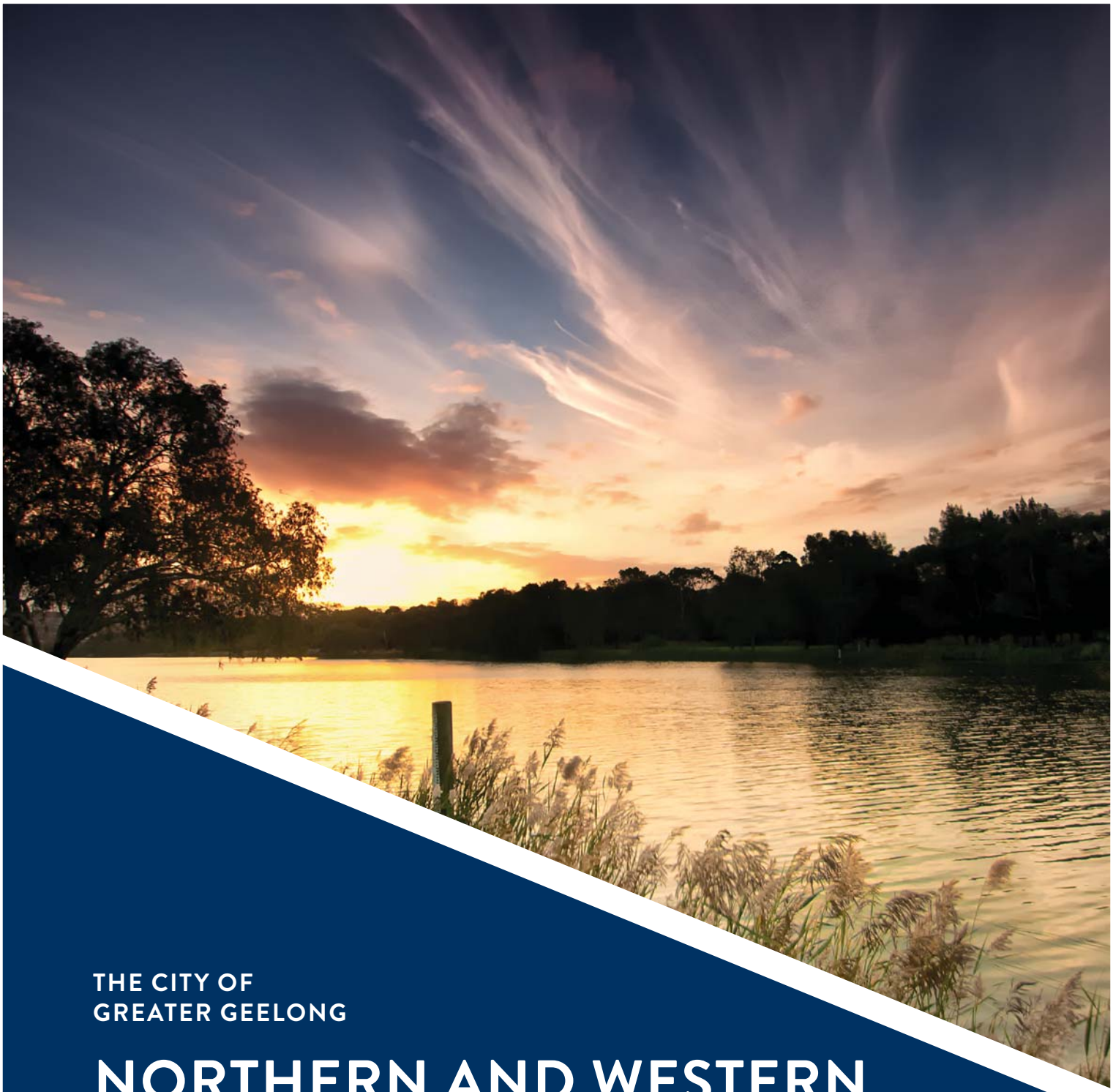


THE CITY OF
GREATER GEELONG

NORTHERN AND WESTERN GEELONG GROWTH AREAS

SUMMARY BACKGROUND REPORT
MAY 2018

CITY OF GREATER
GEELONG

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EXECUTIVE SUMMARY

The City of Greater Geelong is preparing the Northern and Western Geelong Growth Areas project to address Geelong's long-term population growth as part of its clever and creative future.

The project will deliver a framework plan and integrated infrastructure delivery plan to guide strategic land use and development of two large growth areas located in Greater Geelong's north and west.

The project constitutes the largest greenfield planning project in regional Victoria with the capacity to accommodate approximately 110,000 new Geelong residents.

State policy has identified the potential future development of the growth areas in the G21 Regional Growth Plan in 2013. Council resolved to commence the preparation of a framework plan and integrated infrastructure delivery plan for the growth areas in December 2015.

Throughout 2016 and 2017, the City has worked in collaboration with landowner consortium groups in each growth area to deliver technical studies that inform the project.

The Northern Geelong Growth Area, in Lovely Banks, has a study area of 2,089 hectares and is anticipated to deliver more than 17,000 new dwellings for a population of approximately 48,000 residents.

The vision for the growth area is that Northern Geelong will be distinguished by neighbourhoods with panoramic views across the region and built around diverse and accessible employment hubs that epitomise Geelong's creativity, innovation and enterprise.

The Western Geelong Growth Area, in Batesford, has a study area of 3,245 hectares and is anticipated to deliver up to 22,000 new dwellings for a population exceeding 60,000 residents.

The vision for the growth area is that Western Geelong will prosper as a district of lakeside neighbourhoods connected by healthy waterways and attractive open spaces that strengthen Geelong's identity as a city built around water.

An extensive schedule of stakeholder engagement has informed the preparation of the proposed future urban structure of the growth areas including workshops to establish the vision and set of principles for future development.

The framework plan will include detailed guidance for the sustainable implementation of development over the coming decades, facilitated via the preparation of smaller, neighbourhood-sized precinct structure plans (PSPs).

The framework plan will be prepared as part of a planning scheme amendment to be considered by the Council in 2018.

The draft 'future urban structure plan' outlines the intended land use and development outcomes of the framework plan. This background report summarises the key policy considerations and technical studies that inform the draft 'future urban structure plan'.

INTRODUCTION

The City is preparing the Northern and Western Geelong Growth Areas project to address Geelong's long-term growth requirements by delivering a framework plan to guide strategic land use and development of two large growth areas located in Greater Geelong's north and west.

This background report summarises the key policy considerations, technical studies and stakeholder consultation that has informed the preparation of the draft 'future urban structure plan' that outlines the intended land use and development outcomes of the framework plan.

The City's annual growth rate has increased from 1.1% in 2011 to the current rate of 2.7%, delivering approximately 4,000 new lots in 2017, and is higher than Victoria's current growth rate of 2.4%.

Growth is happening now and will continue into the future. Our current growth rate will result in approximately 150,000 new Greater Geelong residents by 2036.

In response, the City is delivering the *Settlement Strategy for Greater Geelong* that provides a strategic response to our increasing growth pressures and ensures that we can meet the region's substantial housing demands in a sustainable manner.

There is a need to plan in an orderly and coordinated manner to ensure that the growth areas are delivered in a sustainable manner and a planning framework is required to guide their development by adopting a top-down approach.

The project will deliver a framework plan to set the overall strategic land use and community vision for each growth area. An integrated infrastructure delivery plan (IIDP) will be prepared to inform the framework plan and ensure that future infrastructure needs are identified to support vibrant, walkable communities.

The draft 'future urban structure plan' outlines the intended land use and development outcomes of the framework plan.

The draft 'future urban structure plan' provides the following high-level guidance in relation to proposed land use and development:

- The study area boundary of each growth area
- The underlying land uses, including residential and employment-based land uses
- The high-level transport network, including arterial and local roads
- The high-level activity centre network, including sub-regional and local activity centres
- The high-level open space network, including river and creek corridors, land subject to inundation, constructed stormwater drainage network of linear corridors, wetlands and retarding basins, and conservation areas.

The road, activity centre and open space networks illustrated on the plans are intended as general locations for the infrastructure and will be subject to refinement and review as part of the subsequent preparation of precinct structure plans on the subject land.

The purpose of this background report is to provide the community with the basis upon which the project is being prepared by the City, and a summary of key policy considerations and technical studies that inform the draft 'future urban structure plan'.

NORTHERN AND WESTERN GEELONG FUTURE URBAN STRUCTURE PLANS

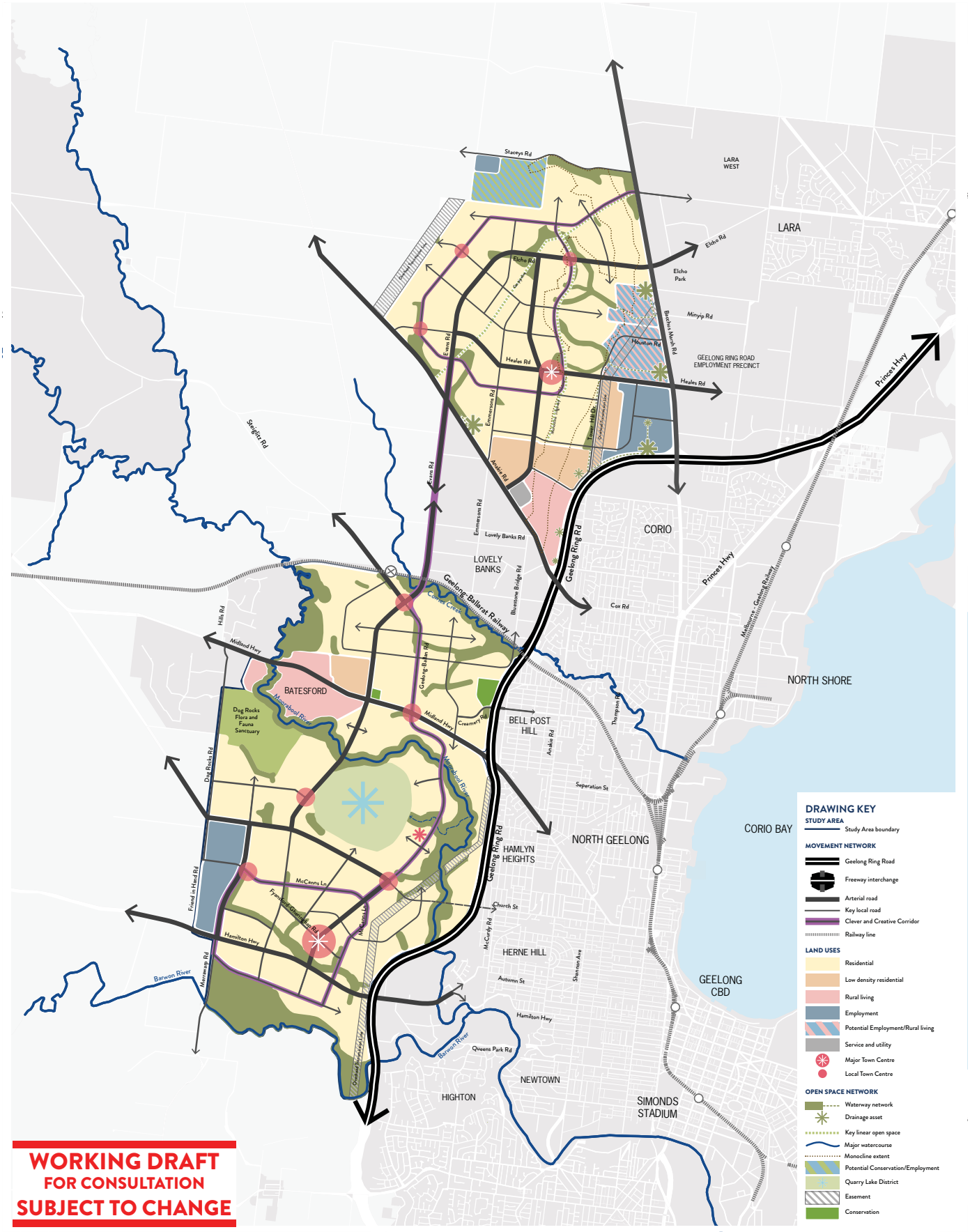


FIGURE 1 NORTHERN AND WESTERN GEELONG GROWTH AREAS – DRAFT FUTURE URBAN STRUCTURE PLAN

NORTHERN AND WESTERN GEELONG GROWTH AREAS

The Northern and Western Geelong Growth Areas project is the City's plan to address Geelong's long-term greenfield development needs.

The project constitutes the largest greenfield planning project in regional Victoria with the capacity to accommodate approximately 110,000 new Geelong residents.

The growth areas will exemplify Geelong's transformation as a clever and creative city by building diverse, localised and sustainable neighbourhoods that prioritise self-sufficiency whilst maximising connections to the Geelong community, economy and identity.

Preliminary growth estimates:

- 5,333 hectares in total area
- 3,055 hectares in developable area (57% of total)
- 39,103 new dwellings
- 109,486 new Greater Geelong residents.

KEY PLAN FEATURES

- A 'Clever and Creative Corridor' – a tree-lined, boulevard-style transit corridor to prioritise public transport, walking and cycling between the activity centres, schools and community facilities, sports reserves and local parks in each neighbourhood
- Road network providing direct and safe connections between neighbourhoods and into central Geelong
- Accessible public transport system that connects to all local attractions and between neighbourhoods
- Conservation of native flora and fauna
- Activity centres with a mix of shops, cafes and services to meet local needs and provide local jobs
- Aboriginal cultural heritage retained within the open space network
- Direct transport connections to central Geelong, Melbourne and between the growth areas
- Diverse employment precinct to support local jobs and Geelong's economic development
- Extensive open space network incorporating waterways, large canopy trees and shared paths
- Ecologically sustainable development principles implemented to deliver a carbon positive community
- Community facilities and services to support residents of all ages.

NORTHERN GEELONG FUTURE URBAN STRUCTURE PLAN

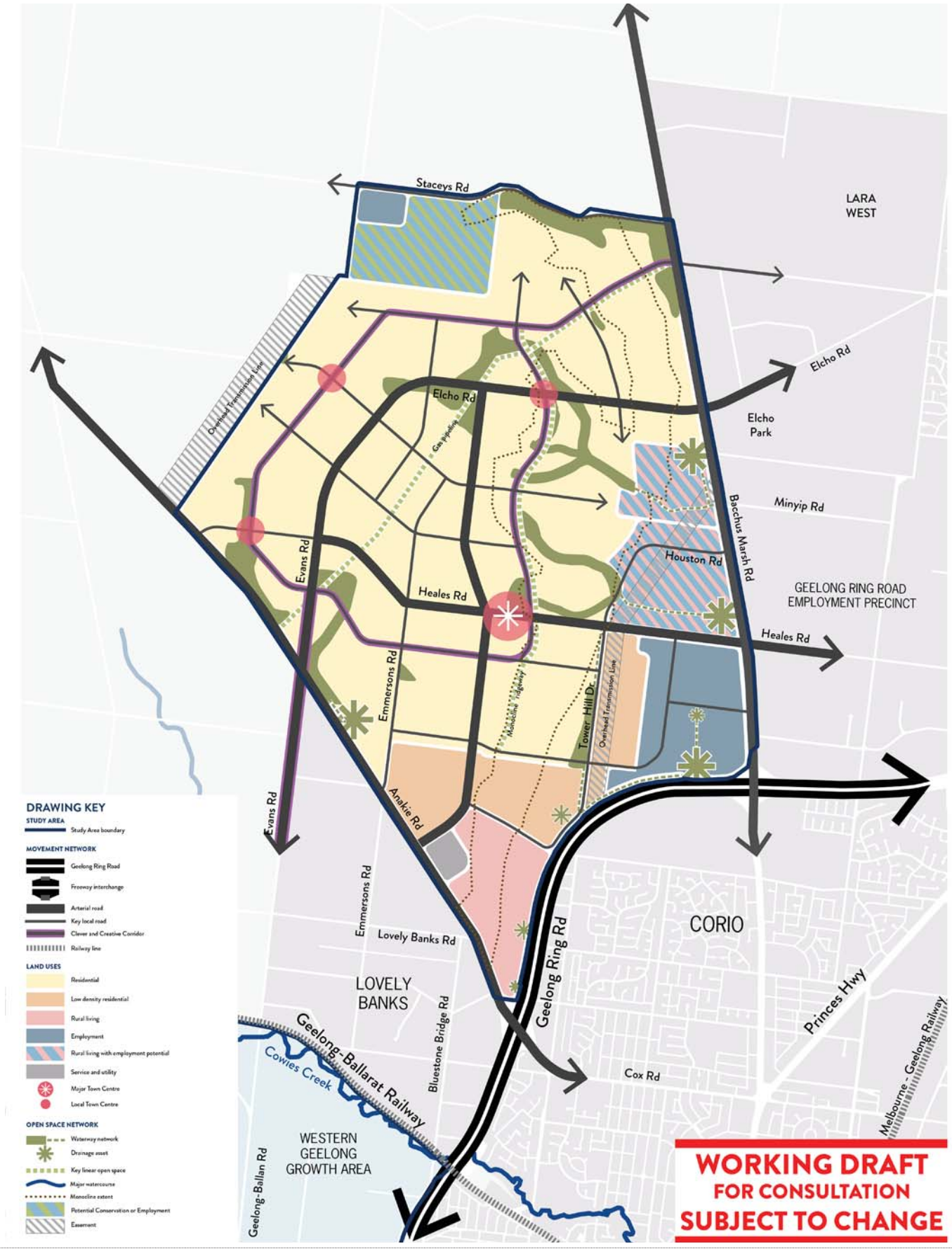


FIGURE 2 NORTHERN GEELONG GROWTH AREA – DRAFT FUTURE URBAN STRUCTURE PLAN

NORTHERN GEELONG GROWTH AREA

The growth area is generally bounded by Bacchus Marsh Road to the east, the Geelong Ring Road to the south, Anakie Road and servicing easements to the west and Staceys Road to the north.

The Northern Geelong Growth Area is renowned for the Lovely Banks monocline that defines the local landscape and allows stunning views to the You Yangs, Corio Bay and across Geelong.

Northern Geelong will be distinguished by neighbourhoods with panoramic views across the region and built around diverse and accessible employment hubs that epitomise Geelong's creativity, innovation and enterprise.

Preliminary growth estimates:

- 2,089 hectares in total growth area
- 1,325 hectares in developable area (63% of total)
- 17,108 new dwellings
- 47,901 new Greater Geelong residents.



KEY PLAN FEATURES

- Panoramic views to the You Yangs, Corio Bay and across Geelong
- Logical boundary to the growth area to discourage gradual expansion
- European heritage incorporated into urban development including Elcho Homestead and dry stone walls
- Safe and direct transport links to Lara town centre and Lara Railway Station
- Safe and direct transport links to the Corio sub-regional activity centre and Corio Railway Station
- Transition of housing densities between rural living properties and new neighbourhoods
- Employment precinct with strong transport connections to Geelong Ring Road Employment Precinct, Avalon Airport and Melbourne
- Additional identification of potential employment land to support Geelong's long term economic development
- Linear open space along the top of the monocline escarpment to create public access to the best views across the region
- Sensitive design of buildings on the monocline escarpment to minimise visual impacts.

WESTERN GEELONG FUTURE URBAN STRUCTURE PLAN

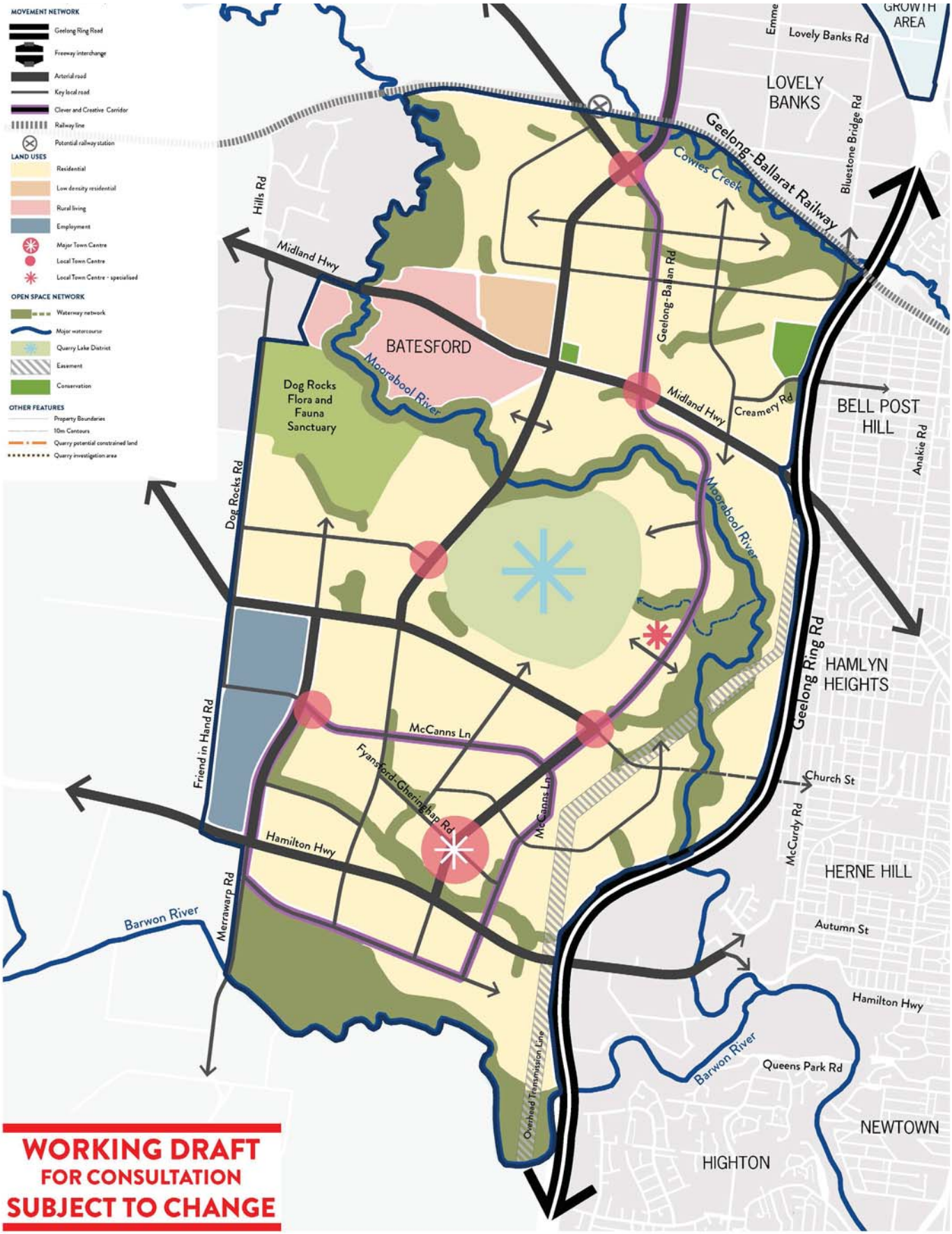


FIGURE 3 WESTERN GEELONG GROWTH AREA – DRAFT FUTURE URBAN STRUCTURE PLAN

WESTERN GEELONG GROWTH AREA

The growth area is generally bounded by the Geelong Ring Road to the east, the Barwon River to the south, the Geelong-Ballarat rail line to the north and Batesford township to the west.

The Western Geelong Growth Area is an iconic landscape characterised by the Barwon and Moorabool Rivers with views across the Barrabool Hills and the Batesford quarry as its centrepiece.

Western Geelong will prosper as a district of lakeside neighbourhoods connected by healthy waterways and attractive open spaces that strengthen Geelong's identity as a city built around water.

Preliminary growth estimates:

- 3,245 hectares in total growth area
- 1,730 hectares in developable area (63% of total)
- 21,995 new dwellings
- 61,585 new Greater Geelong residents.



KEY PLAN FEATURES

- Protect views to the Barrabool Hills
- Protect the ecosystem health and biodiversity of the Barwon River corridor
- Protect the ecosystem health and biodiversity of the Cowies Creek corridor
- Protect the ecosystem health and biodiversity of the Moorabool River corridor
- Create an extensive active transport network using the Moorabool River corridor as a green spine
- Transition of the Batesford quarry to a lake that provides regional open space and tourism opportunities
- European heritage incorporated into urban development including homesteads and dry stone walls
- Protect future opportunities for commuter services on the Geelong-Ballarat rail line
- Transition of housing densities between Batesford township and new neighbourhoods
- Protect the unique character of the Batesford township
- Employment precinct with direct access to the Western District via the Hamilton Highway and Midland Highway
- Expand native vegetation protection beyond the Dog Rocks Flora and Fauna Sanctuary
- Sensitive design of buildings in proximity to the river corridors and quarry lake district.

STRATEGIC CONTEXT

GREATER GEELONG'S FUTURE GROWTH

The Geelong region provides the opportunity to live in a major coastal city amongst a vibrant community with direct access to both Melbourne and the Bellarine Peninsula. As a result, our region is continuing to experience significant economic and population growth.

Geelong's population growth is underpinned by the strong performance of the local economy: between 2011 and 2016, the city's employment growth doubled population growth. Overall employment growth will encourage ongoing migration from other parts of Australia,particularly Melbourne and south-west Victoria, and underpin our anticipated population growth and housing demand.

The City's annual growth rate has increased from 1.1% in 2011 to the current rate of 2.7%, set to deliver up to 4,000 new lots in 2017/18, and is higher than Victoria's current growth rate of 2.4%. Our current growth rate will result in approximately 150,000 new Greater Geelong residents by 2036.

The G21 'aspirational' growth scenario for Greater Geelong is 2.5% population growth per year to 2036, a growth rate the City is currently exceeding. The realisation of this aspirational scenario will translate to a total population of 387,894 in Greater Geelong, an increase of 152,551 new residents.

In response, the City is delivering the *Settlement Strategy for Greater Geelong* that provides a strategic response to our increasing growth pressures and ensures that we can meet the region's substantial housing demands in a sustainable manner.

The strategy makes recommendations for an appropriate balance of population growth within our existing suburbs and new greenfield development, and the timing and process for the urban development within the Northern and Western Geelong Growth Areas.

PLANNING CONTEXT

In April 2013, the G21 Regional Growth Plan identified the potential development of the growth areas. The document identified the growth areas as 'Further Investigations Areas' and long-term growth options to facilitate Geelong's future growth.

In May 2014, the former Minister for Planning wrote to Council to seek support for the acceleration of land delivery in the growth areas. Consequently, the City reported to Council in September 2014 on the need to initiate the 'Managing Future Growth' project to define the financial obligations that would arise if development in the growth areas was pursued in the short to medium term.

In November 2014, the former Minister for Planning prepared, adopted and approved without notice Amendment C322 to rezone parts of the Northern Geelong Growth Area from Farming Zone to Urban Growth Zone as part of a Ministerial amendment approved without notice. The zoning of land in the Western Geelong Growth Areas was not changed.

The City reported to Council in December 2015 to reiterate the key issues in planning for the growth areas, which included:

- Understanding the financial impact on Council to provide infrastructure for existing and new communities
- Creating liveable communities
- Planning policy context
- The need to release land for housing based on the current lot supply and projected demand.

Council resolved to prepare a framework plan and integrated infrastructure delivery plan for the growth areas on 8 December 2015.

POLICY CONTEXT

The policy context provides the basis for the preparation of a framework plan to inform the urban development of the Northern and Western Geelong Growth Areas.

G21 REGIONAL GROWTH PLAN

The G21 Regional Growth Plan (G21 RGP) is recognised at Clause 11.07 of the State Planning Policy Framework (SPPF). Key strategies include facilitating infill development in major nodes such as central Geelong and activity centres, supporting and consolidating growth in district towns and urban areas utilising existing infrastructure investment while providing for long term growth options, the 'Further Investigation Areas' that anticipated the Northern and Western Geelong Growth Areas.

Additional relevant provisions of Clause 11 Settlement include:

- Providing sufficient land to meet forecast demand (at least 15 years) taking into account opportunities for consolidation and the costs of providing infrastructure
- Providing for the appropriate sequencing of development to better coordinate infrastructure planning and funding and to provide orderly planning and liveable communities
- The application of Ministerial Direction No.12 Urban Growth Areas for rezoning of land to the Urban Growth Zone or an incorporated precinct structure plan; in such cases the planning authority (the City) must evaluate how the amendment implements any Growth Area Framework Plan applying to the land.

The G21 RGP takes its vision from the earlier G21 Geelong Region Plan (2006).

The G21 Geelong Region Plan vision is:

> "The Geelong region is Australia's most desirable destination for living, working and investing; it is renowned for its vibrant cohesive community, exceptional physical environment and vigorous economy."

The G21 RGP sets out nine principles for growth in the region that are consistent with the G21 vision; these principles are fundamental overarching parameters for the successful delivery of urban development in the growth areas as sets out in Table 1.

STRATEGIC CONTEXT

TABLE 1: G21 REGIONAL GROWTH PLAN PRINCIPLES

No.	Principle	Discussion
1	Optimise infrastructure and consolidate	Maximise capacity and leverage off existing infrastructure and services, particularly near central retail and transport nodes. Minimise additional land used for residential, commercial and industrial purposes by harnessing under-utilised land and buildings in our settlements. Develop new infrastructure and services to facilitate consolidation and growth.
2	Diversity, knowledge and innovation	Build and support diversity and innovation through a range of affordable education, housing types, service provision, technology, employment and social opportunities. Create a resilient and robust region that seeks, and is open to, new opportunities and lifelong learning.
3	Unique and connected communities	People feel part of their communities and celebrate their sense of place. Ensure growth enhances choice, health and wellbeing, liveability, amenity and diversity. Communities can easily participate in arts, culture, sport and recreation, encouraging healthy lifestyles. Provide affordable access to housing, services and facilities consistent with settlement role and function.
4	Protect, restore and enhance our unique environment	Protect, restore and enhance the quality of our land and marine areas, waterways, biodiversity and soils. Ensure development minimises risks and impacts on the environment and landscape. Plan for and adapt to changes in our climate.
5	Food, water and energy security	Promote new opportunities in farming, fisheries and energy in a changing climate. Harness our existing energy and natural resources to promote a productive, robust and self-sustaining region while protecting and enhancing our farming and natural assets as we grow.
6	Live, work and participate locally	Create jobs to utilise our skills within the region. Promote learning of new skills to support increasing employment diversity. Encourage our communities to invest and be involved in the region.
7	Build our economy	Diversify the G21 region economy and create jobs through building on our competitive strengths, including tourism and agricultural land resources and economic, social and natural assets. Ensure there is sufficient employment land, infrastructure, skills and education facilities to respond to growth and support changes in our economy.
8	Accessible transport choices	Provide a broad range of integrated and sustainable transport choices which are flexible, reliable and connect residents, workers and visitors to the services and facilities they need.
9	Balanced, consistent and collaborative approach	Use the collective power of people in the G21 region to bring about change. Use inclusive engagement processes to create a balanced, transparent and consistent approach to planning and growth.

The G21 RGP establishes a framework for strategic land use and settlement planning that can sustainably respond to and accommodate population growth. It collates the strategic land use and growth planning already done across the region and builds on it to identify where future residential and employment growth will be accommodated and what critical infrastructure is required to support it.

Whilst supporting a focus on growing within existing urban areas and existing planned growth areas, the G21 RGP considered the potential for higher growth rates beyond 2050; in doing so, it identified the two growth areas for their capacity to grow the region beyond 500,000 residents.

The G21 RGP notes that additional assessment is required to determine the suitability of the urban development in the growth areas and outlines key considerations such as implications for major trunk services and transport infrastructure, and the ability to create connected, rather than isolated, communities.

The G21 RGP Implementation Report and the G21 RGP Implementation Background Report set the context for the further investigation of the growth areas and provide the basis to understand the high-level opportunities and constraints of both areas.

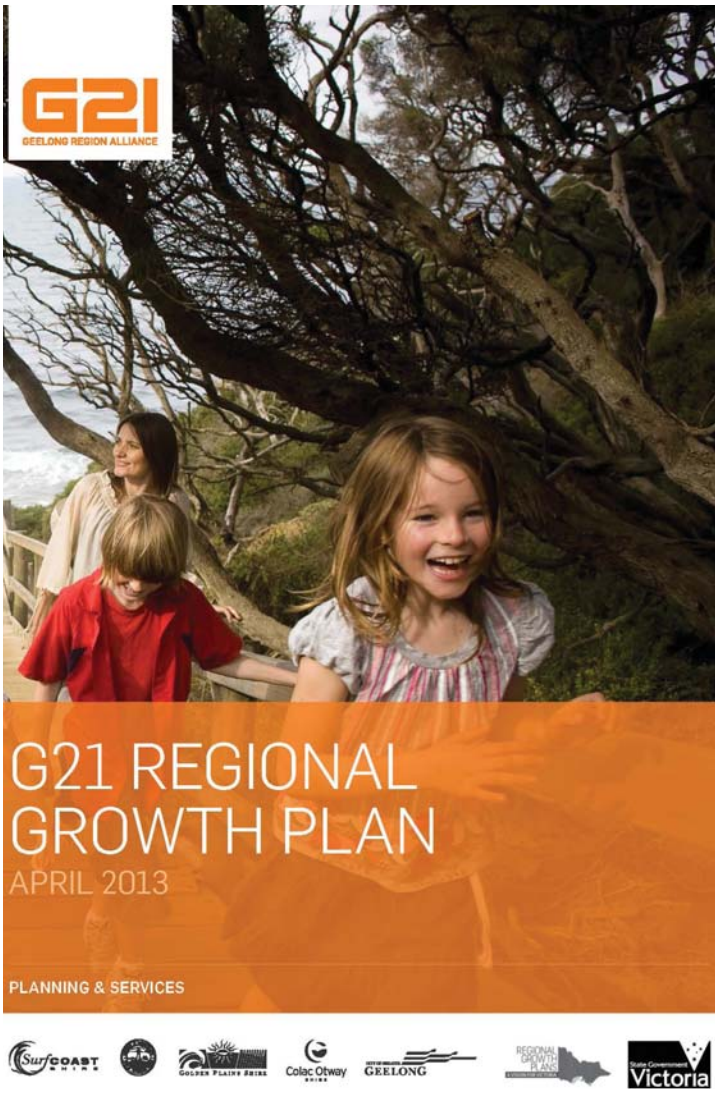
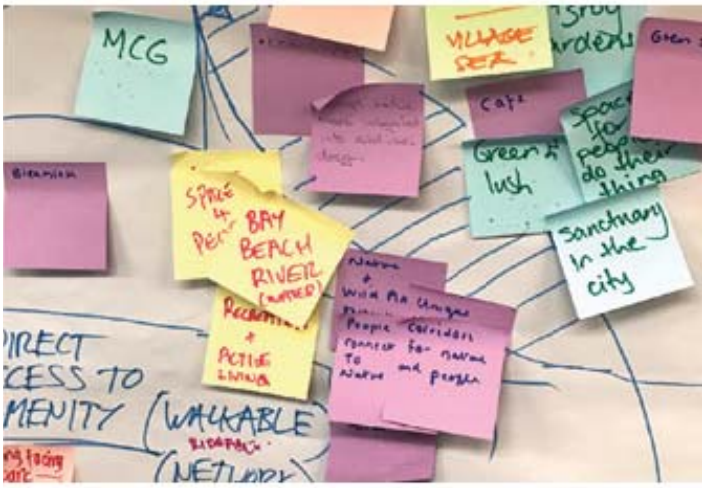


FIGURE 4 G21 REGIONAL GROWTH PLAN

VISION + PRINCIPLES

In July 2017, the City hosted a series of 'Vision and Principles' workshops to establish a shared vision and set of principles for the project and each growth area and to identify potential opportunities, barriers and catalysts for their realisation. The workshops were structured to refine and elaborate on the G21 vision. The vision and principles will establish a touchstone for all development outcomes in the future.







PROCESS

The workshops comprised of three distinct phases with an overarching focus on "big picture thinking" for Geelong's future urban areas: 'Discover', introducing the unique attributes of each growth area; 'Inspire', led by technical experts offering insights into vision creation and best practice delivery of sustainable urban environments; and 'Define', leading stakeholders through a set of dynamic and facilitated activities to define the vision and set of principles

PROJECT VISION

The Northern and Western Geelong Growth Areas will exemplify Geelong's transformation as a clever and creative city by building diverse, localised and sustainable neighbourhoods that prioritise self-sufficiency whilst maximising connections to the Geelong community, economy and identity.

PROJECT PRINCIPLES

The G21 vision and project principles set the framework for exploring attributes that will shape the growth areas.

- Create diverse and vibrant new urban communities
- Integrate transport and land use planning
- Plan for local employment
- Create growth areas with high amenity and character
- Protect biodiversity, waterways and cultural heritage values
- Create integrated open space networks
- Plan for environmental sustainability
- Stage development to ensure the efficient and orderly provision of infrastructure and services.

THE VISION FOR NORTHERN GEELONG

Northern Geelong will be distinguished by neighbourhoods with panoramic views across the region and built around diverse and accessible employment hubs that epitomise Geelong's creativity, innovation and enterprise.

PRINCIPLES

- **Create diverse and vibrant new urban communities:** Plan for a dynamic mix of residential and commercial neighbourhoods that easily interconnect and identify as part of the established Geelong community.
- **Integrate transport and land use planning:** Deliver a comprehensive public transport network that facilitates convenient access to local employment hubs and central Geelong.
- **Plan for local employment:** Optimise local job creation by establishing a diverse, adaptable employment hub to capitalise on future trends and leverage the growth area's proximity to the Geelong Ring Road Employment Precinct, the Port of Geelong, Avalon Airport and Melbourne.
- **Create growth areas with high amenity and character:** Establish a district of neighbourhoods that exploit the panoramic vistas across the region, deliver an attractive interface to neighbouring precincts and enhance Geelong's local character.
- **Protect biodiversity, waterways and cultural heritage values:** Protect and regenerate biodiversity values of the natural and constructed waterways along the Lovely Banks monocline and heritage values of the Elcho Homestead.
- **Create integrated open space networks:** Cultivate a stunning trail along the ridgeline of the Lovely Banks monocline and substantial green links along infrastructure easements with an adjoining network of recreation reserves and local parks.
- **Plan for environmental sustainability:** Create a carbon positive community that implements ecologically sustainable development principles by prioritising renewable energy production and minimising resource use.
- **Stage development to ensure the efficient and orderly provision of infrastructure and services:** Ensure that staging of development creates early provision of public transport to central Geelong and facilitates coordinated delivery of employment precincts to support job growth in Northern Geelong.

THE VISION FOR WESTERN GEELONG

Western Geelong will prosper as a district of lakeside neighbourhoods connected by healthy waterways and attractive open spaces that strengthen Geelong's identity as a city built around water.

PRINCIPLES

- **Create diverse and vibrant new urban communities:** Plan for neighbourhoods that encourage community interaction by maximising public access and activity in high amenity destinations throughout the growth area.
- **Integrate transport and land use planning:** Deliver a comprehensive active transport network utilising the substantial river corridors and acknowledge the future potential of the rail corridor.
- **Plan for local employment:** Optimise local employment by establishing a network of activity centres positioned to profit from the natural splendour of the area, highway connections to the Western District and proximity to central Geelong.
- **Create growth areas with high amenity and character:** Establish a district of lakeside and riverside neighbourhoods recognised for their healthy waterways and attractive open spaces that will enhance Geelong's local character.
- **Protect biodiversity, waterways & cultural heritage values:** Protect and regenerate biodiversity and cultural heritage values along the Barwon and Moorabool Rivers, Cowies Creek and the Dog Rocks Sanctuary and establish vegetated constructed waterways.
- **Create integrated open space networks:** Cultivate an exemplary open space network that links the Barwon and Moorabool Rivers to an iconic lake at the Batesford quarry and supports a network of recreation reserves and local parks.
- **Plan for environmental sustainability:** Create an integrated water management system based around the major catchments and prioritise active and public transport networks.
- **Stage development to ensure the efficient and orderly provision of infrastructure and services:** Ensure that staging of development creates early provision of public transport to central Geelong and preserves long term development aspirations adjoining the Batesford quarry.

SITE ANALYSIS

Throughout 2016 and 2017, a series of preliminary technical studies were commissioned to form the basis of the urban structure plan for each growth area.

The technical studies that have been undertaken to date relate to the following land use and development considerations:

- Aboriginal cultural heritage
- Active transport principles
- Activity centres and employment land
- Arterial road and rail opportunities
- Best practice environmentally sustainable design
- Flooding and stormwater drainage
- Flora and fauna
- Geotechnical, hydrogeological, and environmental constraints
- Integrated water management
- Land contamination
- Post-contact heritage
- Safety management for gas pipelines
- Servicing and utilities
- Social infrastructure
- Strategic transport modelling
- Urban form.

The City hosted 'Open House' community sessions in October 2017 to share this technical information.

Further technical studies will inform the project throughout 2018 as the plan is refined on the basis of initial consultation with the Greater Geelong community.

NORTHERN GEELONG – EXISTING CONDITIONS

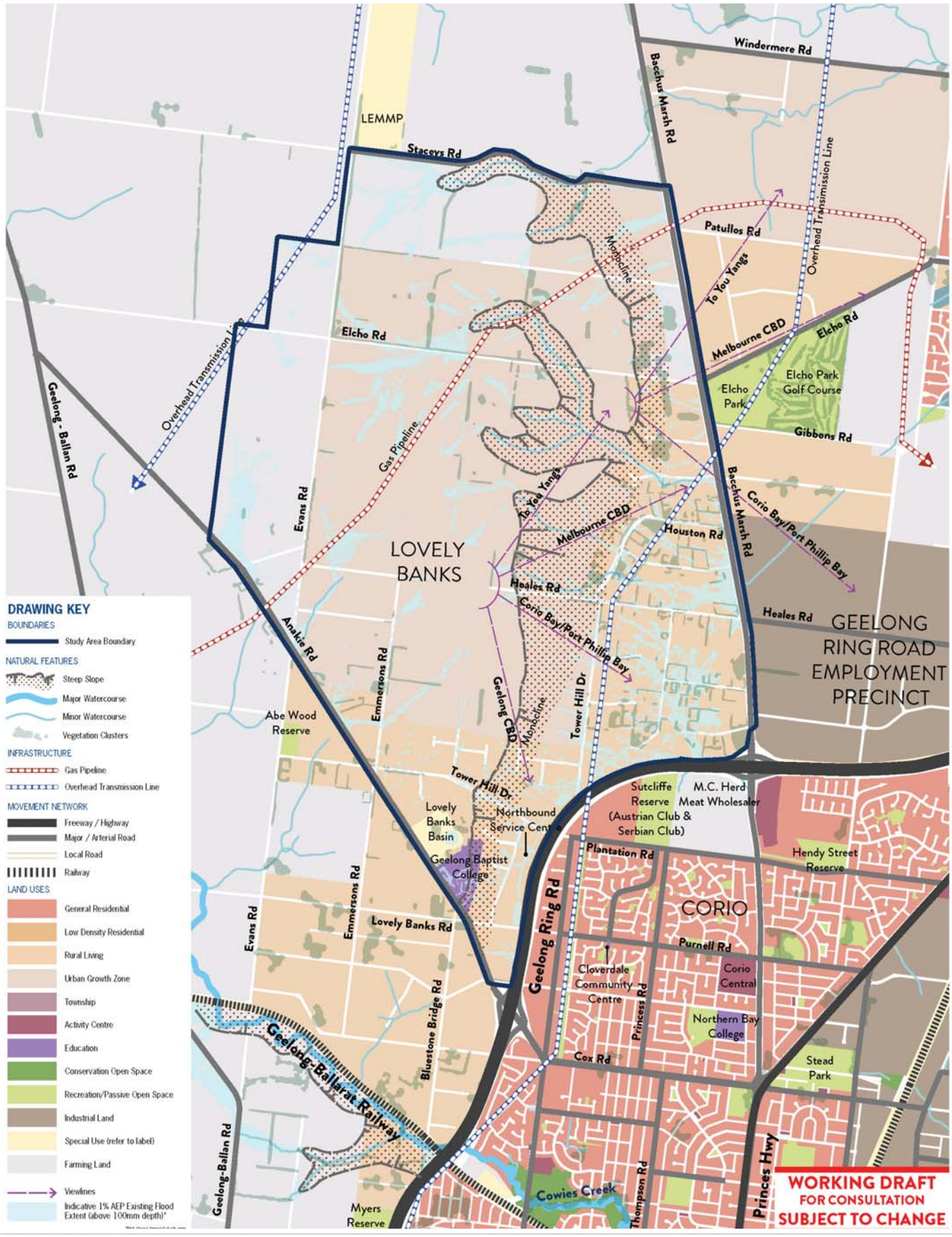


FIGURE 5 - NORTHERN GEELONG - EXISTING CONDITIONS

FLOODING AND DRAINAGE

- Existing waterway corridors follow the natural gradients of the land with contour lines indicating the relative elevation of the land.
- Plan provides an indication of the existing 1% annual exceedance probability (AEP) flood extent, commonly referred to as a "1 in 100 year flood".
- Under existing conditions, development of land within the 1% AEP flood extent is constrained or encumbered.
- The term 1% AEP ('1 in 100 year flood') refers to a rare event: there is a predicted 1% chance of that event happening in any given year. The flood extent shows which areas are predicted by flood modellers to be affected by the 1% AEP flood or any other area determined by the relevant authorities. This includes land in a floodway, flood storage or flood fringe area and land in urban areas due to overland flows.
- The same flood extent model that is used to illustrate inundation for existing catchment conditions will be modified to predict flood extents as part of future urban development.
- Corangamite Catchment Management Authority (CCMA) is the floodplain management authority and City of Greater Geelong is the drainage authority.
- The Lovely Banks monocline (steep slope) is the most significant landscape feature in the growth area, separating a high, gently sloping area to the northwest and a low, relatively flat area to the south and east.
- Six independent drainage catchments influence the growth area: Cowies Creek, Sunderland Creek, St Georges Drain, Wharf Road Drain, Elcho Drain and Hovells Creek.
- Existing stormwater runoff is mainly through overland flow paths and open waterways.
- Several downstream areas adjacent to the growth area have existing drainage constraints.
- Existing conditions that will influence the drainage strategy include the monocline, high pressure gas pipeline and areas of shallow rock.

SOCIAL INFRASTRUCTURE

- Limited social infrastructure in the study areas given their rural land uses and small population.
- Land will be set aside for uses such as schools, libraries, early years facilities, sports reserves and open space.
- Forecasting the population characteristics of future residents of the growth areas assists in determining future needs.
- Co-locating social infrastructure in accessible locations with access to public transport is the preferred approach.
- Infrastructure Contribution Plans will be developed in the future to partly fund community infrastructure.
- A technical reference group has been created to provide advice on the future social infrastructure provision in the growth area and includes Ambulance Victoria, Barwon Health, Catholic Education Office, CFA, Deakin University, the Department of Education and Training, the Department of Health and Human Services, the Department of Justice, Geelong Regional Library, The Gordon, Victoria Police and internal departments of the City including Community, Family Services, Sport and Recreation, Arts and Culture, Aged and Disability, Leisure Services and Social Planning and Investment.
- Existing social infrastructure in the growth area includes Geelong Baptist College and Lovely Banks Fire Station.

Land will be set aside for uses such as schools, libraries, early years facilities, sports reserves and open space.

NORTHERN GEELONG – BIODIVERSITY

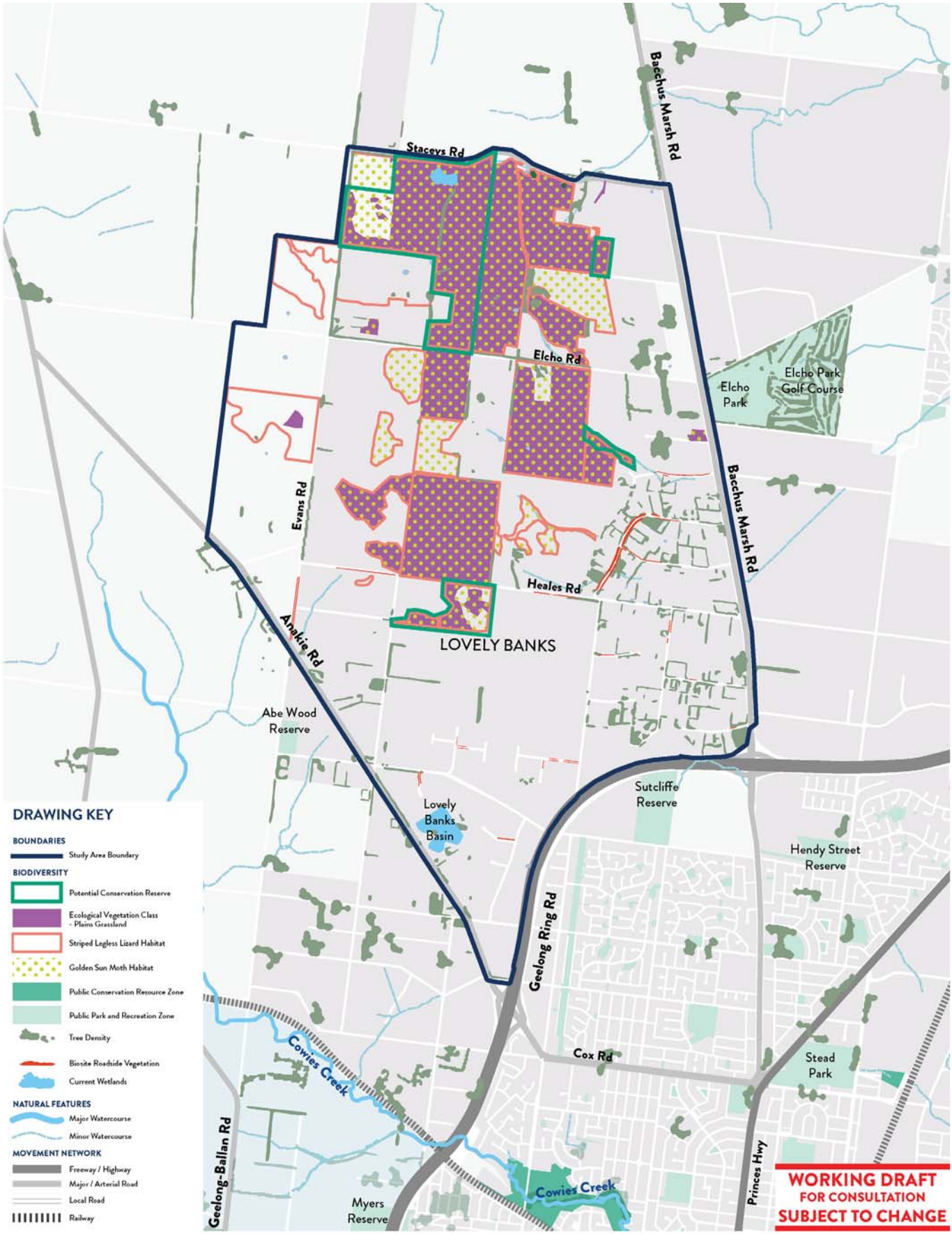


FIGURE 6 NORTHERN GEELONG - BIODIVERSITY

NATIVE FLORA AND FAUNA

- Future development will seek to retain and promote strategic retention of biodiversity within open space and drainage networks.
- Desktop analysis of the growth area and field surveys of some areas have been carried out to date. More detailed analysis will be required in future as part of any subsequent precinct structure planning processes.
- Remnant patches of native vegetation and scattered trees cover approximately 408 hectares within the growth area.
- The growth area contains native grasslands which are protected under both State and Commonwealth legislation (Western [Basalt] Plains Grassland and Native Temperate Grassland of the Victorian Volcanic Plain).
- Potential habitat for a range of Commonwealth and State listed significant flora species (Spiny Rice Flower and Large Headed Fireweed) is found within the growth area.
- Potential habitat for national, state and regionally significant fauna species (Golden Sun Moth and Striped Legless Lizard) is found within the growth area.
- High quality Plains Grassland is located south of Staceys Road and has been identified as a potential conservation area.

NORTHERN GEELONG – HERITAGE

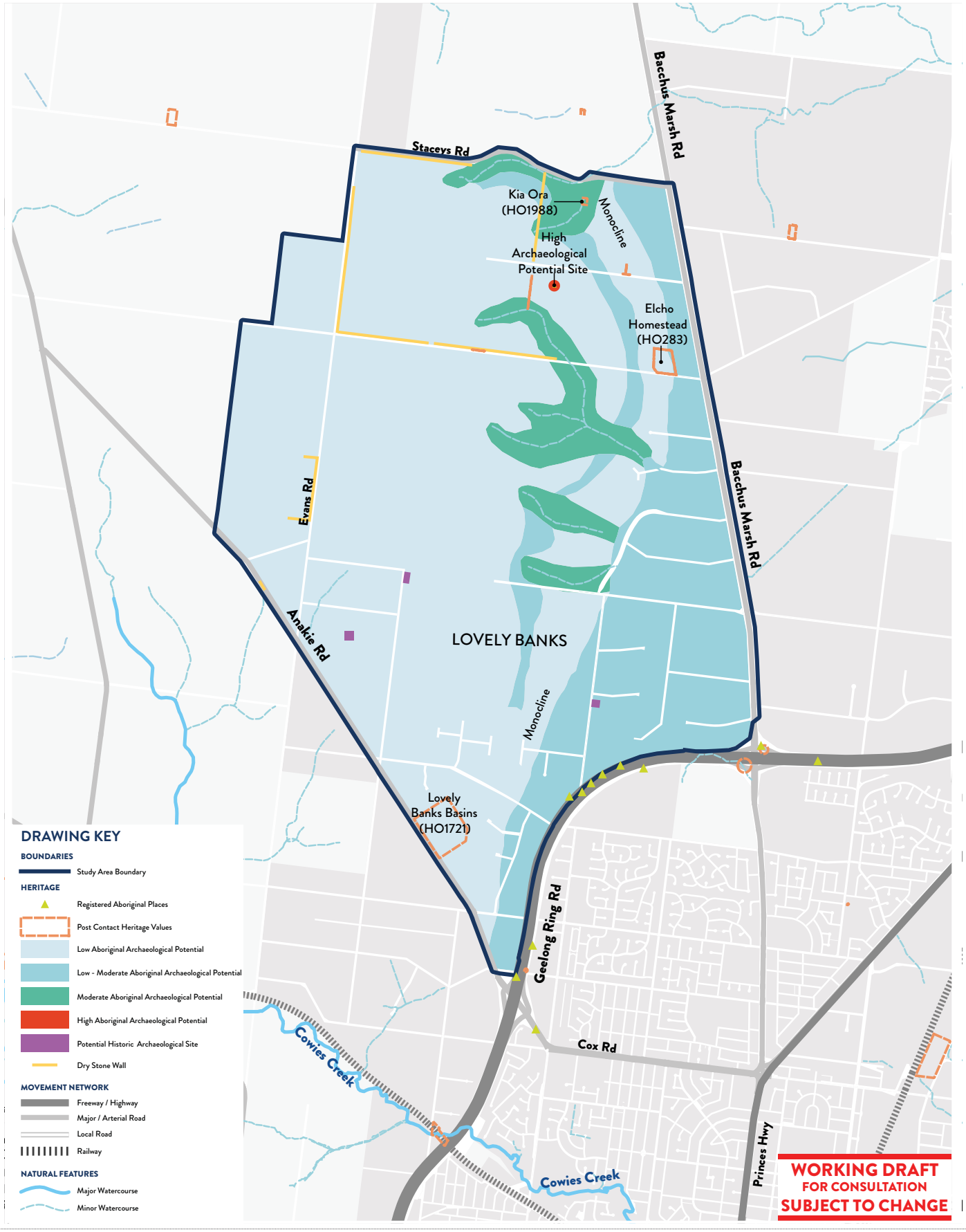


FIGURE 7 NORTHERN GEELONG - HERITAGE

The identification and protection of heritage places within the growth areas will allow for local character to be incorporated into the future urban landscape and within the open space network.

ABORIGINAL CULTURAL HERITAGE

- Two places listed on the Aboriginal Heritage Register both of which comprise a single stone artefact.
- High archaeological potential areas located on the elevated plain, to the east of the study area.
- Extensive low flat plains are not considered to be archaeologically sensitive.

POST-CONTACT HERITAGE

Six registered heritage places were identified:

- Elcho Homestead is a place of State significance and is listed on the Victorian Heritage Register (HO283), local Heritage Overlay (HO16) and National Trust Register (B1277).
- Lovely Banks Service Reservoir, 600 Anakie Road, Lovely Banks (HO1721)
- Kia Ora, 75 Staceys Road, Lovely Banks (HO1988)

Potential heritage places were identified, but not heritage listed:

- Dry stone walls, Elcho Road, Anakie Road, Evans Rd, Staceys Road
- Former House site, 350 Emmersons Road, Lovely Banks
- Former House site, 75 Tower Hill Drive, Lovely Banks
- Unknown structure, 800 Anakie Road (pending further assessment)
- Concrete market post, 800 Anakie Road, Lovely Banks (pending further assessment).

Future development will seek to retain and promote strategic retention of biodiversity within open space and drainage networks.

NORTHERN GEELONG – GEOTECHNICAL

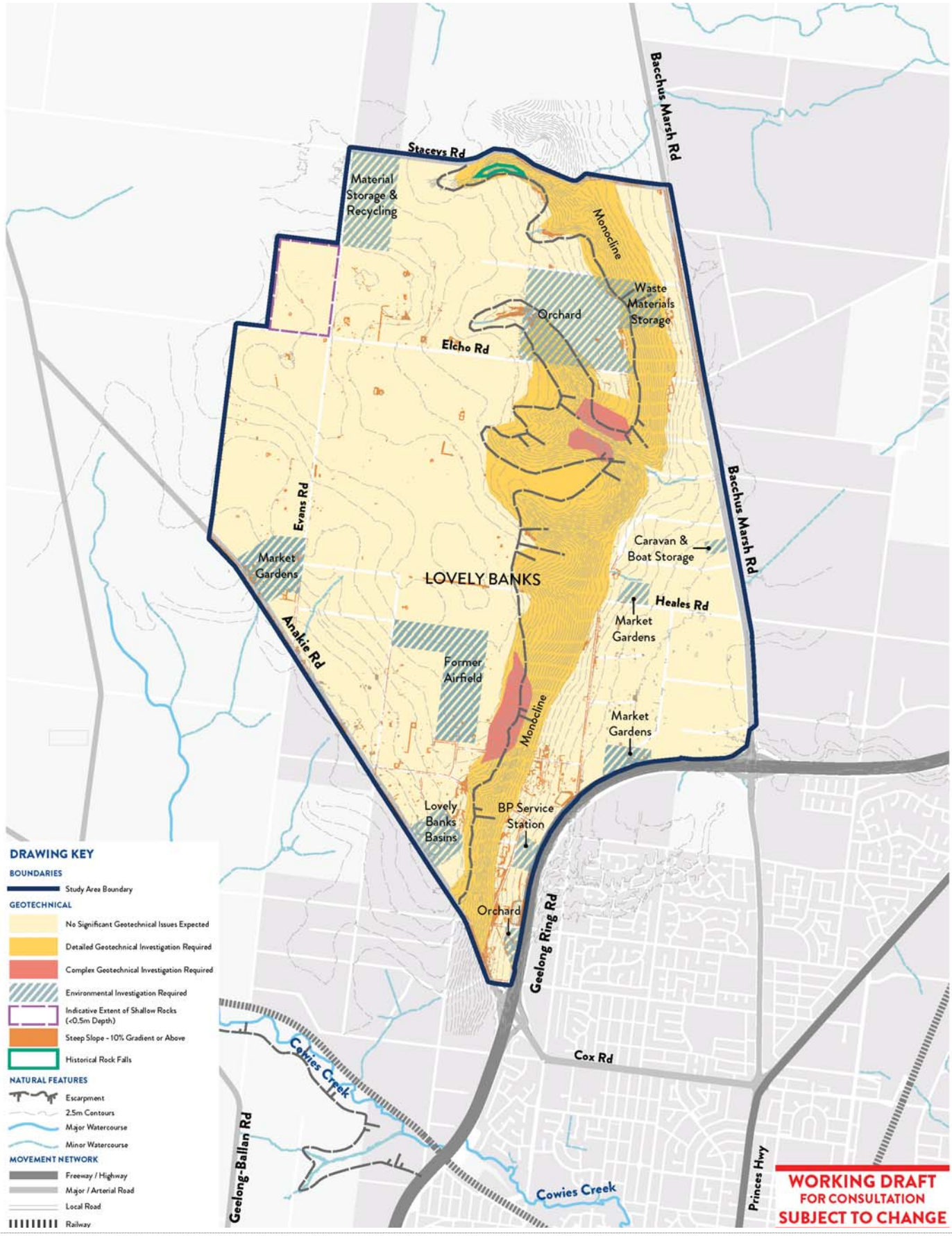


FIGURE 8 NORTHERN GEELONG - GEOTECHNICAL

OVERVIEW

- Land capability assessments have been undertaken to consider the feasibility and limitations of land development within the growth areas.
- Preliminary land capability assessments have considered the geological (earth structure and substance), hydrogeological (groundwater) and contamination (ground conditions due to existing/previous land use) characteristics of the growth areas.
- Both growth areas feature interesting and challenging topography, including areas of slope and steep and uneven terrain. Further investigation will be required in subsequent precinct structure planning processes to identify slope stability in some areas.
- Buildings and infrastructure in areas of significant slope may require a specific design response at a reduced dwelling density.
- Environmental assessments and remediation measures would be required in areas of significant potential for contamination, and limitations may be required on future land use where remediation is not possible.

SIGNIFICANT FEATURES

- The key geological feature is the Lovely Banks Monocline (steep ridge). This slope runs north-east to south-central.

TOPOGRAPHY (LAND SHAPE AND SLOPE)

- The study area is dominated by areas of relatively flat land with generally low slopes, except for the monocline which has gradients of approximately 3% up to approximately 15%.

GEOLOGY (PHYSICAL STRUCTURE AND SUBSTANCE OF THE EARTH)

- The study area is underlain predominantly by Quaternary aged Newer Volcanic deposits, as expected within the western and south-western region of Victoria
- Tertiary aged Moorabool Viaduct Sands and Fyansford Formation deposits are expected near the east-central and north-eastern sections
- The Lovely Banks Monocline has been identified as a key geological feature and can be generally identified as 'younger' movement potentially during the Pliocene to Quaternary age
- On a broad scale, the presence of shallow continuous bedrock and highly reactive and expansive soils (meaning they shrink and swell with seasonal changes in moisture conditions) would act as constraints in construction of buildings and infrastructure.

HYDROLOGY (SURFACE WATER MOVEMENT)

- The nearest significant surface water features include Cowies Creek and the Moorabool River to the south-west and Elcho Drain to the east.

HYDROGEOLOGY (GROUNDWATER)

- The underlying aquifers (permeable rocks that contain or transmit groundwater) are indicated to be within the Quaternary age Newer Volcanics basalt and the Tertiary age Moorabool Viaduct Formation Sand. The study area is within the Western Port Phillip Bay Groundwater Catchment.

ENVIRONMENTAL

- Historically the study area has been used for agricultural purposes or low density residential use
- Potential for localised contamination could be found at: Barwon Water 'Lovely Banks Basins' water storage reservoir in the south western section of the study area since pre-1928
- Former airfield central to the growth area
- EPA Priority Site at 225 Staceys Road, Lovely Banks – waste storage
- Operating service station on the Geelong Ring Road in the south of the growth area
- Several market gardens and orchards – application of pesticides and herbicides
- Farming and agricultural activities throughout the growth area

FURTHER INVESTIGATIONS

- Further investigations may be required to evaluate land capability in relation to the above sites as part of subsequent precinct structure planning processes.
- The escarpment zone in proximity to the Lovely Banks Monocline will need further geotechnical investigation to identify development requirements including any buffer zones and setback distances.

Further investigations may be required to evaluate land capability in relation to the above sites as part of subsequent precinct structure planning processes.

NORTHERN GEELONG – BUFFERS

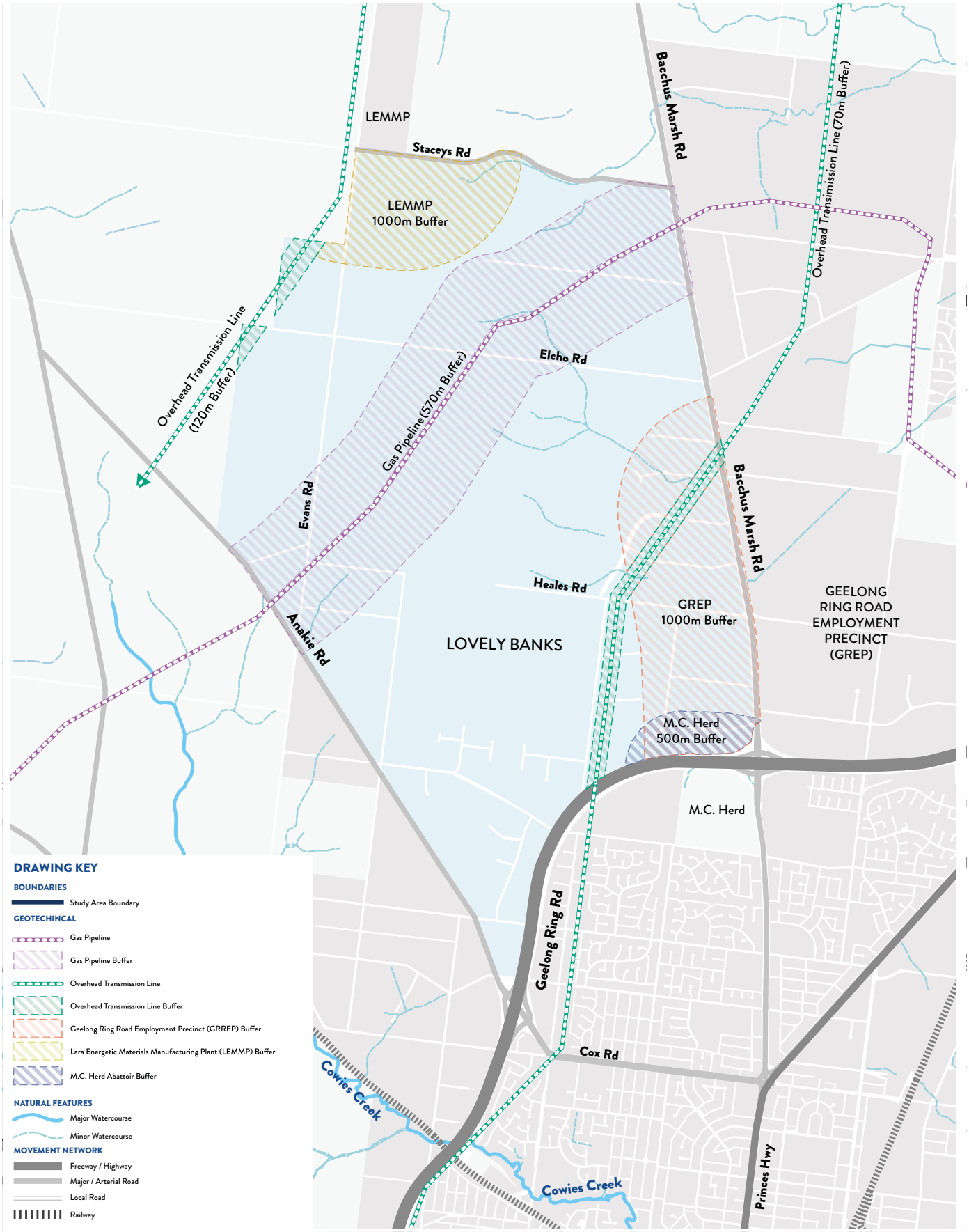


FIGURE 9 NORTHERN GEELONG - BUFFERS

Buffers may impact the future land use and development of the growth area, in particular the ability to deliver sensitive land uses such as residential development and community facilities.

T92 LARA TO IONA GAS TRANSMISSION PIPELINE

- Pipeline bisects the Northern Geelong Growth Area.
- The measurement length (buffer around the gas pipeline easement) is 570 metres.
- The measurement length seeks to ensure that no sensitive land uses are located within this area to minimise risk.

ELECTRICITY TRANSMISSION POWER LINES

- Two electricity transmission power lines and their associated easements (buffers) transect the study area.
- To the eastern extent of the study area, a 70 metre transmission line easement applies to the overhead electricity power line.
- To the north-western extent of the study area, a 140 metre buffer applies to the electricity power line.

LARA ENERGETIC MATERIAL MANUFACTURING PLANT (CHEMRING), STACEYS ROAD, LARA

- The industry buffer around the LEMMP is one kilometre and extends into the Northern Geelong Growth Area study boundary affecting land south of Staceys Road.

GEELONG RING ROAD EMPLOYMENT PRECINCT (GREP)

- The industry buffer around the GREP is one kilometre and extends into the Northern Geelong Growth Area largely affecting the Rural Living Zone land adjoining Bacchus Marsh Road.
- The purpose of the buffer is to protect the strategic employment nature of the GREP and ensure that no additional sensitive land uses (e.g. Residential) are permitted within the one kilometre buffer.

HERDS ABATTOIR, BACCHUS MARSH ROAD, CORIO

- The industry buffer around the abattoir is 500 metres and affects a small area of Rural Living Zoned land to the south-eastern extent of the study area. It largely overlaps with the GREP industry buffer.

The purpose of the buffer is to protect the strategic employment nature of the GREP and ensure that no additional sensitive land uses (e.g. Residential) are permitted within the one kilometre buffer.

NORTHERN GEELONG – DRAINAGE

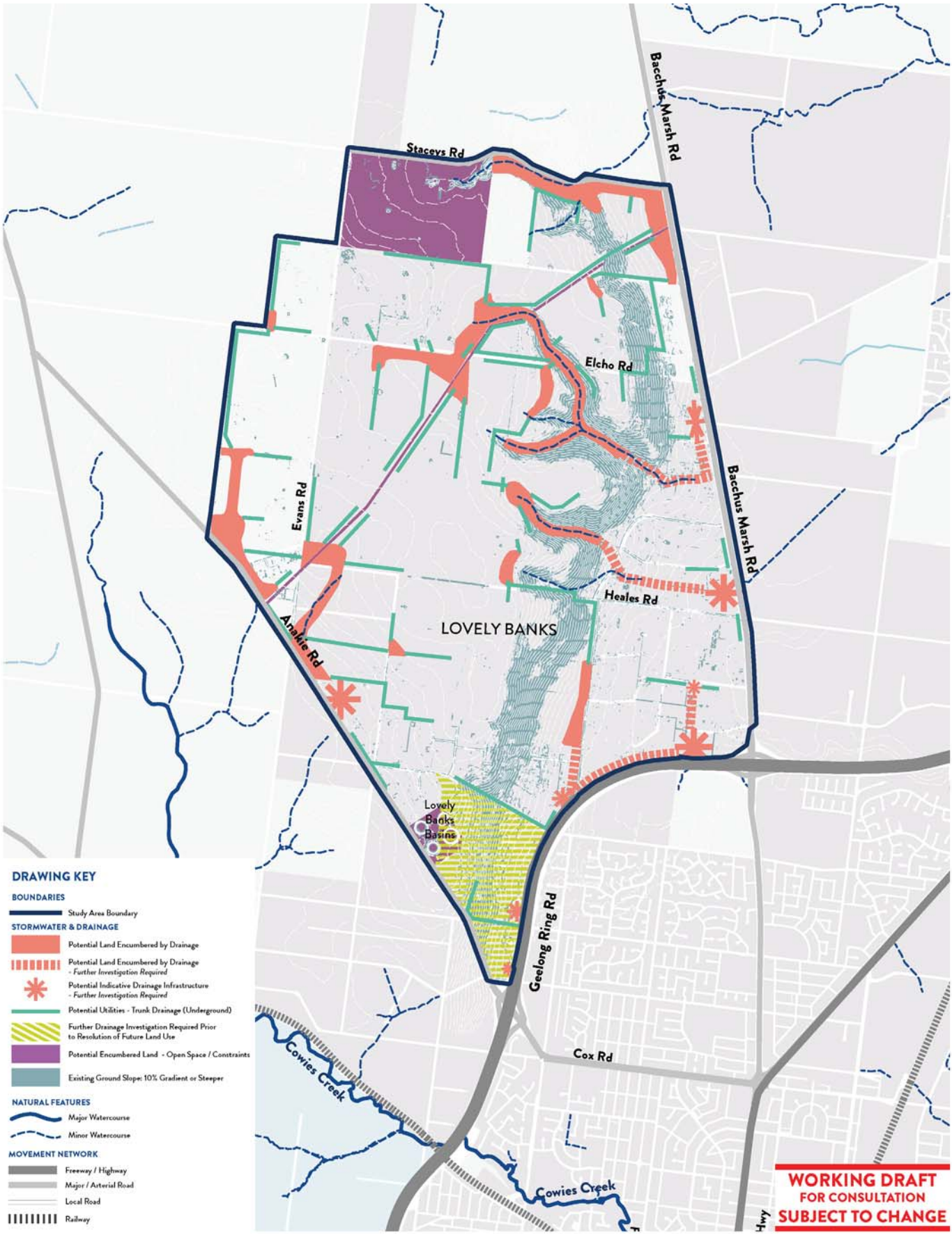


FIGURE 10 NORTHERN GEELONG - DRAINAGE

OVERVIEW

- Waterway corridors shown provide indicative areas for drainage infrastructure including open waterways, retarding and sediment basins and wetlands.
- Trunk drains (large underground pipes) are estimated but locations will be determined to correspond to the future road network.
- Drainage in the growth area will ultimately outlet to existing pipes, culverts or waterways and must be designed to avoid adverse downstream impacts.
- Stormwater drainage strategies will be designed in the context of a broader integrated water management (IWM) approach.
- IWM seeks to manage all aspects of the urban water cycle in a more holistic way and considers the interconnections between waterways, wetland and floodplains, major drainage, stormwater management, alternative water sources, drinking water, sewerage, land use and the open space network.
- IWM includes water sensitive urban design (WSUD) - an approach to planning and designing urban areas to make use of runoff and reduce the harm it can cause to waterways.
- Waterways indicated are preliminary only and subject to change as the draft framework plan is developed. Further development of the stormwater management strategy will occur as part of subsequent precinct structure planning processes to confirm locations and sizes of drainage assets and widths of waterway corridors.
- Plan shows the potential flow routes for stormwater drainage (rainwater runoff) in peak (large and rare) events at a time when the growth area has transitioned from mainly rural to urban development and does not consider impacts due to other assessment criteria such as flow volume and frequency of runoff.
- Development in the growth area will increase impervious surfaces (such as pavement and dwellings) and reduce infiltration of rainfall into the ground causing runoff volumes, flow rates and speeds to increase. Stormwater runoff from developed areas needs to be controlled by appropriately designed drainage infrastructure.
- Development and land reshaping in the growth area will reduce the current 1% AEP flood extent in some areas (for example, constructed waterways or drains are installed to convey stormwater from the area), but this cannot be the case in all locations due to the shape of the land and waterway and other factors.
- The term 1% AEP (commonly referred to as '1 in 100 year flood') refers to a rare event: there is a predicted 1% chance of that event happening in any given year.
- Plan shows the potential flow routes for stormwater drainage in peak events at a time when the growth area has transitioned from mainly rural to urban development and does not consider impacts due to other assessment criteria such as flow volume and frequency of runoff.
- The City is collaborating with key water stakeholders including Barwon Water, Corangamite Catchment Management Authority and Southern Rural Water to establish the future waterway network for the growth areas.
- The term 'encumbered' refers to land that is required for potential drainage solutions to service future development would mean that development in waterway corridors would be constrained or 'encumbered'.

FURTHER INVESTIGATIONS

The next phase of the framework planning process includes a flood impact assessment that will model the anticipated conditions based on the draft 'future urban structure plan' to identify the land and infrastructure required to manage the stormwater drainage network and downstream impacts.

Drainage infrastructure proposed throughout the growth area will be delivered as a part of the wider open space network and will be designed to co-locate with areas of biodiversity, local parks, sports reserves and community facilities.

NORTHERN GEELONG – MOVEMENT AND ACCESS

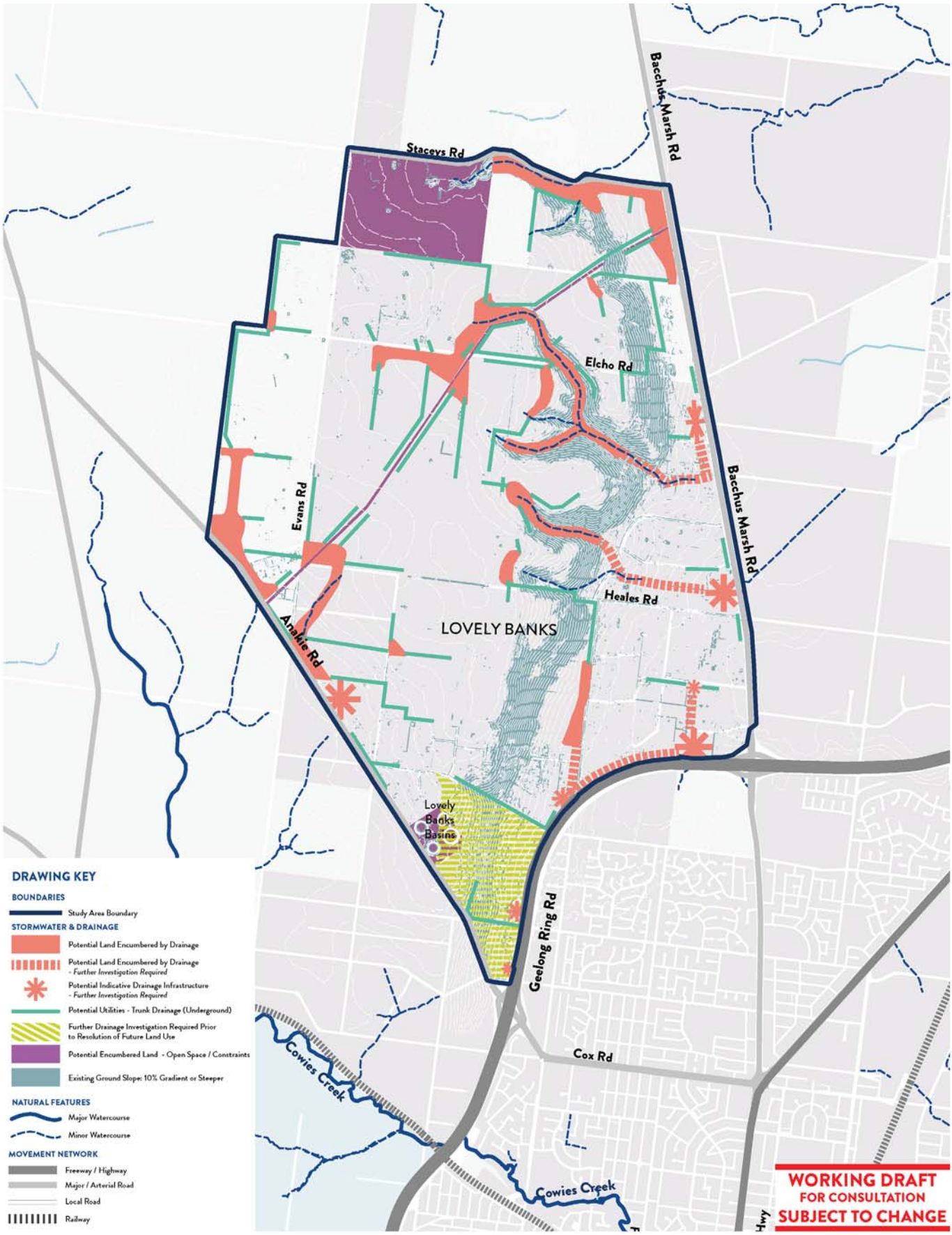


FIGURE 11 NORTHERN GEELONG - MOVEMENT AND ACCESS

ROAD NETWORK

- A future road network can provide generally grid-based major arterial roads (generally four to six-lane roads) spaced at 1.6 kilometre intervals ('one mile grid') with connector streets (high-volume two-lane roads) spaced evenly between the arterial road network.
- Major roads connecting the growth area to central Geelong and the Geelong Ring Road will be Bacchus Marsh Road (declared VicRoads arterial) and Anakie Road (Council arterial).
- Existing roads within the growth area that will require upgrades to arterial road standard include Evans Road, Elcho Road and Heales Road, creating improved connections to Lara and the Western Geelong Growth Area.
- Existing roads within the growth area requiring upgrades to connector street standard may include Staceys Road, Emmersons Road, Tower Hill Drive and other existing road reserves.
- A new north-south arterial road will be required to distribute high volumes of traffic located between Bacchus Marsh Road and Evans Road.
- New and upgraded arterial road and connector street network will be capable of facilitating bus routes with bus priority at all signalised intersections.
- Potential landform constraints to be considered in delivery of the future road and active transport network include the topography of the monocline along the eastern part, particularly in the planning for suitable walking and cycling links, and the gas pipeline and fragmented land parcels in areas of rural living.
- Walking and cycling links provided in the road network will be complemented by active transport links within the open space network to create easy connection between key destinations.
- Strategic transport modelling will test the road network established by the draft future urban structure to predict the expected traffic movements generated by the growth area and assess its effect on the surrounding existing network. Further detailed design and transport modelling will be undertaken in subsequent planning stages.
- Alignment of the future road network and design of road cross sections is refined in the precinct structure planning process.

PUBLIC TRANSPORT

- Active and public transport links will be provided throughout the growth area, with the main priority being direct links to key destinations such as activity centres, schools, community facilities and sports reserves.
- Underground gas main easement and electricity easements provide an excellent opportunity for an active transport link throughout the Northern Geelong Growth Area.
- Evans Road will be upgraded between Anakie Road and the Geelong-Ballarat rail corridor to provide active and public transport as the primary connection between the Northern and Western Geelong Growth Areas. The existing alignment of Evans Road will limit localised "interchange hopping" along the Geelong Ring Road.
- Development of the growth areas offers an opportunity for Greater Geelong to transition to a more sustainable transport future with a higher rate of public transport and active transport use throughout the region. As such, it is important that any infrastructural projects associated with these growth areas respond to these future aspirations, including future investigation of new or upgraded railway stations along the Melbourne-Geelong or Geelong-Ballarat rail corridors.

EXISTING SERVICES

- Existing public transport routes in proximity to the growth area are limited. Route 10 stops on Bacchus Marsh Road. Additional bus routes stop at Corio Village Shopping Centre (approximately 7 kilometres to the south).
- Lara Railway Station (approximately 8.5 kilometres to the north-east) and Corio Railway Station (approximately 7.5 kilometres to the south-east) are the closest railway stations.
- Existing pedestrian and cycling facilities in proximity to the growth area are limited. Existing shared paths are located along the Geelong Ring Road (Ted Wilson Trail) and Bacchus Marsh Road and there is an existing footpath on Anakie Road.

Active and public transport links will be provided throughout the growth area, with the main priority being direct links to key destinations such as activity centres, schools, community facilities and sports reserves.

NORTHERN AND WESTERN GEELONG TRANSPORT CONNECTIONS

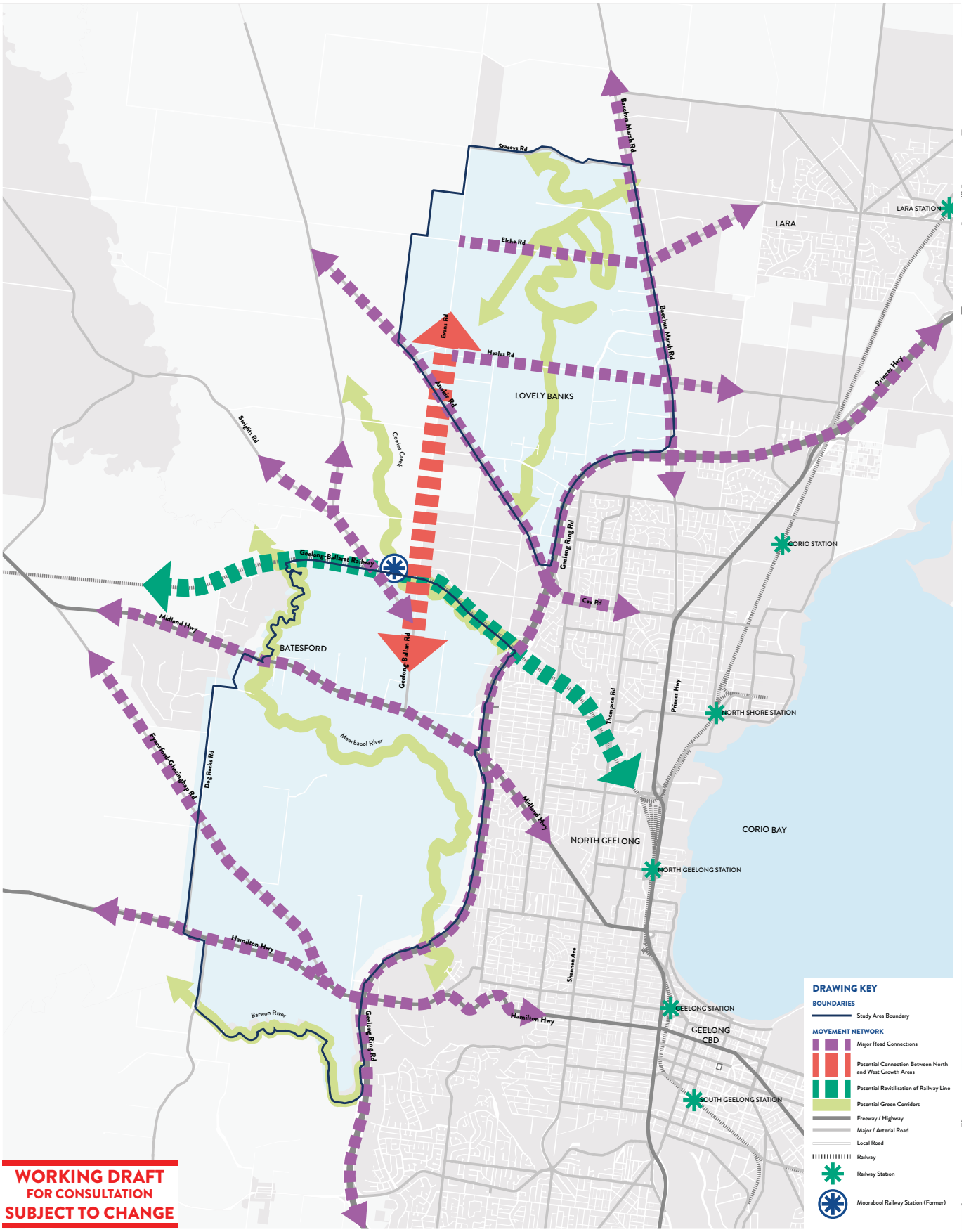


FIGURE 12 NORTHERN AND WESTERN GEELONG - TRANSPORT CONNECTIONS

ACTIVE TRANSPORT PRINCIPLES

A set of nine principles have been developed to help guide the creation of framework for the delivery of sustainable liveable communities in both the Northern and Western Geelong Growth Areas. Where appropriate, the principles may assist to inform land use planning outcomes in the framework plan and any subsequent precinct structure plan.

PRIORITY FOR ACTIVE MODES:

Designing neighbourhoods to make walking and cycling to key destinations (such as grocery stores/supermarkets, open spaces, child care centres, cafes/restaurants, and primary/secondary schools) always shorter than 'driving' alternatives.

LAND USES AND DISTANCES:

Identifying desirable distances to support the 5-minute neighbourhood living concept to give people the ability to 'live locally', meeting most of their everyday needs within a 5-minute walk, cycle or local public transport trip of their home.

CONSOLIDATED RESIDENTIAL PARKING:

Provision of centralised communal parking on neighbourhood edges, rather than providing car parking on individual residential lots, to discourage excessive reliance on the use of cars.

PARKING AND SCHOOLS:

Creating exclusion zones around schools so that there is no public parking within 500 metres of any entrance to promote children walking and cycling to school and enhance road safety for the most vulnerable road users.

ACCESSIBLE SHARED MOBILITY:

Establishing shared mobility systems within a 5-minute walk of all homes (shared bikes at a maximum of 250 metres and shared cars at a maximum of 500 metres) to encourage the use of shared vehicles and discourage high levels of vehicle ownership by residents.

DAY ONE PUBLIC TRANSPORT:

Establishing public transport services in the form of shuttle bus services that link to/from Geelong CBD in the peak periods seven days a week to discourage reliance on the use of cars for commuting trips.

ROAD DESIGN AND TRAFFIC MANAGEMENT:

Establishing a network of pedestrian and cycle friendly local roads in the form of pedestrian-bicycle priority spaces and shared zones to encourage the use of roads as spaces for people (on foot and bike), create an urban environment where people of all ages and abilities can safely walk and cycle, and discourage the use of cars for local trips.

PEDESTRIAN VILLAGES:

Designing neighbourhoods where the frontages of homes face a network of linear pedestrian/cycle park paths that connect all homes to commercial areas, parks, schools, recreation and other amenities to provide full separation for pedestrians and cyclists for the majority of their local trips.

LOCAL BUSINESS INCENTIVES:

Providing financial incentives to assist the establishment and viability of local businesses that are consistent with the land uses required to encourage active transport to promote the establishment of viable and high-quality local centres and neighbourhood activity centres that allow people to meet most of their daily needs by travelling on foot and by bike.

SOCIAL INFRASTRUCTURE, RETAIL AND EMPLOYMENT

SOCIAL INFRASTRUCTURE

Social infrastructure including schools, community and sporting facilities and local parks is vital to the development of new communities.

Initial estimates of the required social infrastructure to support the growth areas includes the following facilities and services. Estimates of provision will be further refined as part of the integrated infrastructure delivery plan (IIDP).

Northern Geelong Growth Area

- 9 primary schools
- 2 secondary schools
- 5 multi-purpose community centres
- 3 integrated children's centres
- 1 library and arts/culture centre
- 1 community health centre
- 65 hectares of passive open space (including local parks)
- 97 hectares of active open space (including sports reserves)
- 17 hectares of regional-scale active open space
- 1 emergency services hub
- 1 police station (combined growth areas)

Western Geelong Growth Area

- 11 primary schools
- 3 secondary schools
- 6 multi-purpose community centres
- 4 integrated children's centres
- 1 library and arts/culture centre
- 1 community health centre
- 1 emergency services hub
- 72 hectares of passive open space (including local parks)
- 108 hectares of active open space (including sports reserves)
- 20 hectares of regional-scale active open space
- 1 emergency services hub
- 1 police station (combined growth areas)

ACTIVITY CENTRES

Activity centres provided throughout the growth areas will ensure that the local community has good access to everyday shopping and grocery needs, local services, entertainment and employment opportunities.

A network of sub-regional, neighbourhood and local activity centres, linked by direct active and public transport routes, will include the following services:

- Sub-regional (major) activity centre: large activity centre typically comprising at least two full-line supermarkets, two discount department stores, specialty stores, and a bulky goods precinct with a combined retail floor space exceeding 50,000sqm
- Neighbourhood activity centre: activity centre typically comprising a full-line supermarket and other commercial/ retail floor space of approximately 10,000sqm
- Local activity centre: a small activity centre typically comprising a small collection of shops, and potentially including small supermarkets or large general stores, that serve the day-to-day needs of the immediate residential neighbourhood.

Initial estimates of the required activity centre network to support the growth areas includes the following centres:

Northern Geelong Growth Area

- 1 sub-regional (major) activity centre
- 3 neighbourhood activity centres
- Numerous local activity centres to be determined as part of future precinct structure planning.

Western Geelong Growth Area

- 1 sub-regional (major) activity centre
- 5 neighbourhood activity centres
- Numerous local activity centres to be determined as part of future precinct structure planning.

EMPLOYMENT LAND

Employment land is identified within each growth area to ensure that local residents have access to local jobs. The identification of employment land is based on demand generated by the anticipated population of the growth areas and in the context of Greater Geelong's broader employ-ment land availability.

The following table provides an indication of the estimated employment land required to support the growth areas by employment type.

Refer to Table 2 for employment land estimates for the growth areas.

TABLE 2: EMPLOYMENT LAND ESTIMATES FOR THE GROWTH AREAS

Precinct Type	Northern Geelong Growth Area	Western Geelong Growth Area
Health and Education ***Special Activities:*** e.g. health services, hospitals, medical centres, schools and TAFEs	50 - 55 hectares	50 - 70 hectares
Industrial ***Service Industry and Urban Support:*** e.g. car service and repair; joinery, construction and building supplies; domestic storage ***Light Manufacturing:*** e.g. printing works, clothing manufacturing, boat building, light engineering activities ***Freight and Logistics:*** e.g. warehousing and distribution activities ***Urban Services:*** e.g. concrete batching plants, bus depots, defence activities	55 - 110 hectares	70 - 135 hectares
Business/Office ***Business Parks:*** e.g. ancillary administration office to manufacturing / warehousing / distribution facility ***Office:*** e.g. finance, engineering, architectural services	15 - 20 hectares	17 – 25 hectares
Retail and related services ***Bulky Goods Retail:*** e.g. homemaker centres, hardware supplies ***Big Box Retail:*** e.g. shopping centres typically anchored by supermarkets, and sometimes department stores with other grocery stores and specialty shops, etc. ***Main Street Retail:*** e.g. clothes stores, newsagents, butchers, post offices, convenience stores and grocery stores ***Dispersed Activities:*** e.g. childcare centres, service stations, churches, gymnasiums	30 – 35 hectares	45-50 hectares
Total employment land	155-200 hectares	

WESTERN GEELONG – EXISTING CONDITIONS

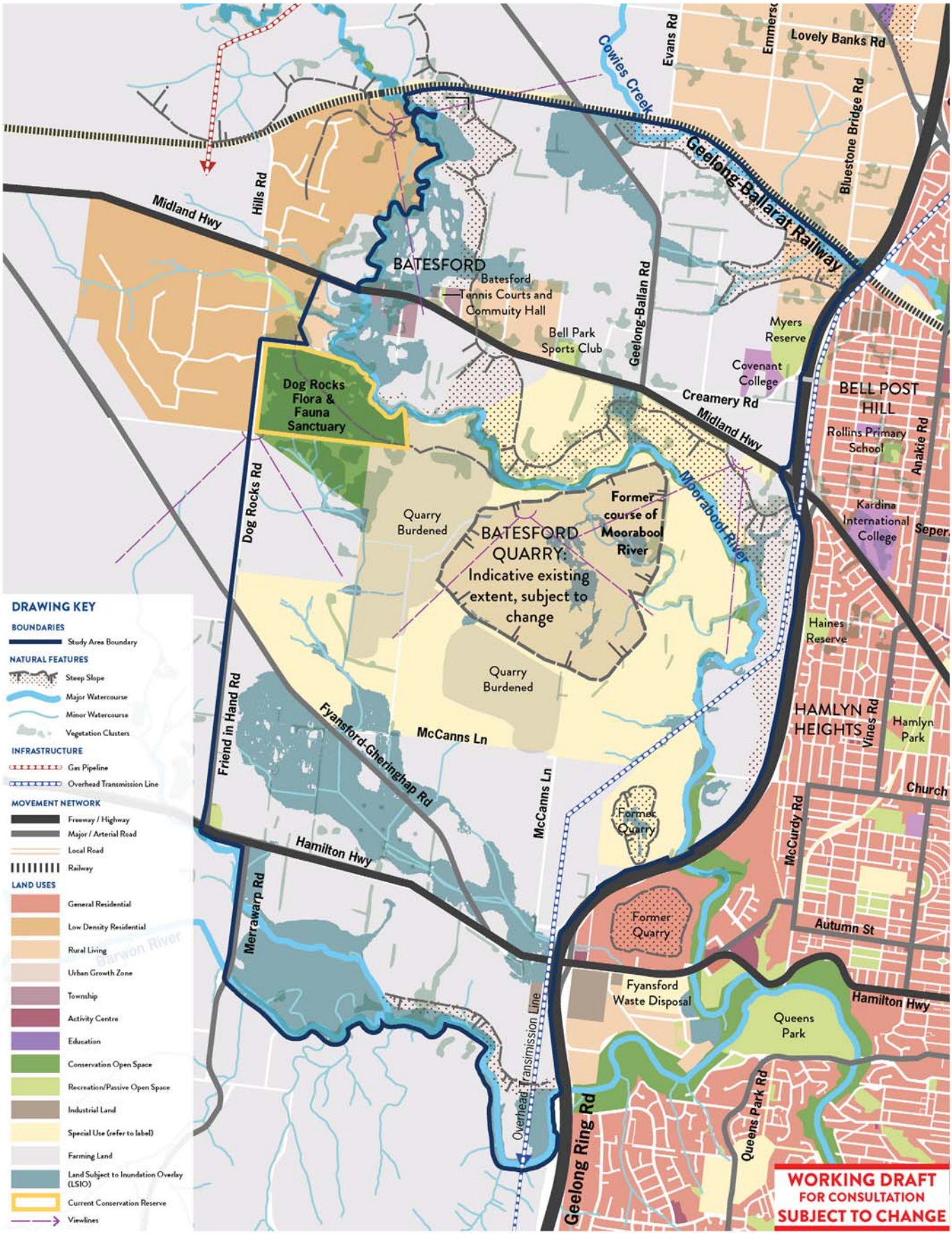


FIGURE 13 WESTERN GEELONG – EXISTING CONDITIONS

FLOODING AND DRAINAGE

- Existing waterway corridors follow the natural gradients of the land with contour lines indicating the relative elevation of the land.
- Plan provides an indication of the existing 1% annual exceedance probability (AEP) flood extent, commonly referred to as a "1 in 100 year flood".
- Under existing conditions, development of land within the 1% AEP flood extent is constrained or encumbered.
- The term 1% AEP ('1 in 100 year flood') refers to a rare event: there is a predicted 1% chance of that event happening in any given year. The flood extent shows which areas are predicted by flood modellers to be affected by the 1% AEP flood or any other area determined by the relevant authorities. This includes land in a floodway, flood storage or flood fringe area and land in urban areas due to overland flows.
- The same flood extent model that is used to illustrate inundation for existing catchment conditions will be modified to predict flood extents as part of future urban development.
- Corangamite Catchment Management Authority (CCMA) is the floodplain management authority and City of Greater Geelong is the drainage authority.
- Major waterways and floodplains of the Barwon River, Moorabool River and Cowies Creek and numerous small tributary catchments are significant landscape features of the growth area.
- Three independent drainage catchments influence the growth area: Cowies Creek, Moorabool River and Barwon River.
- Moorabool River has been diverted from its original course as part of the quarry works.
- Small catchments flow directly to the existing Batesford quarry pit, although the quarry is currently dewatered with groundwater discharged to the Moorabool River.
- Land in proximity to the Hamilton Highway is a flatter catchment featuring some drainage constraints.
- Existing conditions that will influence the drainage strategy include steep topography (surface slopes) and the interaction with existing drainage in proximity to the Batesford township.
- When the quarry operation stops, it is expected that the pit will gradually fill with groundwater and transition to a lake. Significant further investigation will be required to identify potential opportunities for development in proximity to the quarry as part of subsequent precinct structure planning processes.

SOCIAL INFRASTRUCTURE

- Limited social infrastructure in the study areas given their rural land uses and small population.
- Land will be set aside for uses such as schools, libraries, early years facilities, sports reserves and open space.
- Forecasting the population characteristics of future residents of the growth areas assists in determining future needs.
- Co-locating social infrastructure in accessible locations with access to public transport is the preferred approach.
- Infrastructure Contribution Plans will be developed in the future to partly fund community infrastructure.
- A technical reference group has been created to provide advice on the future social infrastructure provision in the growth area and includes Ambulance Victoria, Barwon Health, Catholic Education Office, CFA, Deakin University, the Department of Education and Training, the Department of Health and Human Services, the Department of Justice, Geelong Regional Library, The Gordon, Victoria Police and internal departments of the City including Community, Family Services, Sport and Recreation, Arts and Culture, Aged and Disability, Leisure Services and Social Planning and Investment.
- Existing social infrastructure in the growth area includes Convenant College, Rollins Primary School and Myers Reserve.

WESTERN GEELONG – BIODIVERSITY

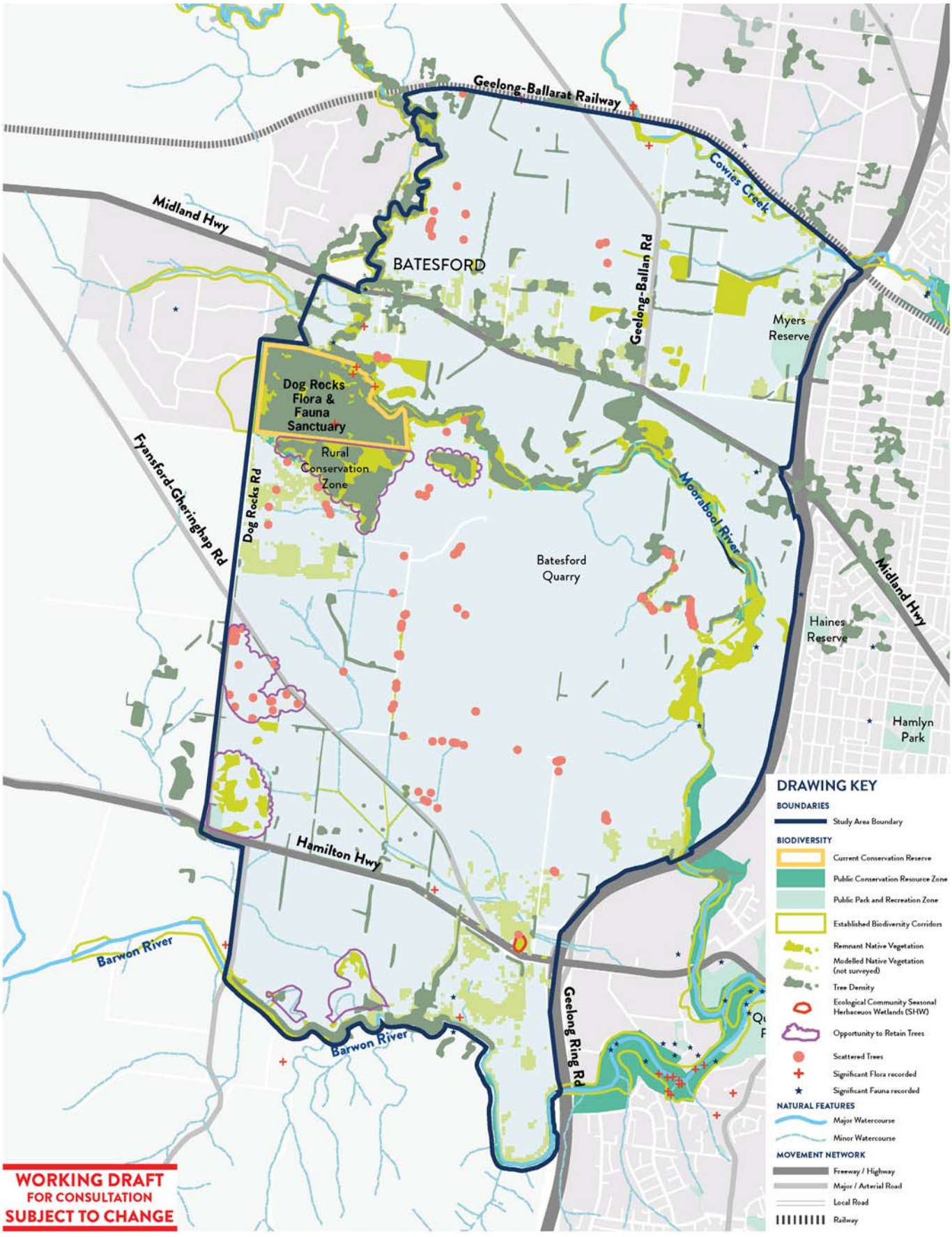


FIGURE 14 WESTERN GEELONG - BIODIVERSITY

NATIVE FLORA AND FAUNA

- Future development will seek to retain and promote strategic retention of biodiversity within open space and drainage networks.
- Desktop analysis of the growth area and field surveys of some areas have been carried out to date. More detailed analysis will be required in future as part of any subsequent precinct structure planning processes.
- Existing sites with significant biodiversity are the Barwon and Moorabool Rivers (and deviation channel) and Cowies Creek.
- The Dog Rocks Flora and Fauna Sanctuary is protected by a Trust for Nature Covenant and land to the south at Honey Woodland is also heavily vegetated.
- Approximately 268 hectares of remnant patches of native vegetation and 137 scattered trees within the study area.
- Contains ecological communities which are protected under both State and Commonwealth legislation (Western [Basalt] Plains Grassland and Natural Temperate Grassland of the Victorian Volcanic Plain and Seasonal Herbaceous Wetlands (freshwater) of the Temperate Lowland Plains).
- Known occurrence of 2 nationally significant and 5 State significant flora species (Adamson's Blown-grass, Spiny Rice Flower and Melbourne Yellow Gum, Snowy Mint-bush, Coast Hollyhock, Austral Crane's-bill and Fragrant Saltbush).
- Potential habitat for approximately 57 national, state and regionally significant fauna species, including the critically endangered Swift Parrot and endangered Macquarie Perch. The area is likely habitat for the vulnerable Australian Grayling and Growling Grass Frog at Cowies Creek.
- Potential habitat for national, state and regionally significant fauna species (Golden Sun Moth and Striped Legless Lizard) is found within the growth area.

WESTERN GEELONG – HERITAGE

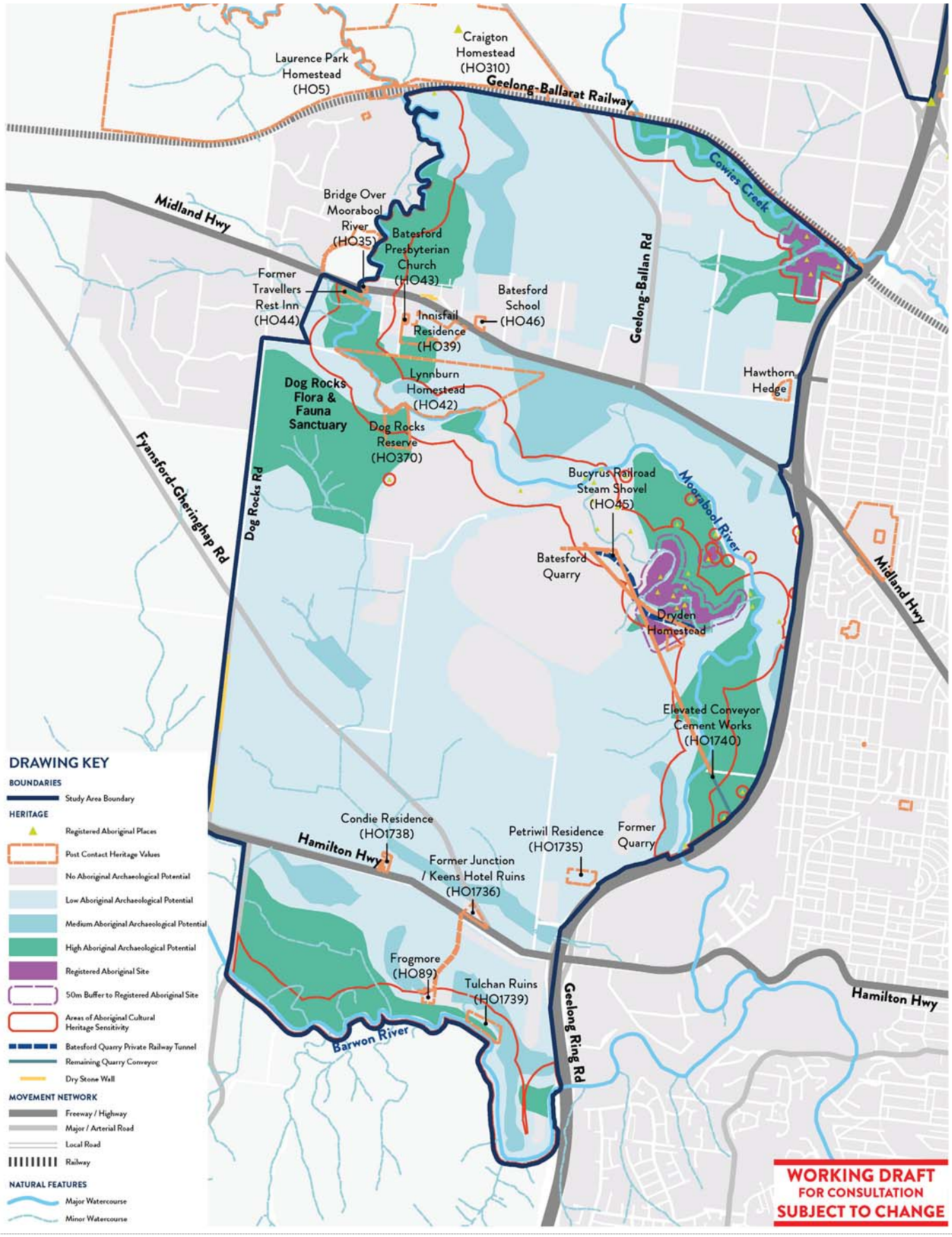


FIGURE 15 WESTERN GEELONG - HERITAGE

The identification and protection of heritage places within the growth areas will allow for local character to be incorporated into the future urban landscape and within the open space network.

ABORIGINAL CULTURAL HERITAGE

A total of thirty-three registered Aboriginal places were identified in the study area.

High Aboriginal archaeological potential areas:

- Moorabool River, Barwon River and Cowies Creek are all identified as areas of Aboriginal cultural heritage sensitivity.

Moderate Aboriginal archaeological potential areas:

- The crest of the escarpment, overlooking Barwon River
- Small hill crest, north of Barwon River, overlooking the floodplain
- Margins of two small waterways, north of Hamilton Highway and Fyansford-Gheringhap Road
- The crest of the escarpment, overlooking Moorabool River
- A small hill/knoll between Batesford and Moorabool River to the south.

Low Aboriginal archaeological potential areas:

- All other areas demonstrate low archaeological sensitivity
- Limited investigations have been undertaken to date and there are likely to be more Aboriginal archaeological sites in the study area.

POST-CONTACT CULTURAL HERITAGE

A total of fifteen registered heritage places were found in the study area.

Three places of State significance that are listed on the Victorian Heritage Register:

- Former Travellers Rest Inn, 750 Midland Highway
- Frogmore, 425-465 Hamilton Highway
- Bridge over Moorabool River, Batesford

Two archaeological places were identified and were formerly listed on the Victorian Heritage Inventory

- Elevated conveyor, Geelong Cement Works, Batesford Quarry
- Hawthorn Hedge, Creamery Road, 110 Creamery Road, Batesford

Ten places listed on the local Heritage Overlay, three of which are also listed on the National Trust Register.

Refer to Figure 15 for local heritage overlay sites.

Places of potential heritage values:

- Dry stone walls along Friend-in-Hand Road
- Three walls in Batesford along Old Ballarat Road and along Cross Street
- Dryden Homestead, 200 McCanns Lane, Fyansford.

WESTERN GEELONG – GEOTECHNICAL

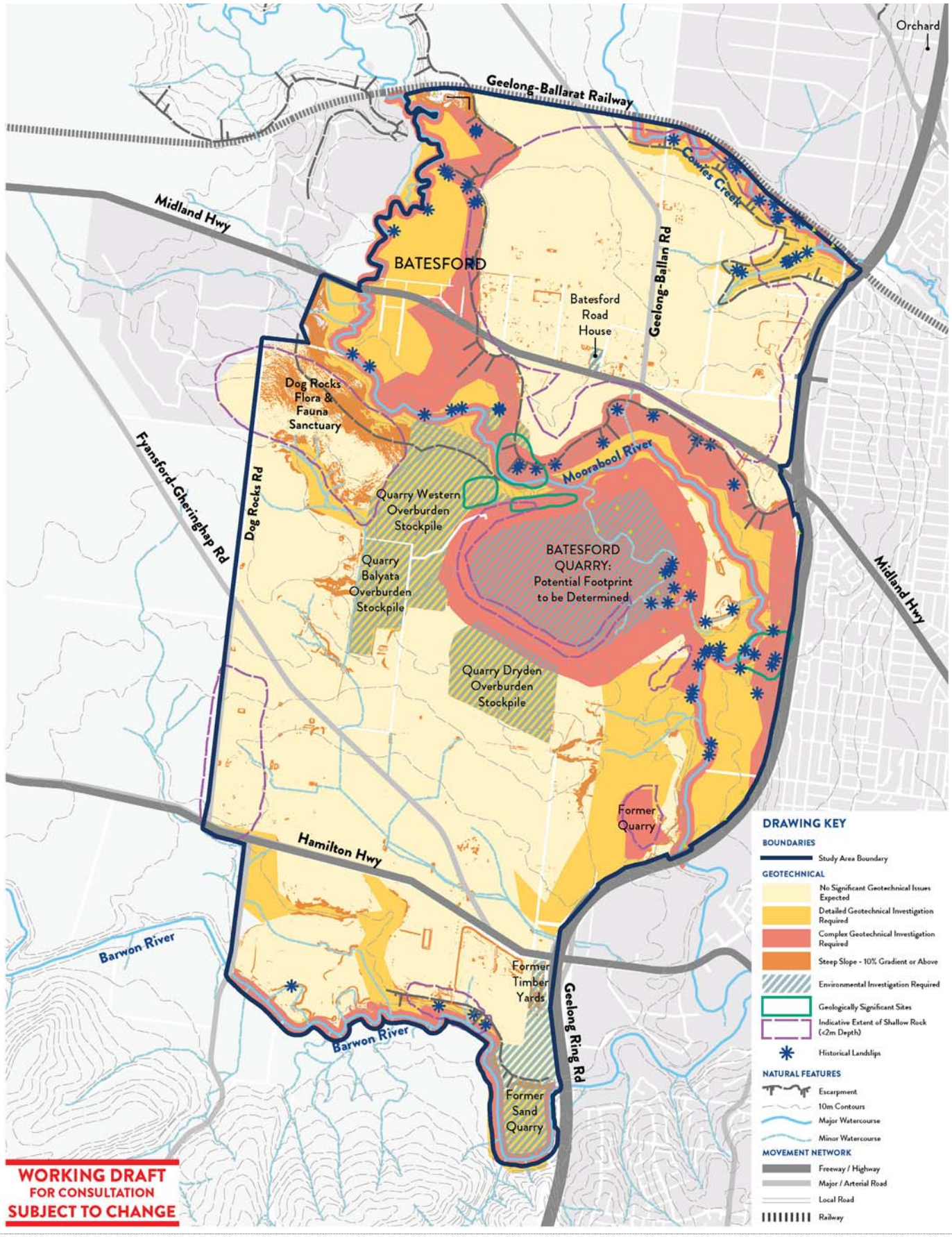


FIGURE 16 WESTERN GEELONG - GEOTECHNICAL

OVERVIEW

- Land capability assessments have been undertaken to consider the feasibility and limitations of land development within the growth areas.
- Preliminary land capability assessments have considered the geological (earth structure and substance), hydrogeological (groundwater) and contamination (ground conditions due to existing/previous land use) characteristics of the growth areas.
- Both growth areas feature interesting and challenging topography, including areas of slope and steep and uneven terrain. Further investigation will be required in subsequent precinct structure planning processes to identify slope stability in some areas.
- Buildings and infrastructure in areas of significant slope may require a specific design response at a reduced dwelling density.
- Environmental assessments and remediation measures would be required in areas of significant potential for contamination, with limitations on future land use where remediation is not possible.

SIGNIFICANT FEATURES

- Batesford limestone quarry (still in operation): The quarry walls are being shaped to stable slopes approved by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR)
- Three soil stockpiles are located around the quarry, made from unwanted quarry materials
- Two separate smaller (former) quarries are located in the south-eastern corners of the site, one sand and one basalt.
- Large landslips have historically occurred on the banks of the Moorabool River, with smaller slips occurring on the banks of Cowies Creek and the Barwon River.

TOPOGRAPHY (LAND SHAPE AND SLOPE)

- The study area is dominated by areas of land with generally shallow slope gradients, except for the areas adjacent to the watercourses and quarry.

GEOLOGY (PHYSICAL STRUCTURE AND SUBSTANCE OF THE EARTH)

- The study area is underlain by a series of geological units, with Newer Volcanics Basalt and Moorabool Viaduct Sands dominating the near surface materials. Fyansford Formation clay is exposed on the Moorabool River and Cowies Creek banks.
- There are 4 geological and geomorphological sites of significance within the study area. These relate to a rotational slump on the bank of the Moorabool River, an exposure of Batesford Limestone, an exposure of Tertiary age deposits and outcrops of granite and epidiorite.
- In selected locations, the presence of shallow rock and clays (the latter which are subject to shrink swell movements with seasonal changes in moisture conditions) would act as constraints in construction of buildings and infrastructure.

HYDROLOGY (SURFACE WATER MOVEMENT)

- The Moorabool River, Cowies Creek and the Barwon River are significant water features that cross the site. Local to the quarry, the Moorabool River was diverted from its original course as part of the quarry works.

HYDROGEOLOGY (GROUNDWATER)

- The underlying aquifers (permeable rocks that contain or transmit groundwater) are indicated to be the Quaternary age basalt, Tertiary age Moorabool Viaduct Sands, Tertiary age Batesford Limestone and the basement bedrock.
- The existing quarry is currently dewatered, with the groundwater discharging to the Moorabool River.
- When the quarry operation stops, the pit will gradually fill part-way with groundwater to become a lake. Significant further investigation is required to identify potential opportunities for development around this area.

ENVIRONMENTAL

- Historically the study area consisted of open grazing land across most of the precinct, with local vineyards and an orchard.
- The quarry has been in use from 1888 and there are soil stockpiles beside the quarry that contain potential waste products at depth.
- Potential for localised contamination could also exist at:
  - Retailing of fuels at the Batesford Roadhouse
  - Historical timber treatment and current waste recyclers on Hamilton Highway
  - Storage and maintenance of heavy machinery along with associated fuels and oils within the quarry site
  - Sand quarry and backfill operation adjacent to Barwon River in the south-eastern corner of the precinct.

FURTHER INVESTIGATIONS

- Further investigations may be required to evaluate land capability in relation to the above sites as part of subsequent precinct structure planning processes.
- Land in proximity to the Batesford quarry and stockpiles and waterway corridors and floodplains will require significant further investigation to identify potential opportunities for development including any setback distances.

WESTERN GEELONG – BUFFERS

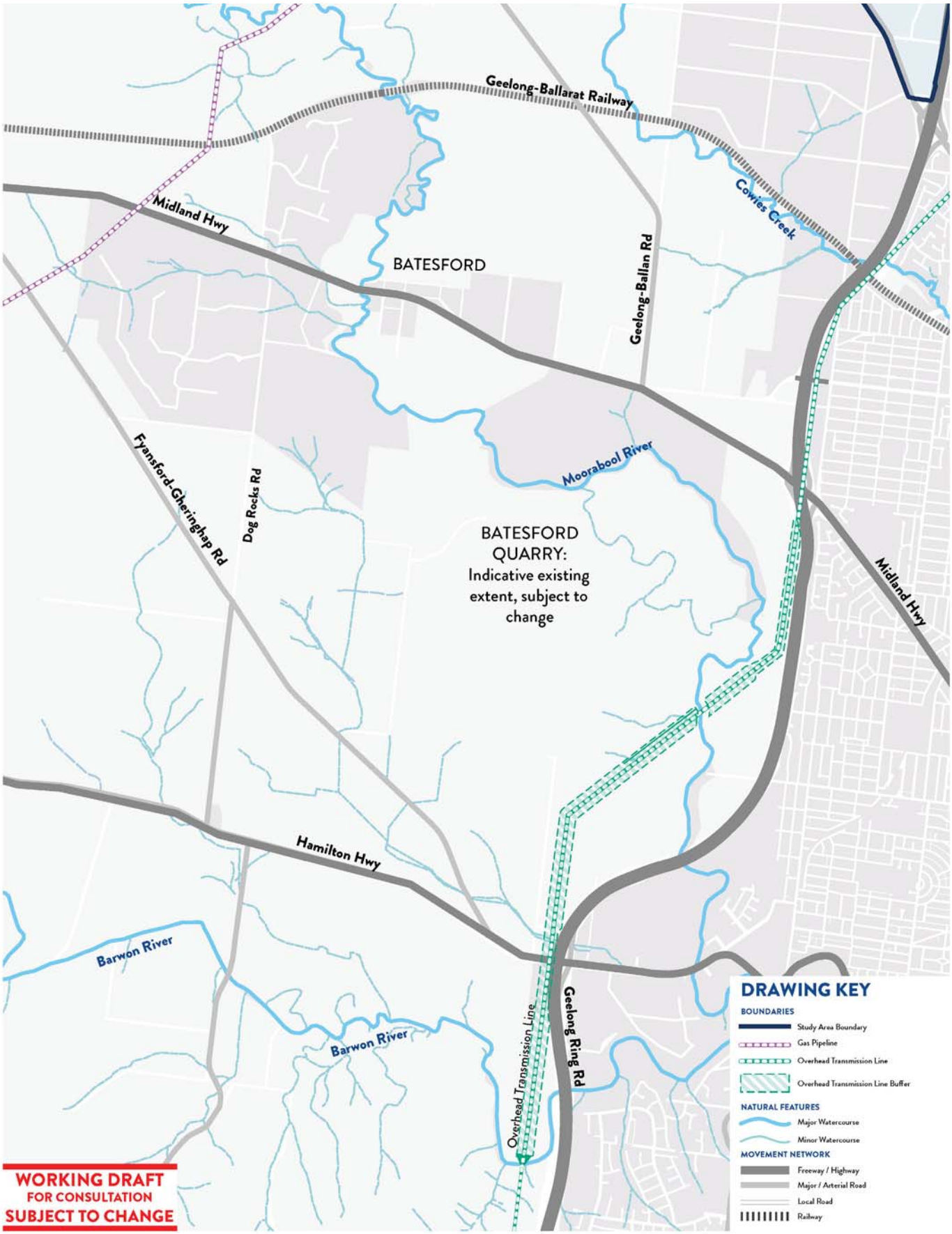


FIGURE 17 WESTERN GEELONG - BUFFERS

Buffers may impact the future land use and development of the growth area, in particular the ability to deliver sensitive land uses such as residential development and community facilities.

ELECTRICITY TRANSMISSION POWER LINES

- One electricity transmission power line and its associated easement (buffer) runs north/south along the eastern boundary of the study area.
- A 70 metre buffer applies to transmission line easement.

WESTERN GEELONG – DRAINAGE

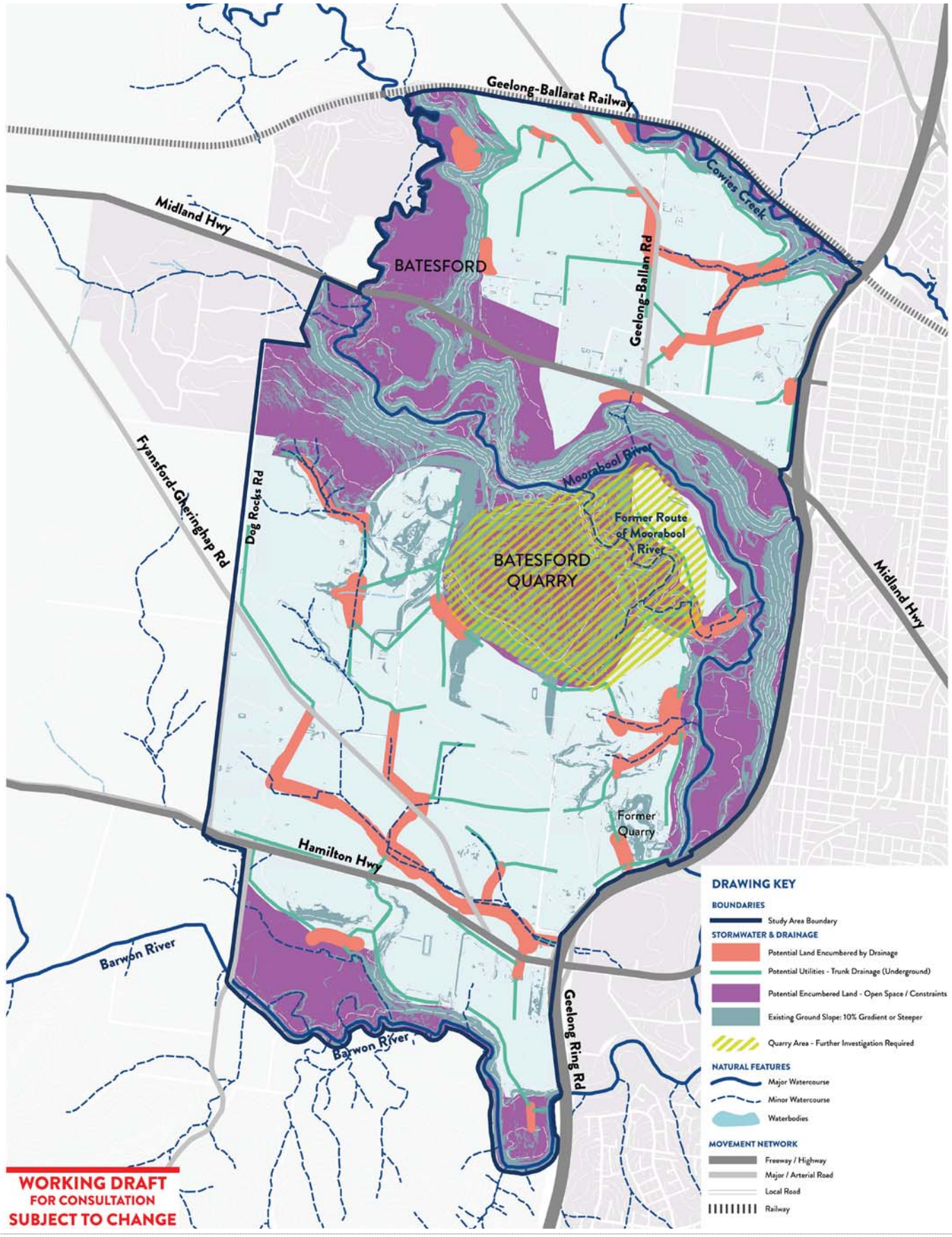


FIGURE 18 WESTERN GEELONG - DRAINAGE

OVERVIEW

- Waterway corridors shown provide indicative areas for drainage infrastructure including open waterways, retarding and sediment basins and wetlands.
- Trunk drains (large underground pipes) are estimated but locations will be determined to correspond to the future road network.
- Drainage in the growth area will ultimately outlet to existing pipes, culverts or waterways and must be designed to avoid adverse downstream impacts.
- Stormwater drainage strategies will be designed in the context of a broader integrated water management (IWM) approach.
- IWM seeks to manage all aspects of the urban water cycle in a more holistic way and considers the interconnections between waterways, wetland and floodplains, major drainage, stormwater management, alternative water sources, drinking water, sewerage, land use and the open space network.
- IWM includes water sensitive urban design (WSUD) - an approach to planning and designing urban areas to make use of runoff and reduce the harm it can cause to waterways.
- Waterways indicated are preliminary only and subject to change as the draft framework plan is developed. Further development of the stormwater management strategy will occur as part of subsequent precinct structure planning processes to confirm locations and sizes of drainage assets and widths of waterway corridors.
- Plan shows the potential flow routes for stormwater drainage (rainwater runoff) in peak (large and rare) events at a time when the growth area has transitioned from mainly rural to urban development and does not consider impacts due to other assessment criteria such as flow volume and frequency of runoff.
- Development in the growth area will increase impervious surfaces (such as pavement and dwellings) and reduce infiltration of rainfall into the ground causing runoff volumes, flow rates and speeds to increase. Stormwater runoff from developed areas needs to be controlled by appropriately designed drainage infrastructure.
- Development and land reshaping in the growth area will reduce the current 1% AEP flood extent in some areas (for example, constructed waterways or drains are installed to convey stormwater from the area), but this cannot be the case in all locations due to the shape of the land and waterway and other factors.
- The term 1% AEP (commonly referred to as '1 in 100 year flood') refers to a rare event: there is a predicted 1% chance of that event happening in any given year.
- Drainage infrastructure proposed throughout the growth area will be delivered as a part of the wider open space network and will be designed to co-locate with areas of biodiversity, local parks, sports reserves and community facilities.
- The City is collaborating with key water stakeholders including Barwon Water, Corangamite Catchment Management Authority and Southern Rural Water to establish the future waterway network for the growth areas.
- The term 'encumbered' refers to land that is required for potential drainage solutions to service future development would mean that development in waterway corridors would be constrained or 'encumbered'.

WESTERN GEELONG – MOVEMENT AND ACCESS

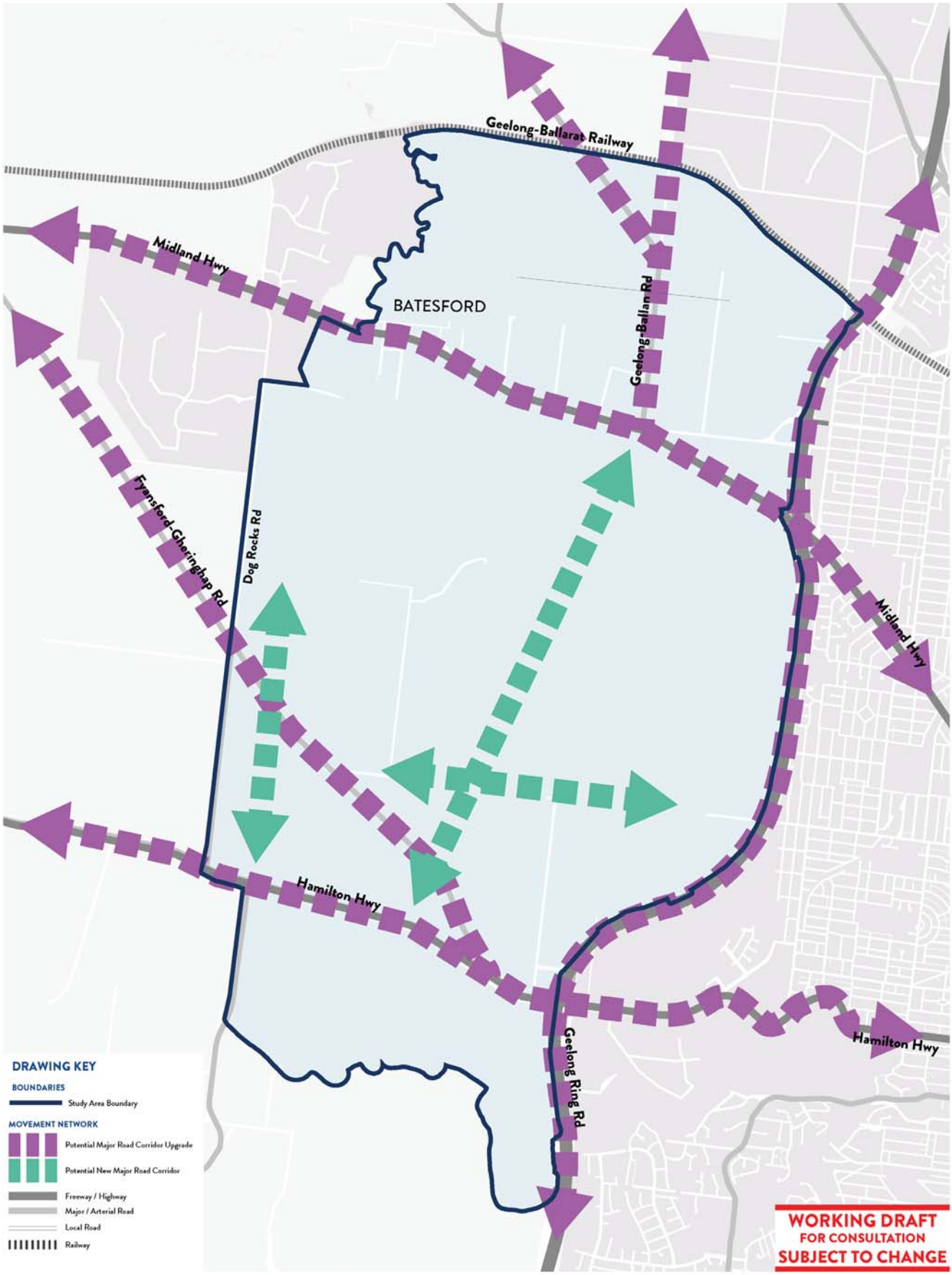


FIGURE 19 WESTERN GEELONG – MOVEMENT AND ACCESS

ROAD NETWORK

- As practicable, a grid-based road network with major arterial roads (generally four to six-lane roads) spaced at 1.6 kilometre intervals ('one mile grid') with connector streets (high-volume two-lane roads) spaced evenly between the arterial road network.
- Major roads connecting the growth area to central Geelong and the Geelong Ring Road will be the Midland Highway (declared VicRoads arterial), in its existing or future alignment, and the Hamilton Highway (declared VicRoads arterial).
- VicRoads is currently undertaking the Midland Highway Upgrade Business Case project that is considering upgrade options including duplication of the existing alignment or bypass options. The City of Greater Geelong is liaising closely with VicRoads on this project; however, the ultimate alignment will be determined by VicRoads.
- Existing roads within the growth area that will require upgrades to arterial road standard include Evans Road, creating improved connection to the Northern Geelong Growth Area.
- Existing roads within the growth area requiring upgrades to connector street standard may include Geelong-Ballan Road, Creamery Road, Fyansford-Gheringhap Road and Dog Rocks Road and Merrawarp Road and other existing road reserves.
- A new north-south arterial road will be required to distribute high volumes of traffic located between the Midland Highway and the Hamilton Highway. The construction of this link is a long-term project and the delivery of the project, including the proposed alignment, will be associated with the future transition of the Batesford quarry.
- Additional new arterial roads may be required throughout the precinct to distribute high volumes of traffic: an east-west road to the north of the Midland Highway, an east-west road to the south of the quarry, and a north-south road in the western part of the growth area.
- New and upgraded arterial road and connector street network will be capable of facilitating bus routes with bus priority at all signalised intersections.
- Potential landform constraints to be considered in delivery of the future road and active transport network including the steep topography around the quarry, quarry stockpile areas, and adjacent to all of the major waterways, particularly in the planning for suitable walking and cycling links.
- Walking and cycling links provided in the road network will be complemented by active transport links within the open space network to create easy connection between key destinations.
- Strategic transport modelling will test the road network established by the draft future urban structure to predict the expected traffic movements generated by the growth area and assess its effect on the surrounding existing network. Further detailed design and transport modelling will be undertaken in subsequent planning stages.
- Alignment of the future road network and design of road cross sections is refined in the precinct structure planning process.

PUBLIC TRANSPORT

- Active and public transport links will be provided throughout the growth area, with the main priority being direct links to key destinations such as activity centres, schools, community facilities and sports reserves.
- The Barwon and Moorabool river corridors will provide significant active transport links within the Western Geelong Growth Area and form the basis for an extensive shared path network within the open space corridors.
- Evans Road will be upgraded between Anakie Road and the Geelong-Ballarat rail corridor to provide active and public transport as the primary connection between the Northern and Western Geelong Growth Areas. The existing alignment of Evans Road will limit localised "interchange hopping" along the Geelong Ring Road.
- Development of the growth areas offers an opportunity for Greater Geelong to transition to a more sustainable transport future with a higher rate of public transport and active transport use throughout the region. As such, it is important that any infrastructural projects associated with these growth areas respond to these future aspirations, including future investigation of new or upgraded railway stations along the Melbourne-Geelong or Geelong-Ballarat rail corridors.

EXISTING SERVICES

- Existing public transport routes in proximity to the growth area are limited. Route 19 to Bannockburn operates along Midland Highway, as does a VLine bus service to Ballarat and beyond. Route 25 operates east of the study area on Rollins Road to Creamery Road. School buses also travel along Midland and Hamilton Highways.
- North Geelong Railway Station (approximately 3 kilometres to the east) and Geelong Railway Station (approximately 5 kilometres to the east) are the closest railway stations.
- The Geelong-Ballarat rail corridor on the northern study boundary currently caters for freight rail only. Passenger services previously operated along this section of rail line with the former Moorabool Railway Station abutting the study area.
- Existing pedestrian and cycling facilities in proximity to the growth area are limited. Existing shared paths are located along Midland Highway (Ballan Road to Geelong Ring Road, and west of Dog Rocks Road), Geelong Ring Road (Ted Wilson Trail), Bluestone Bridge Road (with underpass to Geelong Ring Road, Cowies Creek Trail), Barwon River Trail and Tom McKean Trail (along former Cement Works rail line in Herne Hill).

ENQUIRY BY DESIGN

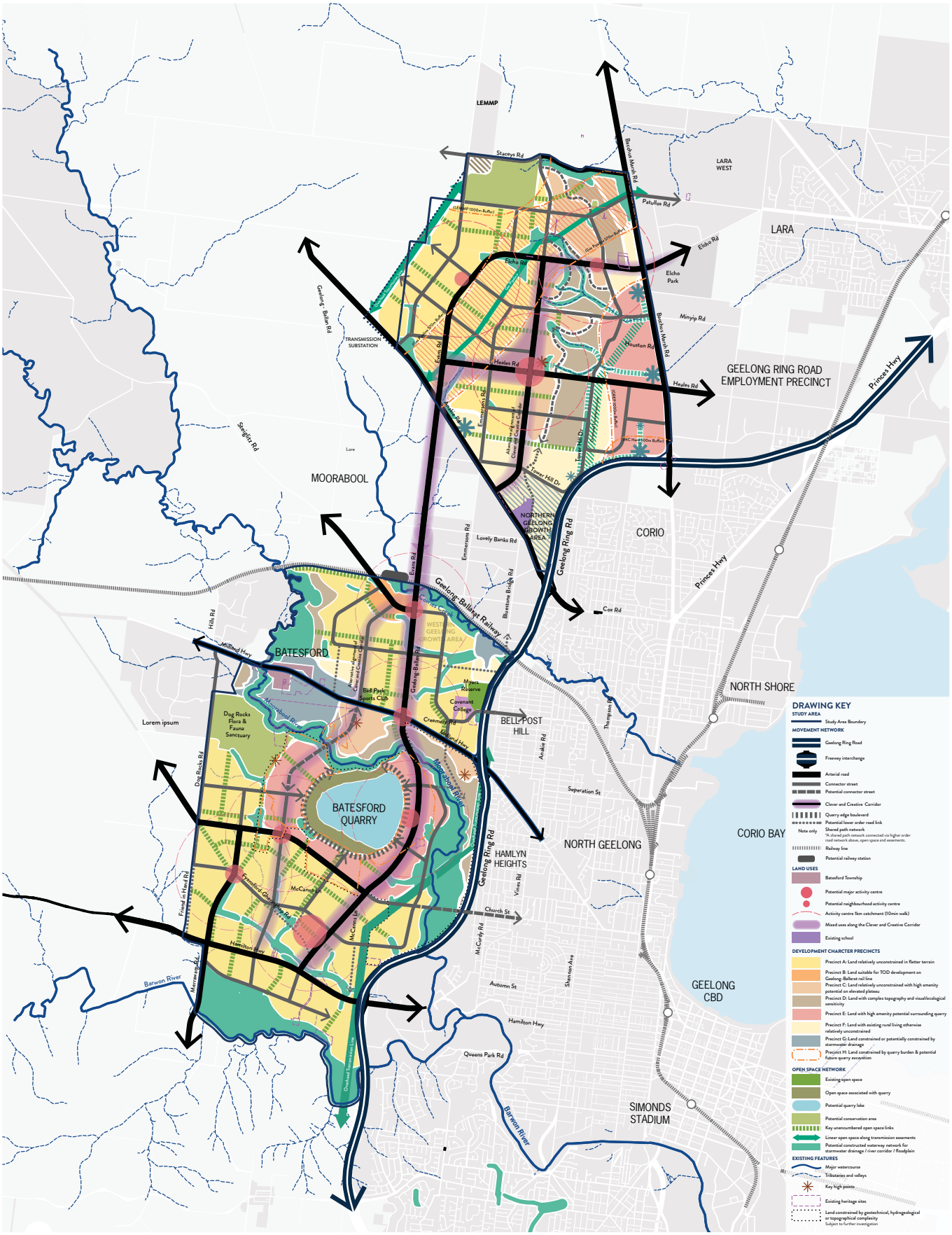


FIGURE 20 NORTHERN AND WESTERN GEELONG GROWTH AREAS – ENQUIRY BY DESIGN PLAN

In November 2017, the City hosted three 'Enquiry by Design' workshops to assist the development of a draft 'future urban structure plan.' These sessions were attended by key stakeholders to shape the future urban structure using information gathered as part of the preliminary technical studies and a series of overarching urban design principles.

PROCESS

The workshop was undertaken in a way that allowed stakeholders to be informed of the project thus far, including a detailed presentation of the site analysis layers and a first look at the draft framework plan.

The workshop delivered the following:

- Update stakeholders and landowners on the progress of the project, purpose of the Enquiry by Design workshop and revisit the established vision and principles for each growth area
- Present the outcomes of the vision and principles workshop
- Introduce the big picture concept – the 'Clever and Creative Corridor' (CCC)
- Present the site analysis layers to inform stakeholders of the opportunities and constraints of each growth area
- Explore elements of the preliminary plan by presenting each layer with a design response
- Discuss key themes of the plan that will have implications for land use, development and infrastructure provisions by posing questions in the workshop discussion
- Explore elements of the plan with relevant agencies to understand conventional requirements and identify potential for innovation and best practice outcomes that challenge those standards.

WHAT IS THE ENQUIRY BY DESIGN?

SITE ANALYSIS	The site analysis set the scene for the Enquiry by Design, with each growth area presented to stakeholders in layers that outlined land use opportunities and constraints based on preliminary technical information.
DESIGN RESPONSE	The design response unveiled a preliminary urban structure plan for each growth area highlighting precincts with unique development character and illustrating potential networks for open space, movement and activity centres.
ENQUIRY BY DESIGN	Stakeholders engaged in a series of discussions relating to the preliminary urban structure plan, considering several land use and development questions for each growth area including the preferred location of employment land, how the principles of the '20-minute neighbourhood' can be achieved, how the points of difference in landform can be exploited, and how the proposal for a 'Clever and Creative Corridor' can be activated.

ENQUIRY BY DESIGN









WORKSHOP FINDINGS

The key findings of the Enquiry by Design workshop is summarised below:

Northern and Western Geelong Growth Areas

'CLEVER AND CREATIVE CORRIDOR'

Enquiry by Design workshop consensus:

The 'Clever and Creative Corridor' concept – a transport corridor linking activity centres, schools, community hubs and key open space nodes – is widely supported as a means to create a focal point in the growth areas to satisfy the City's measures of success for 'A Clever and Creative Future' and the facilitation of '20-minute neighbourhoods'.

Additional key considerations:

- The corridor should incorporate public transport and active transport that encourages users to prioritise car-free movement.
- The corridor should be removed from the arterial road network to avoid 'place making' land use conflicting with high-volume traffic movement.
- The corridor can provide a point of difference for new neighbourhoods that is identifiable and unique to Geelong.
- Details of the form and delivery of the corridor must be further established, including adjoining land uses and zoning required to activate the corridor.
- The corridor should facilitate connections into central Geelong.
- Opportunities for WSUD within the corridor should be explored.
- The corridor may be difficult to activate along its proposed length.
- The corridor may not be continuous and can operate on a series of desire lines.
- Locating of schools and community facilities along the corridor should be prioritised.
- Employment capacity along the corridor should be further investigated, including office, retail, mixed use and entertainment.
- Direct links to the corridor within neighbourhoods should be considered as part of subdivision.
- Conditions for the activation of the corridor must be established, allowing for robust and flexible design elements and for the long-term future proofing of the corridor.

GENERAL FEEDBACK

- The following workshop feedback relates generally to the growth areas:
- 'Village' concept supported, encouraging smaller, walkable neighbourhoods that are supported by local, small-scale services.
- Support for the delivery of bus rapid services that connect the growth areas to adjoining neighbourhoods and central Geelong.
- Consideration for a distributed approach to service-based employment across the growth areas, located in activity centres and/or along the 'Clever and Creative Corridor'.
- Universal support for:
  - Growing of large canopy trees in the public realm
  - Widespread shared path networks that connect to central Geelong
  - Development outcomes that promote ongoing self-sufficiency of the communities in the growth areas.

EXISTING SERVICES

- Existing public transport routes in proximity to the growth area are limited. Route 19 to Bannockburn operates along Midland Highway, as does a VLine bus service to Ballarat and beyond. Route 25 operates east of the study area on Rollins Road to Creamery Road. School buses also travel along Midland and Hamilton Highways.
- North Geelong Railway Station (approximately 3 kilometres to the east) and Geelong Railway Station (approximately 5 kilometres to the east) are the closest railway stations.
- The Geelong-Ballarat rail corridor on the northern study boundary currently caters for freight rail only. Passenger services previously operated along this section of rail line with the former Moorabool Railway Station abutting the study area.

ENQUIRY BY DESIGN FOR NORTHERN GEELONG

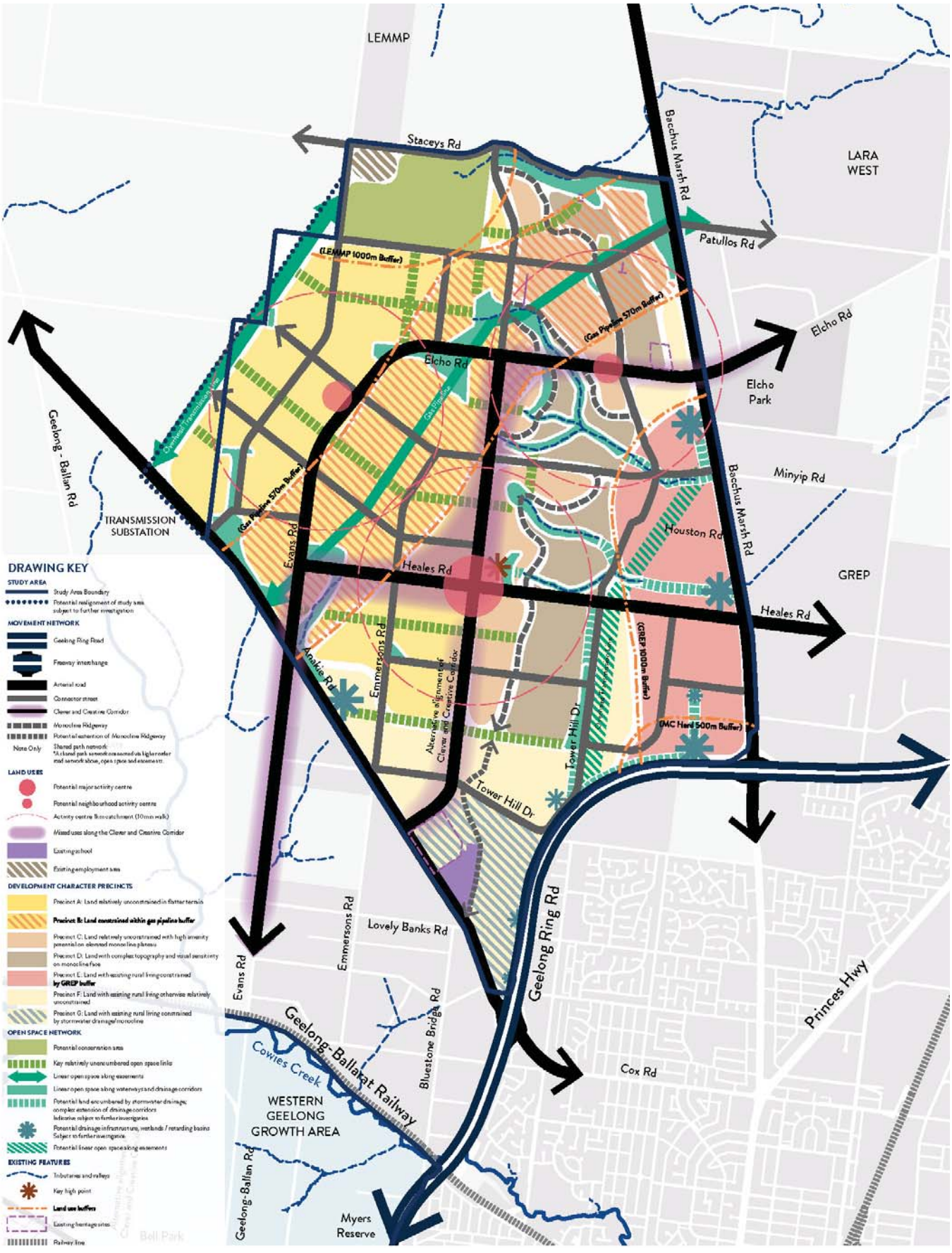


FIGURE 21 NORTHERN GEELONG – ENQUIRY BY DESIGN PLAN

Northern Geelong Growth Areas

MONOCLINE RIDGEWAY

Enquiry by Design workshop consensus:

The monocline, a steep landform running north-south along the eastern half of the growth area, is recognised as the most significant natural feature of the growth area and requires a unique design response as part of future urban development.

Additional key considerations:

- The monocline should balance urban development with provision of open space and "place making" elements
- A monocline 'ridgeway' – a linear open space with active transport capacity (shared path) – is generally supported as a means to providing public access to the views atop the monocline
- The monocline presents an opportunity to deliver large-scale public open space
- The monocline should achieve a balance between conservation, development, recreation and activity, including the potential to deliver tourism opportunities (e.g. regional recreational/exercise tracks, such as Kokoda Track Memorial Walk, '1000 Steps' in the Dandenong Ranges)
- Development on the monocline escarpment is generally supported if controlled by design guidelines.

EMPLOYMENT LAND

Employment land must be identified in the growth area to facilitate industrial and business/office land uses (e.g. light manufacturing, service industry, freight and logistics, business parks). Based on anticipated growth projects, the estimated demand for total employment land in the Northern Geelong Growth Area is approximately 130 hectares.

Key considerations:

- Northern Geelong Growth Area is considered the more suitable growth area to deliver employment land as related to its location and characteristics
- Primary opportunity for employment land in the growth area is within the Geelong Ring Road Employment Precinct (GREP) buffer
- Proximity to the Geelong Ring Road interchange on Bacchus Marsh Road provides good access to the freeway network and avoids heavy vehicle movements on the monocline
- Fragmentation and existing use of landholdings within the GREP buffer will make for a long-term employment land use transition
- Future performance of the GREP may directly impact the viability of employment land within the growth area.

FURTHER CONSIDERATIONS

Additional feedback relating to the Northern Geelong Growth Area:

- Funding should be allocated to improve external road links to Lara Railway Station that allow for bus rapid transit services
- An appropriate mix of land uses in proximity to the gas pipeline should be pursued with consideration given to varying measurement lengths
- Interests of landowners in rural living areas should be further considered, particularly in relation to changes to neighbouring land uses and the road network.

ENQUIRY BY DESIGN FOR WESTERN GEELONG

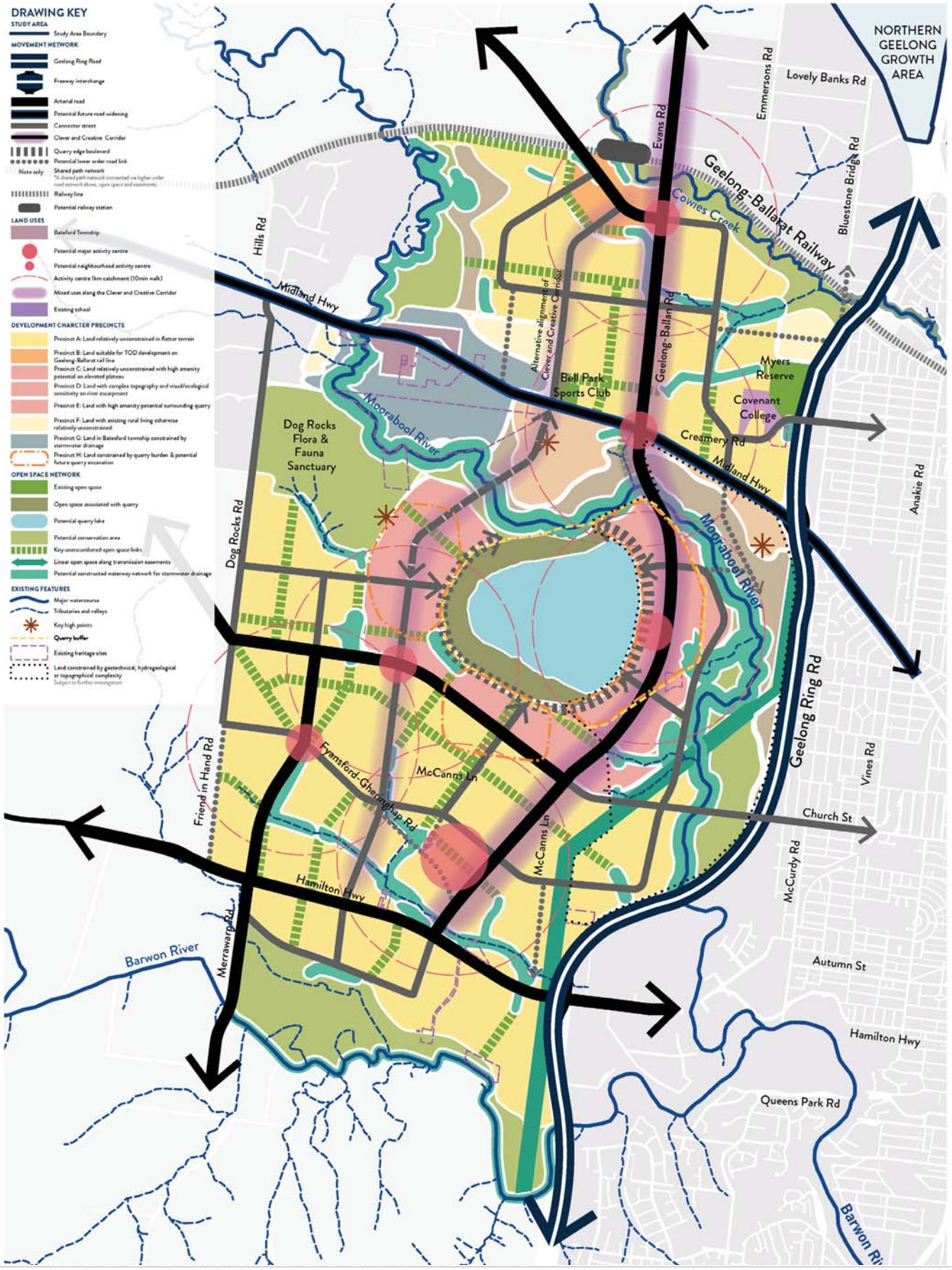


FIGURE 22 WESTERN GEELONG – ENQUIRY BY DESIGN PLAN

Western Geelong Growth Area

QUARRY AND SURROUNDINGS

Enquiry by Design workshop consensus:

The transformation of the Batesford quarry to a lake is recognised as a key opportunity to deliver a regional-scale open space asset with high amenity interfaces to surrounding residential neighbourhoods and connections to the Moorabool River.

Additional key considerations:

- Eastern interface of the quarry presents a significant opportunity for public access to the lake environs and a logical location for an activity centre with a mix of uses
- Opportunity for a tourism focus in the lake's development should be explored as part of detailed planning
- Substantial and detailed planning of the quarry's transition should be undertaken as part of future precinct structure planning, including assessments relating to land capability, water quality, edge conditions, integrated water management, biodiversity impacts, relationship to the Moorabool River, management requirements, obligations and risks, and funding and governance.

EMPLOYMENT LAND

Employment land must be identified in the growth area to facilitate industrial and business/office land uses (e.g. light manufacturing, service industry, freight and logistics, business parks). Based on anticipated growth projections, the estimated demand for employment land in the Western Geelong Growth Area is approximately 160 hectares.

Key considerations:

- Western Geelong Growth Area is considered the less suitable growth area to deliver employment land as related to its location and characteristics, most notably its potential to deliver high-amenity residential neighbourhoods
- Primary opportunity for employment land in the growth area is in proximity to the Hamilton Highway to provide regional connections to the Western District
- Proximity to the Hamilton Highway and the Midland Highway (via Fyansford-Gheringhap Road) provides multiple access points to the highway network
- The preferred location will avoid adverse impacts on the Barwon River, Moorabool River, Batesford township and quarry lake district
- Employment precincts within Golden Plains Shire should be further investigated to potentially leverage and minimise the employment land use within the growth area.

FURTHER CONSIDERATIONS

Additional feedback relating to the Western Geelong Growth Area:

- Alignment of the north-south arterial road should be located to the west of the quarry to minimise interface with the Moorabool River and active, amenity-based frontages on the eastern edge of the proposed lake
- Future railway connection on the Geelong-Ballarat rail line is strongly supported
- Church Street connection into central Geelong should be investigated due to existing road constraints
- Interests of Batesford township should be further considered, particularly in relation to changes to neighbouring land uses and the road network
- Capacity for the southern half of the growth area to develop in absence of the Church Street connection should be further investigated
- Mixed views relating to the siting of the major activity centre on the Hamilton Highway or Midland Highway.

URBAN STRUCTURE

LAND USE

The draft 'future urban structure plan' provides the following high-level guidance in relation to proposed land use and development:

- The study area boundary of each growth area.
- The underlying land use, being:
  - "Residential": generally conventional density residential development with a minimum dwelling yield of 15 dwellings per net developable hectare in most cases consistent with zones allowing permitting general residential and residential growth development
  - "Employment": generally employment-based development including but not limited to light manufacturing, service industry, freight and logistics, business parks consistent with zones allowing commercial and light industrial development
  - "Low density residential": generally low density residential development
  - "Rural living": generally rural living or areas not anticipated to experience a change in land use
- "Rural living with employment potential": generally rural living that is suitable to transition to employment-based development;
- "Servicing and utility": land required for servicing and utilities, and easements.
- The high-level transport network, being:
  - The Geelong Ring Road and freeway interchanges
  - A network of arterial roads with 4-lane or 6-lane road cross sections
  - A network of key local roads with 2-lane road cross sections
  - The Geelong-Ballarat rail line and potential railway station location
  - The alignment of the 'Clever and Creative Corridor', a boulevard-style transit corridor.
- The high-level activity centre network, being:
  - Major town centres that are activity centres with a sub-regional role in the scale and delivery of retail and services
  - Local town centres that are activity centres with a neighbourhood-sized role in the scale and delivery of retail and services.
- The high-level open space network, being:
  - "Waterway network" including river and creek corridors, land subject to inundation, constructed stormwater drainage network of linear corridors, wetlands and retarding basins
  - Other drainage assets
  - Linear open spaces including a proposed link along the gas pipeline and along the monocline ridgeline
  - The "Quarry Lake District", being the Batesford quarry and surrounds
  - Conservation areas or potential conservation areas subject to detailed assessments of native vegetation values.

The road, activity centre and open space networks illustrated on the plans are intended as general locations for the infrastructure and will be subject to refinement and review as part of the subsequent preparation of precinct structure plans on the subject land.

URBAN DESIGN

The preparation of the future urban structure of the growth areas incorporates the '20-minute neighbourhood' concept and an urban design concept for its achievement, the 'Clever and Creative Corridor'

'20-MINUTE NEIGHBOURHOOD'

The '20-minute neighbourhood' concept is a key planning principle outlined in *Plan Melbourne 2017-2050* and seeks to create walkable, healthy, cohesive, sustainable communities with strong local economies, while reducing the need to travel and cutting greenhouse gas emissions.

The concept has been adopted for the project to ensure that new residents can meet most of their everyday needs including access to shops, childcare and schools, parks, doctors and public transport, within a 20-minute walk, or alternatively cycle or local public transport trip from their homes.

'CLEVER AND CREATIVE CORRIDOR'

The Enquiry by Design workshop tested a concept of a 'Clever and Creative Corridor' to achieve the benchmarks of the '20-minute neighbourhood'. The 'Clever and Creative Corridor' is a tree-lined, boulevard-style transit corridor that prioritises public transport, walking and cycling between the activity centres, schools and community facilities, sports reserves and local parks in each neighbourhood.

The concept was developed in response to the unique site analysis and joint scale of the growth areas, the community's desire to ensure that development in the growth areas is sustainable, self-sufficient, diverse, distinctive and connected with diverse transport options.

The corridor seeks to address contemporary greenfield development challenges such as the repetitive, "cookie cutter" built form and sameness of streetscapes, the desire to future proof, heat island effect and climate change, and the constraints imposed by current regulations and design standards.

The 'Clever and Creative Corridor' seeks to provide the following benefits to the future urban structure of the growth areas by:

- Providing a focus for place making and community engagement
- Delivering a defining and unique urban design element
- Attracting a range of land uses and land use intensification
- Linking activity centres with an employment focus
- Accommodating a dedicated corridor for transport modes
- Encouraging active modes of transport and health and wellbeing
- Accommodating large scale street tree planting
- Delivering the corridor in stages and offering guidance to surrounding neighbourhoods.

URBAN STRUCTURE – LAND USE CONSIDERATIONS

Northern Geelong Growth Area

THE PLAN

- High-level plan to guide next planning processes
- Complex range of existing land use constraints
- Evans Road is an important link between the two growth areas
- Gas pipeline and GREP buffers have significant impacts
- Monocline is a key distinctive landform feature that requires a tailored approach
- Range of existing land uses
- The 'Clever and Creative Corridor' underpins the urban structure plan
- The Northern Geelong Growth Area should be considered in terms of a sustainable growth area as well as its relationship to the Western Geelong Growth Area.

MOVEMENT NETWORK

The movement network is designed with consideration to:

- Planning a higher order network of arterials and local roads based on a mile grid
- Existing roads and road reserves
- Evans Road as a key link between the growth areas
- Location of planned development
- Gas pipeline easement and buffer
- Fragmented rural living areas
- Monocline ('monocline ridgeway' linear open space and linkages)
- Movement network supporting the role of the 'Clever and Creative Corridor'.

ACTIVITY CENTRES

Activity centres are planned with consideration to:

- Major and neighbourhood activity centre provision
- Gas pipeline and buffer
- GREP buffer and fragmented land
- Access and exposure to higher order road network
- Sense of place: monocline, views and open space
- Flatter land
- Activity centre catchments
- Activity centres as nodes supporting activity and a mix of uses along the 'Clever and Creative Corridor'.

OPEN SPACE NETWORK

The open space network is designed with consideration to:

- Higher order open space provision and key linkages
- Rivers, tributaries, drainage lines and infrastructure
- Easements and pipelines role in the network
- Conservation areas
- Protection of monocline ridgeline and views
- Relationship and connectivity to activity centres and movement network
- Open space network connecting to the 'Clever and Creative Corridor'.

DEVELOPMENT CHARACTER PRECINCTS

The precincts are identified in response to the opportunities and challenges presented by:

- Rural living land constrained by GREP buffer
- Other fragmented rural living areas
- Rural living areas constrained by stormwater drainage
- Land on the monocline face
- Land on the elevated monocline plateau
- Land within gas pipeline buffer
- Relatively flat unconstrained land
- Precincts supporting the mixed uses and diversity along the 'Clever and Creative Corridor'.

EMPLOYMENT

The designation of employment uses to consider:

- Access to arterial and freeway transport network
- Co-location with other services / industrial land uses and buffers
- Amenity impact on sensitive land
- Appropriate land use buffers
- Topography
- Land development patterns, such as fragmented or larger parcels
- Type and size of employment land
- Relationship to activity centres and 'Clever and Creative Corridor', including business and office uses.

Western Geelong Growth Area

THE PLAN

- High-level plan to guide next planning processes
- Complex range of existing land use constraints
- Evans Road is an important link between the two growth areas
- The quarry, rivers and Dog Rocks Sanctuary are key distinctive features that require a tailored approach
- Opportunity for a new train station to service the growth areas
- The 'Clever and Creative Corridor' underpins the urban structure plan
- The Western Geelong Growth Area should be considered in terms of a sustainable growth area as well as its relationship to the Northern Geelong Growth Area.

MOVEMENT NETWORK

The movement network is designed with consideration to:

- Planning a higher order network of arterials and local roads based on a mile grid
- The railway line and possibility of a future station
- Evans Road as key link between the two growth areas
- Steep topography, particularly in proximity to the quarry, the Geelong Ring Road and river corridors
- Quarry lake boulevard road
- The role of key existing roads in the network (Midland Highway, Geelong-Ballan Road, Dog Rocks Road, Fyansford-Gheringhap Road, McCanns Lane, Creamery Road, Bluestone Bridge Road, Lynnburn Road)
- Possible new links across the Geelong Ring Road
- Movement network supporting the role of the 'Clever and Creative Corridor'.

ACTIVITY CENTRES

Activity centres are planned with consideration to:

- Major and neighborhood activity centre provision
- Staging of road infrastructure
- Access and exposure to the higher order road network
- Topography
- Batesford township
- Sense of place – relationship to the quarry lake, views and open space
- Flatter land
- Activity centre catchments
- Activity centres as nodes supporting activity and a mix of uses along the 'Clever and Creative Corridor'.

OPEN SPACE NETWORK

The open space network is designed with consideration to:

- Higher order open space provision and key linkages
- Rivers, tributaries, floodplain and drainage lines
- Transmission easement
- Existing open space
- Significant conservation areas
- Quarry lake and surrounds
- Relationship and connectivity to activity centres and movement network
- The ability for open space to connect the 'Clever and Creative Corridor'.

DEVELOPMENT PRECINCTS

The precincts are identified in response to the opportunities and challenges presented by:

- The quarry burden / potential future quarry excavation
- Land surrounding the quarry
- Land on the elevated plateau
- Land on river escarpments
- Land around the Geelong-Ballarat railway line
- Relatively unconstrained land on flatter terrain
- Batesford township and surrounds
- Precincts supporting the mixed uses and diversity along the 'Clever and Creative Corridor'.

EMPLOYMENT

The designation of employment uses to consider:

- Access to arterial and freeway transport network
- Amenity impact on sensitive land
- Topography
- Appropriate land use buffers
- Access to potential passenger rail
- Type and size of employment land
- Relationship to activity centres, and 'Clever and Creative Corridor' including business and offices uses.

NEXT STEPS

INFRASTRUCTURE IDENTIFICATION AND FUNDING

The draft 'future urban structure plan' will allow the City to determine high-level estimates of the cost of infrastructure to support the urban development of growth areas.

Technical studies relating to transport, stormwater drainage and community facilities will be undertaken throughout 2018 to inform the IIDP on the basis of the draft 'future urban structure plan'. The IIDP will include guidance of the infrastructure requirements for the growth areas and the proposed sequencing of infrastructure delivery to be undertaken as part of the subsequent preparation of multiple PSPs in each growth area.

The State Government is in the process of reforming the collection of development levies to fund greenfield development in Regional Victoria. It is anticipated that the mechanism utilised in the Armstrong Creek growth area to collect development levies to fund infrastructure – the Development Contribution Plan (DCP) – will be superseded by a "flat rate" development levy mechanism known as the Infrastructure Contributions Plan (ICP).

The Infrastructure Contributions Plan (ICP) system took effect on 27 October 2016 for metropolitan greenfield growth areas. The rate for regional growth areas, including the City of Greater Geelong, is anticipated in late 2018.

The system is based on standard levies that are pre-set for particular development settings and land uses, in order to fund the provision of essential infrastructure that will support new or growing communities.

It is anticipated that the City of Greater Geelong will attract a standard levy that acknowledges the major growth anticipated in the Northern and Western Geelong Growth Areas. At a minimum of 15 dwellings per hectare, the anticipated development in the growth areas is similar in yield to the metropolitan greenfield growth areas.

The City is represented on a technical reference group including other regional cities and industry stakeholders that is providing input to DELWP as part of establishing the regional ICP levies. If the City is successful in advocating for a levy that is the equivalent of the metropolitan greenfield growth areas, the resulting development levies will be significantly higher than the funding collected via DCPs throughout Armstrong Creek as part of the current system. The IIDP will be informed by the applicable ICP levy when the revised system takes effect.

The ICP for metropolitan greenfield growth area applies a 'standard levy' that includes a wide array of allowable transport, drainage and community infrastructure. Should the standard levy not fund the allowable transport and stormwater drainage infrastructure required to facilitate urban development, applications for a 'supplementary levy' can be pursued. It is anticipated that the process applicable to the regional greenfield growth areas will be consistent with the metropolitan system.

The framework plan and integrated infrastructure delivery plan process will define the future funding obligations for Council and State Government when the growth areas are planned as part of the subsequent precinct structure plan programme and when urban development occurs.

PROJECT TIMING AND NEXT STEPS

The framework plan will continue to be prepared in 2018.

The framework plan will include detailed guidance for the sustainable sequencing of development over the coming decades, facilitated via the preparation of the precinct structure plans.

Key planning principles for the project will be to ensure that the growth areas are not considered in isolation from existing Geelong, development is facilitated in a sequenced and orderly manner, and that the resulting population and economic growth is captured to the benefit of the broader Geelong community and region.

Public exhibition of the overall framework plan document and technical studies will occur as part of a planning scheme amendment process to be initiated in late 2018.

The *Settlement Strategy for Greater Geelong* will outline a strategic policy for the considerations relevant to the commencement and completion of the precinct structure plan programme that will ultimately allow urban development in the growth areas.

The strategy will outline a strategic response to our increasing growth pressures and ensure that we can meet the region's substantial housing demands in a sustainable manner. The strategy makes recommendations for an appropriate balance of population growth within our existing suburbs and new greenfield development, and the timing and process for the urban development within the Northern and Western Geelong Growth Areas.

KEY STAKEHOLDERS

THE NORTHERN AND WESTERN GEELONG GROWTH AREAS PROJECT WILL BE DELIVERED IN COLLABORATION WITH THE FOLLOWING KEY STAKEHOLDERS:

- Landowners and occupiers of the Northern and Western Geelong Growth Areas
- Department of Economic Development, Jobs, Transport and Resources (DEDJTR)
- Department of Education and Training (DET)
- Department of Environment, Land, Water and Planning (DELWP)
- Department of Health and Human Services (DHHS)
- Department of Justice and Regulation (DJR)
- Regional Development Victoria (RDV)
- Transport for Victoria (TFV)
- Victorian Planning Authority (VPA)
- VicRoads
- Victoria Police
- Country Fire Authority (CFA)
- Ambulance Victoria
- Wadawurrung (Wathaurung Aboriginal Corporation)
- Barwon Water
- Corangamite Catchment Management Authority (CCMA)
- Southern Rural Water
- Deakin University
- The Gordon
- Barwon Health
- Geelong Regional Library Corporation
- Catholic Education Melbourne
- APA Group
- Ausnet Services
- Powercor Australia
- Telstra
- NBN Co

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