village will attend a public primary school within the village boundary, it is suggested that the Village will require at least one new school by 2016 and four new schools by 2031. The Department of Education and Communities has, however, advised the City that it has the capacity within existing buildings to accommodate projected increases in primary school student enrolments for at least the next 10 to 12 years.
Secondary Schools	1 government high schools catering for up to 1200 students	There is currently one secondary school in this area, with capacity of between 320 and 370 students– Alexandria Park Community School. Using the benchmark of one government high school catering for up to 1200 students, it is suggested that the Green Square City South Village may require one additional secondary school by 2031, or expanded capacity within the existing secondary school within the catchment.
Before and After School care	1 place for every 25 children aged 5-12 years.	Using a capacity number of 45 children for each before and after school care, by 2031 there may be a need to accommodate 1-2 more before and after school care facilities. The provision of new before and after school care facilities should be linked to provision of new primary schools.
Childcare	As in separate Child Care Needs Analysis Report 2013	<p>There are nine day care centres located in Green Square City South Village with a total capacity of 396. The average capacity of these day care centres is 44.</p> <p>A separate study has identified the current and projected gap between child care supply and demand in the Green Square &amp; City South area as follows:</p> <ul style="list-style-type: none"> <li>- 353 places in 2013</li> <li>- 617 places in 2016</li> <li>- 1079 places in 2021; and</li> <li>- 1440 places in 2031<sup>6</sup>.</li> </ul>

<sup>6</sup> City of Sydney Child Care Needs Analysis, 2013

Service or Facility	Benchmark	Future Provision Requirements
TAFE	1 TAFE to cater for a population of 300,000 – 500,000	Even using the low provision rate of one TAFE per 300,000 people, it is possible to conclude that there is no projected demand for a TAFE campus within Green Square and City Switch Village. It is important to consult with key state and regional bodies on the provision of new campuses on a regional scale.
University	1 university for every 150,000 people	Using the benchmark of providing one university for every 150,000 people, there is a no demand on a local level for an added campus. It is important to consult with key Commonwealth, State and regional bodies on the provision of new campuses on a regional scale.
Hospitals	2.3 beds per 1,000 people.	Using the benchmark of 2.3 beds per 1000 people, it is likely that by 2031 an additional 124 beds will be required by the Green Square and City South Village population. The high number of elderly people projected may increase this demand. These additional beds could be provided in an existing hospital or in a new facility.
Primary Health Care Centre (including mental health)	1 new primary care centre per 50,000 people.	Using the benchmark of 1 new centre per 50,000 of the population, the Village will not require any additional centres through to 2031. However it is important to note that due to the inner city location of Green Square, primary health care centres may be utilised by people who work nearby.
GP Medical Centres	1 GP per 4,000 people	Using the benchmark of 1 in 4000 people there may be demand for an additional two GPs by 2031, accommodated in existing Centres.
Children's Health Services	1 early childhood nurse per 2,000 children	Using the benchmark of providing one early childhood nurse per 2,000 children, there is already demand in 2011 for one child health nurse. This increases to three by 2031.
Aged Care	88 places per 1000 people 70+.	Using the benchmark of 88 aged care places per 1000 people over 70+, there will be a need for 257 extra beds for City Switch and Green Square residents by 2031. It is possible that the existing facilities could accommodate some of this. However with the large projected growth of people over 70 in Green Square and City South, there may be demand for another facility located within the village.
Ambulance Services	1 ambulance station per 105,000	Using the benchmark of delivering one ambulance station per 105,000 people, it is possible to suggest that by 2031, one new ambulance station may be required in Green Square and City South.
Fire Services	1 fire station for every 60,000 people	Using the benchmark of one facility per for every 60,000 people, by 2031 there will still be adequate provision of fire services for Green Square and City South Village.
Police	1 police station for every 108,000 people	Using the current benchmark of one police station for every 108,000 people, no new police stations will be required even at 2031.



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