

ATTACHMENT C

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**SOUTHERN EMPLOYMENT LANDS
URBAN DESIGN ANALYSIS**



Sydney2030/Green/Global/Connected



Southern Employment Lands

Urban Design Study

April 2014

city of villages

Introduction

Urban Design Study

Purpose

This urban design report has been prepared to inform planning controls for the City of Sydney's Southern Employment Lands.

This is a summary document that outlines the key urban design issues that have informed the Southern Employment Lands Urban Strategy.

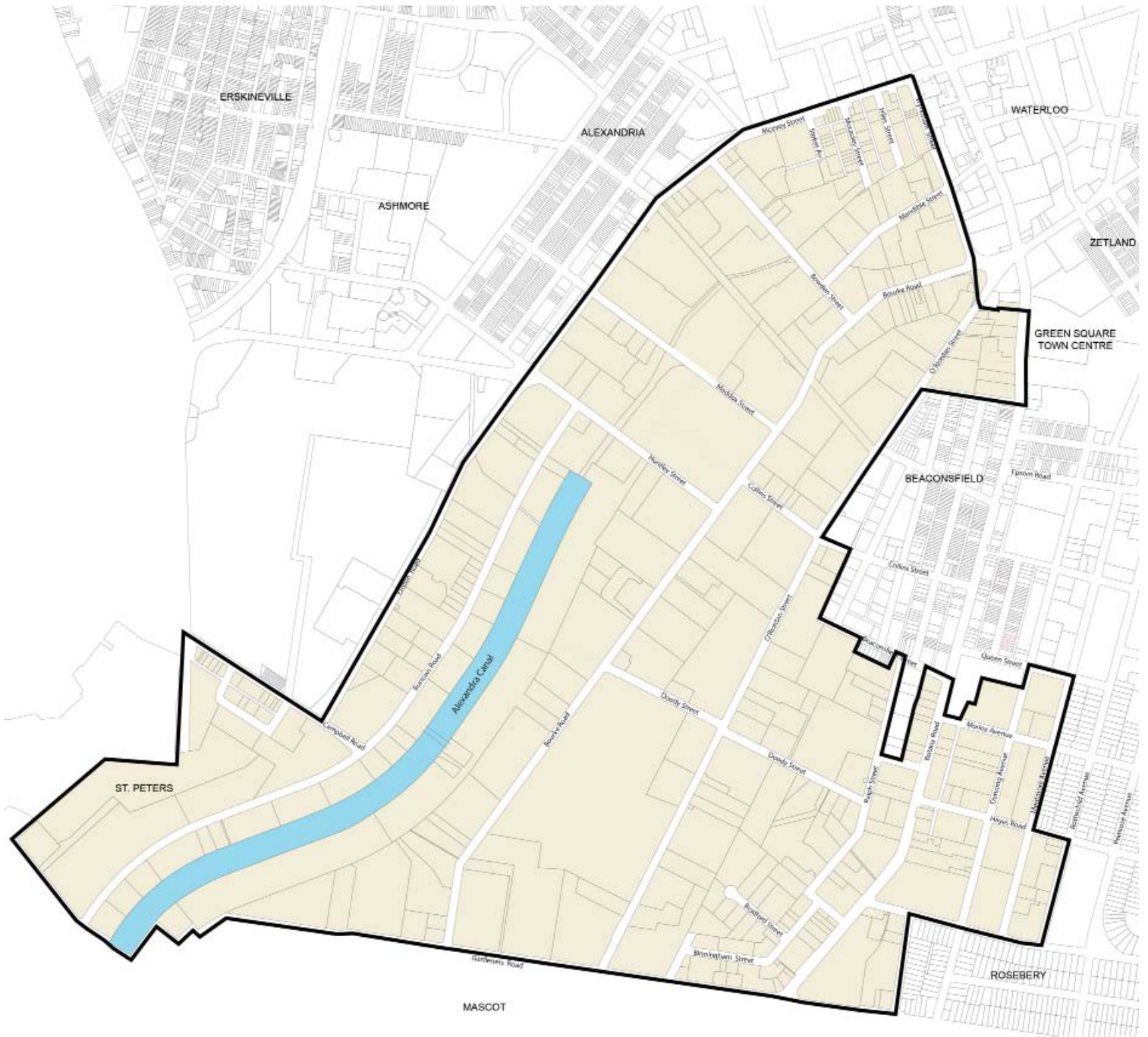


Figure 1 - Study Area

KEY

- STUDY AREA BOUNDARY

Summary

Urban Strategy

The urban strategy for the Southern Employment Lands is to:

- Intensify land use around transport.
- Provide new streets, cycleways, liveable green network connections and through site links to increase permeability and accessibility to support increased land use intensity.
- Provide additional east-west pedestrian and cycle connections to link Rosebery to Sydney Park.
- Build on existing activity hubs and nodes to provide services within the area.
- Identify areas of character to strengthen the different localities within the precinct.
- Provide opportunities to locate creative uses.

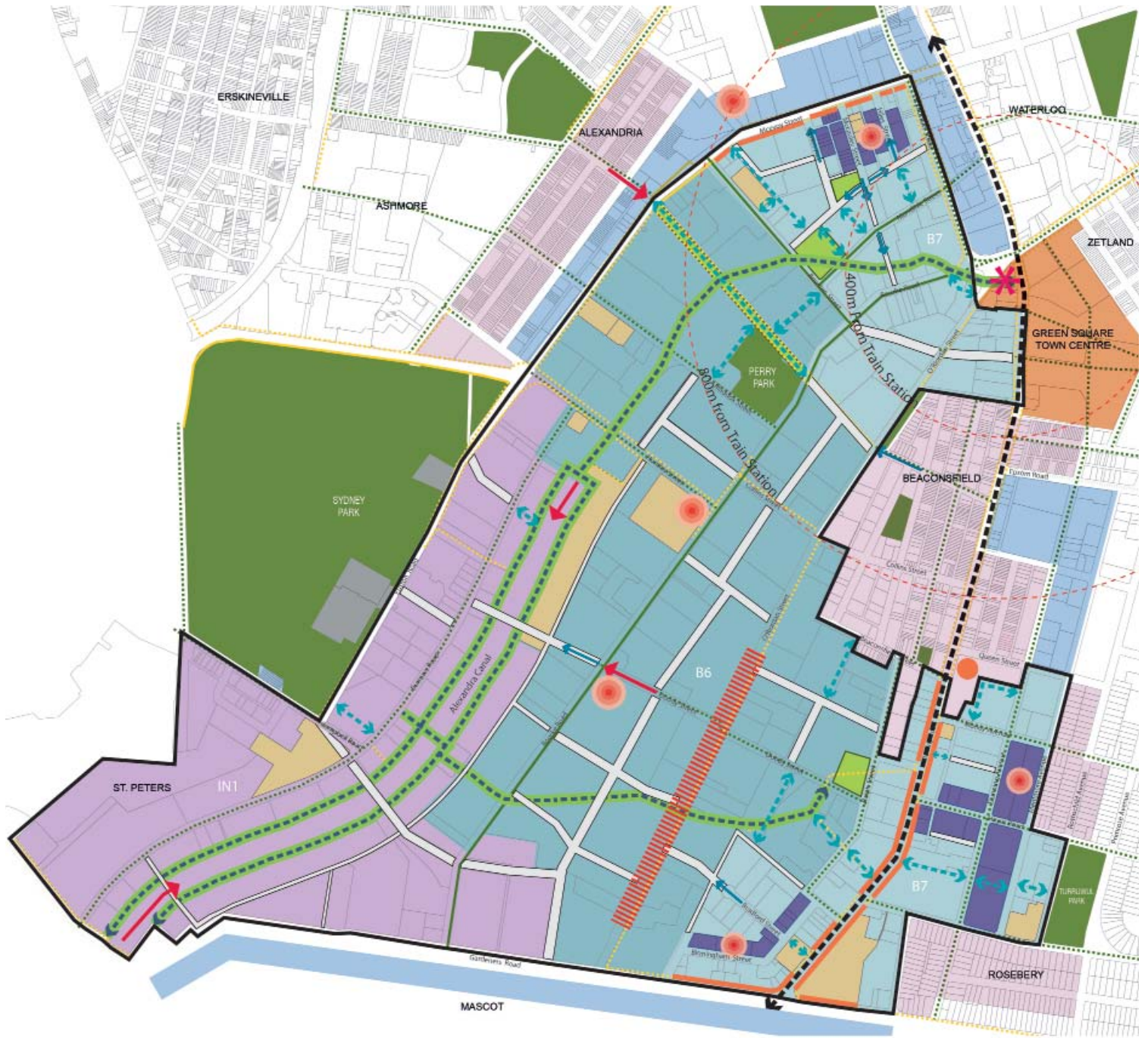


Figure 2 - Urban Strategy

KEY

STUDY AREA BOUNDARY	EXISTING SHARED PATHS	IN1 - GENERAL INDUSTRIAL	ACTIVITY NODES
EXISTING OPEN SPACE	EXISTING SEPARATED CYCLEWAYS	B6 - ENTERPRISE CORRIDOR	ACTIVE EDGES
PROPOSED OPEN SPACE	PROPOSED SHARED PATHS	B7 - BUSINESS PARK	ACTIVITY HUBS
PROPOSED STREETS	PROPOSED SEPARATED CYCLEWAYS	LOCALITY AREAS	NEIGHBOURHOOD CENTRE
LIVEABLE GREEN NETWORK	BULKY GOODS	HERITAGE ITEMS	CONTINUOUS VIEW CORRIDOR
MAIN PUBLIC TRANSPORT CORRIDOR	RESIDENTIAL USES	GREEN SQUARE TRAIN STATION	CONNECTIONS TO EXISTING STREETS
PROPOSED PEDESTRIAN LINKS	MIXED USES	GREEN SQUARE TOWN CENTRE	

Summary

Opportunities and Constraints

- Find opportunities on large consolidated land holdings.
- Manage flood affected land.
- Intensify land use around existing public transport nodes and corridors.
- Provide a finer grain street network.
- Expand the liveable green network and provide additional cycle and pedestrian links.
- Improve amenity for workers in the area.
- Encourage walking and cycling by providing alternative routes and more through site links.
- Respond to existing activity/creative hubs.
- Manage transition between sensitive land uses.
- Respond to identified heritage.
- Encourage the retention and adaptive re-use of existing industrial buildings.
- Co-locate new open spaces with the liveable green network.
- Respond to the existing built form.

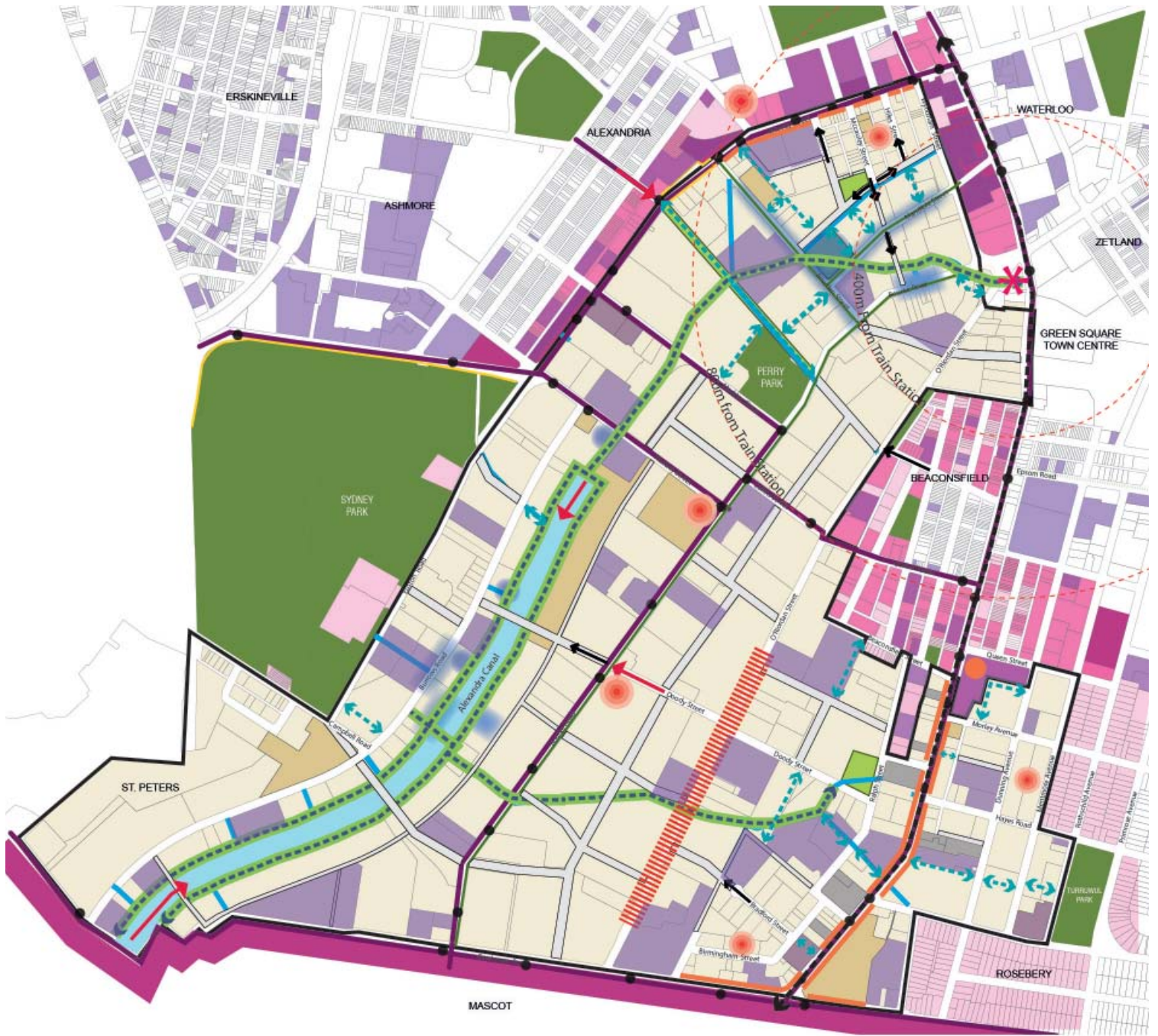


Figure 3 - Opportunities and Constraints

KEY

STUDY AREA BOUNDARY	EXISTING RESIDENTIAL DEVELOPMENT	CONNECTIONS TO EXISTING STREETS	GREEN SQUARE TRAIN STATION
EXISTING OPEN SPACE	PROPOSED STREETS	EXISTING SEPARATED CYCLEWAY	ACTIVITY NODES
PROPOSED OPEN SPACE	CONTINUOUS VIEW CORRIDOR	EXISTING SHARED PATH	NEIGHBOURHOOD CENTRE
BUILDING HEIGHT : 1 STOREY	PROPOSED PEDESTRIAN LINKS	LIVEABLE GREEN NETWORK	ACTIVITY NODES
BUILDING HEIGHT: 2-3 STOREYS	BUS ROUTE	PIPE CENTRELINE	ACTIVE EDGES
BUILDING HEIGHT: 5-10 STOREYS	BUS STOP	PONDING + FLOOD RISK	
HERITAGE ITEM	MAIN PUBLIC TRANSPORT CORRIDOR	STRATA PROPERTIES	

Analysis

Access

Street Network

The Southern Employment Lands has a strong north-south street network that converges north of Green Square train station at a complex five way intersection.

In contrast, east-west connections are widely separated.

There are no accessible connections across Alexandra Canal in the study area. This represents a major limitation for east-west movement through the study area between the Rosebery residential area to the east and Sydney Park to the west.

Botany Road, Bourke Road and O’Riordan Street experience high amounts of traffic, being the main transit corridor between the City and Sydney Airport.

North-south street block dimensions through the centre of the study area are typically between 500m-700m, with Alexandra Canal being 1.65km. East-West street block dimensions are generally 200m-400m, peaking at 530m in the blocks northeast of the Canal.

There are two pockets of land in the north and southeast of the study area where there is a finer street network. These areas are adjacent to residential (and mixed use) precincts north and east of the study area respectively.

Implications

Additional streets will be required to increase the permeability of the study area to support higher intensity uses. Additional streets will also provide frontages for a transition to more intense land use over time.



Alexandra Canal Vehicular Crossing - Gardeners Road



Burrows Road Industrial Area

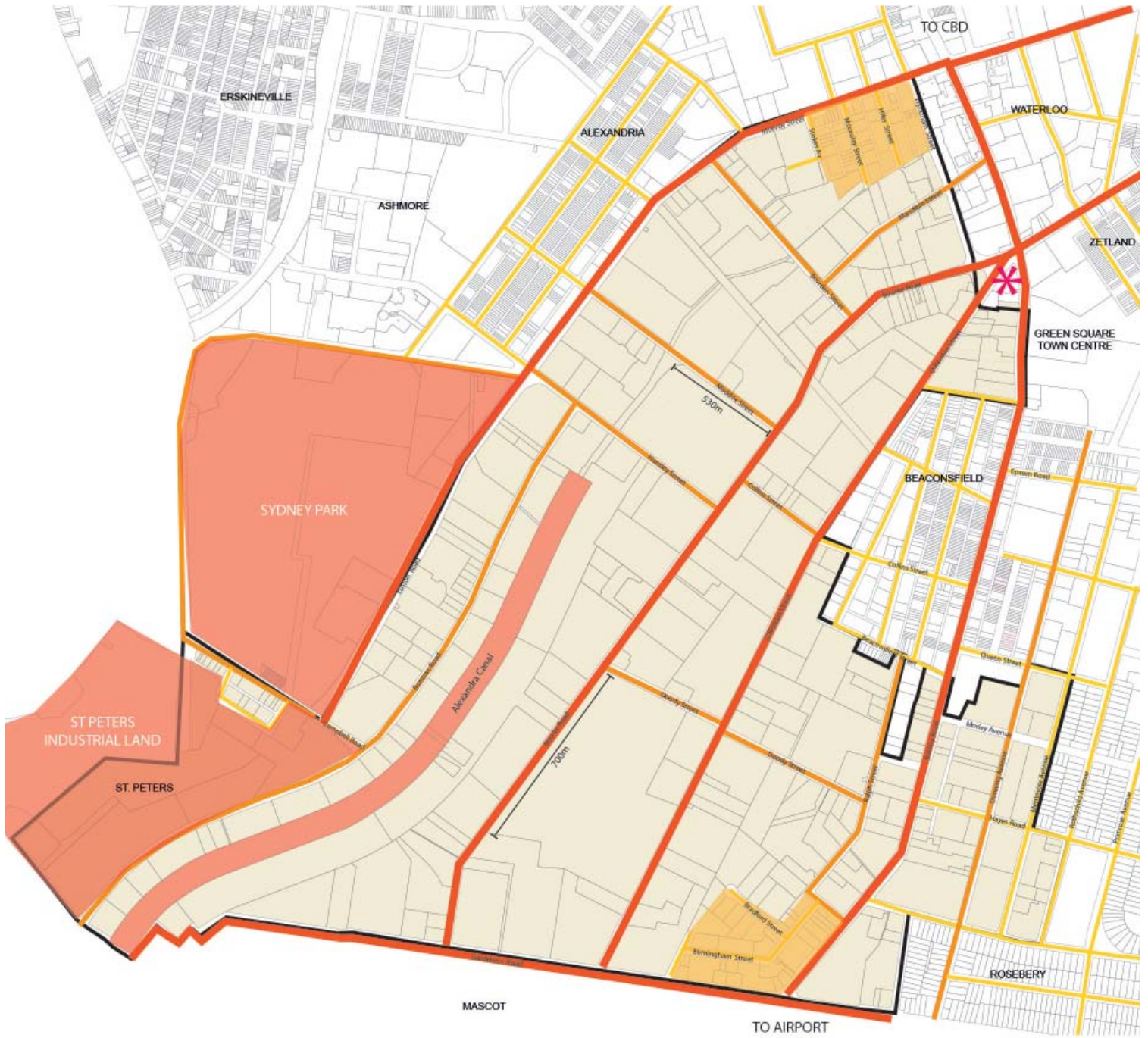


Figure 4 - Street Network

KEY

-  STUDY AREA BOUNDARY
-  EXISTING MAIN STREETS
-  EXISTING SECONDARY STREETS
-  EXISTING LOCAL STREETS
-  MOVEMENT BARRIERS
-  AREAS WITH FINER STREET NETWORK
-  GREEN SQUARE RAILWAY STATION

Analysis

Access

Cycleways

The future network will include separated cycleways on major continuous streets (excluding Botany Road) and shared footpaths elsewhere.

Cycleways are planned on existing streets and is therefore limited by existing east-west permeability constraints. There are existing functional cycleways along Mandible Street and Bourke Road.

Implications

There is potential to investigate additions to the cycle network to strengthen east-west connections. New east-west road should incorporate opportunities for cycling.



Bourke Road Separated Cycleway



Bowden Street Separated Cycleway



Mandible Street Shared Path

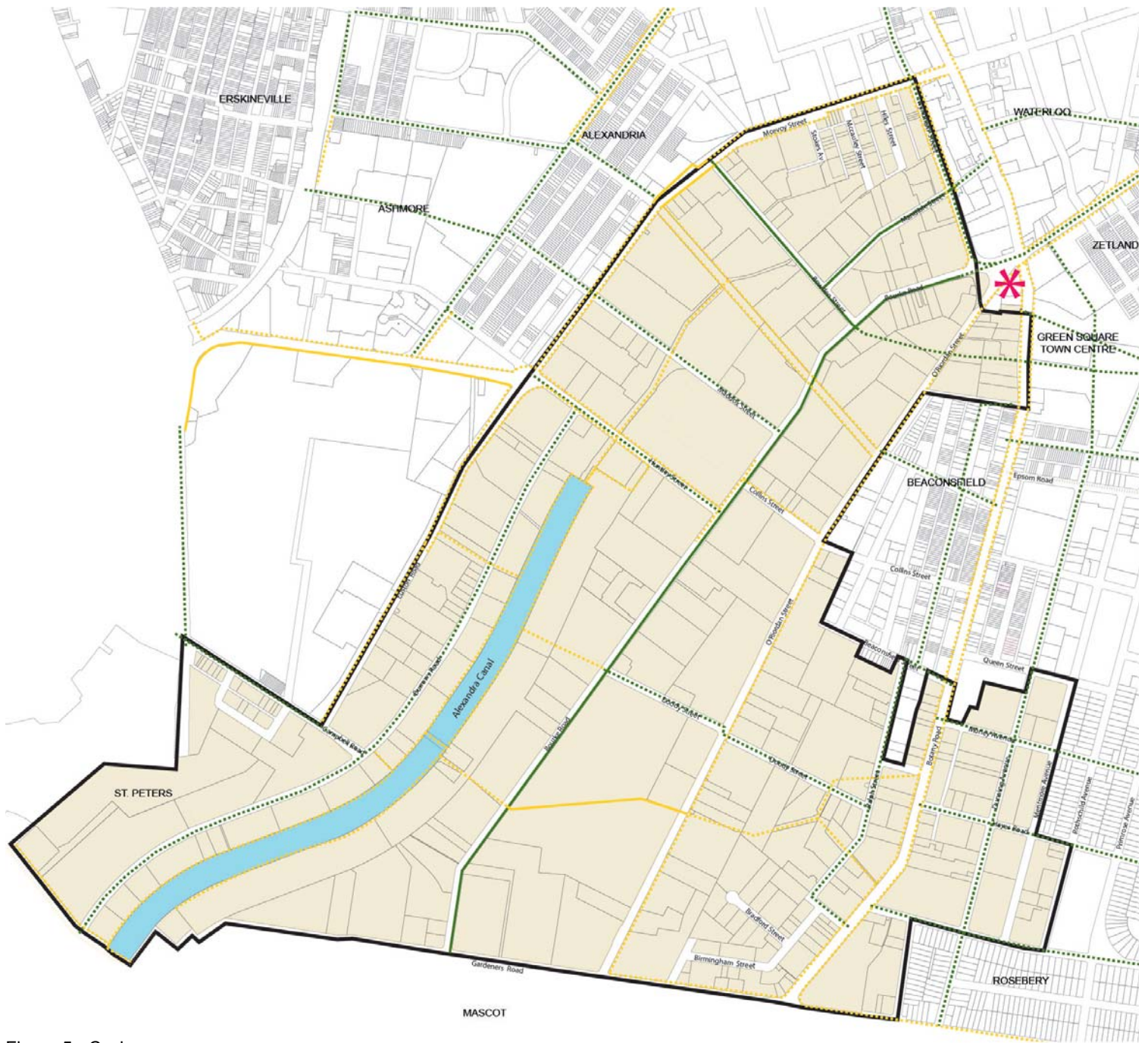


Figure 5 - Cycleways

KEY

-  STUDY AREA BOUNDARY
-  EXISTING SEPARATED CYCLEWAY
-  EXISTING SHARED PATH
-  PROPOSED SEPARATED CYCLEWAY
-  PROPOSED SHARED PATH
-  GREEN SQUARE TRAIN STATION

Analysis

Access

Pedestrian Links

Pedestrian paths are generally limited to the existing street network with few opportunities to pass through the generally large street block pattern.

The City's Liveable Green Network will expand the existing separated cycle and pedestrian network by utilising the storm water infrastructure easements that extend east and north from the Alexandra Canal.

Implications

Additional cycleways and pedestrian links will be required to supplement the existing networks particularly linking transport to centres and open spaces.

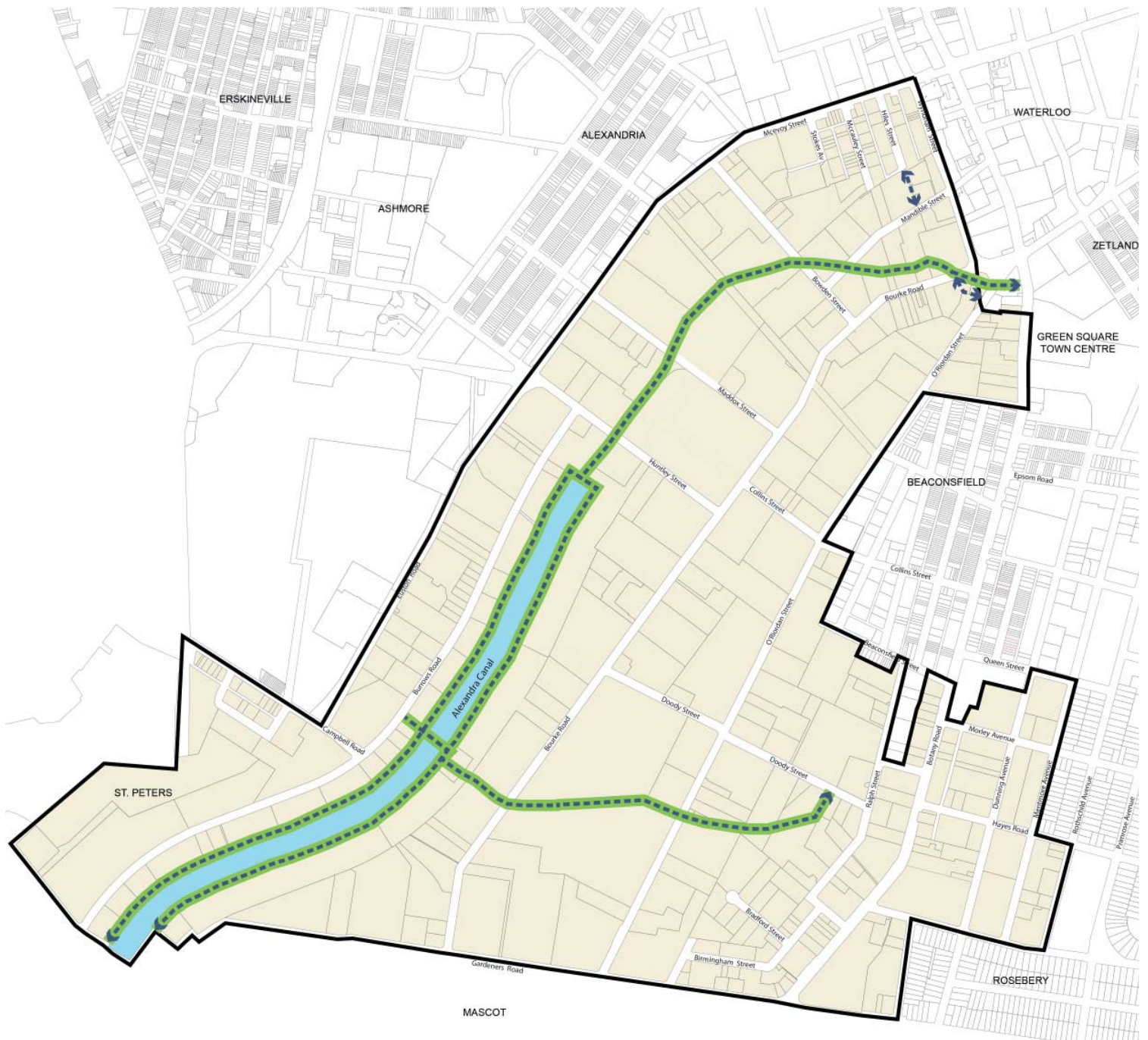





Figure 6 - Pedestrian Links

KEY

-  STUDY AREA BOUNDARY
-  DCP PEDESTRIAN LINKS
-  LIVEABLE GREEN NETWORK

Analysis

Access

Public transport

The eastern, northern and southern fringes of the study area are well serviced by public transport. In contrast the western fringe and the central area of the study have limited public transport options.

Rail

Green Square train station is located on the north-eastern boundary of the study area and Mascot train station is located approximately 300m south of Gardeners Road on Bourke Road.

Bus

There are two moderate-high frequency bus corridors that run along the edges of the study area, including the Botany Road corridor and the Gardeners Road corridor. A number of routes cross into the central and northern parts of the study area, but these routes have relatively low frequencies.

Light rail

The City aims to provide light rail linking Green Square Town Centre to Central Sydney. This link is not anticipated to cross into the study area but will add to the accessibility of the north-eastern extent.

Implications

Additional public transport is needed to service the main body of the study area.

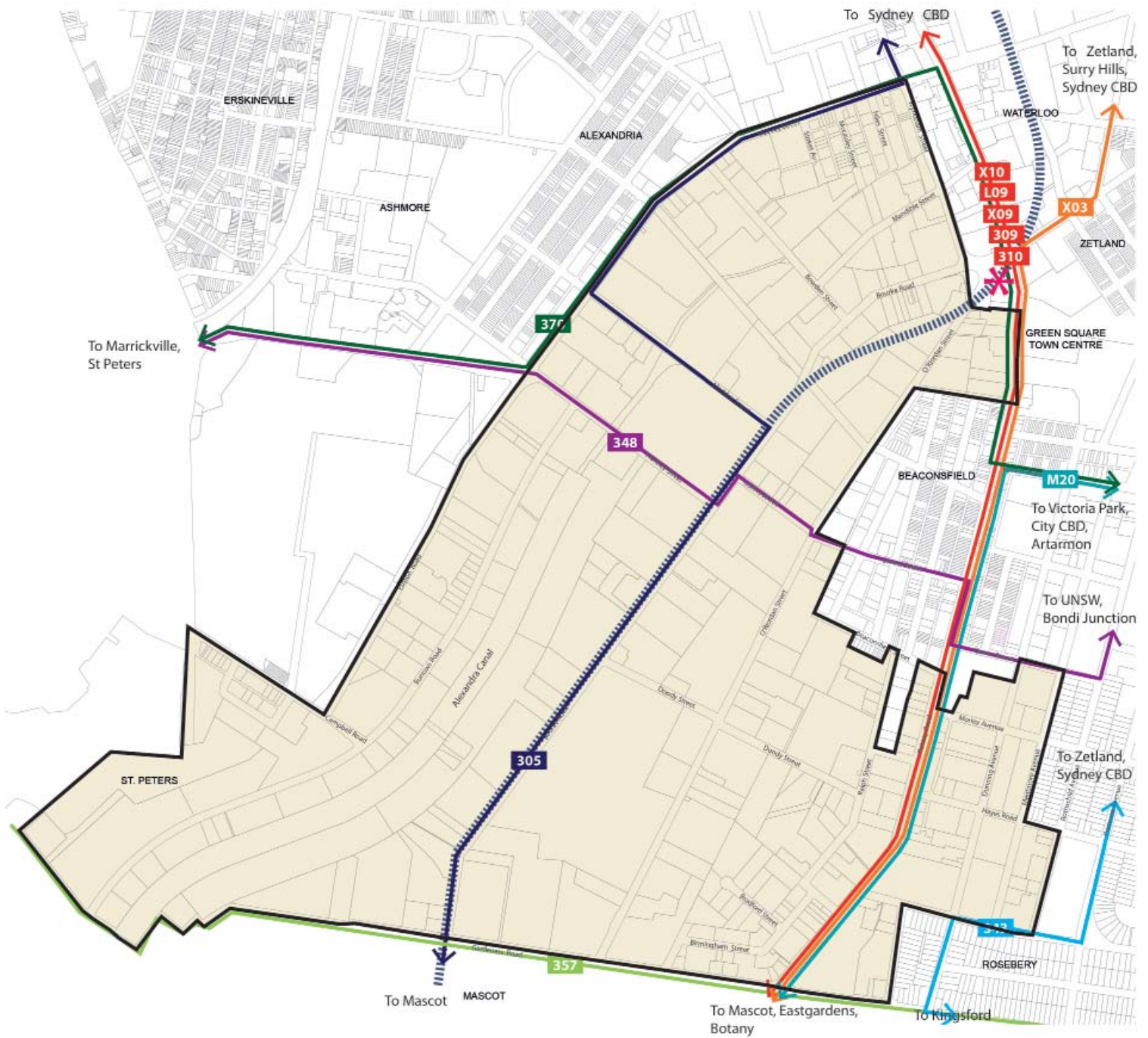


Figure 7 - Public Transport

KEY

STUDY AREA BOUNDARY	310 EASTGARDENS TO CITY	370 COOGEE TO LEICHHARDT
X03 EXPRESS SAN SOUCI TO CITY	M20 BOTANY TO GORE HILL	GREEN SQUARE TRAIN STATION
X10 EASTGARDENS TO CITY	305 MASCOT TO RAILWAY SQUARE	AIRPORT TRAIN LINE (UNDERGROUND)
L09 PORT BOTANY TO REDFERN	348 WOLLRI CREEK TO BONDI JUNCTION	
X09 BANKSMEADOW TO CITY	357 SYDENHAM TO BONDI JUNCTION	
309 PORT BOTANY TO CITY	343 KINGSFORD TO CITY	

Analysis

Topography and Flooding

The study area is predominantly flat with slight falls toward the Alexandra Canal. The land rises up toward the eastern and northern edges of the study area. The edges are the locations of the neighbouring residential precincts of Beaconsfield and Rosebery.

Although the falls across the precinct are generally shallow, many large sites have been levelled which has resulted in construction of some significant retaining walls. Those are predominantly at rear boundaries but in some locations are at side boundaries.

There are some localised but serious flooding issues at the northern end of the study area which are particularly concentrated around the channel that extends north from the Alexandra Canal.

There are also major overland and channelled flows that come into the area from the precincts to the north-east which will be directed along the proposed east-west relief route that extends west from Geddes Avenue in the Green Square Town Centre.

Implications

Additional infrastructure will likely be needed to reduce flood levels in some areas.

Individual DA's will need to address flooding on sites, and respond to Council's Flood Management Policy requirements

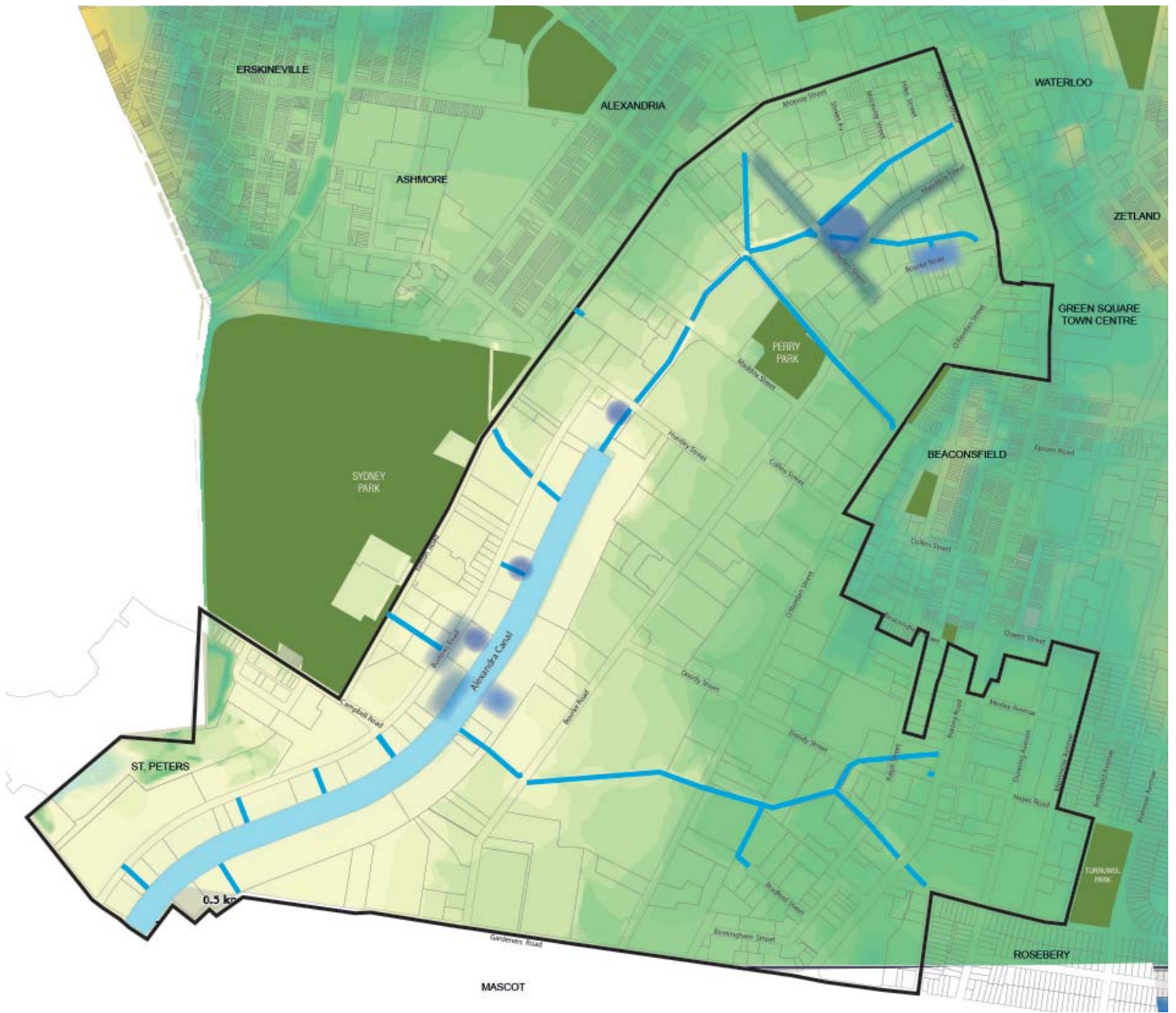







Figure 8 - Topography and Flooding

KEY

-  STUDY AREA BOUNDARY
-  EXISTING OPEN SPACE
-  STORMWATER PIPE CENTRELINE
-  PONDING
-  FLOOD RISK

Analysis

Busy Roads

The study area is traversed and partially bounded by busy roads. There is substantial traffic, including a large number of heavy vehicles movements on Botany Road, O’Riordan Street, McEvoy Street/ Euston Road and Gardeners Road.

Future widening is planned for McEvoy Street/ Euston Road which will create another higher order city ring road between Cleveland Street and Gardeners Road.

Shop top housing is currently permissible at the southern extent of Botany Road towards Gardeners Road, and some residential uses have located there. The ability for residential uses in this location to achieve separation from the busy roads is limited and largely has to be managed through requirements for non-sensitive ground and first floor uses. Design mitigation measures to reduce the impact of air and noise quality are also important.

A major intersection reconfiguration is planned by the State Government for the intersection at Green Square Train Station that will create a H intersection swinging O’Riordan Street west into alignment with Wyndham Street.

There are two major State Government proposals that affect the study area road network:

- there is a road reservation in the southern part of the study area that potentially connects Campbells Road to Gardeners Road as a high order connection. This reservation will be potentially utilised for WestConnex; and
- there is a proposal to create a one-way pair of roads running north-south utilising Bourke Road and O’Riordan Street.

The status of these proposals are not currently available.

There has been a long standing plan to provide bus priority on Botany Road. The implementation timeframe for this initiative is unclear.

Implications

Congestion will increasingly limit vehicular accessibility to the study area. Busy roads create environmental constraints on location of sensitive land uses.

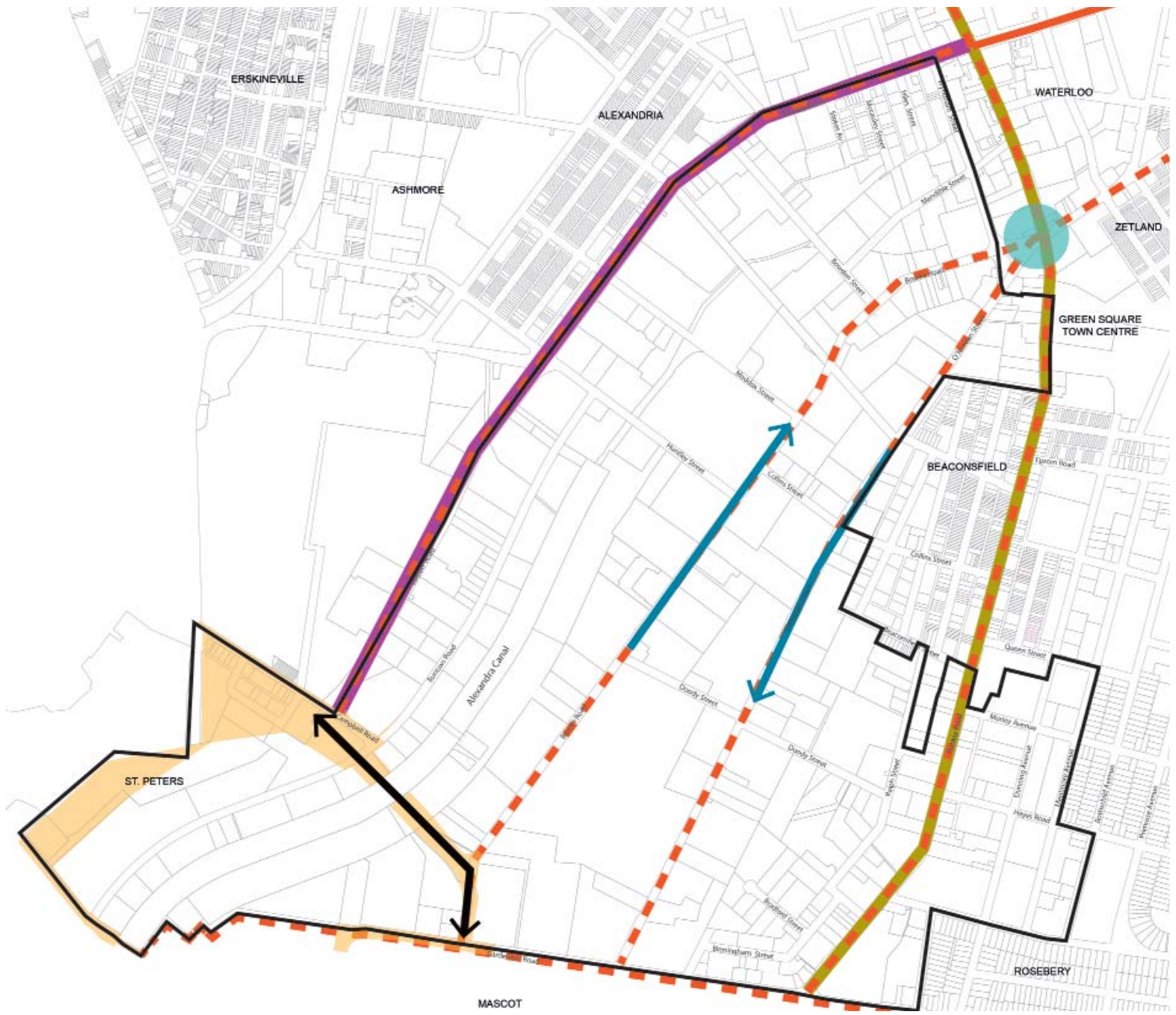


Figure 9 - Busy Roads

KEY

- STUDY AREA BOUNDARY
- PLANNED FUTURE WIDENING - EAST WEST REGIONAL CONNECTION
- INTERSECTION RECONFIGURATION
- ROAD RESERVATION
- BUS PRIORITY ROAD
- TRAFFIC AND HEAVY VEHICLES
- PROPOSED (POTENTIAL) ONE WAY STREETS
- HIGH ORDER CONNECTION FROM CAMPBELL ROAD TO GARDENERS ROAD

Analysis

Built Form

Built Form

The predominant built form in the study area is long span sheds with ancillary office structures on large levelled lots with large concrete areas for vehicular access. There are notable pockets of smaller (relatively) higher site coverage buildings in the north, south-east and west of the study area where the subdivision pattern is finer.

There is a cluster of bulky goods retailing developments on O’Riordan Street extending around the intersection with Doody Street.

There are a small number of purpose built office buildings in the area east of Botany Road. Additionally, some shop-top housing is located on Botany Road.



Corner of Dunning Avenue and Queens Road



Enterprise Corridor



Balaclava Lane



Enterprise Corridor



Hiles Street

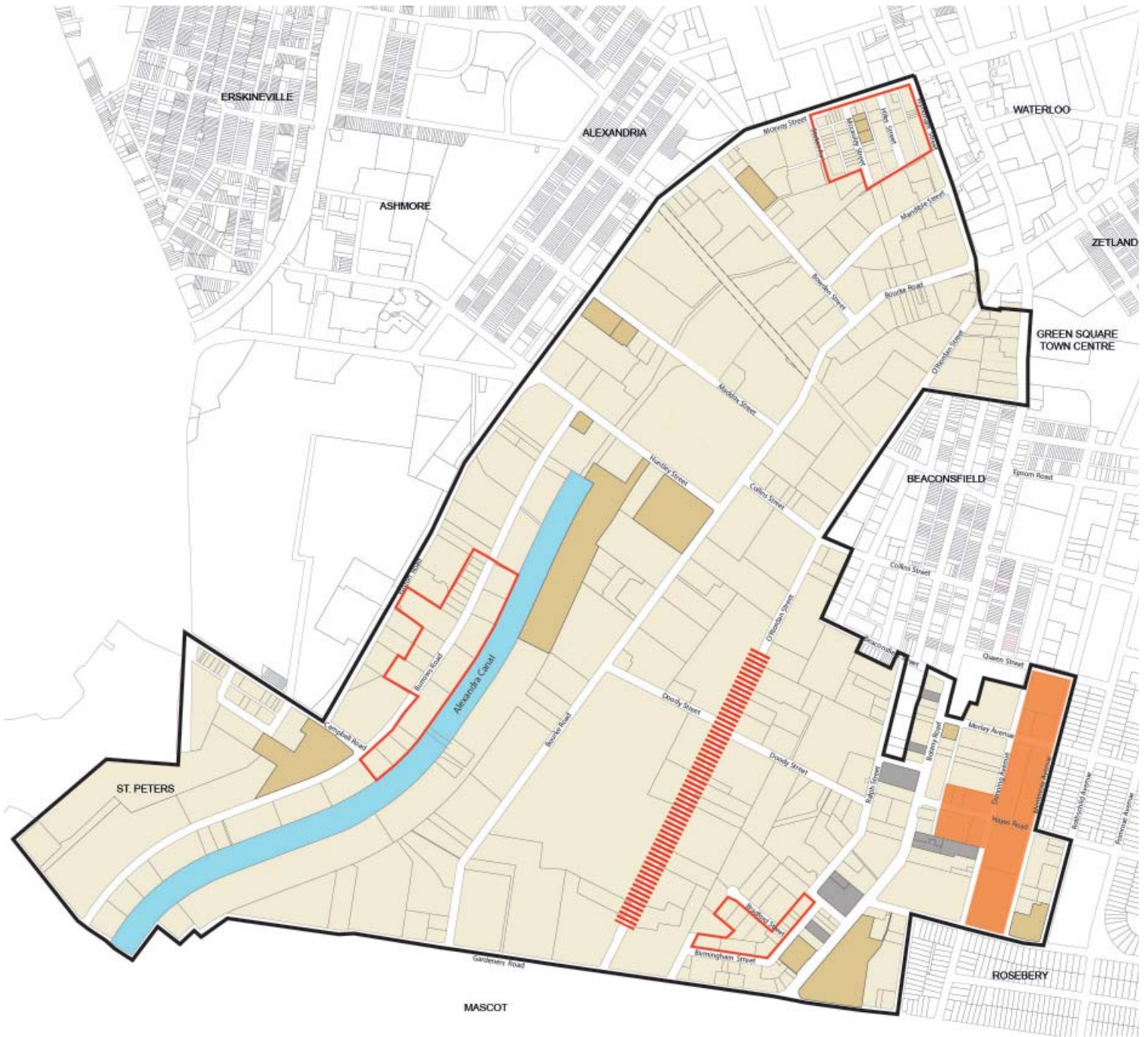


Figure 10 - Built Form

KEY

- STUDY AREA BOUNDARY
- HERITAGE ITEM
- RECENT RESIDENTIAL DEVELOPMENTS
- BULKY GOODS
- SMALLER BUILDINGS
- HIGH QUALITY WAREHOUSES AND PURPOSE BUILT OFFICES

Analysis

Built Form

Strata Development

There is a moderate amount of Strata subdivision in the study area and it takes three predominant forms. Firstly, subdivision of very large sites for a small number of large sheds. Secondly, subdivision of moderately sized sites into large numbers of small industrial units. Finally, a number of residential flat building developments with some commercial/retail ground floor uses are located along Botany Road.



Strata Industrial Units



Strata Units



Strata Units - Botany Road

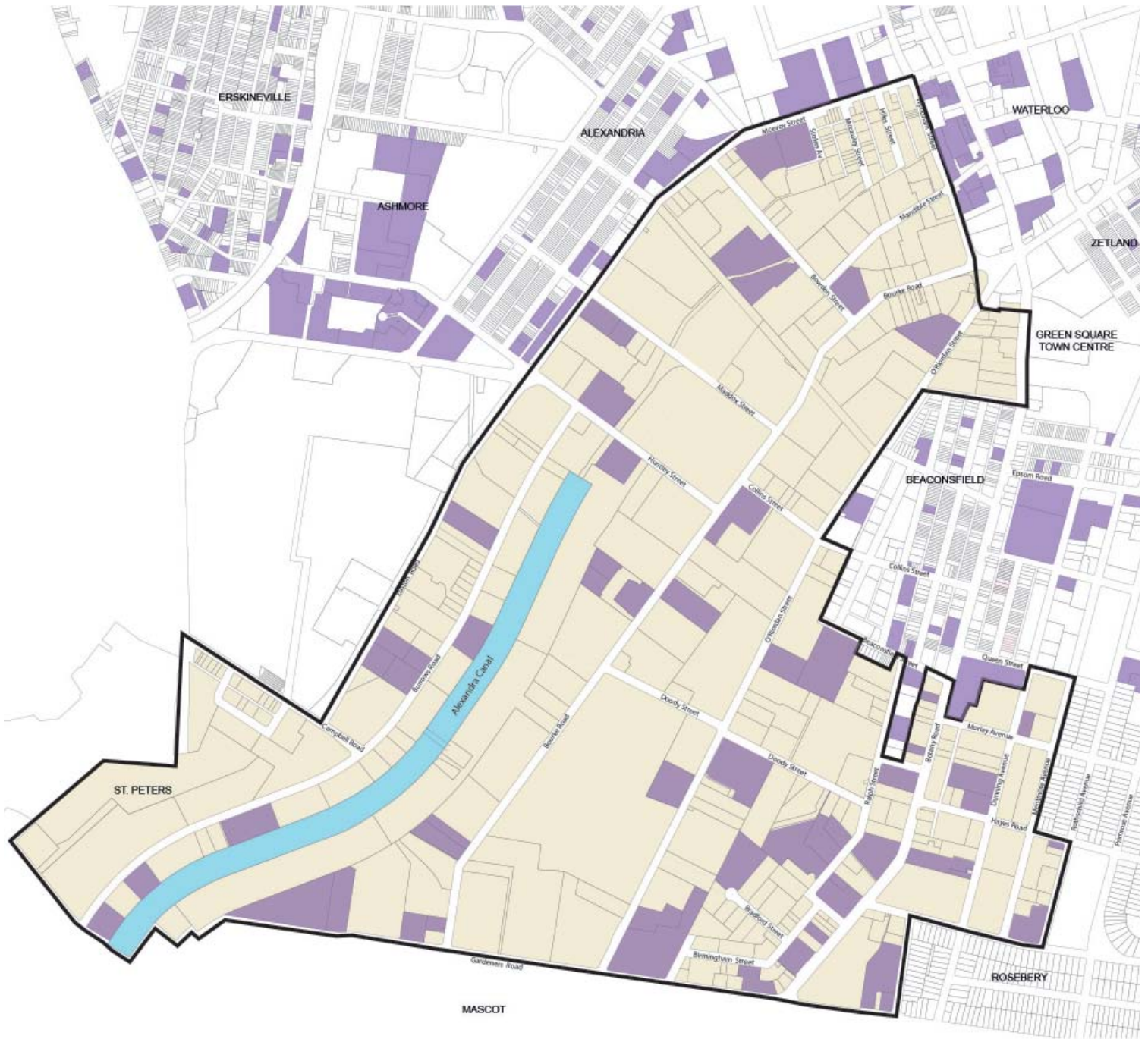




Figure 11 - Strata Development

KEY

-  STUDY AREA BOUNDARY
-  STRATA PROPERTIES

Analysis

Built Form

Special Character

There are three notable pockets of predominantly brick warehouse buildings characterised by moderate quality local brickwork and saw-tooth roofs. The north and south groupings coincide with a fine grain subdivision pattern. The other group is located around Dunning Avenue and includes more extensive buildings.

A defining characteristic of the smaller lot development is very high site coverage development. Most of the developments in these areas have 100% site coverage and a sizable number include partial second storeys. This results in high intensity use, low on-site parking provision and loading within buildings.

The characteristics of the built form alongside the strong historical character of these areas make them well suited for conversion to “creative industry” uses.

The City is undertaking a heritage study for the study area which will inform future heritage provisions.

Implications

Additional work needs to be undertaken to determine detailed controls to respond to the value of these special areas.



Balaclava Lane



The Cannery, Dunning Avenue



Northern Creative Use Area

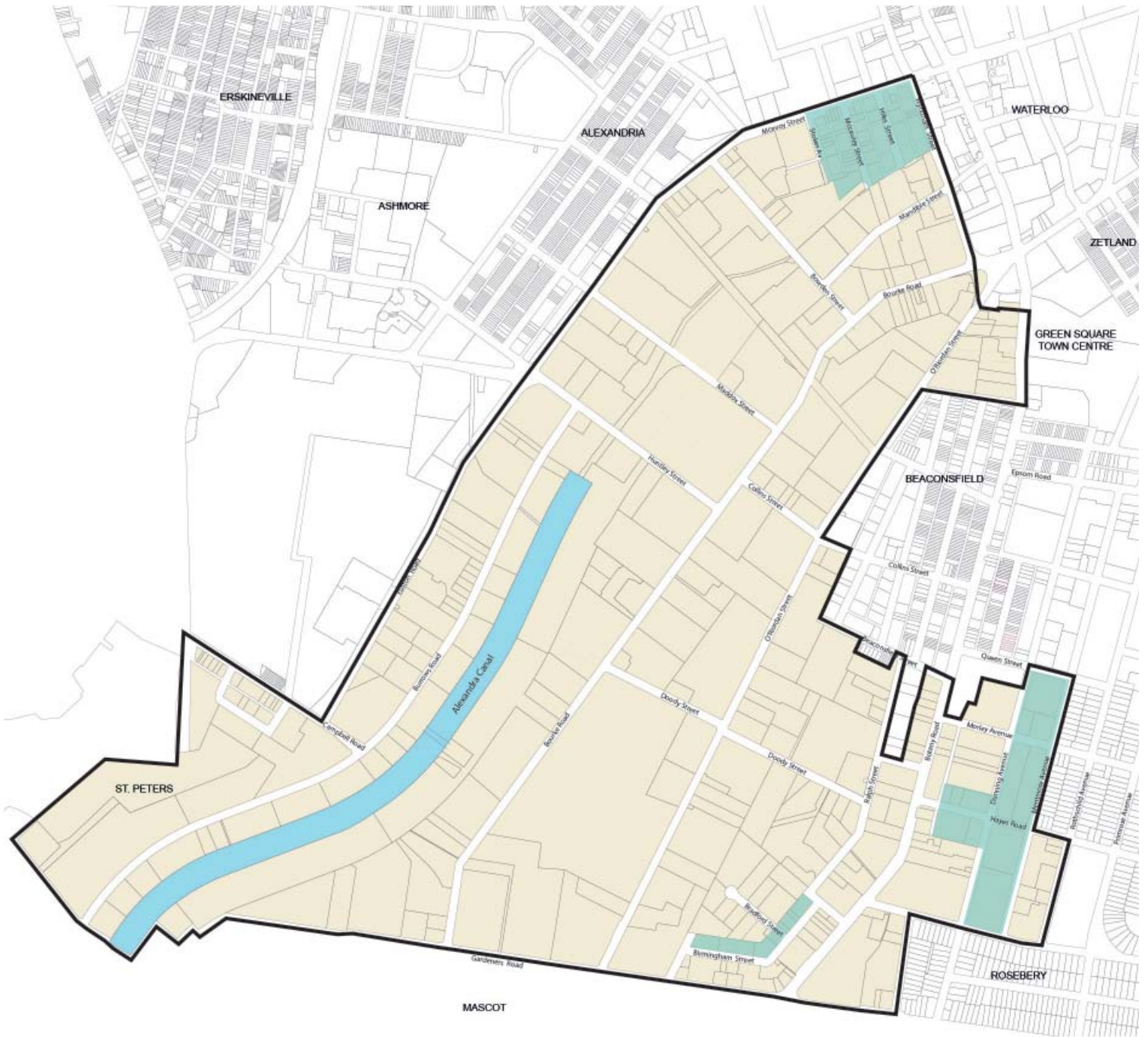




Figure 12 - Special Character

KEY

-  STUDY AREA BOUNDARY
-  SPECIAL CHARACTER AREAS

Analysis

Surrounding Precincts & Uses

The study area is surrounded by precincts of varying existing and future characters:

- South-east** – Rosebery residential special character area of predominantly detached one storey dwellings on large lots.
- Central-east** – Beaconsfield residential neighbourhood containing a mixture of predominantly one and two storey terraces and infill residential flat building developments.
- North-east** – Green Square Town Centre is a mixed use planned major centre with a significant retail offering and tall residential towers up to 28 storeys.
- North and North-west** – industrial precincts going through the final phases of transition to a moderate scale (4-6 storeys) mixed use, predominantly residential area.
- West** – Sydney Park significant scale regional parkland and the expansive St Peters landfill facility.
- South-west** – moderate lot size industrial and strata industrial uses.
- South** – moderate scale (5-6 storeys) residential extension of Mascot.



Apartments on Gardeners Road, Mascot



The Grounds of Alexandria



Alexandria Canal from Ricketty Bridge

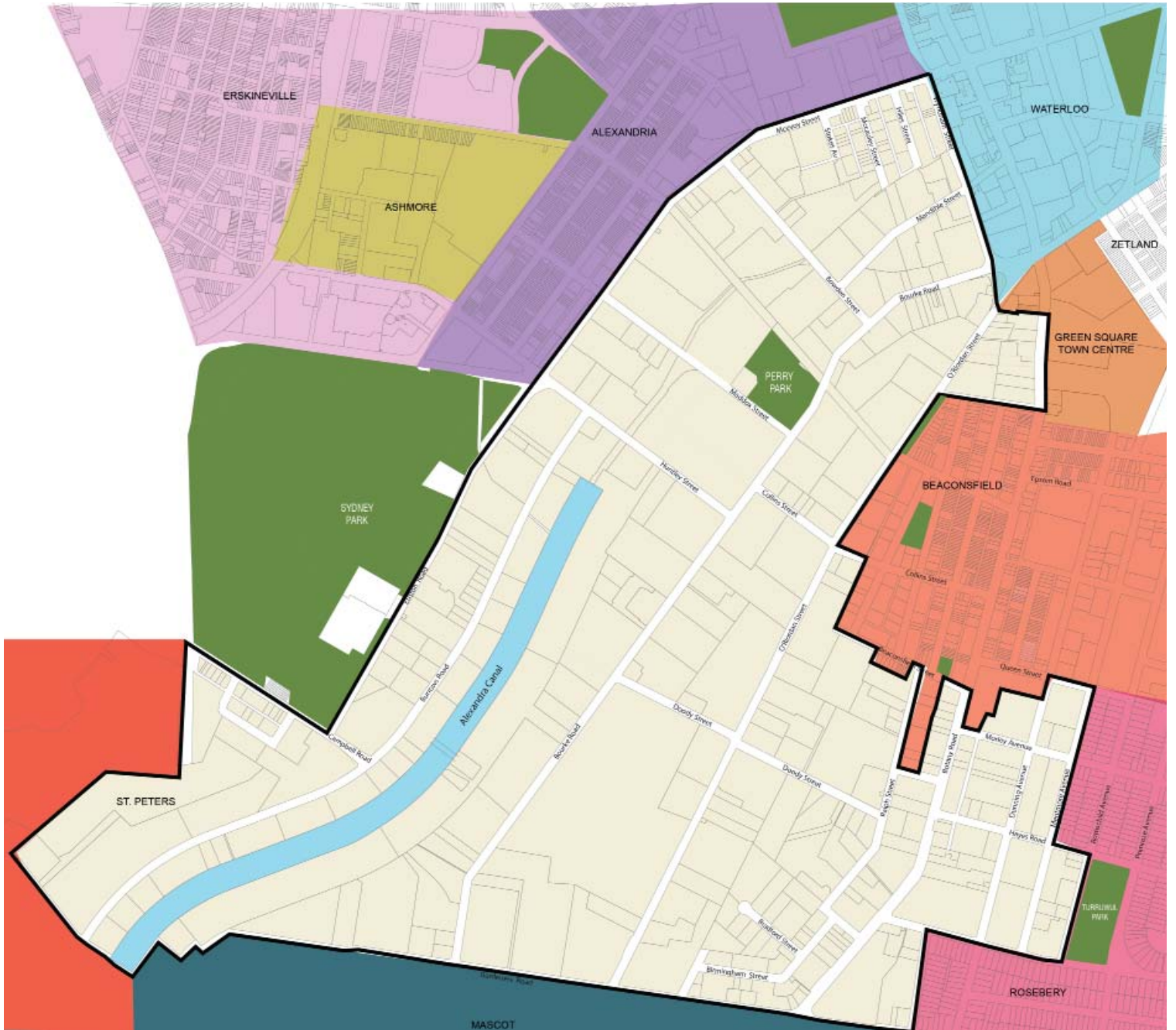


Figure 13 - Surrounding Precincts and Uses

KEY

- | | |
|--|--|
|  STUDY AREA BOUNDARY |  MASCOT |
|  WATERLOO |  ST PETERS |
|  GREEN SQUARE TOWN CENTRE |  ASHMORE |
|  BEACONSFIELD |  ERSKINEVILLE |
|  ROSEBERY |  ALEXANDRIA |

Analysis

Liveable Green Network

The Liveable Green Network Strategy and Master Plan identify high quality walking and cycling infrastructure.

Within the study area the network is proposed to build on the waterways and pipe/culvert easements extending from the Alexandra Canal.

Implications

Additional work will need to be undertaken to precisely identify land required and concept design level strategies for addressing existing infrastructure constraints.



Open Culvert Condition



Alexandra Canal



Alexandra Canal near Enterprise Corridor






Open Culvert Condition in Northern Study Area



Figure 14 - Liveable Green Network

KEY

-  STUDY AREA BOUNDARY
-  EXISTING OPEN SPACE
-  LIVEABLE GREEN NETWORK

Analysis

Open Space Network

The study area has limited public open space provision.

There are a number of local parks close to the study area, including:

- Turruwal Park in Rosebery
- Beaconsfield Park
- Janet Beirne Reserve in Beaconsfield
- McConeville Park (linear park in Beaconsfield)
- Alexandria Park
- Erskineville Oval
- Sydney Park
- Mascot Park
- Mascot Memorial Park

Within the study area there are two public open spaces:

- Perry Park with an area of approximately 2.2ha currently used as a mixture of flexible passive space and small active uses (eg. Half-courts)
- Linear green open space along Alexandra Canal with an area of approximately 23.6ha which is presently inaccessible to the public.

Current planning controls identify three aopen spaces in the study area, including:

- one large space at the corner of Bowden and Mandible Streets
- a moderate sized park off McCauley Street alongside the open channel; and
- a large park at the corner of Doody and Ralph Streets to service the growing residential population around Botany Road.

As the number of people living and/or working in the new area increases, new open spaces will be required.

Implications

The amount of open space is to increase in the study area. Delivery and funding strategies will have to be developed that capitalise on opportunities as they become available.



Erskineville Oval



Sydney Park

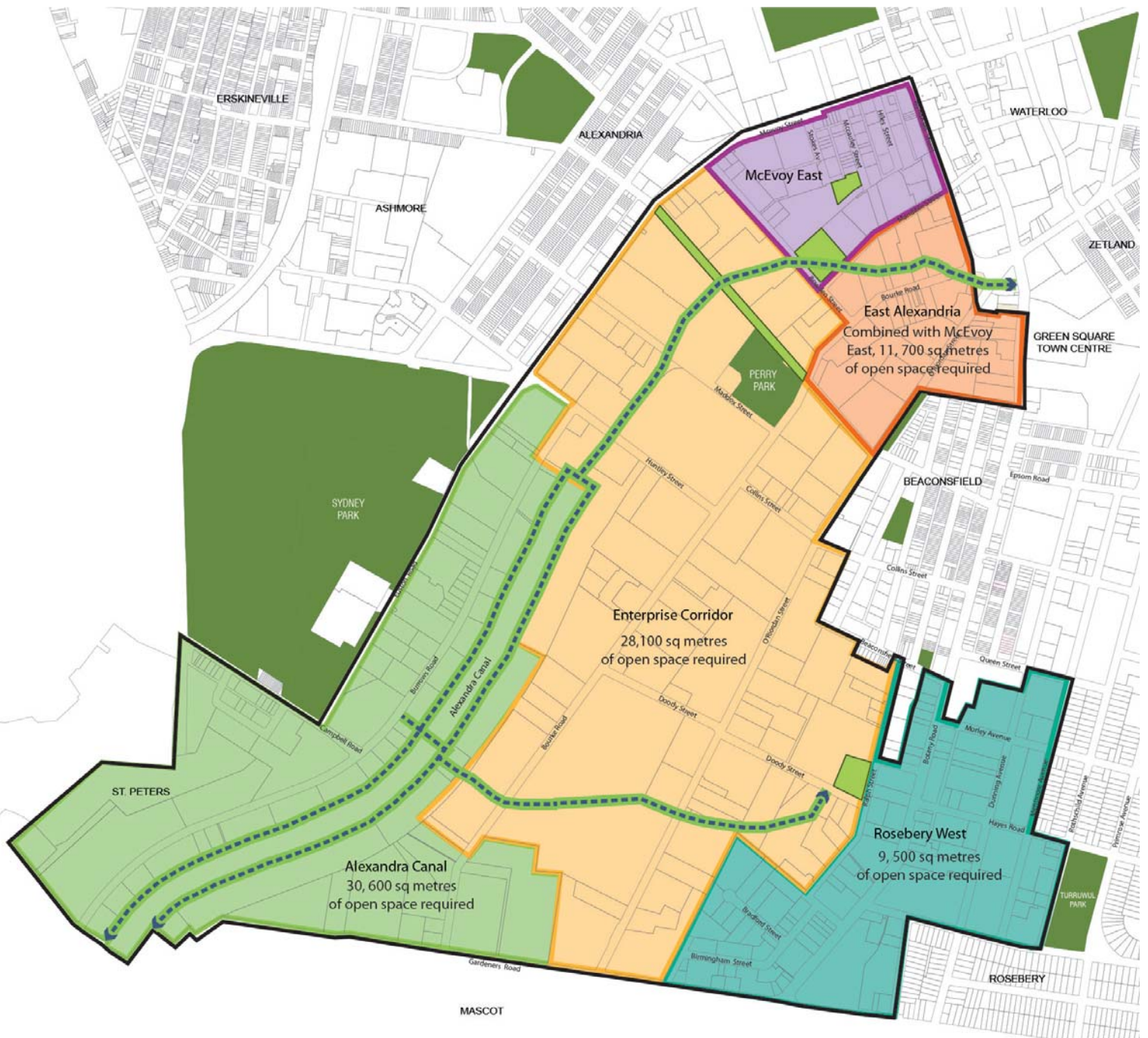






Figure 15 - Open Space Network

KEY

-  STUDY AREA BOUNDARY
-  EXISTING OPEN SPACE
-  DCP PROPOSED OPEN SPACE
-  LIVEABLE GREEN NETWORK

Structure Plan

Land Use

The proposed land use strategy is to encourage more intense use of land close to public transport and other services. Higher intensity uses are proposed around Green Square train station (B7 north floor space ratios, varying from 2:1 to 4.4:1). Other areas identified for more intense land use include the land around the Botany Road bus corridor (B7 south, ranging from 1.5-2:1) and the smaller lots around the Alexandra Canal (2:1) that were identified in previous master planning work in spite of limited public transport accessibility.

Industrial land uses are identified to continue around the southern end of the Alexandra Canal where they have good access to Gardeners Road via Burrows and Bourke Roads.

The remainder of the study area is proposed to have a flexible mixed employment zoning (B6) which will allow a gradual transition from light industrial to higher order industrial and commercial uses.



Beaconsfield West Substation on Burrows Road



Botany Rd



Concrete Batching Plant



Sydney Corporate Park

Structure Plan

Land Use

Hubs and Nodes

Two activity nodes are identified along Bourke Road. One is located at the intersection of Huntley Street which is an important connection west to Sydney Park Road and is the location of The Grounds of Alexandria. The second is located at the intersection with Doody Street which is the site of a small existing hub that serves the existing working community.

An additional three activity nodes are proposed that capitalise on the existing fine grain structure, the high quality and characterful built form, the public domain and subdivision pattern.

Active Edges

Consistent with previous strategies, active uses are proposed along frontages to Botany Road with mixed use development above.

Active frontages are also proposed for the developments fronting McEvoy Street between Botany Road and Bowden Street to reinforce the existing activity in this location.

Bulky Goods Precinct

The existing cluster of bulky goods retailing is proposed to remain permissible within the existing boundary.



Bulky Goods - O'Riordan Street

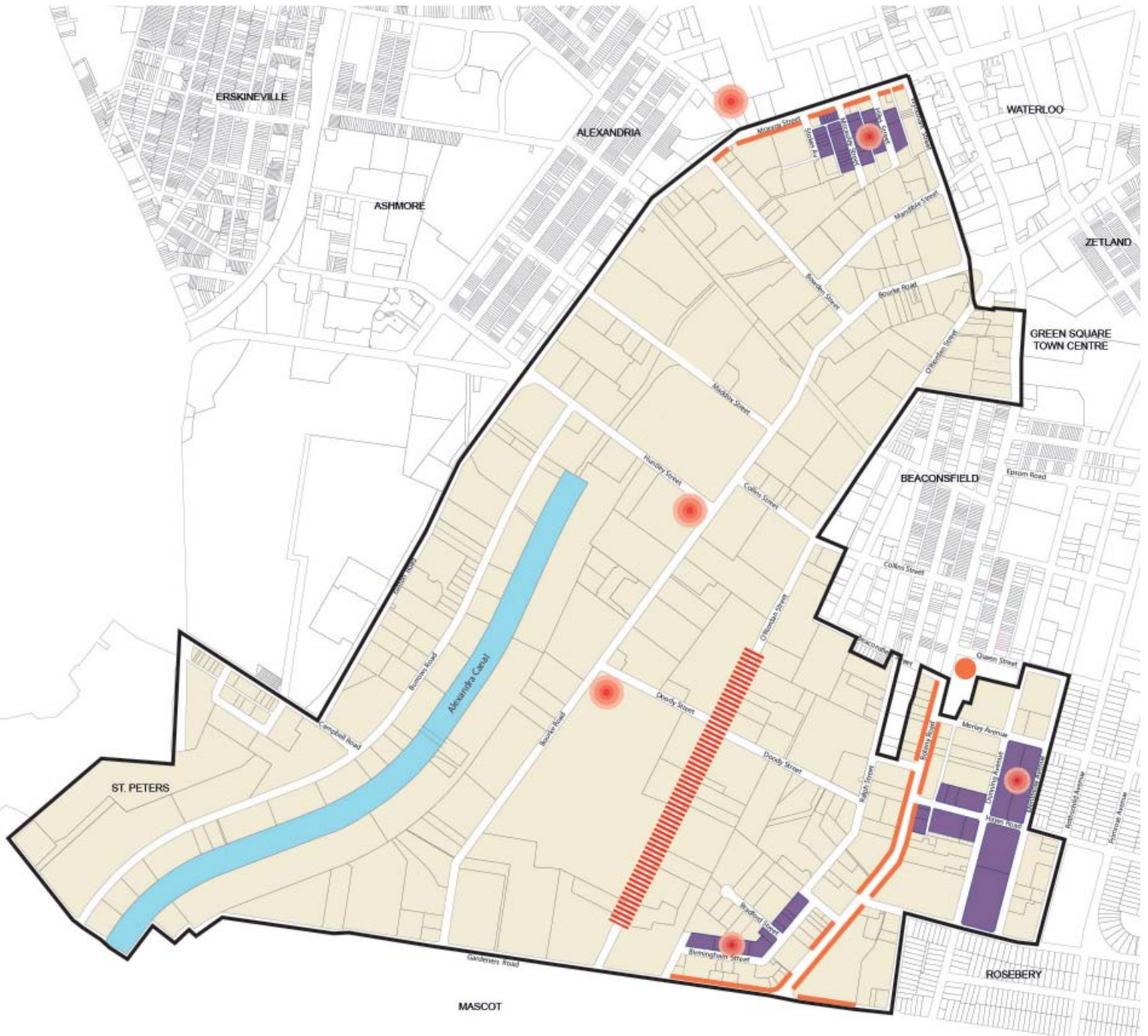








Figure 17 - Hubs and Nodes

KEY

-  STUDY AREA BOUNDARY
-  ACTIVITY NODES
-  ACTIVE EDGES
-  ACTIVITY HUBS
-  NEIGHBOURHOOD CENTRE
-  BULKY GOODS

Structure Plan

Access

New streets, green links, cycle ways and through site links are proposed to overcome the limited permeability of the study area.

New Streets

New streets are proposed to improve permeability by reducing the size of blocks and provide additional frontage to development sites to support a shift to higher intensity land uses.

The new streets are arranged to significantly increase east-west connectivity and where possible align with existing streets.

North-south streets are proposed between O'Riordan Street and Bourke Road as far north as Reserve Street. These new streets will be important for providing local access to these blocks if the one-way pairing of O'Riordan Street and Bourke Road is implemented.

Where possible new streets have been located along existing site boundaries and divided (half and half) on adjoining sites. Where a street is provided across a site boundary it has been designed to allow two way traffic in a half completed state.

The final alignments and levels of new streets will be the subject of a detailed design process. The exact location of the new streets may be flexible to a small degree, for example on very large sites such as Sydney Corporate Park, south of Doody Street.

The new vehicular east-west connectivity may increase pressure on the streets surrounding lands to the east and west of the study area, including:

- Sydney Park to the west where traffic is connecting to the Princes Highway (streets that may be affected are Sydney Park, Euston and Cambell Roads).
- Rosebery to the east where traffic is connecting to and across Southern Cross Drive (streets that may be affected are Botany Road, Dunning Avenue, Dalmeny Avenue, Epsom and Gardeners Roads)

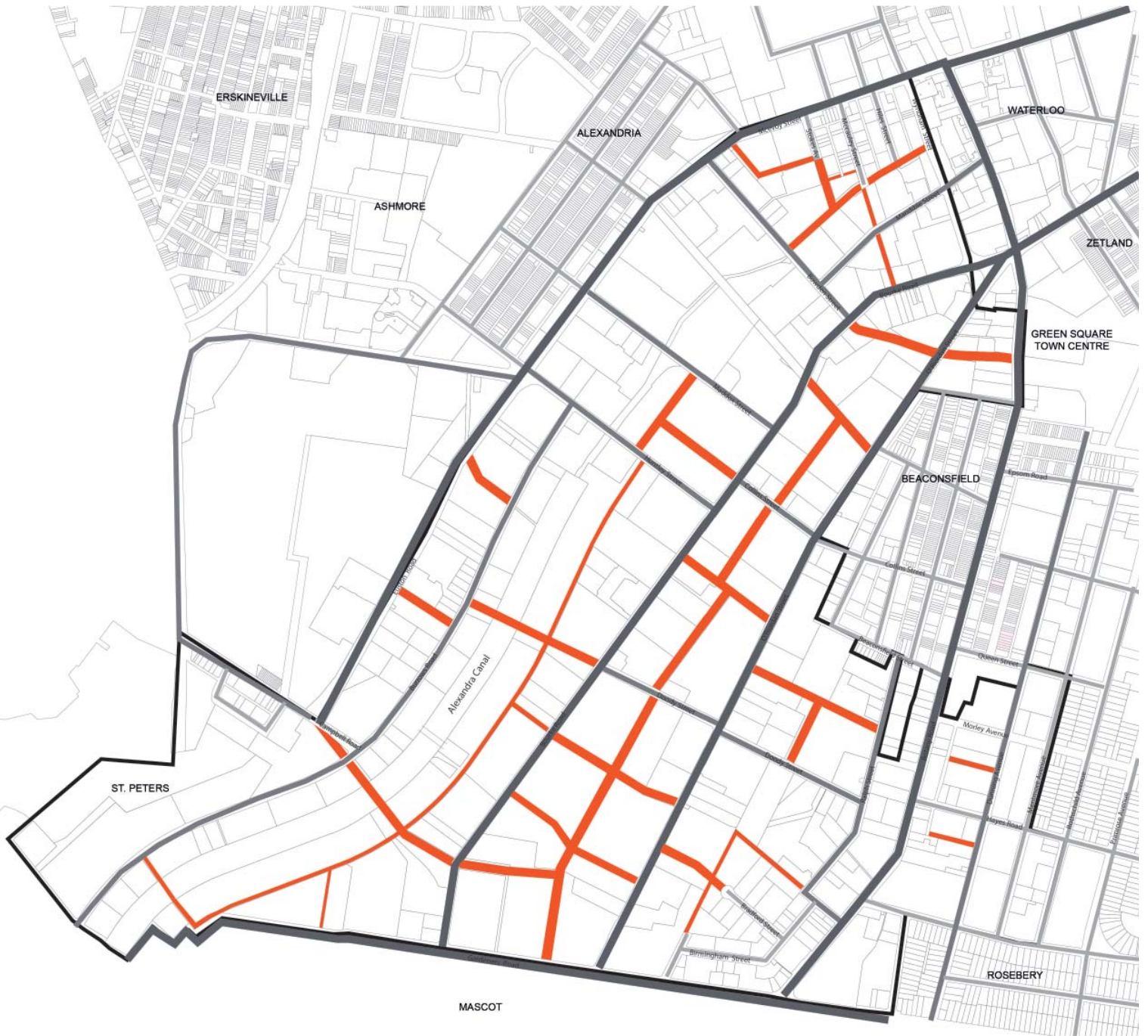


Figure 18 - New Streets

KEY

-  STUDY AREA BOUNDARY
-  EXISTING MAIN ROADS
-  EXISTING SECONDARY STREETS
-  EXISTING LOCAL STREETS
-  PROPOSED STREETS

Structure Plan

Access

Liveable Green Network and Through Site links

The Liveable Green Network is proposed around Alexandra Canal and along the “tributaries” north toward Green Square Town Centre and east toward Rosebery, the extension of which will be delivered as through site links.

Other through site links are proposed to increase the pedestrian permeability of the proposed higher intensity land use areas around Green Square Town Centre and Botany Road and particularly linking to existing or proposed open spaces.

Cycleways

The Liveable Green Network separated cycle routes will be supplemented by the separated cycle routes on streets.

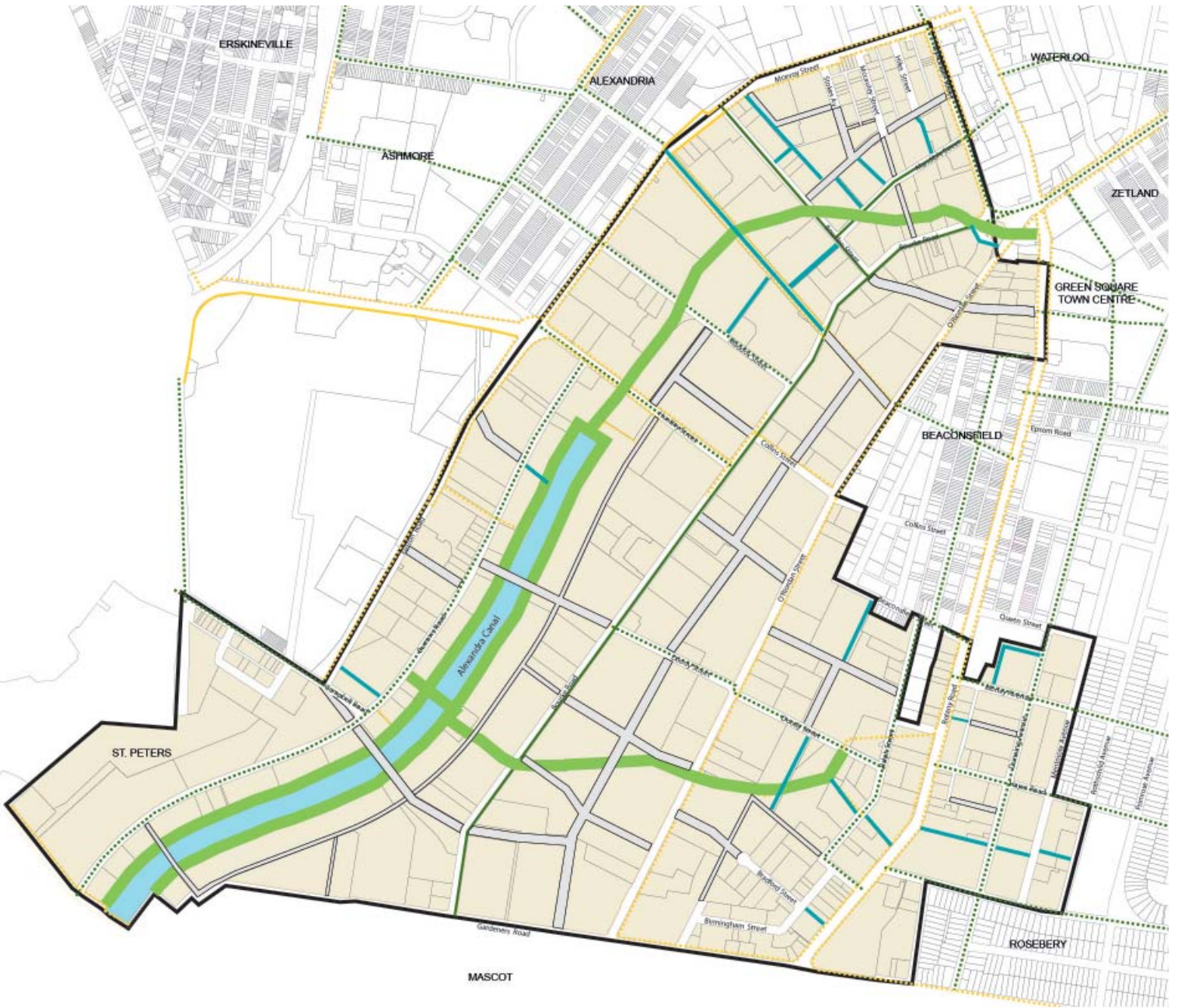


Figure 19 - Liveable Green Network, Through Site Links and Cycleways

KEY

- | | |
|--|---|
|  STUDY AREA BOUNDARY |  EXISTING SEPARATED CYCLEWAY |
|  PROPOSED PEDESTRIAN LINKS |  EXISTING SHARED PATH |
|  LIVEABLE GREEN NETWORK |  PROPOSED SEPARATED CYCLEWAY |
|  PROPOSED STREETS |  PROPOSED SHARED PATH |

Urban Design Study

Future Work

There are a number of important projects/steps that need to be undertaken as the area transitions to more intense use of the land, including:

- Define bus corridors to allow for future servicing of the main body of the precinct with moderate to high frequency bus services.
- Undertake detailed design alignment and levels for proposed streets, liveable green network and through site links
- Undertake detailed planning for proposed additional open spaces defining location and role.
- Undertake further work on activity hubs and nodes to ensure they deliver the desired contribution to the future character and economic activity of the study area.
- Undertake flood analysis to determine infrastructure and land use/development requirements.
- Undertake additional work to define areas and items of heritage importance.

