

ARMSTRONG CREEK GEELONG'S GROWTH AREA

INTEGRATED INFRASTRUCTURE DELIVERY PLAN (IIDP) ADOPTED 10 MARCH 2009

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INTRODUCTION

Council, the Department of Planning and Community Development (DPCD) and other Government agencies, have developed a comprehensive Integrated Infrastructure Delivery Plan (IIDP) to ensure Council's vision of a liveable and sustainable community can be delivered. Council, the State Government and agencies recognise they share the responsibility to plan for future community needs beyond merely hard infrastructure. This IIDP aims to ensure the growth area is provided with the timely delivery of infrastructure and services.

The IIDP clearly recognises that the delivery of civil and social infrastructure items are inter-related, particularly physical design and its health implications. Thus, the emphasis has been on encouraging transit oriented development through road networks that result in permeable neighbourhoods, encouraging walking and assisting in decreasing car dependence. Planning can occur across disciplines, enabling many of the development challenges and contemporary problems to be addressed. Nominating an 800 metre grid collector street network provides for excellent connectivity and permeability throughout the growth area and encourages walking and cycling. Planning for public transport has also been undertaken, and social infrastructure items have been located with the walkable catchments in mind. This focus should assist in improving housing affordability. A study conducted by the Australian Financial Review, showed that reducing one car per household could cut 13 years off mortgage payments, allow people to retire 10 years earlier, or providing an extra \$400,000 in mortgage purchase-ability.

The IIDP is critical to achieving liveable communities within Armstrong Creek. Elements such as affordable and appropriate housing, supportive community features and services, and adequate and diverse transport and movement options facilitate personal independence and the engagement of residents in civil and social life. The IIDP provides the basis for planning for all forms of infrastructure in the growth area, including budget planning and resource allocation.

The IIDP has been developed via a collaborative approach with stakeholders, and there is a shared commitment to using it as a blueprint for creating liveable communities. It is fundamental for ensuring the Armstrong Creek growth area is a great place to live both today and in the future.

The application of the Urban Growth Zone to the Armstrong Creek growth area places a greater emphasis on the use of Precinct Structure Plans (PSPs) to guide development and the need for integrated planning to be undertaken at an early stage in the process. The IIDP guides the development of precinct structure plans and ensures infrastructure is appropriately allocated and considered.

It is anticipated the IIDP will provide a reference for all investors in the growth area, outlining the indicative costs, development timeframes and infrastructure phasing. Investment will come from both the public and private sectors, using a diverse number of mechanisms and delivery arrangements not seen before in the municipality of Geelong. These mechanisms may include the use of development contributions, government appropriations and capital investments, private capital and other funding options. The indicative costs of infrastructure and timeframes for delivery will inform strategic budget planning, and also support joint venture and other collaborative development options.

It is proposed the State Government will use a new approach proposed under the Melbourne 2030 review to determine appropriate mechanisms to ensure timely, co ordinated and integrated delivery of government investment for facilities to deliver best practice outcomes.

The growth area will ultimately accommodate 55, 000 to 65, 000 people. Forecast delivery rates of 2,000 lots per year have been planned for. Should this happen, the growth area will be fully developed in 11 years. If the delivery rate is slower, the growth area could take up to 25 years to be fully developed.

POLICY CONTEXT

Planning for all of Melbourne: The Victorian Government's response to the Melbourne 2030 audit notes the importance of ensuring the needs of the community are at the heart of all urban development planning. The IIDP aligns with government policy seeking to ensure adequate space is provided for active and passive recreation close to where people live, the co-location of services and infrastructure.

Melbourne @ 5 million has determined that Melbourne will be home to five million people faster than previously anticipated, while Greater Geelong, Ballarat and Greater Bendigo will have to accommodate around 40 percent of regional Victoria's growth. The State is experiencing record growth and household growth is stronger than population growth due to household sizes reducing, with an ageing population and social change. Geelong is located in proximity to Melbourne, suggesting that Armstrong Creek will be an attractive option for home buyers from Melbourne, thus becoming Victoria's sixth growth area.

A Fairer Victoria, Strong People Strong Communities, recognises the value of community assets in building better places to live and work, and attracting skilled labour and capital investment. It suggests assets are not restricted to physical items like transport, public spaces and housing, but include social capital and the strength of local community and leadership. The IIDP recognises that the role civil and social infrastructure items play in ensuring the creation of a liveable community where people feel safe, where there is a sense of belonging, job opportunities, affordable housing, good services and facilities and attractive environments.

G21 an alliance, of a variety of independent organisations with a shared vision for the Geelong region has produced G21– The Geelong Region Plan. The plan has five imperatives for securing a vibrant and sustainable community. The imperatives set out that development must: make environmental gains; use land wisely; increase access for social equity, creativity and learning; generate new business, raise skill and education levels and create more jobs; and maximise opportunities. The IIDP approach to infrastructure provision aligns with these imperatives ensuring land is used wisely and serviced appropriately to maximise opportunities for access to services and allow for future innovation.

Moving Forward– Making Provincial Victoria the Best Place to Live, Work and Invest focuses on the need to ensure a supply of affordable housing in regional Victoria. It also emphasises the need for housing diversity to meet the needs of residents and reduce the impacts of urban expansion. The IIDP takes these important issues into account.

PLANNING CONTEXT

As described in the recently released Precinct Structure Planning Guidelines (Consultation Draft, October 2008), precinct structure plans sit within the planning hierarchy that comprises a framework of State, regional and local policies, and enables decisions to be made about the use and development of land, including:

- The State Planning Policy Framework (including Melbourne 2030)
- The Armstrong Creek Framework Plan and Urban Growth Plan (Volume 1)
- Precinct Structure Plans
- Subdivision and planning permit applications.

The Urban Growth Zone has been applied to the bulk of land located within the Urban Growth Boundary of the Armstrong Creek growth area. Application of the Urban Growth Zone requires the preparation and approval of a precinct structure plan before urban development can commence.





INTRODUCTION

Precinct structure plans for each of the seven precincts which make up the Armstrong Creek growth area will set the future direction for each of the precincts. Each precinct structure plan will show (as appropriate):

- Housing yields
- Local open space
- Employment provision
- Activity centres
- Local transport networks
- Community facilities.

The precinct structure plans will be incorporated into the planning scheme to guide the use and development of the precinct over the long term. Planning permits can be issued where the proposal is generally in accordance with the precinct structure plan.

PURPOSE

The primary purpose of the IIDP is to inform the budget planning and resource allocation process of all stakeholders who have been engaged in the development of the Social Interagency Infrastructure Delivery Plan (SIIDP) and the Civil Interagency Infrastructure Delivery Plan (CIIDP). The IIDP considers the delivery, phasing and triggers for the provision of all infrastructure and provides a blueprint for development and investment that will occur over many years. A place based bid in four year increments will be facilitated based on the IIDP, ensuring accessible, integrated and adaptable community infrastructure is delivered to the growth area.

The IIDP has a key role in determining local and regional infrastructure provision at the Precinct Structure Plan phase, ensuring a planned and logical roll out and appropriate allocation based on population numbers, accessibility and the projected needs of the new community.

APPROACH TO THE PREPARATION OF THE IIDP

The IIDP is the result of combining the SIIDP and the CIIDP into a combined vision. The IIDP explores the key principles and issues from both documents and transforms these into a strategic vision and direction for all forms of infrastructure provision in the growth area.

Both the SIIDP and CIIDP were developed through extensive engagement within council and with service providers, non government agencies and government, and through the establishment of specific working groups for each of the disciplines. The stakeholders involved in the preparation of the SIIDP and the CIIDP will be further engaged in the precinct structure plan phase. The CIIDP and the SIIDP have been endorsed by the agencies involved. The stakeholders are:

| SIIDP | CIIDP |
|---|-------------------------|
| Ambulance Victoria | Barwon Water |
| Anglican Church | City of Greater Geelong |
| Barwon Health | Department of Transport |
| Catholic Education Office | Powercor |
| City of Greater Geelong | SP Ausnet |
| Country Fire Authority | Telstra |
| Deakin University | VicRoads |
| Department of Education and Early Childhood Development | |
| Department of Human Services | |
| Department of Planning and Community Development | |
| G21 | |
| Geelong Regional Library Corporation | |
| UDIA | |
| Victoria Police | |

The IIDP has been guided by the approved Armstrong Creek Urban Growth Area Framework Plan and the Armstrong Creek Urban Growth Plan, Volume 1, 13 May 2008. The vision for the growth area is as follows:

The Armstrong Creek urban growth area will be developed into a sustainable community that sets new benchmarks in best practice urban development. Natural and cultural features will be protected and enhanced to create a distinct urban character. Armstrong Creek will become a highly sought-after location for living, working and recreation, forming an attractive addition to Geelong.

The framework plan (Appendix 1) provides high level direction for the development of the growth area. It designates a total of seven precincts including two employment precincts, a major activity centre and four residential precincts. The growth area is divided into seven precincts, which are generally based on drainage catchments, serviceability and co-ordinated land holdings (Appendix 2). The civil infrastructure roll out and baseline servicing strategy have a direct relationship with the precinct plan.

STRUCTURE

The IIDP draws out the key issues from the CIIDP and the SIIDP, addressing them in a clear, strategic manner. A priority is integrating the streams of infrastructure provision and recognising the crossover between the engineering focus of the CIIDP and the social planning focus of the SIIDP. Those interested in detailed issues can refer to the CIIDP and the SIIDP located on Council's website at www.geelongaustralia.com.au/armstrongcreek/





INFRASTRUCTURE CONTEXT

The infrastructure planning for Armstrong Creek is focussed on delivering what is necessary to ensure a wide range of living and lifestyle opportunities are provided to meet the anticipated community needs. A healthy, active community is at the forefront.

Providing safe, accessible and equitable transport options beyond walkable catchments is also paramount, as it is fundamental to developing a diverse community with links across education, employment, community services and recreation. The plan ensures the delivery of timely, safe and accessible public transport to facilitate maximum use of social infrastructure and sets out the funding commitments required.

The IIDP funding model and baseline roll out are based on the premise that community services and facilities should be provided as early as practicable to ensure convenient access for new residents. This will assist in establishing sustainable lifestyle habits and enable community groups to establish with a sense of community and inclusiveness. The IIDP recognises the growth area is separated from Geelong and its amenities and the early stages of development will be remote from the existing urban area. Community services and facilities are thus necessary pre-requisites.

The IIDP focuses on meeting the needs of the present, without compromising the needs of the future. Opportunities for future innovation are reflected in the IIDP given it could potentially have a life of 25 years, and community expectations and delivery models could change over that period.

Excellence in design and best practice standards have been highlighted as opportunities to create landmarks and focal points in the development of community buildings and parkland.

The IIDP recognises there are strong links between co-ordinated infrastructure provision and housing affordability, community health, sustainability, place making and liveability, and the plan has been developed with these issues firmly in mind. The strategic principles of the plan are:

- Deliver community infrastructure in the early days of development to create a sense of community.
- Achieve excellence in design for community buildings
- Allow for future innovation so that changes to infrastructure delivery and models can be accommodated
- Provide a co-ordinated and thought out approach to infrastructure provision to enable multiple development fronts to be achieved, which will assist in providing more affordable housing and housing choice.
- Create walkable communities with easy access to local services, parks, education, community facilities and public transport.
- Provide high quality local employment opportunities, with a target of one job per residential lot.
- Provide alternatives to car based travel through significant public transport provision

See Appendix 3 - Infrastructure Description, and Appendix 4 - Infrastructure Design Principles for further detail.

COMMUNITY FACILITIES

A sense of community is dependent on having opportunities for people to form relationships with their neighbours, and a sense of ownership related to their surroundings. Planning for the development of social infrastructure is vital.

The IIDP has developed a clear set of long term objectives for the provision of community facilities and social infrastructure. Social infrastructure provision has been master planned to inform a staged rollout and delivered in the early days of the development to enhance opportunities for change and enhanced wellbeing.

To promote accessibility, multi-trip outcomes, connectivity and social interaction, all social infrastructure is co-located, with schools as focal points for communities. Schools are planned to be located adjacent to activity centres and close to recreation facilities. Opportunities to share via strategic land alignments have been explored through the IIDP.

No provision has been made in the IIDP for standalone community facilities as they are not viable or sustainable. The plan is based on the premise that new community buildings can accommodate multiple uses thus no particular community group will have 'ownership' of a building. This model of service provision will require new ways of structuring governance. The Community Facilities Plan can be seen at Appendix 5.

The plan provides for people walking to shops for local convenience items and locates bus stops and parks locally. Convenient local public transport will allow for easy access to bigger retail facilities and major transport opportunities such as rail for employment or other needs. Generally higher order social infrastructure has been located within or in close proximity to the Major Activity Centre promoting the centre as a place for larger gatherings, sports, shopping and cultural amenity. A high standard walking and cycling network has been to reduce a reliance on motor vehicles as a primary mode of transport and contribute to the formation of a healthy and active community.

In summary, community facilities are designed to:

- promote strong communities;
- provide opportunities for integration and innovation;
- use land efficiently;
- provide for the needs of diverse communities;
- provide for co-location and integration to enable shared community use and flexibility in service provision as each precinct evolves;
- include land for community facilities in Local Activity Centres, or Neighbourhood Activity Centres and on future public transport routes;
- have allocated land for primary schools (government and non-government) which can be located on connector streets;
- have allocated land for secondary schools (both government and non-government) which will have direct access to the Principle Public Transport Network, where possible;
- accommodate emergency services which are planned to be located on the Surfcoast Highway (an arterial road) adjacent to the Major Activity Centre;
- have designated land allocation which allows for the flexible use of space to adapt to the changing needs of the community over time;
- co-locate non government schools with government schools where possible, to enable sharing of facilities;
- integrate early childhood learning and care facilities with primary schools; and
- provide for local indoor recreation facilities and performing arts and other specialist uses to be integrated with schools, where possible.





SOCIAL HOUSING

The creation of a sustainable community is dependent on the accessibility and appropriateness of the housing stock. Australia's rapidly changing demography means it is essential to provide a range of housing options to meet the needs of a diverse population. Smaller one and two bedroom dwellings located in higher density environments close to neighbourhood and activity centres create real choice for smaller households and enhance affordability through the combined benefit of both reduced housing outlays and living costs such as transport.

The housing market does not always ensure that lower income households access available affordable housing. New growth areas need a deliberate strategy to require the market to produce more affordable housing products as well as direct intervention in the market to ensure access and affordability for low income households. The G21 Alliance is sponsoring the development of a regional approach to affordable housing through preferred Registered Housing Association (RHA) partnering with each municipality. Developers within the growth area have the opportunity to develop a strategic partnership with the preferred RHA. The RHA with financial support from the State and/or Commonwealth governments may acquire appropriate lots for development as affordable rental housing or assisted home ownership.

This plan supports establishing an Armstrong Creek Affordable Housing Working Group comprised of Council, the Victorian Government (Office of Housing), the preferred RHA and developers with land holdings to plan for the inclusion of affordable housing in each PSP. Providing rental and ownership opportunities for low income elderly people, people with disabilities, single persons and families is a high priority.

INTEGRATED OPEN SPACE NETWORK

Open space takes many different forms, from local parks to regional facilities. In this plan open space networks include waterways, wetlands and areas of bushland. The different forms of open space are necessary to ensure the recreational and leisure needs of a diverse community can be met, and to protect environmental assets. Opportunities are provided in the open space network for biodiversity links and native parkland to complement other activities giving some open space areas a dual purpose.

Open space can have many different functions, including active and passive functions. The locations of open space areas have been considered in light of accessibility and equitable distribution across the growth area. It is planned there will be local parks within a 400 metre walk of all dwellings in the growth area. The exact location of these parks will be determined during the PSP phase. The principles of equitable distribution and access have been considered and opportunities to create synergies with schools and activity centres have been included where possible. The location of neighbourhood and regional parks recognises the benefits of clustering recreational uses, thus providing opportunities for multiple uses to achieve those benefits. These include: car parking facilities, club houses, toilet blocks and change rooms, and maintenance. Community pavilions take the place of traditional sports pavilions, allowing for use by various community groups, including sporting groups. It is anticipated that new models of management and governance will be needed for these pavilions, as they will not be 'owned' by any one sporting group, which occurs under the current model.

A regional soccer/ hockey facility has been located in the Armstrong Creek West Precinct, with 18 hectares of land set aside for seven soccer fields, including two synthetic fields, and two synthetic hockey fields. District level facilities (which it is anticipated will cater for the whole of the growth area) are located in the Horseshoe Bend Precinct, including an athletics facility and three ovals over 21 hectares, and a district football/ soccer facility in the Armstrong Creek East Precinct.

The integrated open space network and location of all district and regional parkland can be seen in the Integrated Open Space Network Plan as part of the community facilities plan (Appendix 5) and provides for:

- residents and workers to have access to a variety of open spaces for relaxation and recreation;
- public spaces to promote healthy lifestyles and strong communities;
- safe and efficient walking and cycling opportunities to connect residents directly to activity centres, employment areas, community facilities and other active open space areas;
- opportunities for people to maintain healthy lifestyles;
- local indoor recreation facilities and performing arts and other specialist uses which are integrated with schools, where possible;
- sports fields which are to be co-located with aquatic facilities, playgrounds, lawn and tennis courts, where possible; and
- a network of quality and well distributed open space.





TRANSPORT AND MOVEMENT

Access to sustainable and active transportation infrastructure influences travel choices and improves the health of those living in urban areas. Safe and walkable neighbourhoods have been included with permeable grid street networks and easy access to public transport services. These promote walking and cycling and opportunities for incidental exercise, resulting in health benefits. Walkable neighbourhoods are also sustainable because they reduce the incentive to drive, conserve resources and reduce environmental impacts.

In the past suburban neighbourhoods have often been characterised by looping streets and cul de sacs, often without footpaths, making walking and cycling less attractive and public transport provision difficult. An 800 metre grid street network has been included (Appendix 6). This street network will improve the ease, speed and safety with which people can walk to local destinations, and street widths are wide enough to accommodate buses. The local bus network will link with the urban and regional transport network at the nearest railway station or transport interchange. A comprehensive and diverse transport network and permeable street network will together assist in reducing carbon emissions and detrimental impacts on the environment.

Opportunities to use the heavy rail network have been optimised with new stations proposed to the west of the growth area (Armstrong Creek West Station), and in the Major Activity Centre (Armstrong Creek Central Station). Eventually this line will link to Torquay and the Surfcoast. Provision has been made for the existing Marshall Station to be upgraded with new carparking facilities and a higher amenity station. The road network plan and public transport plan can be seen at Appendix 6:

In summary, the transport and movement network is designed to:

- provide an 800 metre collector road network;
- promote active and healthy communities;
- include bus networks which connect all areas to jobs, goods and services;
- optimise the use of the existing heavy rail system and provide new opportunities for heavy rail within the growth area and further south;
- assist in reducing the extent of car use and facilitating alternatives; and
- include walking and cycling paths to link residents to community facilities and active open space areas.

INTEGRATED WATER MANAGEMENT SYSTEMS

Water security is a key challenge for the growth area, requiring an emphasis on integrated water management so that development in the growth area is designed to encourage efficient and sustainable water use. An integrated approach to water management will ensure adequate supply while managing demand.

RECYCLED WATER

The opportunity to include a third pipe within the development should be pursued to ensure that water recycling can occur. Should the opportunity not be taken up, the ability to retro-fit developed areas would be difficult and the aim for sustainability would be severely affected. Developers are encouraged to investigate options for the provision of reticulated recycled water with Barwon Water, and Council is committed to working with developers.

Barwon Water is seeking to fast track a conventional water and sewerage strategy, improve the water treatment facility at Black Rock and install a recycle pipeline from Black Rock to Armstrong Creek. Provision of accelerated infrastructure for water and sewerage across the growth area will deliver more affordable housing and directly impact the price of recycled water on an ongoing basis, thus delivering explicit savings to the household level.

STORMWATER MANAGEMENT

Stormwater runoff is a critical resource which can be reused in landscaping and open space irrigation and in the creation of artificial water bodies. There is potential for sustainable water cycle management design and construction practices including the use of rainwater tanks and water sensitive urban design . The approach to stormwater management is designed to:

- provide for an integrated approach to stormwater management that meets objectives for hydraulic capacity, water quality treatment and reuse;
- minimise disturbance to waterways created by altered flow regimes and protects natural drainage and aquatic ecosystems;
- maintain and protect water quality in receiving waters, the downstream environment and Ramsar wetlands;
- enhance the value and public amenity of the existing stream corridor, biodiversity and environment of Armstrong Creek;
- include the principles of water sensitive urban design; and
- allow for a full range of urban design, water conservation and local stormwater infrastructure alternatives.

The stormwater management strategy enables developers to choose one of the defined stormwater management strategies and provide the required additional detention and constructed wetland storage within each precinct. Alternately, the opportunity is provided for a 'regional approach' which allows developers to make proportional financial contributions to construct detention basins and wetlands at an appropriate downstream location. All landholders in a given catchment will contribute financially to the cost of restoring streams within the catchment. The contribution will be calculated based on the extent of land holdings.

The opportunity exists for Council to take a proactive approach in relation to a regional based solution to stormwater within the growth area through the use of Sparrowvale Farm, see Appendix 7 for location of this site. Sparrowvale Farm has been used for limited agricultural purposes and is currently in a degraded environmental state. Along with providing opportunities for a regional based stormwater solution, the use of this land would result in improvements to the environmental values of the land, and also improvements to the interaction and interface that the site has with the Barwon River and the Ramsar wetlands.





UTILITIES PLAN

Certainty in the provision of essential utilities networks to support communities and well planned and strategically located infrastructure will influence future development patterns, and, specifically, the roll out of development. There is recognition that we are moving into a carbon constrained future and opportunities for innovation over the life of the growth area are most likely. Detailed planning has been undertaken for four core infrastructure components:

- Electricity and gas supply;
- Telecommunications;
- Water and sewer (see Integrated Water Management Systems section of the report)
- Roads (see Transport and Movement section of report).

Planning for the provision of water, sewer, gas, electricity, sewerage, roads and telecommunications has been undertaken in detail to ensure services can be provided in a coordinated manner. There are two choices in relation to infrastructure provision; there is the 'business as usual' approach or the provision of infrastructure which better supports a sustainable urban environment. The business as usual approach is tangible and can be explored with servicing agencies and a rollout determined. The Infrastructure Rollout Plan (Appendix 8), shows the logical roll out of essential service infrastructure based on the advice of the Inter-agency Infrastructure Working Group, however it is not intended that this roll out will preclude opportunities for innovation which could include:

- new technologies in the water and waste water sector, including water recycling;
- new approaches to the reduction of costs in energy consumption by households through new forms of supply of electrical infrastructure, better designed buildings, and new forms of energy generation, including co-generation; and
- land size allocations enable flexibility of service provision and governance, while providing for future adaptability and enabling local solutions to be applied in any situation.

Developers are encouraged to pursue alternative methods of infrastructure provision provided that the alternative:

- supports the delivery of the intent of the Armstrong Creek Urban Growth Plan;
- decreases greenhouse emissions and/ or demand on regional infrastructure;
- expedites the delivery of the baseline sequence of fully serviced precincts; and
- facilitates sustainable urban growth that is founded on good design.

TELECOMMUNICATIONS

The provision of optic fibre to each lot in the growth area is encouraged as this will result in a smart community and will assist in providing the right environment for home occupations to start in the growth area, with the ultimate aim of these businesses growing and moving onto employment land. The growth area will be serviced by telecommunications services infrastructure including employment land. This issue will be addressed in detail in the Precinct Structure Planning phase.

DEVELOPMENT PRINCIPLES

OPPORTUNITIES FOR INTEGRATION AND INNOVATION

There are significant opportunities for integration and innovation in relation to all infrastructure items. While the plan at Appendix 5 shows the land size required for each particular infrastructure item, it is not intended that this plan will preclude opportunities for innovation. At present the land sizes nominated are the maximum necessary to ensure that infrastructure items can be built and have an appropriate degree of amenity. It is envisaged that through the PSP, where detailed planning is required, new approaches and different models to provision will be explored ensuring that the maximum area in the precinct is available for residential development, and the necessary infrastructure is available to ensure the creation of communities. Obvious areas where integration and innovation can occur, reducing the area required for infrastructure items include:

- Car parking
- Change rooms
- Areas necessary for administration
- Kitchen facilities
- Common areas.

INFRASTRUCTURE DELIVERY

Principles for early infrastructure delivery

The growth area is quite remote from the existing urban area of Geelong. The Geelong to Warrnambool railway line is a physical barrier to existing development, the existing community and existing services. Accordingly, while the growth area forms part of Geelong and has a role to play within Geelong it must be developed in recognition of its standalone nature.

Early delivery of important infrastructure items is critical as it enables individuals in communities to interact and ensures environmentally friendly and healthy habits are formed. For instance, if local public transport services are not provided from the outset more people may be compelled to drive, raising local traffic volumes and impacting on the amenity of local areas. Similarly, if local schools and services are not provided, the need to drive cars will become part of resident's routine and mindsets will be developed. This also has the potential to undermine the design and amenity goals of the new communities, even if temporary solutions are provided to address some of the issues, such as larger intersections and more car parking facilities, there is significant potential for these 'temporary solutions' to become permanent fixtures.

Accordingly, there is a roll out based on lot number triggers, ensuring critical social infrastructure such as a community centre and schools are provided early. It is envisaged that a budget commitment needs to be in place to provide the critical infrastructure items from 'day 1', while the roll out of additional infrastructure items will be triggered by lot numbers and this roll out can be seen at Appendix 10.

Table 1 - Critical precinct level infrastructure Items needed to develop communities

| Critical infrastructure item | Funding Source | Funding required |
|------------------------------|--------------------------------------|--|
| Primary School | State Government | \$12.2 M per school |
| Secondary School | State Government | \$31.5 M per school |
| Community complex | Council/ Developer/ State Government | \$11- \$15 M per complex depending on site |
| Cultural facility | Council/ Developer/ State Government | \$7.5 M per facility |
| Active public open space | Council/ Developer/ State Government | TBC |





DEVELOPMENT PRINCIPLES

The following infrastructure items are critical to ensuring that a sustainable and active community is created from the first stages of development. A funding arrangement is necessary to ensure that these items can be delivered in a timely manner and to ensure the vision for the growth area is achieved.

Table 2– Critical infrastructure projects across the whole of the growth area

| Critical infrastructure item | Funding Source | Funding required |
|--|--------------------------------------|------------------|
| Purchase and develop Armstrong Creek West Station | State/ Federal Government | \$70 M |
| Purchase and develop Armstrong Creek Central Station | State/ Federal Government | \$50 M |
| Upgrade Marshall Station | State/ Federal Government | \$10 M |
| Purchase and develop cycling networks and railway overpass/links | State/ Federal Government/ Developer | TBC |
| Bus services | State/ Federal Government | TBC |
| Purchase land and develop East West Link Road | State/ Federal Government | TBC |

Note: Detail provided in attachment, with full explanation provided in the SIIDP and the CIIDP.

FUNDING

The IIDP is designed to be a reference for all investors in the growth area, outlining the indicative costs and development timeframes. Investment in Armstrong Creek will come from both the public and private sectors. Appendix 9 'Infrastructure Estimated Costs, Funding Rate and Apportionment' identifies the agents and infrastructure items within the growth area in detail. The Table includes a 'state' column and a 'federal/ state' column, the distinction between these columns is the 'State' column is for items which are the sole responsibility of the State Government such as education, while the federal/ state column recognises that there are opportunities available for grants and agreements for both of these levels of government to fund these infrastructure items.

The six areas from which funding can be sourced for infrastructure for the growth area are:

- Victorian Government – whole of Victorian Government place based budget plus Essential Services Commission;
- Developers – Developer Contribution Fund (DCP);
- City of Greater Geelong;
- Commonwealth Government - grant streams;
- Private Sector; and
- Philanthropy.

State Government - Whole of Victorian Government place based bid

The IIDP provides the basis for a Whole of Victorian Government place based bid. A successful bid will enable a pool of funds for the growth area to be allocated, and ensure that the roll out of infrastructure can occur over the lifecycle of the growth area. A place based bid in four year increments has been established (Appendix 9). A Whole of Victorian Government approach has been adopted, as it is possible that the various infrastructure items could be in competition with one another. Integrated infrastructure delivery for the entire growth area can only occur through co ordinated delivery of government investment from a broad range of responsive services.

State Government- Essential Services Commission

The Essential Services Commission (ESC) is responsible for the funding of essential services items such as gas, telecommunications, power, water and sewer. Each of these infrastructure items require a significant allocation of funds with electricity, gas, telecommunications, water and sewer generally funded through the Essential Services Commission, will be pursued independently by the respective utility providers. For this reason the cost estimates of utilities, with the exception of water and sewer are excluded. However the total estimate for all utilities is in the vicinity of \$500 million.

Developer Contribution Plan (DCP)

Developer Contributions are payments or in-kind works, facilities or services provided by developers towards the supply of infrastructure required to meet the future needs of a particular community, of which the development forms part. Developer Contributions are levied through the Planning Scheme. Levies can be raised through Development Contributions Plans (DCPs) for a range of State and Local Government-provided infrastructure including roads, public transport, storm water and urban run-off management systems, open space and community facilities. In the case of the Armstrong Creek growth area, a simplified approach will be taken to DCPs, with local roads and stormwater systems being provided by developers and only included in DCPs where there is fragmentation in land ownership.

The Planning and Environment Act 1987 requires infrastructure projects to be classified either as development infrastructure or community infrastructure. The distinction is important because there is a maximum development contribution levy that can be charged for community infrastructure and the timing and payment of each levy is different. Processes for collection and the person responsible for payment are also different. The funding table in Appendix 9 sets out the allocation of funds for each funding agent. The total contribution required for developers is in the order of \$240 million, which equates to \$10, 909 per lot (based on 22, 000 lots) or \$163, 600 per hectare. This figure has been benchmarked against recent DCPs associated with Precinct Structure Plans, as follows:

| Planning Scheme | Levy per hectare |
|--|--|
| Casey (Cranbourne West, current amendment) | Ranges between \$173, 356 and \$161, 705 per hectare |
| Cardinia (Cardinia Road, DCPO2) | Ranges between \$130, 926 and \$193, 449 per hectare |

It is noted that these DCPs include stormwater and collector roads, while the figure for Armstrong Creek does not include these items. The Armstrong Creek DCPs will not include roads, cycle paths, pedestrian footpaths or public transport as these will be provided directly by developers. However, it is still considered that the rate is reasonable and can be justified.

The approach taken for DCPs in Armstrong Creek is that all infrastructure required in each of the precincts will be classified as 'developer infrastructure' as this infrastructure is required directly as a result of the development occurring. Therefore the levy attributed to developers includes levies for the development of community infrastructure and open space areas. It is intended that there will be an additional \$900 per residential lot for community infrastructure that will be used for growth area wide community infrastructure most of which is located in the Major Activity Centre Precinct. This approach will ensure that community infrastructure required at a precinct level and whole of growth area level is provided for in the funding model.

City of Greater Geelong

Council will take the lead role in facilitating the funding for the development infrastructure required across the growth area. This facilitation will be via management of the DCPs for each of the precincts in the growth area, and engagement with State agencies to deliver required infrastructure. There will be capital costs which are the direct responsibility of Council.



DEVELOPMENT PRINCIPLES

Council will meet a proportion of costs associated with development infrastructure where the nexus for this infrastructure is not clearly established as being the responsibility of individual development consortia. This will occur in circumstances where the catchments identified for relevant infrastructure extends into existing urban areas or where infrastructure is considered to be of a regional nature servicing broader catchments beyond Armstrong Creek. It is envisaged that there will be significant negotiation at the PSP phase to implement a funding strategy across the State agencies, local government and development interests to achieve equitable outcomes individual precincts.

The ten year financial model for the City of Greater Geelong assumes that for every \$1.00 collected in developer contribution levies there will be an additional 30 cents for every dollar required to be spent by Council in the delivery of development infrastructure. This projection provides for contingencies and additional capital costs. The attached summary spreadsheets (Appendix 9-11) provide indicative schedules which will inform the precinct structure planning work, with an emphasis on the DCP which form part of the PSP, State budgets for the delivery of physical and social infrastructure and local Council budget streams which will be essential to deliver this range of infrastructure.

Commonwealth Government

Council will pursue, where appropriate, Commonwealth investment in Armstrong Creek infrastructure through available grants programs in order to:

- fast track critical infrastructure;
- deliver more affordable housing by reducing lag time;
- capture innovation that will directly impact the price of utilities for residents, such as recycled water, on an ongoing basis; and
- stimulate economic activity and instigate employment projects for the entire municipality.

Private sector

An important provider of infrastructure is the private sector, which may occur through the development of private schools and the like.

Philanthropy

Philanthropic Trusts and Community Banks are potential sources of funding for community infrastructure. Some Trusts are already expressing an interest in projects that will build a sense of community and recognise cultural heritage. Council and service providers will explore opportunities for investment; however the IIDP is unable to factor in these contributions at the planning stage.

Phasing

The Infrastructure Delivery- Four Year Phasing table (Appendix 10) sets out the delivery phasing of infrastructure required as per the principles of this plan. To this end services/ facilities have not been linked to particular precincts, but to lot numbers. It is considered that lot numbers are a tangible way of determining the need for particular infrastructure items. The phasing regime is not linked to particular precincts, to enable flexibility in infrastructure provision, and to recognise that development is likely to occur on multiple fronts.

The phasing and funding models ensure that the area won't be over-served in any four year phase. It also allows for a fast 'take up' of lots, with service provision linked into lot numbers. Each of the four year units contribute to an appropriate overall level of service for the growth area.

Table 3 sets out the funding agent contributions, the more detailed table can be seen at Appendix 11.

Table 3–Agent infrastructure funding contributions

| Funding Agent | Estimated Contribution (\$M) |
|-------------------|------------------------------|
| Developer | 240 |
| COGG | 34 |
| State Govt | 282 |
| Federal/ State | 197 |
| Private sector | 154 |
| Service Authority | 83 |
| Total | 989 |

Governance

The IIDP has not addressed the issue of governance. It is noted that with changes and innovation in service delivery agencies will be assisted to determine the best way forward for their agency, based on their own legislation, needs, complexities and constraints in delivery. The SIIDP Project Control group will reconvene to work on governance models for collocated infrastructure. The IIDP has focussed on innovation, and encourages innovation, and for this to be achieved there are a number of particular items requiring consideration by various agencies including:

- Management of community pavilions
- Co location
- Sharing of land for efficiencies
- Delivery of youth and maternal child health services.

REFERENCES

Armstrong Creek Social Interagency Infrastructure Delivery Plan (SIIDP), draft report January 2009

Armstrong Creek Civil Interagency Infrastructure Delivery Plan (CIIDP), final report October 2008

A fairer Victoria, strong people, strong communities, Published by the Victorian Government, DPCD, May 2008 G21- The Geelong region plan, G21, Sept 2007

Melbourne 2030– A Planning Update Melbourne @ 5 million Published by the Victorian Government, DPCD, Dec 2008

Moving forward- Making Provincial Victoria the best place to live, work and invest, Published by the Victorian Government, RDV DIIRD, Nov 2005.

APPENDICES

Appendix 1: Armstrong Creek Framework Plan

Appendix 2: Armstrong Creek Precinct Plan

Appendix 3: Infrastructure Description

Appendix 4: Infrastructure Design Principles

Appendix 5: Community Facilities Plan

Appendix 6: Road and Public Transport Network Plan

Appendix 7: Location of Sparrowvale farm

Appendix 8: Infrastructure Roll out Plan

Appendix 9: Infrastructure Estimated Costs, Funding Rate and Apportionment Table

Appendix 10: Infrastructure Delivery- Four Year Phasing Table

Appendix 11: Agent Infrastructure Funding Contributions.

CITY OF GREATER GEELONG

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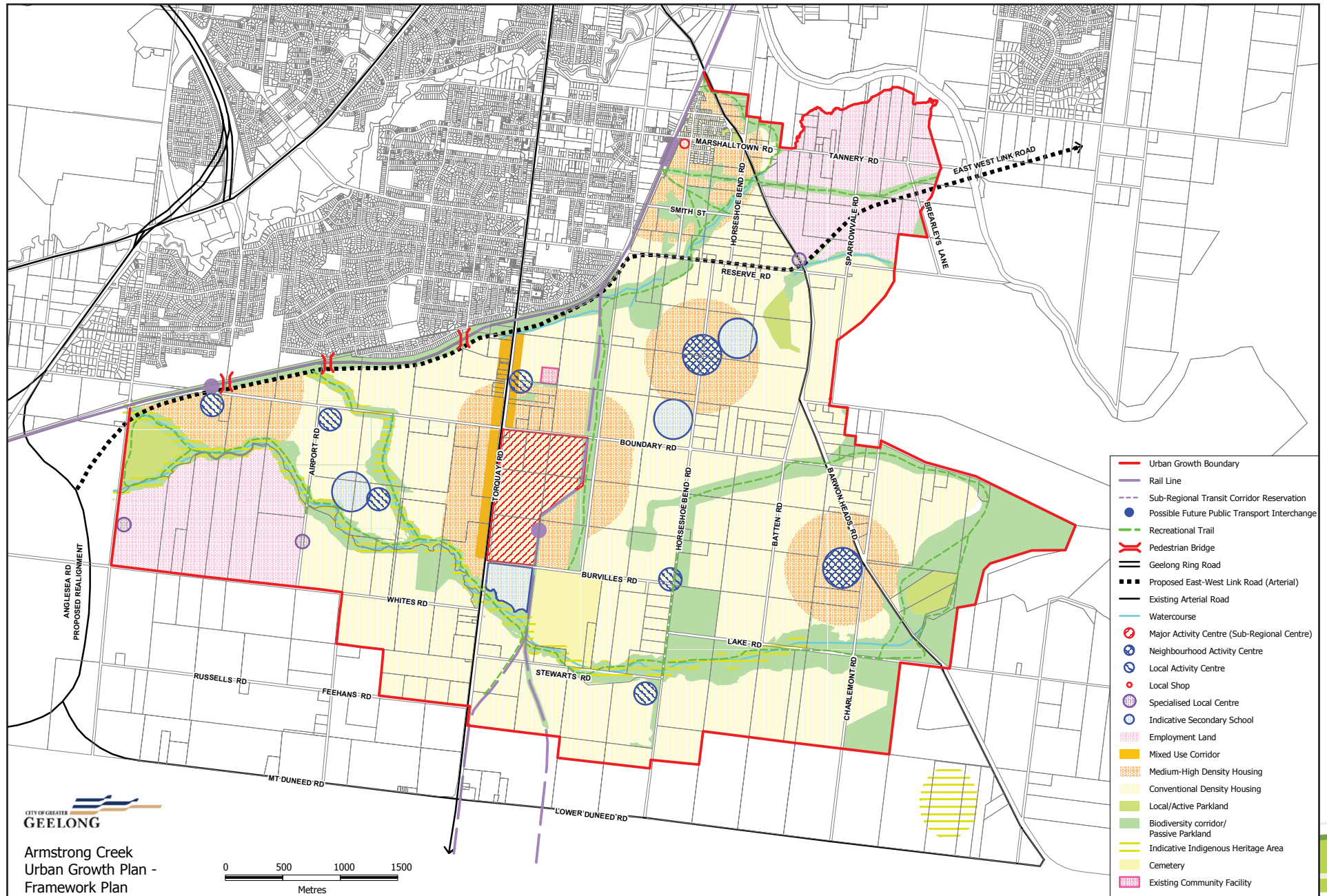
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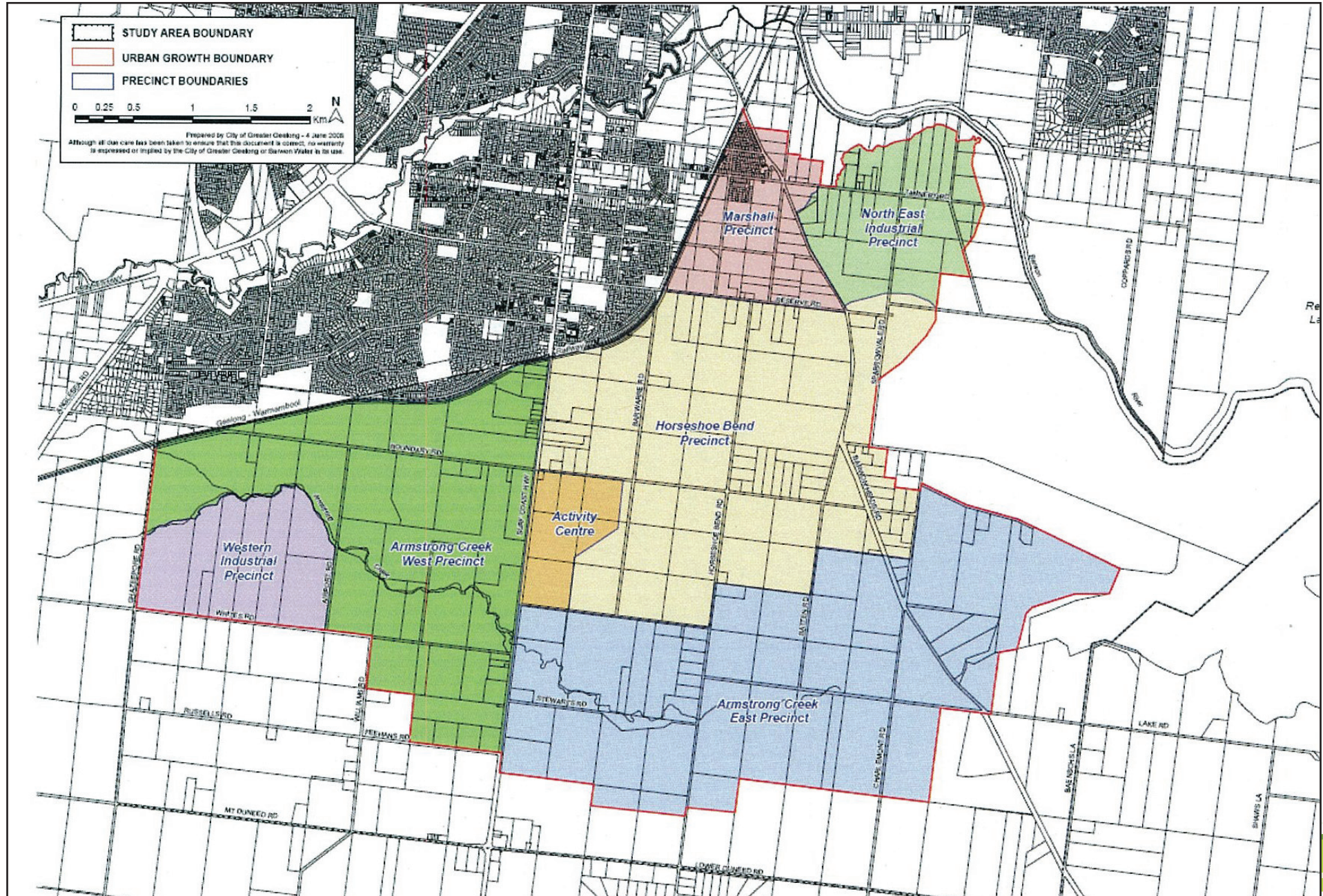
APPENDIX 1

FRAMEWORK PLAN



APPENDIX 2

ARMSTRONG CREEK PRECINCT PLAN



APPENDIX 3

INFRASTRUCTURE DESCRIPTION

| Service | Facility | Responsible Agency | Service / Infrastructure Description |
|-----------------------------|---|--|--|
| Community & Health Services | Community Complex | CoGG | Provision of various size community facilities which may comprise any of the following: community centre, maternal child health, youth, community meeting space |
| | Health Centres | DHS / Barwon Health | Provision of various size health facilities, doctor's rooms, private and public health |
| Education | Primary | DEECD & Private | Provision of grades P - 6 on a 3.5ha and 3ha for public and private schools respectively. |
| | Secondary | DEECD & Private | Provision of grades 7 - 12 on an 8.4ha and 7ha for public and private schools respectively. |
| | Senior Secondary | DEECD & Private | Provision of one Public Senior Secondary School and / or TAFE facility located within the Major Activity Centre (8ha site) |
| Arts & Culture | Neighbourhood Halls | CoGG | Provision of flexible community space used for performing arts and cultural, and general community activities and programs. |
| Emergency Services | CFA | DoJ - CFA | Provision of administration, truck sheds and training facilities within an emergency services hub. |
| | Police | DoJ - Victoria Police | Provision of administration, carparking and training facilities within an emergency services hub. |
| | Ambulance | DoJ - Ambulance Victoria | Provision of administration, ambulance sheds and training facilities within an emergency services hub. |
| Sports & Recreation | Active Open Space | CoGG | Provision of parkland set aside for the specific purpose of formal recreational sports for the community |
| | Football / Cricket | CoGG | Joint use ovals for sports such as cricket, football and soccer. |
| | Netball | CoGG | Asphalt netball courts allocated at approximately one per ovals |
| | Soccer | CoGG | Joint use pitches for sports such as soccer and hockey, including several synthetic pitches. |
| | Hockey | CoGG | Specialty synthetic pitches for hockey and other compatible uses. |
| | Tennis Complex | CoGG | Provision of two 18 court tennis complexes, including pavilion and seating |
| | Community Pavilions | CoGG | Provision of a new sports pavilion model that services not only sports groups but also various community groups and public meetings. The Community Pavilions will include three sizes at Local, Neighbourhood and Regional scales and include meeting space, kitchens, change rooms and extensive storage. |
| | Toilet Blocks | CoGG | Provision of toilet facilities, including minor storage, that service active open space as close proximity activity centres. |
| | Multi Purpose Stadiums | CoGG | Provision of two court basketball stadiums at a neighbourhood level, with a large 4 court stadium located within the Major Activity Centre. These facilities will include change rooms, administration and flexible space for gymnastics, playgroups and community events. |
| | Senior Recreation Reserves - Lawn Bowls | CoGG | Provision of two synthetic greens on active open space. These reserves will be co-located with joint use community complexes or community pavilions. |
| | Athletics Track & Field | CoGG | Provision of a regional standard athletic running track, as well as various track and field facilities |
| Aquatic Centre | CoGG | Provision of indoor olympic swimming pool, gym, spa / sauna, outdoor play area and administration building | |

APPENDIX 3

INFRASTRUCTURE DESCRIPTION

| Service | Facility | Responsible Agency | Service / Infrastructure Description |
|-----------------------------------|---|------------------------|--|
| Integrated Water Cycle Management | Potable Water | Barwon Water | Provision of trunk water main assets > 150mm is size, including pressure reducing valves. |
| | Sewerage | Barwon Water | Provision of trunk sewer main assets > 225mm is size, including pump stations. |
| | Stormwater | CoGG | Provision of stormwater and flood management infrastructure, including but not limited to, retarding basins wetlands, trunk drainage pipes and open channels / streams. |
| | Recycled Water | Barwon Water / Private | Provision of various recycled water options including third pipe schemes, rainwater tanks and water harvesting. |
| Movement & Access | Arterial Roads | VicRoads | Provision of major roadways that carry large volumes of traffic within and external to the growth area (eg: > 10,000 vehicles per day). These roads are access controlled and may be both single carriageway or duplicated roadways. |
| | Collector Roads | VicRoads | Provision of moderate level roadways within the development that carry modest traffic volumes (eg: < 10,000 vehicles per day). These are single carriageway roads that include parking, footpaths and act as the primary public transport route. |
| | Recreation Paths - Pedestrian & Cycle | CoGG | Provision of both on-road and off-road pedestrian and cycle paths that connect different neighbourhoods and places of interest across the growth area (eg: school, activity centre and railway stations) |
| | Railway Overpasses - Pedestrian & Cycle | CoGG / DoT | Provision of new pedestrian / cycle bridges across the existing Geelong-Warrnambool railway line. These bridges will connect the new Armstrong Creek community to the existing suburbs of Waurm Ponds, and Grovedale. |
| | Public Transport - Railway Stations | DoT | Provision of a major park and ride railway station (north and south of the railway line) in the west of the growth area, a major activity centre railway station and an upgrade of the existing Marshall station to include modest park and ride facilities and improved amenity.. |
| | Public Transport - Rail | DoT | Provision of 4.6km of new heavy rail connection through the middle of the Armstrong Creek Growth Area, that would continue further south to Torquay. The line would include two road underpasses and one creek bridge. |
| | Public Transport - Bus | DoT | Provision of local and interchange bus services that provide local public transport for the new community, including links to major growth area facilities and railway station. |
| Energy | Electricity | Powercor | Provision of feeder power line infrastructure, including augmentation of relevant sub-stations and terminal stations, |
| | Gas | SP AusNet | Provision of natural gas supply mains to within 1.5 kms from transmission pipeline. |
| Communication | Telecommunications | Telstra / Private | Provision of telecommunication infrastructure from major interchange stations to agreed neighbourhood interchanges |

APPENDIX 4

INFRASTRUCTURE DESIGN PRINCIPLES

| Service | Facility | Strategic Location | Responsible Agency | Design Principles | | | |
|-----------------------------|---|--|--|--|--|--|--|
| | | | | Location | Amenity | Accessibility | Sustainability |
| Community & Health Services | Community Complex | Local, Neighbourhood and Major Activity Centre | CoGG | Health Services and Activity Centre | Multiple tenants, large scale storage, shared resources, public meeting space, high tech focus | Strong DDA access requirements, located on primary bus route, complex manager to maintain easy access, crime prevention design | Shared resources, links with transports interchanges, sustainable and smart building design, facility manager |
| | Health Centres | Local, Neighbourhood and Major Activity Centre | DHS / Barwon Health | Community Complex and Activity Centre | Multiple tenants, shared resources, one-stop health services | Strong DDA access requirements, located on primary bus route, complex manager to maintain easy access, crime prevention design | Shared resources, links with transports interchanges, smart building design |
| Education | Primary | Local and Neighbourhood | DEECD & Private | Activity Centre | Shared resources, off-street traffic loop, visitor parking, | Off-street traffic loop | Sustainable building design, passive design, water harvesting |
| | Secondary | Local and Neighbourhood | DEECD & Private | Active Open Space, Multi purpose stadium | Shared resources between other schools and the public, | Off-street bus loop / parking, visitor parking, | Sustainable building design, passive design, water harvesting |
| | Senior Secondary | Major Activity Centre | DEECD & Private | TAFE, Major Activity Centre, Transport Hub, Multi Purpose Stadium, Aquatic Complex | Shared resources between other schools and the public, off-street bus loop / parking, visitor parking, high tech focus | links / integration with Deakin | Sustainable building design, passive design, water harvesting |
| Arts & Culture | Neighbourhood Halls | Local, Neighbourhood and Major Activity Centre | CoGG | Community Complex and Activity Centre | Multiple tenants, large scale storage, shared resources, | Open to all age and interest groups | Shared resources, links with transports interchanges, smart building design, facility manager |
| Emergency Services Police | CFA | Cnr Surf Coast Hwy and Boundary Road | DoJ - CFA | Major Arterial Road (two sides) | Emergency services hub, joint use facilities | Part of the primary bus route, priority access intersection / traffic signals | Sustainable building design, joint use of facilities, water harvesting for CFA training |
| | Police | Cnr Surf Coast Hwy and Boundary Road | DoJ - Victoria Police | Major Arterial Road (two sides) | Emergency services hub, joint use facilities | Part of the primary bus route, priority access intersection / traffic signals | Sustainable building design, joint use of facilities, water harvesting for CFA training |
| | Ambulance | Cnr Surf Coast Hwy and Boundary Road | DoJ - Ambulance Victoria | Major Arterial Road (two sides) | Emergency services hub, joint use facilities | Part of the primary bus route, priority access intersection / traffic signals | Sustainable building design, joint use of facilities, water harvesting for CFA training |
| Sports & Recreation | Active Open Space | Total Growth Area | CoGG | Waterways, Education and Activity Centres | Attractive landscaping, 400m walkable catchments, well design facility location (sports grounds surrounding pavilions) | Integrated pathways (pedestrian and cycle), traffic loop road, carparking, easy walking distance from homes (400m / 5 mins), part of the primary bus route | Sustainable water supply, drought tolerant landscaping and turfs, water harvesting, efficient irrigation systems |
| | Football / Cricket | Total Growth Area | CoGG | Education, Activity Centres and Transport Hubs | Participant and spectator seating / shade | Spread across a variety of active reserves, close to schools, open access for the public | Sustainable water supply, drought tolerant landscaping and turfs, water harvesting, efficient irrigation systems |
| | Netball | Total Growth Area | CoGG | Education and Activity Centres | Participant and spectator seating / shade | Spread across a variety of active reserves, close to schools, open access for the public | Combination of turf and synthetic playing surfaces |
| | Soccer | Total Growth Area | CoGG | Education, Activity Centres and Transport Hubs | Participant and spectator seating / shade | Spread across a variety of active reserves, close to schools, synthetic surfaces have fencing and restricted access. | Sustainable water supply, drought tolerant landscaping and turfs, water harvesting, efficient irrigation systems, combination of turf and synthetic playing surfaces |
| | Hockey | Total Growth Area | CoGG | Education, Activity Centres and Transport Hubs | Participant and spectator seating / shade | Close to schools, synthetic surfaces have fencing and restricted access. | Synthetic surfaces, flexibility with soccer joint use |
| | Tennis Complex | East and West Regional Active Open Space | CoGG | Education, Activity Centres and Transport Hubs | Participant and spectator seating / shade, feature courts with grand stand, suitable for large competition | Commercially run, facility manager, onsite junior development programs | Sustainable building design, links with transport hubs, commercially run |
| | Community Pavilions | Total Growth Area | CoGG | Education, Activity Centres and Transport Hubs | Multiple tenants, large scale storage, shared resources, multi function entertainment space, kitchen, changing rooms | Strong DDA access requirements, crime prevention design, complex manager at large sites | Shared resources, links with transports interchanges, smart building design, design to meet current and future users |
| | Toilet Blocks | Total Growth Area | CoGG | Activity Centres and Active Open Space | Easy to clean, minor storage, public all-hours access | Strong DDA access requirements, crime prevention design | Water efficient fixtures, easy cleaning |
| | Multi Purpose Stadiums | Neighbourhood | CoGG | Education, Activity Centres and Transport Hubs | Multiple tenants, large scale storage, shared resources, small kitchen, changing rooms | Strong DDA access requirements, crime prevention design | Links with transports interchanges, sustainable building design |
| | Senior Recreation Reserves - Lawn Bowls | Neighbourhood / Local | CoGG | Community Complex, Activity Centres and Transport Hubs | Shared building facilities with Community Complex or Community Pavilion | Strong DDA access requirements, crime prevention design, part of the primary bus route | Links with transports interchanges, close proximity to high density housing / retirement villages |
| | Athletics Track & Field | TBC | CoGG | Education, Activity Centres and Transport Hubs | Attractive landscaping, 400m walkable catchments, well design facility location (sports grounds surrounding pavilions) | Integrated pathways (pedestrian and cycle), traffic loop road, carparking, easy walking distance from homes (400m / 5 mins), part of the primary bus route | Sustainable water supply, drought tolerant landscaping and turfs, water harvesting, efficient irrigation systems |
| Aquatic Centre | Major Activity Centre | CoGG | Major Activity Centre and Transport Hubs | Swimming pools, gym, large scale storage, small kitchen, changing rooms | Strong DDA access requirements, crime prevention design | Sustainable water supply and management | |

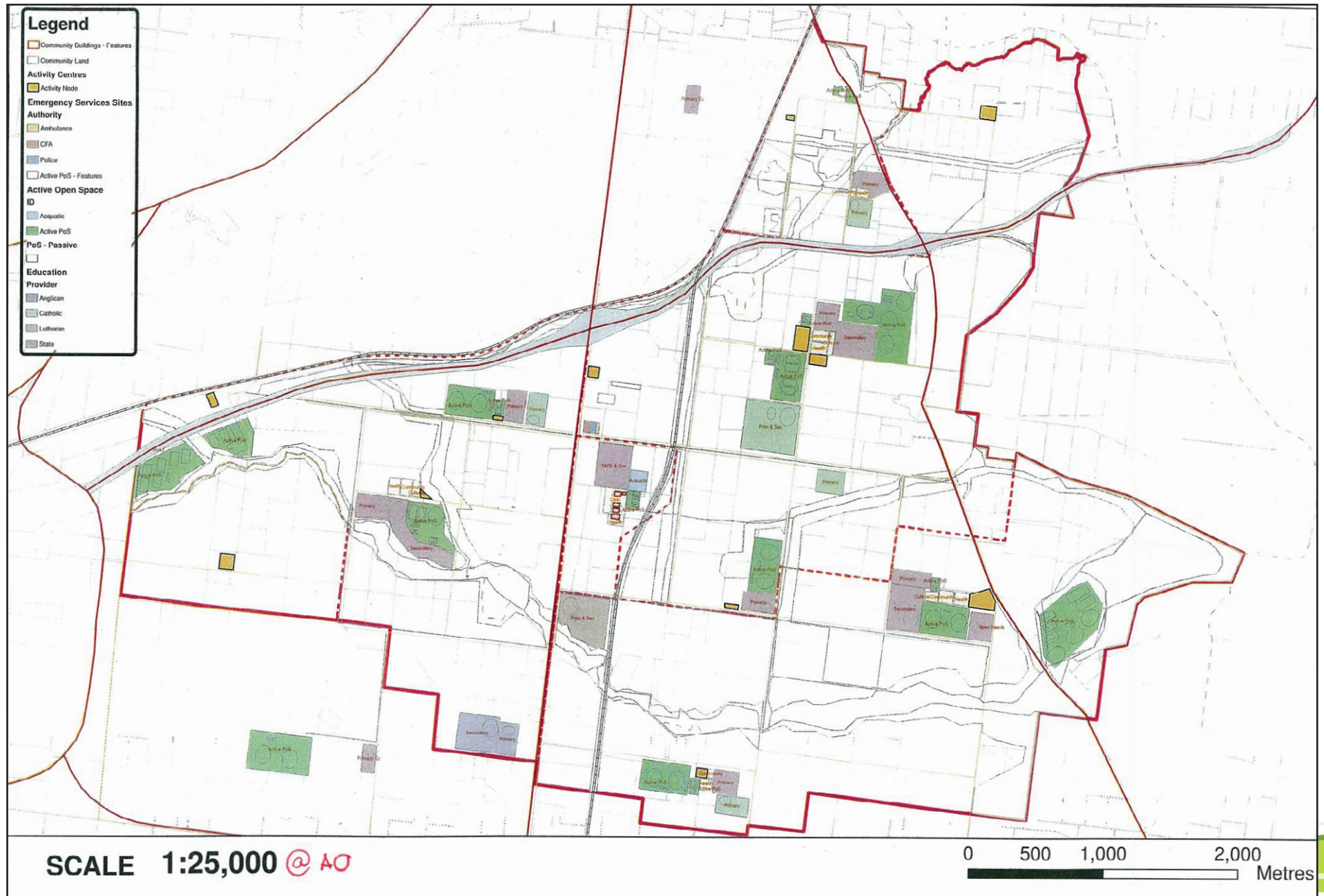
APPENDIX 4

INFRASTRUCTURE DESIGN PRINCIPLES

| Service | Facility | Strategic Location | Responsible Agency | Design Principles | | | |
|---------------------------------------|---|---|------------------------|---|---|--|--|
| | | | | Location | Amenity | Accessibility | Sustainability |
| Integrated Water Cycle Management | Potable Water | Total Growth Area - Road Reserves | Barwon Water | Within road reserves, open space, limit need for dedicated reserves, where possible locate pump stations and critical assets with open space | Infrastructure (particularly pump stations, valves, etc) integrated into the urban landscape, minimise visual impact | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and limiting access to critical assets | Water efficient fixtures and appliances, community education, drought tolerant landscaping and turfs, water harvesting, efficient irrigation systems |
| | Sewerage | Total Growth Area - Valleys / Open Space | Barwon Water | Within road reserves, open space, limit need for dedicated reserves, where possible locate pump stations and critical assets with open space | Infrastructure (particularly pump stations, valves, etc) integrated into the urban landscape, minimise visual impact, consider location of odour vents | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and limiting access to critical assets | Household and Industry grey water systems |
| | Stormwater | Road Reserves and Open Space | CoGG | Within road reserves, open space, limit need for dedicated narrow reserves, co-locate wetlands within irrigate open space | Integrate stormwater assets into urban landscape, enhance potential for passive recreational use, water bodies meet appropriate safety and functionality requirements | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and open space | WSUD, water harvesting, design consideration of downstream Ramsar wetland, appropriate design and use of drainage reserves (open space) |
| | Recycled Water | TBC | Barwon Water / Private | Within road reserves, open space, limit need for dedicated reserves, where possible locate pump stations and critical assets with open space | Infrastructure (particularly pump stations, valves, etc) integrated into the urban landscape, minimise visual impact, possible localised treatment facilities to consider abutting landuse and public amenity | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and limiting access to critical assets | Reduced greenhouse gas, education of proper use |
| Arterial Roads | Framing the total growth area (Surf Coast Hwy, Angelsea Rd, Barwon Heads Road, EW Link Rd and Mt Duneed Rd) | | VicRoads | Located on the outer edge of the growth area (3 - 3.5km grid) | 3.5m traffic lanes, signalised intersections, future diamond interchanges at crossing of two arterial roads, 2m wide on-road bike lanes, attractive landscaping and street trees | Access controlled roadway, limited number of intersections to improve performance, developer provide services roads (where appropriate), high standard pedestrian crossings at intersections | WSRD, minimised environmental footprint, native vegetation offset strategy |
| Collector Roads | 800m Grid - Total Growth Area | | VicRoads | 800m grid, locate large traffic demand landuses (Sports Grounds, Schools, Community Complexes) | Minimum 3.5m traffic lanes, carparking lanes, high standard intersections treatments, safe pedestrian environments, 1.5m wide on-road bike lanes, attractive landscaping and street trees | Driveway access, limited number of intersections to improve performance, high standard pedestrian crossings at intersections (or where required), act as the primary bus route | WSRD, minimised environmental footprint, native vegetation offset strategy, integrate with Armstrong Creek "walkability" initiatives |
| Recreation Paths - Pedestrian & Cycle | Total Growth Area | | CoGG | "Web" network, linking key places of interest (community, shopping, schooling and recreation facilities), located within open space, road and drainage reserves | Minimum 3m off-road shared path and 2.5m nature strip shared path, located with attractive landscape and open space environments | Provide links to Armstrong Creek major community, recreation and activity centres, high standard pedestrian crossings at intersections (or where required), provide links to public transport routes and hubs | Use of recycled materials, large scale staged delivery (establish early use), minimise conflict with environmental sensitive areas |
| Movement & Access | Railway Overpasses - Pedestrian & Cycle | Between the growth area and Waurn Ponds / Grovedale | CoGG / DoT | At appropriate integration points with Waurn Ponds and Grovedale communities | Minimum 3m shared path | Maintain appropriate ramp grades (DDA compliance), crime prevention design, link to important community facilities (railway stations, open space, schools, etc) | ??? |
| Public Transport - Railway Stations | As per growth are Framework Plan | | DoT | New Armstrong Creek West and Central stations, and upgrade of Marshall Station. | Active station precinct, all hours public access across rail corridor, integrated design with activity centres, creation of transport hub (rail, bus, taxi, carparking, local shopping) | Strong DDA access requirements, located on primary bus route, crime prevention design | Early delivery, sustainable and smart building design, |
| Public Transport - Rail | As per growth are Framework Plan | | DoT | Western side of Barwarre Road, running south between Lutheran School and Crematorium | 20 - 40m wide reservation (dependent of earthworks requirements), grade separate with intersecting roads, landscaping and appropriate screening | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and limiting access to rail corridor, allowance for future grade separate of intersecting collector roads. | Use of recycled materials, minimise conflict with environmental sensitive areas (eg: Armstrong Creek waterway), native vegetation offset strategy |
| Public Transport - Bus | TBC | | DoT | Collector roads for primary bus route, with links to three future railway stations (transport hubs) | Early provision of regular bus services, quality interchange points, high visibility bus stops / shelters | 400m walkable catchment to closest bus route, links to transport interchanges / hubs | Low emissions buses, early delivery of services |
| Energy | Electricity | Total Growth Area | Powercor | Within road reserves and some open space areas | Infrastructure (particularly sub stations, towers, etc) integrated into the urban landscape, minimise visual impact | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and limiting access to critical assets | Encourage household use of solar energy (water water and power), passive building design to reduce heating and cooling |
| | Gas | Total Growth Area | SP AusNet | Within road reserves and some open space areas | Infrastructure (particularly sub stations, towers, etc) integrated into the urban landscape, minimise visual impact | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and limiting access to critical assets | sustainable construction principle (materials, energy use, etc) |
| Communication | Telecommunications | Total Growth Area | Telstra / Private | Within road reserves and some open space areas | Infrastructure (particularly sub stations, towers, etc) integrated into the urban landscape, minimise visual impact | Design should consider operational access needs and allowance for potential upgrade / expansion, consider interaction with public and limiting access to critical assets | Deliver high quality optic fibre to the premises |

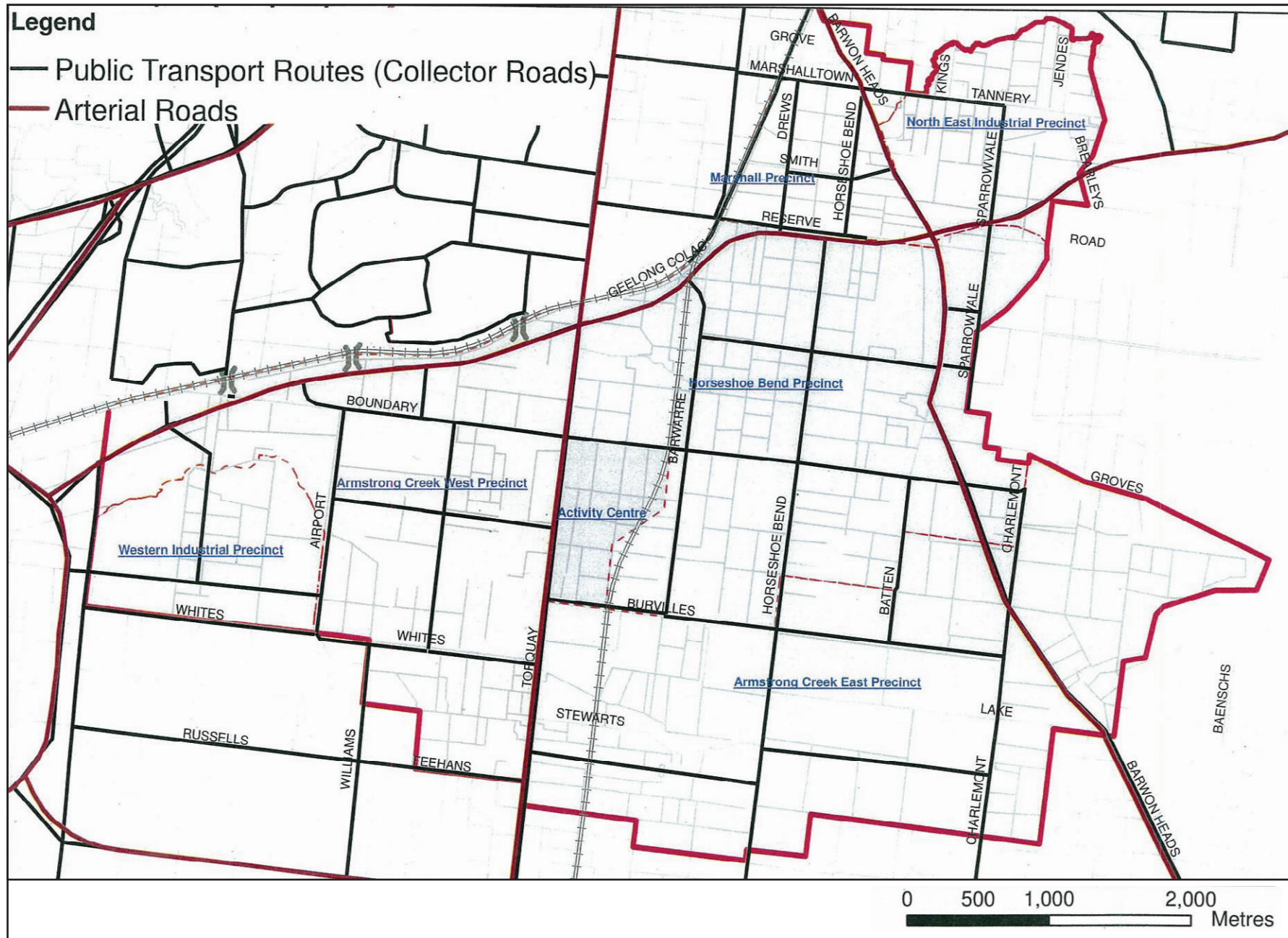
APPENDIX 5

ARMSTRONG CREEK: SOCIAL STRUCTURE - INDICATIVE LOCATION MAP



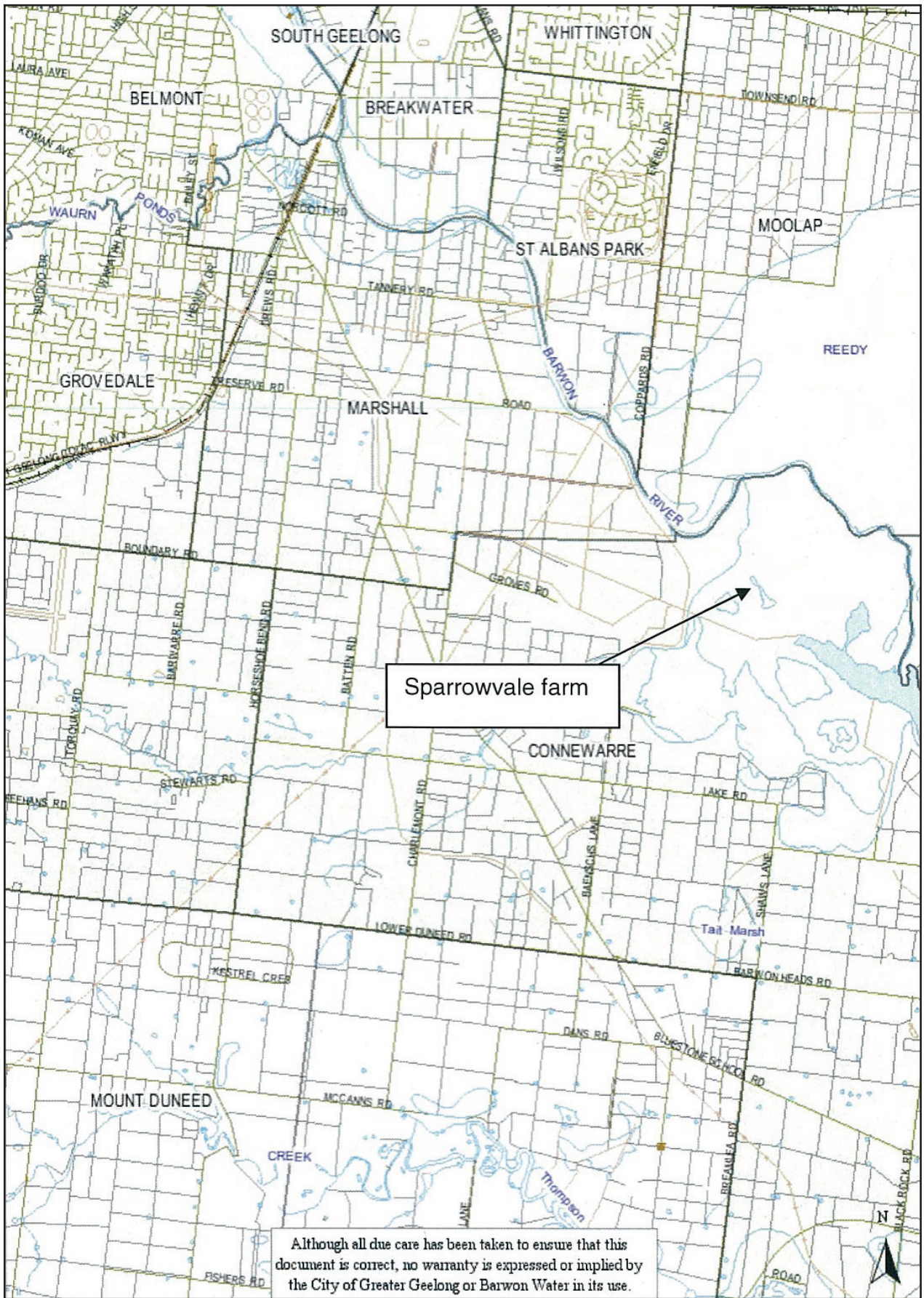
APPENDIX 6

ARMSTRONG CREEK: PUBLIC TRANSPORT ROUTES - ARTERIAL AND COLLECTOR ROADS



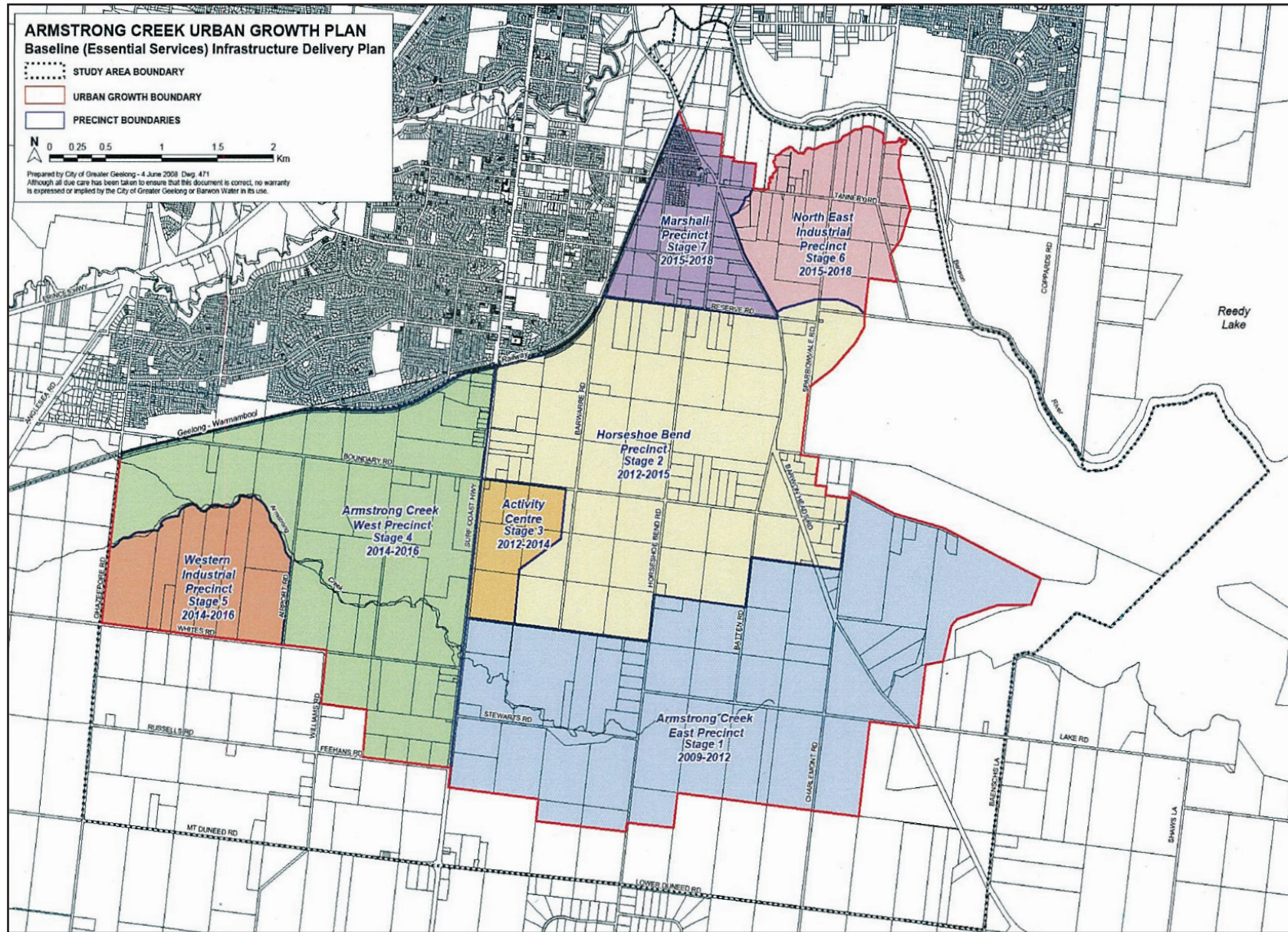
APPENDIX 7

LOCATION OF SPARROWVALE FARM



APPENDIX 8

BASELINE SEQUENCE FOR INTERAGENCY INFRASTRUCTURE DELIVERY



APPENDIX 9

INFRASTRUCTURE ESTIMATED COSTS, FUNDING AGENT AND APPORTIONMENT

| Service | Facility | No. | Units | Estimated Cost \$M | Funding Agent (% and \$M) | | | | | | | | | Comments | | |
|-----------------------------------|---|---------|------------------|--------------------|---------------------------|------------|------------|-----------------|-------------|------------|-----------|-----------|---|---|-----------|----------|
| | | | | | Developer | CoGG | State | State / Federal | Private | Authority | | | | | | |
| Community & Health Services | Community Complex | 8 | Complex | 73 | 100% | 73 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | 1 Major, 3 neighbourhood and 4 local complexes | | |
| | Health Centres | 8 | Complex | 38 | 0% | 0 | 50% | 19 | 0 | 50% | 19 | 0 | 0 | 1 Major, 3 neighbourhood and 4 local centres | | |
| | Citizens Halls | 3 | Site | 23 | 100% | 23 | 0% | 0 | 0 | 0% | 0 | 0 | 0 | 3 neighbourhood centres | | |
| | | | | 134 | 54% | 73 | 0% | 0 | 14% | 19 | 0% | 0 | 14% | 19 | 0% | 0 |
| Education | Primary | 14 | Site | 170 | 0% | 0 | 58% | 98 | 0 | 42% | 72 | 0 | 0 | 8 state (including special needs) and 6 private | | |
| | Secondary | 5 | Site | 157 | 0% | 0 | 60% | 94 | 0 | 40% | 63 | 0 | 0 | 3 state and 2 private state | | |
| | Senior Secondary | 1 | Site | 55 | 0% | 0 | 100% | 55 | 0 | 0 | 0 | 0 | 0 | | | |
| | | | | 382 | 0% | 0 | 0% | 0 | 65% | 247 | 0% | 0 | 35% | 135 | 0% | 0 |
| Emergency Services | CFA | 1 | Site | 4 | 0% | 0 | 100% | 4 | 0 | 0 | 0 | 0 | 0 | | | |
| | Police | 1 | Site | 7 | 0% | 0 | 100% | 7 | 0 | 0 | 0 | 0 | 0 | | | |
| | Ambulance | 1 | Site | 5 | 0% | 0 | 100% | 5 | 0 | 0 | 0 | 0 | 0 | | | |
| | | | | 16 | 0% | 0 | 0% | 0 | 100% | 16 | 0% | 0 | 0% | 0 | 0% | 0 |
| Sports & Recreation | Active Open Space | 110 | Ha | 74 | 100% | 74 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | To be confirmed during PSP, including passive open space allocation. | | |
| | Football / Cricket | 13 | Ovals | 15 | 100% | 15 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Netball | 2 | Courts | 2 | 100% | 2 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Soccer | 10 | Pitches | 5 | 100% | 5 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Hockey | 2 | Pitches | 3 | 100% | 3 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Tennis Complex | 2 | 18 Court Complex | 7 | 100% | 7 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Community Pavilions | 9 | Pavilions | 28 | 60% | 17 | 30% | 8 | 0 | 10% | 3 | 0 | 0 | These facilities will provide service to the broader Geelong region | | |
| | Toilet Blocks | 15 | Sites | 2 | 100% | 2 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Multi Purpose Stadiums | 4 | Stadium | 21 | 60% | 13 | 30% | 6 | 0 | 10% | 2 | 0 | 0 | These facilities will provide service to the broader Geelong region | | |
| | Senior Recreation Reserves - Lawn Bowls | 3 | 2 Green Reserve | 3 | 100% | 3 | 0% | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Athletics Track & Field | 1 | Complex | 3 | 50% | 2 | 40% | 1 | 0 | 10% | 0 | 0 | 0 | These facilities will provide service to the broader Geelong region | | | |
| Aquatic Centre | 1 | Complex | 21 | 10% | 2 | 60% | 13 | 0 | 30% | 6 | 0 | 0 | These facilities will provide service to the broader Geelong region | | | |
| | | | | 184 | 78% | 144 | 15% | 29 | 0% | 0 | 6% | 12 | 0% | 0 | 0% | 0 |
| Integrated Water Cycle Management | Potable Water | 1 | Item | 34 | 0% | 0 | 0 | 0 | 0 | 0 | 100% | 34 | 0 | Truck servicing for total urban growth area. | | |
| | Sewerage | 1 | Item | 49 | 0% | 0 | 0 | 0 | 0 | 0 | 100% | 49 | 0 | Truck servicing for total urban growth area. | | |
| | Stormwater | - | NA | TBC | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Includes flood mitigation, retarding basins and water quality treatment | | |
| | Recycled Water | - | NA | TBC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Possible combination of authority, public and private funding | | |
| | | | | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | | |
| Movement & Access | Arterial Roads - New | 7.8 | km | TBC | 65% | 0 | 0 | 0 | 0 | 0 | 35% | 0 | 0 | East West Link Road. | | |
| | Arterial Roads - Upgrade | - | km | TBC | 0 | 0 | 0 | 0 | 0 | 0 | 100% | 0 | 0 | Surf Coast Hwy, Barwon Heads Rd and Mt Duneed / Lower Dunned Rd | | |
| | Collector Roads | 60 | km | TBC | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Recreation Paths - Pedestrian & Cycle | 58 | km | TBC | 90% | 0 | 0 | 0 | 10% | 0 | 0 | 0 | 0 | | | |
| | Railway Overpasses - Pedestrian & Cycle | 4 | No. | 10 | 0 | 50% | 5 | 0 | 50% | 5 | 0 | 0 | 0 | | | |
| | Public Transport - Railway Stations | 3 | No. | 130 | 0 | 0 | 0 | 0 | 100% | 130 | 0 | 0 | 0 | New Armstrong Creek West (\$70m) and Central (\$50m) stations, and upgrade of Marshall Station (\$10m). Estimate based on Victoria Transport Plan 2009 and new station costs. | | |
| | Public Transport - Rail | 4.6 | km | 50 | 0 | 0 | 0 | 0 | 100% | 50 | 0 | 0 | 0 | New north-south transit corridor (4.6 km within CoGG). Includes two road bridges and one creek bridge. | | |
| Public Transport - Bus | - | NA | TBC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Bus services and related infrastructure | | | |
| | | | | 190 | 0 | 5 | 0 | 0 | 185 | 0 | 0 | 0 | 0 | | | |
| Energy | Electricity | - | NA | FNP | 0 | 0 | 0 | 0 | 0 | 0 | 100% | 0 | 0 | Truck servicing for total urban growth area. | | |
| | Gas | - | NA | FNP | 0 | 0 | 0 | 0 | 0 | 0 | 100% | 0 | 0 | Truck servicing for total urban growth area. | | |
| | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Communication | Telecommunications | - | NA | TBC | 0 | 0 | 0 | 0 | 0 | 0 | 100% | 0 | 0 | | | |
| | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| GRAND TOTAL (\$M) | | | | 989 | 240 | 34 | 282 | 197 | 154 | 83 | | | | | | |

* All costs and funding figures have been rounded to the nearest million
 * FNP - Figures Not Provided
 * TBC - To Be Confirmed (estimates and / or planning work is still to be completed)

APPENDIX 10

INFRASTRUCTURE DELIVERY - 4 YEAR PHASING

| Service | Facility | No. | Units | Estimated Cost \$M | Delivery Phasing (units / \$ M) | | | | | | | | Unit Triggers by Residential Lots ^ | Comments | | |
|-----------------------------------|---|---------|------------------|--------------------|---------------------------------|------------|-----------|------------|-----------|------------|-----------|------------|-------------------------------------|------------|---|---|
| | | | | | 2010 - 13 | | 2014 - 17 | | 2018 - 21 | | 2022 - 25 | | | | 2026 - 29 | |
| Community & Health Services | Community Complex | 8 | Complex | 73 | 3 | 27 | 2 | 18 | 2 | 18 | 1 | 9 | 0 | 0 | 2,500 | |
| | Health Centres | 8 | Complex | 38 | 3 | 14 | 2 | 10 | 2 | 10 | 1 | 5 | 0 | 0 | 2,500 | |
| | Citizens Halls | 3 | Complex | 23 | 1 | 8 | 1 | 8 | 1 | 8 | 0 | 0 | 0 | 0 | 6,000 | |
| | | | | 134 | | 49 | | 35 | | 35 | | 14 | | 0 | | |
| Education | Primary | 14 | Site | 170 | 2 | 24 | 4 | 49 | 3 | 36 | 3 | 36 | 2 | 24 | 1,500 | 8 state (including one special needs) and 6 private |
| | Secondary | 5 | Site | 157 | 1 | 31 | 1 | 31 | 1 | 31 | 1 | 31 | 1 | 31 | 4,000 | 3 state and 2 private |
| | Senior Secondary | 1 | Site | 55 | 0 | 0 | 0 | 0 | 1 | 55 | 0 | 0 | 0 | 0 | 10,000 | state |
| | | | | 382 | | 56 | | 80 | | 123 | | 68 | | 56 | | |
| Emergency Services | CFA | 1 | Site | 4 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 8,000 | |
| | Police | 1 | Site | 7 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 8,000 | |
| | Ambulance | 1 | Site | 5 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 8,000 | |
| | | | | 16 | | 0 | | 0 | | 16 | | 0 | | 0 | | |
| Sports & Recreation | Active Open Space | 113 | Ha | 74 | 20 | 13 | 30 | 20 | 30 | 20 | 20 | 13 | 13 | 9 | As Required | Exact location and dimensions to be confirmed during PSP process Includes 3 joint use football / soccer ovals (2 soccer pitches per oval) Total of 16 soccer pitches for the whole growth area (refer football / cricket ovals) |
| | Football / Cricket | 16 | Ovals | 15 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 3 | 3 | 1,500 | |
| | Netball | 24 | Courts | 2 | 3 | 0 | 3 | 0 | 12 | 1 | 3 | 0 | 3 | 0 | 1,000 | |
| | Soccer | 10 | Pitches | 5 | 2 | 1 | 2 | 1 | 3 | 2 | 2 | 1 | 1 | 1 | 2,000 | |
| | Hockey | 2 | Pitches | 3 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4,000 | |
| | Tennis Complex | 2 | 18 Court Complex | 7 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 4 | 0 | 0 | 6,000 | |
| | Community Pavilions | 9 | Pavilions | 28 | 2 | 6 | 2 | 6 | 2 | 6 | 2 | 6 | 1 | 3 | 2,000 | |
| | Toilet Blocks | 15 | Sites | 2 | 3 | 0 | 3 | 0 | 4 | 1 | 3 | 0 | 2 | 0 | 1,500 | |
| | Multi Purpose Stadiums | 4 | Stadium | 21 | 1 | 5 | 1 | 5 | 0 | 0 | 1 | 5 | 1 | 5 | 4,000 | |
| | Senior Recreation Reserves - Lawn Bowls | 3 | 2 Green Reserve | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 6,000 | |
| | Athletics Track & Field | 1 | Complex | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 15,000 | |
| Aquatic Centre | 1 | Complex | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 21 | 20,000 | | |
| | | | | 184 | | 30 | | 43 | | 37 | | 33 | | 42 | | |
| Integrated Water Cycle Management | Potable Water | 100 | % | 34 | 45 | 15 | 45 | 15 | 10 | 3 | 0 | 0 | 0 | 0 | As Required | Truck servicing for total urban growth area. |
| | Sewerage | 100 | % | 49 | 45 | 22 | 45 | 22 | 10 | 5 | 0 | 0 | 0 | 0 | As Required | Truck servicing for total urban growth area. |
| | Stormwater | 100 | % | TBC | 25 | 0 | 25 | 0 | 25 | 0 | 20 | 0 | 5 | 0 | As Required | |
| | Recycled Water | 100 | % | TBC | 45 | 0 | 40 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | As Required | |
| | | | | 83 | | 37 | | 37 | | 8 | | 0 | | 0 | | |
| Movement & Access | Arterial Roads - New | 7.8 | km | TBC | 3.8 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | As Required | East West Link Road |
| | Arterial Roads - Upgrade | 100 | % | TBC | 5 | 0 | 15 | 0 | 40 | 0 | 25 | 0 | 15 | 0 | As Required | Surf Coast Hwy, Barwon Heads Rd and Mt Duneed / Lower Dunned Rd |
| | Collector Roads | 60 | km | TBC | 10 | 0 | 25 | 0 | 20 | 0 | 5 | 0 | 0 | 0 | As Required | |
| | Recreation Paths - Pedestrian & Cycle | 58 | km | TBC | 5 | 0 | 20 | 0 | 18 | 0 | 10 | 0 | 5 | 0 | As Required | |
| | Railway Overpasses - Pedestrian & Cycle | 4 | No. | 10 | 0 | 0 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 | As Required | |
| | Public Transport - Railway Stations | 3 | No. | 130 | 1 | 43 | 1 | 43 | 0 | 0 | 0 | 0 | 1 | 43 | 5,000 | New Armstrong Creek West and Central stations, and upgrade of Marshall Station. Note - Armstrong Creek West station delivered in two stages |
| | Public Transport - Rail | 4.6 | km | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 50 | 20,000 | New north-south rail corridor (4.6 km within CoGG) |
| Public Transport - Bus | 100 | % | TBC | 25 | 0 | 35 | 0 | 30 | 0 | 10 | 0 | 0 | 0 | ASAP | Bus services and related infrastructure | |
| | | | | 190 | | 43 | | 46 | | 3 | | 3 | | 96 | | |
| Energy | Electricity | 100 | % | FNP | 30 | 0 | 25 | 0 | 20 | 0 | 15 | 0 | 10 | 0 | As Required | Truck servicing for total urban growth area. |
| | Gas | 100 | % | FNP | 30 | 0 | 25 | 0 | 20 | 0 | 15 | 0 | 10 | 0 | As Required | Truck servicing for total urban growth area. |
| | | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | |
| Communication | Telecommunications | 100 | % | TBC | 25 | 0 | 25 | 0 | 25 | 0 | 15 | 0 | 10 | 0 | As Required | |
| | | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | |
| GRAND TOTAL (\$M) | | | | 989 | | 216 | | 242 | | 222 | | 117 | | 193 | | |

^ Triggers for delivery of each infrastructure unit at based on a total of 22,00 residential lots for the total growth area.

* All costs and funding figures have been rounded to the nearest million.

* FNP - Figures Not Provided

* TBC - To Be Confirmed (estimates and / or planning work is still to be completed)

APPENDIX 11

AGENT INFRASTRUCTURE FUNDING CONTRIBUTIONS - 4 YEAR PHASING

| Funding Agent | Estimated Contribution \$M # | Delivery Phasing (units / \$ M) | | | | | | | | | | Comments |
|----------------------------|---------------------------------|---------------------------------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|---|
| | | 2010 - 13 | | 2014 - 17 | | 2018 - 21 | | 2022 - 25 | | 2026 - 29 | | |
| Developer | 240 | 25% | 60 | 27% | 64 | 24% | 59 | 15% | 37 | 8% | 19 | Equates to approx. \$11,000 / residential lot |
| CoGG | 34 | 10% | 3 | 14% | 5 | 13% | 4 | 14% | 5 | 49% | 16 | |
| State Government | 282 | 14% | 40 | 18% | 52 | 41% | 116 | 15% | 42 | 12% | 33 | Costs only include Health, Education and Emergency Services |
| State / Federal Gov't | 197 | 23% | 44 | 23% | 46 | 1% | 2 | 1% | 2 | 52% | 102 | |
| Private Sector | 154 | 19% | 30 | 25% | 38 | 21% | 33 | 20% | 30 | 15% | 23 | Cost only include Barwon Water infrastructure |
| Service Authority | 83 | 45% | 37 | 45% | 37 | 10% | 8 | 0% | 0 | 0% | 0 | |
| GRAND TOTAL (\$M) | 989 | | 216 | | 242 | | 222 | | 117 | | 193 | |

Contribution only includes infrastructure items that have "estimate costs" nominated / provided.

* All costs and funding figures have been rounded to the nearest million

ARMSTRONG CREEK

GEELONG'S GROWTH AREA



ARMSTRONG CREEK

Social Interagency Infrastructure Delivery Plan (SIIDP)

Report - February 2009

Prepared by the City of Greater Geelong in collaboration with: -

Ambulance Victoria
Anglican Church
Barwon Health
Catholic Education Office
Country Fire Authority
Deakin University
Department of Education and Early Childhood Development
Department of Human Services
Department of Justice
Department of Planning and Community Development
G21
Geelong Regional Library Corporation
UDIA
Victoria Police

ENDORSEMENT BY INFRASTRUCTURE AGENCIES

The Agencies involved in the preparation of this Social Interagency Infrastructure Delivery Plan (SIIDP), endorse it as reflective of their strategic planning for community service infrastructure delivery at Armstrong Creek, and commit to continuing to work in partnership with other members of the Social Interagency Infrastructure Project Control Group to ensure coordinated, timely and streamlined implementation of the plan.

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SECTION 1 – INTRODUCTION

The vision for Armstrong Creek

Council, in conjunction with the Department of Planning and Community Development (DPCD) and Government agencies, has developed a comprehensive Social Interagency Infrastructure Delivery Plan (SIIDP) in order to ensure that planning for the growth area is properly considered and is able to deliver on Council's vision for the growth area as a liveable and sustainable community. Council, the State Government and agencies have recognised that they have a shared responsibility to plan for future community needs, along with recognising that community needs extend beyond that of hard infrastructure. This SIIDP will ensure that the growth area will be provided with the timely delivery of infrastructure and services, in line with the direction of Government which has, since March 2000, sought to emphasise the importance of the economic, environmental and social spheres.

The recently released Planning for all of Melbourne: The Victorian Government's response to the Melbourne 2030 audit sets out the importance of ensuring that the needs of the community are at the heart of all urban development planning. The SIIDP aligns with government policy which seeks to ensure adequate space is provided for active and passive recreation close to where people live, the co-location of services and infrastructure with planning for multiuse community facilities, and the allocation of land for education facilities. However, none of this can be achieved without a streamlined plan for the roll out of infrastructure items. The SIIDP sets out a 10 to 20 year plan for the servicing of the whole of the growth area, which will promote competition between developers and assist in improving housing affordability.

"The Armstrong Creek urban growth area will be developed into a sustainable community that sets new benchmarks in best practice urban development. Natural and cultural features will be protected and enhanced to create a distinct urban character. Armstrong Creek will become a highly sought-after location for living, working and recreation, forming an attractive addition to Geelong."

In recent times, an increasing amount of research has been undertaken to determine what makes a sustainable, attractive, liveable community where people have a strong sense of 'place'. It is known that the holistic well-being of individuals, families and communities is influenced by the

environment in which they live. Planning and good design is fundamental to creating environs where people thrive.

In recognition of the enhanced wellbeing outcomes promoted by the Social Model of Health, the Social Interagency Infrastructure Delivery Plan (SIIDP) provides an outline of the concept plans of each of the Agencies to enhance the vision for 'liveability' in the Armstrong Creek Urban Growth Area emphasising the importance of:

- Education and Life Long Learning
- health and mental health;
- housing affordability and options;
- community facilities;
- recreation – active and passive;
- emergency services;
- movement and access.

"Armstrong Creek will offer a wide range of living and lifestyle options to meet the needs of a full cross section of the community. These will range from detached houses on family sized blocks to apartments close to major shops and services, and include accommodation for the aged, disabled and for students.

Higher density housing will be clustered in areas close to public transport nodes and activity centres, maintaining the more traditional character of other residential areas. Affordable and social housing will be dotted through the development to integrate it with the community."

The G21 alliance, which is made up of a variety of independent organisations with a shared vision for the Geelong region, has produced *G21– the Geelong Region Plan* which adopts five imperatives seen to assist in securing a bright and sustainable community. The Geelong Region Plan states that development must make environmental gains; use land wisely; increase access for social equity, creativity and learning; generate new business, raise skill and education levels and create more jobs; and maximise opportunities. The SIIDP aligns with these imperatives in bringing together government and other agencies to agree and resolve a way forward for infrastructure provision ensuring that land is used wisely and serviced appropriately to maximise opportunities for access to services and to allow opportunities for future innovation.

What has influenced the plan?

The Minister for Planning, via Amendment C138, approved the Armstrong Creek Framework Plan (refer Map 1) for incorporation into the City of Greater Geelong Planning Scheme with the key reference document being the Armstrong Creek Urban Growth Plan (Volume 1). The strategic direction for the growth area is contained within policy in the Planning Scheme. These documents set the context for future planning in the growth area. They set out the principles and objectives for subsequent and more detailed planning of the growth area and underpin the SIIDP and the precinct structure planning process.

The adopted Framework Plan and Urban Growth Plan set out that growth will:

- develop around a series of activity centres which form a hierarchy, with one Major Activity Centre, two Neighbourhood Activity Centres and a number of Local Activity Centres;
- be supported by urban design that achieves a walkable community - with local services, parks, education facilities, community facilities, public transport and recreation opportunities provided within reasonable walking distance of all homes;
- provide high quality local employment opportunities - with a target of one job per lot;
- support a healthy, safe and socially connected community - within sustainable built and natural environments;
- generate a thriving local economy;
- provide alternatives to car based travel through significant public transport provision, walking tracks and cycling networks; and
- have local convenience shops within a five minute walk of all homes.

The Armstrong Creek Urban Growth Plan (Volume 1) indicates that community infrastructure plays a central role in shaping the look of the development area; as neighbourhoods are planned around their community infrastructure. The design of community buildings and the way they will ultimately be accessed and used define the community's characters.

The strength and viability of these new communities is underpinned by focusing on the establishment of social networks, the availability of community and civic activities, the creation of opportunities for cultural and recreation participation and the encouragement of a very fundamental element - the operation of this community life

through volunteering, civic pride and community leadership.

Community facilities are focal points for this community interaction. They are places where people can build relationships and a community identity; where resources are required to strengthen the life of the community and deliver community services. The layout and distribution of these facilities can influence sustainable behaviour patterns. That is, people walk or utilise public transport to access local opportunities and services and as a consequence build social networks that form the basis of strong, healthy and sustainable communities.

The economic benefits which can be gained through integrated infrastructure delivery is well recognised, however underpinning this dollar advantage is the gains made by the community in being able to access a wide range of services (education, retail, well-being and health, recreation, social and commercial service) in proximity to one another, particularly where this co-location is supported with public transport. Another influence is the need to facilitate collaboration across agencies for future facility development and service planning.

How is social infrastructure defined?

Social infrastructure is generally understood to mean infrastructure of a communal, human or social nature that is required progressively as a community grows. Social infrastructure provides for both informal and formal places and spaces providing physical resources that are used substantially for community activities and services. Social infrastructure is the sum of both community facilities plus public open space.

For the purposes of this project, social infrastructure is defined as public and private, Federal, State and Local Government and non government facilities that accommodate access to community and individual programs, services and activities. Social infrastructure includes support **services** and **facilities** for the community generally and also for key groups within the community with recognised additional needs. These groups may include:

- families with young children;
- older adults and the frail aged;
- people with diverse cultural backgrounds;
- people with limited physical abilities;
- young people;

- homeless people;
- people in disaster and emergency situations;
- the unemployed and underemployed;
- aboriginal people.

Support **services** usually include social, recreational, educational, leisure, welfare and support programs, such as early childhood health, life long learning services and programmed activity aimed at improving quality of life of people with recognised needs such as new parents and their children, older adults and people with differing mobility needs.

Support **facilities** usually include venues from which these services might be provided. Ideally these should include multi-purpose community facilities located close to public transport and commercial facilities. Facilities may include community halls, libraries, maternal, child and health centres, child care facilities, kindergartens, leisure centres, recreation areas and amenity and sporting 'club house' facilities.

Why do we need a plan?

Planning for the development of social infrastructure is important to all communities and critical to localities where rapid population growth, urbanisation and increasing housing density is occurring. Collaboration at the local level between tiers of government, the private sector and across sectors is required to deliver sustainable economic, social and environmental outcomes. This document sets out a set of clear long term objectives for the provision of social infrastructure - just one component of the range of infrastructure requirements to deliver such outcomes. It is also the starting point for ongoing collaboration necessary to collectively realise a sustainable community into the future.

The aim of the Social Infrastructure Integrated Plan (SIIDP) is to identify the often complicated and conflicting issues which impact on growth areas and establish clear direction to respond to them. The project governance and process has engaged key stakeholders to agree on solutions that will make a difference to the new community. The SIIDP seeks to:

- increase consistency in planning for and future delivery of social infrastructure;
- establish a detailed framework for the delivery of social infrastructure across the whole growth area, utilising a staged and hierarchical approach to ensure a comprehensive range of

social infrastructure is available over the long term;

- inform the Precinct Structure Planning process ;
- inform the land purchasing and capital development planning activities of the range of public and private investors; and
- respond to the requirements of the draft Precinct Structure Planning Guidelines developed by the Growth Areas Authority.

Project Governance - State Government, Local Government and Agency Partnership

The Armstrong Creek Project Team is a demonstration project of collaboration between the Department of Planning and Community Development and the City of Greater Geelong. Engagement with agencies is integral to the work of the team.

The Geelong Planning Working Group (GWPG) operates as a strategic partnership between the City of Greater Geelong (COGG) and State Government to achieve coordinated management of significant land use planning projects within Geelong. The GWPG is overseeing the work of the Armstrong Creek project Team to deliver a well-planned, sustainable community – connecting people to public transport, shops, schools and the services that people in Geelong really need. The State appointed Partnership Broker, whose objective is to expedite the objectives of the Armstrong Creek Project Group, provides a direct conduit to the Geelong Planning Working Group.

The overarching Armstrong Creek Integrated Infrastructure Delivery Plan (IIDP) has two parts (civil and social) that have been developed independently of each other. The high level outcomes of the civil IIDP and the social IIDP come together in this document creating a holistic view of the infrastructure requirements for the Armstrong Creek growth area.

Figure 1 Armstrong Creek Integrated Infrastructure Plan Development Structure.



Methodology

There are multiple interdependencies between organisations and deliverables along the development path for the Armstrong Creek growth area. Council's deliverables are likewise interdependent with other organisations (e.g. agencies, developers) that will have significant impact on the timing and quality of the outcomes achieved. The SIIDP requires, therefore, a contemporary approach to develop highly productive partnerships between Council, State Government, agencies and the developer community that:

- Develops associations (e.g. strategic partnerships, networks, and working groups) that are established as strategic coalitions/alliances between organisations with a commitment to achieve a specific purpose

- and/or common goal. (These associations may have established governance frameworks to ensure their effectiveness, but members are not employees within the same organisation and there are no direct managerial lines of accountabilities overseeing each others work).
- Involves authentic participation and collaboration rather than mere communication, and recognises difference of perspectives whilst working together to define problems, critical issues and opportunities to work towards common goals.
- Can evolve progressively in their possibilities, and develop mechanisms for bridging organisational and interpersonal differences to achieve real value from the partnership.

The process by which this plan was developed included six stages over a six month period from August 2008 to January 2009.

Stage 1 August 2008

- Literature review and desktop review. Documents reviewed included
 - *Armstrong Creek Urban Growth Plan, Volume 1*;
 - *Armstrong Creek Urban Growth Plan community and Social Technical Report*, February 2006. - Urbis JHD;
 - Traffic modelling for the Armstrong Creek network; Veitch Leister;
 - Cost estimate of movement and access works; GHD.
- Scope of Project
- Key Stakeholder analysis workshop
- Review of social planning tools including;
 - *Planning for Community Infrastructure in Growth Areas*, ASR Pty Ltd, April 2008;
 - *Best Practice Social Infrastructure Planning: Growth Area Investigation*, discussion paper, August 2005, DSE;
 - *Shared Facility Partnerships*, State of Victoria, Department of Education and Early Childhood Development, December 2007;
 - *Precinct Structure Planning Guidelines*, Growth Areas Authority.

Stage 2 September 2008

- Engagement of Department of Planning and Community Development, Spatial Analysis Unit to provide demographic and population profiling for the growth area.
- Council established the Armstrong Creek Social Infrastructure Interagency Project Control Group and the Social Infrastructure Working Group for delivery of collaborative solutions to social infrastructure. This is a new partnership that builds on, and compliments, the existing arrangements within each Agency for the provision of social infrastructure.
- Project Control Group initial meeting. Setting the scene for the working groups and establishing commitment to the work to follow.

Stage 3 October 2008

- Working Group Intensive Planning. The Social Interagency Infrastructure Working Group met for four hours, once a week for four weeks. (Further, the group has committed to working together on an ongoing basis to aid Precinct Structure Planning)

Stage 4 November 2008

- Development of draft Social Interagency Infrastructure Development Plan

Stage 5 December 2008

- Project Control Group Review of draft SIIDP.

Stage 6 January 2009

- Provision of SIIDP guideline to the developers and Project Control Group Members.

Each agency has their own internal planning processes for approval of development, funding and detailed design and delivery of infrastructure. The integration of these works through the SIIDP will be finalised in parallel with the development of the first Precinct Structure Plan in 2009. The finalised SIIDP will then be a key input into the remaining Precinct Structure Plans.

The aim of the Social Interagency Infrastructure Project Control Group is to coordinate the strategic planning and decision making required for more timely and collaborative delivery of social infrastructure in Armstrong Creek.

The Growth Areas Authority Precinct Structure Planning (PSP) Guidelines were used as an informing resource in drafting the SIIDP. The PSP Guidelines advise that consideration should be given to providing a range of infrastructure to ensure that unique new communities are created that are better places to live and able to respond to the challenges of the future. The PSP guidelines cover planning for:

- integrated neighbourhood design;
- housing¹;
- community facilities;
- open space and natural systems;
- employment and activity centres;
- transport and movement;
- biodiversity management;
- heritage management; and
- utility services.

¹ supporting the vision for housing options, G21, in collaboration with the City of Greater Geelong, are working to integrate public housing in the Armstrong Creek vision. The formation of a Public Housing Trust is well advanced with ongoing relationships ensuring collaboration and engagement as part of the developing community.

The SIIDP plan is based on practitioner analysis and experience. The SIWG used population projections across the whole of the growth area to plan for the anticipated need. Identified need was then applied to the precincts to provide parity. This approach fostered planning that was considerate of current service provision on the peripheral of the growth boundary.

The SIIDP nominates where facilities will be located, and when they will be required. This level of control through the planning process will ensure that new community services and amenities are established even in the very early days of development.

Using *Planning for Community Infrastructure in Growth Areas* and informing the work through group sessions outside of the Social Infrastructure Working Group Planning sessions, participants used population projections, current service demand, policy direction and internal strategic work to detail the quantity of facilities required to service the programs and community. Unique triggers of service provision (population, age cohorts, service response times, current service capacity and policy and protocol) are embedded in strategic planning throughout the various agencies however population is the most utilised tool to determine delivery. *Planning for Community Infrastructure in Growth Areas* provided both a basis and a check when applying standards of quantity (supply side standard linked clearly to assumptions about future demand) and quality (the size, configuration, location and cost of providing the community infrastructure). The SIWG was able to refer to this standards work and then test its application in the Armstrong Creek context.

The factors contributing to Armstrong Creek as a preferred liveable destination and the low levels of land available across Geelong in recent years has the potential to move the full development rollout from a projected 25 years to between 10-15 years. Advice from the development community, coupled with Armstrong Creek's proximity to quality infrastructure (rail, road links, employment opportunity, higher education), and lifestyle amenity (beaches, bushland, city), suggests that the development timeframe of 25 years is conservative.

Just as the timing of growth is dependant on complex forecasting, the number of persons per household is

influenced by the mix and flexibility of housing stock, the demographic attracted to Armstrong Creek, infrastructure delivered and the timing of service provision.

The Social Infrastructure Working Group indicatively located facilities and services making reference to the Framework Plan, and utilising understanding from previous planning to best promote the aims of the Armstrong Creek project.

In promotion of accessibility and 'multi-trip' outcomes, regardless of land ownership, locating social infrastructure in proximity of each other promotes connection and social interaction. This plan serves to recognise the vision of each of the agencies in enhancing outcomes for the communities they service through creating opportunity to share. Strategic land alignments detailed in the Indicative Node Location Map Appendix 3, displays the commitment of each of the agencies to achieve the goal of service co-location, with the built structure form enhancing this vision through potential 'under the same roof' facility sharing.

Accessibility to services and local amenity is enhanced through strategic positioning of higher order² social infrastructure in close proximity to the Major Activity Centre and through localised provision of convenience stores and local parks within neighbourhoods. The planning for social infrastructure does not provide indicative location of convenience store and local park amenity, this will be addressed through the Precinct Structure Planning phase of each precinct.

Distance between like services has a correlation to utilisation and delivery. It is acknowledged that land use planning can aid the creation of a liveable community through provision of services and proximity of these services according to frequency of use. People should be able to walk to shop for daily convenience foods, be able to walk to a local bus stop, be able to take public transport for weekly shopping and be able to access major transport options such as rail for employment.

Studies indicate that in general, most people will walk 400 metres or five minutes to a centre, or 800 metres (or ten minutes) to a major transit stop, if the route is pleasant and direct. Walkable catchments are maps showing the

² Servicing populations in excess of 50,000 people, High order services also usually include cross catchment servicing providing amenity for residents outside of the immediate area (ie Surfcoast residents, Waurin Ponds etc.)

actual area within a five minute walk from local convenience, or 10 minutes from major public transport such as rail. The SIWG utilised the walkable guide to enhance access and promote sustainability in planning for the hubs. The walkable catchment map for both the Social Infrastructure Nodes and the Open Space and Recreation can be viewed at Appendix 5 and 6 respectively.

The location of the Major Activity Centre provides for access to higher order services not more than 3.6 kilometres from the mid point of the other activity centres across the growth area. This promotes the Major Activity Centre as a heart for larger gatherings, sports, shopping and cultural amenity. See Table 2 *Distance of Precinct Activity Hubs to Major Activity Centre* for approximate distances.

Table 1 Distance of Precinct Activity Centres to the Major Activity Centre

| PRECINCT | Distance to Major Activity Centre (km) |
|---|--|
| Major Activity Centre | - |
| Horseshoe Bend Neighbourhood Activity | 2 |
| East Neighbourhood Activity Centre | 2.85 |
| West Neighbourhood Activity Centre | 1.4 |
| Marshall Precinct Local Activity Centre | 3.1 |
| Horseshoe Bend Local Activity Centre | 1.4 |
| East Local Activity Centre | 2.1 |
| West Local Activity Centre | 1.3 |
| Horseshoe Bend Regional Recreation Reserve | 2.8 |
| East Regional Recreation Reserve | 3.6 |
| West Regional Recreation Reserve | 3.3 |
| Western Industrial Specialised Activity Centre | 3.5 |
| Western Industrial and West Specialised Activity Centre | 2 |
| Marshall and North East Industrial Precinct Specialised Activity Centre | 3.2 |

Note: above table distances are from centre of activity centre to centre of activity centre using direct distance. This table needs to be read in conjunction with Appendix 3 – for location of nodes, Appendix 5 and 6 Walkable Catchment Maps and Appendix 8 - Arterial and Collector Roads (Public Transport routes).

Proposed pedestrian and cycling paths are shown in the framework of the Civil Infrastructure Plan (draft) in line with the objectives of the Armstrong Creek Urban Growth Plan, Volume 1. The proposed paths link the Activity Centres, railway stations, schools and key community facilities with a web of leisure trails and more direct

walking and cycling. A high standard network of paths is envisaged to promote a walkable / cycling community that does not rely on motor vehicles as a primary mode of transport and contribute to the formation of a healthy and integrated community. The Pedestrian and Cycle Path Map is located at Appendix 7.

Safe, accessible and equitable transport beyond the walkable / cycling catchment is fundamental to providing for a diverse community and to embedding sustainability principles in a new community. Early provision of public transport in new growth communities is vital to support emerging communities and to provide links across education, employment, community services and recreation. Provision of social infrastructure at the local level becomes less critical when transport options are enhanced. Timely, safe and accessible public transport facilitates use of social infrastructure and services. The Arterial and Collector Roads map (Appendix 8) provides a visual representation of the proposed public transport routes.

Understanding the walkable and cycleable catchments, the public transport catchment and the location of higher order services, supported the development of the Indicative Node Location Map (Appendix 3). The Indicative Node Location Map displays a commitment from each of the participating agencies to the principles of co-location with the proposed locations of nodes designed to better enhance community connection, walkability and 'multi-end point' trips in a manner that is seamless to the public.

Who will use the plan?

The SIIDP is an over-arching document designed specifically to facilitate interagency cooperation and to advance common goals. The SIIDP takes a broad approach, with the SIWG considering all potential scenarios affecting the area, and embraces the perspectives of both large and small stakeholders, to ensure the best possible outcome for the new communities. The process of developing the SIIDP was inclusive and involved agencies across both government and non government sectors and organisations which represent and work on behalf of the community.

The SIIDP focuses on providing land developers in the Armstrong Creek growth area with detailed information upon which to develop Precinct Structure Plans (PSPs). The plan also informs agencies of the potential requirements that relate to their service delivery so as to

ensure forward planning occurs, rather than ad-hoc delivery and poorly integrated services. It provides direction for agencies in budgeting for the provision of services. This plan has a 20 year horizon to identify the long term requirements of the Armstrong Creek growth area. As such this plan is a priority tool for Government agencies and authorities and non government agencies for strategic planning, community building, resource allocation and budget preparation.

To this end the document has ownership beyond those involved in its development and is intended to support the communities represented, but also those not directly represented, through using best practice principles to serve the broad population.

How will the plan be used?

This plan is an information resource for parties involved in the development of the growth area. The SIIDP has established a common vision for Armstrong Creek through detailed and deliberative planning. Each of the agencies brought extensive knowledge and experience to the table during the planning phase of this project. The plan will be used to:

- facilitate consistency of service and infrastructure delivery;
- build communities where all people have equal access to amenity and service;
- assist in timely delivery of infrastructure and services;
- bring about sustainable change in peoples daily habits (enhancing health and longevity);
- set new benchmarks in collaborative planning;
- support agencies to explore new models of delivery and governance of facilities; and
- provide detailed information to developers to ensure the social vision for Armstrong Creek is achieved.

The plan identifies the level of service provision required and services that have synergies. Agencies can continue to plan using this informing work and the shared vision for Armstrong Creek to apply local solutions to integrated delivery.

The plan will guide the development of Precinct Structure Plans (PSP). It will ensure that regional facilities are provided and appropriately located, while also setting out the requirements for individual precincts based on population catchment and demand. The PSPs will lock in a

high level of detail to ensure that the Armstrong Creek vision is achieved and that problems are anticipated and resolved up front. PSPs will be processed via a standard amendment process which allows for community engagement and input to occur. The process also allows for submissions to the amendment, which are ultimately reviewed and considered by an independent panel.

The stakeholders engaged as part of the SIIDP project, (along with other stakeholders identified as part of the project) will re-convene and will have significant involvement in shaping social infrastructure delivery at the precinct level. At this stage agencies will be encouraged to continue to plan for efficiencies and advancements in service provision and embrace new and evolving models of service delivery. Continued collaborative planning will facilitate timely delivery of infrastructure, enhance community liveability and generate enthusiasm for shared visioning for the Armstrong Creek growth area. Further, cross sector planning strengthens interagency relationships and enables the realisation of economies of scale through shared facilities and associated infrastructure.



SECTION 2– CONTEXT

Victoria's sixth growth area

Geelong is Australia's eleventh largest city, Victoria's second largest city and its most important provincial

centre. Geelong is the principle settlement and economic centre for the South West region of Victoria, providing access to important primary services such as hospitals, specialist medical, tertiary education, retail shopping and other community and commercial facilities. It is well serviced by major infrastructure including Geelong Port and Avalon Airport; railway connections to Melbourne, Adelaide, Warrnambool and Ballarat; a road network which includes the Princes Freeway and Highway, Geelong Ring Road, the Hamilton Highway and the Midland Highway; significant health and education facilities including Deakin University; and a broad range of passive and active recreation opportunities, ranging from local scale to regional provision, including Skilled Stadium and the Waurn Ponds baseball complex.

Geelong is only a short distance from Melbourne and is well connected by road and rail services. Whilst Geelong currently has a very limited supply of broad acre land for urban development it is anticipated to be an increasingly attractive urban growth area for Melbourne. The Armstrong Creek growth area is the largest contiguous growth area in Victoria, consisting of 2,500 hectares of developable land, and is one of the largest growth fronts in the country. The State Government has consistently recognised the importance of the growth area in accommodating the unforeseen levels of population growth in Victoria at the moment, and the Armstrong Creek growth area is seen as Victoria's sixth growth area alongside the Growth Areas Authority Councils Wyndham, Hume, Casey-Cardinia, Melton and Whittlesea. The Geelong region itself is regional Victoria's fastest growing area.

A key priority for Council is, therefore, to rapidly increase the supply of developable land and the Armstrong Creek Urban Growth Area is one of the Council's largest and most important strategic projects. It aims to concentrate the majority of the urban growth of Geelong into a comprehensive community in the area south of the railway line at Grovedale and Marshall. Council seeks to ensure that the growth area functions as part of the broader municipality, rather than as a standalone new community.

Armstrong Creek has great potential to be a sustainable, liveable community with existing railway services and good road links to Melbourne, central Geelong, Barwon Heads, Torquay and the Surf Coast. A new railway station is planned in the west of the growth area along with a significant upgrade of the existing Marshall Railway Station and a new north-south transit corridor through the centre of the growth area. It provides the opportunity for future residents to take advantage of the employment

opportunities and services offered by Geelong city, and within the employment areas of Armstrong Creek, whilst being only a short distance from the attractive beaches of the Surf Coast and the Bellarine Peninsula. Armstrong Creek itself has the potential to be a key asset for the growth area and traverses east-west through the site. This, combined with the undulating topography of parts of the land makes the area very attractive for a healthy residential and business environment. See Appendix 1, Armstrong Creek Urban Growth Plan Framework Plan.

Demographics

The DPCD Spatial Analysis Unit was engaged to support the planning work of the SIWG with regard to projected population and demographics. Armstrong Creek projections have been based on the current trends of the day. Local Government area and Statistical Local area current projections indicate an additional 95,000 people in Greater Geelong between 2006 and 2036 with Armstrong Creek estimates contributing between 50,000 to 60,000 people over this period.

| Local Government Area | Population | | | |
|--------------------------|------------------|------------------|------------------|--|
| | 1996 | 2001 | 2006 | |
| Greater Geelong | 183,728 | 194,478 | 205,929 | |
| Greater Bendigo | 84,515 | 90,449 | 96,741 | |
| Ballarat | 79,109 | 83,599 | 88,437 | |
| Regional Victoria | 1,276,148 | 1,332,519 | 1,383,328 | |
| Victoria | 4,560,155 | 4,804,726 | 5,128,310 | |

| Local Government Area | Absolute Change | | Av. Annual Change | |
|--------------------------|-----------------|----------------|-------------------|--------------|
| | 1996-2001 | 2001-2006 | 1996-2001 | 2001-2006 |
| Greater Geelong | 10,750 | 11,451 | 1.1% | 1.2% |
| Greater Bendigo | 5,934 | 6,292 | 1.8% | 2.5% |
| Ballarat | 4,490 | 4,838 | 1.1% | 1.1% |
| Regional Victoria | 56,371 | 50,809 | 0.87% | 0.75% |
| Victoria | 244,571 | 323,584 | 1.05% | 1.31% |

Table 2 Growth in regional Victoria occurring in regional centres

The table above indicates Geelong's growth as below the Victorian Average Annual Change, but above that of Regional Victoria.

Greater Geelong's population grew from 183,728 in 1996 to 205,929 in 2006. There was an additional 11,451

people between 2001 and 2006 representing a growth rate of 1.2%. This exceeded regional Victoria's growth rate of 0.75% and was close to Victoria's overall growth rate for the same period, 1.31%.

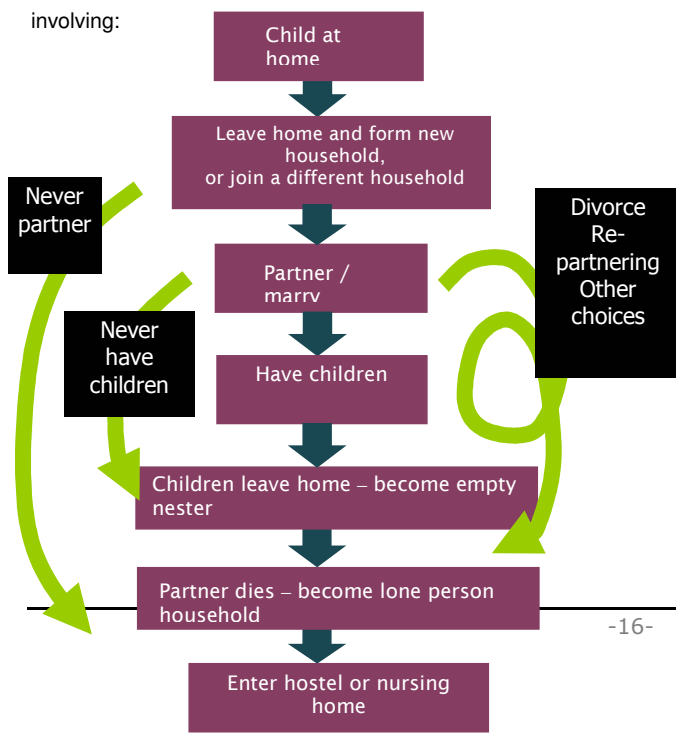
Victoria's population projections are currently being updated and will provide projected population totals for Local Government Areas. Large population growth is expected for Victoria and particularly Melbourne. This is because:

1. High levels of overseas migration are needed to sustain growth of the labour force, through a time when large numbers of baby boomers will be leaving the workforce as they reach retirement;
2. Fertility rates have risen over the last six or seven years. 2007 was a record year for births in Australia. Victoria had its greatest number of births since 1972.
3. Australia and many other countries are experiencing strong urbanisation – people moving to cities. Part of the reason for this is that the knowledge economy operates very effectively in the face to face environment of cities.

Strong future population growth is likely for Greater Geelong, as is expected for other regional centres such as Greater Bendigo (which had a growth rate of 2.5% 2001-2006) and the City of Ballarat.

Who lives in growth areas?

A possible clue to Armstrong Creek's occupants is to look at who generally lives in growth areas. Greenfield developments often follow a 'suburban life-course' involving:



- subdivision and development;
- initial settlement with many new families and young adults yet to have children;
- family formation – the families expand;
- maturation – the families age and children leave home to establish their own households while parents move into retirement;
- further ageing and regeneration as the original settlers die out and are replaced by a new generation of young people.

Figure 2 Suburban Life Course

Consequently there are waves of demands for facilities and services associated with different age groups – child care centres, kindergartens, primary schools, secondary schools and ultimately hostels and nursing homes.

The example of Caroline Springs shows strong net migration of young families between 2001-2006, but with some net gains in all age groups.

In its initial development stage, it is likely that Armstrong Creek will have a majority of young families. However over time a more diverse demographic will develop as families age, with some couples separating and with increasing numbers of children leaving home to form their own households. Some contingency planning is therefore needed for Armstrong Creek - allowing for future diversity in the initial planning, subdivision and development process.

The below figure supports the Framework Plan in its aspirations for higher density living with significant increase anticipated in couple families without children and lone person households.

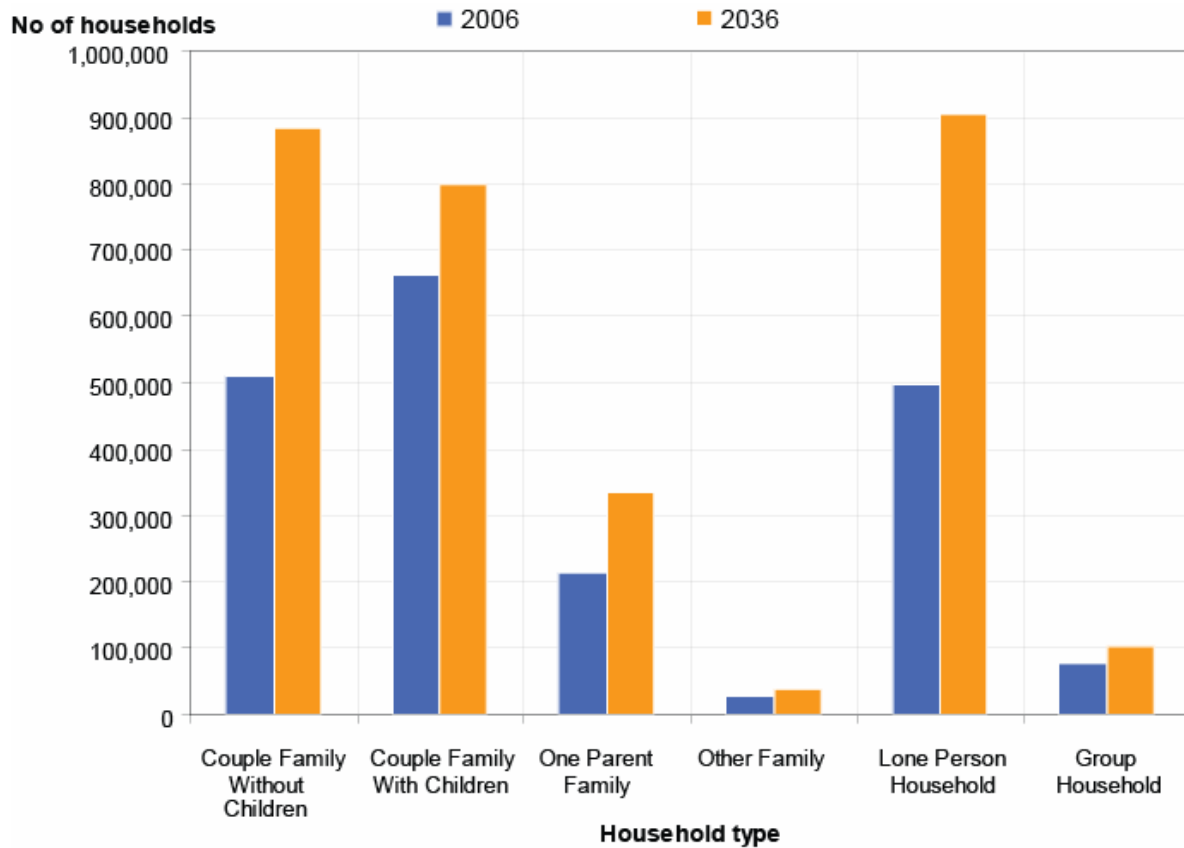


Figure 3 Projected changes to household types, Victoria, 2006-2036. Source: DPCD Interim household projections, October, 2007

Figure 4 (below) provides detail regarding population growth and net internal migration describing the components of change, Greater Geelong, 2001-2006.

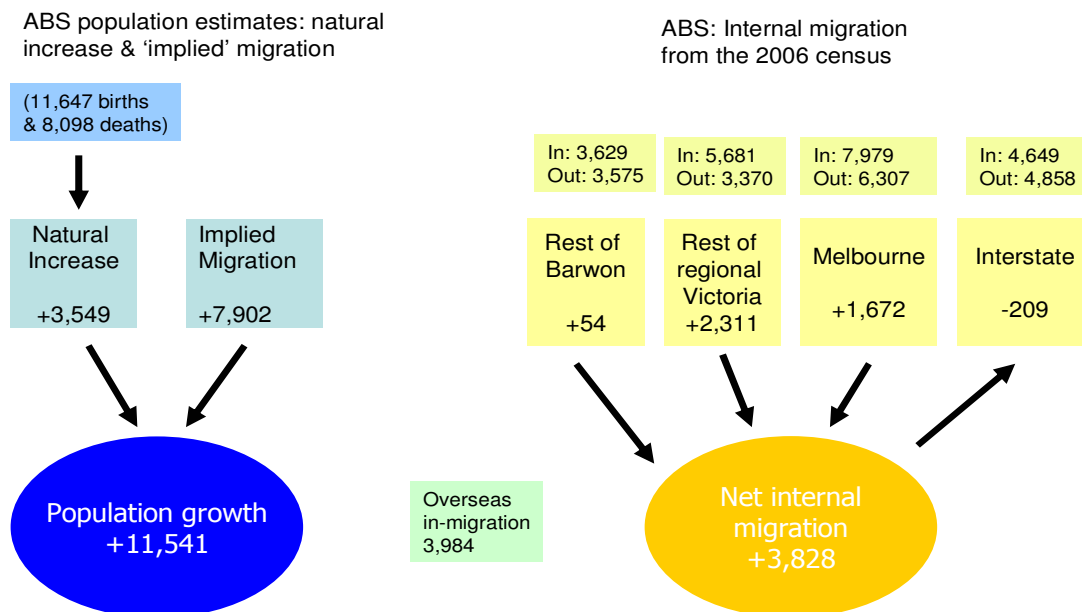


Figure 4 The components of change, Greater Geelong, 2001-2006 Source: DPCD 2008

Who will live in Armstrong Creek?

Demographic forecasting is limited in its ability to predict 'who' will be living at Armstrong Creek due primarily to the unique features of the Armstrong Creek area. As the largest contiguous growth area, there are no other areas to compare. Armstrong Creek is positioned to take advantage of major lifestyle factors such as world renowned beaches and is also located within close proximity of a major University. Further Geelong is critically short of land supply and indications suggest that this will see Armstrong Creek develop at a rate unprecedented in Geelong.

Although unique in comparison to other growth areas, the current migration story for Greater Geelong may provide clues to who could live at Armstrong Creek. Large regional centres like Geelong act as an important attractor of migration from within the G21 region as well as other regional areas. Between 2001 and 2006 it experienced a net gain of people from Surf Coast, Queenscliffe and Colac Otway. It experienced a net loss of people to the Golden Plains Shire, as well as to parts of Melbourne, particularly the inner areas.

Greater Geelong also has an unusual age specific net migration profile for regional Victoria. As with most regional locations in the past, Greater Geelong has lost youth to the bright lights of Melbourne where young people seek employment, educational and social opportunities. Between 2001 and 2006 however Greater Geelong had a net gain in migration of 15-24 year olds. This is significant and reflects increased opportunities for young people in Geelong. These young people could play a role in the growth area which is located in close proximity to Deakin University.

In December 2008 the Victorian State Government released "Melbourne 2030: a planning update Melbourne @ 5 Million". The report notes that "regional Victoria will continue to grow strongly and this growth needs to be planned". Regional Victoria is projected to grow by 477,000 people between 2006 and 2036, compared to 320,000 between 1976 and 2006. Around 40 per cent of this growth is projected to occur in Greater Geelong, Ballarat and Greater Bendigo. Within the context of Melbourne @ 5 million Armstrong Creek is endorsed as a significant growth area in Regional Victoria

The Victorian (State Government) Transport Plan (VTP) provides support for population growth at Armstrong Creek. The VTP outlines proposed investment to improve the quality of transport links, particularly train services, and continuing to create new local employment opportunities. Particular measures include:

- investigation of a transport corridor between Geelong and the Surf Coast Centre of Torquay;
- double the capacity of regional rail services with more tracks and more trains;
- completion of the Geelong Ring Road;
- improved bus services in regional including a new bus interchange in the Geelong CBD.

The program of work will help meet the transport needs of Geelong's growing population – the largest population growth in regional Victoria, and will increase the accessibility of Armstrong Creek to Melbourne for jobs, social and educational opportunities whilst offering the advantages of a regional lifestyle.



SECTION 3 – THE PLAN

Council's objective is to ensure that the supply of developable land is rapidly increased to allow urban development on multiple fronts driven by market demand that is not constrained by the availability of developable land. Members of the SIWG have adopted Council's planning targets for infrastructure delivery so that:

- at least 200 hectares of land will be serviced for subdivision by the end of 2011;
- social infrastructure provision will be master planned to inform a staged rollout; and
- social infrastructure will be delivered early in the development roll out to enhance opportunities for behaviour change and enhanced well being.

This Social Interagency Infrastructure Delivery Plan identifies not only what is required and where but also when and how it will be delivered, and the associated investment required across multiple agencies.

Provision of facilities – quantity and quality

Armstrong Creek includes seven precincts, one Major Activity Centre, two employment precincts, three major residential precincts and the existing residential precinct of Marshall.

The Precincts are known as:

1. Major Activity Centre
2. Armstrong Creek East Precinct (East)
3. Horseshoe Bend Precinct
4. Armstrong Creek West Precinct (West)
5. Marshall Precinct
6. North East industrial Precinct
7. Western Industrial Precinct

Appendix 9– Precinct Plan, provides a visual presentation of each of the seven precinct boundaries. Each precinct has a primary function, with the catalyst of the Armstrong Creek development project being realisation of enhancing residential land supply across the municipality of Geelong. Precincts are detailed in the table below, with shading indicating primary use, employment or residential.

Table 3 Precincts by Primary Use, Employment and Residential

| Precinct | Employment | Residential |
|--------------------------------|------------|-------------|
| Major Activity Centre | Employment | Residential |
| Armstrong Creek East Precinct | Employment | Residential |
| Horseshoe Bend Precinct | Employment | Residential |
| Armstrong Creek West Precinct | Employment | Residential |
| Marshall Precinct | Employment | Residential |
| North East Industrial Precinct | Employment | Residential |
| Western Industrial Precinct | Employment | Residential |

Precinct planning will enable agencies to understand the planned deliverables in any given area and provides opportunity to engage with developers in a meaningful way. Understanding the services and uses of community facilities across the whole of the growth area via the PSP process will enable provision at the precinct level to be reflective of local community need and also the broader municipality and regional need. For detail regarding the vision and elements of each precinct refer to Appendix 12- Precinct Elements.

Appendix 2- Analysis of Social Infrastructure Requirements for Armstrong Creek provides detail of the quantity of facilities based on both household and population projections.

While population projections are not failsafe, the use of population projections as a basis for infrastructure provision is readily applied by service providers. To enhance the chance of provision meeting need over time, flexibility of the built form is critical. The quantity of facilities becomes less important as the quality considerations (land allocation, access, and opportunity for space to be multi use) are explored. If transport and access is enhanced, the need for several outer lying libraries for instance is not as important as the provision of a well resourced library servicing the needs of the broad community. Individual smaller stand alone 'club' spaces become less desirable when synergies are created through shared administration at multifunctional, higher amenity facilities.

Where population and dwelling projections have served providers well, this basis has been applied to ensure adequate provision. State education, kindergarten provision and maternal child health provision are examples of services that have been planned for in this way. Appendix 2- Analysis of Social Infrastructure Requirements for Armstrong Creek, provides a basis for the quantity of facilities required using the household projection of 22,000 dwellings and the population projection of 54,000 people. Applying land size allocations to the number of facilities required projection, enables a comparison to be made both by hectares of land required and percentage of land required.

Table 4 Social Infrastructure Requirements - Land and percentage of land required Armstrong Creek, household and population.

| | Hectares | % of Developable land |
|--|----------|-----------------------|
| Armstrong Creek Developable Land | 2580 | 100 |
| Community Infrastructure Requirements - Households | 257.85 | 9.99 |
| Community Infrastructure Requirements - Population | 231 | 8.95 |

Note: above figures do not include calculation for Aquatic Centre

Service Planning - from the Armstrong Creek growth area to the local level.

To apply service planning to Armstrong Creek it is necessary to understand the smaller pieces that build the picture. The flow diagram below is representative of the translation of service provision from the whole of the growth area to the local level.

The Urban Growth Area and the precincts are discussed in detail in Armstrong Creek Urban Growth Plan Volume 1, with the continuation of how services will be provided at the local level documented in this plan. The diagram below provides greater detail regarding the planning 'flow' from the whole of the growth area to individual service provision. (The chart is provided in larger print, see Appendix 10 – Growth Area to Local Service Planning).

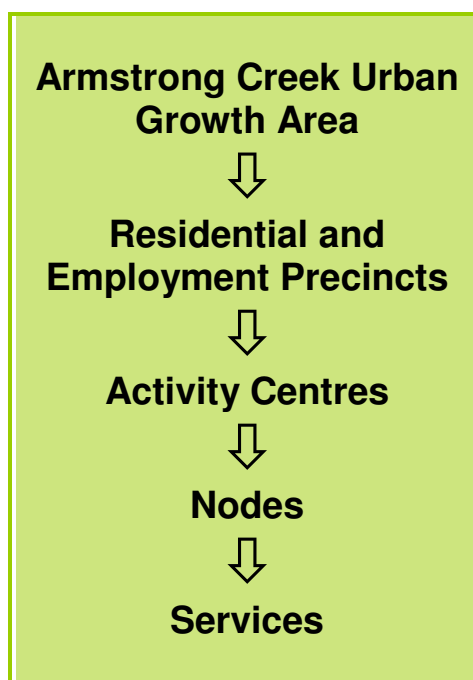
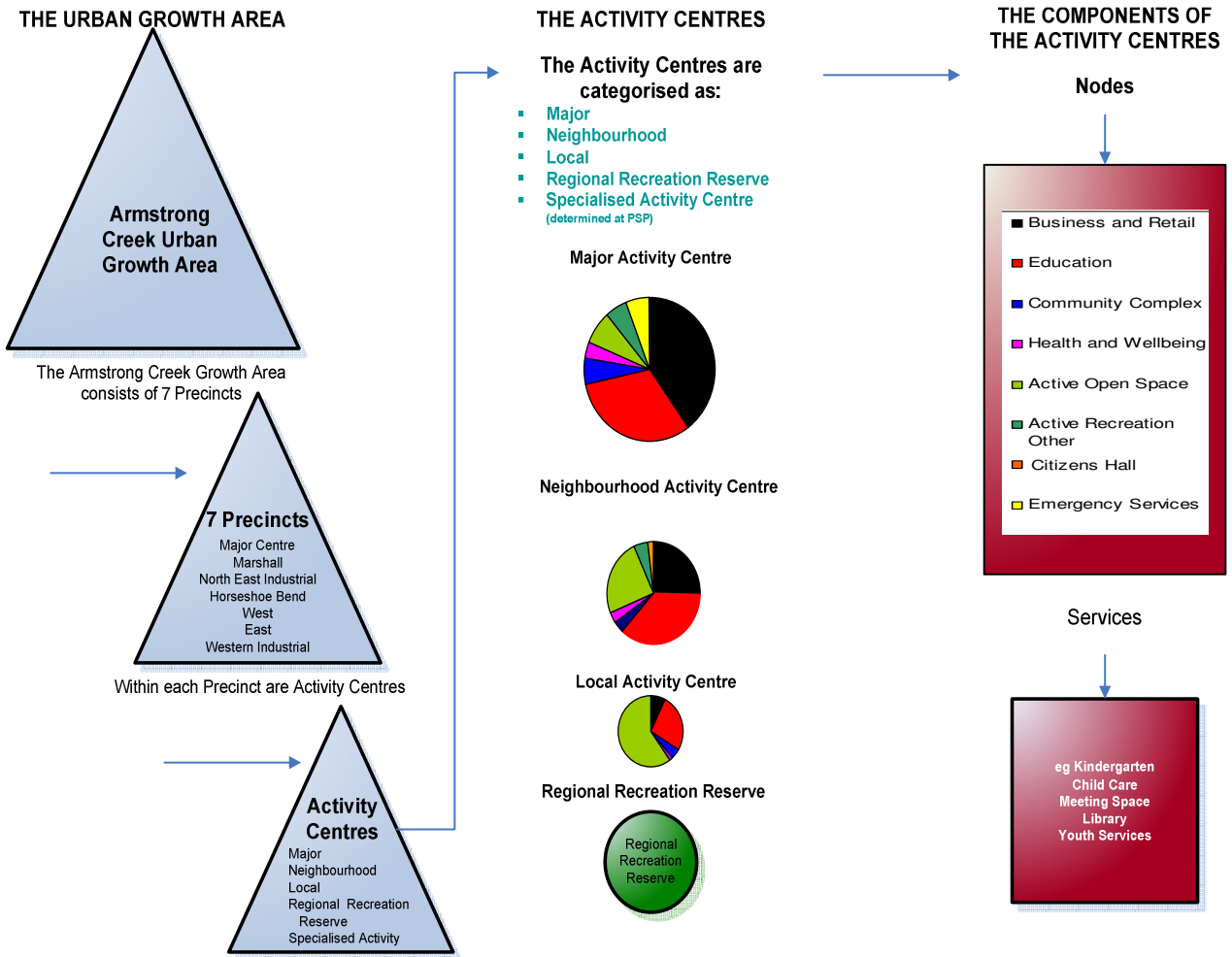


Chart 1 Growth Area to Local Service Planning



Activity Centres

The framework plan is based on one Major Activity Centre, two Neighbourhood Activity Centres, six Local Activity centres and three small Specialised Local Centres (convenience store) centres. The SIWG have utilised the Activity Centre base to work together a plan that services the intention of the Framework Plan. The SIIDP promotes Activity Centres as more than business and retail. They are the focal point of a community, providing a variety of options to interact and come together as a community. Activity Centres in this context are about the mix of activity that contributes to the heart of an area and provides opportunity for all people to play an active role in society. The language used to describe the activity centres in this plan is slightly differently, but is however congruent, with the provisions of the Framework plan.

The SIIDP categories are detailed below.

- **One Major Activity Centre**
- **Three Neighbourhood Activity Centres**
- **Four Local Activity Centres**
- **Three Regional Recreation Reserves**
- **Three Specialised Activity Centres.***
- Specialised Activity (SA) centres relate to business activity specific to the employment areas and typically will provide specialised supplies and staff amenity such as places to buy lunch and convenience shopping.

The East, Horseshoe Bend and the West residential precincts each include a larger activity centre, a smaller activity centre and a multiuse pavilion complex associated with a regional recreation reserve. A smaller activity centre is located within the Marshall precinct with specialised activity centres included in the North East and the Western Industrial precinct.

The Armstrong Creek Urban Growth Plan, Volume 1 document, sets out a requirement for local parks of 0.5 ha to be located within a 400m walkable catchment of dwellings. Local 'milk bar' convenience stores; the traditional corner store, are also referenced in Volume 1. The level of detail for local parks and 'corner store' provision has not been included in the SIIDP, but rather will be addressed through the PSP process.

The tables set out below (Table 6 and Table 7) show how each of the nodes³ are represented across the growth area by precinct with Appendix 4- Social Infrastructure, providing a visual representation of the location of major social infrastructure items across the growth area.



³ Nodes are component of the activity centres. See 'Nodes' page 24.

| Node | Activity Centre | | | |
|-------------------------|------------------|------------------|------------------|------------------|
| | MAC ⁴ | RRR ⁵ | NAC ⁶ | LAC ⁷ |
| Business and Retail | ✓ | ✓ | ✓ | ✓ |
| Education | ✓ | | ✓ | ✓ |
| Community Complex | ✓ | | ✓ | ✓ |
| Health and Wellbeing | ✓ | | ✓ | ✓ |
| Active Open Space | ✓ | ✓ | ✓ | ✓ |
| Active Recreation Other | ✓ | ✓ | ✓ | ✓ |
| Arts and Culture | | | ✓ | |
| Emergency Services | ✓ | | | |

Table 5 Nodes within Activity Centres

| Active Open Space & Active Recreation (other) Activity | Activity Centre | | | |
|--|-----------------|-----|-----|-----|
| | MAC | RRR | NAC | LAC |
| Active Open Space - Regional | | ✓ | | |
| Active Open Space - Local | | | ✓ | ✓ |
| Football/Cricket Football/Soccer | | ✓ | ✓ | ✓ |
| Soccer Grass Pitch | | ✓ | ✓ | |
| Soccer / Hockey Synthetic *1 | | ✓ | | |
| Netball (multi-court) *2 | | ✓ | ✓ | |
| Tennis (multi-court) *3 | | ✓ | | |
| All ability play space *4 | | ✓ | | |
| Multi-purpose Stadium 4 Court (Basketball, Gymnastics) | ✓ | | | |
| Multi-purpose Stadium 2 Court (Basketball, Gymnastics) | | | ✓ | |
| Seniors Recreation (Bowls, Croquet) *5 | | | ✓ | ✓ |
| Leisure Facility (Aquatic facility) | ✓ | | | |
| Athletics | | | ✓ | |

*1 Located in the West Regional Recreation Reserve

*2 Located in the East Precinct

*3 Located in the East and West Precincts

*4 Located in the East Regional Recreation Reserve

*5 Located in the Local Activity Centre in the East and West Precinct, located in the Neighbourhood Activity Centre in the Horseshoe Bend Precinct.

Table 6 Location of active open space and active recreation (other) activity by activity centre

⁴ MAC – Major Activity Centre – see glossary for definition

⁵ RRR – Regional Recreation Reserve– see glossary for definition

⁶ NAC – Neighbourhood Activity Centre– see glossary for definition

⁷ LAC – Local Activity Centre– see glossary for definition

Nodes

The SIIDP enables refinement of the nodes within the activity centres on a service by service basis. Providing for flexible usage space will enable use of facilities to change as the community changes over time. There are eight nodes that can make any given activity centre. Nodes within the centres are:

1. **Business and Retail**
2. **Education**
 - i. State Education (not specified)
 - ii. State Secondary School
 - iii. State Primary School
 - iv. State Special Needs School
 - v. Non Government Education
3. **Community complex**
4. **Health and wellbeing complex**
5. **Active open space**
 - i. Cricket, tennis, football, soccer, hockey
 - ii. Athletics Reserve
 - iii. Community pavilions
 - iv. Shelter and toilet amenity
6. **Active Recreation (other)**
 - i. Stadium recreation (basketball, gymnastics etc)
 - ii. Seniors recreation reserve (bowls, croquet etc)
 - iii. Leisure Facility (Aquatic facility)
7. **Citizens Halls**
8. **Emergency services centre**

Specialised local activity centres, convenience stores and local parks will be part of the holistic planning from communities during Precinct Structure Planning.

The following table, table 8 - Nodes (and components of nodes) within Activity Centres by Precinct, provides a high level marker of each of the precincts and the nodes that are provided within any given centre by precinct.



Table 7 Nodes (and components of nodes) within Activity Centres by Precinct

| Activity Centre by Precinct | Major Activity Centre Precinct | East Neighbourhood Activity Centre | East Local Activity Centre | East Regional Recreation Reserve | Horseshoe bend Neighbourhood Activity | Horseshoe bend Local Activity Centre | Horseshoe bend Regional Recreation Reserve | West Neighbourhood Activity Centre | West Local Activity Centre | West Regional Recreation Reserve | Marshall Local Activity Centre | North East Specialised Local Centre | Western Industrial Specialised Local Centre | Provision outside of activity centre areas |
|------------------------------------|--------------------------------|------------------------------------|----------------------------|----------------------------------|---------------------------------------|--------------------------------------|--|------------------------------------|----------------------------|----------------------------------|--------------------------------|-------------------------------------|---|--|
| Active Open Space | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | |
| Business Activity | ✓ | ✓ | | | ✓ | | | ✓ | | | | | | |
| Citizens Hall | | ✓ | | | ✓ | | | ✓ | | | | | | |
| Community Complex | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |
| Community Pavilion | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | |
| Convenience Store Provisional* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* | ✓* |
| Education | ✓ | | | | | | | | | | | | | |
| Emergency Services | ✓ | | | | | | | | | | | | | |
| Health & Wellbeing Complex | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |
| Non Government School Provisional* | | | ✓* | | ✓* | ✓* | | | ✓* | | ✓* | | | ✓ |
| Retail Activity | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| Seniors Recreation Reserve | | ✓ | | | ✓ | | | ✓ | | | | | | |
| Shelter and Toilet Amenity | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | |
| Specialised Local Centre | | | | | | | | | | | | ✓ | ✓ | |
| Stadium Recreation | ✓ | | | | | | | | | | | | | |
| State Primary Education | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | |
| State Secondary Education | ✓ | ✓ | | | ✓ | | | ✓ | | | | | | |
| State Special Needs Education | | ✓ | | | | | | | | | | | | |

See Indicative Node Location Map Appendix 3 for location of nodes.

The land size allocations detailed in this report are designed to ensure that a standard and conventional roll out of social infrastructure can be accommodated, however no allowance has been made for standalone facilities. Such a model provides for flexibility of service provision, as the specifics of the way in which services will be delivered have not yet been explored. The co location of various uses as shown on the community facilities plan reflects the collective willingness to better service populations through sharing and proximity of service delivery and social amenity. It is intended that efficiencies in service provision and opportunities for integration and co-location can be explored and possibly provided for in the PSP phase.

The land size allocations (detailed below and over page) provide for future adaptability and accommodate local solutions being applied in any activity node. The allocation is based on negating building of standalone facilities and the collective willingness to better service populations through sharing and proximity of service delivery and social amenity.

Major Activity Centre

- Business and retail activity 42 ha
- Education 8 ha
- Health and wellbeing complex 1.0 ha
- Community complex (including civic/cultural amenity) 1.5 ha
- Active recreation (other) 3.1

Neighbourhood Activity Centre

| | |
|--|--------------------|
| ▪ Business and retail activity* ¹ | 3.5 ha |
| ▪ Secondary School | 8.4 ha |
| ▪ Primary School | 3.5 ha |
| ▪ Special needs education* ² | 3.4 ha |
| ▪ Health and wellbeing complex | 1 ha |
| ▪ Community complex | 1.25 ha |
| ▪ Citizens hall | 0.7 ha |
| ▪ Active open space (local) | 8 ha |
| ▪ Multi-purpose stadium recreation | 0.7 ha |
| ▪ Seniors recreation reserve* ³ | 0.9 ha |
| ▪ Community pavilion (floor space) | 1000m ² |
| ▪ Shelter and toilet amenity (floor space) | 100m ² |

*1 West precinct is local provision only.

*2 One Special Needs Education Site indicatively located in the East Precinct

*3 Provided at Local Activity Centre level in West Precinct

Regional Recreation Reserve (Sporting Fields)

| | |
|---|--------------------|
| ▪ Active open space (regional) | 18 ha |
| ▪ Athletics reserve (Horseshoe Bend Precinct) | 3 ha |
| ▪ Community pavilion (floor space) | 1500m ² |
| ▪ Shelter and toilet amenity(2x100m ² floor space) | 200m ² |

Local Activity Centre

| | |
|--|-------------------|
| ▪ Business and retail activity | 0.5 ha |
| ▪ Primary School | 3.5 ha |
| ▪ Health and wellbeing complex | 0.25 ha |
| ▪ Community complex | 0.6 ha |
| ▪ Active open space * | 8 ha |
| ▪ Community pavilion (floor space) | 500m ² |
| ▪ Shelter and toilet amenity*(floor space) | 100m ² |

* Excluding local activity centre located in the Marshall Precinct.



Services

The components of each of the nodes are provided as separate services enabling individualised development of any given node based on requirements. This provides flexibility while identifying potential sharing partners and common use areas (toilets, meeting spaces, cleaners' storage, etc). (See the service types table, Appendix 11 for services by type and providers of those services across government and non government streams).

Emergency Services Centre

- Victoria Police, Country Fire Authority, Ambulance
Victoria 1.5 ha

Specialised Local Centre

- Local convenience and services (floor space)
1000m2

Non Government School Centre

- Catholic Education pending
- Anglican Education (indicative) pending

Convenience Store provision

- Not detailed* pending

* developed through Precinct Structure Planning.

The table below provides a reference of the number of service locations by precinct across the Armstrong Creek Growth Area. (table 8)

| Service | Precinct | | | | | Total |
|--|----------|------|-------------|----------|----------------|-------|
| | East | West | H'Shoe bend | Marshall | Major Activity | |
| Anglican Education | | 1 | | | | 1 |
| Catholic Education (indicative) | 1 | 1 | 2 | 1 | | 5 |
| Citizens Halls | 1 | 1 | 1 | | | 3 |
| Civic / Cultural Space | | | | | 1 | 1 |
| Consultation Rooms (visiting services) | 2 | 2 | 2 | | | 6 |
| Health and Wellbeing complex | 2 | 2 | 2 | 1 | 1 | 8 |
| Kindergarten (3 year old) Sites | 2 | 2 | 2 | | 1 | 7 |
| Kindergarten (4year old) Sites | 6 | 6 | 6 | 2 | 2 | 22 |
| Library | | | | | 1 | 1 |
| Long Day Care Sites | 2 | 2 | 2 | 1 | 1 | 8 |
| Lutheran Education (existing) P-7 | 1 | | | | | 1 |
| Maternal Child and Health Sites | 4 | 4 | 3 | | | 11 |
| Play Groups Sites | 1 | 1 | 1 | | | 3 |
| Sate Secondary Education Sites | 1 | 1 | 1 | | | 3 |
| State Primary Education Sites | 2 | 2 | 2 | 1 | | 7 |
| State Senior / Pre Tertiary Education Site | | | | | 1 | 1 |
| State Special Needs Site | 1 | | | | | 1 |
| Toy Library Sites | | | 1 | | | 1 |
| Youth Services | | | | | 1 | 1 |

Table 8 Services by precinct

| Recreation Item | Precinct | | | | | Total |
|--|----------|------|-------------|----------|----------------|-------|
| | East | West | H'Shoe bend | Marshall | Major Activity | |
| Active Open Space – Local (8 ha) | 2 | 2 | 2 | | | 6 |
| Active Open Space – Regional (18ha) | 1 | 1 | 1 | | | 3 |
| All ability play space | 1 | | | | | 1 |
| Athletics Track & Field | | | 1 | | | 1 |
| Community Pavilions - Toilet Blocks | 2 | 3 | 4 | 1 | | 10 |
| Community Pavilions - Large | 1 | 1 | 1 | | | 3 |
| Community Pavilions - Medium | 1 | 1 | 1 | | | 3 |
| Community Pavilions - Small | 1 | 1 | 1 | | | 3 |
| Football / Cricket Ovals | 5 | 3 | 5 | | | 13 |
| Football / Soccer Fields (joint use) | | 1 | 2 | | | 3 |
| Hockey / Soccer - Synthetic | | 4 | | | | 4 |
| Leisure Facility (Aquatic Centre) | | | | | 1 | 1 |
| Multi Purpose Stadium - 4 court | | | | | 1 | 1 |
| Multi Purpose Stadiums - 2 court | 1 | 1 | 1 | | | 3 |
| Netball | 2 | 4 | 7 | | | 13 |
| Netball (Multi court facility) | 9 | | | | | 9 |
| Seniors Recreation Reserves (bowls, croquet) | 1 | 1 | 1 | | | 3 |
| Soccer - Grass | 3 | 5 | | | | 8 |
| Tennis Complex - Pavilion & Admin | 1 | 1 | | | | 2 |
| Tennis Courts | 9 | 9 | | | | 18 |

Table 9 Recreation services by precinct

The tables following note the gross floor area (GFA) requirements in metres squared for service provision and car parking at six of the nodes. The tables provide the basis for provision and denote the provision at each of the Activity Centres (Major, Neighbourhood, Local and Regional Recreation Reserve). Detailed below are the gross floor areas in metres squared for:

- Business and retail
- Community complex
- Health and wellbeing complex
- Active Open Space
- Active Recreation (other)
- Citizens Halls

The gross floor areas for the remaining nodes are not prescriptive and have not been provided. The nodes for which gross floor area have not been provided are:

- Education
- Emergency services

The service provision sizing has been planned to be flexible however there is rationale for the size and the quantity of the services that form the basis of the planning and should therefore be utilised as the guide upon which Precinct Structure Planning can progress. The configuration of any given service and its location within any given activity centre will be subject to collaborative planning between the City of Greater Geelong, the Project Control Group and developers.

| Business and Retail | Space Provision m2 | | | Basis for Provision |
|-------------------------|--------------------|-------|---------------------|---------------------|
| | MAC | NAC | LAC | |
| Business (office space) | 35,000 | 1,400 | | Framework Plan |
| Retail | 35,000 | 7,000 | 1,000* ¹ | Framework Plan |
| Restricted retail | 25,000 | | | Framework Plan |
| Entertainment | 7,000 | | | Framework Plan |
| Total | 102,000 | | | |

* 1 Up to 1,000 m2 local convenience amenity.

Table 10 Gross Floor Area requirements, Business and Retail Activity

| Community Complex | Space Provision m2 | | | Basis for Provision |
|-----------------------------------|--------------------|-------------------|--------------|---|
| | MAC | NAC | LAC | |
| Community rooms and meeting space | 1,500 | 550 | 200 | Comparative Analysis* ¹ , LG Testing* ² , ASR Guideline* ³ |
| Library | 3,000 | | | Comparative Analysis, Testing, ASR Guideline |
| Kindergarten | 1,612 | 3,224 | 1,612 | Children Services Regulations, ASR Guideline |
| Three year old kindergarten | 315 | 630 | | Children Services Regulations, ASR Guideline |
| Play group | 355 | 355 | | Children Services Regulations, ASR Guideline |
| Youth services | 500 | | | LG Testing |
| Child care | 1,525 | 1,525 | 1,525 | Children Services Regulations, ASR guideline |
| Car parking | 5,250 | 3,500 | 1,575 | 35m2 per space |
| Storage space | 250 | 250 | 75 | LG Testing |
| Toy library | | 120 | | ASR guideline, LG Testing |
| Consultation rooms | | 260* ⁴ | 100 | ASR guideline |
| Open space | | 1,000 | 500 | Accepted Practice |
| Total | 14,307 | 12,254 | 5,687 | |

* 1 Comparative Analysis = provision based on other like provision service size based on similar population and demographics.

* 2 LG Testing = testing during social infrastructure working group sessions

* 3 ASR Guideline = Planning for Social Infrastructure in Growth Area communities

* 4 260m2 is the allocation in the East and West Precinct for a total of 5 consultation rooms, waiting room space and group rooms (2x50m2). The Horseshoe bend allocation is 225m2 – a total of 4 consultation rooms, waiting room space and group rooms (2 x 50m2)

Table 11 Gross Floor Area requirements, Community Complex

| Health and Well-being Complex | Space Provision m2 | | | Basis for Provision |
|---|--------------------|--------------|--------------|-------------------------|
| | MAC | NAC | LAC | |
| Community health and well-being service provision | 2,000 | 2,000 | 600 | Comparative Analysis* 1 |
| Car parking | 4,500 | 4,500 | 1,575 | Regulation |
| Open space / Landscaping | 750 | 750 | 325 | Accepted Practiced |
| Total | 7,250 | 7,250 | 2,500 | |

* 1 Comparative Analysis = provision based on other like provision service size based on similar population and demographics.

Table 12 Gross Floor Area requirements, Health and Wellbeing Complex

| Active Open Space | Space Provision (m2) | | | | Basis for Provision |
|--|----------------------|--------------|------------|-----|------------------------------|
| | RRR | MAC | NAC | LAC | |
| Cricket, tennis, football, soccer, hockey | | | | | LG Testing *1 ASR Research*2 |
| Athletics Reserve (3ha) | | | | | |
| All ability play space (included in 18ha land allocation in the East precinct) | Size TBC | | | | |
| Community pavilions | | | | | |
| Meeting and function space | 450 | 250 | 100 | | LG Testing *2 |
| Storage | 350 | 300 | 175 | | LG Testing *2 |
| Kitchen and bar | 150 | 150 | 50 | | LG Testing *2 |
| Meeting space (club) | 200 | | | | LG Testing *2 |
| Toilet and change rooms | 350 | 300 | 175 | | LG Testing *2 |
| Total community pavilions | 1,500 | 1,000 | 500 | | |
| Shelter and toilet amenity | 200*3 | 100 | 100 | | LG Testing *2 |

*1 LG Testing = testing during social infrastructure working group sessions

* 2 ASR Guideline = Planning for Social Infrastructure in Growth Area communities

*3 Provision for two facilities of 100m2 each.

Table 13 Gross Floor Area requirements, Active Open Space

| Active Recreation (other) | Space Provision (m2) | | | | Basis for Provision |
|---|----------------------|-------|-------|-------|---------------------------------------|
| | RRR | MAC | NAC | LAC | |
| Multi-purpose Stadium recreation | | | | | |
| Multipurpose courts | | 5,000 | 2,500 | | Comparative Analysis* 1 |
| Gymnastics | | 300 | 200 | | Comparative Analysis* 1 |
| Car parking | | 3,000 | 1,500 | | Comparative Analysis* 1 |
| Total stadium recreation | | 8,300 | 4,200 | | |
| Seniors recreation reserve | | | | | |
| Bowls & Croquet | | | 4,000 | 4,000 | Comparative Analysis* 1 |
| Car Parking | | | 1,500 | 1,500 | Comparative Analysis* 1 |
| Total seniors recreation res | | | 5,500 | 5,500 | |
| Leisure (Aquatic) Facility | | | | | |
| Pool, Gym, Admin, Amenities | | 3300 | | | Comparative Analysis* 1, LG Testing*2 |
| Car Parking | | 5000 | | | Comparative Analysis* 1 |
| Total leisure facility | | 8300 | | | |

*1 Comparative Analysis = provision based on other like provision service size based on similar population and demographics.

*2 LG Testing = testing during social infrastructure working group sessions

Table 14 Gross Floor Area requirements, Active Recreation (other)

| Citizens Hall | Space Provision m2 | | | Basis for Provision |
|---|--------------------|-------|-----|-------------------------|
| | MAC | NAC | LAC | |
| Community, cultural, performing arts | | 1,500 | | Comparative Analysis* 1 |
| Car parking | | 3,000 | | Regulation |
| Open Space / Landscape | | 700 | | Accepted Practice |
| Total | | 5,200 | | |

*1 Comparative Analysis = provision based on other like provision service size based on similar population and demographics.

Table 15 Gross Floor Area requirements, Citizens Hall

Cost Frame

Using information gathered from the agency's representatives and utilising industry building price standards (Rawlinsons) a total cost of provision of critical social and recreation infrastructure table has been derived. This financial table, (see Appendix 14 Social Infrastructure Costs), is indicative of costs only and pertains to market pricing as at October 2008. The

spreadsheet provides detail at both the precinct level and also as a total picture for Armstrong Creek.

The spreadsheet builds the picture across each of the precincts, based on the land size allocation and the node service components for the built form.

The table below, (Node Infrastructure Cost, Armstrong Creek) provides a high level 'snap shot' of the costs for infrastructure provision at the nodes. Note these costs are indicative only, and are subject to change variables such as land pricing, component pricing, timing and sizing.

| Node | Total cost \$M (rounding applied) |
|--|--------------------------------------|
| Business and retail | Determined at PSP Stage |
| Education | |
| State Education (Primary, Secondary, Special Needs and not specified) | 246 |
| Non Government schools | 133 |
| Community complexes | 73 |
| Health and wellbeing complexes | 38 |
| Active open space (regional and local) | 74.5 |
| Sporting amenity (football, cricket, tennis, hockey, soccer, etc) | 30 |
| Athletic Reserve | 2.5 |
| Community pavilions (inclusive of Shelter and Toilet Amenity) | 30 |
| Active Recreation (other) | |
| Multi-purpose stadiums | 21 |
| Seniors Recreation Reserve | 2.6 |
| Leisure Facility (Aquatic facility) | 21 |
| Citizens Halls | 22.2 |
| Emergency services | 16 |
| Specialised local centres | Determined at PSP stage |
| Convenience stores | Determined at PSP stage |

Table 16 Node Infrastructure Costs, Armstrong Creek.

SECTION 4 – DELIVERING THE PLAN

The two streams of the Integrated Infrastructure Delivery Plan (social and civil) have been developed independently of each other, but will come together into a single document outlining the entirety of infrastructure requirements for the Armstrong Creek Growth Area.

Both the civil and social components of the Integrated Infrastructure Delivery Plan focus on delivery of shared infrastructure where possible. The IIDP has therefore been designed to ensure the area can be serviced in a timely and efficient manner, and obligations and responsibilities contained within the plan are clear.

Governance for timely and coordinated development

Within all agencies the question of governance posed some new challenges in relation to co-location or sharing of facilities and coordinated planning decisions. In recognition of the large capital outlay for social infrastructure and the community's expectations of a seamless and responsive service system, current government policy is seeking to support co-operative arrangements into the future. The '*Shared Facility Partnership – a Guide to Good Governance for Schools and the Community*', is one plan for developing and maintaining successful partnerships to encourage sharing of infrastructure between schools and other community institutions to make schools the heart of local communities.

Similarly local councils have long recognised that the 'stand alone' facility model is not sustainable and that services can meet community needs in a more holistic way when combined in a single and accessible location.

As a green field site, the planning for Armstrong Creek provides a unique position to forge relationships early and to build upon the strength of the shared vision created in this plan. The Project Control Group and the Working Group have been instrumental in laying the foundation for better community outcomes and for recognising that there is need for a different way of doing things. The group has been vocal in their recognition for wanting to challenge practice of old and for ensuring that we are building not

only for communities of today, but for communities that can be sustained over time as they change and as their needs change.

While it is recognised that there are limitations, the group explored a range of issues that will assist in establishing new foundations upon which new facility management models can be developed. In addition a range of issues were identified that warrant further exploration such as local area trusts and body corporate contributions the basis for new governance models but the common themes that require further examination generally always included:

- land ownership;
- single facility management;
- resourced management of single or multiple facilities;
- involvement of user groups in the development of governance arrangements.

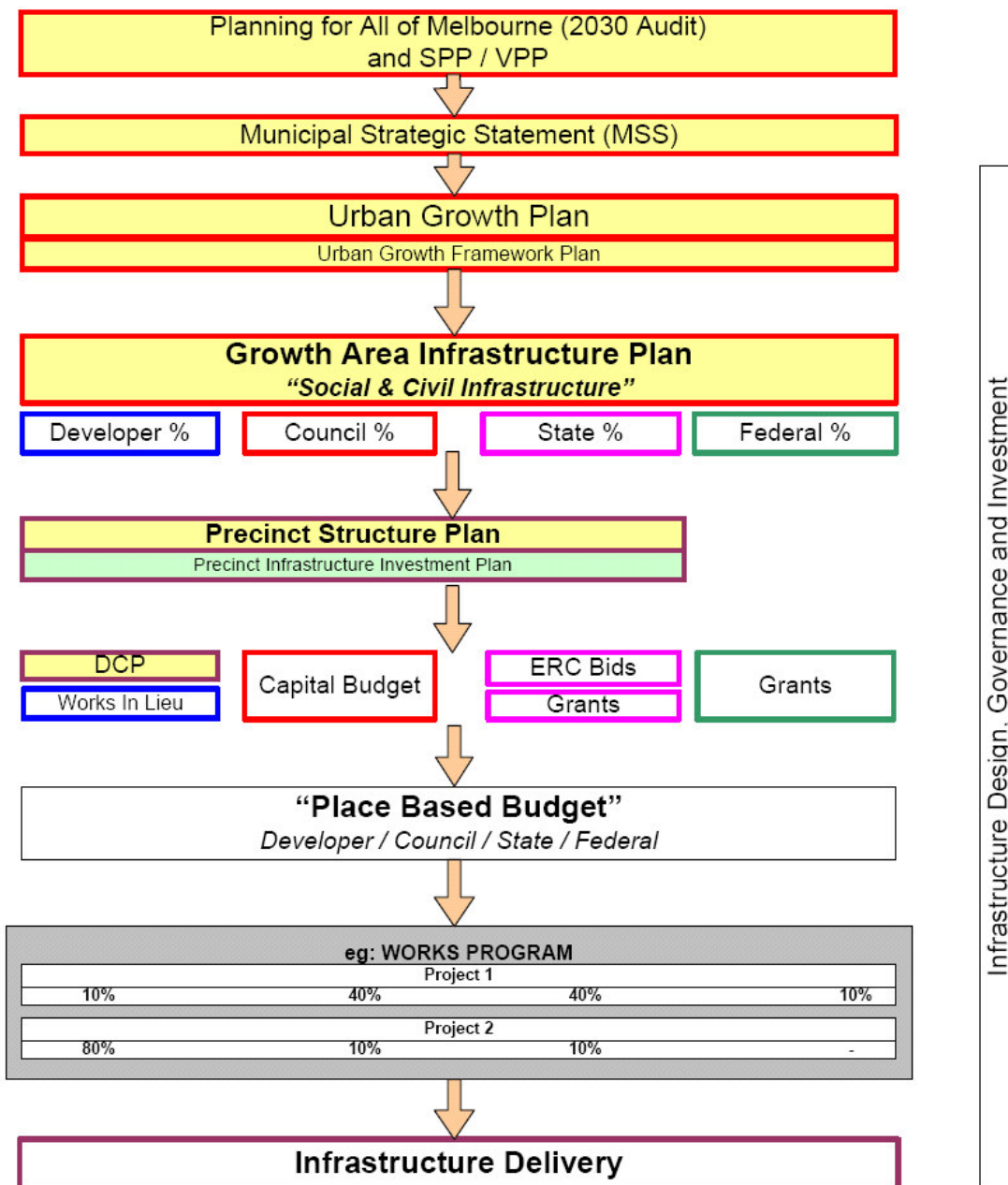
It is therefore necessary for the delivery of the strategic intentions of the IIDP that interagency groups ongoingly work on the key delivery issues surrounding governance models, detailed design and integrated service planning. In the case of the social infrastructure component it may be beneficial to utilize the resources of the G21 Health and Wellbeing, Education and Training and Sport and Recreation Pillars to maintain focus and engagement of key stakeholders over the next 12 – 18 months in this area of forward planning.

Translation to an Investment Plan

Investment in Armstrong Creek Social Infrastructure will come from both public and private sectors using a more diverse number of mechanisms and delivery arrangements than elsewhere in the municipality of Geelong. These mechanisms may include the use of development contributions, government appropriations and capital investments, private capital and other funding options.

The development of the social and recreation infrastructure (by Precinct) spreadsheet (attachment 14) provides a reference for all potential investors. It outlines the indicative costs and development time frames. This in turn informs strategic budget planning and can support joint venture and other collaborative development options.

Infrastructure “Place Based” Funding Model



Legend

Responsibility :

- Developers (Blue box)
- Council / Developers (Red box)
- Council (Red box)
- State (Pink box)
- Federal (Green box)

Planning Documents :

- Incorporated Document (Yellow box)
- Reference Document (Green box)

Chart 2 Infrastructure “Place Based” Funding Model

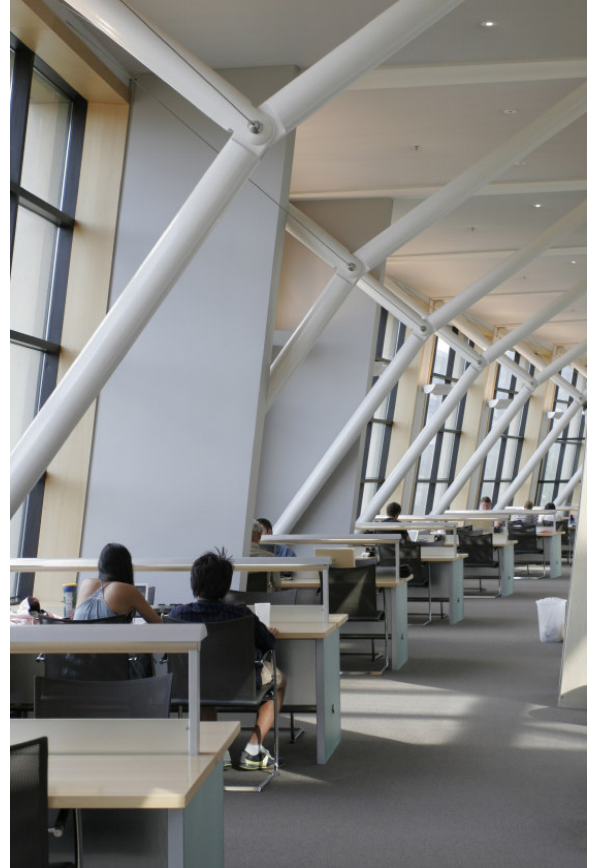
Private Sector Investment

A requirement of precinct structure plan development includes the establishment of Development Contribution Plan under the provisions of Part 3 B Development Contributions, Planning and Environment Act, 1987. These plans outline the arrangements for the developer component of the investment plan. This group of investors will be required to work with the Armstrong Creek Project Team (City of Greater Geelong) to develop these plans as part of the delivery of their overall Precinct Structure Plan. As expected for all investors groups there is a requirement to continue to engage with all stakeholders (particularly end user / managers) as outlined by the City of Greater Geelong. This approach ensures engagement of key stake holders in the development contribution plan process.

Government Investment

Continued work will be required to ensure high level engagement in the delivery of the social infrastructure plan across local, state and federal government in order to achieve the most appropriate range of services in line with development. The SIIDP Project Control Group will have an ongoing role using a number of structures and mechanisms to continue this collaboration and challenge traditional models for funding to deliver integrated outcomes.

It is proposed that for the State Government level, the mechanisms to take forward infrastructure requirements will be aligned with a new approach proposed under the Governments response to the Melbourne 2030 review. That is, integrated infrastructure plans are considered on a growth area or precinct basis to ensure timely, coordinated and integrated delivery of government investment in facilities from a broad range of responsive services and opportunities.



ACRONYMS AND GLOSSARY

| | |
|----------------------------------|--|
| ABS | Australian Bureau of Statistics |
| COGG | City of Greater Geelong |
| DEECD | Department of Education and Early Childhood Development |
| DHS | Department of Human Services |
| DOJ | Department of Justice |
| DPCD | Department of Planning and Community Development |
| GDP | Gross Domestic Product |
| LAC | Local Activity Centre |
| LGA | Local Government Area |
| MAC | Major Activity Centre |
| NAC | Neighbourhood Activity Centre |
| NGO | Non Government Organisation |
| PSP | Precinct Structure Plans |
| RRR | Regional Recreation Reserve |
| SIIDP | Social Interagency Infrastructure Development Plan |
| SIPCG | Social Infrastructure Project Control Group |
| SIWG | Social Infrastructure Working Group |
| UDIA | Urban Design Institute of Australia |
| Athletics Track and Field | Purpose built amenity for practice of athletic and track sports. |
| Active open space | Land set aside for the specific purpose of formal outdoor sports by the community.* |
| Active Recreation (Other) | The collective term for multipurpose stadiums, senior's recreation reserves, and the leisure facility (aquatic facility). |
| Activity Centre | Provide the focus for services, employment and social interaction. They are where people shop, work, meet, relax and live. Usually well-served by public transport, they range in size and intensity of use.* They are often the heart of community vibrancy and interaction, extending beyond a retail and business activity to include social, passive, recreation, health and wellbeing service, arts and culture and education activity. |
| Business and Retail | Shops, offices and other services. |
| Citizens Halls | Flexible community space used for community gatherings, cultural activities, performing arts and civic ceremonies and celebrations. |
| Co-location | Adjoining land uses to enable complementary programs, activities, services and shared use of resources.* |
| Convenience Store | Small local 'milk bars' where convenience goods are sold. |
| Community Complex | Facilities for community use which may include meeting activity, maternal child and health services, kindergarten services, play group activities, toy library services, state and local government information, library services, youth activity, educational programs etc. |
| Community Pavilions | Pavilions for the use of community groups including sporting groups, service organisations and youth groups. Providing amenity for sporting events, meetings, functions and club activities. |

| | |
|--|--|
| Education | Government and non government pre-school, primary, secondary and tertiary schools. |
| Emergency Services | Police, fire and ambulance services. |
| G21 | G21 is the alliance of a variety of independent organisations with a shared vision for the Geelong region. The Alliance includes the Borough of Queenscliffe , City of Greater Geelong , Colac Otway Shire , Golden Plains Shire , Surf Coast Shire and more than 150 community and business organisations committed to securing a bright and sustainable future for the region. |
| Governance | Governance relates to decisions that define expectations, grant power, or verify performance. It consists either of a separate process or of a specific part of management or leadership processes. In the case of a business or of a non-profit organisation, governance relates to consistent management, cohesive policies, processes and decision-rights for a given area of responsibility. (http://en.wikipedia.org/wiki/Governance) |
| Health and Wellbeing complex | Health facilities including doctor's rooms, pathology services, private and public health service provision. |
| Leisure Facility | Facility including gymnasium, pool, spa and water play areas and group exercise space. |
| Multipurpose Stadium / stadium recreation | Facility providing for indoor recreation such as basketball, badminton, indoor cricket and netball. Inclusive of area for gymnastics and other indoor rhythmic activities (dance, callisthenics etc). |
| Node or Activity Centre Node | A component of the mix making up the activity centre. Activity centres consist of eight nodes (business and retail, education, community complex, health and wellbeing complex, active open space, active recreation, arts and culture and emergency service) |
| Non Government Organisation | All organised institutions of civil society (including business associations, professional and sporting societies, trades unions and so on), and both profit-orientated enterprises and non-profit organisations in the private sector. (www2.ecos.ch/archiv/johannesburg2002.ch/en/publikationen/2_2_6_glossar.php) |
| Passive Open Space | Open space that is set aside for parks, gardens, linear corridors, conservation bushlands, nature reserves, public squares and community gardens that are made available for passive recreation, play and unstructured physical activity including walking, cycling, hiking, revitalisation, contemplation and enjoying nature.* |
| Precinct Structure Plan | A statutory document that describes how a precinct or series of sites within a growth area will be developed over time. A precinct Structure plan sets out the broad environmental, social and economic parameters for the use and development of land within the precinct.* |
| Public Open Space | Land that is specifically set aside for the purposes of public recreation and public resort; or for similar purposes. Incorporates active and passive open space.* |
| Regional Active Parkland Service | Large land reserves The activity taking place within a node. Services include kindergarten, maternal child and health, library, youth, meeting space etc. An example would be the provision of kindergarten services at an education node. |
| Social Infrastructure | Community [service and recreation] facilities plus public open space. |
| Social Model of Health | A conceptual framework within which improvements in health and wellbeing are achieved by directing effort towards addressing the social and environmental determinants of health (Department of Human Services (DHS) 2002.). |
| Seniors Recreation Reserve | Land for bowling rinks or croquet courts. |
| Walkable Catchments | A technique for comparative evaluation of how easy it is to move through an urban area in order to get to and from amenity and facility. |

* Precinct Structure Planning Guidelines, October 2008, definition.

REFERENCES

Armstrong Creek Urban Growth Plan Community and Social Technical Report, February 2006, Urbis JHD.

Planning for Community Infrastructure in Growth Areas, Australian Social and Recreation Research PTY Ltd, April 2008.
(<http://www.wyndham.vic.gov.au/council/pub/10410>)

Walking for Transport, 31 October 2006. Go for your life; www.goforyourlife.vic.gov.au

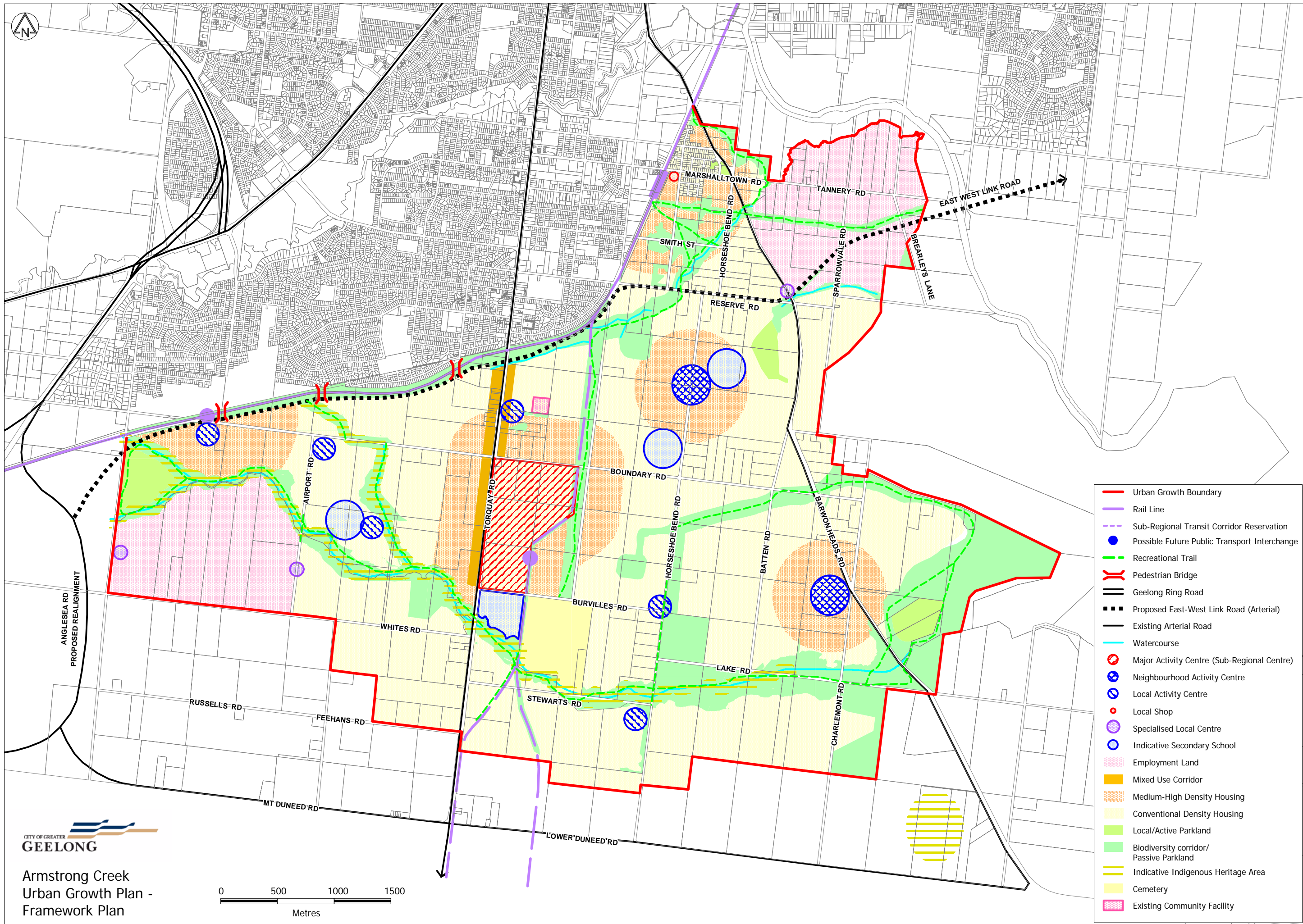
Shared Facility Partnerships – A Guide to Good Governance for Schools and the Community, State of Victoria (Department of Education and Early Childhood Development) December 2007.

Melbourne 2030 a plan for sustainable growth, State Government of Victoria, Department of Sustainability and Environment, 2005.

Social Planning Framework for Growth Areas 2004-2030, Cardinia Shire Council, September 2004.

APPENDICES

| | |
|-------------|--|
| APPENDIX 1 | ARMSTRONG CREEK URBAN GROWTH PLAN FRAMEWORK PLAN |
| APPENDIX 2 | ANALYSIS OF SOCIAL INFRASTRUCTURE REQUIREMENTS FOR ARMSTRONG CREEK |
| APPENDIX 3 | INDICATIVE NODE LOCATION MAP |
| APPENDIX 4 | SOCIAL INFRASTRUCTURE |
| APPENDIX 5 | SOCIAL INFRASTRUCTURE NODES WALKABLE CATCHMENT MAP |
| APPENDIX 6 | OPEN SPACE AND RECREATION WALKABLE CATCHMENT MAP |
| APPENDIX 7 | PEDESTRIAN AND CYCLE PATH MAP |
| APPENDIX 8 | ARTERIAL AND COLLECTOR ROADS (PUBLIC TRANSPORT ROUTES) |
| APPENDIX 9 | PRECINCTS PLAN |
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**Appendix 2 Analysis of Social Infrastructure Requirements for Armstrong Creek
(utilising ASR Planning for Community Infrastructure Hierarchy Model)**

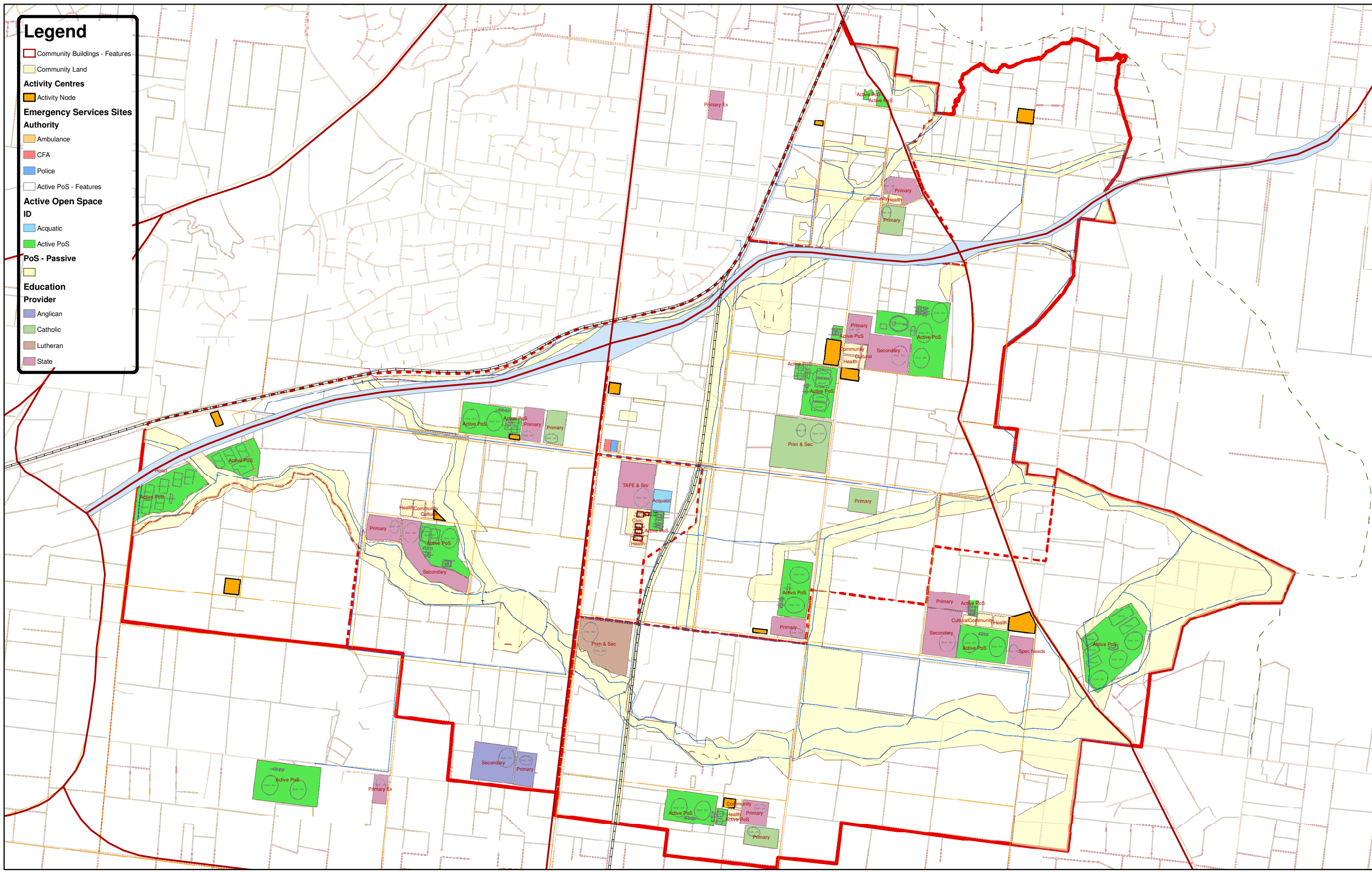
| Facilities / Services by Level | Recommended Provision Ratio for Growth Areas (Households) | Recommended Provision Ratio for Growth Areas (Population) | Estimated number of households | Estimated population | Crude Est. number of Facilities households/ population | Rec'mded land allocation (ha) | Est total Land allocation required households/ population |
|---|--|---|--------------------------------------|-------------------------|--|--|---|
| Level 1 | | | | | | | |
| Govt Primary P – 6 | 1 / 3000 | 1 / 9000 | 22,000 | 54,000 | 7 / 6 | 4.5 | 31.5 / 27 |
| Council Community Centres | 1 / 3000 | 1 / 9000 | 22,000 | 54,000 | 7 / 6 | 0.8 | 5.6 / 4.8 |
| Early Years Facilities Community Centres / School sites | 1 / 3000 | 1 / 9000 | 22,000 | 54,000 | 7 / 6 | Co-located | N/A |
| Neighbourhood Active Open Space | 1 / 3000 | 1 / 6000 | 22,000 | 54,000 | 7 / 9 | 8 | 56 / 72.0 |
| Neighbourhood Passive Open Space | 1 / 333 | 1 / 1000 | 22,000 | 54,000 | 54 / 66 | 1 | 54 / 66 |
| Youth Space within Community Centres / School sites | 1 / 3000 | 1 / 9000 | 22,000 | 54,000 | 7 / 6 | Co-located | N/A |
| Long Day Child Care | 1 / 3000 | 1 / 9000 | 22,000 | 54,000 | 7 / 6 | 0.25 | 1.75 / 1.5 |
| Sub Total Level 1 | | | | | | | 148.85 / 159.30 |
| Level 2 | | | | | | | |
| MCH (incorporated into every 2 nd Level 1 early years facility) | 1 / 5333 | 1 / 16000 | 22,000 | 54,000 | 4 / 3 | Co-located | N/A |
| Govt Secondary Colleges 7 - 12 | 1 / 10000 | 1 / 30000 | 22,000 | 54,000 | 2 | One @ 8.4 One @ 12 | 20.4 |
| Neighbourhood houses (inc into Level 1 Community Services Complex | 1 / 6667 | 1 / 20000 | 22,000 | 54,000 | 3 | Co-located | N/A |

| Facilities / Services by Level | Recommended Provision Ratio for Growth Areas (Households) | Recommended Provision Ratio for Growth Areas (Population) | Estimated number of households | Estimated population | Crude Est. number of Facilities households/ population | Rec'mded land allocation (ha) | Est total Land allocation required households/ population |
|---|--|---|--------------------------------------|-------------------------|--|--|---|
| Low Order Tennis Facilities 4-6 Courts | 1 / 10000 | 1 / 25000 | 22,000 | 54,000 | 2 | 1 | 2 |
| Catholic Primary P-6 | 1 / 6000 | 1 / 18000 | 22,000 | 54,000 | 4 / 3 | 2 | 8 / 6 |
| Low order performance Arts (based at Govt Secondary Colleges) | 1 / 10000 | 1 / 30000 | 22,000 | 54,000 | 2 | Co-located | N/A |
| Indoor Recreation Centres (2 court facilities) | 1 / 10000 | 1 / 20000 | 22,000 | 54,000 | 2 | Co-located | N/A |
| Sub Total Level 2 | | | | | | 23.4 | 30.4 / 28.4 |
| Level 3 | | | | | | | |
| Libraries | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | 1.5 | 3 / 1.5 |
| Aquatic Centres | 1 / 16667 | 1 / 40000 | 22,000 | 54,000 | 1 | 2.5 | 2.5 |
| Community Arts Centres | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | 0.3 | 0.6 / 0.3 |
| Higher Order Active Open Space Reserves | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | 30 | 60 / 30 |
| Higher Order Tennis Facilities (10+ courts) | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | Co-located in higher order Rec Reserve | N/A |
| Lawn bowls | 1 / 16667 | 1 / 50000 | 22,000 | 54,000 | 1 | Co-located in higher order Rec Reserve | N/A |
| Higher Order Youth Facilities | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | Located in L3 Com Ctre | N/A |
| Early Childhood Intervention Services (integrated with one of the early years facilities) | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | Co-located early years | N/A |

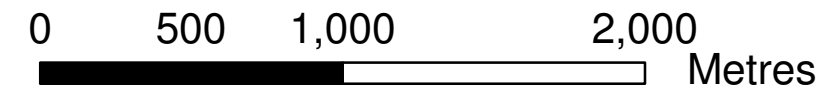
| Facilities / Services by Level | Recommended Provision Ratio for Growth Areas (Households) | Recommended Provision Ratio for Growth Areas (Population) | Estimated number of households | Estimated population | Crude Est. number of Facilities households/population | Rec'mded land allocation (ha) | Est total Land allocation required households/population |
|---|---|---|--------------------------------|----------------------|---|-------------------------------|--|
| Integrated Emergency Services Precinct (Police, Fire, Amb, SES) | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | 2 | 4 / 2 |
| Community Based Health Care | 1 / 16667 | 1 / 50000 | 22,000 | 54,000 | 1 | 1 | 1 |
| Catholic Secondary | 1 / 19333 | 1 / 58000 | 22,000 | 54,000 | 1 | 7 | 7 |
| Community Centres | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | 1.5 | 3 / 1.5 |
| Indoor Recreation Centres (6 court) | 1 / 16667 | 1 / 40000 | 22,000 | 54,000 | 1 | 4 | 4 |
| Planned Activity Group (Level 3 Com Facils) | 1 / 13333 | 1 / 40000 | 22,000 | 54,000 | 2 / 1 | Co-located | N/A |
| Sub Total Level 3 | | | | | | | 81.1 / 45.8 |
| TOTAL | | | | | | | 260.35 / 233.5 |

* 1 Table 1 should not be interpreted as a totally prescriptive strategy and reflects one of a number of approaches to the allocations of community infrastructure items. The decisions about where to locate certain infrastructure forms may well vary from the table (eg location of facilities on govt school land or not). This may influence the land required.

Armstrong Creek Social Infrastructure - Indicative Location Map






















SCALE 1:25,000

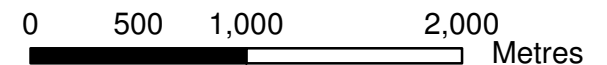
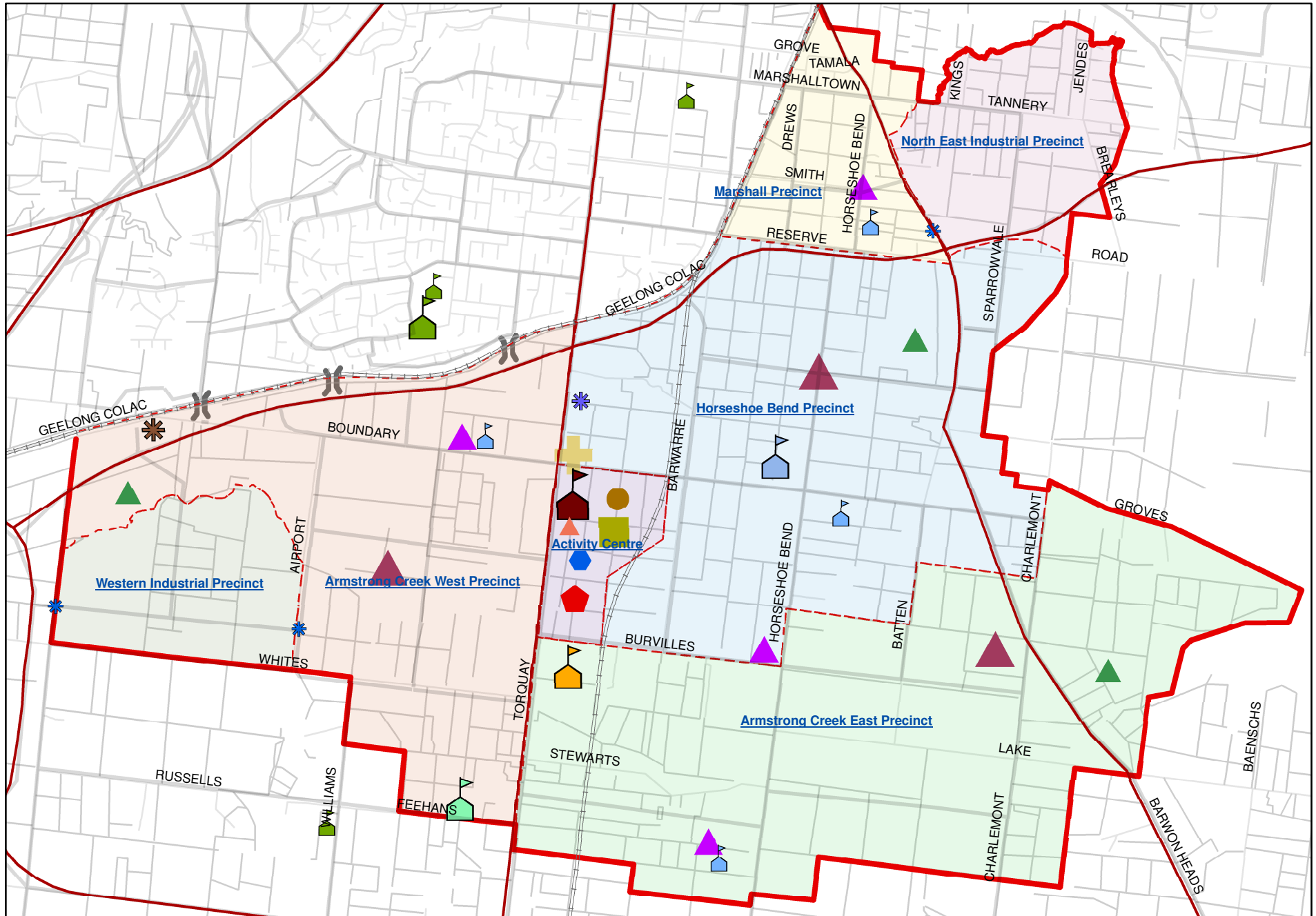


Armstrong Creek Social Infrastructure Hubs

Legend

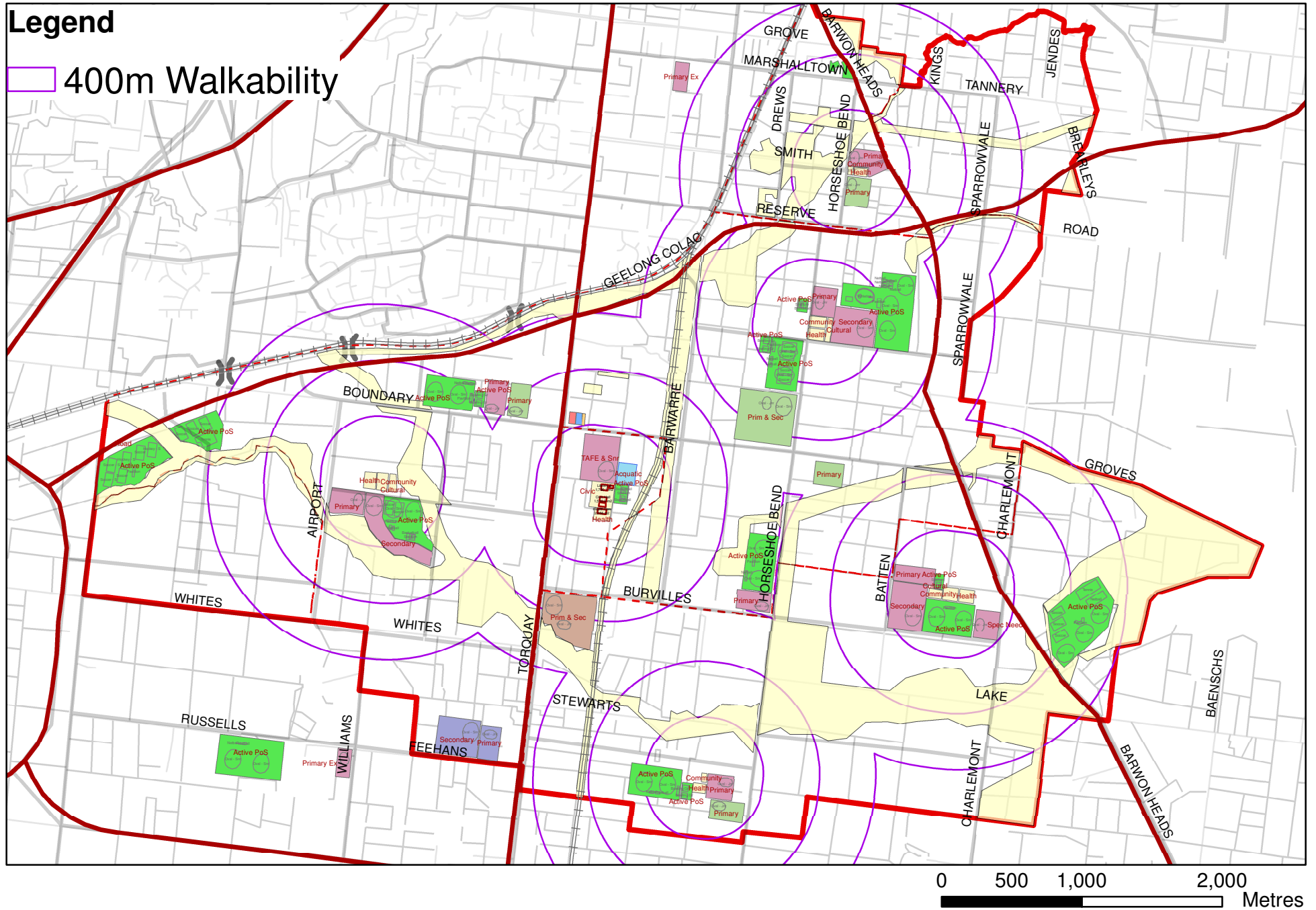
Social Infrastructure Hubs

-  Civic & Culture Precinct
-  Library
-  Youth Centre
-  Multi Purpose Stadium - Large
-  Aquatic Centre
-  Community Hub - Local
-  Community Hub - Neighb'd
-  Community Pavilion Regional
-  Convenience Shopping
-  Emergency Services Hub
-  Primary - State (existing)
-  Primary - Catholic (indicative)
-  Secondary - State (existing)
-  K - 12 Anglican (Indicative)
-  P - 12 - Catholic (Indicative)
-  P - 12 Lutheran (existing)
-  Secondary / TAFE - State
-  Rail Station Activity Centre
-  Specialised Activity Centre



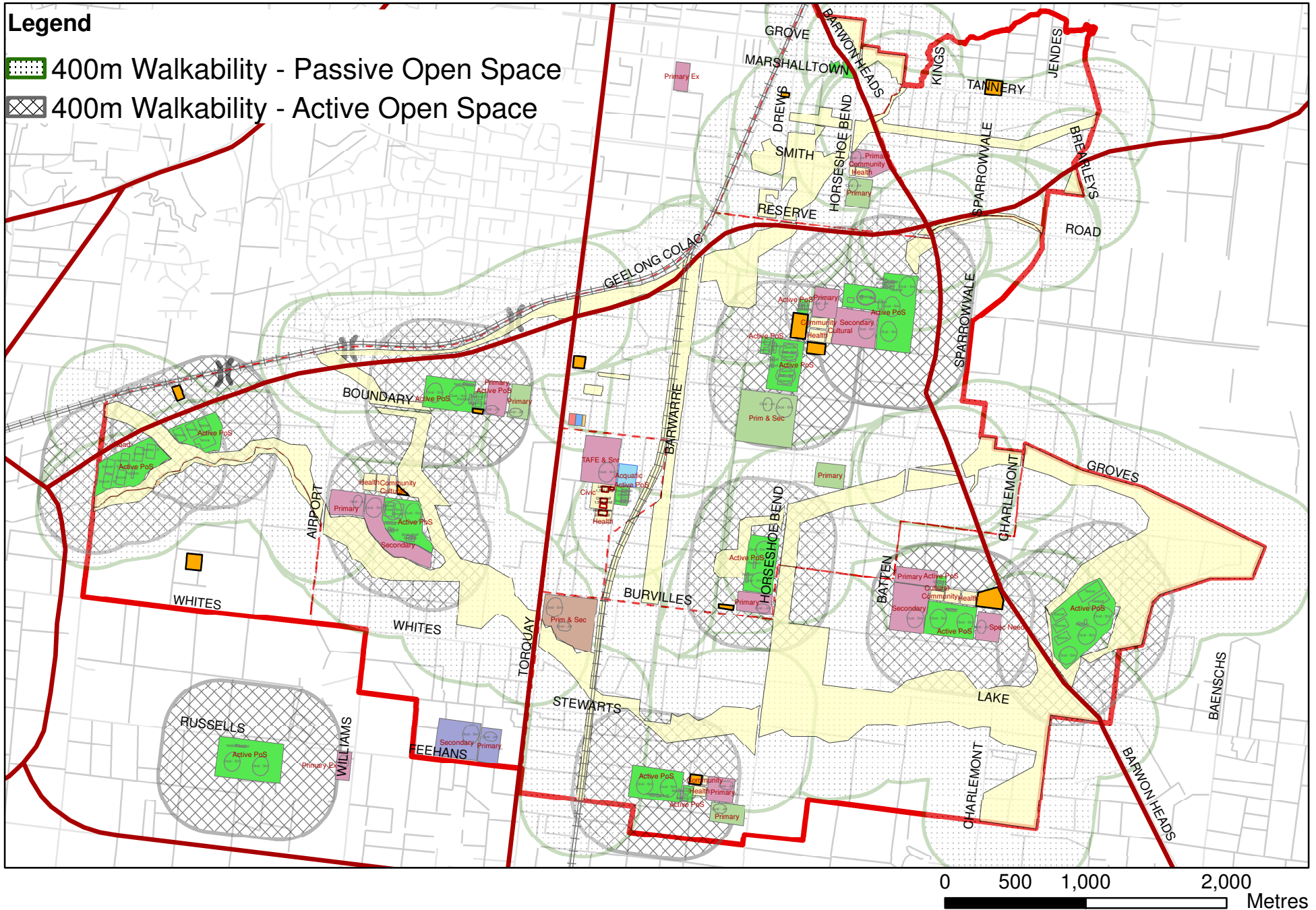
Armstrong Creek

Social Infrastructure Nodes Walkable Catchment

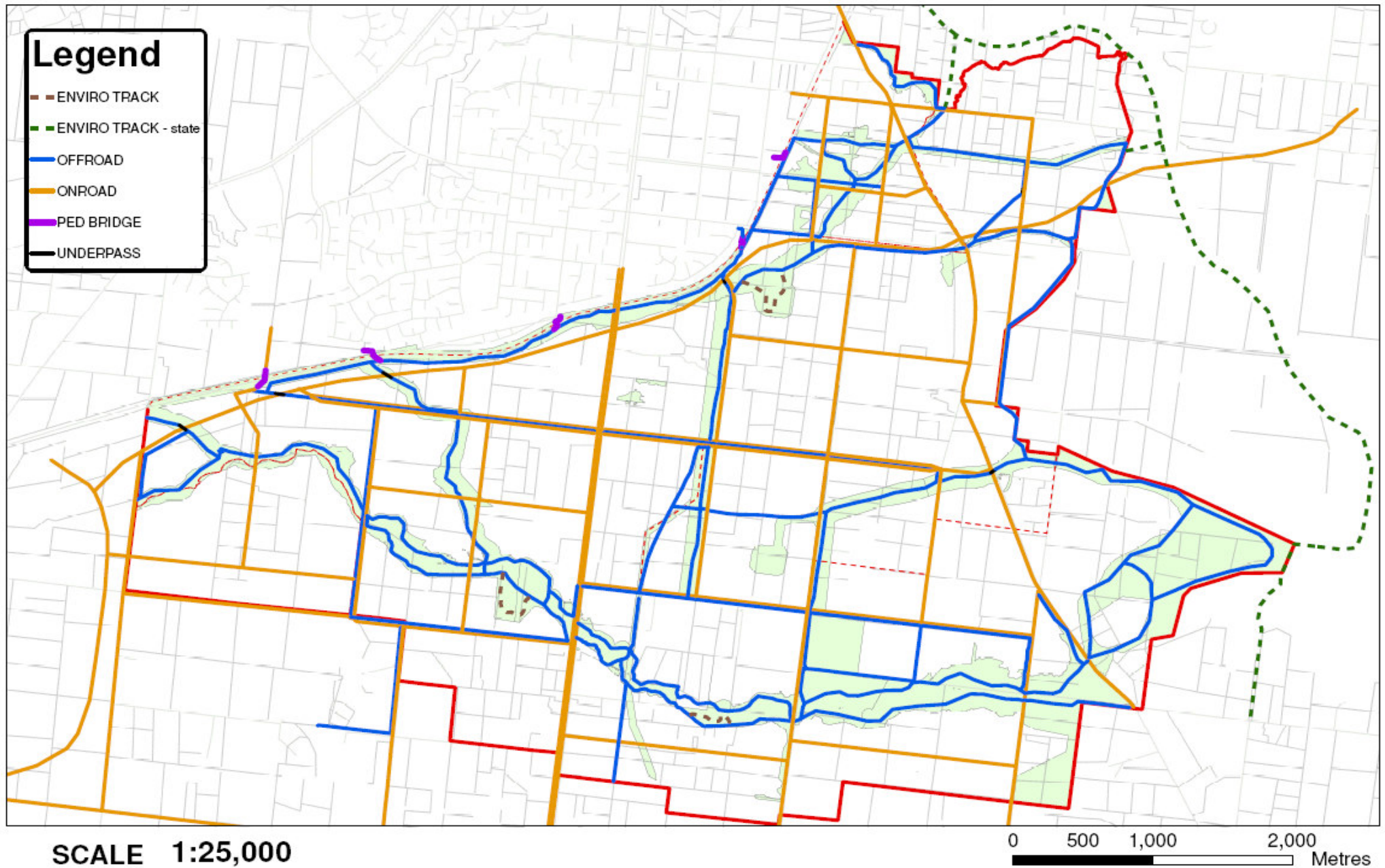


Armstrong Creek

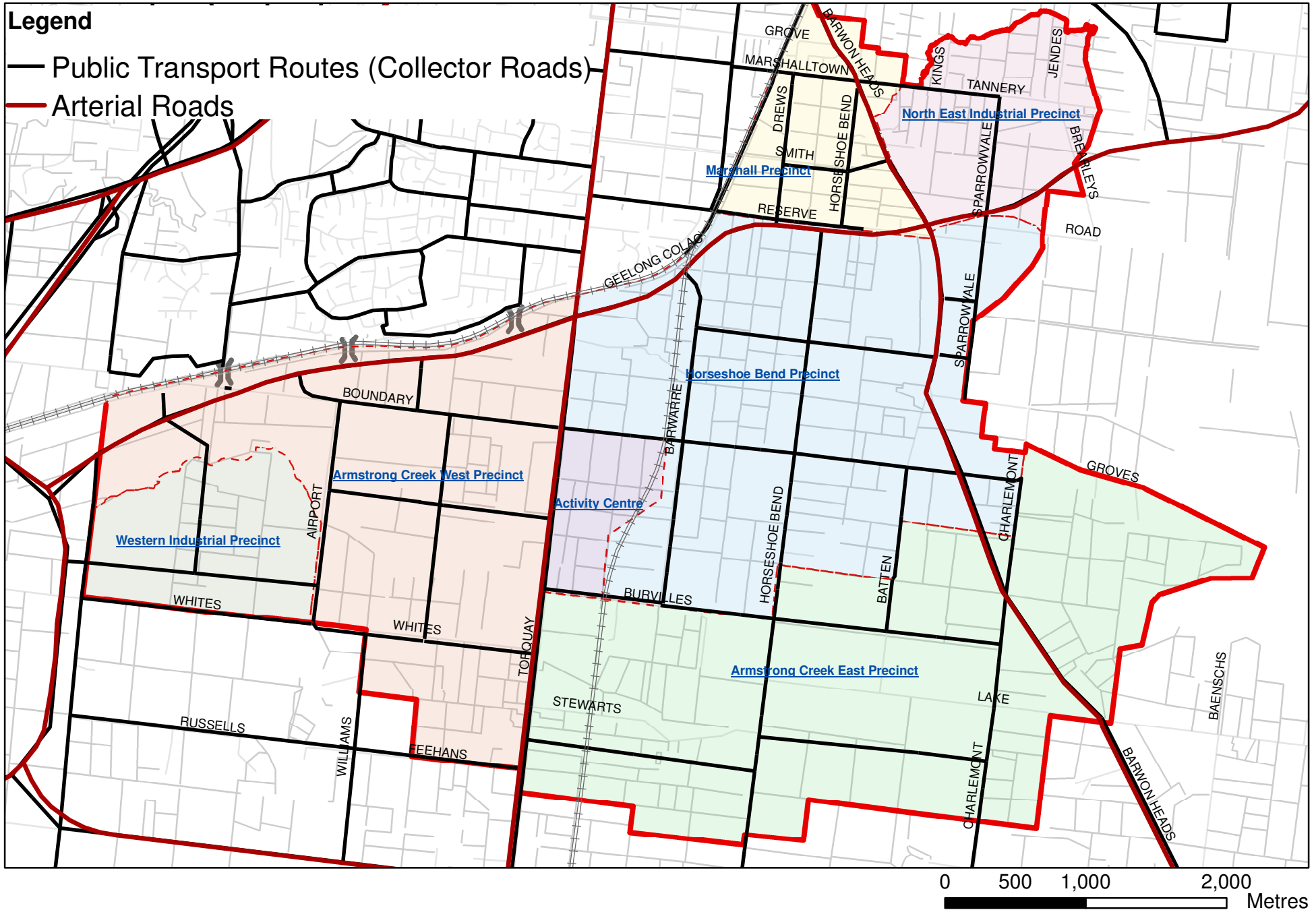
Open Space & Recreation Walkable Catchment



Armstrong Creek *Pedestrian & Cycle Paths*



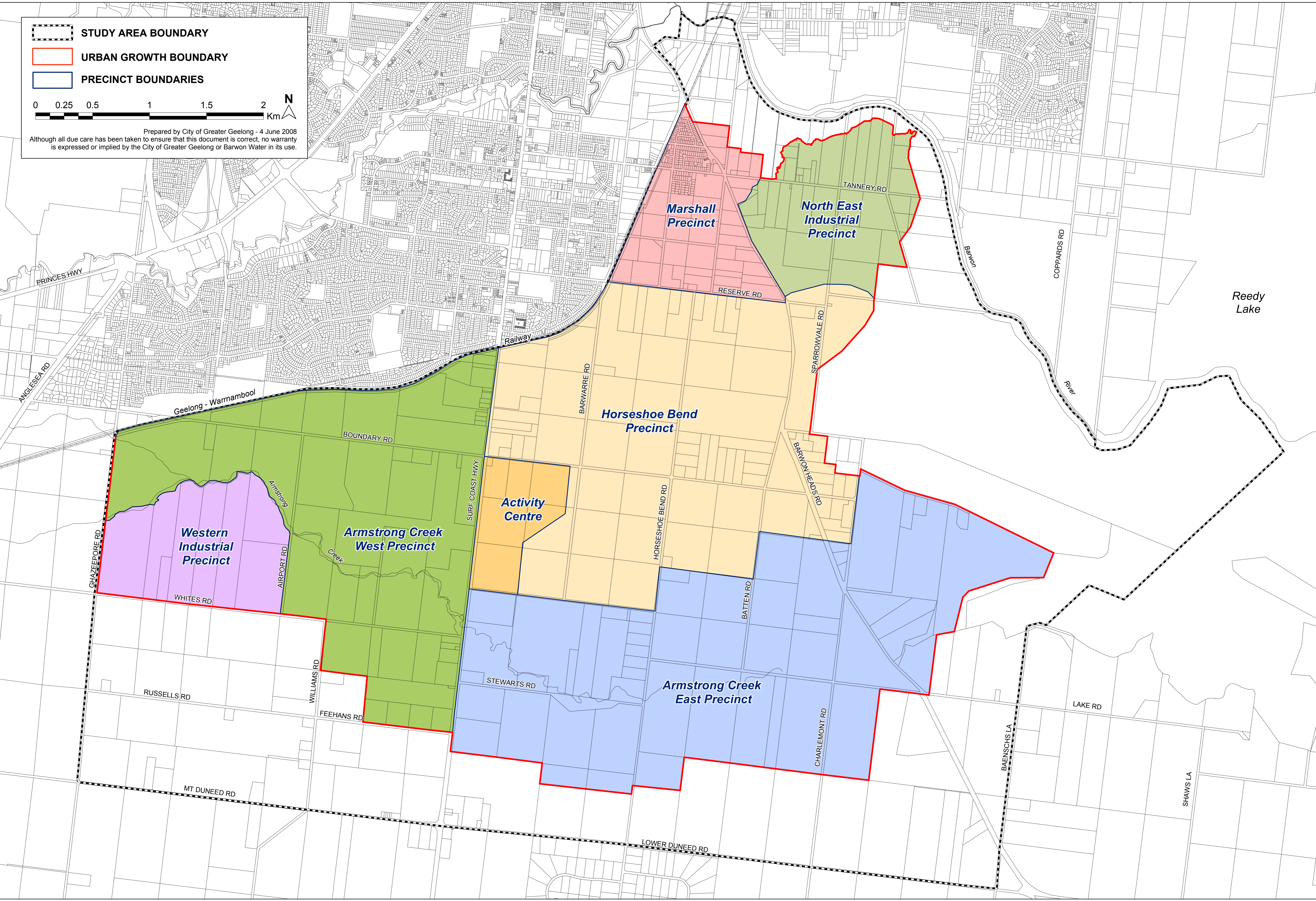
Public Transport Routes (Arterial & Collector Roads)



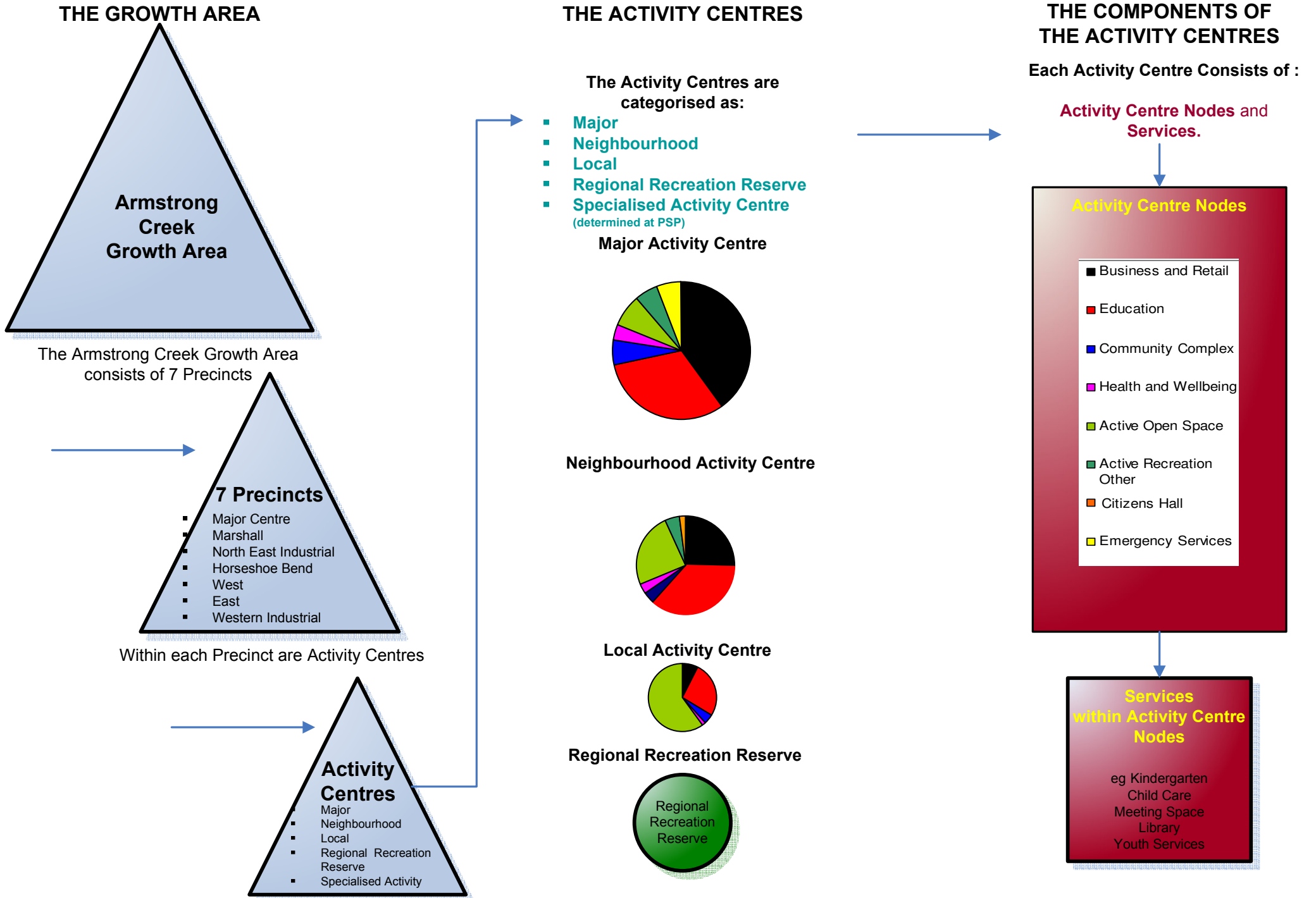
STUDY AREA BOUNDARY
URBAN GROWTH BOUNDARY
PRECINCT BOUNDARIES

0 0.25 0.5 1 1.5 2 Km

Prepared by City of Greater Geelong - 4 June 2008
Although all due care has been taken to ensure that this document is correct, no warranty is expressed or implied by the City of Greater Geelong or Barwon Water in its use.



Appendix 10 PLANNING - GROWTH AREA TO LOCAL SERVICES CHART



Appendix 11 - Service Types

| Community, Social, Arts and Recreation Infrastructure and Service Provision | | | | |
|---|----|----------------------------|---------|-------|
| | LG | State | Private | NGO's |
| Family/Children /Youth | | | | |
| M&CH | X | | | |
| Immunisation | X | | X | |
| Play Groups | X | | | X |
| Toy Library | X | | | |
| Midwifery Services | | X | X | |
| Family Support Services | | X | X | X |
| Centre Based Long Day Care | X | | X | X |
| Centre Based Occasional Care | | Aquatic / Leisure Services | | |
| | X | | X | X |
| | | Other (potential) | | |
| Children's Vacation Care | X | X | X | |
| Before, after and holiday school care | X | X | X | |
| Kindergartens | X | X | X | X |
| Family Day Care | X | | | |
| Parenting Education | X | | | X |
| Outreach Services | | | X | X |
| Early Childhood Intervention | X | | | |
| Youth Services | X | | | X |
| Aged and Disability Services | | | | |
| Home Care | X | X | X | X |
| Disability Services | X | X | X | X |
| Food Services (MOW) | X | X | X | |
| Respite | X | X | X | |
| Client Case Management | X | X | | X |
| Programmed Activity Groups | | | | X |
| HACC Centre Based Seniors Services | X | | | |
| Low Care Residential Aged Care | | X | X | X |
| High Care Residential Aged Care | | X | X | X |
| Independent Living (retirement Villages) | | X | X | X |
| Education and Health Services | | | | |
| Govt Primary and Secondary | | X | | |
| Catholic Education Services | | | | X |
| Higher Education | | X | X | X |
| Other Independent School Services | | | X | X |
| Acute and Community Health | | X | | |
| Social housing | | X | | X |
| Non-govt health service provision | | | X | X |
| Community Use Facilities | | | | |
| Community Centres | X | | | |
| Senior Community Centres | X | X | | |
| Libraries | X | X | | |
| Arts facilities | X | | X | |
| Living/Learning Centres | | | X | X |
| Performance Venues | X | | X | |
| Cultural Facilities | X | | X | X |
| Meeting Spaces | X | | | |
| Conference Facilities | X | | | |
| Neighbourhood Houses/Learning Centres | X | X | | |
| Public Halls | X | | X | X |
| Active Outdoor Recreation | | Outdoor Playing Fields | | |
| | X | X | | |
| | X | | X | |
| | X | | | |

Community, Social, Arts and Recreation Infrastructure and Service Provision

| | LG | State | Private | NGO's |
|---|----|-------|---------|-------|
| Community Use Facilities (continued) | | | | |
| Active Indoor Recreation | | | | |
| Multi Purpose Indoor Court | x | x | x | |
| Aquatic / Leisure / Gym | x | | x | |
| Passive Open Space | x | x | | |
| Shared Pathways Walk/Cycle | x | x | | |
| Skate Parks | x | | | |
| Youth Activity Areas | x | | | |
| Emergency Services | | | | |
| Police | | x | | |
| Fire | | x | | |
| Ambulance | | x | | |
| State Emergency Service | | x | | |
| Judicial Facilities | | x | | |

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Appendix 12 Precinct Elements

Vision

The vision for the growth area is:

“The Armstrong Creek urban growth area will be developed into a sustainable community that sets new benchmarks in best practice urban development. Natural and cultural features will be protected and enhanced to create a distinct urban character. Armstrong Creek will become a highly sought-after location for living, working and recreation, forming an attractive addition to Geelong.”

Overall land budget, Armstrong Creek Urban Growth Area

Indicative figures

| Land use | Land area (ha) |
|---|----------------|
| Activity centres | 106.81 |
| Secondary schools | 39.90 |
| Employment land | 305.14 |
| Mixed use corridor | 26.58 |
| Higher density housing | 26.96 |
| Medium density housing | 303.27 |
| Conventional density housing | 1,139.53 |
| Existing Residential | 23.36 |
| Regional sports facilities | 64.88 |
| Biodiversity corridor/ passive parkland | 501.82 |
| Cemetery | 41.43 |
| Total | 2579.68 |

Note: areas are gross and include roads and open space.

A quick snapshot of the growth area

- The total area is 4,284 hectares of which 2,580 hectares will be developed.
- The projected residential population is 54,000.
- Approximately 22,000 homes to be built at a range of housing densities.
- Approximately 22,000 jobs will be provided in the growth area.
- A major activity centre (sub-regional) centre, local activity centres, employment areas, transport networks and public open spaces will be developed.
- A total of three railway stations will be located in the growth area.
- It is anticipated that development in some precincts will commence in 2010.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Demographics

Armstrong Creek will offer a wide range of living and lifestyle options to meet the needs of a full cross section of the community. These will range from detached houses on family-sized blocks to apartments close to, and above, major shops and services, and include accommodation for the aged, mobility impaired, and students. Higher density housing will be clustered in areas close to public transport nodes and activity centres, maintaining the more traditional character of other residential areas. Affordable and social housing will be provided throughout the growth area to integrate it within the community.

A comprehensive network of community facilities and services will be provided to meet the needs of the whole community.

Likely household sizes

| Housing type | People per house (low end projection) | People per house (high end projection) | Average |
|------------------------|---------------------------------------|--|---------|
| Apartments | 1.2 | 1.6 | 1.4 |
| High density housing | 1.4 | 1.9 | 1.65 |
| Medium density housing | 2.0 | 2.6 | 2.3 |
| Conventional housing | 2.6 | 3.3 | 2.95 |



ARMSTRONG CREEK GEELONG'S GROWTH AREA



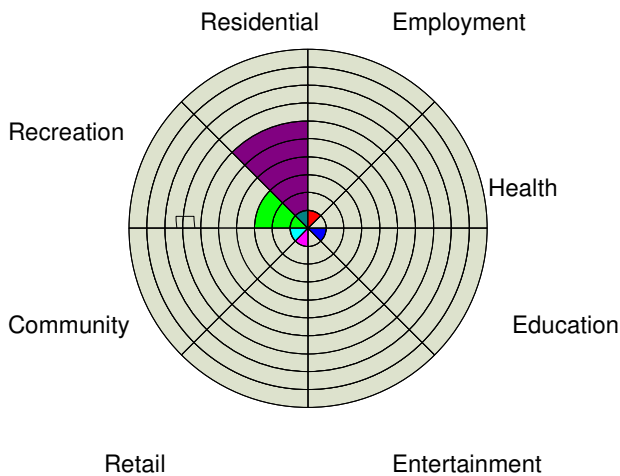
Precincts

The growth area consists of seven precincts. The precincts will be master-planned on a precinct by precinct basis via Precinct Structure Plans (PSPs). PSPs are included in the Planning Scheme via a standard amendment process. Once a PSP is approved, permits can be issued for the subdivision of land.

Precinct Profiles

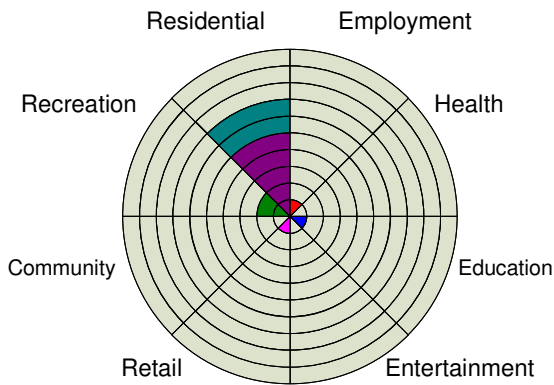
The diagrams below provide a snapshot of the precincts. It should be noted that employment is expressed as a percentage of the whole growth area, while the different colours in the residential sector represent different densities of development as follows: yellow- existing housing; maroon- conventional density housing; teal- medium density housing; blue- high density housing.

Armstrong Creek East Precinct



The Armstrong Creek East Precinct is located to the south of the growth area. It is predominantly a residential precinct, but will have significant green areas, generally focussed on Armstrong Creek and areas which have significant vegetation. A large neighbourhood activity centre will be provided on Barwon Heads Road and this centre will be the focus for retail, education and community uses in the precinct.

Horseshoe Bend Precinct

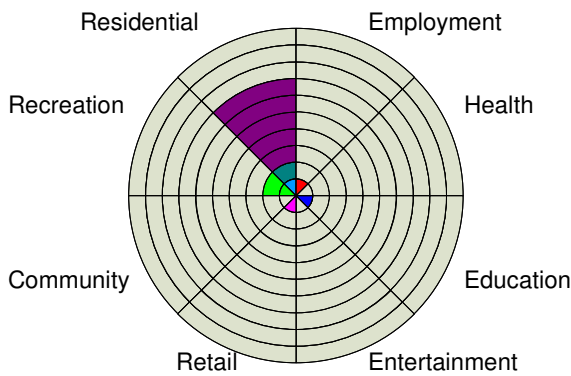


The Horseshoe Bend Precinct is located centrally in the growth area. It is predominantly a residential precinct, and will provide both conventional density and medium density housing. Significant recreation areas will be provided in the precinct. A large neighbourhood activity centre will be provided on Horseshoe Bend Road and this centre will be the focus for retail, education and community uses in the precinct.

ARMSTRONG CREEK GEELONG'S GROWTH AREA

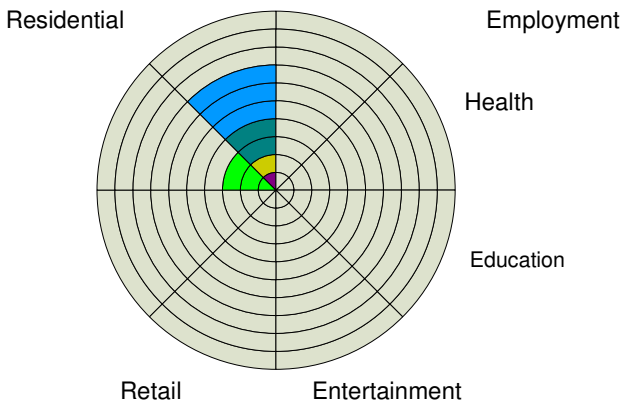


Armstrong Creek West Precinct



The Armstrong Creek West Precinct is a residential precinct, providing for conventional density housing and medium and high density housing. Significant recreation areas will be provided along Armstrong Creek and a number of small local centres will be the focus for retailing, community and educational activities in the precinct. A new railway station will be provided to the west of the precinct and it is anticipated that this station will be a landmark for the precinct, incorporating retailing and surrounded by high density housing.

Marshall Precinct

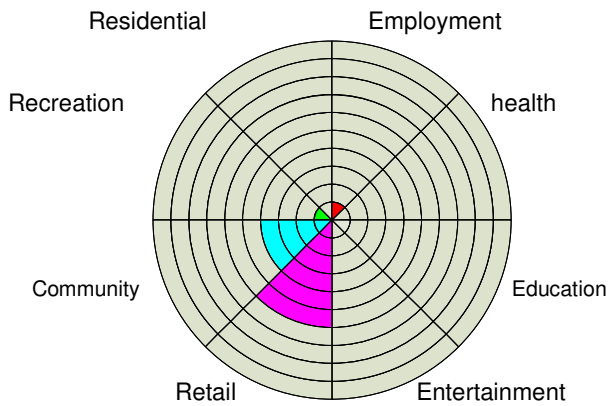


The Marshall precinct is a residential precinct and contains existing residential areas, it will be developed with a large amount of medium and high density housing focused around the Marshall Station. The Marshall Station will be upgraded with new, larger car parking areas and local shops, providing a focal point for the precinct. Large areas for recreation purposes will also be developed.

ARMSTRONG CREEK GEELONG'S GROWTH AREA

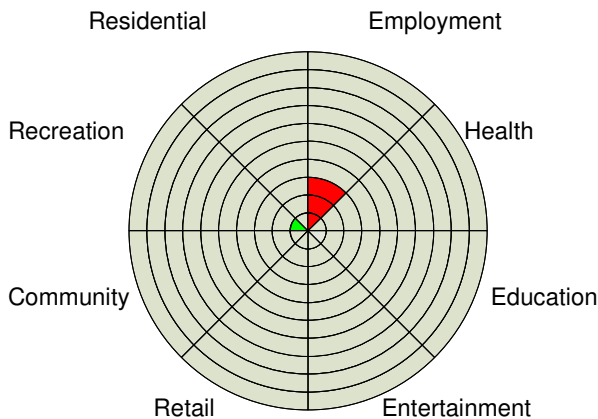


Major Activity Centre Precinct



The Major Activity Precinct will be the main commercial, entertainment and community precinct within the growth area. Retail will be provided at a sub regional level and significant opportunities for offices and shop top living will be provided in the precinct. The precinct will contain a transport interchange which will ultimately include a public transport connection between the growth area and Torquay.

North East Industrial Precinct

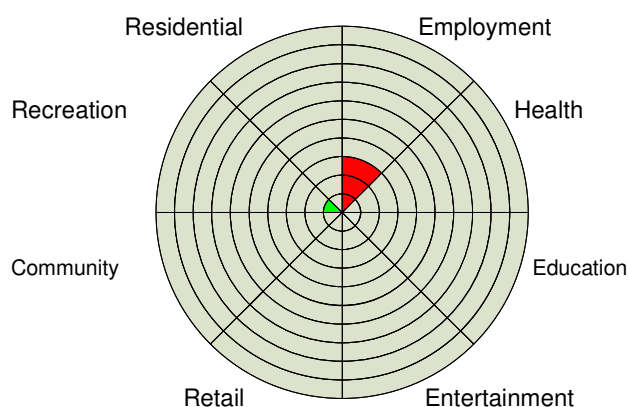


The North East Industrial Precinct is an employment precinct which will provide for at least 8, 000 jobs. Recreation opportunities will also be provided in the precinct, with a link provided through the precinct to the Barwon River. A specialised local centre will be provided which will cater for the retail and service needs of those employed in the precinct.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Western Industrial Precinct



The Western Industrial Precinct is an employment precinct providing for at least 7,300 jobs. This precinct will be developed as a high amenity business park and synergies with Deakin University will be pursued. Recreation areas will be provided, along with two specialised local centres, which will cater for the retail and service needs of those working in the precinct.

Overarching principles for all precincts

Walkability

As it is best practice to design residential communities around walking, residential areas in the growth area will be designed in this way. The key elements of walkable neighbourhoods are:

- Providing a larger number of smaller centres, so that most homes are within a comfortable walking distance of local commercial, community, recreation and education facilities, enabling people to walk to meet their daily needs.
- Achieving sufficient residential densities to achieve the necessary catchments to sustain local facilities.
- Providing a well connected, safe and inviting network of walking routes, including footpaths on both sides of the street.
- Providing local parks and corner stores within a five minute walk (approximately 400 metres) of all homes.
- Non gated communities.
- Orientation of buildings to watch over the street.
- Place making through urban design.
- Street designs that work for people, not just cars.
- Provision of quality walkways and pedestrian crossings.
- Provision of street furniture.
- Providing local destinations.

Housing mix

It is important that sufficient densities are achieved to ensure that sufficient population is achieved to support a range of commercial and community facilities in each neighbourhood. The growth area will provide:

- A variety of housing types and price points, to provide housing choices for a range of different needs, lifestyle preferences and income levels, attracting a diverse group of people.
- Different forms of housing will be mixed to promote healthy interaction between people of different socio economic backgrounds and age.

ARMSTRONG CREEK

GEELONG'S GROWTH AREA



Movement and access

An 800 metre (half mile) grid network will be provided within the growth area. Such a network provides for a permeable street layout promoting walking and direct vehicle trips. A grid network also assists in providing a functional and accessible public transport system. Additional roads will be developed to provide good access throughout the growth area.

Torquay Road, Barwon Heads Road and the East West Link Road will be developed as urban boulevards, providing good access into and out of Armstrong Creek, without severing the communities on either side. Streets will be designed to provide a comprehensive network of safe, direct and attractive cycle paths for commuter and recreational purposes. This will enable people to walk or cycle to local destinations such as neighbourhood shops, public transport, work places, schools and parks.

Activity centres

The activity centres provided in Armstrong Creek will be mixed use centres, containing retail, entertainment, office, community and residential uses. The centres will concentrate demand and therefore efficiency of public transport services. Activity centres will be focussed on leafy, pedestrian friendly 'main streets' that provide an experience in themselves. Footpaths will be broad, enabling outdoor dining, trees and places to rest, and verandahs will provide shelter and shade. There will be a mixed use activity centre in the heart of each neighbourhood.

Specialised local centres will be developed in employment areas to cater for the retail and service needs of those working in the precincts.

Community facilities

A comprehensive range of community facilities and services such as schools, libraries, medical centres and meeting spaces will be provided throughout the growth area. These will reflect leading edge thinking in terms of services will be co-located with retail/ educational facilities. Community facilities and services to serve the new communities will be provided early in the life of the development to ensure convenient access for residents.

The community facilities network will incorporate multi purpose facilities situated within activity nodes, such as retail, commercial and recreational spaces. The network will create clusters of activity that are accessible by pedestrians, cyclists and public transport users, minimising the total travel requirements of residents by providing a range of opportunities at the one location. Co location will facilitate joint use of facilities and will encourage the development of social networks and cohesion.

Open space and recreation

Armstrong Creek will be a healthy, active community. A comprehensive network of open space and recreation facilities will be provided within easy reach of all homes and workplaces. These will range from active sports facilities to informal parks. Playing fields will be provided in each neighbourhood and in larger, regional scale facilities. Local parks and children's playgrounds will be provided within a short walk of every home. Opportunities will be provided to 'escape' from the urban environment and enjoy nature, particularly the stands of native vegetation and revegetated river and creek corridors. A web of leisure trails and more direct walking tracks and cycling paths will be provided to link open space and recreational facilities.

Public transport

Marshall Station will be improved and new, high quality public transport services provided to serve the Armstrong Creek community. Public transport services will be provided from the outset, offering frequent and reliable services to key destinations. Development will be planned to ensure that all homes are a short walk from public transport, reducing the reliance on private cars.

Sustainability

The latest technology will be employed to ensure that buildings and infrastructure in the growth area are as environmentally friendly and healthy as possible. This will include measures to minimise energy and water use- such as rainwater tanks and water recycling and strategies to minimise the impact of stormwater runoff. Opportunities to reduce energy consumption and emissions will be pursued. State of the art recycling facilities will be provided and provision will be made for leading edge telecommunications technology. The siting of buildings will maximise solar access and provide for the efficient use of land.

ARMSTRONG CREEK

GEELONG'S GROWTH AREA



Key features of the Armstrong Creek East Precinct

One Neighbourhood Centre comprising:

- Approximately 6,000 square metres of retail space, including a supermarket and convenience shops
- Approximately 1,200 square metres of business and community service space
- A family hub of children and family support services including parenting support, child health services, medical, community health and wellness services and flexible space for all lifecycle groups
- A primary school with sporting and other facilities available for use by the community
- Shop top housing
- A street based retail environment, following 'Main Street principles.'

Two local activity centres which may contain:

- Approximately 1000 square metres of local convenience shops and services
- A Primary School with sporting and other facilities available for use by the community
- A family hub including children and family services associated with kindergarten, child care, maternal and child health
- Shop top housing.

Medium density housing, average 20 dwellings per hectare within 400 metres of the edge of the Activity Centre. This equates to an average lot size of approximately 360 square metres.

Conventional density housing, average 15 dwellings per hectare. This equates to an average lot size of approximately 550 square metres.

Passive and active parkland including a regional scale conservation park, wildlife corridors, recreation trails, indigenous cultural heritage trails, and 8 hectare active parkland.

Existing crematorium/ cemetery.

Private School, currently being developed.

New transit route reservation, to allow for a range of high quality public transport options and future connection to Torquay.

New east-west arterial link road connecting between the Geelong Ring Road and the Barwon River with service roads on both sides to enable frontage development.

Restored natural channels and flood plains.

Land budget, Armstrong Creek East Precinct

| Land use | Land area (ha) | Dwellings | Population |
|------------------------------|----------------|-------------|---------------|
| Activity centre | 13.91 | | |
| Secondary school | 12.27 | | |
| Employment land | 0 | | |
| Mixed use corridor | 0 | | |
| Higher density housing | 0 | | |
| Medium density housing | 68.37 | 1,367 | 3,144 |
| Conventional density housing | 410.00 | 6,150 | 18,142 |
| Total | 504.55 | 7517 | 21,286 |

Note: Indicative figures. Areas are gross and include roads and open space. Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key features of the Horseshoe Bend Precinct

One Neighbourhood Activity Centre, integrated with adjoining secondary school, consisting of:

- Approximately 7,000 square metres of retail space, including a supermarket and convenience shops,
- Approximately 1,400 square metres of business and community service space,
- A family hub of children and family support services including parenting support, child health services, medical, community health and wellness services, as well as other flexible spaces for use by all lifecycle groups,
- A Primary School and associated local sporting facilities and library jointly used by the community,
- A Secondary School with indoor sports stadium, active sports grounds and base for youth services,
- Provision for approximately 250 jobs,
- Shop top housing
- A street based retail environment incorporating 'Main Street' principles.

A local activity centre which may contain: 1000 square metres of local convenience shops and services, a Primary School, local sporting facilities, a family hub including children and family services associated with kindergarten, child care, maternal and child health.

A total of two Secondary Schools.

Medium density housing, average 20 dwellings per hectare within 400 metres of the edge of the Neighbourhood Activity Centre. This equates to an average lot size of approximately 360 square metres.

Conventional density housing, average 15 dwellings per hectare. This equates to an average lot size of approximately 550 square metres

Urban forest which includes recreational trail alongside the transit route, providing a north south connection through the precinct.

Passive and active parkland with recreational trails incorporating native vegetation and providing for wildlife corridors.

New transit route to encourage public transport use, with reservation to allow for a range of high quality public transport options and future connection to Torquay.

New east-west arterial link road connecting between the Geelong Ring Road and the Barwon River with service roads on both sides to enable frontage development.

Existing aged care facility.

Mixed use corridor, excluding bulky goods retailing, but including offices, shops and housing.

Land budget, Horseshoe Bend Precinct

| Land use | Land area (ha) | Dwellings | Population |
|------------------------------|----------------|--------------|---------------|
| Activity centre | 13.92 | | |
| Secondary school | 18.42 | | |
| Employment land | 0 | | |
| Mixed use corridor | 6.62 | | |
| Higher density housing | 0 | | |
| Medium density housing | 127.01 | 2,540 | 5,842 |
| Conventional density housing | 390.00 | 5,850 | 17,257 |
| Total | 555.97 | 8,390 | 23,099 |

Note: Indicative figures. Areas are gross and include roads and open space.
Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

ARMSTRONG CREEK

GEELONG'S GROWTH AREA



Key features of the Armstrong Creek West Precinct

New railway station.

Three local activity centres, including one centre adjacent to the new station, which may comprise:

- Up to 1000 square metres of local convenience shops and services,
- Primary School with shared facilities such as sporting grounds, meeting rooms or library,
- Family hub including children and family services associated with kindergarten, childcare, maternal and child health,
- Shop top housing.

Secondary School and associated indoor sports stadium and active sports ground shared with the community, integrated with the adjoining local centre and Armstrong Creek parkland.

Regional sports facility.

Higher density housing, average 30 dwellings per hectare within 400 metres of the new railway station, and the railway station proposed for the Major Activity Centre Precinct. This equates to an average lot size of approximately 225 square metres.

Medium density housing, average 20 dwellings per hectare within 800 metres of the new railway station, and within 400 metres of the edge of the Major Activity Centre Precinct. This equates to an average lot size of approximately 360 square metres.

Conventional density housing, average 15 dwellings per hectare. This equates to an average lot size of approximately 550 square metres

Mixed use corridor along Torquay Road, excluding bulky goods retailers, but including shops, offices and housing.

Passive parkland with recreational trails incorporating remnant native vegetation, flood prone land, and indigenous cultural heritage.

New east-west arterial link road connecting between the Geelong Ring Road and the Barwon River with service roads on both sides to enable frontage development.

New pedestrian bridges over existing rail line and east west arterial link road, linking with Rossack Drive to the north, noting that Rossack Drive is not proposed to be extended over the existing railway line into the growth area.

Land budget, Armstrong Creek West Precinct

| Land use | Land area (ha) | Dwellings | Population |
|------------------------------|----------------|--------------|---------------|
| Activity centre | 9.99 | | |
| Secondary school | 9.21 | | |
| Employment land | 0 | | |
| Mixed use corridor | 19.96 | | |
| Higher density housing | 17.8 | 534 | 881 |
| Medium density housing | 76.73 | 1,535 | 3,530 |
| Conventional density housing | 297.00 | 4,455 | 13,142 |
| Total | 430.69 | 6,524 | 17,553 |

Note: Indicative figures. Areas are gross and include roads and open space.
Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key features of the Marshall Precinct

Upgraded railway station amenities, including increased car parking areas.

Local shops on the corner of Drews Road and Marshalltown Road, potentially with shop top housing or office space. Around 1000 square metres of local convenience shops and services will be provided.

A specialised local centre geared to serve the needs of the workforce in the nearby North East Industrial Precinct, with cafes, services and restaurants totaling around 2800 square metres in floor area.

Higher density housing, average 30 dwellings per hectare within 400 metres of the Marshall Station. This equates to an average lot size of approximately 225 square metres.

Medium density housing, average 20 dwellings per hectare beyond the higher density housing, up to 800 metres of the Marshall Station. This equates to an average lot size of approximately 360 square metres.

Conventional density housing, average 15 dwellings per hectare. This equates to an average lot size of approximately 550 square metres

Existing retirement village.

Passive parkland with recreational trails incorporating remnant native vegetation, flood prone land, electricity line easement and sewer line easement.

Introduction of service roads on Barwon Heads Road to enable frontage development. Barwon Heads Road will be developed as an urban boulevard.

New east-west arterial link road connecting between the Geelong Ring Road and the Barwon River with service roads on both sides to enable frontage development.

Restored natural channels and flood plains.

Land budget, Marshall Precinct

| Land use | Land area (ha) | Dwellings | Population |
|------------------------------|----------------|-------------|--------------|
| Activity centre | 1.1 | | |
| Secondary school | 0 | | |
| Employment land | 0 | | |
| Mixed use corridor | 0 | | |
| Higher density housing | 9.16 | 275 | 453 |
| Medium density housing | 31.16 | 623 | 1,433 |
| Conventional density housing | 42.53 | 638 | 1,882 |
| Existing Residential | 23.36 | 374 | 1,103 |
| Total | 97.05 | 1910 | 4,871 |

Note: Indicative figures. Areas are gross and include roads and open space. Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key features of the Major Activity Centre Precinct

New transit route to encourage public transport use, with reservation to allow for a range of high quality public transport options and future connection to Torquay.

Major Activity Centre (Sub Regional Centre) consisting of:

- Approximately 35,000 square metres of retail space, including discount department stores, supermarkets and specialty stores,
- Approximately 7,000 square metres of entertainment space,
- Approximately 25,000 square metres of bulky goods retail space,
- Approximately 35,000 square metres of office space,
- Approximately 35,000 square metres of community services space, including education and health,
- Higher density shop top housing,
- Public transport interchange,
- Provision for approximately 3,500 jobs,
- Street based retail environment incorporating 'main street principles',
- Town square.

Land budget, Major Activity Centre Precinct

| Land use | Land area (ha) | Dwellings | Population |
|------------------------------|----------------|-----------|------------|
| Activity centre | 65.6 | | |
| Secondary school | 0 | | |
| Employment land | 0 | | |
| Mixed use corridor | 0 | | |
| Higher density housing | 0 | | |
| Medium density housing | 0 | | |
| Conventional density housing | 0 | | |
| Total | 65.6 | | |

Note: Indicative figures. Areas are gross and include roads and open space.
Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key features of the North East Industrial Precinct

A specialised activity centre of approximately 2,800 square metres in area providing for the needs of the workforce, with cafes, restaurants and other services.

A total area of approximately 100 hectares which will accommodate a mix of business types, including hi-tech manufacturing development, technical, trades, transport and labouring.

Passive parkland with recreational trail on electricity transmission line easement.

Recreational trail along Barwon River.

Provision for approximately 8000 jobs.

Introduction of service roads on Barwon Heads Road to enable frontage development.

New east-west arterial link road connecting between the Geelong Ring Road and the Barwon River with service roads on both sides to enable frontage development.

Historic Barwon Water sewer aqueduct a visual landmark.

Land budget, North East Industrial Precinct

| Land use | Land area (ha) | Dwellings | Population |
|------------------------------|----------------|-----------|------------|
| Activity centre | 0.6 | | |
| Secondary school | 0 | | |
| Employment land | 157.60 | | |
| Mixed use corridor | 0 | | |
| Higher density housing | 0 | | |
| Medium density housing | 0 | | |
| Conventional density housing | 0 | | |
| Total | 158.2 | | |

Note: Indicative figures. Areas are gross and include roads and open space.
Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key features of the Western Industrial Precinct

Two specialised activity centres each consisting of approximately 2,500 square metres in area providing for the needs of the workforce, with cafes, restaurants, convenience shops and other services, shop top dwellings, research and development activities.

A high amenity business park of approximately 140 hectares total area, designed to accommodate hi-tech manufacturing firms and research activity, with a focus on industrial land users that require a higher amenity environment in a recognisable address for corporate, research and advanced manufacturing activities. The area will accommodate a significant stock of office and research space associated with a production or warehouse function, however pure offices will be clustered in activity centres.

Provision for approximately 7,350 jobs.

Recreational trail along Barwon River.

Passive parkland with recreational trails.

Land budget, Western Industrial Precinct

| Land use | Land area (ha) | Dwellings | Population |
|------------------------------|----------------|-----------|------------|
| Activity centre | 1.7 | | |
| Secondary school | 0 | | |
| Employment land | 147.54 | | |
| Mixed use corridor | 0 | | |
| Higher density housing | 0 | | |
| Medium density housing | 0 | | |
| Conventional density housing | 0 | | |
| Total | 149.24 | | |

Note: Indicative figures Areas are gross and include roads and open space.

Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

ARMSTRONG CREEK GEELONG'S GROWTH AREA



What are 'Main Street Principles'?

Buildings and a mix of uses that generate high levels of pedestrian activity and a sense of vitality are encouraged. Buildings address the street, resulting in continuous and contained streetscapes which provide interest and interaction between buildings and pedestrians at street level.

A permeable network of streets, laneways, arcades and public spaces that provide high quality linkages, particularly for pedestrians, to centres from public transport, street and off-street car parking, and from the surrounding walkable catchment are provided. Street networks are "fine grained" to provide a multiple choice of routes for pedestrians, cyclists and vehicles.

Public buildings and spaces are universally accessible.

Attractive and safe alfresco dining areas are facilitated to foster a lively streetscape.

New development provides options for future flexibility and changes in land use.

Buildings and public spaces contribute to a comfortable pedestrian environment, providing opportunities for weather protection, including shelter from prevailing strong wind conditions.

Walking is prioritised as the most important mode of transport within an activity centre. Streets, public places and adjacent development will always be designed to provide a safe, secure, stimulating and pleasant walking environment.

Land uses and developments that employ and attract high numbers of people are encouraged, as they have the potential to activate activity centres by day and night. Such uses will include medium to high density residential, retail, civic and community facilities, educational and cultural facilities, cafes, restaurants, hotels, offices and other intensive employment uses.

Attractive and safe alfresco dining areas are facilitated to foster a lively streetscape.

New development provides options for future flexibility and changes in land use.

High quality landscape treatments make an important contribution to the public realm.



ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key Principles– Residential Neighbourhoods

Vision– “Armstrong Creek will offer a wide range of living and lifestyle options to meet the needs of a full cross section of the community. These will range from detached houses on family sized blocks to apartments close to major shops and services, and include accommodation for the aged, disabled and for students. Higher density housing will be clustered in areas close to public transport nodes and activity centres, maintaining the more traditional character of other residential areas. Affordable and social housing will be dotted through the development to integrate it with the community.”

Residential communities will be designed around walking.

Residential areas will be organised into a series of neighbourhoods, each large enough to support the provision of daily needs- basic convenience shops and services, a primary school, essential community services and local parks/ recreation facilities, but small enough that it is possible to walk comfortably from any part of the neighbourhood to those daily needs.

The growth area is organised into neighbourhoods of around 3000 dwellings, within these neighbourhoods local parks and convenience stores will be within a five minute walk of all homes, while local facilities such as primary schools and local shops will be located within a ten minute walk of all homes.

A variety of housing types and price points will be provided, in order to provide suitable choices for a range of different needs, lifestyle preferences and income level, attracting a diverse mix of people.

Residential neighbourhoods will be designed around an 800 metre grid road network.

Gated communities which exclude the public from passing through large areas will be avoided.

Medium density housing areas will have more intensely planted street trees and more frequent parks to compensate for the loss of planting opportunities in private gardens.

A distinctive green character will be created in new residential neighbourhoods.

Best practice sustainable urban development principles will be incorporated in new neighbourhoods.

Residential neighbourhoods will have their own distinct identity.

Heritage and cultural features will provide points of interest in new neighbourhoods.



ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key Principles– Natural Environment

Natural and cultural features will be protected and enhanced to create a distinct urban character.

The Barwon River and Armstrong Creek corridors and their floodplains will be protected from development and revegetated to strengthen habitat values.

Stormwater management and infrastructure will be designed and implemented to respect the environmental values of the area.

Ecologically significant stands of vegetation will be retained.

A 'green skyline' will be achieved to the south of the growth area.

A conservation park will be provided at Hoopers Paddock.

Natural channels and floodplains will be maintained.

Household rainwater tanks will be encouraged to supplement flood storage.

Water sensitive urban design principles will be incorporated throughout the growth area via: detention basins, utilisation of storm water to conserve potable water, use of vegetation for filtering purposes, water efficient landscaping, gross pollutant traps, buffer strips, swales, bio retention systems, porous pavements and localised water harvesting.

Biodiversity corridors will be provided throughout the growth area.



ARMSTRONG CREEK

GEELONG'S GROWTH AREA



Key Principles– Employment

Opportunities will be provided for residents to work locally, reducing the social environmental and environmental costs of long commutes.

A total of approximately 22,000 jobs will be provided in the growth area, meeting best practice standards in terms of number and type of jobs and including opportunities for 'higher order' professional, managerial and advanced technical jobs.

Opportunities will be provided for advanced business services to establish in Activity Centres and in home based businesses.

A mix of activity centre office spaces and business park spaces will be provided to showcase the latest and most advanced forms of commercial and industrial development.

An industrial land budget of 320 hectares has been provided in the growth area in two employment precincts- the North East Industrial Precinct and the Western Industrial Precinct.

Approximately 15,350 jobs will be provided in the two employment precincts.

Schools, health facilities and recreation nodes will generate employment.

Opportunities for knowledge based enterprise will be provided in the employment precincts and also the Major Activity Centre precinct.

Armstrong Creek will provide a sub-regional role in a Geelong region context.

The areas of education, research, advanced manufacturing, health, tourism, small businesses and food are identified as areas in which the region can establish a competitive advantage.

Service industry is a strong industrial development candidate for the growth area, while heavy industry is better suited to other parts of Geelong.

Job Estimate Figures for Growth Area

| | |
|---|---------------|
| Major Activity Centre | 3,500 |
| N-E Neighbourhood Activity Centre | 250 |
| S-E Neighbourhood Activity Centre | 210 |
| Local Shops (Residential) | 210 |
| North East Industrial Precinct | 8,000 |
| Western Industrial Precinct | 7,350 |
| Home Based Businesses | 2,200 |
| Specialised Local Centres in Employment Precincts | 190 |
| Other | 1,000 |
| Total Jobs | 22,910 |

Indicative figures

ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key Principles– Activity Centres

There are four different types of activity centres proposed in the growth area, as follows:

A Major Activity Centre will be provided alongside the Surfcoast Highway. The Major Activity Centre includes:

- All retail and entertainment activities associated with a sub regional catchment
- Office space
- Community services space, including a library/ culture/ adult learning centre
- A multi level aged care facility
- High density housing
- A town square
- Transport interchange
- Office development.

Two Neighbourhood Activity Centres, one in Armstrong Creek East Precinct and one in Horseshoe Bend Precinct, which include:

- A supermarket
- High density housing
- A Primary School with sporting facilities
- Community services space including a family hub of children and family support services with parenting support, child health services, medical, community health and wellness services, along with flexible spaces for use by all lifecycle groups.

Local Centres which include:

- Local shops, or a multi purpose corner store
- Housing
- Community services space including a family hub of children and family support services associated with kindergarten, child care, maternal and child health.

Specialised local centres which include:

- Services and retail activities to serve the needs of the employment precincts with which they are associated.

Additional multi-purpose corner stores will be co-located with a local park and provided within 400 metres of all dwellings.



ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key Principles– Transport

Public transport services will be provided from the outset and development will be organised to ensure that all homes are within a short walk of public transport, reducing reliance on cars.

A comprehensive local public transport system will be provided.

The growth area is large enough to warrant multiple levels of transport:

- Heavy rail for longer distance trips
- Buses for regional, sub regional and local trips, with potential for rapid bus services
- Cycling via dedicated routes
- Walking
- Car.

Marshall is already provided with a railway station and it is envisaged that this station will be upgraded and provided with additional car parking areas.

A railway station known as Armstrong Creek Station is proposed to the west of the growth area, adjacent to Rossack Drive.

A high quality sub regional transport interchange is proposed at the Major Activity Centre, with an easement set aside to provide for public transport to Torquay.

The Surfcoast Highway, Barwon Heads Road and the future East West Link Road will be developed as urban boulevards, providing good access into and out of the growth area. Additional main roads will be developed to provide for good vehicle access.

Collector streets will be provided via an 800 metre grid network.

Streets will be designed to provide for a network of safe, direct and attractive cycle paths for commuter and recreational purposes.

As local shops and services will be provided close to all homes, people will be able to walk or cycle to local destinations, supporting healthy lifestyles and avoiding social isolation.

Opportunities for new pedestrian bridges to link with Grovedale/ Waurn Ponds will be pursued.

Pedestrian friendly streets will be provided.



ARMSTRONG CREEK GEELONG'S GROWTH AREA



Key Principles – Sustainability

The latest technology will be employed to ensure that utility services are as environmentally friendly as possible.

Measures to minimise potable water use will be employed including through the use of rain water tanks and water recycling.

Opportunities to reduce energy consumption and emissions will be pursued.

Provision will be made for leading edge telecommunications technology.

Low water use gardens will be encouraged.

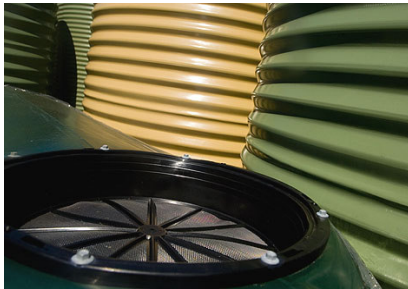
Alternative water supplies such as recycled water, including third pipe, or the use of stormwater will be explored.

A green character will be developed for the growth area, and vegetation retained where possible.

Conservation parks and biodiversity links will be included in the growth area.

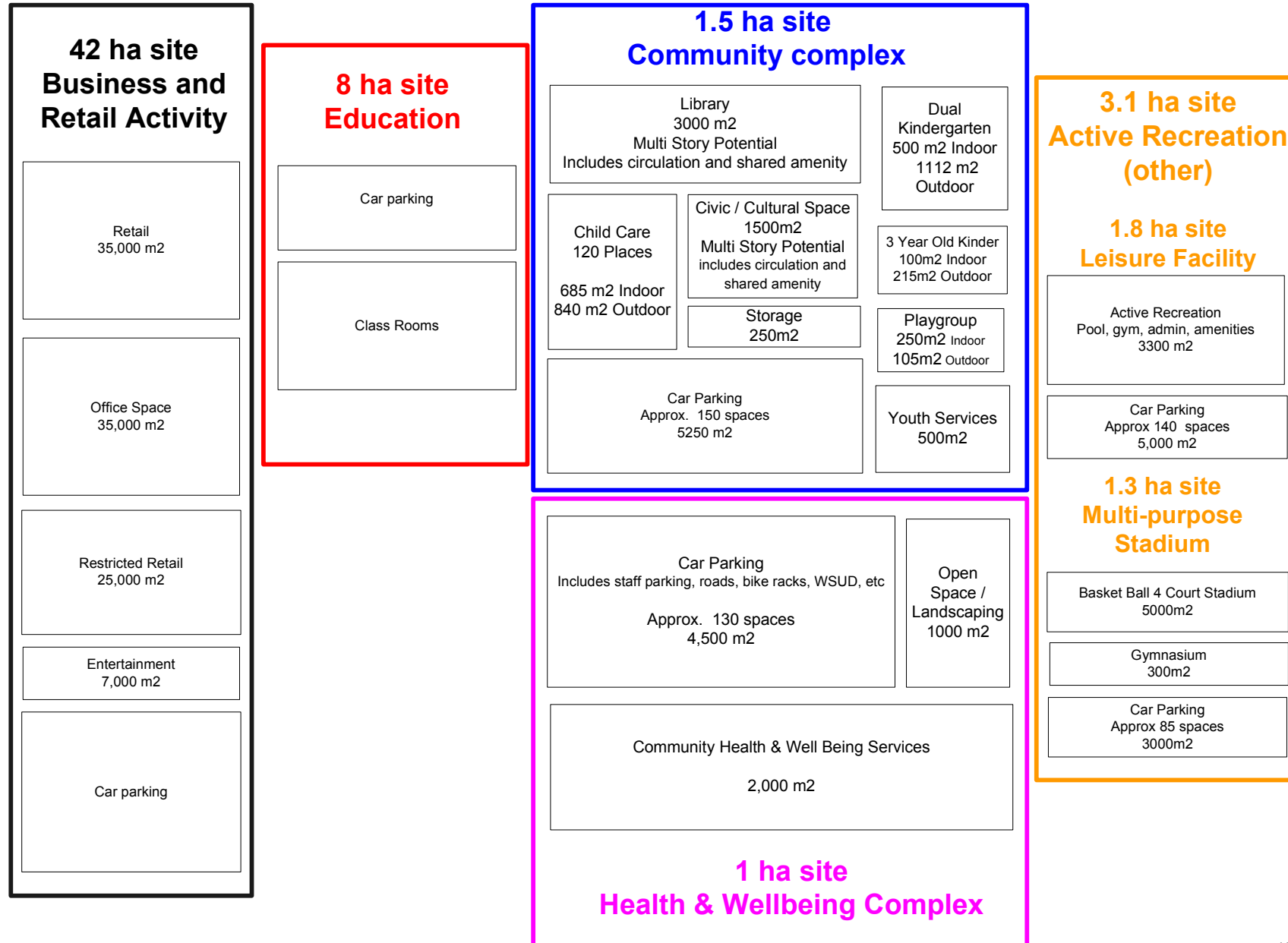
Water sensitive urban design principles will be incorporated throughout the growth area via: detention basins, utilisation of storm water to conserve potable water, use of vegetation for filtering purposes, water efficient landscaping, gross pollutant traps, buffer strips, swales, bio retention systems, porous pavements and localised water harvesting.

Stormwater management and infrastructure will be designed and implemented to respect the environmental values of the area.



Armstrong Creek Urban Growth Project Appendix 13

MAJOR ACTIVITY CENTRE – 1 SITE



** Layout shows approximate proportional area allocation (NOT TO SCALE)

Armstrong Creek Urban Growth Project Appendix 13

NEIGHBOURHOOD HUB – 3 SITES

3.5ha Business and Retail Activity*

West Precinct is local provision size only

| |
|---|
| Retail Up to 7,000 m2 Horseshoe Bend Precinct |
| Approximately 6,000 m2 East Precinct |
| Business & Community Service Approximately 1,400 m2 Horseshoe Bend Precinct |
| Approximately 1,200 m2 East Precinct |
| Car parking |

8.4 ha site Secondary School

| |
|---|
| Car parking |
| Class Rooms (1,000 enrolments) |
| Administration - |
| Indoor Sports Complex |
| Performing Arts Centre / Community Space |
| Open Space (Ovals, basketball courts, etc) |

1.25 ha site Community Complex

*1 Toy Library to be co-located with MCH in H'shoe precinct.

| | |
|--|---|
| Community Rooms / Meeting Space includes circulation and shared amenity 550 m2 | 2 x Dual / 1x Quad Kinder 3224m2 (1000 m2 Indoor) (2224 m2 Outdoor) |
| Consultation Rooms 260 m2 East & West Precinct 225 m2 H'shoe Precinct | 2 x 3 Year Old =Kinder 630m2 (200m2 Indoor) (430m2 Outdoor) |
| Storage Space 250m2 | Toy Library 1 across area*1 120m2 |
| Child Care 120 Places 1525 m2 (685 m2 Indoor) (840 m2 Outdoor) | Playgroup 355 m2 (250m2 Indoor) (105m2 Outdoor) |
| Open Space / Landscape 1000 m2 | |
| Car Parking Includes staff parking, roads, bike racks, WSUD, etc Approx. 100 spaces 3500 m2 | |

3.5 ha site Primary School

| |
|---|
| Car parking |
| Class Rooms (1,000 enrolments) |
| Administration |
| Indoor Sports Complex |
| General Community Meeting Space |
| Open Space (Ovals, basketball courts, etc) |

8 ha site Active Open Space

| |
|--|
| Active Sport Space |
| 2 Cricket / football ovals OR 4 Soccer |
| 2 Netball Corner Park |

3.4 ha site Special Needs Education*

| |
|----------------------------------|
| Class Rooms |
| Administration |
| Open Space Ovals / recreation |

* One Special Needs School indicatively located in the East Precinct Neighbourhood Centre.

Active Recreation (other) 0.7 ha site Multi-purpose Stadium

| |
|--|
| Basket Ball 2 Court Stadium 2500m2 |
| Gymnasium 200m2 |
| Car Parking 1500m2 |

0.9 ha site Seniors Recreation Reserve *

* H'Shoe Precinct

| |
|--------------------------------------|
| Bowls / Croquet Recreation 4000m2 |
| Car Parking 1500m2 |

0.7 ha site Citizens Hall

| |
|--|
| Cultural and Community Space 1,500 m2 |
| Car Parking Approx 85 spaces 3000m2 |
| Open Space / Landscape 700 m2 |

1 ha site Health & Wellbeing Complex

| | |
|--|--|
| Car Parking Includes staff parking, roads, bike racks, WSUD, etc Approx. 130 spaces 4,500 m2 | Open Space / Landscaping 1000 m2 |
| Community Health & Well Being Services 2,000 m2 | |

1000m2 Community Pavilion

| | | |
|--|----------------------------------|---|
| Meeting and Function Area 250 m2 | Kitchen & Bar 150m2 | Car Parking Located within recreation reserves, surrounding the pavilion |
| Seating & Under Cover Area Outside building footprint | Storage 300 m2 | Open Space Located within recreation reserves |
| | Toilets & Change Rooms 300 m2 | |

100m2 Shelter and Toilet Amenity

| |
|-------------------------------|
| Shelter and Toilet Facilities |
|-------------------------------|

** Layout shows approximate proportional area allocation (NOT TO SCALE)

Armstrong Creek Urban Growth Project Appendix 13

LOCAL HUB – 4 SITES



**0.5 ha
Business and
Retail Activity**

Local Convenience
Up to approximately 1,000 m²

Car parking

**0.6 ha site
Community Complex**

Community Rooms / Meeting Space
includes circulation and
shared amenity
200 m²

Sessional / Consultation Rooms
100 m²

Storage Space - 75 m²

Child Care
120 Places
1525 m²
(685 m² Indoor)
(840 m² Outdoor)

Dual
Kindergarten
500 m² Indoor
1112 m²
Outdoor

Open Space/
Landscape
500 m²

Car parking
Including staff parking, roads, bike racks, WSUD.
Approx. 45 spaces
1,575 m²

**3.5 ha site
Primary School**

Carparking

Class Rooms

Administration

Indoor Sports Complex

General Meeting Space

Open Space
(Ovals, basketball courts, etc)

**8 ha
site
Active
Open
Space**

Active Sport
Space

2 Cricket /
football ovals
OR 4 Soccer

2 Netball
Corner Park

**0.25 ha site
Health and Wellbeing Complex**

Carparking
Includes staff parking, roads, bike racks, WSUD.
Approx. 45 spaces
1575 m²

Open Space
250 m²

Community Health & Well Being Services
600 m²

**500m²
Community Pavilion**

Meeting Space
100 m²

Kitchen & Bar
50m²

Storage
175 m²

Toilets & Change
Rooms
175 m²

**Active
Recreation
(other)
0.9 ha site
Seniors Recreation
Reserve ***

***East and West Precinct**

Bowls / Croquet
Recreation 4000m²

Car Parking
1500m²

**100m²
Shelter and Toilet
Amenity**

Shelter and
Toilet Facilities

** Layout shows approximate proportional area allocation (NOT TO SCALE)

Armstrong Creek Urban Growth Project Appendix 13

REGIONAL RECREATION RESERVE HUB – 3 SITES

Active Open Space (Regional) 18Ha

Includes Football, Netball, Tennis, Soccer, Play Parks, etc.
*All ability play space (play park) indicatively located in the East Precinct Regional Recreation Reserve

Community Pavilion 1500m²

Function Area
Includes circulation and shared amenity
500 m²

Storage
350 m²

Toilets & Change Rooms
350 m²

Meeting Space
150 m²

Kitchen & Bar
150m²

Seating & Under Cover Area
Outside building footprint

*Food Services Distribution Annex to be provided from one Regional Community Pavilion only. Approx 75m²

Athletic Track and Field

3 ha site*
*Horseshoe Bend Precinct

Athletics Facility
7,000

Car Parking
1500m²

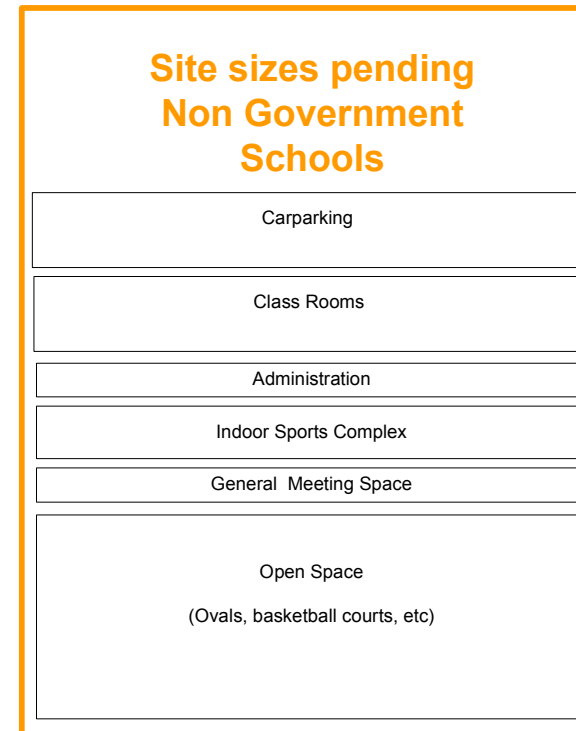
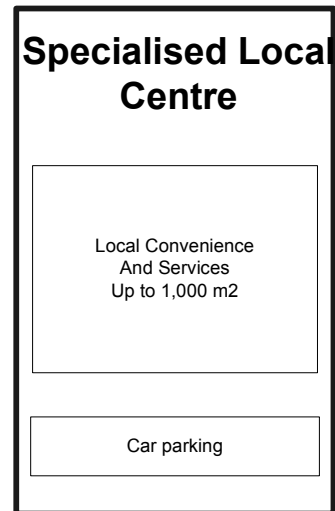
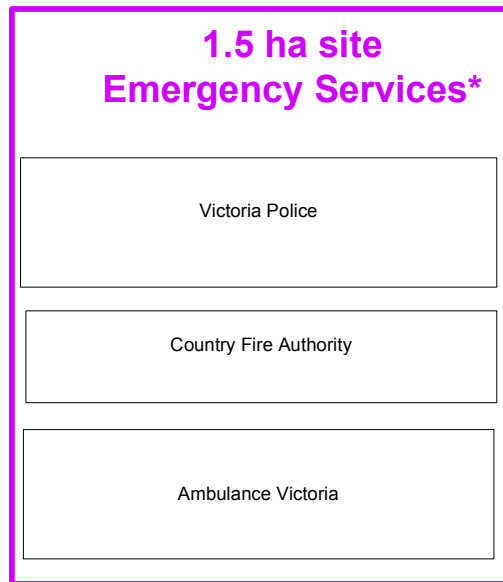
Shelter and
Toilet Facilities

100m²
Shelter and Toilet
Amenity
X 2

** Layout shows approximate proportional area allocation (NOT TO SCALE)

Armstrong Creek Urban Growth Project Appendix 13

- **EMERGENCY SERVICES HUB – 1 SITE**
- **SPECIALISED LOCAL CENTRE – 3 SITES**
- **NON GOVERNMENT SCHOOLS – 7 SITES** (indicative only)
- **CONVENIENCE STORE – SITES PENDING**



* Emergency Services Hub indicatively located to the north of the Major Activity Centre – in the Horseshoe Bend Precinct.

** Layout shows approximate proportional area allocation (NOT TO SCALE)

Appendix 14 Social Infrastructure Costs

Name of project and description:

ARMSTRONG CREEK - Social & Recreation Infrastructure (BY CATEGORY)

Description of main catchment area:

Total Urban Growth Area.

Profile A:

Location and main catchment plan

Standard of construction:

Total cost of provision of all critical community and recreation infrastructure within Armstrong Creek. Includes design, project management, construction and land acquisition.

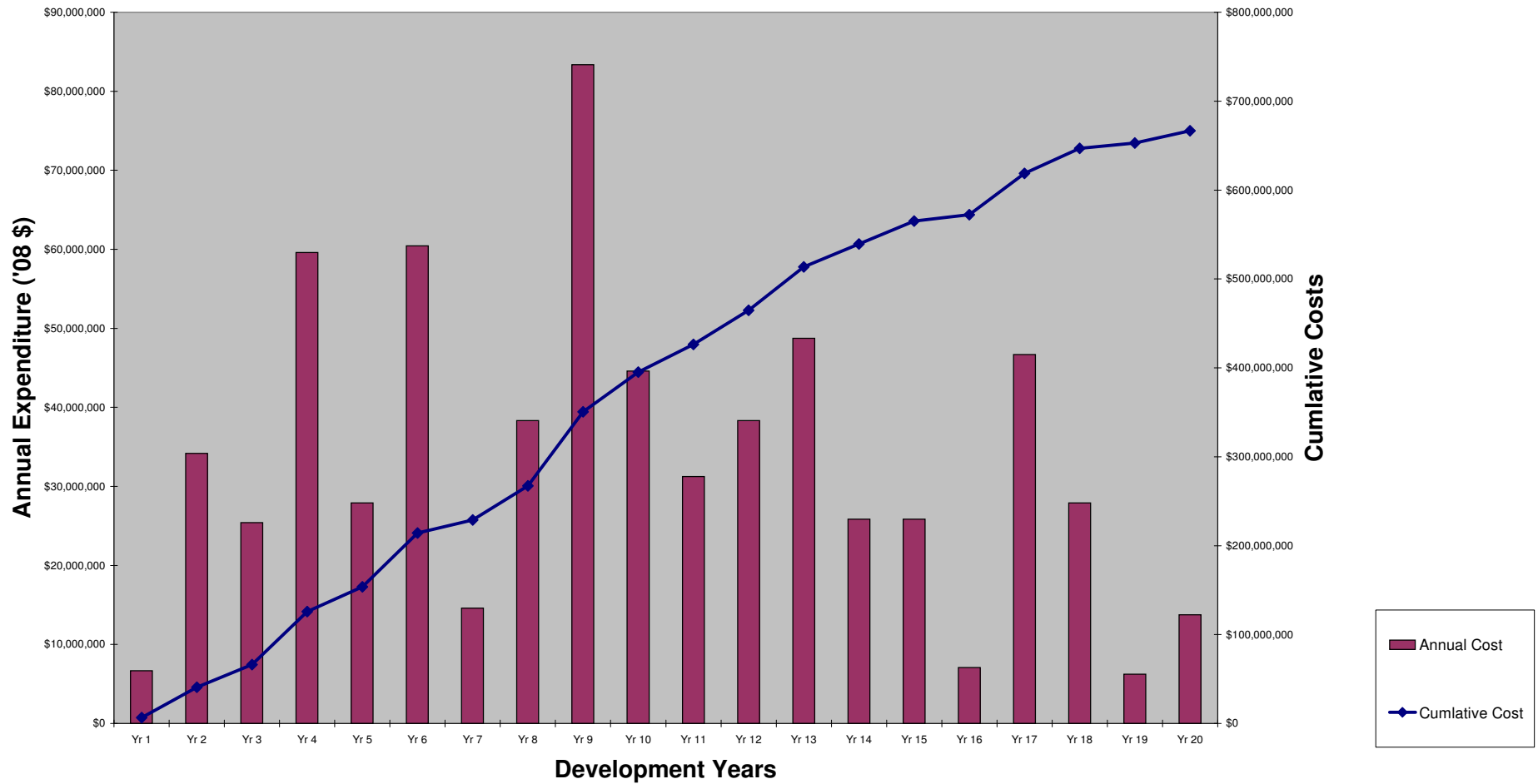
Capital cost details (\$2008):

| ITEMS | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-----------|----------------------|--------------------------|
| 1 Community Complex | 1 | item | | \$72,367,844 | CoGG - Community Infrast |
| 2 Health & Well Being Complex | 1 | item | | \$37,625,000 | |
| Education - Primary, Secondary and Snr | | | | | |
| 3 Secondary / TAFE | 1 | item | | \$379,225,000 | |
| 4 Citizens Hall | 1 | item | | \$22,218,750 | CoGG - Community Infrast |
| Emergency Services - CFA, Police and | | | | | |
| 5 Ambulance | 1 | item | | \$15,943,750 | |
| 6 Regional Active Open Space | 1 | item | | \$38,130,000 | CoGG - Rec Infrast. |
| 7 Local Active Open Space | 1 | item | | \$36,256,000 | CoGG - Rec Infrast. |
| Football / Cricket - Include joint use football | | | | | |
| 8 / soccer fields | 1 | item | | \$14,633,750 | CoGG - Rec Infrast. |
| 9 Soccer & Hockey | 1 | item | | \$7,245,000 | CoGG - Rec Infrast. |
| 10 Netball | 1 | item | | \$1,647,000 | CoGG - Rec Infrast. |
| 11 Tennis Complex | 1 | item | | \$7,080,000 | CoGG - Rec Infrast. |
| 12 Community Pavillions | 1 | item | | \$29,412,000 | CoGG - Rec Infrast. |
| 13 Multi Purpose Stadium Recreation | 1 | item | | \$20,778,000 | CoGG - Rec Infrast. |
| 14 Seniors Recreation Reserve | 1 | item | | \$2,673,000 | CoGG - Rec Infrast. |
| 15 Leisure Facility (Aquatic Centre) | 1 | item | | \$20,780,000 | CoGG - Rec Infrast. |
| 16 Athletic Track & Field | 1 | item | | \$2,430,000 | CoGG - Rec Infrast. |
| | 3 | | | | |
| Total Cost | | | | \$708,445,094 | |

Project Timing:

| Proportion of total project by year (TOTAL) | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | |
|---|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|-------------|--------------|--------------|
| # Project Categories | 1% | 5% | 4% | 8% | 4% | 9% | 2% | 5% | 12% | 6% | 4% | 5% | 7% | 4% | 4% | 1% | 7% | 4% | 1% | 2% | 94% |
| | \$6,667,719 | \$34,172,057 | \$25,420,677 | \$59,592,734 | \$27,921,071 | \$60,426,199 | \$14,585,634 | \$38,339,382 | \$83,346,482 | \$44,590,368 | \$31,254,931 | \$38,339,382 | \$48,757,692 | \$25,837,409 | \$25,837,409 | \$7,084,451 | \$46,674,030 | \$27,921,071 | \$6,250,986 | \$13,752,169 | \$66,771,853 |

ARMSTRONG CREEK Community & Recreation Infrastructure Costs



Name of project and description:

ARMSTRONG CREEK - Social & Recreation Infrastructure (BY PRECINCT)

Description of main catchment area:

Total Urban Growth Area.

Profile A:

Location and main catchment plan

Standard of construction:

Total cost of provision of all critical community and recreation infrastructure within Armstrong Creek. Includes design, project management, construction and land acquisition.

Capital cost details (\$2008):

| Infrastructure Item | Unit Cost | Precincts | | | | | | | | | | | | TOTAL | | | |
|---|------------|-----------|--------------------|---------|--------------------|----------------|--------------------|----------|-------------------|-----|-------------------|------|----------|-------|----------|-----|--------------------|
| | | AC East | | AC West | | Horseshoe Bend | | Marshall | | MAC | | NEIP | | WIP | | No. | Cost |
| | | No. | Cost | No. | Cost | No. | Cost | No. | Cost | No. | Cost | No. | Cost | No. | Cost | | |
| 1 Community Complex - MAC | 23,544,875 | | 0 | | 0 | | 0 | | 0 | 1 | 23,544,875 | | 0 | | 0 | 1 | 23,544,875 |
| 2 Community Complex - Neighbourhood (HB & East) | 9,738,656 | 1 | 9,738,656 | | 0 | 1 | 9,738,656 | | 0 | | 0 | | 0 | | 0 | 2 | 19,477,313 |
| 3 Community Complex - Neighbourhood (West) | 9,929,906 | | 0 | 1 | 9,929,906 | | 0 | | 0 | | 0 | | 0 | | 0 | 1 | 9,929,906 |
| 4 Community Complex - Local | 4,853,938 | 1 | 4,853,938 | 1 | 4,853,938 | 1 | 4,853,938 | 1 | 4,853,938 | | 0 | | 0 | | 0 | 4 | 19,415,750 |
| 5 Health and Wellbeing Complex - MAC | 7,362,500 | 1 | 7,362,500 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 1 | 7,362,500 |
| 6 Health and Wellbeing Complex - Neighbourhood | 6,862,500 | 1 | 6,862,500 | 1 | 6,862,500 | 1 | 6,862,500 | | 0 | | 0 | | 0 | | 0 | 3 | 20,587,500 |
| 7 Health and Wellbeing Complex - Local | 2,418,750 | 1 | 2,418,750 | 1 | 2,418,750 | 1 | 2,418,750 | 1 | 2,418,750 | | 0 | | 0 | | 0 | 4 | 9,675,000 |
| 8 Education - Primary - STATE | 12,162,500 | 2 | 24,325,000 | 2 | 24,325,000 | 2 | 24,325,000 | 1 | 12,162,500 | | 0 | | 0 | | 0 | 7 | 85,137,500 |
| 9 Education - Special Needs - STATE | 12,112,500 | 1 | 12,112,500 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 1 | 12,112,500 |
| 10 Education - Secondary - STATE | 31,462,500 | 1 | 31,462,500 | 1 | 31,462,500 | 1 | 31,462,500 | | 0 | | 0 | | 0 | | 0 | 3 | 94,387,500 |
| 11 Education - Snr Secondary / TAFE - STATE | 54,587,500 | | 0 | | 0 | | 0 | | 0 | 1 | 54,587,500 | | 0 | | 0 | 1 | 54,587,500 |
| 12 Education - Primary - PRIVATE | 11,912,500 | 1 | 11,912,500 | 2 | 23,825,000 | 3 | 35,737,500 | | 0 | | 0 | | 0 | | 0 | 6 | 71,475,000 |
| 13 Education - Secondary -PRIVATE | 30,762,500 | | 0 | 1 | 30,762,500 | 1 | 30,762,500 | | 0 | | 0 | | 0 | | 0 | 2 | 61,525,000 |
| 14 Citizens Halls - Neighbourhood | 7,406,250 | 1 | 7,406,250 | 1 | 7,406,250 | 1 | 7,406,250 | | 0 | | 0 | | 0 | | 0 | 3 | 22,218,750 |
| 15 Emergency Services - CFA | 7,137,500 | | 0 | | 0 | 1 | 7,137,500 | | 0 | | 0 | | 0 | | 0 | 1 | 7,137,500 |
| 16 Emergency Services - Police | 3,618,750 | | 0 | | 0 | 1 | 3,618,750 | | 0 | | 0 | | 0 | | 0 | 1 | 3,618,750 |
| 17 Emergency Services - Ambulance | 5,187,500 | | 0 | | 0 | 1 | 5,187,500 | | 0 | | 0 | | 0 | | 0 | 1 | 5,187,500 |
| 18 Regional Active Parkland - West | 14,280,000 | | 0 | 1 | 14,280,000 | | 0 | | 0 | | 0 | | 0 | | 0 | 1 | 14,280,000 |
| 19 Regional Active Parkland - South East | 7,380,000 | 1 | 7,380,000 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 1 | 7,380,000 |
| 20 Regional Active Parkland - North | 16,470,000 | | 0 | | 0 | 1 | 16,470,000 | | 0 | | 0 | | 0 | | 0 | 1 | 16,470,000 |
| 21 Local Active Open Space - MAC | 6,190,000 | | 0 | | 0 | | 0 | | 0 | 1 | 6,190,000 | | 0 | | 0 | 1 | 6,190,000 |
| 22 Local Active Open Space - Neighbourhood ## | 15,783,000 | 0.30 | 4,734,900 | 0.35 | 5,524,050 | 0.35 | 5,524,050 | | 0 | | 0 | | 0 | | 0 | 1 | 15,783,000 |
| 23 Local Active Open Space - Local @@ | 14,283,000 | 0.30 | 4,284,900 | 0.35 | 4,999,050 | 0.35 | 4,999,050 | | 0 | | 0 | | 0 | | 0 | 1 | 14,283,000 |
| 24 Football / Cricket Ovals | 882,500 | 5 | 4,412,500 | 3 | 2,647,500 | 5 | 4,412,500 | | 0 | | 0 | | 0 | | 0 | 13 | 11,472,500 |
| 25 Football / Soccer Fields (joint use) | 1,053,750 | | 0 | 1 | 1,053,750 | 2 | 2,107,500 | | 0 | | 0 | | 0 | | 0 | 3 | 3,161,250 |
| 26 Soccer - Grass | 341,250 | 3 | 1,023,750 | 5 | 1,706,250 | | 0 | | 0 | | 0 | | 0 | | 0 | 8 | 2,730,000 |
| 27 Hockey / Soccer - Synthetic | 1,128,750 | | 0 | 4 | 4,515,000 | | 0 | | 0 | | 0 | | 0 | | 0 | 4 | 4,515,000 |
| 28 Netball - per court | 75,600 | 4 | 302,400 | 4 | 302,400 | 7 | 529,200 | | 0 | | 0 | | 0 | | 0 | 15 | 1,134,000 |
| 29 Netball - Multi court facility (9 courts) | 513,000 | 1 | 513,000 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 1 | 513,000 |
| 30 Tennis Courts | 75,000 | 18 | 1,350,000 | 18 | 1,350,000 | | 0 | | 0 | | 0 | | 0 | | 0 | 36 | 2,700,000 |
| 31 Tennis Complex - Pavillion & Admin | 2,190,000 | 1 | 2,190,000 | 1 | 2,190,000 | | 0 | | 0 | | 0 | | 0 | | 0 | 2 | 4,380,000 |
| 32 Community Pavillions - Large | 5,250,000 | 1 | 5,250,000 | 1 | 5,250,000 | 1 | 5,250,000 | | 0 | | 0 | | 0 | | 0 | 3 | 15,750,000 |
| 33 | 2,706,000 | 1 | 2,706,000 | 1 | 2,706,000 | 1 | 2,706,000 | | 0 | | 0 | | 0 | | 0 | 3 | 8,118,000 |
| 34 Community Pavillions - Small | 1,368,000 | 1 | 1,368,000 | 1 | 1,368,000 | 1 | 1,368,000 | | 0 | | 0 | | 0 | | 0 | 3 | 4,104,000 |
| 35 Community Pavillions - Toilet Blocks | 144,000 | 2 | 288,000 | 3 | 432,000 | 4 | 576,000 | 1 | 144,000 | | 0 | | 0 | | 0 | 10 | 1,440,000 |
| 36 Multi Purpose Stadium - 4 court | 7,620,000 | | 0 | | 0 | | 0 | | 0 | 1 | 7,620,000 | | 0 | | 0 | 1 | 7,620,000 |
| 37 Multi Purpose Stadiums - 2 court | 4,386,000 | 1 | 4,386,000 | 1 | 4,386,000 | 1 | 4,386,000 | | 0 | | 0 | | 0 | | 0 | 3 | 13,158,000 |
| 38 Lawn Bowls - 2 greens | 891,000 | 1 | 891,000 | 1 | 891,000 | 1 | 891,000 | | 0 | | 0 | | 0 | | 0 | 3 | 2,673,000 |
| 39 Aquatic Centre | 20,780,000 | | 0 | | 0 | | 0 | | 0 | 1 | 20,780,000 | | 0 | | 0 | 1 | 20,780,000 |
| 40 Athletics Track & Field | 2,430,000 | | 0 | | 0 | 1 | 2,430,000 | | 0 | | 0 | | 0 | | 0 | 1 | 2,430,000 |
| Total Cost | | | 159,535,544 | | 195,447,344 | | 221,160,644 | | 19,579,188 | | 89,177,500 | | 0 | | 0 | | 708,445,094 |

Cost apportioned based on area of active open space land within each precinct
 @@ Cost apportioned based on area of active open space land within each precinct

Check **OK**

Name of project and description:

Community Complex

Description of main catchment area:

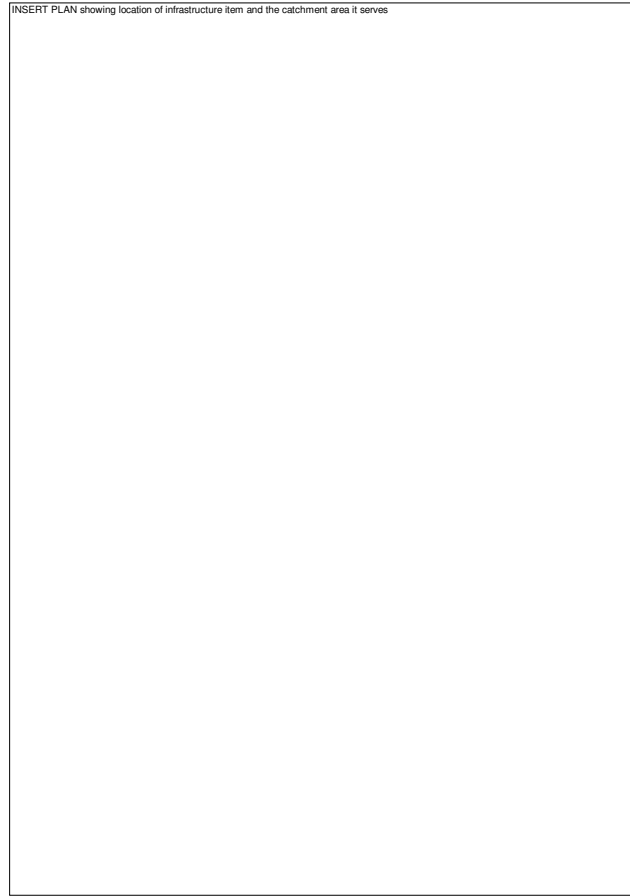
Each Precinct

Profile A:

Location and main catchment plan

Standard of construction:

[Empty box for standard of construction]



Capital cost details (\$2007):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-------------|---------------------|----------------------------------|
| Design and project management | | | | | |
| % of project cost | 15% | | | \$8,135,141 | |
| Construction - Community Complex : MAC | | | | | |
| Located on 1.5 ha site | | | | | |
| Site Preparation | 1 | Item | \$200,000 | \$200,000 | |
| Building | 2,285 | m 2 | \$1,800 | \$4,113,000 | |
| Outdoor Play Area | 2,272 | m 2 | \$75 | \$170,400 | |
| Civic Hall / Cultural Space | 1,500 | m 2 | \$1,800 | \$2,700,000 | |
| Library | 3,000 | m 2 | \$3,000 | \$9,000,000 | |
| Playground Equipment - CC | 1 | Item | \$20,000 | \$20,000 | |
| Carparking | 6,250 | m 2 | \$250 | \$1,312,500 | |
| Open Space & Landscaping | - | m 2 | \$200 | \$0 | |
| Fencing | 600 | Item | \$200 | \$120,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$17,635,900 | |
| Total Number of Sites | | | | 1 | Incl. Library & Civic Facilities |
| TOTAL | | | | \$17,635,900 | |
| Construction - Community Complex : NEIGHBOURHOOD (East & West) | | | | | |
| EAST & WEST PRECINCTS. Located on 1.25 ha site | | | | | |
| Site Preparation | 1 | Item | \$200,000 | \$200,000 | |
| Building | 3,195 | m 2 | \$1,800 | \$5,751,000 | |
| Outdoor Play Area | 3,599 | m 2 | \$75 | \$269,925 | |
| Playground Equipment - CC | 1 | Item | \$20,000 | \$20,000 | |
| Carparking | 3,500 | m 2 | \$200 | \$700,000 | |
| Open Space & Landscaping | 1,000 | m 2 | \$200 | \$200,000 | |
| Fencing | 600 | Item | \$250 | \$150,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$7,290,925 | |
| Total Number of Sites | | | | 2 | |
| TOTAL | | | | \$14,581,850 | |
| Construction - Community Complex : NEIGHBOURHOOD (Horseshoe Bend) | | | | | |
| HORSESHOE BEND PRECINCT - Located on 1.25 ha site | | | | | |
| Site Preparation | 3 | Item | \$200,000 | \$200,000 | |
| Building | 3,280 | m 2 | \$1,800 | \$5,904,000 | |
| Outdoor Play Area | 3,599 | m 2 | \$75 | \$269,925 | |
| Playground Equipment - CC | 1 | Item | \$20,000 | \$20,000 | |
| Carparking | 3,500 | m 2 | \$200 | \$700,000 | |
| Open Space & Landscaping | 1,000 | m 2 | \$200 | \$200,000 | |
| Fencing | 600 | Item | \$250 | \$150,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$7,443,925 | |
| Total Number of Sites | | | | 1 | Includes Toy Library |
| TOTAL | | | | \$7,443,925 | |
| Construction - Community Complex : LOCAL | | | | | |
| Located on 0.6 ha site | | | | | |
| Site Preparation | 1 | Item | \$100,000 | \$100,000 | |
| Building | 1,560 | m 2 | \$1,800 | \$2,808,000 | |
| Outdoor Play Area | 1,952 | m 2 | \$75 | \$146,400 | |
| Playground Equipment - CC | 1 | Item | \$15,000 | \$15,000 | |
| Carparking | 1,575 | m 2 | \$250 | \$393,750 | |
| Open Space & Landscaping | 500 | m 2 | \$200 | \$100,000 | |
| Fencing | 400 | Item | \$200 | \$80,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$3,643,150 | |
| Total Number of Sites | | | | 4 | |
| TOTAL | | | | \$14,572,600 | |
| 0.6 TOTAL CONSTRUCTION | | | | \$54,234,275 | |
| Land Acquisition | | | | | |
| Major Activity Centre | 1.5 | ha | \$1,000,000 | \$1,500,000 | |
| Neighbourhood Activity Centres | 3.75 | ha | \$500,000 | \$1,875,000 | |
| Local Activity Centres | 2.4 | ha | \$500,000 | \$4,575,000 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$5,423,428 | |
| Total Cost | | | | \$72,367,844 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | |
|-------------------------------------|------|---------------|------|---------------|------|---------------|------|------|---------------|-------|-------|---------------|-------|-------|--------------|-------|-------|-------|-------|-------|---------------|
| Proportion of total project by year | 0% | 20% | 0% | 15% | 0% | 15% | 0% | 0% | 20% | 0% | 0% | 20% | 0% | 0% | 10% | 0% | 0% | 0% | 0% | 0% | 100% |
| Proportion of total project by cost | \$ - | \$ 14,473,569 | \$ - | \$ 10,855,177 | \$ - | \$ 10,855,177 | \$ - | \$ - | \$ 14,473,569 | \$ - | \$ - | \$ 14,473,569 | \$ - | \$ - | \$ 7,236,784 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 72,367,844 |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|---------------------|---|
| \$23,344,875 | 1 | \$23,344,875 | Community Complex - MAC |
| \$9,738,656 | 2 | \$19,477,313 | Community Complex : NEIGHBOURHOOD (HB & East) |
| \$9,929,906 | 1 | \$9,929,906 | Community Complex : NEIGHBOURHOOD (West) |
| \$4,853,938 | 4 | \$19,415,750 | Community Complex : LOCAL |
| | | \$72,367,844 | OK |

Name of project and description:

Health & Well Being Complex

Description of main catchment area:

Each Precinct

Profile A:

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Standard of construction:

Capital cost details (\$2007):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-------------|--------------|-------------------------|
| Design and project management | | | | | |
| % of project cost | 15% | | | \$4,155,000 | |
| Construction - Health & Well Being Complex : MAC | | | | | |
| | | | | | Located on 1 ha site |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Building | 2,000 | m 2 | \$1,800 | \$3,600,000 | |
| Carparking | 4,500 | m 2 | \$200 | \$900,000 | |
| Open Space & Landscaping | 1,000 | m 2 | \$200 | \$200,000 | |
| Fencing - exterior | 450 | Item | \$200 | \$90,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$5,090,000 | |
| Total Number of Sites | | | | 1 | |
| TOTAL | | | | \$5,090,000 | |
| Construction - Health & Well Being Complex : NEIGHBOURHOOD | | | | | |
| | | | | | Located on 1 ha site |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Building | 2,000 | m 2 | \$1,800 | \$3,600,000 | |
| Carparking | 4,500 | m 2 | \$200 | \$900,000 | |
| Open Space & Landscaping | 1,000 | m 2 | \$200 | \$200,000 | |
| Fencing - exterior | 450 | Item | \$200 | \$90,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$5,090,000 | |
| Total Number of Sites | | | | 3 | |
| TOTAL | | | | \$15,270,000 | |
| Construction - Health & Well Being Complex : LOCAL | | | | | |
| | | | | | Located on 0.25 ha site |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Building | 600 | m 2 | \$1,800 | \$1,080,000 | |
| Carparking | 1,575 | m 2 | \$200 | \$315,000 | |
| Open Space & Landscaping | 250 | m 2 | \$200 | \$50,000 | |
| Fencing - exterior | 450 | Item | \$200 | \$90,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$1,835,000 | |
| Total Number of Sites | | | | 1 | |
| TOTAL | | | | \$7,340,000 | |
| TOTAL CONSTRUCTION | | | | | |
| | | | | \$27,700,000 | |
| Land Acquisition | | | | | |
| Health Centre - MAC | 1.0 | ha | \$1,000,000 | \$1,000,000 | |
| Health Centre - Neighbourhood & Local | 4.0 | ha | \$500,000 | \$2,000,000 | |
| | | | | \$3,000,000 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$2,770,000 | |
| Total Cost | | | | | |
| | | | | \$37,625,000 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | |
|-------------------------------------|------|--------------|------|--------------|------|--------------|------|------|--------------|-------|-------|--------------|-------|-------|--------------|-------|-------|-------|-------|-------|---------------|
| Proportion of total project by year | 0% | 20% | 0% | 15% | 0% | 15% | 0% | 0% | 20% | 0% | 0% | 20% | 0% | 0% | 10% | 0% | 0% | 0% | 0% | 0% | 100% |
| Proportion of total project by cost | \$ - | \$ 7,525,000 | \$ - | \$ 5,643,750 | \$ - | \$ 5,643,750 | \$ - | \$ - | \$ 7,525,000 | \$ - | \$ - | \$ 7,525,000 | \$ - | \$ - | \$ 3,762,500 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 37,625,000 |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|--------------|-------------------------------|
| \$7,362,500 | 1 | \$7,362,500 | Health Centre : MAC |
| \$6,862,500 | 3 | \$20,587,500 | Health Centre : NEIGHBOURHOOD |
| \$2,418,750 | 4 | \$9,675,000 | Health Centre : LOCAL |
| | | \$37,625,000 | OK |

Name of project and description:

Education - Primary, Secondary and Snr Secondary / TAFE

Description of main catchment area:

Profile A:

Standard of construction:

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2007):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-------------|----------------------|--|
| Design and project management | | | | | |
| % of project cost | 15% | | | \$39,441,000 | |
| Construction - Primary / Special Needs | | | | | |
| | | | | | Located on 3.5 ha site (3 ha for private) |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Building - Admin | 500 | m 2 | \$1,500 | \$750,000 | |
| Building - Classrooms | 3,000 | m 2 | \$1,800 | \$5,400,000 | including AC |
| Indoor Multi-Purpose Complex | 1,000 | m 2 | \$1,100 | \$1,100,000 | |
| Carparking | 1,000 | m 2 | \$150 | \$150,000 | |
| Open Space & Landscaping | 10,000 | m 2 | \$40 | \$400,000 | |
| Playing Surface - Asphalt | 1000 | Set | \$60 | \$60,000 | |
| Jnr Playing Field | 1 | Item | \$50,000 | \$50,000 | |
| Fencing | 1000 | Item | \$120 | \$120,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$8,330,000 | |
| Total Number of Sites | | | | 14 | Refer land acquisition section for numbers |
| TOTAL | | | | \$116,620,000 | ** Includes Special Needs School |
| Construction - Secondary | | | | | |
| | | | | | Located on 8.4 ha site (7 ha for private) |
| Surface Preparation | 1 | Item | \$750,000 | \$750,000 | |
| Building - Admin | 1,000 | m 2 | \$1,500 | \$1,500,000 | |
| Building - Classrooms | 8,000 | m 2 | \$1,900 | \$15,200,000 | |
| Indoor Multi-Purpose Complex | 1,000 | m 2 | \$2,750 | \$2,750,000 | |
| Carparking | 2,000 | m 2 | \$150 | \$300,000 | |
| Open Space & Landscaping | 20,000 | m 2 | \$40 | \$800,000 | |
| Playing Surface - Asphalt | 1000 | Set | \$60 | \$60,000 | |
| Snr Playing Field | 1 | Item | \$150,000 | \$150,000 | |
| Fencing | 2500 | Item | \$120 | \$300,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$21,810,000 | |
| Total Number of Sites | | | | 1 | Refer land acquisition section for numbers |
| TOTAL | | | | \$109,050,000 | |
| 3 | | | | | |
| | | | | | Located on 8 ha site |
| Site Preparation | 1 | Item | \$750,000 | \$750,000 | |
| Building - Admin | 1,200 | m 2 | \$1,500 | \$1,800,000 | |
| Building - Classrooms | 15,000 | m 2 | \$2,000 | \$30,000,000 | |
| Indoor Multi-Purpose Complex | 1,000 | m 2 | \$2,750 | \$2,750,000 | |
| Carparking | 4,000 | m 2 | \$150 | \$600,000 | |
| Open Space & Landscaping | 20,000 | m 2 | \$40 | \$800,000 | |
| Playing Surface - Asphalt | 2000 | Set | \$60 | \$120,000 | |
| Snr Playing Field | 1 | Item | \$150,000 | \$150,000 | |
| Fencing | 2500 | Item | \$120 | \$300,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$37,270,000 | |
| Total Number of Sites | | | | 1 | Refer land acquisition section for numbers |
| TOTAL | | | | \$37,270,000 | |
| 1200 | | | | | |
| TOTAL CONSTRUCTION | | | | \$262,940,000 | |
| Land Acquisition | | | | | |
| Primary - State (3.5 ha) | 24.5 | ha | \$500,000 | \$12,250,000 | 7 primary |
| Special Needs - State (2.4 ha) | 3.4 | ha | \$500,000 | \$1,700,000 | 1 special needs |
| Secondary - State (8 ha) | 25.2 | ha | \$500,000 | \$12,600,000 | 3 secondary |
| Secondary / TAFE - State (8 ha) | 8.0 | ha | \$1,000,000 | \$8,000,000 | 1 snr secondary / TAFE at MAC |
| Primary - Private (3 ha) | 18.0 | ha | \$500,000 | \$9,000,000 | 1 Anglican and 5 Catholic primary |
| Secondary - Private (7 ha) | 14.0 | ha | \$500,000 | \$7,000,000 | 1 Anglican and 1 Catholic secondary |
| | | | | \$50,550,000 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$26,294,000 | |
| Total Cost | | | | \$379,225,000 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|-------------------------------------|------|---------------|---------------|------|---------------|--------------|---------------|--------------|------|---------------|---------------|-------|-------|--------------|---------------|---------------|-------|--------------|---------------|---------------|----------------|----|
| Proportion of total project by year | 0% | 10% | 5% | 0% | 15% | 5% | 5% | 5% | 0% | 5% | 15% | 0% | 0% | 5% | 10% | 5% | 0% | 5% | 5% | 5% | 100% | |
| Proportion of total project by cost | \$ - | \$ 37,922,500 | \$ 18,961,250 | \$ - | \$ 56,883,750 | \$18,961,250 | \$ 18,961,250 | \$18,961,250 | \$ - | \$ 18,961,250 | \$ 56,883,750 | \$ - | \$ - | \$18,961,250 | \$ 37,922,500 | \$ 18,961,250 | \$ - | \$18,961,250 | \$ 18,961,250 | \$ 18,961,250 | \$ 379,225,000 | OK |

| TOTAL UNIT COST | No. | Total Costs | | |
|-----------------|-----|---------------|-----------------------------|---------|
| \$12,162,500 | 7 | \$85,137,500 | Educ - Primary | DEECD |
| \$12,112,500 | 1 | \$12,112,500 | Educ - Special Needs | DEECD |
| \$31,462,500 | 3 | \$94,387,500 | Educ - Secondary | DEECD |
| \$54,587,500 | 1 | \$54,587,500 | Educ - Snr Secondary / TAFE | DEECD |
| \$11,912,500 | 6 | \$71,475,000 | Educ - Primary | Private |
| \$30,762,500 | 2 | \$61,525,000 | Educ - Secondary | Private |
| | | \$379,225,000 | OK | |

3.5 ha
3.4 ha
8.4 ha
8 ha
3 ha
7 ha

Name of project and description:

Citizens Hall

Description of main catchment area:

Each Precinct

Profile A:

Location and main catchment plan

Standard of construction:

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2007):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-----------|--------------|-------------------------|
| Design and project management | | | | | |
| % of project cost | 15% | | | \$2,540,250 | |
| Construction - Citizens Hall : NEIGHBOURHOOD | | | | | |
| Site Preparation | 1 | Item | \$250,000 | \$250,000 | Located on 0.7 ha site |
| Building | 1,500 | m 2 | \$3,000 | \$4,500,000 | |
| Carparking | 3,000 | m 2 | \$250 | \$750,000 | |
| Open Space & Landscaping | 700 | m 2 | \$100 | \$70,000 | |
| Public Art | 1 | Item | \$75,000 | \$75,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$5,645,000 | |
| | | | | | Total Number of Sites 3 |
| | | | | \$16,935,000 | |
| | | | | | |
| | | | | \$16,935,000 | |
| Land Acquisition | | | | | |
| Citizens hall - Neighbourhood | 2.1 | ha | \$500,000 | \$1,050,000 | |
| | | | | \$1,050,000 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$1,693,500 | |
| Total Cost | | | | \$22,218,750 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|-------------------------------------|------|--------------|------|--------------|------|--------------|------|------|--------------|-------|-------|--------------|-------|-------|--------------|-------|-------|-------|-------|-------|---------------|----|
| Proportion of total project by year | 0% | 20% | 0% | 15% | 0% | 15% | 0% | 0% | 20% | 0% | 0% | 20% | 0% | 0% | 10% | 0% | 0% | 0% | 0% | 0% | 100% | OK |
| Proportion of total project by cost | \$ - | \$ 4,443,750 | \$ - | \$ 3,332,813 | \$ - | \$ 3,332,813 | \$ - | \$ - | \$ 4,443,750 | \$ - | \$ - | \$ 4,443,750 | \$ - | \$ - | \$ 2,221,875 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 22,218,750 | OK |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|--------------|-------------------------|
| \$7,406,250 | 3 | \$22,218,750 | Arts & Cultural - Local |
| | | \$22,218,750 | OK |

Name of project and description:

Emergency Services - CFA, Police and Ambulance

Description of main catchment area:

Profile A:

Location and main catchment plan

Standard of construction:

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|--------------------------------------|----------|--------|-----------|---------------------|--|
| Design and project management | | | | | |
| % of project cost | 15% | | | \$1,823,250 | |
| Construction - POLICE | | | | | Located on 0.4 ha site |
| Site Preparation | 1 | Item | \$150,000 | \$150,000 | |
| Building | 2,000 | m 2 | \$2,500 | \$5,000,000 | Potential 2 storey building |
| Carparking | 1,000 | m 2 | \$250 | \$250,000 | Police staff, vehicles and visitor parking |
| Open Space & Landscaping | 1,000 | m 2 | \$150 | \$150,000 | |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$5,550,000 | |
| | | | | 1 | |
| | | | | \$5,550,000 | |
| Construction - CFA | | | | | Located on 0.8 ha site |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Building | 500 | m 2 | \$2,500 | \$1,250,000 | |
| Carparking | 500 | m 2 | \$250 | \$125,000 | CFA staff and visitor parking |
| Open Space & Landscaping | 1,000 | m 2 | \$150 | \$150,000 | |
| Training Areas / Maintenance | 3,000 | Item | \$250 | \$750,000 | Major outdoor training centre |
| Fitout | 1 | Item | \$0 | \$0 | |
| | | | | \$2,575,000 | |
| | | | | 1 | |
| | | | | \$2,575,000 | |
| Construction - AMBULANCE | | | | | Located on 0.3 ha site |
| Site Preparation | 1 | Item | \$100,000 | \$100,000 | |
| Building | 1,500 | m 2 | \$2,500 | \$3,750,000 | |
| Carparking | 300 | m 2 | \$250 | \$75,000 | Ambulance staff and visitor parking |
| Open Space & Landscaping | 300 | m 2 | \$100 | \$30,000 | |
| Training Areas / Maintenance | 300 | Item | \$250 | \$75,000 | |
| | 3 | 1 Item | \$0 | \$0 | |
| | | | | \$4,030,000 | |
| | | | | 1 | |
| | | | | \$4,030,000 | |
| TOTAL CONSTRUCTION | | | | \$12,155,000 | |
| Land Acquisition | 1.5 | ha | \$500,000 | \$750,000 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$1,215,500 | |
| Total Cost | | | | \$15,943,750 | |

Project Timing:

Proportion of total project by year
Proportion of total project by cost

| Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|---------------|
| 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 40% | 40% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 20% | 100% | |
| \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 3,188,750 | \$ 15,943,750 |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|---------------------|-----------|
| \$7,137,500 | 1 | \$7,137,500 | Police |
| \$3,618,750 | 1 | \$3,618,750 | CFA |
| \$5,187,500 | 1 | \$5,187,500 | Ambulance |
| | | \$15,943,750 | OK |

Name of project and description:

Regional Active Open Space

Description of main catchment area:

Total Growth Area

Profile A:

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Standard of construction:

Capital cost details (\$2007):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-------------|---------------------|---|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$1,477,500 | |
| Construction - Regional Active Open Space - WESTERN | | | | | |
| Located on 18 ha site | | | | | |
| Site Preparation | 1 | Item | \$500,000 | \$500,000 | |
| Roadways | 1,000 | L m | \$100 | \$100,000 | |
| Carparking - Gravel | 10,000 | m 2 | \$50 | \$500,000 | Close to each major group of fields |
| Carparking - Sealed | 6,000 | m 2 | \$150 | \$900,000 | Abutting community pavilions, including tennis club |
| Topsoil and seeding | 160,000 | m 2 | \$5 | \$800,000 | |
| Open Space & Landscaping | 5,000 | m 2 | \$150 | \$750,000 | |
| Public Art | 1 | Item | \$100,000 | \$100,000 | |
| Water Harvesting Infracr - tanks & pumps | 1 | Item | \$750,000 | \$750,000 | note - wetlands and storage ponds provided with |
| | | | | \$4,400,000 | |
| Total Number of Sites | | | | 1 | |
| TOTAL | | | | \$4,400,000 | |
| Construction - Regional Active Open Space - SOUTH EAST | | | | | |
| Located on 18 ha site | | | | | |
| Site Preparation | 1 | Item | \$500,000 | \$500,000 | |
| All ability play space | 1 | Item | \$1,000,000 | \$1,000,000 | |
| Roadways | 1,000 | L m | \$100 | \$100,000 | |
| Carparking - Gravel | 10,000 | m 2 | \$50 | \$500,000 | Close to each major group of fields |
| Carparking - Sealed | 6,000 | m 2 | \$150 | \$900,000 | Abutting community pavilions, including tennis club |
| Topsoil and seeding | 160,000 | m 2 | \$5 | \$800,000 | |
| Open Space & Landscaping | 5,000 | m 2 | \$150 | \$750,000 | |
| Public Art | 1 | Item | \$100,000 | \$100,000 | |
| Water Harvesting Infracr - tanks & pumps | 1 | Item | \$750,000 | \$750,000 | note - wetlands and storage ponds provided with |
| | | | | \$5,400,000 | |
| Total Number of Sites | | | | 1 | |
| TOTAL | | | | \$5,400,000 | |
| Construction - Regional Active Open Space - NORTH | | | | | |
| Located on 21 ha site (including Atheletics land) | | | | | |
| Site Preparation | 1 | Item | \$500,000 | \$500,000 | |
| Roadways | 1,000 | L m | \$100 | \$100,000 | |
| Carparking - Gravel | 12,500 | m 2 | \$50 | \$625,000 | Close to each major group of fields |
| Carparking - Sealed | 8,000 | m 2 | \$150 | \$1,200,000 | Abutting community pavilions |
| Topsoil and seeding | 190,000 | m 2 | \$5 | \$950,000 | |
| Open Space & Landscaping | 5,000 | m 2 | \$150 | \$750,000 | |
| Public Art | 1 | Item | \$100,000 | \$100,000 | |
| Water Harvesting Infracr - tanks & pumps | 1 | Item | \$750,000 | \$750,000 | note - wetlands and storage ponds provided with |
| | | | | \$4,975,000 | |
| Total Number of Sites | | | | 1 | |
| TOTAL | | | | \$4,975,000 | |
| TOTAL CONSTRUCTION | | | | \$14,775,000 | |
| Land Acquisition | | | | | |
| Regional Parkland - WESTERN | 18.0 | ha | \$500,000 | \$9,000,000 | Land outside of Armstrong Creek floodplain |
| Regional Parkland - SOUTH EAST | 18.0 | ha | \$500,000 | \$9,000,000 | Flood liable land - Barwon River & Armstrong Creek |
| Regional Parkland - NORTH | 21.0 | ha | \$500,000 | \$10,500,000 | |
| | | | | \$20,400,000 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$1,477,500 | |
| Total Cost | | | | \$38,130,000 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|-------------------------------------|------|------|------|--------------|--------------|------|------|--------------|--------------|-------|-------|-------|--------------|--------------|-------|-------|-------|-------|-------|-------|---------------|----|
| Proportion of total project by year | 0% | 0% | 0% | 20% | 10% | 0% | 0% | 25% | 15% | 0% | 0% | 0% | 15% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 100% | |
| Proportion of total project by cost | \$ - | \$ - | \$ - | \$ 7,626,000 | \$ 3,813,000 | \$ - | \$ - | \$ 9,532,500 | \$ 5,719,500 | \$ - | \$ - | \$ - | \$ 5,719,500 | \$ 5,719,500 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 38,130,000 | OK |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|---------------------|---|
| \$14,280,000 | 1 | \$14,280,000 | Regional Active Open Space - West |
| \$7,380,000 | 1 | \$7,380,000 | Regional Active Open Space - South East |
| \$16,470,000 | 1 | \$16,470,000 | Regional Active Open Space - North |
| | | \$38,130,000 | OK |

Name of project and description:

Local Active Open Space

Description of main catchment area:

Each Precinct

Profile A:

Standard of construction:

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves



Capital cost details (\$2007):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-------------|---------------------|---|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$563,000 | |
| Construction - Local Active Open Space - MAC | | | | | Located on 3.1 ha site |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Roadways | 100 | L m | \$100 | \$10,000 | |
| Carparking - Asphalt | 8,000 | m 2 | \$250 | \$2,000,000 | Abutting community pavilion |
| Topsoil and seeding | 2,000 | m 2 | \$5 | \$10,000 | |
| Open Space & Landscaping | 1,000 | m 2 | \$100 | \$100,000 | |
| Public Art | 1 | Item | \$5,000 | \$5,000 | |
| Water Harvesting Infrast - tanks, pumps, etc | 1 | Item | \$150,000 | \$150,000 | |
| | | | | \$2,575,000 | |
| Items | | | | 1 | 1 x 1.8ha Aquatic / 1 x 1.3ha multi purpose stadium |
| TOTAL | | | | \$2,575,000 | |
| Construction - Local Active Open Space - NEIGHBOURHOOD | | | | | Located on 27.9 ha site |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Roadways | 250 | L m | \$100 | \$25,000 | |
| Carparking - Gravel | 3,000 | m 2 | \$50 | \$150,000 | Around the edge of sports fields |
| Carparking - Asphalt | 2,000 | m 2 | \$250 | \$500,000 | Abutting community pavilion |
| Topsoil and seeding | 40,000 | m 2 | \$5 | \$200,000 | |
| Open Space & Landscaping | 2,000 | m 2 | \$100 | \$200,000 | |
| Public Art | 1 | Item | \$2,500 | \$2,500 | |
| Water Harvesting Infrast - tanks, pumps, etc | 1 | Item | \$150,000 | \$150,000 | |
| | | | | \$1,527,500 | |
| Items | | | | 1 | 3 X 8 ha sports grounds / 3 x 0.7 ha Multi-purpose Stadiums / 2 x 0.9ha Snr Recreation Reserves |
| TOTAL | | | | \$1,527,500 | |
| Construction - Local Active Open Space - LOCAL | | | | | Located on 24.9 ha site |
| Site Preparation | 1 | Item | \$300,000 | \$300,000 | |
| Carparking - Gravel | 3,000 | m 2 | \$50 | \$150,000 | Around the edge of sports fields |
| Carparking - Asphalt | 2,000 | m 2 | \$250 | \$500,000 | Abutting community pavilion |
| Topsoil and seeding | 40,000 | m 2 | \$5 | \$200,000 | |
| Open Space & Landscaping | 2,000 | m 2 | \$100 | \$200,000 | |
| Public Art | 1 | Item | \$2,500 | \$2,500 | |
| Water Harvesting Infrast - tanks, pumps, etc | 1 | Item | \$150,000 | \$150,000 | |
| | | | | \$1,527,500 | |
| Items | | | | 1 | 3 X 8 ha sports grounds / 1 x 0.9ha Snr Recreation Reserves |
| TOTAL | | | | \$1,527,500 | |
| TOTAL CONSTRUCTION | | | | \$5,630,000 | |
| Land Acquisition | | | | | |
| Local Active Open Space - MAC | 3.1 | ha | \$1,000,000 | \$3,100,000 | Gifted land as part of PoS provision |
| Local Active Open Space - NEIGHBOURHOOD | 27.9 | ha | \$500,000 | \$13,950,000 | Gifted land as part of PoS provision |
| Local Active Open Space - LOCAL | 24.9 | ha | \$500,000 | \$12,450,000 | Gifted land as part of PoS provision |
| | | | | \$29,500,000 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$563,000 | |
| Total Cost | | | | \$36,256,000 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|-------------------------------------|--------------|------|--------------|------|--------------|------|--------------|------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|---------------|----|
| Proportion of total project by year | 10% | 0% | 10% | 0% | 10% | 0% | 10% | 0% | 10% | 0% | 10% | 0% | 10% | 0% | 10% | 0% | 10% | 0% | 10% | 0% | 100% | |
| Proportion of total project by cost | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 3,625,600 | \$ - | \$ 36,256,000 | OK |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|---------------------|---|
| \$6,190,000 | 1 | \$6,190,000 | Local Active Open Space : MAC |
| \$15,763,000 | 1 | \$15,763,000 | Local Active Open Space : Neighbourhood |
| \$14,283,000 | 1 | \$14,283,000 | Local Active Open Space : Local |
| | | \$0 | |
| | | \$36,256,000 | OK |

Name of project and description:

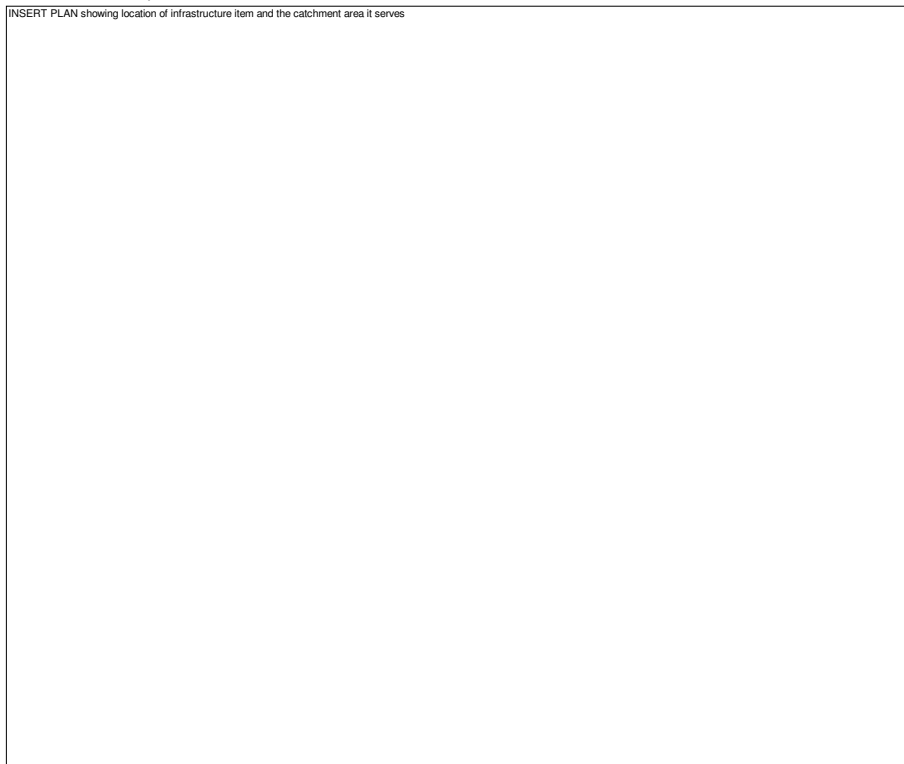
Football / Cricket - Include joint use football / soccer fields

Description of main catchment area:

Each Precinct

Profile A:

Location and main catchment plan



Standard of construction:

CRICKET & FOOTBALL FIELDS - including turf, irrigation, goal posts, fencing, score board, players bench seat and shelter, and cricket training nets. NOTE - includes some joint use football / soccer fields (2 x soccer on one oval)

Capital cost details (\$2007):

| | Quantity | Units | Unit Rate | Amount | Notes |
|--|----------|-------|-----------|---------------------|---|
| Design and project management | | | | | |
| % of project cost | 15% | | | \$1,756,050 | |
| Construction - Cricket / Football Ovals | | | | | |
| Site Preparation | 1 | Item | \$30,000 | \$30,000 | 173m long x 143 m wide |
| Turf - Playing Surface | 18,000 | m 2 | \$20 | \$360,000 | |
| Turf - Cricket Centre Wicket | 1 | Item | \$20,000 | \$20,000 | Half turf (\$30K per wicket) and half hard wickets (\$10K per wicket) |
| Irrigation | 18,000 | m 2 | \$5 | \$90,000 | |
| Subsurface Drainage | 1 | Item | \$40,000 | \$40,000 | |
| Fencing | 450 | L m | \$80 | \$36,000 | |
| Goal Posts | 2 | Set | \$5,000 | \$10,000 | |
| Bench Seats & Shelter | 2 | Item | \$10,000 | \$20,000 | |
| Cricket Training Nets | 0.5 | Item | \$50,000 | \$25,000 | One cricket club per two ovals |
| Lighting | 0.5 | Item | \$150,000 | \$75,000 | Every second oval to have competition lighting |
| | | | | \$706,000 | |
| | | | | | 13 joint use ovals (football / Cricket) |
| | | | | \$9,178,000 | |
| Construction - Football / Soccer Fields | | | | | |
| Site Preparation | 1 | Item | \$30,000 | \$30,000 | 111m long x 74 m wide |
| Turf - Playing Surface | 19,000 | m 2 | \$20 | \$380,000 | |
| Subsurface Drainage | 1 | Item | \$40,000 | \$40,000 | |
| Irrigation | 19,000 | m 2 | \$5 | \$95,000 | |
| Fencing | 600 | L m | \$80 | \$48,000 | |
| Goal Posts | 2 | Set | \$5,000 | \$10,000 | |
| Soccer Goal Nets | 4 | Item | \$5,000 | \$20,000 | |
| Bench Seats & Shelter | 2 | Item | \$10,000 | \$20,000 | |
| Lighting | 1 | Item | \$200,000 | \$200,000 | Competition lighting for night training / matches |
| | | | | \$843,000 | |
| | | | | | 3 ovals and 6 soccer pitches |
| | | | | \$2,529,000 | |
| | | | | \$11,707,000 | |
| Land Acquisition | | | | | |
| | 0 | ha | \$0 | \$0 | |
| Contingency | | | | | |
| | 0 | 10% | | \$1,170,700 | |
| Total Cost | | | | 14,633,750 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 |
|-------------------------------------|------------|------------|------------|------------|------------|------------|------|------------|------------|------------|-------|------------|------------|------------|------------|------------|------------|------------|-------|------------|
| Proportion of total project by year | 6% | 6% | 6% | 6% | 6% | 6% | 0% | 6% | 6% | 6% | 0% | 6% | 6% | 6% | 6% | 6% | 6% | 6% | 0% | 4% |
| Proportion of total project by cost | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ - | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ - | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ 878,025 | \$ - | \$ 585,350 |

100% OK
14,633,750 OK

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|---------------------|--------------------------|
| \$882,500 | 13 | \$11,472,500 | Football / Cricket Ovals |
| \$1,053,750 | 3 | \$3,161,250 | Football / Soccer Fields |
| | | \$14,633,750 | OK |

Name of project and description:

Soccer & Hockey

Description of main catchment area:

Each Precinct

Profile A:

Standard of construction:

SOCCER & HOCKEY PITCHES - Including turf, irrigation, goal nets, fencing, players bench seat and shelter, lighting

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|---------------------------|-------|-----------|--------------------|---|
| Design and project management | | | | | |
| % of project cost | 15% | | | \$869,400 | |
| Construction - Soccer Pitches (GRASS) | | | | | |
| Site Preparation | 1 | Item | \$30,000 | \$30,000 | 70m x 110m play area |
| Turf - Playing Surface | 8,000 | m 2 | \$20 | \$160,000 | |
| Irrigation | 10,000 | m 2 | \$5 | \$50,000 | |
| Fencing - As required | 1 | L m | \$3,000 | \$3,000 | |
| Soccer Goal Nets | 2 | Item | \$5,000 | \$10,000 | |
| Bench Seats & Shelter | 2 | Item | \$10,000 | \$20,000 | |
| Lighting | 1 | Item | \$75,000 | \$75,000 | Training lighting |
| | | | | \$273,000 | |
| | Total Number of Ovals | | | 8 | Split between the western (7) and sth-est (3) regional active recreation land |
| | TOTAL | | | \$2,184,000 | |
| Construction - Hockey & Soccer Pitches (SYNTHETIC) | | | | | |
| Site Preparation | 1 | Item | \$50,000 | \$50,000 | 70m x 110m play area - 2 soccer & 2 hockey |
| Synthetic - Playing Surface | 8,000 | m 2 | \$75 | \$600,000 | Assuming same cost for hockey and soccer synthetic surfaces |
| Drainage | 1 | Item | \$25,000 | \$25,000 | |
| Fencing | 400 | L m | \$120 | \$48,000 | |
| Soccer Goal Nets | 2 | Item | \$5,000 | \$10,000 | |
| Bench Seats & Shelter | 2 | Item | \$10,000 | \$20,000 | |
| Lighting | 1 | Item | \$150,000 | \$150,000 | Competition lighting for night games |
| | | | | \$903,000 | |
| | Total Number of Ovals | | | 4 | Located at western regional active recreation land |
| | TOTAL | | | \$3,612,000 | |
| | TOTAL CONSTRUCTION | | | \$5,796,000 | |
| Land | 3 | 0 | ha | \$0 | \$0 |
| Contingency | | | | | |
| % of project costs | 10% | | | \$579,600 | |
| Total Cost | | | | 7,245,000 | |

Project Timing:

Proportion of total project by year
 Proportion of total project by cost

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | |
|------|------|------|--------------|------------|------|------|--------------|--------------|------|-------|-------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|--------------|
| 0% | 0% | 0% | 20% | 10% | 0% | 0% | 25% | 15% | 0% | 0% | 0% | 15% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 100% |
| \$ - | \$ - | \$ - | \$ 1,449,000 | \$ 724,500 | \$ - | \$ - | \$ 1,811,250 | \$ 1,086,750 | \$ - | \$ - | \$ - | \$ 1,086,750 | \$ 1,086,750 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 7,245,000 |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|--------------------|-------------------------------------|
| \$341,250 | 8 | \$2,730,000 | Soccer Pitches |
| \$1,128,750 | 4 | \$4,515,000 | Hockey / Soccer Pitches - Synthetic |
| | | \$7,245,000 | OK |

Name of project and description:

Netball

Description of main catchment area:

Each Precinct

Profile A:

Standard of construction:

Netball Courts - asphalt surface, linemarking, bench seats and shelter. Lighting being provided at large multi court netball facility within Sth-Est Regional Active Parkland

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|--|----------|-------|-----------|------------------|---|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$137,250 | |
| Construction - Netball Court | | | | | |
| Site Preparation | 1 | Item | \$3,000 | \$3,000 | 1 court = 15m x 30m (plus run-outs & buffers) |
| Asphalt Court | 800 | m 2 | \$25 | \$20,000 | |
| Fencing - As required | 100 | L m | \$100 | \$10,000 | |
| Bench Seats & Shelter | 2 | Item | \$5,000 | \$10,000 | |
| Lighting | 1 | Item | \$20,000 | \$20,000 | Competition lighting for night games |
| | | | | \$63,000 | |
| | | | | | located within the 8 ha active parks (1 court per oval) |
| | | | | | Total Number of Ovals 15 |
| | | | | \$945,000 | |
| Construction - Netball : Multi Court Facility | | | | | |
| | | | | | 9 courts = 60m x 120m |
| Site Preparation | 1 | Item | \$20,000 | \$20,000 | |
| Asphalt Court | 7,500 | m 2 | \$25 | \$187,500 | |
| Fencing - As required | 450 | L m | \$100 | \$45,000 | Fence for total facility |
| Bench Seats & Shelter | 5 | Item | \$5,000 | \$25,000 | |
| Lighting | 1 | Item | \$150,000 | \$150,000 | Competition lighting for night games |
| | | | | \$427,500 | |
| | | | | | Total Number of Ovals 1 |
| | | | | \$427,500 | Located at sth-est regional active open space |
| | | | | | |
| | | | | \$1,372,500 | |
| Land Acquisition | | | | | |
| | 0 | ha | \$0 | \$0 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$137,250 | |
| Total Cost | | | | 1,647,000 | |

Project Timing:

Proportion of total project by year
Proportion of total project by cost

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|-------------------------------------|------|------|------|------------|------------|------|------|------------|------------|-------|-------|-------|------------|------------|-------|-------|-------|-------|-------|-------|------|--------------|
| Proportion of total project by year | 0% | 0% | 0% | 20% | 10% | 0% | 0% | 25% | 15% | 0% | 0% | 0% | 15% | 15% | 0% | 0% | 0% | 0% | 0% | 0% | 100% | |
| Proportion of total project by cost | \$ - | \$ - | \$ - | \$ 329,400 | \$ 164,700 | \$ - | \$ - | \$ 411,750 | \$ 247,050 | \$ - | \$ - | \$ - | \$ 247,050 | \$ 247,050 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 1,647,000 |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|-------------|--------------------------------|
| \$75,600 | 15 | \$1,134,000 | Netball Courts (per court) |
| \$513,000 | 1 | \$513,000 | Netball Multi Court (9 courts) |
| | | \$1,647,000 | OK |

Name of project and description:

Tennis Complex

Description of main catchment area:

Total Urban Growth Area

Profile A:

Location and main catchment plan

Standard of construction:

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|--|----------|-------|-----------|------------------|---|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$590,000 | |
| Construction - Tennis Court | | | | | |
| Site Preparation | 1 | Item | \$3,000 | \$3,000 | 1 court = 12m x 25m |
| Synthetic Courts | 600 | m 2 | \$40 | \$24,000 | |
| Drainage | 1 | item | \$5,000 | \$5,000 | |
| Fencing - As required | 100 | L m | \$250 | \$25,000 | |
| Net Posts & Nets | 1 | Item | \$3,000 | \$3,000 | |
| Bench Seats & Shelter | 0.5 | Item | \$5,000 | \$2,500 | 1 x bench and shelter per two courts |
| Lighting | 1 | Item | \$20,000 | \$20,000 | Competition lighting for night games |
| | | | | \$62,500 | |
| | | | | | Split between the West and Sth-Est Regional Active Open Space. 18 courts per facility |
| | | | | | Total Number of Ovals 36 |
| | | | | | TOTAL \$2,250,000 |
| Construction - Tennis Complex (COMMERICALLY RUN CENTRE) | | | | | |
| | | | | | Pavillion and administration |
| Site Preparation | 1 | Item | \$100,000 | \$100,000 | |
| Building | 750 | m 2 | \$2,000 | \$1,500,000 | Club house |
| Grand Stand Seating | 1 | item | \$200,000 | \$200,000 | |
| Outdoor Function Area / BBQ | 500 | m 2 | \$50 | \$25,000 | |
| | | | | \$1,825,000 | |
| | | | | | Located at the West and Sth-Est Regional Active Open Space. |
| | | | | | Total Number of Ovals 2 |
| | | | | | TOTAL \$3,650,000 |
| | | | | | TOTAL CONSTRUCTION \$5,900,000 |
| Land Acquisition | | | | | |
| | 0 | ha | \$0 | \$0 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$590,000 | |
| To | 3 | | | 7,080,000 | |

Project Timing:

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | |
|-------------------------------------|------|------|------|------|------|--------------|------|------|------|-------|-------|-------|--------------|-------|-------|-------|-------|-------|-------|-------|--------------|
| Proportion of total project by year | 0% | 0% | 0% | 0% | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 100% |
| Proportion of total project by cost | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 3,540,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 3,540,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 7,080,000 |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|-------------|--------------------------------------|
| \$75,000 | 36 | \$2,700,000 | Tennis Courts |
| \$2,190,000 | 2 | \$4,380,000 | Tennis Complex - Pavillion and Admin |
| | | \$7,080,000 | OK |

Name of project and description:

Community Pavilions

Description of main catchment area:

Each Precinct

Profile A:

Standard of construction:

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-----------|-------------------|---|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$2,451,000 | |
| Construction - Community Pavillion : REGIONAL | | | | | |
| Site Preparation | 1 | Item | \$100,000 | \$200,000 | |
| Building | 1,500 | m 2 | \$2,500 | \$3,750,000 | |
| Grand Stand Seating | 1 | item | \$400,000 | \$400,000 | |
| Outdoor Function Area / BBQ | 500 | m 2 | \$50 | \$25,000 | |
| | | | | \$4,375,000 | |
| | | | | | 3 x regional active open space |
| | | | | | Total Number of Ovals 3 |
| | | | | | TOTAL \$13,125,000 |
| Construction - Community Pavillion : NEIGHBOURHOOD | | | | | |
| Site Preparation | 1 | Item | \$100,000 | \$150,000 | |
| Building | 1,000 | m 2 | \$2,000 | \$2,000,000 | |
| Grand Stand Seating | 1 | item | \$100,000 | \$100,000 | |
| Outdoor Function Area / BBQ | 100 | m 2 | \$50 | \$5,000 | |
| | | | | \$2,255,000 | |
| | | | | | 3 @ each of the 8 ha open space reserves. HB and West neighbourhood pavilions co-located with seniors open space. |
| | | | | | Total Number of Ovals 3 |
| | | | | | TOTAL \$6,765,000 |
| Construction - Community Pavillion : LOCAL | | | | | |
| Site Preparation | 1 | Item | \$100,000 | \$100,000 | |
| Building | 500 | m 2 | \$2,000 | \$1,000,000 | |
| Undercover Area | 1 | item | \$40,000 | \$40,000 | |
| | | | | \$1,140,000 | |
| | | | | | 3 @ each of the 8 ha open space reserves. East local pavillion co-located with seniors open space. |
| | | | | | Total Number of Ovals 3 |
| | | | | | TOTAL \$3,420,000 |
| Construction - Toilet Blocks | | | | | |
| Site Preparation | 1 | Item | \$5,000 | \$5,000 | |
| Building | 100 | m 2 | \$1,000 | \$100,000 | |
| Water and Sewer Connection | 1 | item | \$15,000 | \$15,000 | |
| | | | | \$120,000 | |
| | | | | | Various active open space, including regional sites (plus, 1 x Marshall) |
| | | | | | Total Number of Ovals 10 |
| | | | | | TOTAL \$1,200,000 |
| | | | | | TOTAL CONSTRUCTION \$24,510,000 |
| Land Acquisition | 0 | ha | \$0 | \$0 | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$2,451,000 | |
| Total Cost | | | | 29,412,000 | |

| Project Timing: | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|-------------------------------------|------|--------------|--------------|--------------|--------------|--------------|------|--------------|--------------|--------------|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|--------------|---------------|
| Proportion of total project by year | 0% | 6% | 6% | 12% | 6% | 6% | 0% | 6% | 6% | 6% | 0% | 6% | 6% | 6% | 6% | 6% | 6% | 6% | 0% | 4% | 100% | |
| Proportion of total project by cost | \$ - | \$ 1,764,720 | \$ 1,764,720 | \$ 3,529,440 | \$ 1,764,720 | \$ 1,764,720 | \$ - | \$ 1,764,720 | \$ 1,764,720 | \$ 1,764,720 | \$ - | \$ 1,764,720 | \$ 1,764,720 | \$ 1,764,720 | \$ 1,764,720 | \$ 1,764,720 | \$ 1,764,720 | \$ 1,764,720 | \$ 1,764,720 | \$ - | \$ 1,176,480 | \$ 29,412,000 |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|---------------------|-------------------------------------|
| \$5,250,000 | 3 | \$15,750,000 | Community Pavillion - REGIONAL |
| \$2,706,000 | 3 | \$8,118,000 | Community Pavillion - NEIGHBOURHOOD |
| \$1,368,000 | 3 | \$4,104,000 | Community Pavillion - LOCAL |
| \$144,000 | 10 | \$1,440,000 | Toilet Blocks |
| | | \$29,412,000 | OK |

Name of project and description:

Multi Purpose Stadium Recreation

Description of main catchment area:

Each Precinct. Major 4 court stadium would be for Total Urban Growth Area

Profile A:

Standard of construction:

STADIUMS - Basketball and gymnasium - timber floors, change rooms, gym, gymnastics floor and pit, foyers and administration

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|--|------------------------------|-------|-------------|---------------------|---|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$1,731,500 | |
| Construction - 4 Courts Multi Purpose Stadium (MAC) | | | | | |
| | | | | | 2 ha site |
| Site Preparation | 1 | Item | \$400,000 | \$400,000 | |
| Stadium | 5,000 | m 2 | \$1,100 | \$5,500,000 | including change rooms & toilets |
| Gymnastics space | 300 | m 2 | \$1,500 | \$450,000 | |
| Carparking | 0 | m 2 | \$220 | \$0 | Included in Local Active Open Space Allocation |
| Open Space & Landscaping | 0 | m 2 | \$150 | \$0 | Included in Local Active Open Space Allocation |
| | | | | \$6,350,000 | |
| | Total Number of Ovals | | | 1 | 4 x basketball courts, stadium seating, and gymnastics centre |
| | TOTAL | | | \$6,350,000 | |
| Construction - 2 Court Multi Purpose Stadium | | | | | |
| | | | | | 0.7 ha site |
| Site Preparation | 1 | Item | \$200,000 | \$200,000 | |
| Stadium | 2,500 | m 2 | \$1,100 | \$2,750,000 | |
| Gymnastics space | 200 | m 2 | \$1,500 | \$300,000 | |
| Carparking | 1,500 | m 2 | \$250 | \$375,000 | |
| Open Space & Landscaping | 200 | m 2 | \$150 | \$30,000 | |
| | | | | \$3,655,000 | |
| | Total Number of Ovals | | | 3 | Located at the West, Horseshoe Bend and East |
| | TOTAL | | | \$10,965,000 | |
| | TOTAL CONSTRUCTION | | | \$17,315,000 | |
| Land Acquisition | | | | | |
| 4 Court Stadium - MAC | | ha | \$1,000,000 | \$0 | Refer local active open space tab |
| 2 Court Stadium | | ha | \$500,000 | \$0 | Refer local active open space tab |
| | | | | \$0 | |
| Contingency | | | | | |
| | 3 | 10% | | \$1,731,500 | |
| Total Cost | | | | 20,778,000 | |

Project Timing:

Proportion of total project by year
Proportion of total project by cost

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 |
|-------------------------------------|------|------|------|--------------|------|------|--------------|------|------|-------|-------|--------------|-------|-------|-------|-------|--------------|-------|-------|-------|
| Proportion of total project by year | 0% | 0% | 0% | 20% | 0% | 0% | 20% | 0% | 0% | 0% | 0% | 20% | 0% | 0% | 0% | 0% | 40% | 0% | 0% | 0% |
| Proportion of total project by cost | \$ - | \$ - | \$ - | \$ 4,155,600 | \$ - | \$ - | \$ 4,155,600 | \$ - | \$ - | \$ - | \$ - | \$ 4,155,600 | \$ - | \$ - | \$ - | \$ - | \$ 8,311,200 | \$ - | \$ - | \$ - |

\$ 20,778,000 **OK**
OK

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|---------------------|-----------------|
| \$7,620,000 | 1 | \$7,620,000 | 4 Court Stadium |
| \$4,386,000 | 3 | \$13,158,000 | 2 Court Stadium |
| | | \$20,778,000 | OK |

Name of project and description:

Lawn Bowls

Description of main catchment area:

Each Precinct

Profile A:

Standard of construction:

BOWLS CLUBS - Synthetic surfaces (2 greens), toilet block, lighting, seating and shelter. Assumed community hub facilities or community pavillion is shared with the bowls clubs

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|----------|-------|-----------|------------------|---|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$222,750 | |
| Construction - Lawn Bowls Facility | | | | | 0.9 ha site - 2 greens and minor facilities |
| Site Preparation | 1 | Item | \$100,000 | \$100,000 | |
| Green - Synthetic | 2 | No | \$160,000 | \$320,000 | |
| Water System and Drainage | 1 | item | \$25,000 | \$25,000 | |
| Fencing | 600 | L m | \$150 | \$90,000 | |
| Toilet Block / Change Rooms | 150 | m 2 | \$1,250 | \$187,500 | |
| Beanch Seats & Shelter | 2 | Item | \$10,000 | \$20,000 | |
| Lighting | 2 | Item | \$50,000 | \$100,000 | Competition lighting for night games |
| | | | | \$742,500 | |
| | | | | | 2 x neighbourhood (HB and West) and 1 x Local |
| | | | | | 3 |
| | | | | \$2,227,500 | |
| | | | | | |
| | | | | | |
| | | | | \$2,227,500 | |
| | | | | | |
| Land Acquisition | | ha | \$500,000 | \$0 | Refer active open space |
| Contingency | | | | | |
| % of project costs | 10% | | | \$222,750 | |
| Total Cost | | | | 2,673,000 | |

Project Timing:

Proportion of total project by year
 Proportion of total project by cost

| | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 |
|-------------------------------------|------|------|------------|------|------|------------|------|------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Proportion of total project by year | 0% | 0% | 34% | 0% | 0% | 33% | 0% | 0% | 33% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Proportion of total project by cost | \$ - | \$ - | \$ 908,820 | \$ - | \$ - | \$ 882,090 | \$ - | \$ - | \$ 882,090 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |

\$ 2,673,000 100% OK
 OK

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|-------------|-----------------------|
| \$891,000 | 3 | \$2,673,000 | Lawn Bowls (2 Greens) |
| \$3 | | \$0 | |
| | | \$2,673,000 | OK |

Name of project and description:

Leisure Facility (Aquatic Centre)

Description of main catchment area:

Total Urban Growth Area

Profile A:

Standard of construction:

AQUATIC CENTRE - Including swimming pool (2 x 25m), kids pool, spa, rehab / hydro pool, change rooms, gym, outdoor water play area and landscaping

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|--|----------|-------|-------------|-------------------|--|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$1,565,000 | |
| Construction - Aquatic Centre : MAC | | | | | |
| | | | | | 2 ha site |
| Site Preparation | 1 | Item | \$1,000,000 | \$1,000,000 | |
| Building - Pool Area | 3,000 | m 2 | \$3,500 | \$10,500,000 | |
| Building - Gym and Admin | 300 | m 2 | \$2,000 | \$600,000 | |
| Olympic Swimming Pool (2 x 25m) | 1 | No | \$2,000,000 | \$2,000,000 | |
| Spa / Sauna | 1 | Item | \$50,000 | \$50,000 | |
| Rehab / Hydro Pool | 1 | No | \$750,000 | \$750,000 | |
| Kids Pool & Water Play Area (500m2) | 1 | Item | \$750,000 | \$750,000 | |
| Water Filtration Units & Treatment Plant | 1 | Item | \$2,000,000 | \$2,000,000 | |
| Carparking | 0 | m 2 | \$200 | \$0 | Included in Active Open Space allocation |
| Open Space & Landscaping | 0 | m 2 | \$150 | \$0 | Included in Active Open Space allocation |
| | | | | \$15,650,000 | |
| Total Number of Ovals | | | | 1 | Local at the Major Activity Centre (co-located with Multi Purpose Stadium) |
| TOTAL | | | | \$15,650,000 | |
| | | | | | |
| TOTAL CONSTRUCTION | | | | \$15,650,000 | |
| | | | | | |
| Land Acquisition | 2.0 | ha | \$1,000,000 | \$2,000,000 | |
| | | | | | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$1,565,000 | |
| Total Cost | | | | 20,780,000 | |

Project Timing:

Proportion of total project by year
Proportion of total project by cost

| Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 | | |
|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|---------------|---------------|-------|-------|---------------|----|
| 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 50% | 50% | 0% | 0% | 100% | OK |
| \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 10,390,000 | \$ 10,390,000 | \$ - | \$ - | \$ 20,780,000 | OK |

| TOTAL UNIT COST | No. | Total Costs | |
|-----------------|-----|--------------|----------------|
| \$20,780,000 | 1 | \$20,780,000 | Aquatic Centre |
| | | \$0 | |
| | | \$20,780,000 | OK |

Name of project and description:

Athletics Track & Field

Description of main catchment area:

Total Urban Growth Area

Profile A:

Standard of construction:

Provision of an athletics track and associated jumping pits, fencing, nets, etc. Pavillion to be jointly used with Regional Active Parkland (NE)

Location and main catchment plan

INSERT PLAN showing location of infrastructure item and the catchment area it serves

Capital cost details (\$2008):

| | Quantity | Units | Unit Rate | Amount | Notes |
|---|---------------------------|-------|-----------|--------------------|--|
| Design and project management | | | | | |
| % of project cost | 10% | | | \$202,500 | |
| Construction - Athletics Facility : REGIONAL | | | | | |
| | | | | | 3 ha site |
| Site Preparation | 1 | Item | \$100,000 | \$100,000 | |
| Turf - Playing Surface | 18,000 | m 2 | \$20 | \$360,000 | |
| Athletics Track | 7,000 | m 2 | \$175 | \$1,225,000 | |
| Speciality Sports Rings, Nets and Pits | 1 | m 2 | \$100,000 | \$100,000 | |
| Irrigation | 10,000 | m 2 | \$5 | \$50,000 | |
| Fencing | 1,000 | L m | \$150 | \$150,000 | |
| Bench Seats & Shelter | 4 | Item | \$10,000 | \$40,000 | |
| Lighting | 1 | Item | \$150,000 | \$150,000 | |
| | | | | \$2,025,000 | |
| | Total Number | | | 1 | Located at NORTH Regional Activew Open Space |
| | TOTAL | | | \$2,025,000 | |
| | | | | | |
| | TOTAL CONSTRUCTION | | | \$2,025,000 | |
| | | | | | |
| Land Acquisition | | ha | \$500,000 | \$0 | Refer active open space |
| | | | | | |
| Contingency | | | | | |
| % of project costs | 10% | | | \$202,500 | |
| | | | | | |
| Total Cost | | | | 2,430,000 | |

Project Timing:

Proportion of total project by year
Proportion of total project by cost

| Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Yr 11 | Yr 12 | Yr 13 | Yr 14 | Yr 15 | Yr 16 | Yr 17 | Yr 18 | Yr 19 | Yr 20 |
|------|------|------|------|------|------|------|------|------|-------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$1,215,000 | \$1,215,000 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |

100% OK
\$ 2,430,000 OK

| 3 | No. | Total Costs | |
|-------------|-----|-------------|-------------------------|
| \$2,430,000 | 1 | \$2,430,000 | Athletics Track & Field |
| | | \$0 | |
| | | \$2,430,000 | OK |

ARMSTRONG CREEK

GEELONG'S GROWTH AREA



ARMSTRONG CREEK

Civil Interagency Infrastructure Delivery Plan (CIIDP)

Final Report – February 2009

Prepared by the City of Greater Geelong in
consultation with :-

Barwon Water
Powercor
SP Ausnet
Victorian Department of Transport
VicRoads
Telstra



“For Essential Services & Civil Works”

ENDORSEMENT BY INFRASTRUCTURE AGENCIES

The Agencies involved in the preparation of this Interagency Infrastructure Delivery Plan (IIDP), endorse it as reflective of their strategic planning for trunk infrastructure delivery at Armstrong Creek, and commit to continuing to work in partnership with other members of the Interagency Infrastructure Working Group to ensure coordinated, timely and streamlined implementation of the plan.

Barwon Water

City of Greater Geelong

Powercor

SP AusNet

Telstra

VicRoads

Victoria Department of Transport

ACKNOWLEDGEMENTS

The City of Greater Geelong would like to acknowledge and thank the members of the Interagency Infrastructure Working Group who gave their time generously, and contributed thoughtfully, in their collaboration with the other agencies to establish a coordinated and expedited approach to the servicing of the Armstrong Creek Urban Growth Area.

| AGENCY | SERVICE(S) | NAME | ROLE |
|------------------------------|-------------------------------|-----------------|--|
| Barwon Water | Potable Mains Water | Paul Northey | General Manager, Capital Projects & Greenhouse |
| | | Peter Morgan | Manager Asset Planning |
| | Sewerage | Seamus Bucher | Coordinator Water Resources and Sewerage Planning |
| City of Greater Geelong | Stormwater Management | David Hannah | Manager Engineering Services |
| | Collector Roads & Access ways | Vicki Shelton | Coordinator |
| | | Robert Anderson | Senior Drainage Engineer |
| Powercor | Electricity Network | John Garvey | Network Planning Manager |
| | | Mark Lindorff | Network Planning Engineer |
| SP Ausnet | Gas | Mark Baker | Lead (Gas) Planning & Performance Eng., Network Development Division |
| | | Paul O'Brien | Senior Project Consultant |
| Vic. Department of Transport | Public transport (Rail & Bus) | Richard Sloane | Regional Manager – Barwon Bus & Regional Services |
| VicRoads | Arterial Roads | Duncan Elliot | Regional Director, South Western Region |
| | | William Teippo | Manager Program Development, South Western Region |
| | | Rod Cottrill | Team Leader Project Development, South Western Region |

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Waterways and catchments are the ecosystems supporting the livelihood, lifestyle and health of the total community

IIDP PURPOSE: A PLAN TO DELIVER SERVICED, DEVELOPABLE, LAND

This Interagency Infrastructure Delivery Plan (IIDP) provides an outline of the baseline concept plans of each of the agencies for an expedited roll out of the requisite trunk infrastructure to service the Armstrong Creek Urban Growth Area including:

- conventional reticulated potable mains water and sewerage services
- stormwater management
- movement and access (roads and access ways)
- electricity and gas supply systems
- rail and other public transport services
- telecommunications.

The IIDP outlines a conventional approach to the delivery of the trunk infrastructure necessary for developing a large scale greenfield urban growth area including a staged, agency dependent, implementation sequence on a precinct by precinct basis. Council considers this IIDP to be a baseline plan, “Plan A”, and understands that significant potential exists for land developers to open up the supply of developable land more quickly. Council encourages developers to identify and propose alternative delivery sequences (i.e. “Plan B”) to the Interagency Infrastructure Working Group, as soon as is practically possible on a “whole-of-precinct” basis. The design, TBL considerations and business case for each proposal will be evaluated (along with resourcing and investment implications) to determine the appropriateness of the proposal.

The IIDP has been prepared by the City of Greater Geelong in collaboration with Barwon Water, Powercor, SP AusNet, Department of Transport and VicRoads, and with input from developers with land interest in the area.

This Interagency Infrastructure Delivery Plan (IIDP) is the baseline (conceptual) delivery plan for the Armstrong Creek Growth Area that:

- **Agencies will implement to deliver serviced / developable land, unless developers propose a suitable agency approved alternative; and**
- **Will be the baseline for comparison and evaluation of alternative plans that are proposed.**



An active lifestyle is critical to the development of a healthy society and communities. Access to attractive and integrated walking paths, cycle ways and public open space are fundamental in the development of new communities and long-term behaviour.

CONTEXT: REDUCED TIMELINES FOR INFRASTRUCTURE DELIVERY

Regional context positions Geelong as Victoria's sixth growth area

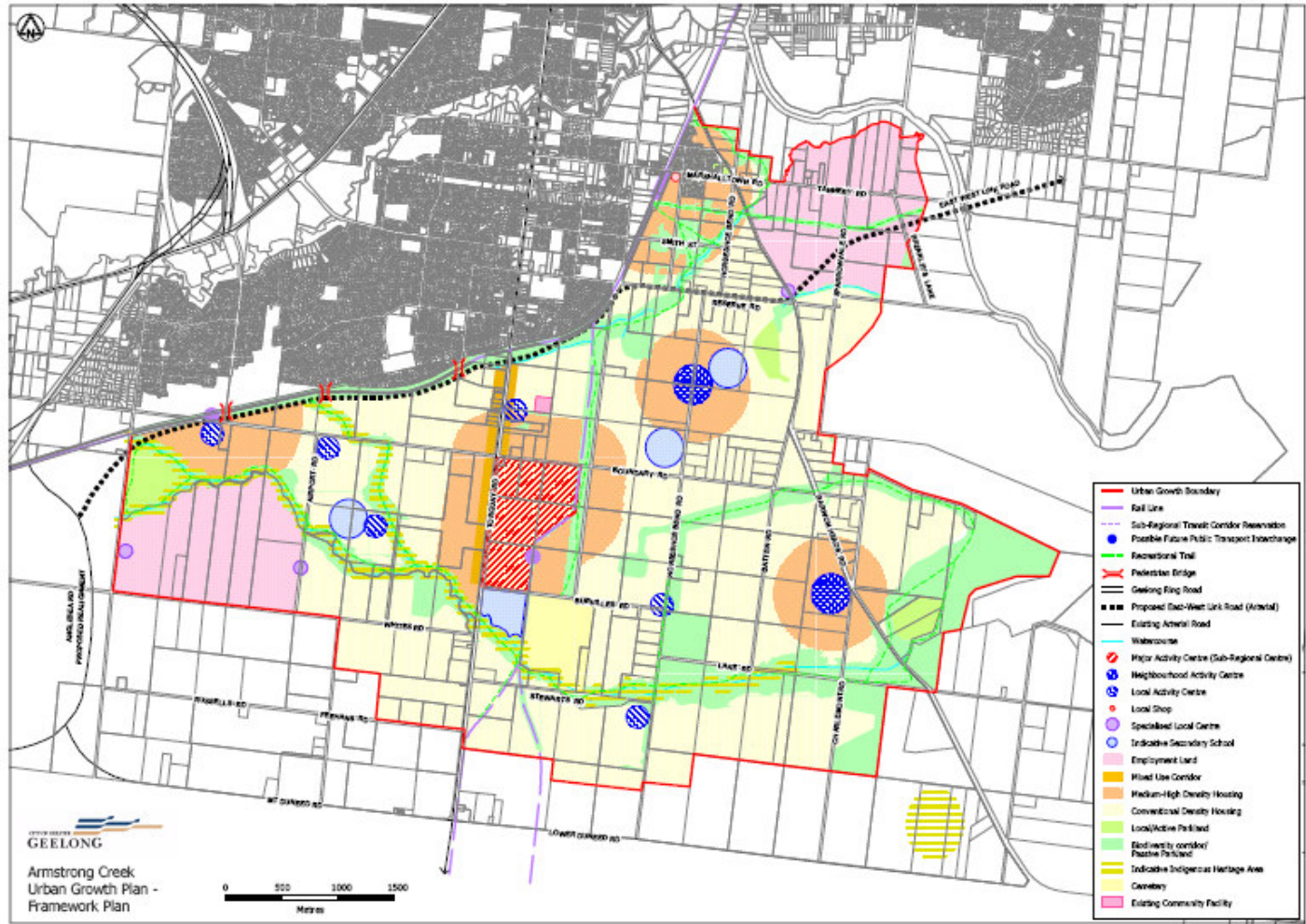
Geelong is Australia's eleventh largest city, Victoria's second largest city and its most important provincial centre. Geelong is the principle settlement and economic centre for the South West region of Victoria, providing access to important primary services such as hospitals, specialist medical, tertiary education, retail shopping and other community and commercial facilities. It is well serviced by major infrastructure including Geelong port and Avalon Airport; railway connections to Melbourne, Warrnambool and Ballarat; a road network which includes the Princes Freeway and Highway, Geelong Ring Road, the Hamilton Highway and the Midland Highway; significant health and education facilities including Deakin University; and a broad range of passive and recreational opportunities, ranging from regional to local scale, and including Skilled Stadium and the Waurm Ponds baseball and aquatic complex.

Greater Geelong is a municipality of contrasts with coastal, rural, urban and natural environments defining the landscape. The natural topography includes Corio Bay and the Barwon River, the hills of the Bellarine Peninsula and Barrabool, the Lovely Banks escarpment, the You Yangs and Brisbane ranges, the northern basalt plains, the lake and wetlands around Reedy Lake, Lake Connewarre and Swan Bay, coastal dunes and cliffs and Mt Duneed. Geelong itself is only a short distance the attractive beaches of the Surf Coast and the Bellarine Peninsula.

Geelong is only a short distance from Melbourne and is well connected by road and rail services. Whilst Geelong currently has a very limited supply of broad acre land for urban development it is anticipated to be an increasingly attractive urban growth area for Melbourne. A key priority for Council is, therefore, to rapidly increase the supply of developable land and the Armstrong Creek Urban Growth Area is one of the Council's largest and most important strategic projects. It aims to concentrate the majority of the urban growth of Geelong into a comprehensive community in the area south of the railway line at Grovedale and Marshall.

Whilst outside the five nominated Melbourne growth areas, Armstrong Creek is the largest contiguous development in Victoria, and one of the largest in Australia, and hence ranks as Victoria's sixth growth area. Council is likewise committed to the development of liveable new communities with the same goals as the Melbourne's growth areas: sustainable built and natural environments; high quality job opportunities and a thriving local economy; healthy, safe and socially connected communities; and affordable living.

Figure 1: Armstrong Creek Urban Growth Plan – Framework Plan



The Armstrong Creek Urban Growth Plan is for a sustainable and liveable community

The Armstrong Creek Urban Growth Area is approximately 2 600 hectares of greenfield (unserviced) farming land and provides Council with a unique opportunity to create a sustainable 'extension' of Geelong's urban area to accommodate the population expansion proposed for the region.

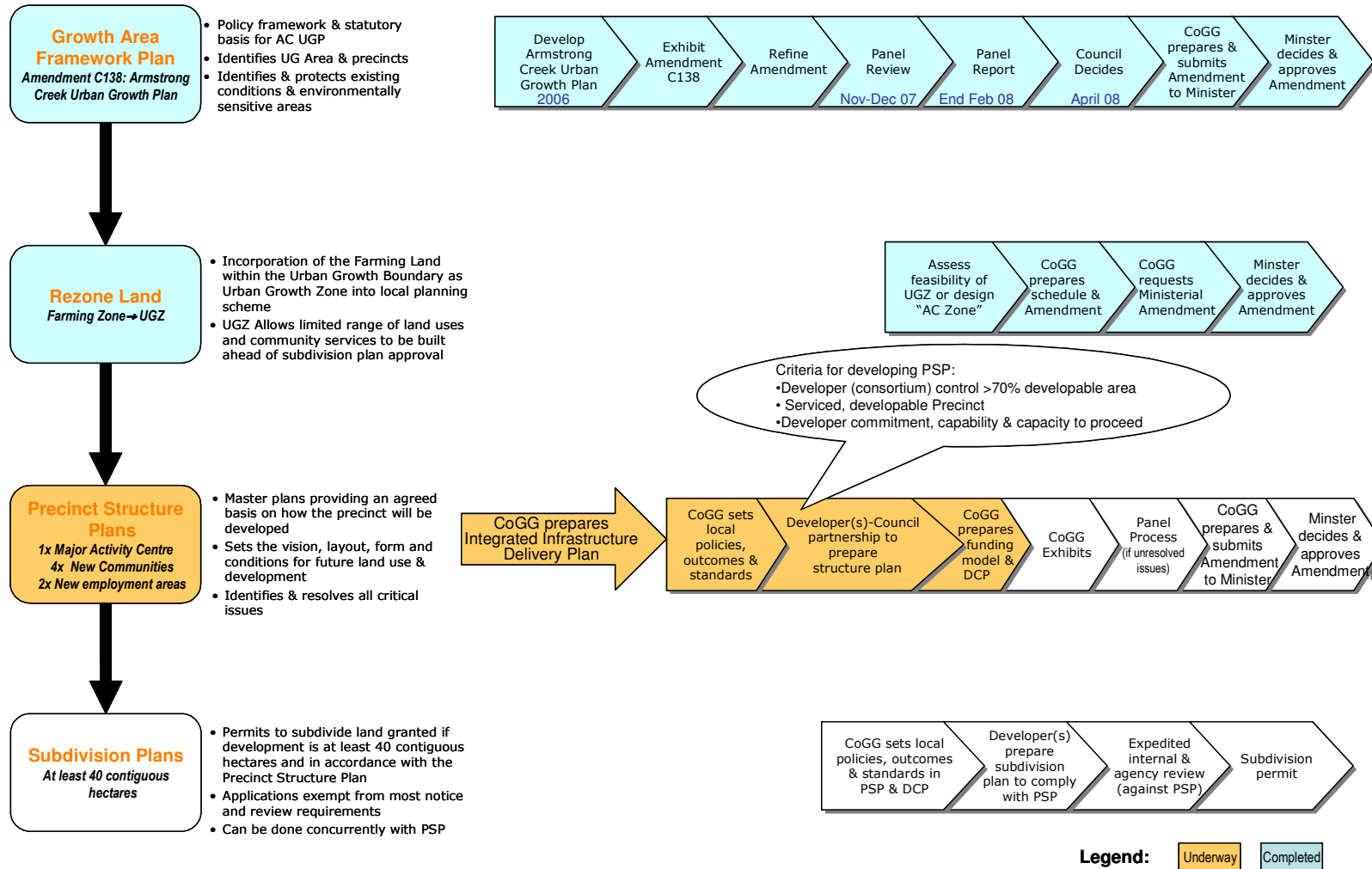
Armstrong Creek has great potential to be a sustainable, liveable community with existing railway services and good road links to Melbourne, central Geelong, Barwon Heads, Torquay and the Surf Coast. A new railway station is planned in the west of the growth area along with a significant upgrade of the existing Marshall Railway Station on the eastern side and a new north-south transit corridor through the centre of the growth area. It provides the opportunity for future residents to take advantage of the employment opportunities and services offered by Geelong city, and within the employment areas of Armstrong Creek, while being only a short distance from the attractive beaches of the Surf Coast and the Bellarine Peninsula. Armstrong Creek itself has the potential to be a key asset for the growth area and traverses east-west through the site. This, combined with the undulating topography of parts of the land makes the area very attractive for a healthy residential and business environment.

The Armstrong Creek Urban Growth Plan Framework Plan (refer Figure 1) shows that the area will ultimately be serviced by one Major Activity Centre, two Neighbourhood Activity Centres and a number of local centres. The area will have its own education and health facilities, 320 hectares of employment land and significant recreational areas. Ultimately it is conservatively estimated that Armstrong Creek will accommodate 22,000 dwellings, a population of 55,000 and will provide 22,000 jobs.

Council's vision is to develop Armstrong Creek as a demonstration of a community that is sustainable in all aspects – environmentally, socially and economically. With a progressive and innovative approach to planning and design, Armstrong Creek will be a smart, green community with enhanced lifestyle and amenity, meeting a range of community sustainability goals and, in particular, minimizing green house gas emissions. Natural and cultural features will be protected and enhanced to create a distinct urban rural identity with leading edge telecommunications.

Council's vision is for the Armstrong Creek Urban Growth Area to be developed into a sustainable community that set new benchmarks in best practice urban development, with natural and cultural features protected and enhanced to create a distinct "green" urban character.

Figure 2: Planning Process for urban development of Armstrong Creek



Streamlined planning process will reduce timelines for delivery of trunk infrastructure

Council has adopted the recently introduced streamlined planning process being applied to Melbourne's growth areas. The Armstrong Creek Urban Growth Boundary has been established via an Amendment process that has resulted in the *Armstrong Creek Urban Growth Plan, Framework Plan* (Figure 1) being included in the planning scheme and a Ministerial Amendment applying the new Urban Growth Zone to farming land within the Urban Growth Boundary. This simplifies the planning process and focuses attention on development of Precinct Structure Plans (PSPs) that are master development plans, merging the strategic planning and land rezoning approval processes into one step. Subdivisions stages can proceed concurrently with PSPs.

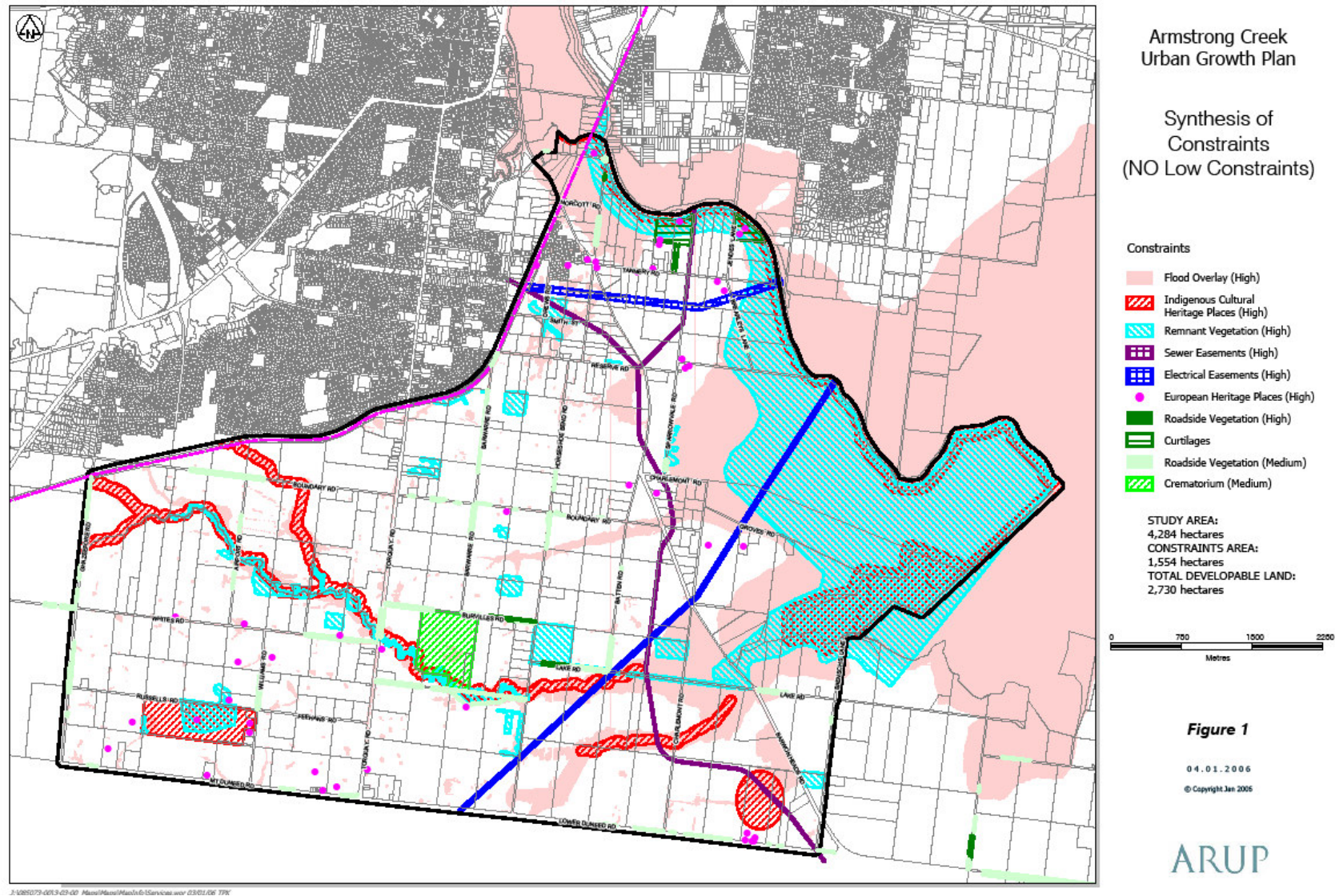
This planning process (outlined in Figure 2) will bring forward the urban development of Armstrong Creek by more than twelve months and shorten the timeline for the delivery of the essential services and civil works infrastructure that is required for land to be serviced for subdivision. Council's goal is to have at least 200 hectares of fully serviced residential land at Armstrong Creek available for urban development by the end of 2011 and for completion of the roll out of trunk infrastructure across the growth area by the end of 2019. This will then mean subdivisions (that meet the requisite permit conditions) could occur anywhere in the Urban Growth Area from 2020 onwards (note – this can be brought forward subject to agreement between the precinct consortium (developer) and the respective servicing authorities).

Sustainability of infrastructure delivery is important

As we move into a carbon constrained future, the City of Greater Geelong considers the delivery of the primary "whole of urban growth area" infrastructure to be critically important to the delivery of its sustainability agenda because of:

- the magnitude of benefits that can be planned into the growth area and not available at precinct/subdivision/allotment level;
- the considerable scale of the Armstrong Creek Urban Growth Area which provides significant leverage for economies of scale for investing in alternative approaches with significant upfront costs;
- the potential to demonstrate a step change in sustainable urban growth benchmarks that is replicable in other developments;
- the location provides the opportunity to set up Armstrong Creek in a "sustainability envelope" where agencies and developers collaborate to minimise the impact of the built environment on the surrounds and reduce its demands on regional infrastructure;
- encouraging developers to invest in leading edge sustainability approaches at the subdivision and lot scale levels to leverage the full potential of the value of the "green, smart, responsible" infrastructure in their target markets; and
- the social equity of obtaining affordable sustainability benefits for all members of the Armstrong Creek community (from the whole of the urban growth area infrastructure).

Figure 3: Map of Armstrong Creek Urban Growth Area Constraints



The Growth Area features : Opportunities and Constraints

The Urban Growth Area consists primarily of gently undulating rural land, although Mt Duneed provides a focus for the area and a green backdrop for future development. Natural features such as Mt Duneed, the Barwon River and Armstrong Creek are key assets for the area and will provide focal points for the development:

- **Natural systems:** The study area consists mainly of rural land. The associated drainage is via a number of drainage depressions and larger watercourses. Formal stormwater drainage infrastructure in the study area is limited to a small area of urban development in Marshall. Flooding is the major physical constraint of the Study Area and development. The Urban Growth Area spans a number of catchments and drain to the downstream Ramsar Wetlands located to the east of the urban growth boundary. Land use planning and drainage management for the study area are the responsibilities of the Council. Floodplain management is the responsibility of the Corangamite Catchment Management Authority (CCMA).
- **Flora and fauna:** A number of areas in the growth area have been identified for protection from development due to ecological values. The floodplains of the Barwon River and Armstrong Creek comprise most of the River Red Gum dominated grassy woodland in the study area and small pockets of Bellarine Yellow Gum woodland have been identified. There are also significant flora areas located along some roadsides and around streams and creeks. Where possible, Council has assumed the retention of existing vegetation that is “designed into” forming part of movement, access and biodiversity corridors in the preparation of detailed Precinct Structure Plans. A native vegetation management plan that meets the content requirements set out in Clause 52.17 will need to be prepared as part of the development of the Precinct Structure Plans.
- **Ownership and subdivision pattern:** Land ownership within the growth area is fragmented and the area consists of a number of titles of varying sizes. Land sizes in the majority of the growth area that is currently zoned farming, are typically larger holdings of 10-20 hectares or more whilst the Marshall area contains very small land titles of 1-5 hectares with a highly fragmented ownership pattern. A number of developers have commenced the land assembly process (other than in the Marshall area) and have control over significant areas of contiguous land, and approaching the 70% developable land of a precinct that is necessary to commence the Precinct Structure Planning process.
- **Heritage sites:** The area has significant Aboriginal heritage values, including historical associations with contemporary Wathaurong descendants. There are several known and potential Aboriginal heritage sites within the growth area with a total of 46 post contact cultural heritage sites identified, the majority of which are outside the areas identified for high-density residential development. Council is expecting Precinct Structure Plans to respond to Cultural Heritage Management Plans for that precinct. This is a critical path issue for delivery of some elements of the IIDP, in particular sewerage services.



“Only when the well is dry, will we know the worth of water” - Benjamin Franklin

PROCESS: COLLABORATIVE IIDP DEVELOPMENT

Formation of the Interagency Infrastructure Working Group (IIGW) Partnership

There are multiple interdependencies between organisations and deliverables along the delivery path for the servicing the Armstrong Creek Growth Area. Council's deliverables are likewise interdependent with other organisations (eg agencies, developers) that will have significant impact on the timing and quality of the outcomes achieved. The Armstrong Creek project requires, therefore, a contemporary approach to develop ongoing productive partnerships between Council, State Government, Agencies and the developer community that:

- develops associations (e.g. strategic partnerships, networks, and working groups) that are established as strategic coalitions/alliances between organisations with a commitment to achieve a specific purpose and/or common goal.
- involves authentic participation and collaboration rather than mere communication, and recognises difference in perspectives whilst working together to define problems, critical issues and opportunities to work towards common goals.
- can evolve progressively in their possibilities, and develop mechanism for bridging organisational and interpersonal differences to achieve real value from the partnership.

In 2007 Council established the Armstrong Creek Interagency Infrastructure Working Group (IIGW) for civil works and essential services as a new partnership that builds on, and compliments, the existing arrangements within each agency for the provision of civil works infrastructure.

**The aim of the Interagency Infrastructure Working Group is to coordinate the strategic planning and decision making required for
MORE TIMELY AND EFFECTIVE DELIVERY OF ESSENTIAL SERVICES AND CIVIL WORKS INFRASTRUCTURE
required for the current farming land to be serviced for subdivision and urban development.**

The IIGW has also committed to working together to increase the State Government focus on the infrastructure priorities for Armstrong Creek. In addition to each agency progressing the dialogue and approval processes internally within their own organisations, a core channel for facilitating and expediting achievement of this objective is via the advocacy of the State Government appointed Partnership Broker to the Geelong planning partnership.

Council set design parameters to align Agency inputs to the IIDP

The IIDP is focused on achieving a clear vision for conventional delivery of trunk infrastructure to the growth area. It has been designed to ensure the area can be serviced in a timely and efficient manner, and obligations and responsibilities contained within the plan are clear.

Council nominated the ten year planning timeframe (commencing in the fiscal year 2009/2010), having regard to the shortages of developable urban land identified within the municipality and metropolitan Melbourne. Council's objective is to ensure that the supply of developable land is rapidly increased to allow urban development on multiple fronts driven by market demand that is not constrained by the availability of developable land.

Members of the IIWG have adopted Council's planning targets for their infrastructure delivery so that:

- each servicing authority/agency established their preferred staging for provision of infrastructure from first principles on a precinct by precinct basis, and have provided council with independent, business case driven decisions;
- at least 200 hectares of land will be serviced for subdivision by the end of 2011; and
- trunk infrastructure completely rolled out across the growth area so that subdivisions (that meet the requisite permit conditions) could occur anywhere in the urban growth area by the end of 2019.

Significant engineering concept and design work underpins the IIDP

The IIDP builds on various technical investigations, data collection, modelling for the area and concept studies that have been undertaken over the past year by the City of Greater Geelong and agencies including:

- detailed concept design and implementation plan for the provision of sewer and water infrastructure;
- traffic modelling for the Armstrong Creek network;
- cost estimate of movement and access works;
- stormwater management strategy.

Copies of these reports are available, and extracts included in the attachments to this document.

Detailed design and commissioning of infrastructure elements by each Agency

Each agency has their own internal planning processes for approval of funding and commissioning of detailed design and delivery of infrastructure. The integration of these works through the IIDP will be finalised in parallel with the development of the first PSP in late 2008 / early 2009. The finalised IIDP will then be a key input into the remaining Precinct Structure Plans.

Developer community has contributed to shaping the concept plans

Council has had ongoing discussions with the developer community to obtain input into this infrastructure delivery plan including:

- public developer forums on a monthly basis to brief , and obtain feedback on, the latest infrastructure delivery concepts and plans;
- individual consultations with developers who have declared a land interest in the Armstrong Creek Growth Area for frank advice on their appetite for the various options being considered;
- involvement of developers and their consultants, along with agencies in work shopping the 800 metre grid based collector road concept layout plans that replaced Council's previous diagonal road layout plan;
- briefing on, and seeking feedback prior to finalisation of the traffic modelling for the Armstrong Creek network and the recommended stormwater management strategy for Armstrong Creek; and
- briefing on, and seeking feedback prior to finalisation of this IIDP document.

Alternative servicing plans are encouraged

These concept plans have been prepared based on conventional baseline servicing of subdivisions – “Plan A”. However, potential exists for land developers to open up the supply of developable land in advance of the baseline IIDP through the provision of alternative delivery sequencing and / or solutions. Council encourages developers to identify and propose alternatives (“Plan B”) as soon as is practically possible to the IIWG. The design and business case for each proposal will be evaluated (along with resourcing and investment implications) on the extent to which the alternative:

- supports delivery of the intent of the Armstrong Creek Urban Growth Plan;
- decreases greenhouse emissions and/or demand on regional infrastructure from the baseline plan;
- expedites delivery of the baseline sequence of fully serviced precincts; and
- facilitates sustainable urban growth that is founded on good design.

CONCEPT PLANS FOR EACH OF THE INFRASTRUCTURE ELEMENTS

The concept plans for conventional trunk infrastructure to be delivered by each Agency is contained in the Attachments to this IIDP:

- Attachment 1: Barwon Water – Potable Mains Water & Sewerage
- Attachment 2: City of Greater Geelong – Stormwater Management
- Attachment 3: Combined City of Greater Geelong & VicRoads – Road Network and Access Cycle ways and Trails
- Attachment 4: Powercor – Electricity Network
- Attachment 5: SP Ausnet – Gas
- Attachment 6: Department of Transport – Railway Services

Integrated Water Cycle Management is a Council Objective

Sustainable water resource management is a key challenge for all proposed urban developments given predictions for a warmer, drier climate in south eastern Australia. The appropriate response is a systems based approach to integrated water management. This means designing developments to encourage efficient and sustainable water use at the household scale and to optimize opportunities to capture and reuse non potable water within the urban landscape.

Lack of significant rainfall over the past decade across south-eastern Australia has necessitated water corporations and local government to extensively review long term strategies for sustaining water security. Integrated water cycle management refers to the combination of two strategic responses to the water security challenge, ensuring adequate supply and managing demand. This approach is as relevant to the property and development scale as it is to the regional scale.

Across the region average stream flows have reduced and population growth is continuing, particularly in the coastal townships, and the region has had to adapt to doing more with less water. Barwon Water's Water Supply-Demand Strategy addresses the long term (50 year) water security needs in the region through an integrated water cycle management approach. The strategy outlines a significant commitment to water conservation but recognises that smart augmentation of some water supply systems will be necessary.

Major regional scale water augmentation projects will increase the regional water supply to 54,000 ML/yr by 2012 and secure water supply to the Geelong region for the next 50 years, including the proposed Armstrong Creek development. Key new supplies include Anglesea Borefield Project, Barwon Downs Borefield upgrade, interconnector between Melbourne to Geelong and Dewings Creek diversion reinstatement.

Conservation is a key strategy to cope with reduced water availability and to manage demand driven by population growth. Within the greater Geelong system, the residential sector uses 65% of supply whilst the non-residential sector (which includes business and industry), accounts for the remainder. Geelong's peak consumption occurred in the early 1980s at approximately 40,000 ML/year (serving a then population of approximately 150,000 people). Since then, there has been a steady decline in per capita residential, industrial and commercial consumption, from 464 litres per head per day in 1994/95 down to 275 litres per head per day in 2007/08. The 10-year average regional consumption for Geelong is approximately 34,000 ML/yr. This reduction is due to a range of demand management initiatives, including compulsory and permanent water saving measures (ie water restrictions), compulsory dual flush toilets, a stronger water conservation ethic, user pays pricing, a strong take up of water efficient fixtures, introduction of the Water and Energy Saving regulations adopted by Plumbing Regulation in 2004 (requires minimum flow rates for water fixtures in premises), and adoption of water efficient appliances including washing machines and dishwashers.

The Government has endorsed Barwon Water's regional target to reduce per capita water consumption by 25% by 2015 (348 l/p/d) and 30% by 2020 (324 L/p/d - based on the 1994/95 baseline). The State Government has recently announced the "Target 155 Campaign" which aims to reduce Melbourne's water demand to 155 litres / person / day.

In working toward these targets, water sensitive urban development is interpreted as a design concept that integrates a range of measures for sustainable water management in situ. This includes both the design and use of urban landscape form as well as the buildings and their use within that landscape. This broader interpretation of Water Sensitive Urban Development could include consideration of housing and building design that requires water efficient appliances and gardens, incorporates reuse of grey water and stormwater on site, as well as the traditional landscape approach to managing the quality and end use of urban stormwater .

Barwon Water is currently preparing a business case for a new recycled water facility to be developed at its Black Rock Water Reclamation Plant. The *Black Rock Recycled Water Strategy* is a regional strategy which is currently investigating the potential uses for high quality recycled water from the proposed new recycled water plant at Black Rock. Concept designs and cost estimates are currently being carried out for the new recycled water plant that will provide additional treatment to the existing Class C moderate salinity recycled water. Potential uses of high quality recycled water from the new plant could include:

- Existing irrigation and agricultural customers;
- New irrigation and agricultural customers;
- Private entities;
- Open space irrigation in Armstrong Creek and Torquay;
- Third pipe supply in Armstrong Creek and Torquay.

The strategy concept being considered is to construct the recycled water plant in two stages. The first stage would produce Class C low salinity recycled water to be used by existing and new irrigation and agricultural customers and potentially open space watering in Armstrong Creek and Torquay. Once a demand for either third pipe at Armstrong Creek and Torquay or other high quality uses is confirmed, a second stage could be added to improve the recycled water to Class A low salinity recycled water. This approach would enable some short-term objectives to be met (i.e. improving recycled water quality for existing customers) whilst allowing time to develop opportunities with a third party regarding the recycled water pipe network which could incorporate the Armstrong Creek development.

Council has set targets for residential and employment areas of Armstrong Creek as follows:

- 1. Reduce the demand for potable water in line with Barwon Water's regional target (25% by 2015 and 30% by 2020)**
- 2. Significantly decrease greenhouse emissions via both built form and personal transport.**

Achievement of Council's targets will require developers and/or third parties to invest in sustainable water and associated energy management solutions and to work closely with relevant agencies to develop these solutions.

KEY INTEGRATED WATER CYCLE MANAGEMENT DESIGN PRINCIPLES:

(Mains Water, Sewerage, Recycled Waste Water, Stormwater Management)

- Sufficient mains water will be able to be supplied by Barwon Water to service the potable water demand.
- Sewerage infrastructure is largely gravity fed and needs to be built sequentially from the trunk sewer connection in the east, following the topography. The design of sewerage has allowed for flexibility to deliver other scenarios if required.
- Potential use of recycled waste water is being explored utilising recycled waste water from Black Rock reclamation plant.
- Flexible stormwater management strategy based on the restoration of natural streams and recognising the benefit of individual developer investment in water sensitive urban design, rainwater tanks and water efficient appliances.
- Downstream Ramsar Wetlands are environmentally sensitive and hence strict stormwater quality and quantity controls are required.

CRITICAL ISSUES:

- A Cultural Heritage Management Plan will be required in order to construct the Armstrong Creek branch sewer that follows the alignment of Armstrong Creek and will ultimately service the majority of the development.

Supply of Potable Mains Water – Barwon Water

Barwon Water's potable mains water concept design consists of 3 zones supplied from Pettavel Basin via the Bellarine transfer mains. A high level zone will be supplied directly from the Bellarine transfer main. The augmentation of the Bellarine Transfer Mains (along the railway line) is planned to occur in two stages with the first stage to Torquay Road due to completed in the next couple of years.

Supply of Sewerage Services – Barwon Water

Barwon Water's sewerage infrastructure concept design includes 13 sub-catchments all of which ultimately connect to the outfall sewer that carries sewerage to the Black Rock Water Reclamation Plant (WRP). The majority of the development will be serviced by the Armstrong Creek branch sewer that follows the alignment of Armstrong Creek.

Supply of Recycled Wastewater – Barwon Water

Barwon Water is exploring the potential for utilising recycled waste water from Black Rock WRP and creating an opportunity to service Armstrong Creek for public open space, industrial or residential recycled water use.

Achievement of Council's targets will require the Federal or State Government, developers and/or third parties to invest in sustainable water and associated energy management solutions.

Stormwater Management – City of Greater Geelong

Council has developed a stormwater management strategy for Armstrong Creek that utilises an integrated water systems analysis to explore the performance of a range of stormwater management options for the Armstrong Creek development. It seeks to recognise the downstream benefits from investment upstream and to encourage developer investment in contemporary sustainable water cycle management design and construction practices, including the use of rainwater tanks and water sensitive urban design.

The details of the stormwater management strategy for Armstrong Creek and Council's Stormwater Management Policy are contained in Attachment 2. It has been designed to:

- Adopt an integrated approach to stormwater management that meets objectives for hydraulic capacity and water cycle management;
- Minimise the disturbance of waterways created by altered flow regimes and protect natural drainage and aquatic ecosystems;
- Maintain and protect the water quality in receiving waters, the down stream environment and the Ramsar wetlands;
- Enhance the value and public amenity of the existing stream corridors, biodiversity and environment of Armstrong Creek as a key asset of the urban growth area;
- Include the principles of water sensitive urban design and sustainable urban growth; and
- Allow the full range of urban design, water conservation and local stormwater infrastructure options likely to be proposed by developers.

The stormwater management policy proposes that the developer (or developer consortium) for a particular precinct can adopt one of the defined stormwater management strategies and provide the required additional detention and constructed wetland storage within the precinct. Alternatively a developer can elect to make a proportional financial contribution to construct detention basins and constructed wetlands at the nearest defined downstream location (including reimbursement of the land owner for the value of the land). All developers in a given catchment will as a proportion of land holding contribute to the cost of restoring streams within that catchment.

Energy supply and demand reduction strategies are also a Council goal

Urban growth areas are major centres for energy demand, requiring large quantities of energy in both construction and operation. Reducing greenhouse emissions will become a key priority as we move into a carbon constrained future which requires an integrated approach to energy demand reduction and renewable energy supply strategies as part of the master planning and preparation of Precinct Structure Plans.

The production of electricity generates more than 50% of Victoria's greenhouse gas emissions, with demand for electricity growing by approximately 1.5% per annum. In 2006 the Victoria Government announced the "Victorian Renewable Energy Target" which aims to provide 10% of Victoria's energy supply via renewable sources such as solar, wind, hydro, geothermal and biomass by the year 2016.

The renewable energy sources / opportunities currently available to the Geelong region (and Armstrong Creek) include continued wind farms expansion along the south-western coast line of Victoria, State / Federal Government funding assistance for household solar energy and solar hot water systems and geothermal energy generation.

A recent announcement by the company "Greenearth Energy Ltd" confirmed they were exploring opportunities to develop a geothermal energy plant in the Geelong region that utilises the hot sedimentary aquifers in the Armstrong Creek and Moriac area to create renewable energy. Hot water flowing under the Geelong region has the potential to supply 150 times Victoria's energy requirements. The project has already attracted \$7M in Federal funding to assist in the development of the project, with a project's total cost being estimated at \$20-24 M.

Council has set the goal of developing precinct based energy management plans, that includes both supply and demand strategies to deliver a "state of the art" approach to minimising the "development footprint". Council has set targets for residential and employment areas of Armstrong Creek to significantly decrease greenhouse emissions via both built form and personal transport.

KEY DESIGN PRINCIPLES:

- **Energy demand and supply management strategies are required in order to target significant reductions in the greenhouse emissions from the urban growth of Armstrong Creek.**
- **Underground or re-route electricity transmission lines to remove both the potential for harmful health impacts and the visual blight caused by the lines and, in particular, their pylons**
- **Design of the supply of gas is based on connection from the transmission line on to a central location for flexibility to service subdivisions as they are developed.**

CRITICAL ISSUES:

- Whilst it is standard practice to underground new power lines at a subdivision level, the “under grounding” or rerouting of existing transmission and feeder lines will need to be funded.
- At this stage, Council’s goal of reducing greenhouse emissions from energy consumption in Armstrong Creek is aspirational and is dependent on the developer appetite for embracing a more sustainable approach to the built environment.
- SP Ausnet is the only provider of gas and at this stage is unable to provide a commitment to service Armstrong Creek.
- Augmentation of the gas transmission line would be required to service the full development of Armstrong Creek. This is a major and rare construction activity. As it is a licensed pipeline, Department of Primary Industry permits would be required to work on this asset. Allocation of this cost is still to be determined.

Electricity - Powercor

Powercor has a number of feeder lines passing through the Armstrong Creek Urban Growth Area and an ongoing 10 year plan to upgrade its network to meet the expected load growth and to improve reliability throughout the Region. It is, therefore, well positioned to be able to service the entire urban growth area of Armstrong Creek from 2013 when additional capacity will be provided in the feeder lines with the establishment of the new Torquay Zone Substation for Torquay/Jan Juc and a local substation with the Urban Growth Area. In the interim Powercor is able to service development of the Armstrong creek East Precinct and/or along the Surf Coast Highway.

Natural Gas – SP AusNet

SP AusNet is well positioned to supply natural gas to Armstrong Creek with transmission pipelines in Torquay Road and Mount Duneed Road. SP Ausnet has suggested construction of a central grid or core of supply mains that would enable the mains to be extended from the

central location to the various new estates as they develop. By the completion of the full development of Armstrong Creek SP AusNet would need to have in place additional supply capacity with the augmentation of their transmission gas line to the west of Armstrong Creek. At this stage SP AusNet has a fair degree of flexibility in their planning arrangements.

Movement and Access that encourage alternative forms of transport

Transport is crucial to managing growth, providing equity of access, reducing environmental impacts and maintaining a prosperous economy. Permeability and connectivity of movement and access is critical. In addition, a development of the scale of Armstrong Creek offers a rare opportunity to plan for modal shifts away from car dependency and for higher-quality public transport services. Council's goal is for smart land use planning for "walkable" neighbourhoods combined with a hierarchy and network of cycle access ways to encourage modal shifts away from car dependency for trips confined to within Armstrong Creek, particularly those of less than 5kms.

Council's objective is to work in partnership with the State Government to deliver integrated transport and land-use planning and development activities to develop Armstrong Creek as a sustainable, liveable community with a significant modal shift away from car dependency and higher density housing.

KEY DESIGN PRINCIPLES:

- **More frequent, narrow, collector roads at 800 metres taking traffic to the outer arterial roads. Maximise the flow of traffic on arterial roads with minimum numbers of intersections.**
- **Design to increase movement and accessibility through wide access ways for walking and cycling, and high frequency public transport to encourage modal shifts away from car dependency.**
- **Prioritised public transport movement on road systems to enable them to operate efficiently, frequently and on time.**

CRITICAL ISSUES:

- Establishing the final alignments for new/upgraded arterial roads and protection of future movement and access reservations.
- Establishing the State Government's early commitment to public transport facilities and services for Armstrong Creek so that this is built into precinct structure planning and subdivision planning to encourage higher density housing and encourage alternative forms of transport and reduced travel demand.

- Design of intermodal conflict points to maintain the attractiveness of the bicycle as a mode of transport (particularly for trips less than 5kms and facilities on the northern side of the rail way line) and manage the different needs of the different bicycle cohorts.
- Establishing a Native Vegetation Plan and bush broker scheme for all of Armstrong Creek. Many of the existing roads have quality vegetation on one side of the road and where possible this will be retained.
- Development of a construction and funding strategy.
- Achieving higher housing densities to ensure the commerciality of public transport services.

Arterial Roads – VicRoads

Armstrong Creek will be well serviced by existing and future Arterial Roads and with the completion of the Geelong Ring Road providing direct access to the freeway to Melbourne. The Arterial Roads proposed for Armstrong Creek are the:

- new East West Link Road (2 lanes each way with service roads and provision for third lane as dedicated transit route)
- upgraded Surf Coast Highway (3 lanes each way with service roads)
- upgraded Barwon Heads Road (2 lanes each way with service roads)
- Mount Duneed Road (likely to be classified as an Arterial Road – 1 lane each way)
- Lower Duneed Road (existing - 1 lane each way).

Collector Roads – City of Greater Geelong

In January 2008 Council held a road network concept workshop with VicRoads and the Developers to develop a consistent position on the road network plan that will service the Armstrong Creek area. As a result of this workshop Council has adopted an approach of more frequent, narrower, collector roads at 800 metres (based on the existing road layout) taking non local traffic to the arterial roads. These roads will be built by developers as urban development progresses and incorporate easements for the essential services. The design of the road alignment has utilised a regional network traffic analysis that was initially developed by Veitch Lister for VicRoad's design of the new Geelong Ring Road and has been developed with much more detail to support Council's concept planning (refer Attachment 3).

The detailed design of the collector roads will incorporate:

- retention of existing road reserve native vegetation as far as it is practically possible;
- details to ensure priority movement and access for public transport; and
- Intersection treatments that significantly prioritise pedestrian and cyclist movements.

Bicycle access ways – City of Greater Geelong

Council seeks to encourage modal shift away from cars with an extensive network of bicycle paths to cater for all cohorts from school children to the serious cyclists in training. The goal is for it to be easier to walk or cycle than drive for the majority of trips within Armstrong Creek that are less than 5 kms, and for accessing the facilities on the northern side of the Geelong-Warrnambool railway line (Waurin Ponds and Grovedale). This requires significant investment at conflict points to ensure they do not compromise the integrity of the network.

The objective is a “seamless” approach to the movement of pedestrians and cyclist through the Armstrong Creek development, and to target the early construction of under / overpass facilities to minimise conflicts with the developments arterial road and rail networks.

Public Transport – Victorian Department of Transport

A development of the scale of Armstrong Creek offers a rare opportunity to plan for and around higher-quality public transport services. It will be important that the new public transport infrastructure and services are established as early as possible in the life of the Armstrong Creek development, to ‘capture’ residents before they develop a car ‘habit’. All arterial and collector roads are being designed for priority access for public transport.

Armstrong Creek has the potential to be well serviced by train services with proposals for:

- a considerably upgraded and expanded facility at Marshall with improved access from the South and car parking for up to 1000 cars;
- a new regional railway station near the end of Rossack Drive with car parking for up to 2000 cars; and
- a new central railway station on the eastern side of the major activity centre; initially to be developed as a transit route from Marshall Railway station with a high amenity terminal at the Major Activity Centre.

The Victorian Department of Transport advises that they can significantly increase the capacity of railway services on the Geelong to Melbourne line by the addition of train carriages to the existing services. A key issue is, however, obtaining commitment to these (and other public transport services) and the new/upgraded facilities along with contemporary planning that integrates the facilities with the surrounding community.

Telecommunications for a smart community – optic fibre to the premises

Armstrong Creek is planned to be a smart community with the highest level of “future-proofed” telecommunications serviced with optic fibre to the premises.

Telstra has advised that it is able to service a “smart community” for Armstrong Creek with 18 months notice. The works would require upgraded facilities and utilisation of the electricity trenches for the cable. Alternative providers are available for the installation of the optic fibre but needs to provide a similar level of maintenance and services (including content) as Telstra.

Given the scale of Armstrong Creek and the unwillingness of Telstra to pass on the economies of scale to the developers (that will ultimately be passed on to the resident) significant potential exists for the developer community to work together to develop an alternative delivery models.

KEY DESIGN PRINCIPLES:

- **All allotments to be serviced by optic fibre to the premises.**

CRITICAL ISSUES:

- The lack of a vibrant wholesale market and the corresponding high upfront costs.
- Ensuring ongoing maintenance and service levels for alternative delivery models.



Compared to the average family car, the average train passenger produces eight times less carbon emission per km per person, with light rail four times less and buses half as much.

INFRASTRUCTURE DELIVERY SEQUENCE FOR 200 HECTARES ASAP

Council need for expedited delivery timeframes

Initially Agencies were planning for the roll out of their trunk infrastructure to support a slow urban growth scenario of twenty five to thirty years for Armstrong Creek. There is an urgent need, however, given the considerable shortage of developable urban land in Geelong that has been identified by the State Government¹, to rapidly increase the supply of serviced land so that urban growth can proceed on multiple fronts, driven by market demand without the price premium imposed from a constrained supply.

In late 2007 Council nominated a ten year planning timeframe based on a high urban growth scenario and having regard to the shortage of residential land for development. In addition, Council's planning process (outlined in Figure 2) will bring forward the development of Armstrong Creek by more than twelve months and shorten the timeline for the delivery of the trunk infrastructure required for subdivision.

Members of the IIWG have accordingly adopted Council's targets for the planning for delivery of their trunk infrastructure so that:

- 200 hectares of fully serviced residential land at Armstrong Creek will be available for urban development by the end of 2011;
- the supply of developable land is opened up as quickly as possible;
- completion of the roll out of trunk infrastructure across the growth area within ten years (by the end of 2019) so that subdivisions (that meet the requisite permit conditions) could occur anywhere in the Urban Growth Area from 2020 onwards.

Each Agency developed a preferred baseline sequencing

Agencies typically prepare their delivery plans in response to specific development proposals but with Armstrong Creek, however, there are a number of potential delivery sequencing scenarios. So Council asked each agency to nominate their preferred baseline roll out sequence from first principles without consideration of where development might/might not start. The agencies preferred baseline sequencing for

¹ Geelong is falling well below this the Government set benchmark of 15 years supply of residential land across all growth areas, of which at least 10 years should be zoned to permit development. The City of Greater Geelong currently has a supply of zoned land for only 4 years. Low levels of residential land supply can create demand pressure in the housing market that can result in artificially inflated land and house prices, impacting on housing affordability

infrastructure delivery is outlined in the following table and they nominated the following criteria as significant in determining their design from first principles:

- Location of regional infrastructure to supply the urban growth area and timing of regional infrastructure projects;
- Optimisation of the Return on Investment for the Agency (i.e. greatest number of connections for capital investment);
- Concentration of investment in asset to support contiguous urban growth and greatest flexibility to respond to alternatives;
- Pragmatic construction considerations (e.g. the sewer is primarily gravity fed infrastructure and needs to be laid sequentially following the topography of the land from East to West); and
- Budget/resourcing constraints.

Figure 4: Preferred baseline sequencing of infrastructure delivery by each Agency

| Infrastructure element | Major Activity Centre | Armstrong Creek East Precinct | Armstrong Creek West Precinct | Horseshoe Bend Precinct | Marshall Precinct | North East Industrial Precinct | Western Industrial Precinct | Comments |
|-----------------------------------|-----------------------|-------------------------------|-------------------------------|-------------------------|-------------------|--------------------------------|-----------------------------|---|
| Potable Mains Water & Sewerage | 3 rd | 1 st | 4 th | 2 nd | 7 th | 6 th | 5 th | Potable Water Supply from Bellarine Transfer mains along railway line. Critical gravity sewer issue for connection into the Trunk Sewer to Black Rock WRP. |
| Roads | 1 st | 7 th | 5 th | 3 rd | 2 nd | 4 th | 6 th | Desire to utilise existing arterial roads. Early enhanced access to Marshall. |
| Stormwater | 5 th | 1 st | 2 nd | 4 th | 6 th | 7 th | 3 rd | Desirable to work from the bottom of each catchment. Highest topographical profile catchment is Armstrong Creek |
| Cycle Access ways | 7 th | 3 rd | 5 th | 4 th | 1 st | 2 nd | 6 th | Targeted at early links to key facilities and attractiveness to the community. Easement provision. |
| Electricity | 4 th | 3 rd | 1 st | 5 th | 6 th | 7 th | 2 nd | Even service distribution, weighted towards far west (Waurm Ponds Zone Substation) |
| Natural Gas | 2 nd | 1 st | 5 th | 3 rd | 7 th | 6 th | 3 rd | Network feed from the south and west. Note existing services already within Marshall and NE Industrial |

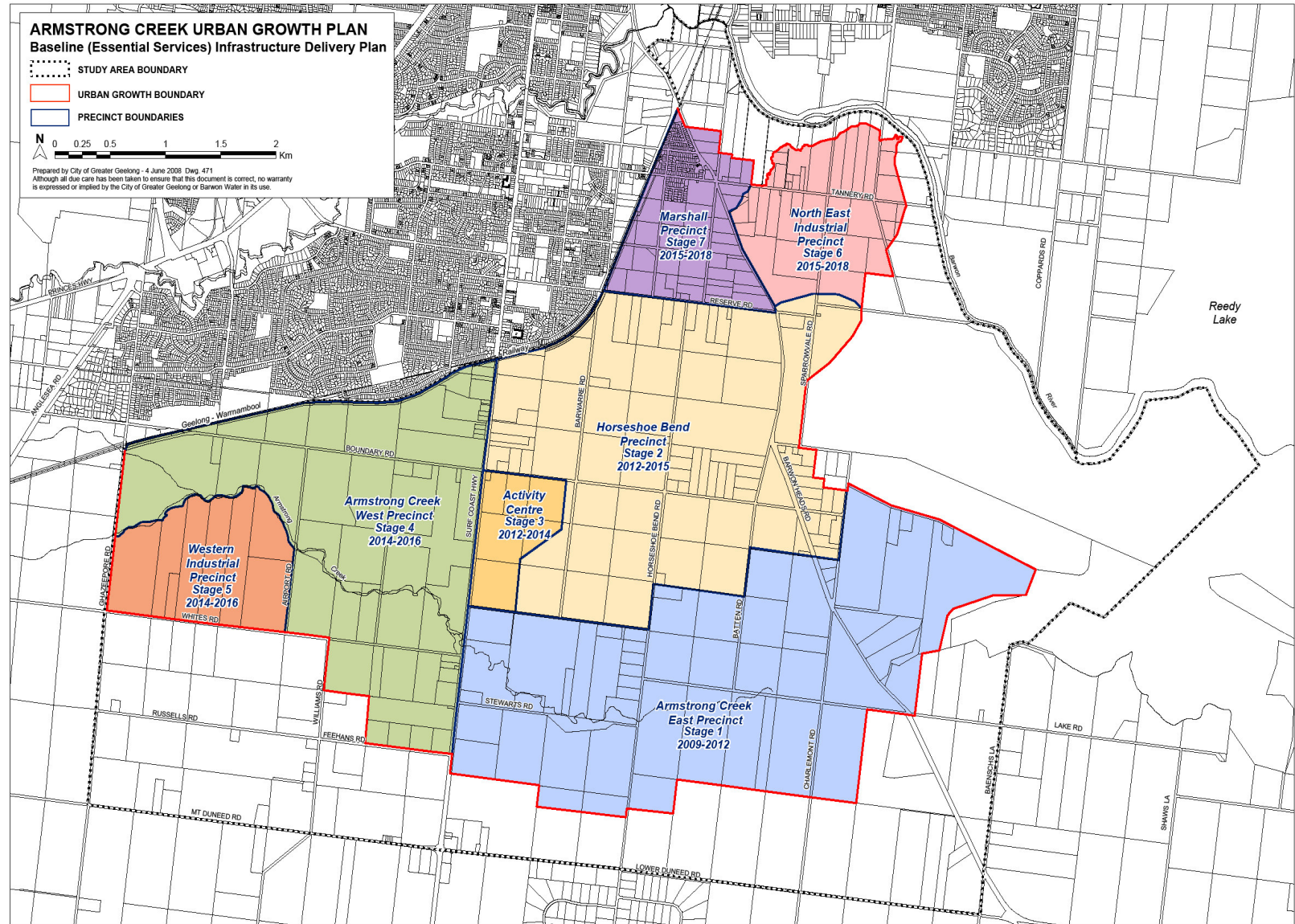
Coordinated interagency delivery sequencing to open up the land supply

Consistent with the preparation of sequencing of the individual agencies, the baseline IIDP sequence has not been determined by anticipating developer readiness to proceed. Rather it was determined by the IIWG based on a synthesis of individual agency cases for preferred staging plans:

- Overlaying the baseline sequences from each of the agencies to determine the sequence that provides the most effective and efficient delivery of infrastructure for urban development of the entire Armstrong Creek area;
 - all agencies are able to service the Armstrong Creek East Precinct relatively quickly
 - the existing service provision in Marshall provided by Barwon Water, Council and SP Ausnet had been on a local “end of line” basis and did not build in excess capacity and hence requires significant investment to expand to a broader area
- Overlaying the baseline sequences from each of the agencies to determine the sequence that provides the first 200 hectares of developable residential land the most quickly, and then quickly opens up the developable land supply significantly ; and
- Pragmatic construction considerations significantly biasing the weighting towards the sewer construction sequence
 - The sewerage system is largely gravity fed and needs to be built sequentially from connection to the existing Outfall Sewer (which transfers sewage to Black Rock WRP) in the East and progressing Westwards following the topography).

The coordinated interagency infrastructure delivery sequence was determined on a precinct by precinct basis and is outlined on the following page in Figure 5. Note that this is the sequence for the baseline roll out of infrastructure (“Plan A”) that will be implemented unless an alternative (“Plan B”) is proposed and endorsed by all Agencies.

Figure 5: Baseline sequence for Interagency Infrastructure Delivery



Out of sequence delivery of infrastructure is possible

A precinct that falls outside the nominated staging sequence may still be able to proceed ahead of the IIDP nominated sequence provided the proponent and agencies can work together to provide “out of sequence” delivery of infrastructure. This could involve alternative solutions, alternative delivery models, or the bringing forward of the existing plan but in all cases would be informed by robust economic and scientific analysis.

In order for development to proceed out of sequence the total precinct must be able to be serviced without affecting the baseline staging of service delivery reflected in this IIDP and:

- A formal written agreement from all servicing authorities is required. The servicing authorities who must provide formal written agreement to Council are: Barwon Water, Powercor, CoGG (drainage and collector roads), VicRoads, DoT (if precinct includes railway stations).
- The agreement must state that the servicing authority can service the proposed precinct in the agreed timeframes without compromising their delivery of the baseline staging plan reflected in the IIDP. This agreement must include:
 - a plan of the precinct being serviced
 - an outline of the planned location of trunk services and details of any deviation from the IIDP
 - any temporary or staged works
 - any easement or access issues requiring consideration.
 - any assumptions/constraints (e.g. potable water demand no greater “x”).
- Where alternative methods of service provision is proposed an “in principle” endorsement is required from the relevant authority that the proposed solution is realistic and deliverable. In particular, proposals that demonstrate decreased greenhouse emissions and/or demand on regional infrastructure will be favourably considered.



More than one billion dollars will be spent on the delivery of essential service and civil infrastructure for the new Armstrong Creek development.

IMPLEMENTATION OF THE IIDP

Governance framework for delivery of the IIDP

Council will partner with the Agencies and developers with accountabilities for delivery of essential services and/or civil works infrastructure for a coordinated and expedited implementation. This partnering approach includes the elements outlined below.

| Element | Focus |
|--|--|
| Geelong Planning Partnership for strategic oversight of progress of the IIDP | <ul style="list-style-type: none"> State Government approvals, resourcing & problem solving to better manage the urban growth of Geelong Includes a Geelong Partnership Broker role to provide a critical link between Council and other areas of Government, facilitating and expediting Agency approvals for, and delivery of strategic support and/or elements |
| Interagency Infrastructure Working Group for strategic planning, decision making and implementation of essential services and civil works infrastructure | <ul style="list-style-type: none"> To ensure a coordinated and more timely delivery of the essential services and civil works infrastructure necessary for the land to be subdivided for urban development Development of IIDP and leadership of its implementation and expedited interagency approvals/permits processes Coordination of strategic planning and decision making including for evaluation of alternative proposals for out of sequence and/or locally based delivery of essential services and civil works infrastructure |
| Individual Agency Governance Frameworks still apply but will be monitored for opportunities to streamline/expedite processes | <ul style="list-style-type: none"> Agency governance arrangements continue to apply Agency or interagency permits processes will be monitored by the Interagency Infrastructure Working Group and where necessary, expedited |
| Precinct Structure Planning Partnerships with developer(s) who have 70% of the developable area | <ul style="list-style-type: none"> Council will set the policies, standards and objectives for the Precinct IIDP is a key input into the planning process Developers have flexibility to propose solutions and master plan for the area The IIDP will be further refined and developed during the structure planning for the first precinct to be developed. It will then be an input into subsequent Precinct Structure Plans. |
| Individual developer consultations for frank advice from the development community and input into IIDP element proposals | <ul style="list-style-type: none"> To test and work up proposed solutions for infrastructure elements one-on-one with developers who have a land interest in Armstrong Creek |
| Public developer forums for briefing, and obtaining feedback from, the broader development community | <ul style="list-style-type: none"> To ensure developers have early understanding and input into proposed options To understand developer's critical issues and appetite for various options |
| Land owner briefings | <ul style="list-style-type: none"> To keep land owners abreast of the urban growth development process. Number of mediums – correspondence, information forums, web site and email updates Land owners in a particular precinct will be consulted during the master planning to develop the Precinct Structure Plan for their precinct. |
| Community consultation | <ul style="list-style-type: none"> The public has been consulted through public exhibition and panel processes during the development and incorporation of the Urban Growth Framework Plan outlining the strategic intent for urban development of the area The community will be consulted through a public exhibition and panel process for the incorporation of each Precinct Structure Plan |

Importantly, the members of the Interagency Infrastructure Working Group have committed to its ongoing role in the strategic planning and leadership of the implementation of the IIDP along with expediting the interagency approvals/permits processes necessary for development of Armstrong Creek.

Funding of infrastructure finalised with the PSP

The funding model for infrastructure delivery for Armstrong Creek will be quite complex and include Government funding (mixture of federal/state/local), agency funding, essential services charges, developer contribution plans, and developer funded/delivered as construction works. Once the IIDP is finalised and quantified, cost estimates can be prepared and the funding model options established. The funding of infrastructure and Developer Contribution Plans for a precinct will be finalised with the preparation of Precinct Structure Plans.

The development of a DCP(s) for the Armstrong Creek development will be limited to Council controlled infrastructure, and will not include those services covered by the Essential Services Commission or specific state and / or federal funding. The IIDP items potentially covered by a DCP(s) include, but are not limited to:

- Collector Roads and major intersection treatments,
- Stormwater management and drainage and flood mitigation,
- Major pedestrian / cycle access ways and paths.
- Provision of arterial road reservation and first carriageway.

Delivery Accountabilities

There are some well defined accountabilities for delivery of infrastructure:

- developers provide all local infrastructure elements that are contained within the subdivision; and
- agencies provide regional infrastructure servicing areas beyond the Growth Area but may seek developer contributions in proportion to the contribution of the subdivision to the need for the element.

It is also possible for developers to construct infrastructure elements traditionally regarded as the realm of agencies for coordinative, expediency or efficiency reasons. These items will be established during the Precinct Structure Planning Process. The standard roles of agencies and developers as part of the delivery of essential services infrastructure is details in the below table.

| Element | Agency | Developer |
|-------------------------------------|--|--|
| Potable Mains Water Sewerage | Where water and sewerage infrastructure is required to service 'multiple' developments, Barwon Water funds potable water infrastructure for pipe diameter > 150 mm and sewerage infrastructure for pipe diameter > 225 mm. | Infrastructure required to service a 'single' development, regardless of size of pipes, is the responsibility of the developer. Developers also provide for 'reticulation' assets which includes potable mains water infrastructure for pipe diameter < or =150 mm and sewerage infrastructure for pipe diameter < or =225 mm in accordance with Barwon Water's standards and requirements. Developers also pay a standard New Customer Contribution charge to Barwon Water per lot. |
| Stormwater | Council coordinates planning & delivery of trunk infrastructure | Developer provides all new assets required to service the specific development – additional developer contribution to area outside subdivision to be determined at Precinct Structure Planning stage |
| Future State Arterial Roads | VicRoads/Council/ Developer set reserve requirements. VicRoads provides roads for major through traffic of a regional / state significance when need arises. | Developer provides arterial road reservation and first carriageway, if development occurs ahead of the roads strategic need as an arterial road. Contributions would also be required for provision of service roads & local signalisation. |
| Collector Roads | Council sets the standards and objectives | Developer designs and delivers – additional developer contribution to area outside subdivision to be determined at Precinct Structure Planning stage |
| Electricity | Powercor delivers feeder lines to subdivisions and connections to houses | Developer designs and delivers subdivision servicing plans |
| Gas | SP Ausnet delivers natural gas reticulation to residences and commercial properties. | Developer applies to SP AusNet for gas supply to subdivision stages prior to construction. Developer delivers subdivision scale infrastructure and connection pipelines to the subdivision if SP AusNet will not |

The prevalence of obesity in Australia has more than doubled in the past 20 years. Walking and access to quality public open space are seen as seen critical elements in combating this epidemic.



ATTACHMENTS – INDIVIDUAL AGENCY INFRASTRUCTURE PLANS

Attachment 1: Barwon Water – Potable Mains Water & Sewerage

Attachment 2: City of Greater Geelong – Stormwater Management

Attachment 3: City of Greater Geelong & VicRoads – Road Network & Cycle Paths

Attachment 4: Powercor – Electricity Network

Attachment 5: SP Ausnet – Gas

Attachment 6: Department of Transport – Railway & Public Transport Footprints

Attachment 7: Telstra – Telecommunications

Attachment 1: Barwon Water Mains Water Supply & Sewerage Services

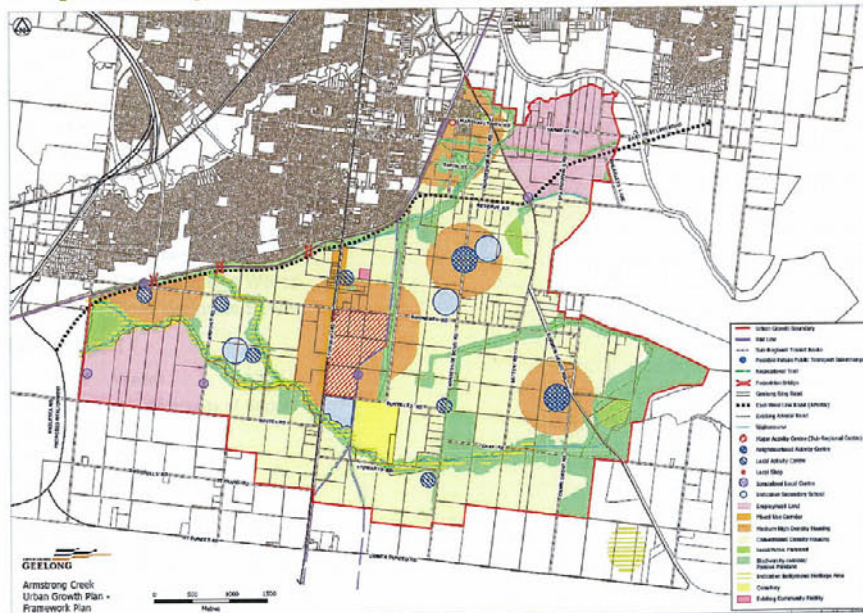
1. Executive Summary

Introduction

Armstrong Creek Urban Growth Area (the Growth Area) is a mixed use development, situated approximately 10 kilometres south of the Geelong CBD. It covers 2350 Ha of land and will accommodate 22,000 residential dwellings. It will also include employment zones, activity centres, mixed use corridors, active parkland and passive open space which together with the residential areas are estimated to require approximately 7 GL of water per annum. The exhibited Armstrong Creek Urban Growth Plan (UGP) is shown in Figure 1 below.

Barwon Water requires concept designs of water and sewer systems to accommodate development in the Growth Area. This report contains a review of existing documentation, development scenarios (sequencing, yields and rates), water demands and sewage load estimates, servicing plans, an implementation plan, concept designs and a cost estimate.

■ Figure 1 Armstrong Creek Framework Plan (COGG May 2008)

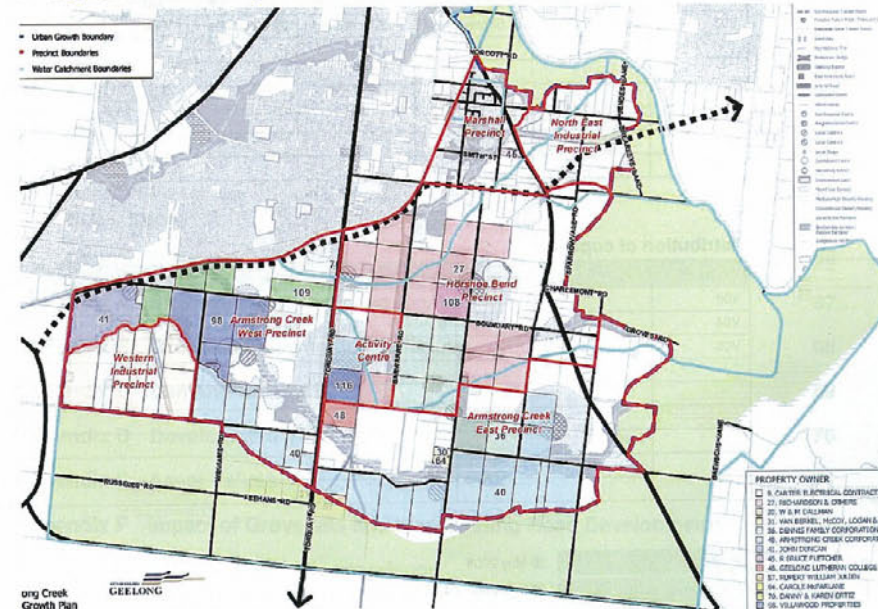


Note: The analysis for the concept designs shown in this report are based on City of Greater Geelong's November 2007 Urban Growth Plan.

Development Characteristics

The Growth Area consists of seven precincts which have been delineated by the City of Greater Geelong in its Precinct Plan and as shown in the figure below.

■ Figure 2 Draft Armstrong Creek Precinct Plan (COGG 2007)



The Marshall Precinct and the North East Industrial Precinct are situated in the north east corner of the development area and contains a number of relatively fragmented land holdings.

The Horseshoe Bend Precinct is immediately below the Marshall Precinct and the North East Industrial Precinct. It is a relatively large precinct which will contain predominantly residential areas and activity centres. It stretches from Torquay Road (also known as the Surf Coast Highway) at its western boundary to past Barwon Heads Road on its eastern Boundary. Land holdings in this Precinct have been consolidating through recent acquisitions by property developers.

Armstrong Creek East Precinct is in the south eastern corner of the Growth Area. It is a large precinct which essentially matches the Armstrong Creek catchment east of Torquay Road. Land holdings in this precinct have been consolidating through recent acquisitions by property developers.

The Activity Centre Precinct is a small precinct in the centre of the Growth Area and includes a major Activity Centre. This is anticipated to be the primary shopping and entertainment area within the Growth Area. The Precinct is immediately east and adjacent to Torquay Road.

Armstrong Creek West Precinct is in the north western corner of the development and will include primarily residential land. It is one of two precincts on the western side of Torquay Road and includes all the land immediately adjacent to the western side of Torquay Road.

The Western Industrial Precinct is in the south western corner of the development and will include primarily industrial land. It generally includes the land south of the Armstrong Creek.

Development Staging

Whilst the staging of development will be determined by the City of Greater Geelong, the timing and order of release of the precincts was qualitatively assessed against criteria established by Barwon which considered the needs of Barwon Water, Developers and the City of Greater Geelong. Both the City of Greater Geelong and Barwon Water participated in the assessment process. Based on the assessment it was determined from a water and sewerage servicing perspective that precincts should be released in the following order;

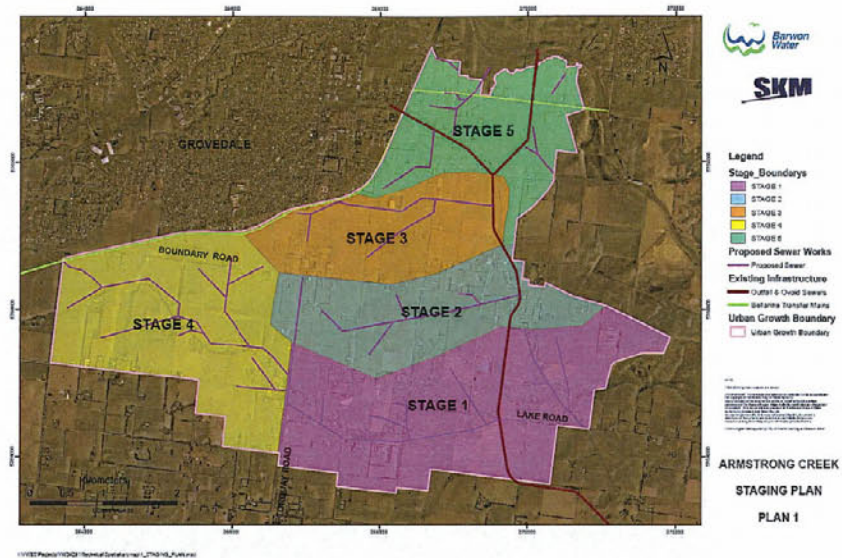
- Armstrong Creek East Precinct
- Horseshoe Bend Precinct
- Activity Centre
- Armstrong Creek West Precinct
- Marshall Precinct
- Western Industrial Precinct
- North East Industrial Precinct

The City of Greater Geelong advised that the Growth Area will be fully developed within a period of 10 years and therefore some of the smaller precincts were combined or incorporated into larger precincts to create a more realistic stage plan as shown in the list below and in Figure 3.

- Stage 1 – Armstrong Creek East Precinct
- Stage 2 – Horseshoe Bend Precinct (South) and Activity Centre Precinct
- Stage 3 – Horseshoe Bend Precinct (North)
- Stage 4 - Armstrong Creek West Precinct and Western Industrial Precinct
- Stage 5 – Marshall Precinct and North East Industrial Precinct

Notwithstanding the above preferred staging sequence, the concept designs have been developed with sufficient flexibility to accommodate other staging scenarios.

■ Figure 3 Stage Plan



Design Criteria

The water concept design was developed to ensure that customers receive water pressure within a range of 20 metres and 50 metres. The sewer concept design was developed to ensure that sewers are capable of accommodating a 1 in 5 year storm event. The concept designs considered a range of inputs including;

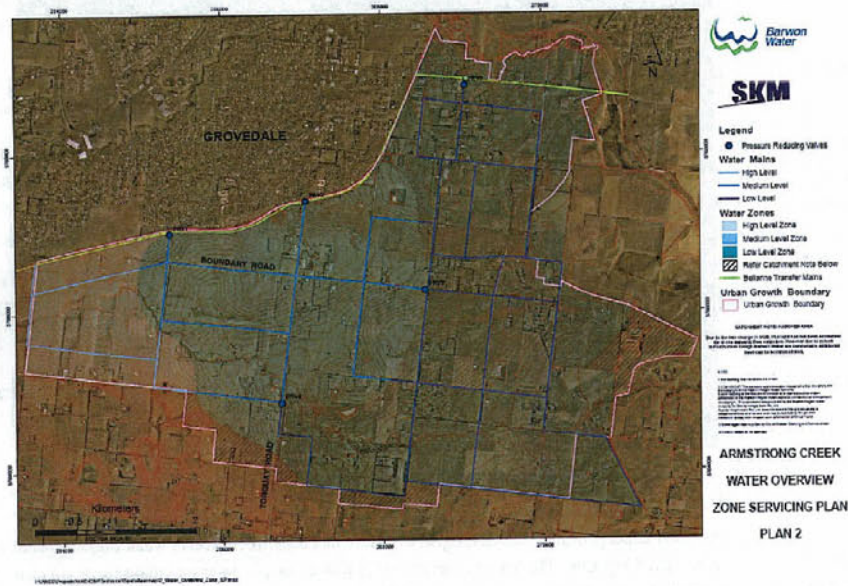
- the location of the Bellarine Transfer Main and Barwon Water's previous strategic water planning,
- the location of the Ovoid and Outfall Sewer and Barwon Water's previous strategic sewer planning,
- known biodiversity sites (based on data from City of Greater Geelong's UGP),
- known European heritage sites (based on data supplied by the City of Greater Geelong), and
- known cultural heritage sites (based on a database supplied by the City of Greater Geelong).

A more detailed description of the design criteria and design approach used is discussed later in this report.

Water Infrastructure Requirements

The water concept design is shown in the figure below.

■ **Figure 4 Water Concept Plan**



The water concept design consists of 3 zones which will be supplied from Pettavel Basin via the Bellarine Transfer Mains. A high level zone will be supplied directly from the Bellarine Transfer Main. A medium level zone will be supplied by 2 Pressure Reducing Valves (PRVs) which are likely to be located adjacent to the Bellarine Transfer Main near Airport Road (PRV1) and Torquay Road (PRV2). A low level zone will be supplied by 3 PRV's which will be located adjacent to the Bellarine Transfer Main (PRV3), at the intersection of Horseshoe Bend Road and Boundary Road (PRV4) and near the intersection of Torquay Road and Armstrong Creek (PRV5).

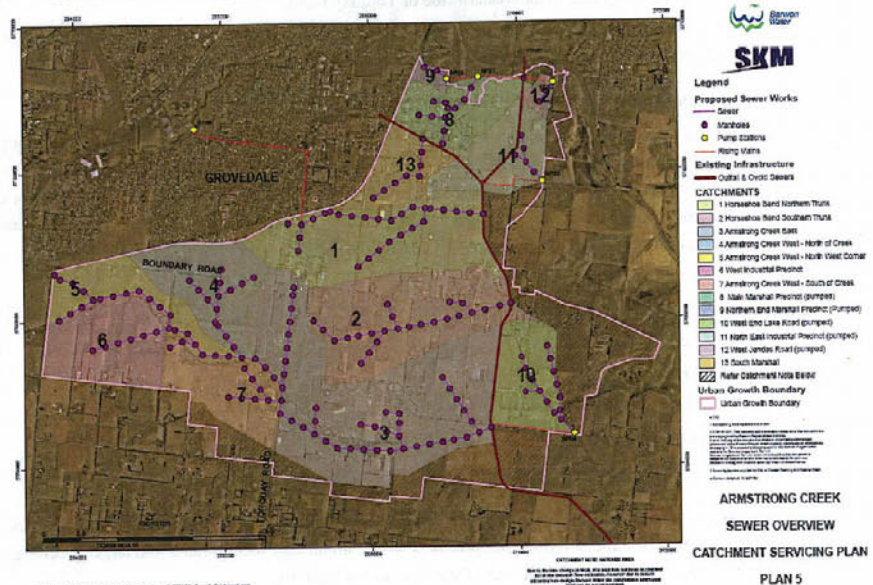
It is estimated that it will cost \$48.3M to construct the water supply system including the cost of pipe assets and PRV's internal to the Growth Area and the cost of the next stage of the Bellarine Transfer Main, but excluding the cost of reticulation assets (to be funded by developers) and other works external to the Growth Area such as the Pettavel Basin.

SINCLAIR KNIGHT MERZ

Sewer Infrastructure Requirements

The sewer concept design is shown in the figure below.

■ **Figure 5 Sewer Concept Plan**



The sewer concept plan includes 13 sub-catchments all of which ultimately connect to the Outfall Sewer, which carries sewage to the Black Rock Water Reclamation Plant (WRP). Due to the alignment of the Outfall Sewer which cannot hydraulically control the lowest areas of the Growth Area it is required to install four sewage pumping stations (SPSs) and rising mains. Three of the SPSs are located in the northern section of the development, with the other SPS to be located in the south east corner. The majority of the development will be served by the Armstrong Creek Branch Sewer which follows the alignment of Armstrong Creek. This sewer will serve areas west of Torquay Road and most of the area south of Boundary Road. The remaining area will be served by three separate branch sewers.

It is estimated to cost \$33.8M to construct the sewer system including the cost of pipe assets and SPSs internal to the Growth Area and the works required to connect development at Grovedale, but excluding the cost of

reticulation assets (to be funded by developers), Outfall Sewer upgrade costs and costs associated with connecting hypothetical development west of the Ring Road.

Implementation Plan

A program was developed for the implementation of the water and sewer concept designs based on completing the following activities;

- DTF Approval
- Land Access Negotiations
- Investigations (including Flora & Fauna, Heritage, Geotech & Town Planning)
- Design
- Construction Tender, Construction, Commissioning & Hand Over.

Based on the program developed release dates were determined for each of the 5 stages previously discussed. Table 1 below shows the completion dates of the five stages. Note that work on later stages will be undertaken prior to earlier stages being completed, e.g. consideration is being given to immediately undertaking the detailed design of Stage 2 works in addition to Stage 1 works.

▪ **Table 1: Staging Completion Dates**

| Stage Number | Target Completion Date | Serviceable Land Opened (Ha) |
|--------------|------------------------|------------------------------|
| 1 | 2011/12 | 475 |
| 2 | 2013/14 | 485 |
| 3 | 2014/15 | 327 |
| 4 | 2015/16 | 679 |
| 5 | 2017/18 | 384 |

Cost Estimate

A conceptual cost estimate was produced for both the water and sewer concept design which included all assets greater than basic size (> DN150 for water and > DN225 for sewer). The cost estimate is shown over the page.

Attachment 2: CoGG - Stormwater Management

Armstrong Creek - Stormwater Management Policy

Some of the most profound opportunities for sustainable urban development occur in the early or strategic phases of the planning process. This section outlines water cycle management objectives and standards to be used to inform the planning process for the Armstrong Creek urban growth area.

The stormwater management policy for the Armstrong Creek growth area is multi-faceted, providing performance based objectives for general stormwater management, responsible water use, flood protection and measures to protect the health and amenity of waterway ecosystems.

Precinct Structure Plans (PSPs), Subdivisions and Development will all be assessed according to the extent to which the objectives outlined in this policy are satisfied. This policy also provides guidance on standards to be employed to meet objectives.

Policy - General

The primary aim of the urban stormwater management system is to ensure stormwater generated from developed catchments causes minimal nuisance, danger and damage to people, property and the environment. This requires the adoption of a multiple objective approach, considering issues such as:

- ecosystem health, both aquatic and terrestrial;
- flooding and drainage control;
- public health and safety;
- economic considerations;
- recreational opportunities;
- social considerations;
- aesthetic values.

The above issues have been developed into a list of broad stormwater management *Objectives*. All of the objectives and their respective standards presented below may not be relevant in all circumstances and individual objectives may need to be expanded to highlight site-specific issues. All sites will be assessed on a case-by-case basis.

| No. | OBJECTIVES | STANDARD |
|-----------------|--|---|
| | <p><i>These objectives set out the broad requirements for sustainable stormwater and floodplain management that must be achieved or satisfied as part of the preparation of a Precinct Structure Plan, subsequent subdivision and/or development.</i></p> | <p><i>These standards are for the design or application of best practice stormwater and floodplain management. These provide guidance on how objectives can be met.</i></p> |
| <p>1</p> | <p>STORMWATER / FLOOD MANAGEMENT - LEGISLATION</p> <p>Precinct Structure Plans, subsequent subdivision and/or development must address all requirements and legislative obligations as set out within appropriate Federal, State and Local Government policies and controls.</p> <p>These include:</p> <ul style="list-style-type: none"> • Acts of parliament • State and Local planning controls • Local government policy • Federal or State Government policies and guidelines • Federal, State or Local Authority / agencies policy, strategy, policy and / or guidelines. <p>Precinct Structure Plans, subsequent subdivision and/or development must address all requirements of applicable current best practice and relevant Engineering Standards and guidelines</p> | <p>Precinct Scale</p> <p>Any Precinct Stormwater Management Strategy and subsequent subdivision and/or development must consider, as appropriate:</p> <ul style="list-style-type: none"> • State Planning Policy Framework • Local Planning Policy Framework • Municipal Strategic Statement, and • Local Planning Policies. • Greater Geelong Planning Scheme <p>Specific consideration must be given, as appropriate, to the following references:</p> <ul style="list-style-type: none"> • Clause 22.12, 56 and 65 of the City of Greater Geelong Planning Scheme • The provisions of all future underlying Planning Zones • Corangamite Catchment Management Authority <ul style="list-style-type: none"> ▪ Floodplain management Strategy ▪ Regional Catchment Strategy ▪ River Health Strategy ▪ Salinity Action Plan • Urban Stormwater: Best Practice Environmental Management Guidelines • WSUD Engineering Procedures – Stormwater • Australian Rainfall and Runoff • Royal Surf Life Saving Victoria: Guidelines for Water Safety in Urban Water Developments • VicRoads Road Design Guidelines • Infrastructure Design Manual, 2008 - City of Greater Geelong • Applicable Australian Standards <p>Any Precinct Stormwater Management Strategy , subsequent subdivision and/or development shall also consider, as appropriate, the objectives and principles set out in section 1.09 of the Queensland Urban Drainage Manual, 2007.</p> |

| | | |
|-----------------|--|---|
| <p>2</p> | <p>STORMWATER MANAGEMENT – GENERAL</p> <p>a) Protect and/or enhance downstream environments, including recognised social, environmental and economic values, by appropriately managing the quality and quantity of stormwater runoff.</p> <p>b) Limit flooding of public and private property to acceptable or designated levels.</p> <p>c) Provide a drainage system with sufficient capacity to service development.</p> <p>d) Ensure stormwater and its associated drainage systems are planned, designed and managed with appropriate consideration and protection of community health and safety standards, including potential impacts on pedestrian and vehicular traffic.</p> <p>e) Adopt and promote “water sensitive” design principles, including appropriately managing stormwater as an integral part of the total water cycle, protecting natural features and ecological processes within urban waterways, and optimising opportunities to use rainwater/stormwater as a resource.</p> <p>f) Appropriately integrate stormwater systems into the natural and built environments while optimising the potential uses of drainage corridors.</p> <p>g) Ensure stormwater is managed at a social, environmental and economic cost that is acceptable to the community as a whole and that the levels of service and the contributions to costs are equitable.</p> <p>h) Enhance community awareness of, and participation in, the appropriate management of stormwater.</p> | <p>Precinct Scale</p> <ul style="list-style-type: none"> • Minimise changes to the quality and quantity of the natural flow regime of urban waterways. • Identify and control the primary sources of stormwater pollution. • Develop stormwater systems based on a preferred management hierarchy. • Develop robust stormwater treatment systems that do not rely on a single treatment system or focus on a single target pollutant. <ul style="list-style-type: none"> • Preserve the alignment and capacity of major drainage corridors such as waterways and major overland flow paths. <ul style="list-style-type: none"> • Provide 1 in 10 year ARI capacity to all underground drainage systems. • Provide underground drainage systems to service all developed areas <ul style="list-style-type: none"> • Establish and maintain a safe, affordable and socially equitable and acceptable level of urban drainage and flood control. • Design stormwater systems to accord current best practice which minimises risks to the public arising from use or maintenance of the facilities <ul style="list-style-type: none"> • Minimise the quantity of directly connected impervious surface area. • Identify and optimise opportunities for stormwater to be valued and used as a resource • Maintain and protect natural drainage systems and their ecological health. <ul style="list-style-type: none"> • Ensure adopted stormwater management systems are appropriate for the site constraints, land use and catchment conditions. • Appropriately integrate both wildlife and community land use activities within urban waterway and drainage corridors. <ul style="list-style-type: none"> • Assess the economics of stormwater management systems on the basis of their full lifecycle costs (i.e. capital and operational costs). • Ensure adopted stormwater management systems are economically sustainable. • Ensure appropriate protection of stormwater treatment measures during the construction phase. <ul style="list-style-type: none"> • Engage the community in the development of parameters for the development and evaluation of stormwater management solutions. |
|-----------------|--|---|

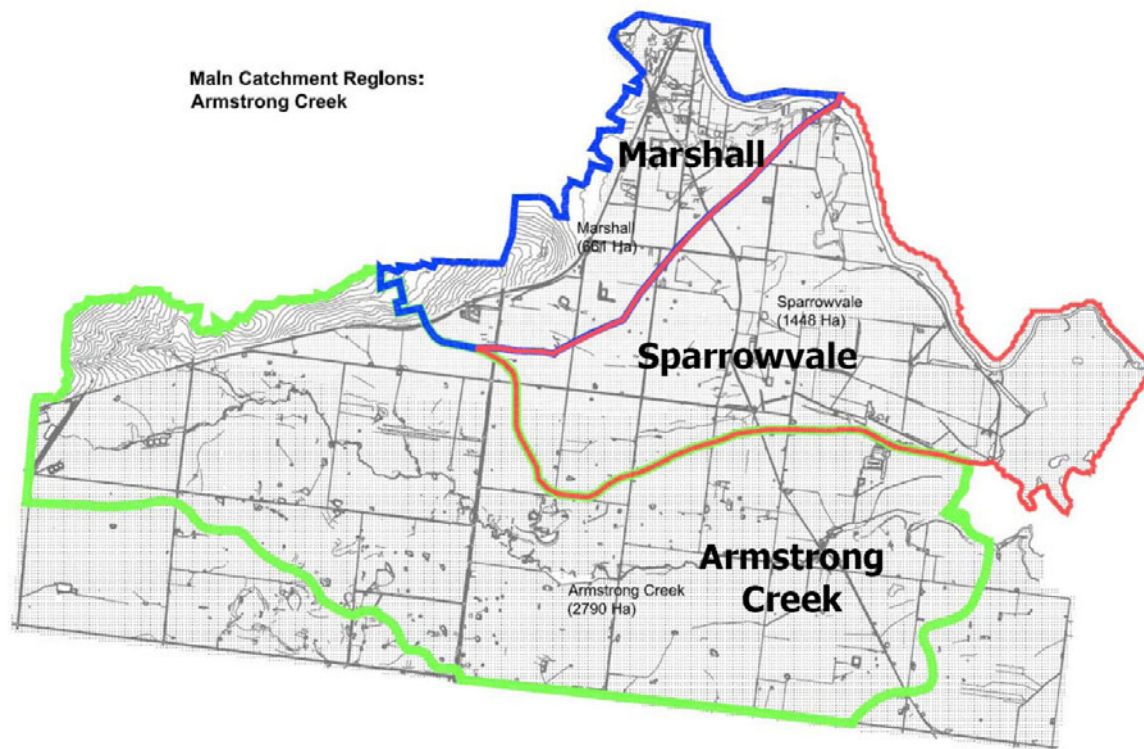
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| <p>3</p> | <p>RESPONSIBLE WATER USE</p> <ul style="list-style-type: none"> a) Aim to meet objectives for stormwater management whilst reducing demand for mains water b) Minimise adverse impacts on the natural water cycle. c) Encourage water conservation, rainwater and stormwater harvesting, and wastewater reuse. d) Reduce the annual average volumes of stormwater runoff from developed catchments by a minimum of 30%. | <p>Precinct scale</p> <ul style="list-style-type: none"> • A Precinct Water Demand Strategy that indicates the likely water demand “hot spots” within the precinct (eg: open space, schools, industry, etc) and implements strategies to sustainain demand. • Incorporate landscape design which minimises use of water, fertilisers and pesticides. • Incorporate landscape design which promotes the capture, retention and infiltration of stormwater runoff using WSUD treatment train approaches. • Include, where possible, facilities for stormwater harvesting and irrigation of active open space areas to reduce demand for mains water. • Include, where possible, reuse of treated wastewater for irrigation of active open space areas to reduce demand for mains water. <p>Allotment scale</p> <ul style="list-style-type: none"> • Utilise water efficient appliances, including efficient toilets, washing machines and plumbing in both residential dwellings and commercial buildings. • use water efficient gardens including native plants, mulching and infiltration. • Collect roof runoff in rainwater tanks for indoor and outdoor purposes, such as laundry, toilet and garden water uses. |
| <p>4</p> | <p>FLOOD MANAGEMENT</p> <ul style="list-style-type: none"> a) Allotments must be protected from inundation by a 1% AEP flood event b) Mitigate stormwater runoff from all storm events up to and including 1% AEP flood event c) Precinct Structure Plans must define the ultimate extent of flooding resulting from the fully developed catchments. d) Peak stormwater discharges from developed catchments must not be greater than peak discharges from the same catchments subject to existing conditions. e) Satisfy acceptable risk management standards for public safety and flood protection. f) Where applicable, include the extent of the 1% AEP flood events from the Barwon River. g) Account for any change in the extent of flooding created by the potential for climate change. h) Mitigate the impact of development runoff on waterway ecosystem health, amenity and biodiversity. | <p>Precinct scale</p> <ul style="list-style-type: none"> • Provide a Precinct Stormwater Management Strategy that integrates a range of flood management measures at a variety of scales; from allotment to precinct. • Implement solutions which represent current best practice. • Provide detention basins which are designed to minimise aesthetic and ecological impacts on stream corridors and receiving environments. • Drainage structures shall not be placed within waterways. • Set backs from stream corridors must satisfy biodiversity and flood hazard criteria. • Provide restoration works and / or management of any degraded ephemeral streams which targets improvement of ecosystem health, biodiversity and hydraulic capacity. <p>Allotment scale</p> <p>It is acknowledged that rainwater tanks provide a contribution to urban stormwater detention, however Council does not support the use of rainwater tanks as part of the stormwater management strategy for mitigation of the 1% AEP flood event.</p> |

| | | |
|----------|---|--|
| 5 | <p>PROTECTING THE HEALTH AND AMENITY OF WATERWAY ECOSYSTEMS</p> <ul style="list-style-type: none"> Mitigate the impacts of development on waterways and downstream environments. Precinct Structure Plans must include stormwater management strategies to mitigate potential impacts on waterways Meet “Best Practice” guidelines for stormwater quality to remove all litter, reduce loads of suspended solids by 80%, total nitrogen by 45%, total phosphorus by 45% and litter by 70%. Compliance with “Best Practice” guidelines to reduce erosion and sedimentation by limiting peak stormwater discharges from 1 year and 2 year ARI storm events to predevelopment levels. Reduce the annual average volumes of stormwater runoff from developed catchments by a minimum of 30%. Impervious surfaces and pipe drainage systems should not be directly connected to waterways. Minimise the extent of impervious areas within the catchment. | <p>Precinct scale</p> <ul style="list-style-type: none"> A Precinct Stormwater Management Strategy that integrates a range of water treatment and quality management measures at a variety of scales; from allotment to precinct. Constructed wetlands are designed to avoid aesthetic and ecological impacts on stream corridors and receiving environments. <p>Water Sensitive Urban Design (WSUD)</p> <ul style="list-style-type: none"> A Water Sensitive Urban Design (WSUD) strategy (included within a Precinct Stormwater Management Strategy) must be developed that ensures compliance with relative policy objectives and various best practice guidelines. Design Details of the specific WSUD treatment types proposed must include a performance assessment, outline maintenance requirements, a safety assessment and estimation of life cycle costs. |
|----------|---|--|

Key References:

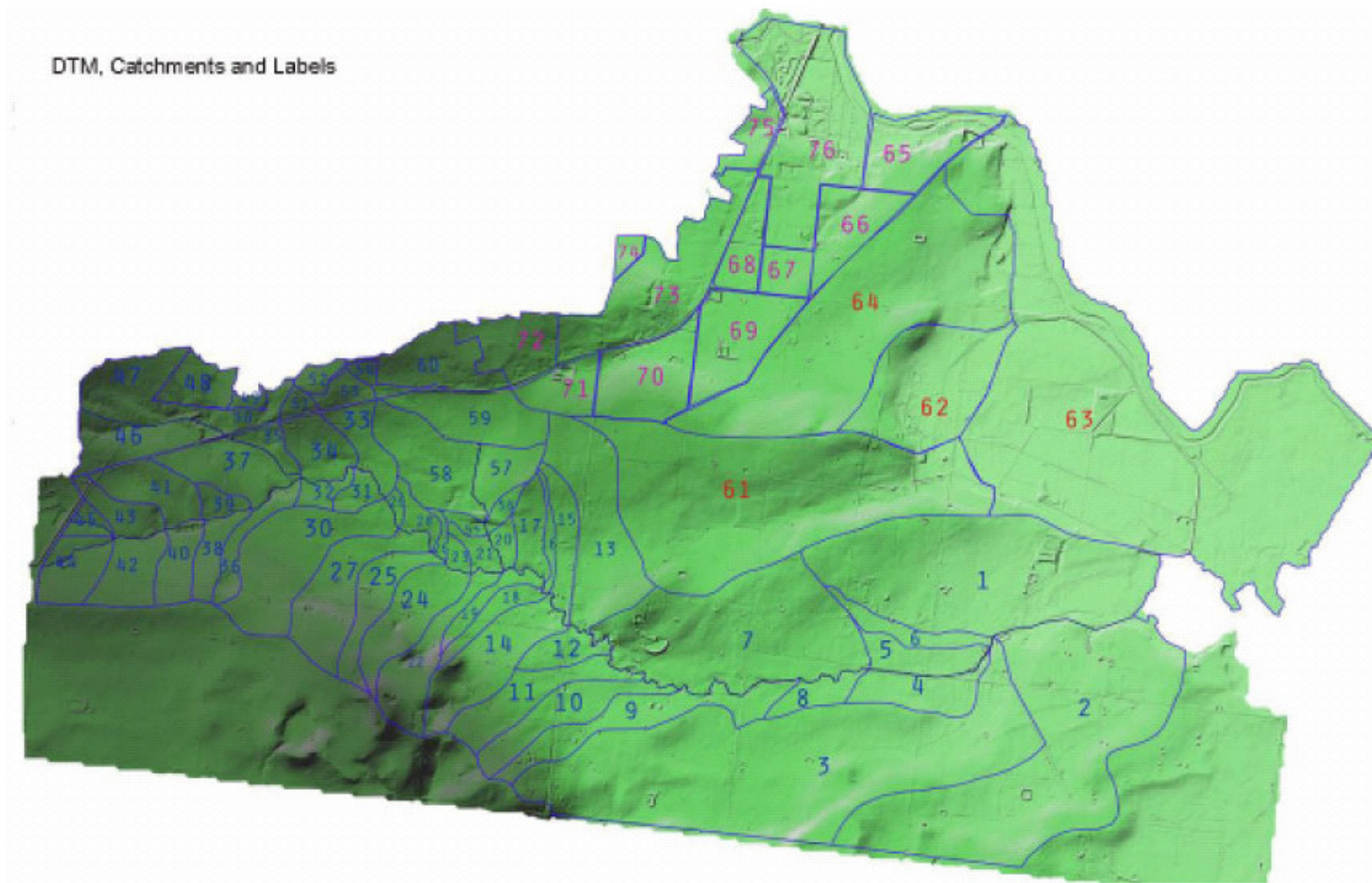
- Institution of Engineers, Australia, 1997, *Australian Rainfall and Runoff*.
- City of Greater Geelong, 2008, *Armstrong Creek Urban Growth Plan, Volume 1*.
- City of Greater Geelong, 2008, *Infrastructure Design Manual*.
- Victorian Stormwater Committee, 1999, *Urban Stormwater: Best Practice Environmental Management Guidelines*.
- Melbourne Water, 2005, *WSUD Engineering Procedures: Stormwater*
- Melbourne Water, 2003, *Guidelines for Development in Flood Prone Areas*.
- Melbourne Water, *Land Development Manual*.
- Department of Natural Resources & Water, Institute of Public Works Engineering Australia, Queensland Division Ltd. and Brisbane City Council., 2007, *Queensland Urban Drainage Manual*
- Roads Corporation, 1994, *VicRoads Road Design Guidelines, Part 7, Drainage*
- Royal Surf Life Saving Victoria, *Guidelines for Water Safety in Urban Water Developments*

Drainage Catchment Plan: Armstrong Creek Urban Growth Area Major Catchments



ARMSTRONG CREEK -

Digital Terrain Model And Minor Drainage Catchment



Attachment 3: Council of Greater Geelong & VicRoads – Road Network & Cycle Access ways

VicRoads – ARTERIAL ROADS

The Minister for Planning's Assessment of the Environment Effects Statement for Section 3 of the Geelong Ring Road determined that strategic recognition should be provided in the Greater Geelong Planning Scheme for future links from the Geelong Ring Road to the Princes Highway West and to the Surf Coast Highway (considering and compatible with a future link to the Bellarine Peninsula).

VicRoads has been implementing the Minister's decision by undertaking a planning study, in consultation with stakeholders, to define alignment and land requirements for:

- Princes Highway West Link (Section 4B), from the Geelong Ring Road to the Princes Highway West, and
- Surf Coast Highway Connection (Section 4C), from the Realigned Anglesea Road to the Surf Coast Highway, compatible with the Armstrong Creek Urban Growth Plan's planning objectives.

The above road links are shown in Attachment 1.

In conjunction with Council, VicRoads is examining a possible East-West Connection, extending from the Surf Coast Highway to the Barwon River compatible with the Armstrong Creek Urban Growth Plan's planning objectives and a future link to the Bellarine Peninsula. This can also be seen in Attachment 1.

This paper covers (in two sections) the details of the latter two future arterial roads, which are located within the confines of the Armstrong Creek Urban Growth Area.

A) SURF COAST HIGHWAY CONNECTION

Traffic modelling has indicated that traffic volumes on the Surf Coast Highway Connection are expected to be in the range 12,000 - 20,000 vehicles per day in year 2021 with the Armstrong Creek Urban Growth Area fully developed, indicating that the Connection will, for the foreseeable future, be predominantly utilised to support local and regional trips and movements within and to/from the Armstrong Creek Urban Growth Area as it is developed.

The Surf Coast Highway Connection (Section 4C) has been planned, in consultation with the City of Greater Geelong, as a medium speed (80 km/hr) arterial road with limited at-grade signalised intersections, controlled access and initially as a four lane divided roadway. Provision has been made for future widening to six lanes if necessary (including dedicated public transport lanes), with a possible long-term interchange at Surf Coast Highway that makes provision for a grade separation of the Geelong-Warrnambool railway line.

The route defined for the Surf Coast Highway Connection provides for a possible new passenger railway station at Waurn Ponds, a pedestrian extension of Rossack Drive into the railway station and connections from the Armstrong Creek Urban Growth Area internal road network. The route is located close to the railway line to provide one general transport corridor and to maximise land use availability for the growth area, as well as minimising aboriginal and post-settlement cultural heritage impacts as determined from specialist investigations.

The alignment of the Surf Coast Highway Connection is within the planning scheme Development Plan Overlay gazetted as part of Amendment C113 to the Greater Geelong Planning Scheme to protect a wide corridor in which the future road link could be developed.

Within the Armstrong Creek Urban Growth Area a fully directional interchange has been allowed for at the Surf Coast Highway, as part of a possible future ultimate development. The alignment for this interchange was determined in consultation with the City of Greater Geelong and provides for a single elevated grade separation of Surf Coast Highway over the Geelong-Warrnambool railway line and a possible future East West Connection to the Bellarine Peninsula.

An alternative interchange arrangement, with the Surf Coast Highway Connection located approximately 150 metres further south and having two elevated grade separations was considered, but not supported, as it did not maximise land use proposals associated with the Armstrong Creek Urban Growth Plan.

The type cross section adopted for the Surf Coast Highway Connection, as well as the cross section for the ultimate development of Surf Coast Highway within the limits of the Armstrong Creek Urban Growth Area, are shown in Attachment 2.

A reservation, setting out the land required for the Surf Coast Highway Connection, has been defined based on ultimate 6 lane development, with provision for bicycle lanes, landscaping, noise amelioration and water sensitive road design (drainage) measures as necessary. The reservation plans have been provided to Council.

The Surf Coast Highway Connection reservation is approximately 4.2 km long and varies in width between 75 and 90 metres. The ultimate development cross section for the 3.8 km length of Surf Coast Highway, within the limits of the Armstrong Creek Urban Growth Area, is 60 metres wide.

It is intended to include a Public Acquisition Overlay in the Greater Geelong Planning Scheme to reserve the land required for the Surf Coast Highway Connection.

The estimated construction cost for the development of the Surf Coast Highway Connection (initial four lanes divided roadway development with at-grade intersections) is \$72 million (2008 dollars).

Whilst State Government funding has been provided for the current planning study to define the alignment and land requirements for the Surf Coast Highway Connection, there has been no commitment to funding the construction of the Surf Coast Highway Connection, nor is there a timeframe for commencement.

B) POSSIBLE EAST WEST CONNECTION FROM THE SURF COAST HIGHWAY TO THE BELLARINE PENINSULA.

VicRoads has carried out a preliminary investigation to assist in defining the alignment and land requirements for a possible future East-West Connection, from the Surf Coast Highway to the Barwon River, within the confines of the Armstrong Creek Urban Growth Plan and consistent with its land use planning objectives.

Traffic modelling has indicated that traffic volumes on a possible East West Connection, between the Surf Coast Highway and the Barwon River, would be in the order of 20,000 - 24,000 vehicles per day in year 2021 with the Armstrong Creek Urban Growth Area fully developed. The possible East West Connection would predominantly be utilised to support local and regional trips and movements within and to/from the Armstrong Creek Urban Growth Area as it is developed.

VicRoads considers construction of an East-West Connection, from the Surf Coast Highway to the Bellarine Peninsula, to be a long term proposal and aligned more with the need to service future land use change and to support local and regional trips.

The corridor for the possible future connection has been aligned adjacent to the Geelong-Warrnambool railway line, utilising the Reserve Road alignment and crossing the Barwon River at the only feasible location, being a relatively narrow section immediately outside the Lake Connewarre State Game Reserve, at the bottom end of Wilson's Road.

The possible East West Connection has been planned, in consultation with the City of Greater Geelong, as a medium speed (80 km/hr) arterial road, with limited at-grade signalised intersections, controlled access and initially as a four lane divided roadway. Provision has been made for future widening to six lanes, with a possible future interchange at Barwon Heads Road.

The type cross section adopted for the possible East West Connection, as well as the cross section for the ultimate development of Barwon Heads Road within the limits of the Armstrong Creek Urban Growth Area, are shown in Attachment 2.

A reservation, setting out the land required for the possible East West Connection, has been defined as part of Councils land use planning strategy based on ultimate 6 lane development, with provision for bicycle lanes, landscaping, noise amelioration and water sensitive road design (drainage) measures as necessary, as well as a possible ultimate development interchange at Barwon Heads Road.

The possible East West Connection reservation is approximately 4.5 km long and generally of 75 metres in width. The ultimate development cross section for the 5.8 km length of Barwon Heads Road, within the limits of the Armstrong Creek Urban Growth Area, is 60 metres wide.

It is intended that land required for the East West Connection, east of Surf Coast Highway, be protected in the Greater Geelong Planning Scheme within the confines of the Armstrong Creek Urban Growth Area as part of precinct planning activities.

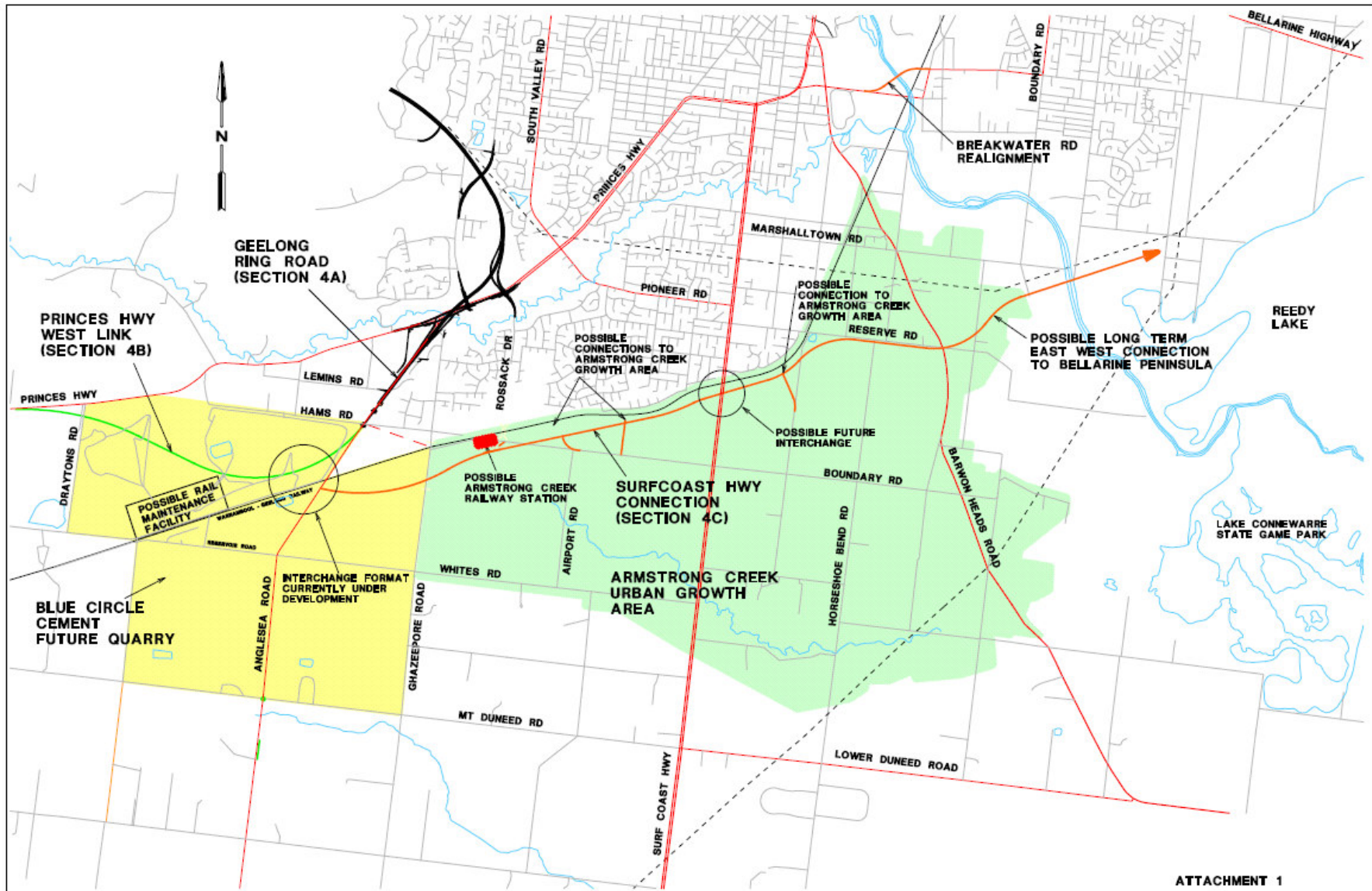
There has been no detailed planning for the East West Connection, east of the Barwon River. The City of Greater Geelong has included a potential transport corridor for the route in its Geelong Eastern Boundary Review. Detailed planning would require commitment to an additional planning study and budget.

There has been no commitment regarding responsibility for the development of the possible East West Connection, east of the Surf Coast Highway, nor is there a timeframe for commencement of construction.

C) OTHER ROADS

VicRoads will liaise with Council, local community groups and other stakeholders concerning proposals to truncate sections of local roads and to discuss the impacts on the surrounding local road network arising from the construction of the new arterial roads.

**DUNCAN ELLIOTT
REGIONAL DIRECTOR,
SOUTH WESTERN VICTORIA
VICROADS
February 2009**



ATTACHMENT 1

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|-------|-------|---------|---------------------------------|
| E | | | |
| D | | | |
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| B | | | |
| A | A.R. | 12/2/99 | REVISED REALIGNED ANGLESEA ROAD |
| ISSUE | APP'D | DATE | AMENDMENT |

GENERAL NOTES

DESIGNED
A. HODGSON

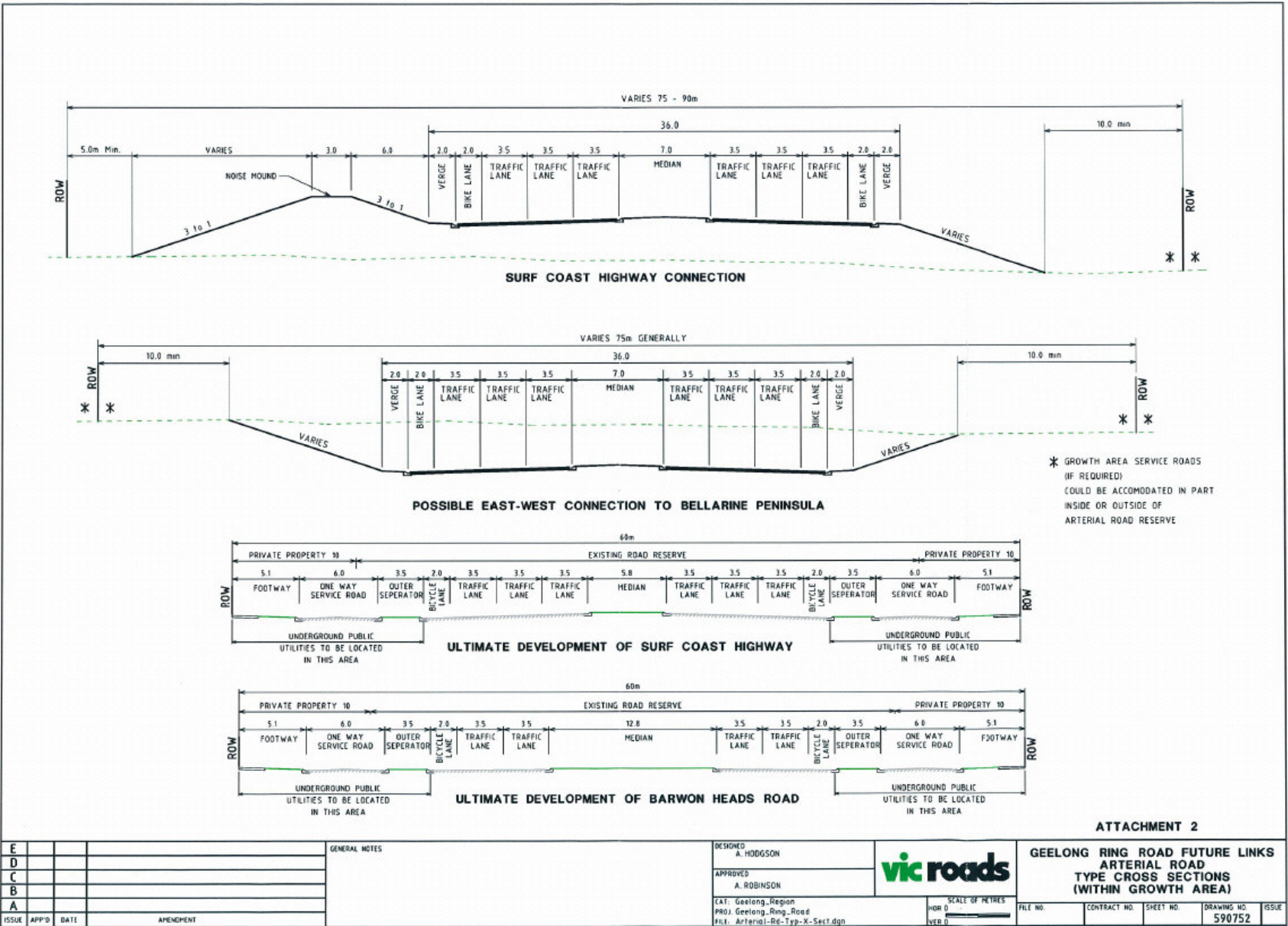
APPROVED
A. ROBINSON

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FILE: future-Arterial-Network.dgn



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|---|--------------|-----------|-------------|-------|
| GEELONG RING ROAD FUTURE LINKS PROPOSED ARTERIAL ROAD NETWORK CONCEPT PLAN | | | | |
| FILE NO. | CONTRACT NO. | SHEET NO. | DRAWING NO. | ISSUE |
| | | 0 | 590751 | A |



ATTACHMENT 2

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|-------|-------|------|-----------|
| E | | | |
| D | | | |
| C | | | |
| B | | | |
| A | | | |
| ISSUE | APP'D | DATE | AMENDMENT |

GENERAL NOTES

DESIGNED
A. HODGSON

APPROVED
A. ROBINSON

CAT: Geelong_Region
PROJ: Geelong_Ring_Road
FIL: Arterial-Re-Typ-X-Set.dgn



| | | | |
|--|--------------|-----------|--------|
| GEELONG RING ROAD FUTURE LINKS ARTERIAL ROAD TYPE CROSS SECTIONS (WITHIN GROWTH AREA) | | | |
| FILE NO. | CONTRACT NO. | SHEET NO. | ISSUE |
| | | | 590752 |

City of Greater Geelong – COLLECTORS ROADS

BACKGROUND:

In January 2008 a road network workshop was held with VicRoads, Developers and Council staff to develop a consistent position on the road network plan that will service the Armstrong Creek area. The workshop's main outcome was the utilisation of the existing one mile road grid (1.6km), however to avoid large four lane roads through the development and improve pedestrian and public amenity this one mile grid would be broken down into a grid of half mile collector roads (2 lane, if possible).

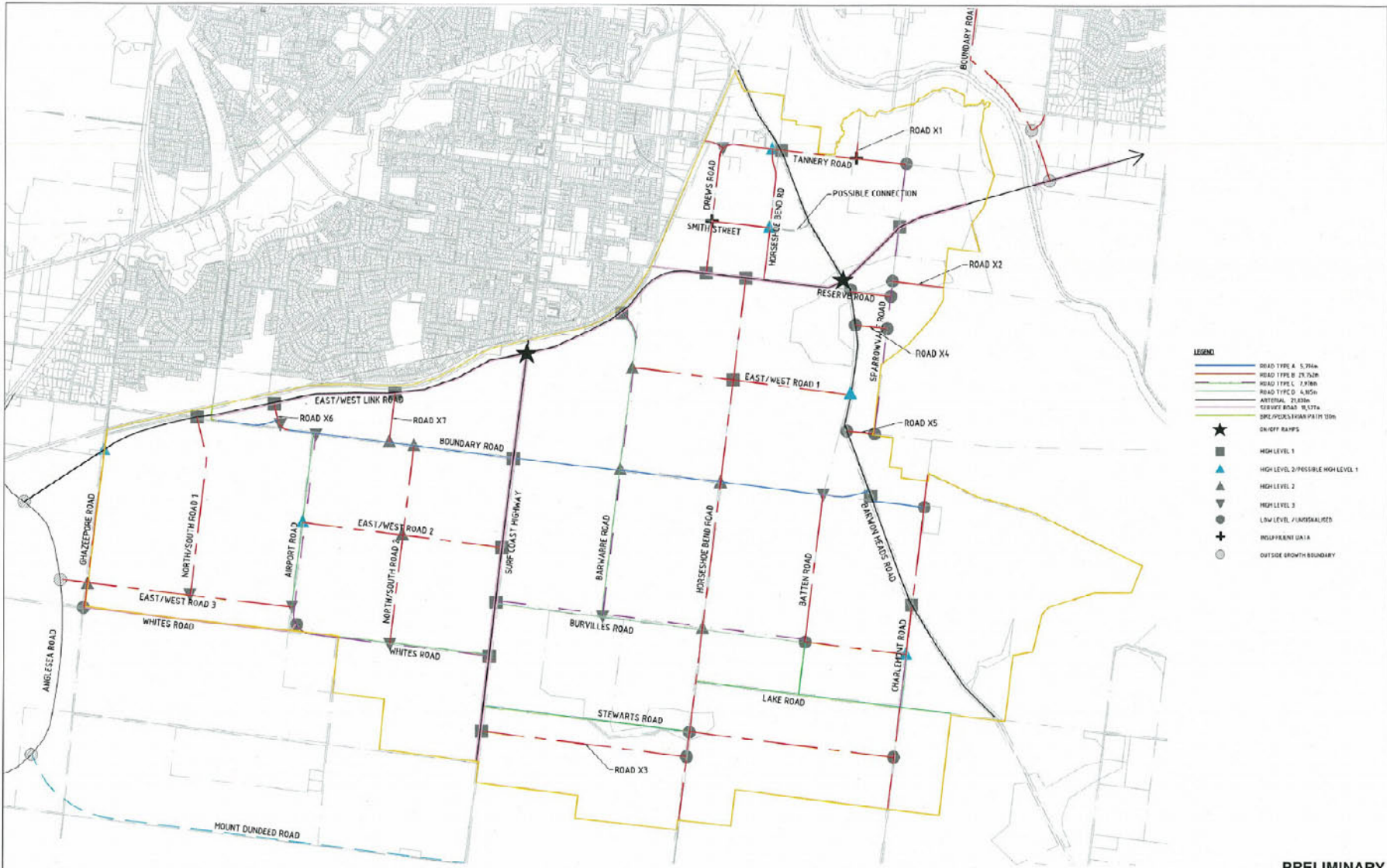
This strategy has since been refined through further development with VicRoads, relating to the proposed East West Link Rd, and within Council relating to the general functionality and connective of the network.

The final Road Network Plan is shown on the following pages, including preliminary road cross sections.

ROAD DESIGN - GHD

GHD was engaged by Council to prepare preliminary cross sections for various road types within the development, then evaluate the full cost to deliver the proposed road network.

The attached Road Network Plan reflects GHD's final plan adopted by the City of Greater Geelong, including the colour coding of the various road cross sections that integrate the abutting native vegetation (existing road reserve) into the future transport corridor.



- LEGEND**
- ROAD TYPE A 5.5M
 - ROAD TYPE B 2X 7.5M
 - ROAD TYPE C 7X10M
 - ROAD TYPE D 6X15M
 - ARTISIAN ZONE
 - GOVERNMENT ROAD 16.5M
 - SPECIAL HIGHWAY PATH USE
 - ★ ON/OFF RAMP
 - HIGH LEVEL 1
 - ▲ HIGH LEVEL 2/POSSIBLE HIGH LEVEL 1
 - ▲ HIGH LEVEL 2
 - ▼ HIGH LEVEL 3
 - LOW LEVEL / UNRAISED
 - ⊕ INSUFFICIENT DATA
 - OUTSIDE GROWTH BOUNDARY

PRELIMINARY

| | | | | |
|---|---------------------|----|----|----------|
| C | ISSUED FOR APPROVAL | KR | CC | 20.01.00 |
| R | REVISED FOR COMMENT | KR | CC | 02.06.00 |
| A | ISSUED FOR COMMENT | KR | CC | 07.08.00 |

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GHD CLIENTS | PEOPLE | PERFORMANCE

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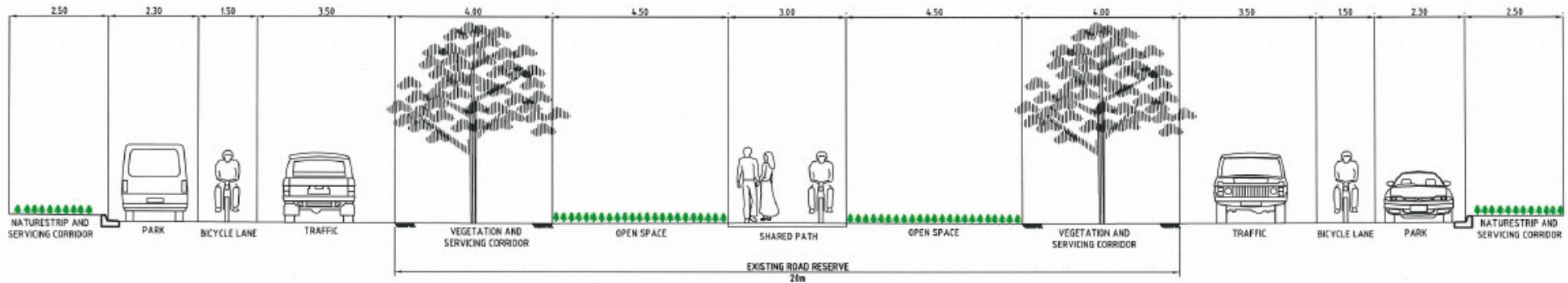
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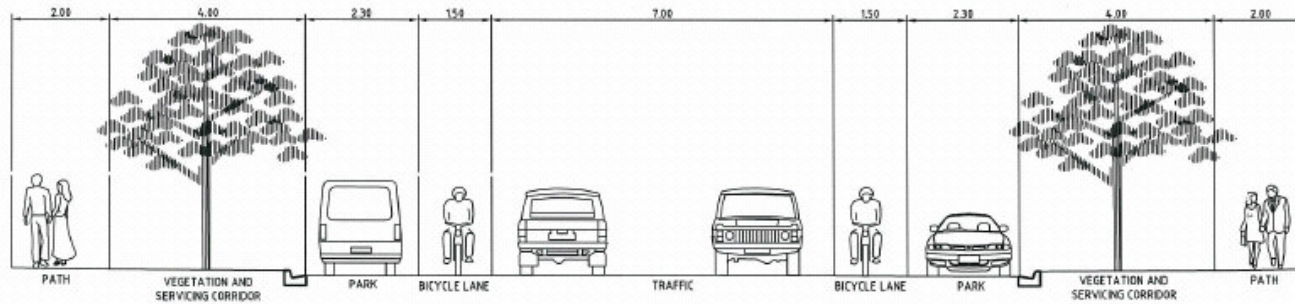
| | | |
|---------------------|-------------------|-------------------|
| Drawn | Designed | Checked |
| Drafting Group 1 | Design Group 1 | Design Group 1 |
| Approved | | |
| DATE | | |
| Scale | NTS | |

CITY OF GREATER GEELONG
ARMSTRONG CREEK
ROADS OPTION B

Sheet 3 of 3
A1 Drawing No. **Rev: C**



TYPICAL CROSS SECTION OF ROAD TYPE A
 39.6m RESERVE
 SCALE 1:100



TYPICAL CROSS SECTION OF ROAD TYPE B
 26.6m RESERVE
 SCALE 1:100

PRELIMINARY

| | | | |
|-----|-----------------------|-------|------|
| B | ISSUED WITH COST PLAN | | |
| A | INITIAL ISSUE | | |
| rev | description | app'd | date |

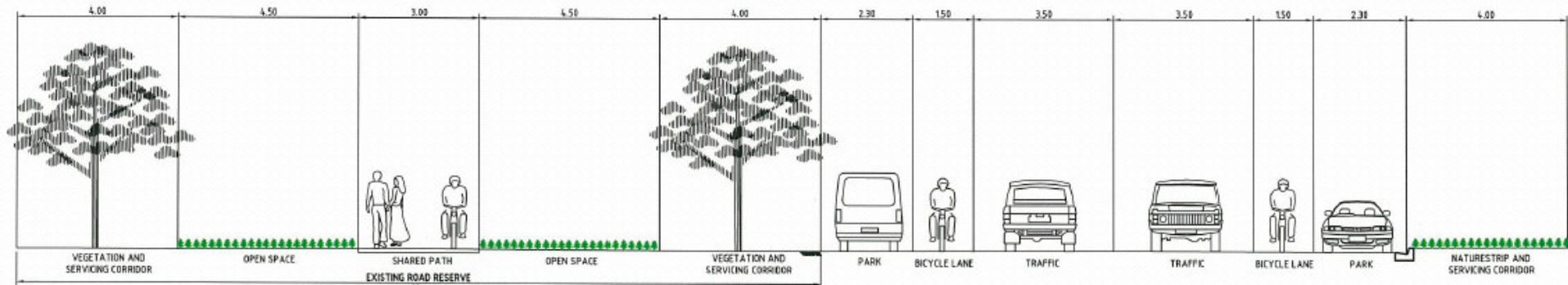
CITY OF GREATER GEELONG
 ARMSTRONG CREEK ROAD
 TYPICAL CROSS SECTIONS
 ROAD TYPES A & B



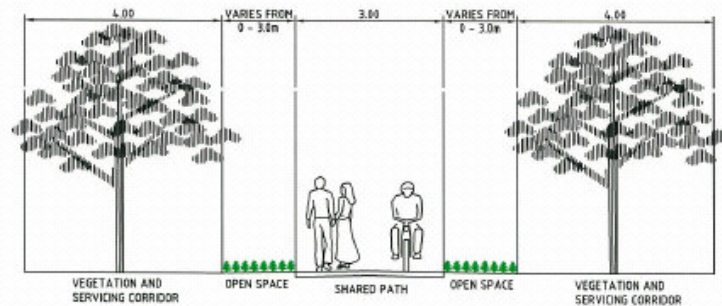
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scale | 1:100 for A3 | job no. | 31-22324
 date | JULY 2008 | rev no. | B



TYPICAL CROSS SECTION OF ROAD TYPE C
 38.6m RESERVE
 SCALE 1:100



TYPICAL CROSS SECTION OF ROAD TYPE D (GREENWAY)
 17.0m RESERVE
 SCALE 1:100

PRELIMINARY

| B | ISSUED WITH COST PLAN | | |
|-----|-----------------------|-------|------|
| A | INITIAL ISSUE | | |
| rev | description | app'd | date |

CITY OF GREATER GEELONG
 ARMSTRONG CREEK ROAD
 TYPICAL CROSS SECTIONS
 ROAD TYPES C & D



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 date JULY 2008 rev no. B

TRAFFIC MODELLING – VEITCH LISTER

The below traffic modelling summary is an extract from the Veitch Lister report titled “Phase 1 Traffic Modelling report - Armstrong Creek Movement and Access Infrastructure Feasibility”

INTRODUCTION

Veitch Lister Consulting Pty Ltd (VLC) was engaged by the City of Greater Geelong to assist it in its finalisation of plans for the Armstrong Creek Urban Growth Area.

This assistance is provided in two phases:

- Phase 1 - Development and assessment of a base level of transport infrastructure provision; and
- Phase 2 - Sensitivity testing of public transport servicing levels and resultant road network changes

This report focuses on Phase 1.

LAND USE ASSUMPTIONS

The Council has advised that modeling is to occur on the basis that the Armstrong Creek Urban Growth Area is fully developed by 2019. The Council has also provided an overview of the demographic data which is presented in Figure 6-1.

| Land Use | Land Area (ha) | 5 years (2013) | | 10 years (2018) | | Fully developed (2019) | |
|--|----------------|----------------|---------------|-----------------|---------------|------------------------|---------------|
| | | Dwellings | Population | Dwellings | Population | Dwellings | Population |
| Activity centres (incl. primary schools & local sporting facilities) | 90 | | | | | | |
| Secondary schools | 30 | | | | | | |
| Employment land | 270 | | | | | | |
| Mixed use corridor | 30 | | | | | | |
| Shop top apartments | | | | 530 | 1300 | 660 | 1,620 |
| Higher density housing | 60 | | | 1410 | 3465 | 1,760 | 4,330 |
| Medium density housing | 205 | 500 | 1,250 | 3250 | 7990 | 4,060 | 9,990 |
| Conventional density housing | 1100 | 4,000 | 9,840 | 13905 | 34,210 | 15,460 | 38,010 |
| Regional sports facilities | 20 | | | | | | |
| Biodiversity corridor/passive parkland | 390 | | | | | | |
| Detention basin/wetlands | 95 | | | | | | |
| Cemetery | 20 | | | | | | |
| East-West link road reserve | 40 | | | | | | |
| TOTAL | 2350 | 4,500 | 11,090 | 9,385 | 46,965 | 21,930 | 53,950 |

Figure 6-1: Armstrong Creek Demographic Overview

The data presented in Figure 6-1 above has been supplemented by information contained within the *Armstrong Creek Urban Growth Plan Volume 1, Public Exhibition Version, 16 October, 2006* and, more particularly, the *Armstrong Creek Urban Growth Plan Volume 2: Precinct Plans, Public Exhibition Version, 16 October 2006*.

VLC has modelled Armstrong Creek for the year 2021. With respect to surrounding areas the model retains assumptions made in 2004 on the extent of development and the population expected to be in place in 2021.

ROAD NETWORK ASSUMPTIONS

Modeling has been undertaken on the assumption that by 2021 the Geelong Ring Road Sections 1, 2, 3, 4A and 4B have been constructed. This is a logical assumption given that these road improvements are either currently under construction or funds are currently committed for their construction.

With respect to the Anglesea Road deviation, Geelong Ring Road Section 4C, and the possible extension of Section 4C to the Bellarine Highway or Geelong-Portarlington Road, there is no such commitment. However, there is strong support from Blue Circle Southern Cement and the Department of Primary Industries for the Anglesea Road deviation to occur in the short to medium term and previous traffic modeling has indicated that the need for the Geelong Ring Road Section 4C and its extension relate mainly to the development of Armstrong Creek. Accordingly, it has been assumed that these road network improvements will also be in place by 2021.

Figure 6-2 and 6-3 both show the road network assessed in this report. Figure 6-2 shows the assumed capacity of each road, whereas Figure 6-3 shows the assumed free flow speeds.

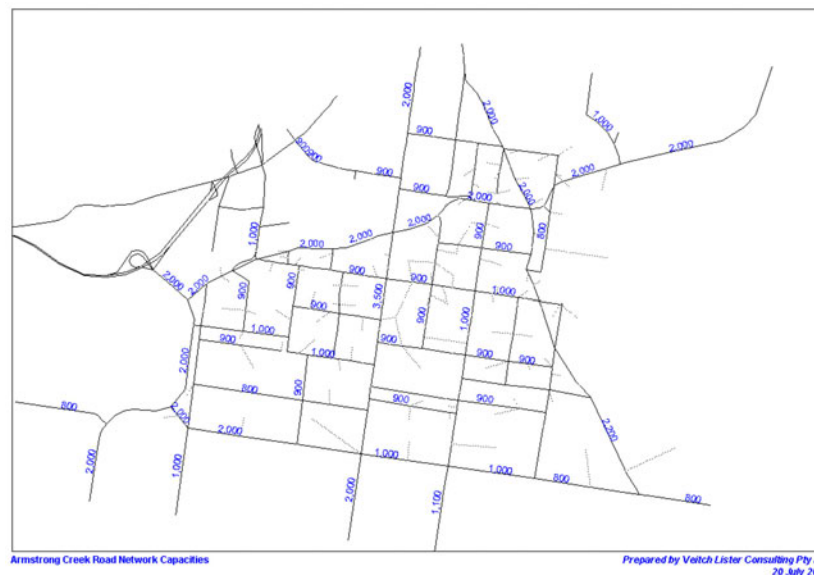


Figure 6-2: Armstrong Creek Road Network Assumed Capacities

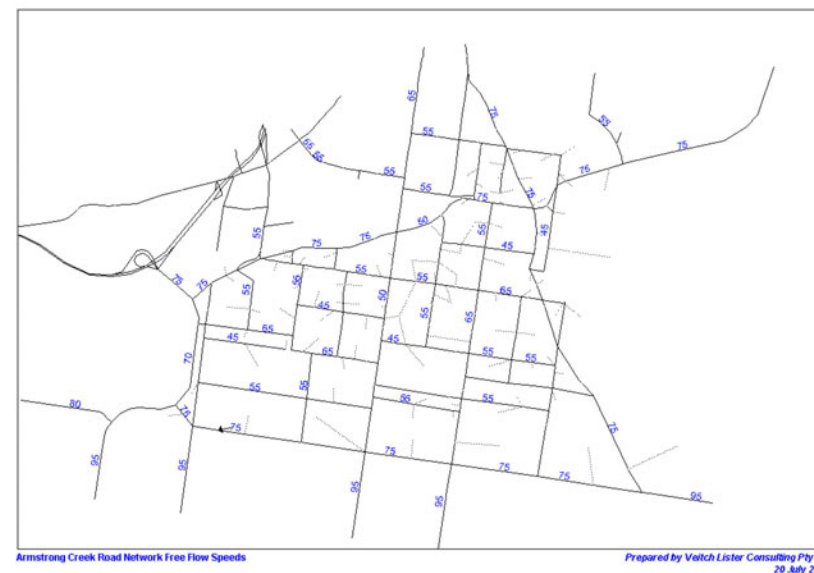


Figure 6-3: Armstrong Creek Road Network Assumed Free Flow Speeds

MODEL RESULTS

Modeling was undertaken in two stages. In the first stage, the road network modelled was similar to that shown in Figure 4-2 (refer full report – original concept 800m grid network). Select-link analysis was undertaken during this stage to provide an understanding of vehicular movement through and within the Armstrong Creek Urban Growth Area. The results of this first stage of modeling are not presented in this report. The results were used, however, to refine the proposed connectivity of the road network. As a result of this work, the road network was refined as shown on Figures 4-3, 6-2 and 6-3.

As discussed in Section 4.5 (refer full report), two options for the road network were modelled – with and without a road link to Rossack Drive. The modelled outputs for 24 hrs on a normal weekday for each option are presented in Figures 6-4 and 6-5.

CONCLUSIONS

The modeling outputs indicate a good distribution of traffic from the development area with most roads carrying a volume of traffic that is consistent with their intended place in the road hierarchy.

Exceptions are:

- **Reserve Road, west of Drews Road.** This collector road forms part of the most direct route between Grovedale and the Bellarine Peninsula
- **Boundary Road, between Surf Coast Highway and Barwarre Road.** This collector road provides an important access function for the Principal Activity Centre and, therefore, higher traffic volumes are to be expected.

The modeling of the Rossack Drive link indicates that significant volumes of through traffic will not be introduced to the Rossack Drive area. This outcome is very different to previous modelling of a more direct link undertaken for VicRoads which indicated that Rossack Drive would become the preferred route between Armstrong Creek and the

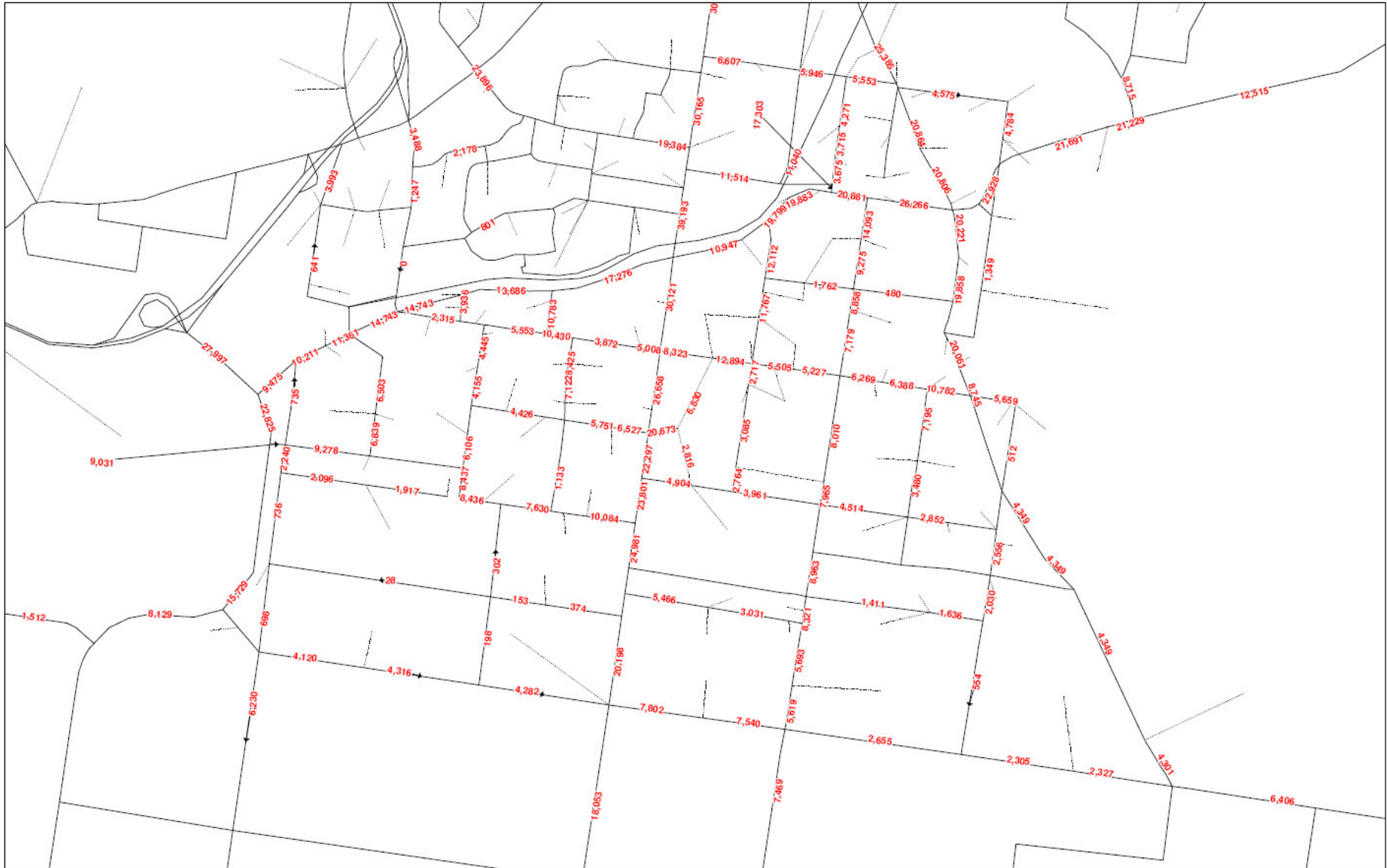
Geelong Ring Road. If Council wishes to consider this link further, it is recommended that sensitivity testing be undertaken as the consequences for residents of the Rossack Drive area could be significant.

RECOMMENDATIONS

The modelling undertaken assumes that Armstrong Creek will be fully developed by 2021 and that growth in the surrounding areas will occur at rates considered reasonable in 2003. 2021 is a short to medium term planning horizon and consideration should be given to longer term growth, particularly in the Torquay area. It is recommended that, in order to establish ultimate road reserve widths for Anglesea Road, Ghazeepore Road, the Surf Coast Highway and Horseshoe Bend Road, modelling be undertaken that assumes full development of the Torquay/Jan Juc and Spring Creek Structure Plan areas.

The modelling of the Rossack Drive link has yielded very different results to modelling undertaken previously for VicRoads on a more direct link. If Council intends to seriously consider this link it is recommended that further modelling be undertaken to identify the sensitivity of use of the link to its alignment and other road network characteristics.

The modelling undertaken assumes that the only public transport improvement on existing conditions is the extension of the rail service to a new station in the vicinity of Rossack Drive. Further modelling should be undertaken to identify the effects of additional public transport improvements, in particular new bus services that will undoubtedly be put in place to service the growth area.



Armstrong Creek Urban Growth Plan
 2021 full development scenario without Rossack Drive connection
 Daily Volumes (2 way)

Prepared by Veitch Lister Consulting 08-07-08

Figure 6-4: Armstrong Creek 2021 (Full Development) 24 hr traffic volumes (No Link to Rossack Drive)



Armstrong Creek Urban Growth Plan
 2021 full development scenario with Rossack Drive connection
 Daily (2way) Volumes

Prepared by Veitch Lister Consulting 08-07-08

Figure 6-5: Armstrong Creek 2021 (Full Development) 24 hr traffic volumes (With Link to Rossack Drive)

City of Greater Geelong - PEDESTRIAN & CYCLING PATHS

PURPOSE:

The purpose of including pedestrian and cycling paths within the framework of infrastructure planning is to meet the objectives set out in the Armstrong Creek Urban Growth Plan 1 for the need to link the new urban centres, railway stations, schools and key community facilities with a web of leisure trails and more direct walking and cycling paths that contribute to the formation of a healthy and integrated community.

A high standard network of paths was encouraged to have a walkable / cycling community that does not rely on motor vehicles as a primary mode of transport.

ASSUMPTIONS:

The primary assumption used for the development of the Pedestrian / Cycling Network Plan are detailed below.

- The Armstrong Creek Urban Growth Plan – Framework Plan, detailing recreational trails, is seen as concept only and does not reflect new road network development and a web network within the growth area.
- Movement of people from their home to railway stations, activity centres, schools, employment areas and open space facilities is a key design criteria
- All recreational trail construction is assumed to be constructed of asphalt or concrete at a width of 3m. This is seen as an appropriate standard for a high use shared paths catering for cyclists, pedestrians, dog walkers, wheel chairs, etc, as well as the asset life cycle needs of such paths.
- It is assumed that approx. 50% of the developed recreation trails will include dedicated path lighting to improve amenity (these sites are yet to be determined and will be based on high profile / usage paths within the growth area).
- All costs associated with connecting the recreation trails directly with local sporting and community facilities as not cover within this pedestrian and cycling network plan.
- All costs associated with the provision of road crossings are assumed to be addressed as part of subdivision road design and construction, and must be considered during detailed design of all new roads.

CONSTRAINTS / RISKS:

The primary constraints and risk associated with the development and delivery of this network plan are details below:

- The cost of asphalt being impacted by increasing market cost of oil.
- The trails will need to include flexibility associated with their exact location, particularly relating to conflicts with flora and cultural heritage sites, and integration with precinct road and footpath networks.
- Intersection and road crossing will need to have a strong focus on encouraging the movement of pedestrians and cyclist through these conflict points. This will maximise the attractiveness of these paths for both social and commuter users.

DELIVERY:

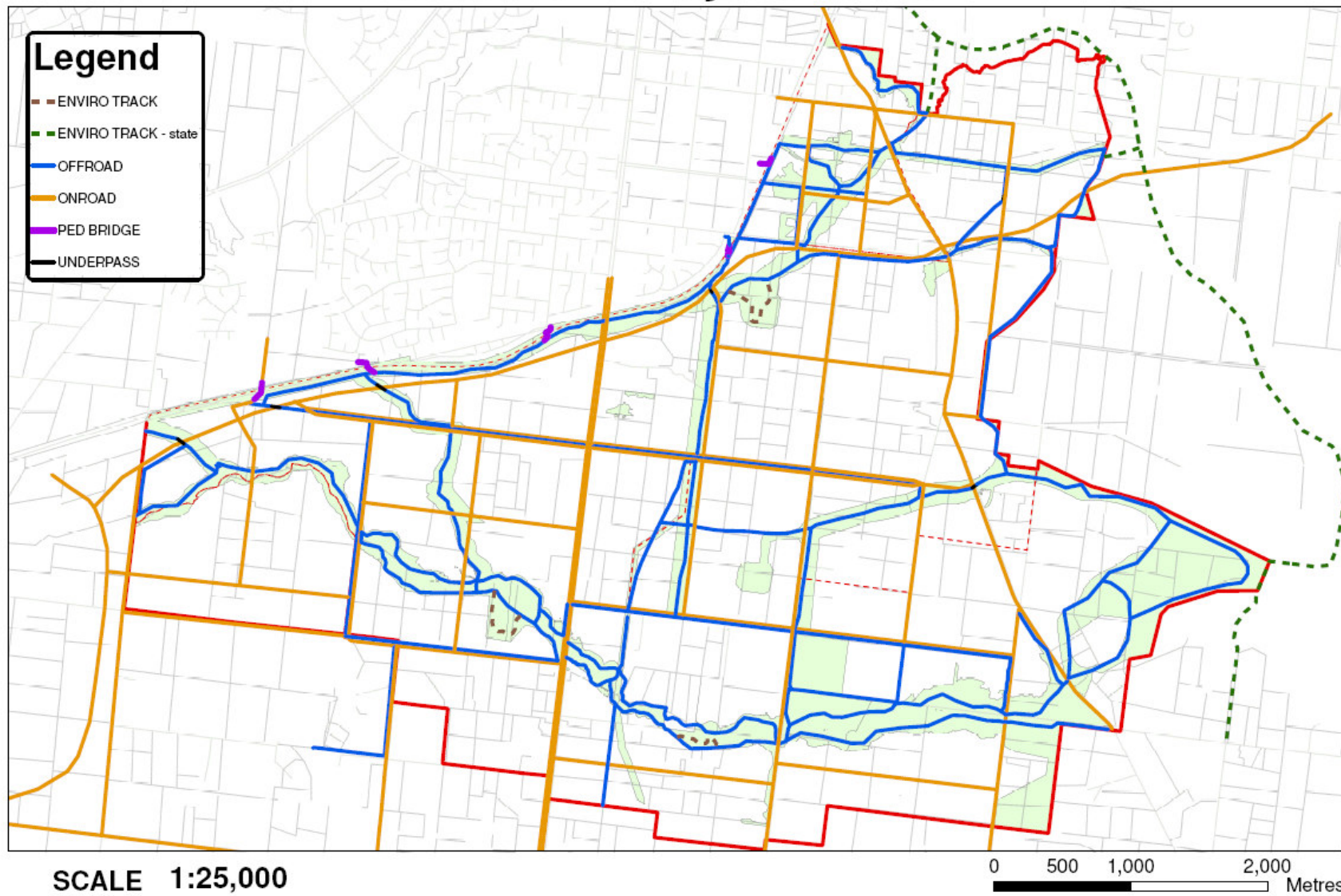
One of the essential components to the effective delivery of the proposed pedestrian and cycling network will be the ability to deliver key links early in the development of these new communities. This means that rather than rollout small segments of the network as development occurs, early triggers should be established to deliver larger section of the network as early as possible. This will be essential in establishing community behaviour and discourage the reliance of households on motor vehicle usage.

This rollout will need to be a key consideration during the preparation of Precinct Structure Plans and the staging for infrastructure delivery.

CRITICAL INFRASTRUCTURE:

The critical component of the pedestrian and cycling network wil most certainly be the Armstrong Creek corridor. This is the growth area's name sake and will be the most notable feature that links the community from east to west (similar to the Barwon River trails). Early establishment of this corridor is linked to a higher likelihood of success in developing a healthy and non-vehicle reliant community. The second critical corridor within the growth area will be the Barwarre Road urban forest path. This path will provide an essential north south link from the southern tip of the growth area, past the major activity centre, right through to Marshall Railway Station.

Armstrong Creek Pedestrian & Cycle Paths



Attachment 4: Powercor - Electricity Network Plan

POWERCOR DISTRIBUTION NETWORK

Powercor operates the 66kV subtransmission lines that commence at the Geelong Terminal Station in Cox Rd, Norlane and supply Zone Substations throughout the Geelong Region. In turn, predominantly overhead inter-connected 22kV feeders from these Zone Substations supply local towns and areas.

Powercor has an ongoing 10-year Plan to upgrade the Network to meet expected load growth and improve reliability throughout the Region.

WAURN PONDS GROWTH CORRIDOR

The Waurm Ponds growth corridor, encompassing the Armstrong Creek urban area south to Torquay, is the major growth area in the Geelong Region. This area is currently supplied by 22kV feeder lines from the Waurm Ponds Zone Substation at the corner of Hams Road and Ghazeepore Road. The existing load demands on the Zone Substation provide limited scope for the continuing load growth.

To meet the load growth in the area, Powercor as part of its 10 year development plan, is upgrading the transformer capacity at this Zone Substation in 2008 with a further upgrade planned for 2009.

The Armstrong Creek urban area initial load developments will be supplied by 22kV interconnected feeder lines, two from the Waurm Ponds Zone Substation and one from the Geelong East Zone Substation that are either adjacent to, or pass through the developer owned land parcels.

The feeder lines from the Waurm Ponds Zone Substation currently supply the Torquay area and are nearing capacity while the feeder from the Geelong East Zone Substation is currently less loaded. These feeder lines will be reconfigured to distribute the load

across the network to meet the initial load growth. The tracts of developer subdivisions in Armstrong Creek will need to be connected to these feeder backbones.

Feeder developments on the eastern side of Armstrong Creek will take account of future Vic Roads plans for Barwon Heads Road.

Powercor's next stage of development is to establish the new Torquay Zone Substation for the Torquay/Jan Juc and coastal area load which in turn provides capacity back in the existing feeder lines which pass through the Armstrong Creek development.

A second 66kV subtransmission line is required for the Torquay Zone Substation reliability and this line is planned to be constructed as a second circuit by overbuilding the existing powerline on Anglesea Road between Waurm Ponds and Torquay.

It is important that the coordination of this new line at the Waurm Ponds end occurs with Vic Roads and Blue Circle Cement due to the planned realignment of Anglesea Road.

EAST GEELONG TERMINAL STATION

The new East Geelong Terminal Station is planned to be established on SPAusnet owned land at the corner of Woods Road and Coppards Road, St Albans Park. This new Terminal Station is required in the medium to long term to cater at transmission level for load growth in the southern part of the Geelong Region including the Armstrong Creek urban growth area.

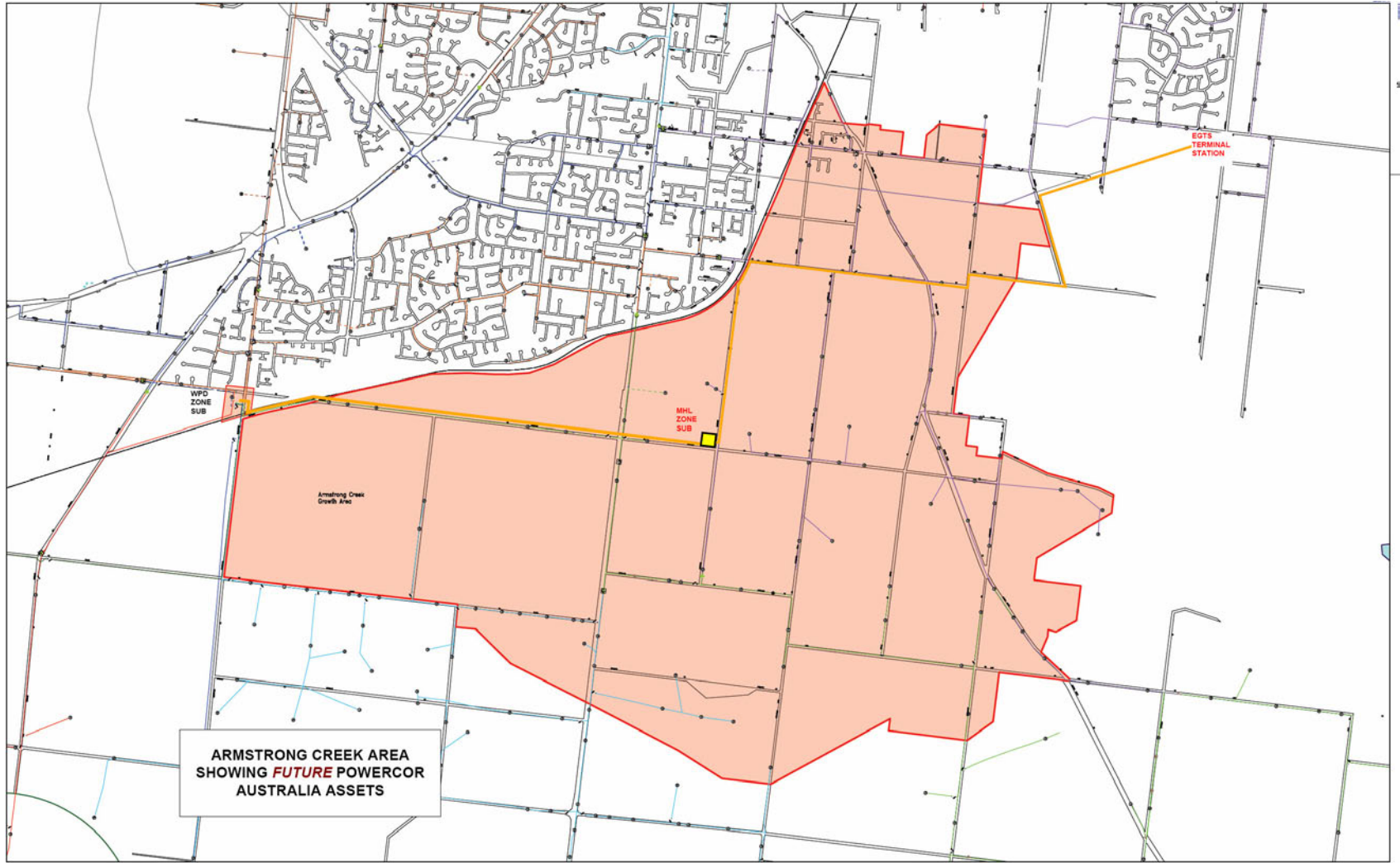
It is important that the coordination of this new Terminal Station and 66kV overhead subtransmission lines occurs with Vic Roads in regards to future line routes for the East West road link.

MARSHALL ZONE SUBSTATION

Ultimately it is planned to establish a Marshall Zone Substation around the intersection of Boundary Road and Barrwarre Road in Armstrong Creek depending on load developments. This Zone Substation would be supplied via overhead subtransmission lines from the East Geelong Terminal Station and the Waurn Ponds Zone Substation.

The powerline line routes to Marshall Zone Substation will be investigated considering also opportunities for developing these in line with the planned East West road link and the North South transit corridor.

John Garvey,
Powercor Australia – Geelong Branch,
June 2008



Melway 652 911
 C 2 & 306 East Ave. 31M
 Vic Roads 93 115



Powercor Assets - Armstrong Creek

sbdr_name

Attachment 5: SP AusNet Gas - Infrastructure Plan

SP Ausnet has provided a preliminary concept for the supply of natural gas to the proposed Armstrong Creek Urban Growth Area based on the information provided by the City of Greater Geelong.

Based on the planning information provided (approximately 22,000 dwellings) it has been determined that a 180mm supply main grid will be required to service the growth area. These new mains will require the installation of two new field regulators from one from the existing Transmission Pipeline along Lower Duneed Road and one from the existing 160mm main in Mount Duneed.

Our gas design plan shows how SP AusNet could construct a central grid of core supply mains that enables mains to be extended from a central location to the various new estates being established by the multiple developers that will be acquiring parts of Armstrong Creek.

Servicing of the Marshall and North East Industrial Precincts are assumed to be via connection to, or extension to the existing gas network in the area. Currently there is limited supply capacity available from this network. Connection from this area to the proposed Armstrong Creek gas main grid will be required to provide additional supply capacity in the future.

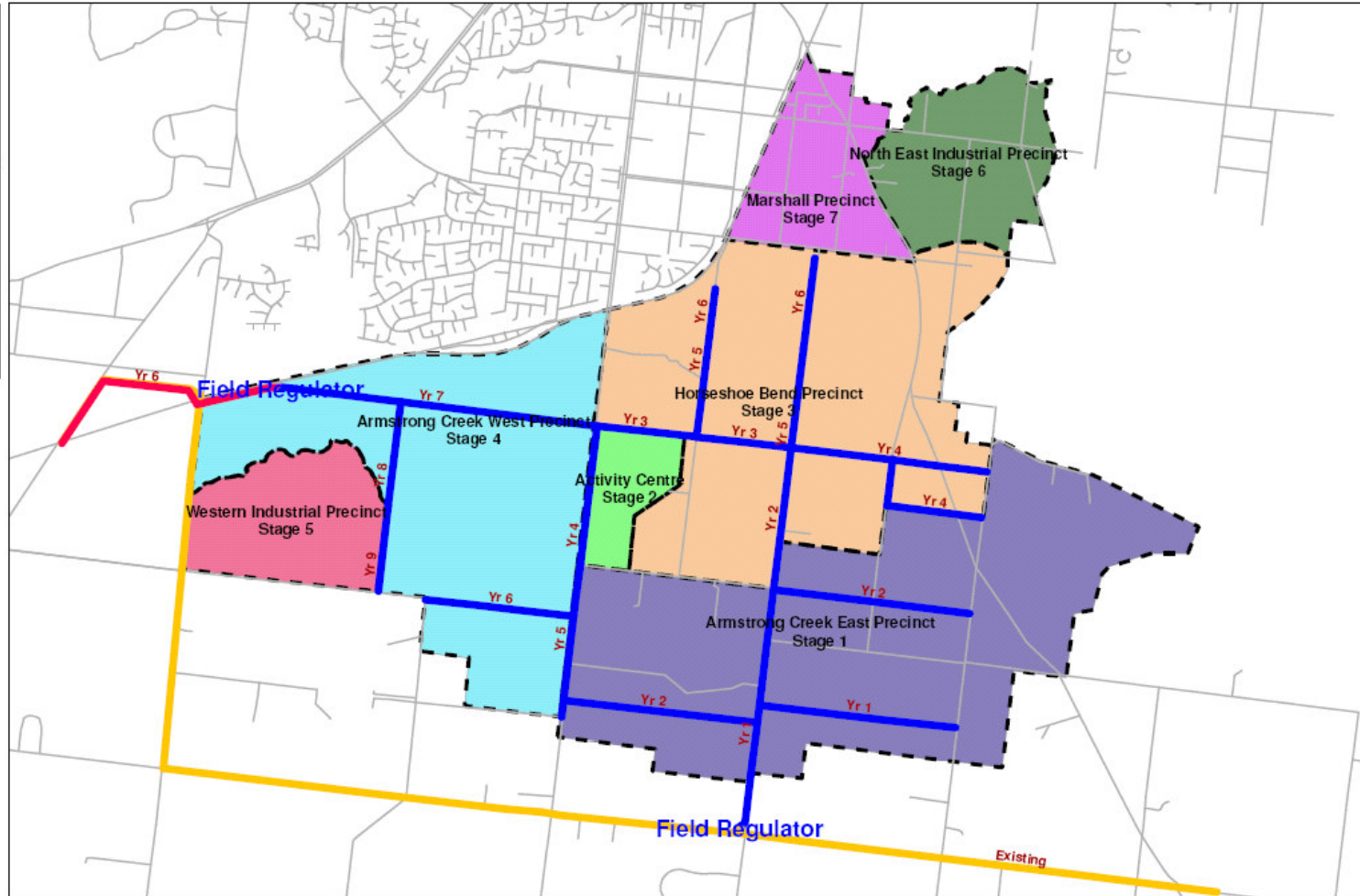
Councils planning arrangements for Armstrong Creek are not confirmed and the arrangements SP AusNet is proposing are reasonably flexible. At this time we believe this is the best way for SP AusNet to meet the planning needs of the Armstrong Creek stakeholders.

The information provided by SP Ausnet is for planning purposes only and is not to be regarded as an offer or commitment to complete the proposed works at this time.

Paul O'Brien
Senior Project Consultant
SP AusNet – Melbourne
February 2009

GAS - SP Ausnet PROPOSED GAS INFRASTRUCTURE PLAN 2009 - 2019

| Legend | |
|---|----------------------------|
| Gas Supply Mains | |
| Main Type | |
| — | 150S7 |
| — | 160P8 HP2 |
| — | 180PE HP2 |
| | Precinct Boundaries DASHED |
| Gas Infrastructure Staging | |
| | Stage 1 |
| | Stage 2 |
| | Stage 3 |
| | Stage 4 |
| | Stage 5 |
| | Stage 6 |
| | Stage 7 |



Attachment 6: Victorian Department of Transport - Railway Station Footprints & Public Transport

INTRODUCTION

The Armstrong Creek Urban Growth Area is currently serviced via both heavy rail and bus services that utilise the:

- Geelong-Warrnambool railway line
- Marshall railway station, and
- The Torquay-Geelong bus services

The aim of the public transport strategy is to provide Armstrong Creek with the best opportunities for the future community to be non-reliant on the family car. This requires the development of user friendly pedestrian and cycle paths and the provision of high amenity bus stops and services, railway stations and carparking and end of line public transport facilities.

MARSHALL STATION

The Marshall railway station, located on Marshaltown Road, has been flagged as providing two critical roles during the life the development and the initiation of community behaviour changes.

The stations initial role will provide park and ride facility, and a well connected railway station, that can serve the needs of the early stages of development.

The stations long term role will be a neighbourhood station that includes moderate park and ride facilities, and a much greater focus around the provision of neighbour amenities and high levels of pedestrian and cycling connectivity. This may include provision of mixed use shops (i.e: corner store, café, etc) along with a significant bus terminal for connection to Armstrong Creek, Geelong, Barwon Heads and Torquay.

In relation to the first stage of infrastructure provision at Marshall Station, the Department of Transport (DoT) is focused around the provision of 1,000 additional carparking spaces, involving the acquisition of approximately 4 hectares of farm land.

The exact footprint for this station is still being finalised by the DoT, but a concept layout is reflected on the attached map.

ARMSTRONG CREEK (WAURN PONDS) STATION

A new railway station has been proposed as part of the planning for Armstrong Creek and has been included within the *Armstrong Creek Urban Growth Plan* as a critical new asset for the future Armstrong Creek community, the existing urban areas north of the railway line and the local region.

The new station will be located at the southern end of Rossack Drive and approximately 500m east of Gazepoore Road, and will incorporate station interfaces on both the northern and southern sides of the existing railway line.

The new station is still contingent on the future funding and will require ongoing lobbying to highlight the short and long term community benefits of such a project.

The proposed first stage of the stations development would see a car park and minor rail facilities developed on the northern side (Waurm Ponds) to service the established urban area and broader park and ride users. This would accommodate approximately 1,200 car spaces.

The long term development of the station would see the construction of a southern car park to serve the new Armstrong Creek community. This would include another 1,300 car spaces and provide high quality park and ride, bus terminal and station facilities. It would also look to integrate the station with the proposed Local Activity Centre and provide a sense of place and destination for all user groups and the local community (e.g.: shops, cafes, pedestrian and cycle paths, etc).

ARMSTRONG CREEK NORTH-SOUTH TRANSIT CORRIDOR

The development of the north-south transit corridor has been an integrated part of the Armstrong Creek Urban Growth Plan from the starts of the plans development and is seen as a critical piece of strategic planning for the future heavy rail needs of the Armstrong Creek and Torquay communities.

The transit corridor runs from the intersection of Reserve Road and Barwarre Road in the north, through the Major Activity Centre and then south the Lower Duneed Road. For much of the corridors length it runs in parallel with the proposed urban forest (open space) that hugs the western side of Barwarre Road.

The Department of Transport (DoT) sees this corridor as playing a critical role in the provision of long term opportunities for heavy rail to Torquay and avoid the need to retro fit such a project through the middle of a future community.

The corridor has been flagged by the DoT as serving two primary functions during its life. The first being an integrated transit bus corridor between Marshall Station and central Armstrong Creek to link the new community with heavy rail services.

This first stage of development would see the corridor for the provision of bus services.

This stage will require a range of design consideration to determine the level of integration with the new road network and its ultimate transition to heavy rail (e.g.: grade separation)

Long term the corridor would be transformed into a heavy rail transport link between Torquay, Geelong and Melbourne. This stage of development is likely to require the new railway line to be “sunk” into the ground to provide appropriate noise attenuation and public amenity.

In both the short and long term phases of the corridors development, the Major Activity Centre would include a transport node. This means the development of an appropriate bus terminal in stage one, and then a full railway station in the ultimate arrangement. In both these cases the station would be design around a local walking / cycling user group and not provide large scale carparking facilities.

ADJUSTMENT TO THE TRANSIT CORRIDOR ALIGNMENT

As part of the Independent Panel review for amendment C138, the panel recommend the adjustment of the Major Activity Centre boundary (eastern side) to reflect a kink in the alignment to define its eastern boundary. This adjustment has made it through to the Framework Plan currently before the Minister for Planning for approval.

Long term this kink presents a problem for the provision of heavy rail due to design curve requirements..

At the southern end of the corridor, the panel confirmed the inclusion of two options south of Armstrong Creek (waterway) due to the uncertainty relating to future links to Toquay. The two options reflected in the Framework Plan include an alignment abutting Surf Coast Hwy (eastern side) and one 750m east of the Surf Coast Hwy.

The Interagency Working Group (IIWG), including the DoT and representatives from Surf Coast Shire evaluated these two issues during a June 2008 workshop, with a aim of resolving these corridor problems.

The workshop determined that the corridor alignment should maintain a straight north-south alignment until Lower Duneed Road and allow future planning by Surf Coast Shire and the DoT to evaluate the best route south of this point.

The reasons noted for this straight alignment were:

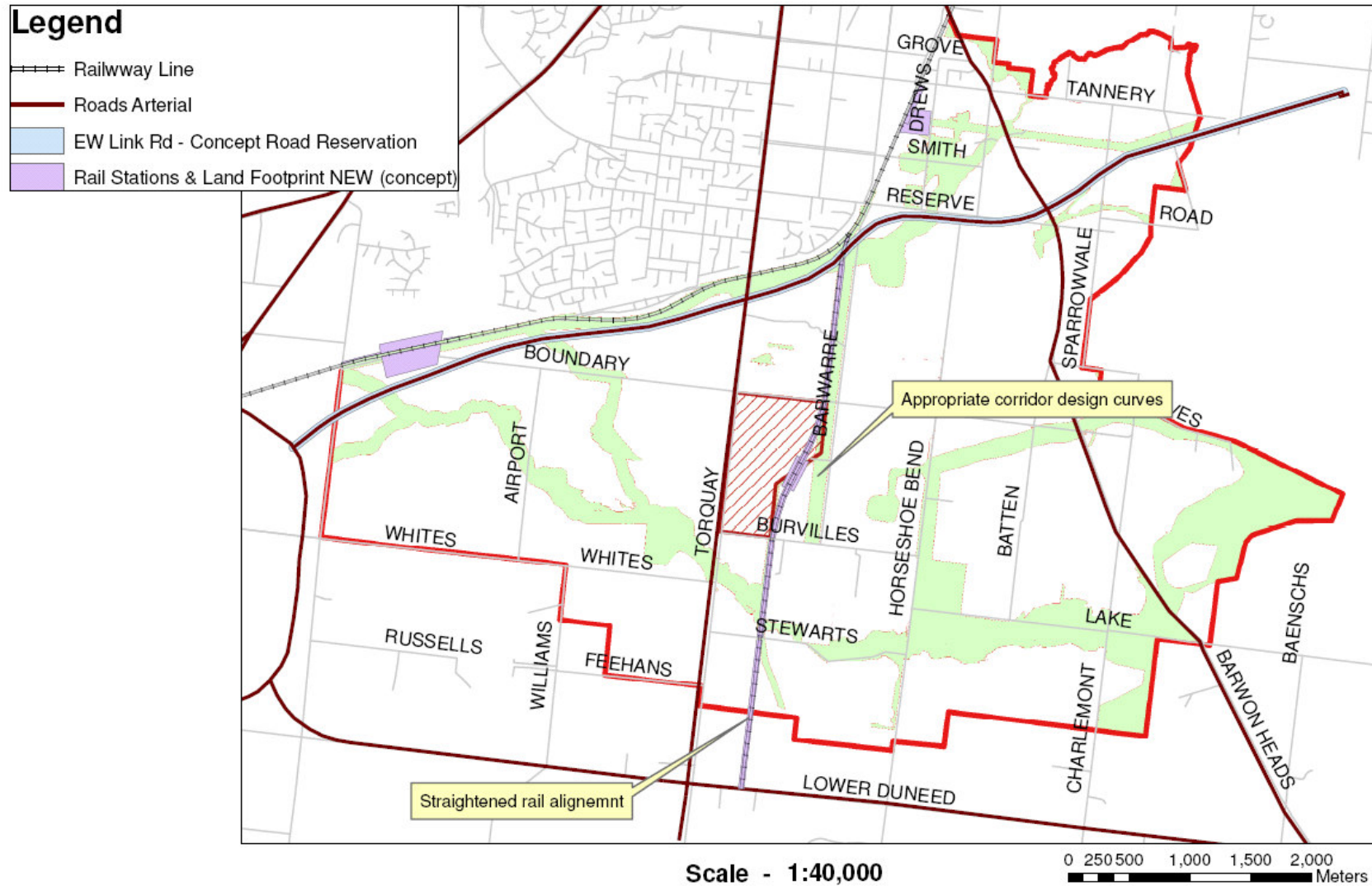
- Grade and upgrade issues associated with the Lower Duneed Road / Surf Coast Hwy intersection
- Access control along Surf Coast Highway
- The possibility of a future Torquay station being located west of Surf Coast Highway
- The distance form the current Torquay urban growth boundary (approximately 7km)

In relation to the “kinked” corridor alignment through the Major Activity Centre the DoT confirmed the need to meet a minimum of 80kmh design speed for any future heavy rail alignment.

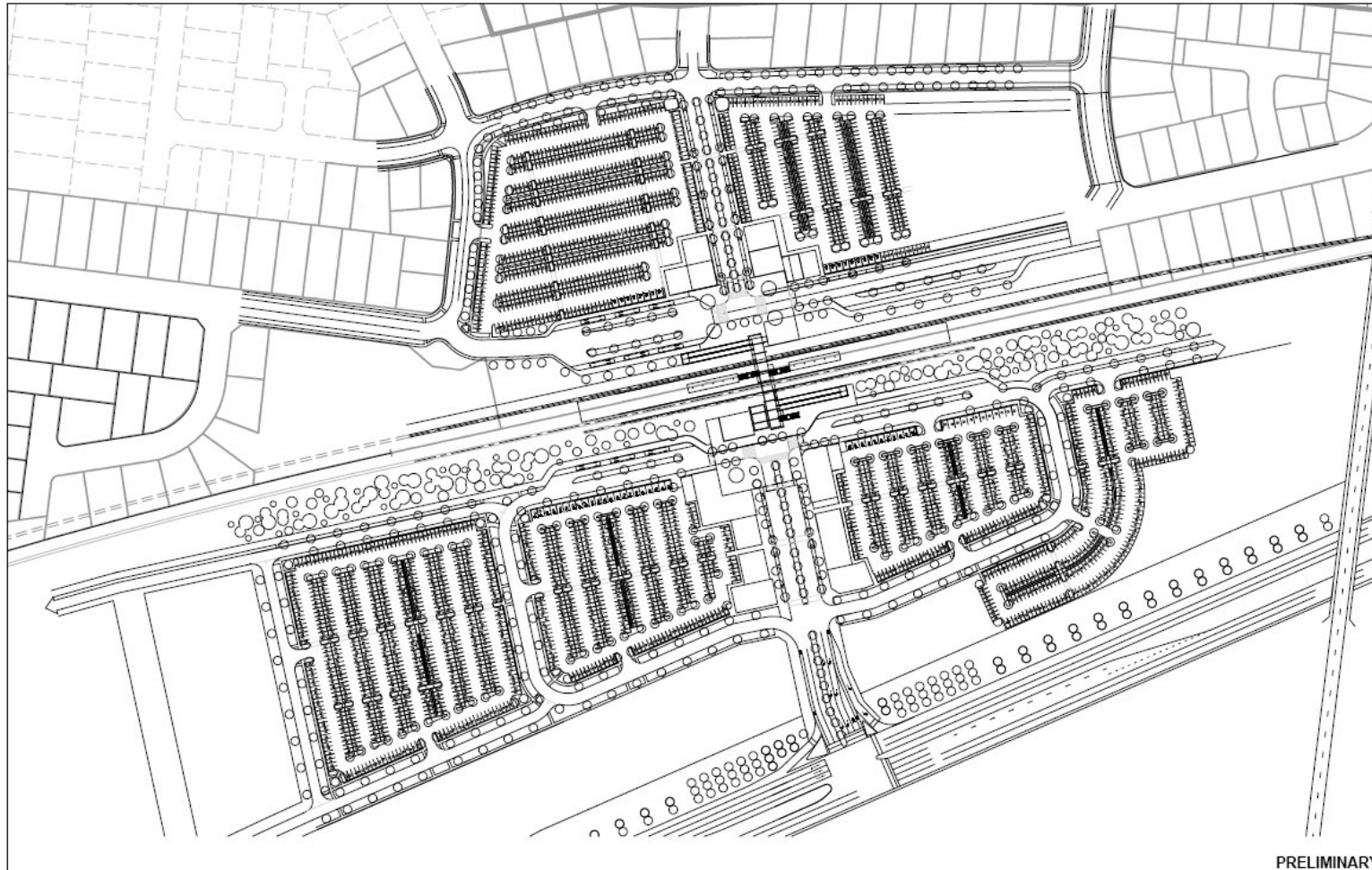
The adjustment of these corridor issues is shown in the attached map, Proposed Rail Alignment and Footprints.

Armstrong Creek - Rail Infrastructure

PROPOSED RAIL ALIGNMENT & LAND FOOTPRINT



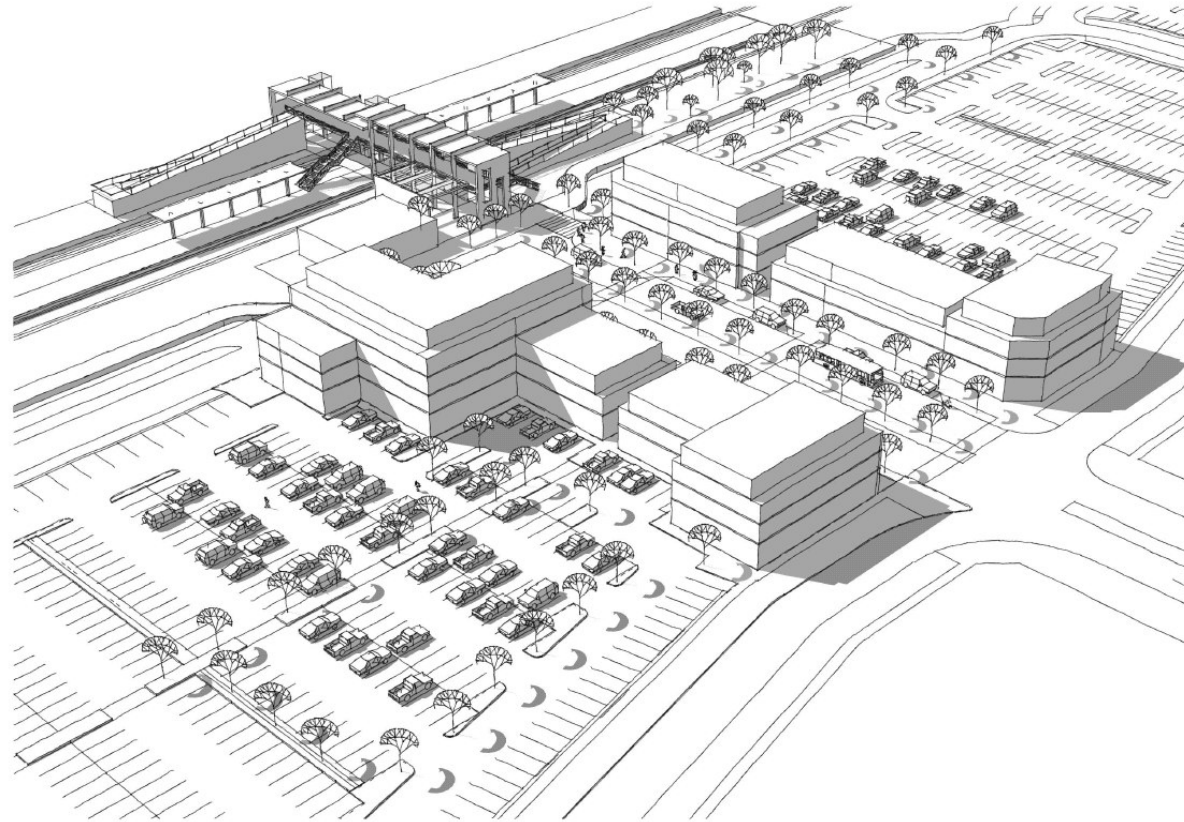
Armstrong Creek Railway Station Concept Layout Design (GHD)



PRELIMINARY

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| GHD CLIENTS PEOPLE PERFORMANCE | | | | DO NOT SCALE Conditions of Use: This document may only be used for the project and site for which it was prepared and shall not be used for any other purpose without the prior written consent of GHD. | | Drawn: G. Rollins Checked: G. Rollins Approved: G. Chappell Date: 06.11.20 | Designed: G. Rollins Design Checked: G. Chappell | Client: Department of Transport Project: Armstrong Creek Title: Masterplan Concept |
| Level 6, 100 Leake Street, Melbourne VIC 3000 Australia P 61 3 9372 0000 F 61 3 9372 0110 E info@ghd.com.au W www.ghd.com.au | | | | Scale: 1:1,000 This drawing is a conceptual design and is not intended to be used for construction purposes. | | Signature: Date: 06.11.20 | | |
| No. Remarks Date Drawn Checked Approved Date | | | | | | | | |
| Revision: 06.11.2020 10:28 AM Location: C:\projects\31-21571-SK220\31-21571-SK220_01.dwg | | | | Drawing No: 31-21571-SK220 | | Rev: A | | |

Armstrong Creek Railway Station Concept Activity Centre Design (GHD)



* The above aerial sketch is a view of the proposed station activity centre from the the south-west (concept only)

Attachment 7: Telstra - Telecommunications

Telstra has engaged an Armstrong Creek working party within Telstra, which consists of the Urban Development Group, a local area representative and also our fundamental planning manager to provide telecommunications support to the Armstrong Creek development plan. As the development is not due to break ground until 2009, this analysis is a preliminary feasibility study.

The study consists of two components for the provision of copper and also Telstra Velocity (fibre to the home). The Armstrong Creek Urban Development Plan covers sites in the following Exchange Service Area's:

- Belmont.(BELM)
- Grovedale.(GROX)
- Mt Duneed(MTDU)
- Most of the residential development will be in the Mt Duneed exchange area.

The Grovedale exchange is the site for any Telstra Velocity (fibre to the home) developments in the area. This decision is on the basis that sufficient floor space can be made available in the exchange to accommodate for Telstra Velocity equipment and sufficient power will be available via a power up-grade taking place currently. Telstra Velocity is available to developers for a cost which can range anywhere between \$2500- \$5000 per lot depending on the size and location of the development.

Standard copper deployment (non-Velocity) developments will be done by the technology of the day from the relevant existing Exchange Service Area's. Under Telstra's Universal Service Obligation, Telstra will deploy copper services to the area at no cost to the developer; this will be to provision for standard fixed telephone lines and the availability for ADSL availability for residents. Depending on the current broadband debate and recent change in government, fibre to the node (FTTN) may become an option if available in the future.

Currently, without the developer requirements and a full staging plan and timelines, it is too early to say what the exact planning brief will be for the site and Telstra looks forward to establishing this with Council as the development progresses. We are undergoing an internal strategy on offering Telstra Velocity to developers within Armstrong Creek, as we are committed to ensuring that developers have every ability to take advantage of this future ready technology.

Julian Nachmias
Urban Development Manager (Vic/SA/NT)
Telstra
December 2007