melbourne's south east growth area activity centre requirements

DRAFT

11th February 2011

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City of Casey

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glossary

Term	Acronym	Definition
Bulky Goods	BG	Large format retailing, generally comprising hardware, white-goods, furniture and other large showroom-based uses.
Central Activities District	CAD	The highest order activity centres with the greatest variety of uses and functions and the most intense concentration of development.
Commercial and Community Services		Encompasses office-based uses such as accountants, lawyers, employment agencies, real estate agents and so forth, as well as a range of community services such as neighbourhood houses, youth centres and Centrelink.
Escape Expenditure		Refers to expenditure generated by residents in a given geographically defined area and spent in activity centres located outside that area.
Estimated Resident Population	ERP	The Estimated Resident Population is the official population measure of Australia, for Local Government areas. ERPs are estimated at June 30 in each year based on annual dwelling unit approvals. Significant changes in the age of the population and local economy are also considered, to adjust the estimates in line with births, deaths and migration, in between June 30 and Census night in early August. The ERP is also adjusted to take into account the number of residents overseas on Census night and those who were not counted in the Census (DPCD 2007).
Food, Groceries and Liquor	FGL	Specific type of retail activity, encompassing supermarkets, fresh food stores and markets, liquor outlets (including liquor components of supermarkets), take-away food stores and restaurants.
Gross Leasable Area	GLA	Defined as the component of floor area legally available for tenant occupancy. It may include basements, mezzanines or upper floors and is measured in square metres.
Household Goods	HG	Specific type of retail activity, encompassing (a portion of) discount department store and department store trade, clothing, fabric and footwear trade; homewares, manchester, newsagents, pharmacies, bookstores, antiques and so forth.

Term	Acronym	Definition
In-bound Expenditures		Refers to trade drawn from outside a defined catchment area that is spent in the subject area.
Main Trade Area	MTA	The geographic catchment area from which an activity centre draws its regular and less frequent trade is termed the Main Trade Area (MTA). This comprises the primary and secondary catchments (refer to definitions). Almost all of a centre's trade will be drawn from the MTA. A small proportion (typically in the range of 10-15 per cent) will be drawn from beyond the MTA.
Major Activity Centre	MAC	Major Activity Centres are the activity centre type below principal activity centres and are intended to provide higher order retailing, commerce, community and other services at a sub-regional or district level. They should provide for a broad diversity of activities and employment opportunities, be capable of accommodating future growth and investment and be located on the principal public transport network (PPTN).
Major Retail Attractors		Significant retail anchor stores including department stores, discount department stores and supermarkets.
Market Share		Refers to the proportion of resident-based retail expenditures in defined geographic areas bound to a defined destination.
Large Neighbourhood Activity Centre	LNAC	These centres are intended to provide a complement of retailing, commercial and community services to meet the daily and weekly shopping and service needs of local communities. They are anchored by at least one supermarket and typically have catchments of greater than 10,000 people. They are generally accessible by walking and cycling with adequate links to public transport in the form of bus stops an ideally train stations. They form community focal points and should be located close to schools, libraries and health care services.
Small Neighbourhood Activity Centre (Convenience)	SNAC	Small Neighbourhood Activity Centres (SNAC) are intended to have a convenience role to meet the surrounding areas day-to-day retail needs. This typically includes a convenience store and a small number of local stores and services with catchments of up to 4,000 people. They are accessible by walking and cycling with links to the bus network. They form community focal points and should be located close to schools, libraries and health care facilities.

Term	Acronym	Definition
Primary Catchment		The geographic catchment area within the immediate vicinity of an activity centre. It is the area from which the centre draws its daily and weekly trade and for most principal and major activity centres, the primary catchment areas will extend up to three to four kilometres from the respective centres. Typically primary catchment areas will generate the bulk of regular food and grocery trips to activity centres, together with discretionary and services trips, depending on the role of the activity centre.
Principal Activity Centre	PAC	Principal Activity Centres are the largest activity centre type after the Central Activities Districts and provide regional level retailing and commerce, and a diversity of community services, entertainment and recreation. They are intended to provide a broad mix of activities for a high number of trips, to be well served by public transport, located on the PPTN and have the potential for growth and investment.
Retail Floorspace		Refers to floorspace utilised for the sale of retail goods and / or services.
Retail Services		Refers to activities undertaken from a shopfront establishment available to the general public, where the predominant form of trade is the sale of retail services, rather than goods. Examples of retail services encompass banking agencies, beauticians, hairdressers, travel agents, video hire stores.
Retail Turnover Density	RTD	Is a measure of the productivity ($) of retail floorspace being the ratio of annual retail turnover to gross leasable area. Various commodity groups and store types have characteristic and distinctive retail density requirements.
Secondary Catchment		The geographic catchment area of an activity centre extended outward from its primary catchment (refer to definition). It is the area from which the centre draws trade undertaken generally on a bi-weekly or less frequent basis, and may typically comprise trips for discretionary purchases and services. In the case of most principal and major centres, the secondary trade catchment area may extend from four kilometres up to fifteen kilometres and beyond from these centres.
Shopfront Floorspace		Refers to floorspace generally utilised for the sale of goods and / or services undertaken in shopfront establishments in either main street /strip shopping environments, arcades, shopping malls, convenience centres or other facilities.

executive summary

The Melbourne South East Growth Area is located in the City of Casey and extends south from Thompsons Road to Manks Road and generally eastward from Clyde - Five Ways Road to Pound Road and Cardinia Creek. Contains an area of approximately 5,000 hectares. The area was recently formally included in the Urban Growth Zone (UGZ), contained within the extended Urban Growth Boundary (UGB) as approved by Parliament on the 26th July 2010.

The purpose of this study encompasses the following objectives:-

- to determine the extent of land suitable for future urban development;
- to assess the likely future quantum of potential residential land and the supportable long term population that would likely be accommodated on this land;
- to assess the long term activity centre floorspace and land requirements to meet the needs of the Melbourne South East Growth Area at full capacity development;
- to provide an indicative network of activity centres to ensure equitable access and provide a framework for sustainable and dynamic mixed use activity centres

Identification of land suitable for urban development

Analysis for the Study identified significant areas that should not form part of future urban development (refer table). In order to determine which land is suitable for urban development the following steps were taken:

- **Policy framework;**

  The Study reviewed a number of policies and provides an overview of their components. The approximate centre sizes are an average of figures designated in Peter McNabbs, 'Activity Centres Review (2001)' and Renaissance Planning estimates based on existing centres.

  A *State* Activity Centre Policy Framework was formed based on information from *Melbourne 2030 (2002) , Melbourne 2030: Activity Centres (2002), Melbourne @ 5 million (2008)* and *Retail Policy Review (2008)*, where:-

  - **Principal Activity Centres**:

    Role: higher order retailing role with multiple department and discount department stores

    Wider service role: contains retail stores, offices and social services and close to employment

    Approximate size: greater than 75,000 m^2 GLA

    Public transport connections: accessible by rail and road

    Other characteristics: Located on arterial roads near employment nodes and open space

    Catchment Characteristics: Regional catchment and can support intensive housing nearby

- **Major Activity Centres**

  Role: Supporting role to PAC, multiple national brands and higher order retailing

  Wider service role: Mixed use centres with commercial role near employment generating land

  Approximate size: Ideally 40,000 - 60,000 m^2 GLA

  Public transport connections: Ideally located near rail transport and bus nodes

  Other characteristics: Located on arterial roads near open space and employment nodes

  Catchment characteristics: Sufficient for day-to-day and discretionary spending

- **Large Neighbourhood Activity Centres**

  Role: Limited to an anchor supermarket and supporting stores and services

  Wider service role: Located near community services and local employment nodes

  Approximate size: 10,000 - 15,000 m^2 GLA

  Public transport connections: accessible by bicycle and on foot and served by local buses

  Other characteristics: Typically close to community hubs and should encourage walkability

  Catchment characteristics: localised catchment focused on walkable distances.

A Local Activity Centre Policy Framework based on the City of Casey's Activity Centre Strategy (2006) and the consultant response can be seen in Table 6.

Major Land Use[1]	Approximate Land Area[2] (hectares)
Investigation Area	4,935
Land not suitable for development	
Thompsons Road Employment Precinct	341
Area prone to flooding	189
Proposed Regional Park	373
Residential land north of Thompsons Road	77
Casey Fields (part)	17
Other[3]	489
Sub total: Land not suitable for development	1,485
Land area for development	
Residential area[4]	3,090
Major Roads[5]	130
Schools and Recreation Areas[6]	230
Sub total: Land area for development	3,450

[1] Preliminary, excludes special use requirements
[2] Approximate land areas are given for the preferred option, Option C.
[3] Other land includes creeks, transmission line easement, extraction industry and some existing uses
[4] Includes land set aside for activity centres
[5] Assumes major roads have 35m reserve
[6] 7 per cent of the land suitable for development has been set aside for schoosl and recreation area

Potential residential land and supportable population

By applying residential capacities to each precinct an approximate supportable population was calculated.

- **Investigation areas, capacity and population analysis;**
  Three scenarios were created then broken into investigation areas they are:
  - **Option A** includes Precincts A - U excludes some land not suitable for residential development
    Potential developable area: 3,680 hectares
    Estimated households: 43,890 households
    Potential estimated resident population: 125,110 people
  - **Option B** includes precincts A - U but excludes all land prone to flooding (LSIO) and heritage land
    Potential developable area: 3,490 hectares
    Estimated households: 41,360 households
    Potential estimated resident population: 117,890 people
  - **Option C (Preferred)** same as Option B but includes precincts A - V (new area Devon Meadows)
    Potential developable area: 3,730 hectares
    Estimated households: 43,070 households
    Potential estimated resident population: 122,760 people

Activity Centre floorspace and land requirements

- **Per capita floorspace provision requirements for activity centres**
  The consultants indicate that approximately **1.86 m² GLA** per capita will likely be required by future populations in the investigation areas to meet shopfront floorspace requirements after allowing for vacant floorspace and after escape expenditure. Approximately **0.90 m² GLA** will be required for Commercial and Community Services

- **Retail and Commercial Floorspace Requirements**
  Supportable activity centre floorspace for the growth area was assessed by taking account of projected population, escape expenditure and in-bound trade. Summary tables and further details are available in Table 3 or a more detail account in Appendix A, B & C, Table 4.

- **Land Requirements by Centre Type**
  A retail hierarchy consisting two MACs, six large NACs and six small NACs will ensure that the majority of the subject area resident population can walk to a centre within 800 metres.

- **Activity centre land requirements**
  To calculate the land requirements for each activity centre gross leasable area was converted to gross floor area and then to gross building area where it was possible to get a first estimate of gross land area requirements (refer Appendix A, B & C, Table 5). Then an allowance was made for roads and open space, regional space and commercial and community activities to calculate a

MELBOURNE'S SOUTH EAST GROWTH AREA: ACTIVITY CENTRE REQUIREMENTS
COMPARING ACTIVITY CENTRE HIERARCHIES

Figure 1

Existing NAC Eden Rise
Existing MAC Casey Central
Potential NAC Eve
Potential NAC Grices Road
NAC A
Potential NAC Cranbourne North
Potential NAC Carlisle Park
Thompsons Road
Pound Road
Potential NAC Clyde North
MAC 2 (Option 2)
MAC 2 (Option 1)
Proposed NAC Rail Club
NAC B
Potential NAC Collins Street
Clyde - Five Ways Road
LNAC 1
Existing PAC Cranbourne
NAC C
Potential NAC Morrison Road
LNAC 3
LNAC 2
NAC D
MAC 1
Potential NAC Adrian Street
LNAC 4
Ballarto Road
LNAC 6
LNAC 5
South Gippsland Highway
Manks Road
0 1 2km

Source:
Future Road Network and Public Transport - Growth Area Framework Powerpoint (City of Casey)
Deep End Activity Centres - City of Casey Activity Centre Analysis (Deep End, November 2010)
Beveridge Williams Activity Centres - Presentation to GAA Casey-Cardinia Growth Area Framework Plan (Beveridge Willaims, November 2010)

LEGEND

- Study Area
- Primary Roads
- Secondary Roads
- POWERNET Alignment
- Light Rail / High Frequency Bus Route
- Existing Rail Easement
- Proposed Rail Line
- Proposed Railway Station
- Existing and Proposed Major Road Network
- Land not included in Analysis
- Land suitable for residential development

Activity Centres
- Existing and Proposed Neighbourhood Activity Centre

Renaissance Planning
- Proposed MAC (2)
- Proposed LNAC (6)

Beveridge - Williams
- Proposed MAC (2)
- Proposed NAC (7)

Deep End Services
- Proposed MAC (2)
- Proposed NAC (8)

Date: 24/11/2010
Completed by: Megan
Job number: 10-063
Job title: Melbourne's South East Growth Area:Activity Centre Requirements

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global estimate of gross land area requirements. The total land area for the activity centres was:

- **Option A**: 245.5 hectares
- **Option B**: 232.1 hectares
- **Option C (Preferred)**: 241.2 hectares

Network of Activity Centres

A network of activity centres has been created use locational principles to best decide the appropriate location of each centre.

Locational Principles for Major Activity Centres (MACs), Large Neighbourhood Activity Centres (LNACs), Small Neighbourhood Activity Centres (SNACs) and Bulky Goods Precincts have been formed based on the consultants experience with activity centres (refer to Table 5)

- **Job estimates in new activity centres and Thompsons Road employment precinct;**
  Direct employment effects were assessed on the basis of the relationship between employ ment and activity centre floorspace applying ratios of employment per 100 m^2 GLA for activity types. Employment estimates for the Thompsons Road employment area were applied assuming between 0.7 and 1.2 jobs / 100 m^2 GLA. The resulting range of jobs generated is between 6,040 and 10,360 jobs.

  The total number of jobs generated for all of the activity centres in each option equates to:-

  - **Option A**: 11,500 jobs
  - **Option B**: 10,820 jobs
  - **Option C (Preferred)**: 11,250 jobs

1 introduction

1 introduction

Renaissance Planning has been commissioned by the City of Casey to undertake a study of the supportable activity centre hierarchy for the City's newest growth area . The growth area includes parts of the localities of Clyde, Clyde North, Cranbourne East, Devon Meadows and Junction Village. The growth area is proposed to accommodate between 70,000 and 90,000 people. This Study investigates the residential capacity of the area, number of supportable activity centres, potential location of activity centres and potential; employment effects. The 'Melbourne's South East Growth Area: Activity Centre Requirements Study was commissioned by the City of Casey in November 2010.

1.1 Study Context

On 29 July 2010 Parliament approved the proposed expansion to the Urban Growth Boundary (UGB). An important part of this expansion encompassed approximately 5,000 hectares of land in the City of Casey in Melbourne's south east.

In order to assist Council to provide a submission on the long term strategic requirements of the area, an assessment is required of activity centre needs to service the proposed development of the area. The study is required to take full cognisance of state and local policy relevant to activity centre planning and location analysis, together with policy and preliminary planning undertaken in relation to the subject area.

1.2 Policy Context

Melbourne's Growth Areas were first set out in Melbourne 2030 (October, 2002). The Growth Areas Authority (GAA) defines them as "areas on the fringe of metropolitan Melbourne around major regional transport corridors that at designated for large-scale change over many years from rural to urban use."

These growth areas are:

- Casey - Cardinia (South East)
- Hume (North)
- Melton - Caroline Springs (West)
- Whittlesea (North)
- Wyndham (South West)

The latest extension of the Urban Growth Bounfary (UGB) expands each of the growth areas in order to accommodate significant population growth in Melbourne. The UGB extension includes 43,600 hectares, with 5,000 hectares in the City of Casey (referred to as Council), despite Council's wish not to extend the UGB and keep the land for market gardens and current uses. The Council's proposed vision for the growth area is "A self-sufficient, sustainable and distinctive community, which is plugged into Casey, the region and the wide metropolitan Melbourne area" .

(City of Casey, Planning Committee, 26th October 2010)

The Key Messages that Council wish to include in the Growth Area Framework Plan (GAFP) for the City of Casey include being:-

- **Plugged in** - The new growth area must we well-connected to its sub-region and to the metropolitan area as a whole;
- **Self-Sufficient** - The new growth area should be self-sufficient in terms of commercial, leisure and community services and job opportunities for its local population;
- **Sustainable** - The new growth area should create a sustainable new precinct which reduced car dependency, nourished local biodiversity, and creates sustainable development patterns;
- **Distinctive** - The new growth area should have a strong sense of place which builds on local attributes to create a distinctive character and physical presence for the new settlement;
- **Deliverable** - The GAFP should indicate where and when government investment is expected first to provide appropriate infrastructure support to new communities.

(City of Casey, Planning Committee, October 2010)

study objectives 2

2 study objectives

The purpose of the Study is to prepare a considered and informed report on activity centre requirements in the Melbourne south east growth area of Casey to meet the needs of future population growth in the area, taking account of its ultimate development capacity.

The supporting objectives of the study encompass the following:

- provide an assessment of the **ultimate population capacity** of the Melbourne south-eastern growth area in the City of Casey;
- provide **locational criteria** for a hierarchy of activity centres in the subject area;
- provide advice on an **optimal spatial pattern of activity centres and precincts**, taking account of the following:-
    - likely future residential areas,
    - existing and future main roads,
    - likely future residential densities,
    - the existing and future principal public transport network (PPTN)
    - future catchments of activity centres,
    - current and projected levels of retail expenditure and economically viable levels of retail floorspace provision by type of activity,
    - projected catchments of activity centres,
    - levels of access and service requirements for residential areas.
- provide advice on the **floorspace and land requirements** for the activity centres and precincts assessed to meet the long term needs of the ultimate population in the subject area. These are to be assessed by centre for higher order centres identified (that is above the level of large neighbourhood activity centre) and by centre type for lower order centres. The requirements must take account of the retail and wider service roles of future activity centres.

3 scope of the assessment & study process

3 scope of the assessment & study process

The scope of services sets out a broad framework for the assessment of retail floorspace and activity centre requirements in the growth area. The study process can be seen in Figure 2. Within this framework the following tasks were undertaken:-

- Policy framework and activity centre location principles;
- Investigation areas, capacity and population analysis;
- Per capita floorspace provision requirements for activity centres;
- Regional containment and hierarchy objectives for the activity centre network;
- Application of activity centre systems;
- Projected floorspace allocation by centre;
- Activity centre land requirements;
- Job estimates in new activity centres and Thompsons Road employment precinct;
- Consultants report, findings and recommendations.

3.1 Policy Framework

The study commenced with a review of activity centre policies, standards and principles relevant to Melbourne 2030. A policy framework (refer Table 1), including preferred characteristics and qualitative criteria, for activity centres was compiled on the basis of three key references:

- *Activity Centres Strategy*, Ratio Consultants in association with City of Casey, October 2006;
- *Melbourne 2030: Planning for Sustainable Growth. Implementation Plan 4: Activity Centres* (Draft Report, October 2002, Department of Infrastructure Melbourne);
- *Activity Centres Review: A study of policy and centres of activity in metropolitan Melbourne and Geelong* (Final Report, June 2001, Peter McNabb & Associates Pty Ltd University of Melbourne Research Team *In association with Roy Morgan Research and Arup Transportation Planning)*.

Melbourne 2030 doesn't provide floorspace criteria for the designation of Principal Activity Centres (PACs), Major Activity Centres (MACs), Large Neighbourhood Activity Centre (LNACs) or Small Neighbourhood Activity Centres (SNACs), so the approximate retail floorspace shown in Table 1 is a combination of Peter McNabb's (Activity Centre Review (2001), City of Caseys *Activity Centres Strategy* and

Figure 2: Summary of Study Process and Outcomes

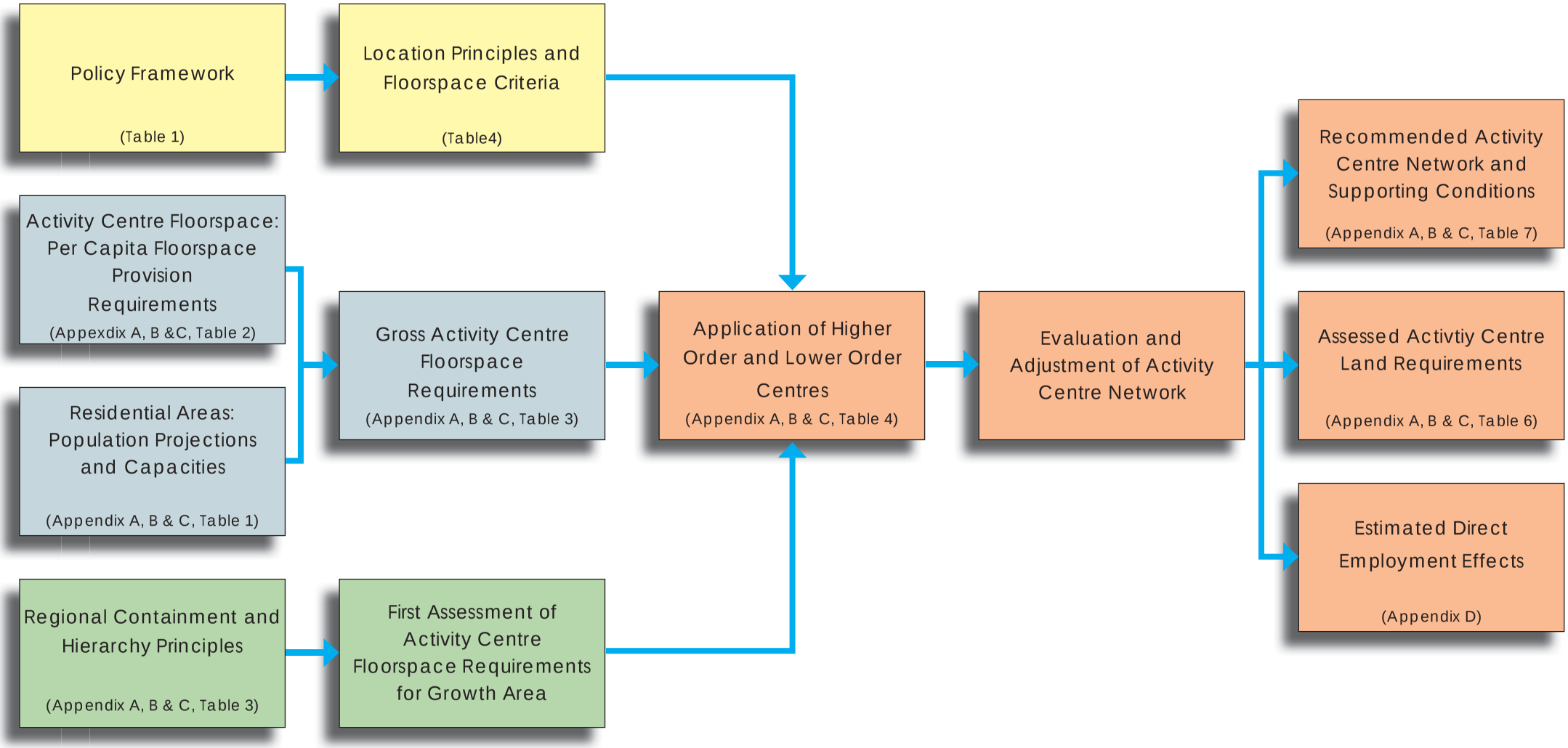

Table 1: Activity Centre Policy Framework

Source: DSE (2002) 'Melbourne 2030', DSE (2002) 'Melbourne 2030: Activity Centre', DPCD (2008) 'Melbourne @ 5 million', DPCD (2

Activity Centre Type	Characteristics of types of Activity Centres			
	Retail role and typical stores / function	Wider service and employment role	Approximate retail floorspace m^2 GLA*	
Principal Activity Centre - Fountain Gate - Cranbourne	• Also referred to as regional centres. • Generate a high number of trips. • Multiple department, discount department and specialty stores. • Provides 'higher order retailing'. • Typically comprised of shopping centres in middle and outer ring suburbs and strip centres closer to the city. • Combination of national brand and specialty stores. • Supports longer trading hours.	• Usually contains retail stores, offices, social services and recreational uses including cinemas. • Provides a mix of activities from retail to community services. • Within close proximity to employment nodes and services. • Focus on commercial as well as retail function. • Recreational role includes provision of gyms and sport facilities. • Should encourage economic and business synergies.	Greater than 75,000	
Major Activity Centre - Berwick Village - Casey Central - Endeavour Hills - Hampton Park	• Also referred to as sub-regional centres • Stores support those at Principal Activity Centres however not as many opportunities for comparison shopping. • Often multiple national brand stores will be located at these centres including supermarkets and discount department stores. • Typically have a variety of cafes, restaurants and bars. • Higher order retailing is also available. • A combination of national brand and specialty stores.	• Known for mixed use resulting in increased trips. • Commercial role depends on the centre but it should support activities outside of retailing. • Employment-generating land should be nearby. • Should encourage economic and business synergies.	Ideal floorspace between 40,000 - 60,000	
Large Neighbourhood Activity Centre	• Generally limited to one supermarket as an anchor with supporting specialty stores. • Fits within the activity centre hierarchy by supporting immediate catchment with weekly and day-to-day goods. • More concentrated in inner Melbourne. • Typically comprised of strip shops. • Supports neighbourhood cafes and some restaurants.	• Often located within close proximity to supporting community services. • Within walking distance from local employment nodes. • Limited commercial activity. • Should encourage economic and business synergies.	Larger than 10,000m^2 (Ideally between 10,000 - 15,000m^2)	
Small Neighbourhood Activity Centre (Convenience)	• Provide for day-to-day needs of immediate catchment. • Complements the activity centre hierarchy by locating between larger NACs and MACs. • Suitable size for new developments prior to reaching population capacity. • Typically comprised of strip shops. • Main role is to support local catchment.	• Located near community services. • Walking distance from key catchment and local employment. • Limited commercial activity.	Less than < 10,000m^2 (Ideally between 3,000 - 6,000m^2)	

* Source: Combination of Peter McNabb's 'Activity Centre Review (2001)', City of Casey Activity Centres Strategy (2006) and Ren

2008) 'Retail Policy Review', City of Casey (2006) 'City of Casey Activity Centre Strategy'.

	Public transport connections	Other activity land use characteristics	Catchment characteristics
	• Should be accessible by rail and road. • Should be public transport hub accessible by multiple modes, although at present some (such as stand-alone shopping centres) are only accessible by bus.	• Located on arterial roads. • Near employment and social services. • Typically located with close proximity to regional open space. • Should provide a focal point for the community. • Should encourage walkability by enhancing the pedestrian experience in the centre.	• Catchment population: 100,000 + persons. • Typically have potential to grow and support intensive housing developments. • Have regional catchments including Major and Large Neighbourhood Centres.
	• Ideally located with access to rail network, so accessible by all modes of transport. • Typically only public transport link is bus nodes except there retail has already been established along train or tram lines.	• Located on arterial roads. • Open space nearby. • Should provide a focal point for the community. • Should encourage walkability by enhancing the pedestrian experience in the centre.	• Catchment population: 50,000 to 75,000 persons . • Slightly smaller catchment than Principal Activity Centres. • Adequate for day-to-day and discretionary spending. • Attract sub regional catchments.
	• Accessible by foot and cycling. • Accessible by local bus services and have public transport links to at least a Major or Principal Activity Centre. • Ideally but not always located at public transport nodes.	• Usually close to community hubs including schools, libraries, child care, health services, police stations and other community facilities. • Should provide a focal point for the community. • Should encourage walkability by enhancing the pedestrian experience in the centre.	• Catchment population: 10,000 to 25,000 persons. • Localised catchment focused on walkable distances.
	• Accessible by food and cycling along walking and cycle paths. • Accessible by local bus with links to the PPTN and a large activity centre.	• Usually close to community hubs including schools, libraries, child care, health services, police stations and other community facilities. • Should provide a focal point for the community. • Should encourage walkability by enhancing the pedestrian experience in the centre.	• Catchment population: 2,000 to 4,000 persons. • Localised catchment within walking distance.

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recommendations from Renaissance Planning. *Melbourne 2030* does not provide a sufficient framework for retail and other activity centre floorspace criteria in the designation of PACs, MACs and smaller centres so, the consultants have provided a set of draft criteria and floorspace standards to assist in the designation of MACs, LNACs, SNACs and bulky goods precincts (refer Table 4).

3.2 Investigation Area, Capacity and Population Analysis

The investigation area was reviewed in terms of:

- existing conditions and uses including market gardens, creek and creek buffers, abbatoirs, extractive industry sites and Council owned land;
- existing zones and overlays particularly land subject to inundation from Cardinia Creek;
- existing and proposed principal public transport network (PPTN) and major roads network;
- existing and proposed key open space and recreation areas;
- proposed location of key community areas including activity centres and employment areas.

For the purpose of this study three scenarios were tested. The first (Option A) assumes most of the land in the study area south of the transmission lines is available for development except railway easements, creeks and land not suitable for development (refer Figure 9). Option B is more conservative and avoids any development on land subject to inundation (refer Figure 10). Option C excludes all the land in Option B but includes Precinct V in the south west corner of the investigation area in Devon Meadows (at a lower residential capacity) (refer Figure 11).

The consultant has assumed that people are living at higher densities around activity centres so have not subtracted additional land from the residential precincts (Appendix A, B & C, Table 1) for activity centres, thus assuming an average density of 15 dwellings per hectare will be maintained.

3.3 Per Capita Floorspace Provision Requirements for Activity Centres

Retail, community and commercial floorspace provision requirements for activity centres were prepared by the consultants based on:

- market based assessed requirements for retail goods floorspace provision in metropolitan Melbourne;
- floorspace provision requirements for retail services, commercial and community floorspace in activity centres based on a comprehensive survey of activity centres in the City of Casey (2003).

The two assessments were brought together to provide an estimate of retail, community and commercial floorspace provision requirements for activity centres suitable for application to the growth area (refer Appendix A, B & C, Table 2).

3.4 Regional Containment and Hierarchy Objectives for the Activity Centre Network

Regional containment, inbound trade estimates and hierarchy objectives were required to guide the assessment of activity centre requirements for the growth area. In the first step regional containment objectives were based on observations of activity centre systems in metropolitan Melbourne and other cities. A judgement was made as to the proportion of activity centre floorspace:

- that would likely be supportable in the foreseeable future in the Casey growth area; and
- proportions of activity centre floorspace where demand would be generated by residents in the study area but where the floorspace would be located in activity centres in precincts beyond the growth area.

The assessed proportions of floorspace demand estimated to be supportable within the local regions are set out in Appendix A, B & C: Table 3.

No in-bound expenditure was calculated as it is expected to be negligible due to Casey's location and lack of through roads to other major regions.

Activity centre floorspace requirements were then split into major commodity group for:

- retail and other activity centre floorspace likely to be accommodated in higher order centres (MACs and LNACS);
- retail and other activity centre floorspace likely to be accommodated in lower order and other types of centres (SNACs and bulky goods clusters).

The floorspace in Appendix A, B &C: Table 3 is to be used as a guide and is only applicable where the population of the investigation area is at capacity. It is expected that as certain centres thrive there will be opportunities for expansion (e.g. from a LNAC to a MAC if the market requires it).

3.5 Projected Floorspace Allocation by Centre

An activity centre hierarchy was created based on the Policy Framework (Table 1) and Casey Growth Area Framework Plan Guiding Principles (CPG for City of Casey, 2010) (refer Table 5) and applying the locational principles set out in Section 4.7 enabling likely future catchments of major activity centres (MACs) to be calculated. These were applied to the initial assessment of activity centre floorspace requirements by activity type (refer Appendix A, B & C: Table 4).

3.6 Activity Centre Land Requirements

With an approximate Gross Leasable Area (GLA) for each activity centre it was possible to determine gross building areas then a first estimate of gross land area requirements and then global land require-

ments for each activity centre (refer Appendix A, B & C, Table 6). The assessment of future land requirements had taken into account a number of other factors in addition to the shopfront and commercial and community core activity requirements. These included:

- estimate of land requirements for local access road and open space;
- an allowance for land to meet some basic requirements for regional or district educational, recreational and/or health facilities;
- an allowance for land to meet some basic requirements for higher density housing and/or special accommodation that could be co-located with the higher order activity centres.

3.7 Application of Activity Centre System

The activity centre system needs to provide adequate coverage of the residential areas to ensure that all of the residential precincts within the investigation area have access to at least a small neighbourhood activity centre to satisfy their day-to-day grocery needs. To do this a 1.5km radius was applied to each major and large neighbourhood activity centre to ensure that people living in each precinct would have adequate access to a large neighbourhood centre.

Catchment of the two major activity centres (MACs) were calculated by broad precinct. MAC one is located to the east of the intersection of Clyde - Five Ways Road and the railway line. Two options were modelled for the location of MAC 2. Option 1 is at the intersection of two proposed roads and Option 2 is parallel to Option 1 but is located on Clyde - Five Ways Road (refer Figure 14). A approximate catchment population was calculated for Option C (refer Figure 11).

3.8 Estimated Direct Employment Effects

An estimate of job yields for the bulky goods precinct north of Thompsons Road was calculated by allowing for 40 per cent land occupancy the assuming a job yield of 0.7 to 1.2 jobs per 100 m^2 GLA (refer Appendix D: Table 1).

As estimate of job yields in each investigation area was calculated by applying a ratio of employment related to the floorspace (measured as jobs per 100 m^2 GLA, refer Appendix D: Tables 2 & 3). Job yields were calculated for each proposed activity centre in the study area as shown in Appendix D: Tables 2 & 3. It is important to note that these employment estimates only apply to direct on site employment for retail and commercial and community activities. They exclude multiplier effects for off-site employment generated and exclude employment likely to be generated by major district and regional facilities that would be co-located with the major activity centres (allowance for a degree of co-location has been made in the assessment of total land requirements. At this stage the total employment effects of this land provision has not been assessed). It will also be noted that the employment effects exclude estimates of construction employment in the development phases of the activity centres.

principal findings and recommendations

4

4 principal findings and recommendations

4.1 Outcomes of land suitability analysis

Despite the growth areas totalling almost 5,000 hectares, a significant proportion of this land is not suitable for residential development. Three options have been modelled. Option A (as seen in Figure 9) excludes land north of the transmissions lines, the regional park area to the north east of the study area, farming land to the south west of the study area, already developed land and land within the urban flood zone. Option B is more conservative and also excludes all land subject to inundation (in particular in precinct N) and a major park at the proposed location of the railway station, large neighbourhood activity centre and along the existing open space network (refer to Figure 10). Option C excludes all the areas mentioned in Option B but includes residential Precinct V at Devon Meadows at a lower dwelling density (refer Figure 11).

The areas which are not suitable for residential development include precincts A, B, D.1 and E (refer Figures 9, 10 & 11). Precinct A is at the northern periphery of the study area separated by an urban flood zone to its south. Precinct B is primarily located along the southern edge of Thompsons Road (a proposed employment precinct). Precinct D.1 and E are also north of the transmission lines and part of the employment precinct. These have been included in the population analysis by other consultants however Renaissance Planning has concluded that a residential population in these areas will be separated from the main residential area south of the transmission lines and should be considered as part of the existing and developing residential area to the north.

4.2 Potential Residential and Other Activities

The total land area of the residential precincts is far from the 5,000 hectares of the growth area. The developable precincts (C, D.2, F, G, H, J, K, L, M, N, P, Q, R, S, T, U & V) account for only 3,820, 3,630 and 3,870 hectares in options A, B and C respectively (refer Appendix A, B & C, Table 1). The residential precincts were created with regard to the proposed grid network of roads in the study area.

4.3 Lot and Population Assessments

To calculate lot and population assessments the following assumptions area made:

- Potential development area excludes major roads (assumed to be 35m wide);
- Gross residential area is calculated assuming 7 per cent of land is put aside for schools, local parks

and recreation areas;

- Residential development allotments assume 15 dwellings per hectare densities except Precinct V in Option C (at 8 dwellings per hectare);
- Estimated households assumes a 4 per cent vacancy on residential development allotments;
- Potential estimated resident population assumes a population of 2.85 people per occupied dwelling.

It was found that Option A could accommodate an estimated 43,890 households with up to 125,110 residents. Option B could accommodate 41,360 households and approximately 171,890 residents, Option C could accommodate 43,070 households and approximately 122,760 (refer Appendix A, B &C, Table 1).

Table 2: Lot and Population Summary

Residential Precinct	Potential Developable Area[1] (hectares)	Gross Residential Area[2] (hectares)	Residential Development Allotments (15 dwellings / ha)	Estimated Households[3]	Potential Estimated Resident Population[4]
Option A	3,680	3,050	45,710	43,890	125,110
Option B	3,490	2,870	43,080	41,360	117,890
Option C (Perferred)	3,730	3,090	44,860	43,070	122,760

4.4 Per Capita Floorspace Requirements

The assessments undertaken by the consultants indicated that approximately **1.86 m² GLA per capita** was likely to be required by future populations in the investigation areas to meet **shopfront floorspace** requirements (includes food, groceries and liquor, retail (non-food), bulky goods and services. Approximately **0.90 m² GLA per capita** will be required for **commercial and community floorspace**. It will be noted that:

- these shopfront floorspace provision rates represent total projected floorspace requirements relevant to the activity centres;
- the provision rates allowed for commercial and community floorspace represent a lower order range for these types of activities in activity centres. The per capita rates have been calculated from the Casey Floorspace Provision 2003;
- additional demand will be generated for special types of district and regional education, community and health facilities;
- there is significant demand projected to be generated by the investigation areas for commercial and professional services floorspace, which is likely to be located in employment areas within or adjacent to the study area (refer Appendix A, B & C, Table 3).

Existing Conditions

Figure 3: Existing Uses
(CPG, Casey Growth Area Framework Plan : Briefing Paper)

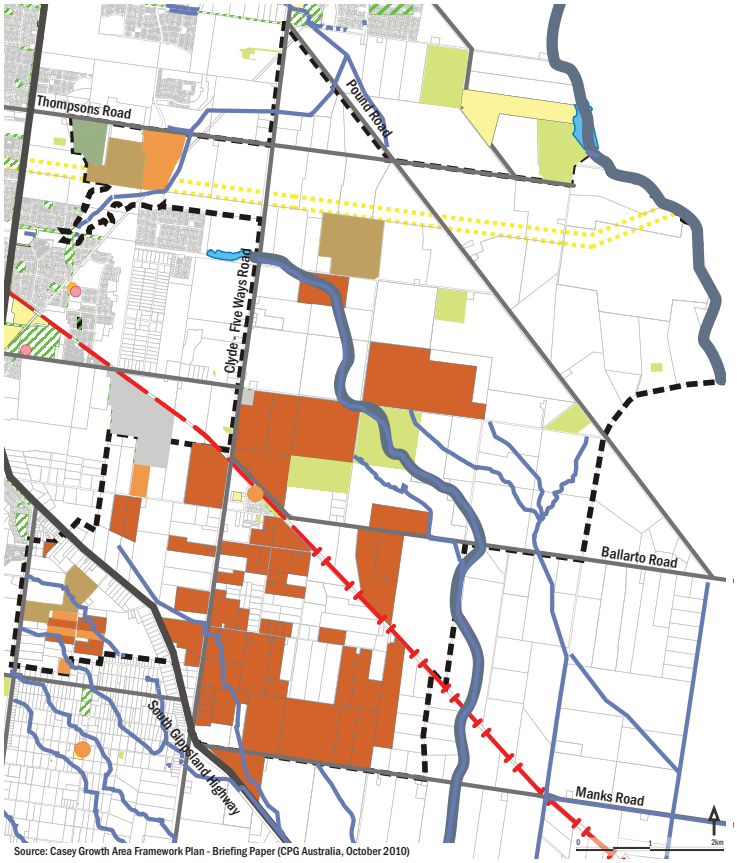


Figure 4: Zones (City of Casey Planning Scheme)

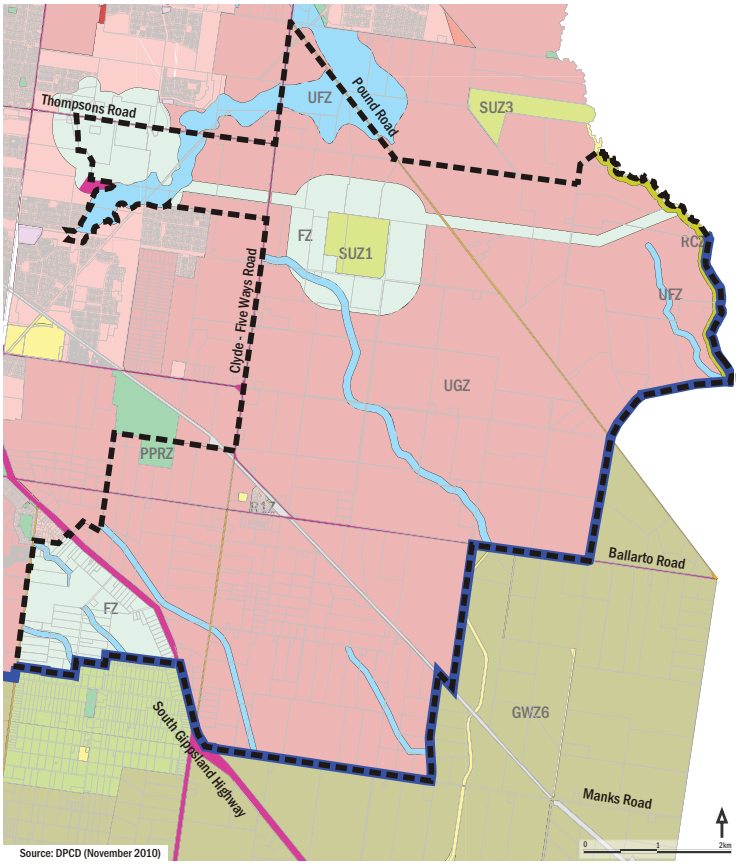
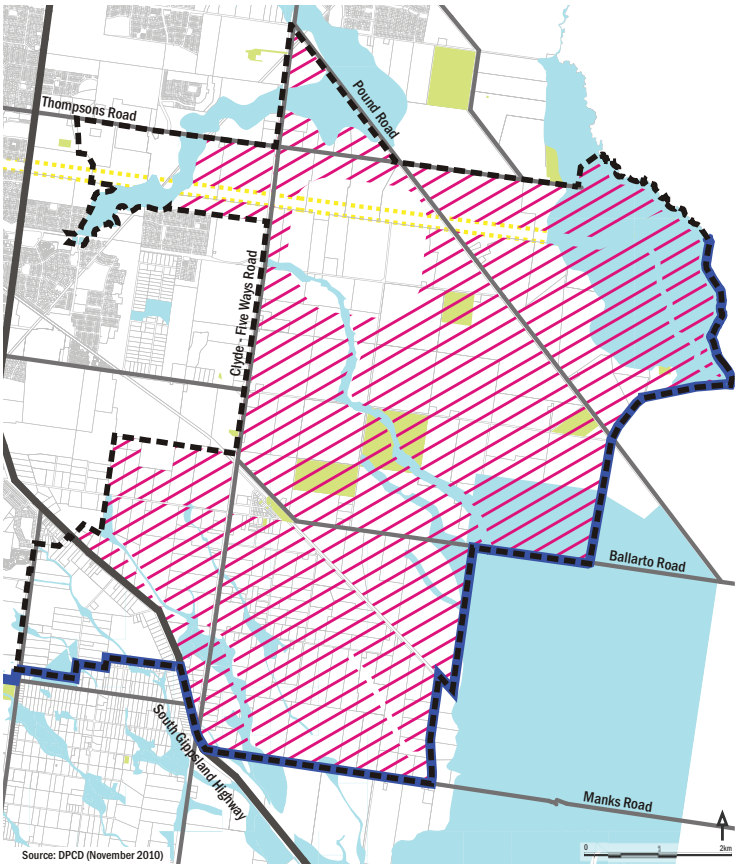


Figure 5: Relevant Overlays (City of Casey Planning Scheme)



Common Legend

- Study Area
- Primary Roads
- Secondary Roads
- Cadastre
- POWERNET Alignment
- Schools
- Pre-Schools
- Community Halls
- Maternal & Child Health Centres
- Parks

Existing Uses Legend

- Channel Drain Centrelines
- Creek Buffer
- Former Rail Line
- Market Gardens
- Heritage Overlay
- Poultry, Egg Farm, Broiler
- Abbatoir
- Extractive Industry
- Council Owned Land in Study Area

Relevant Overlays Legend

- Urban Growth Boundary
- Land Subject to Inundation (LSIO)
- Heritage Overlay (HO)
- Urban Growth Area (UGA)

Figure 6: Major Open Space Network (City of Casey)

Figure 7: Potential Strategic Nodes (City of Casey)

Figure 8: Transport Options (City of Casey)

Sustainability Legend

- Existing Ecological Hub
- Proposed Ecological Hub
- Pipeline / Powerline Ecological Corridor
- Biodiversity / Ecological Corridor
- Urban / Rural Edge

Strategic Overview Legend

- POWERNET Alignment
- Former Rail Line
- Proposed Rail Line
- Proposed Railway Station
- Neighbourhood Activity Centre
- Major Activity Centre
- Regional Park
- Expansion of Casey Fields
- Urban / Rural Interface
- Proposed Employment Precinct

Transport Options Legend

- Study Area
- Primary Roads
- Secondary Roads
- POWERNET Alignment
- Light Rail / High Frequency Bus Route
- Former Rail Line
- Proposed Rail Line
- Proposed Railway Station
- Proposed Orbital Rail
- Existing and Proposed Major Road Network

4.5 Retail and Commercial Floorspace Requirements

The assessment of supportable activity centre floorspace for the growth area was assessed by taking account of projected escape expenditure and in-bound trade (refer Appendix A, B & C: Table 2). Supportable activity centre floorspace in the study area can be seen in Appendix A, B & C: Table 3. The assessment of activity centre floorspace requirements by broad activity centre type can be seen in Table 3 below. The table shows projected floorspace requirements, that in **optimal circumstances** should be located either within or close to the growth area, for shopfront and core commercial and community activities.

Table 3: Estimated Floorspace

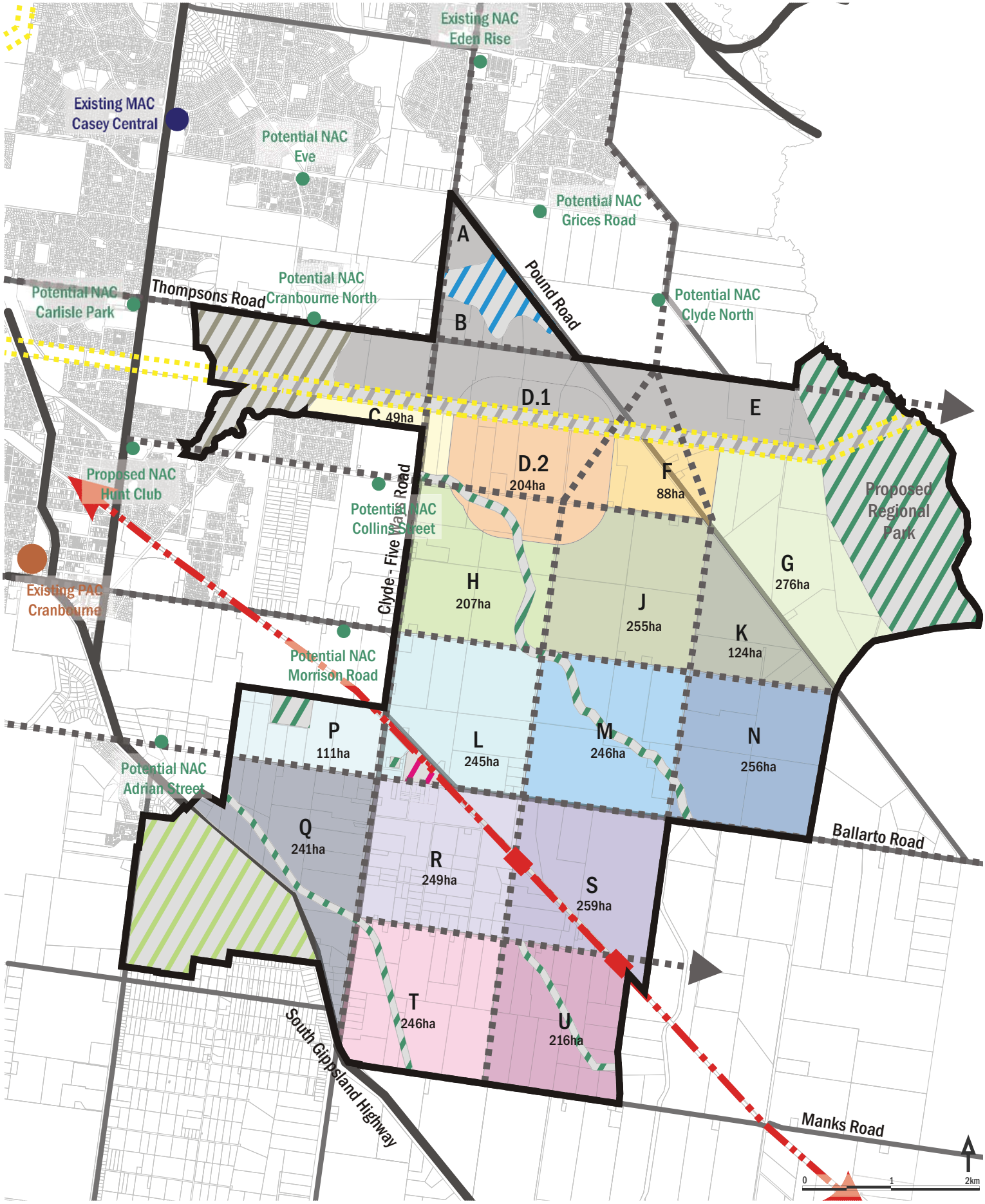
Activity Centre Type	Total Floorspace by Major Activity Group (m^2 GLA)				Number of Supportable Centres	Average Size per Centre (m^2 GLA)			
	Core Retail Goods	Bulky Goods	Non-Retail	Total		Core Retail Goods	Bulky Goods	Non-Retail	Total
Residential Precincts - Option A									
Major Activity Centre	94,000	32,100	49,400	175,500	2	47,000	16,100	24,700	87,800
Large Neighbourhood Activity Centre	76,000	n.a	24,900	100,900	6	12,700	n.a	4,200	16,900
Small Neighbourhood Activity Centre	6,000	n.a	3,000	9,000	6	1,000	n.a	500	1,500
Other*	10,000	13,800	35,200	59,000	1	10,000	13,800	35,200	59,000
Total	186,000	45,900	112,500	344,400	-	n.a	n.a	n.a	n.a
Residential Precincts - Option B									
Major Activity Centre	90,000	30,300	46,600	166,900	2	45,000	15,150	23,300	83,450
Large Neighbourhood Activity Centre	70,000	n.a	23,500	93,500	6	11,700	n.a	3,900	15,600
Small Neighbourhood Activity Centre	6,000	n.a	2,800	8,800	6	1,000	n.a	500	1,500
Other*	10,000	13,000	33,200	56,200	1	10,000	13,000	33,200	56,200
Total	176,000	43,300	106,100	325,400	-	n.a	n.a	n.a	n.a
Residential Precincts - Option C (Preferred)									
Major Activity Centre	92,000	31,500	48,500	172,000	2	46,000	15,800	24,300	86,100
Large Neighbourhood Activity Centre	75,000	n.a	24,400	99,400	6	12,500	n.a	4,100	16,600
Small Neighbourhood Activity Centre	6,000	n.a	2,900	8,900	6	1,000	n.a	500	1,500
Other*	10,000	13,500	34,500	58,000	1	10,000	13,500	34,500	58,000
Total	183,000	45,000	110,300	338,300	-	n.a	n.a	n.a	n.a

4.6 Land Requirements by Centre Type

Projected activity centre floorspace requirements by centre type were assessed for the study area by major activity type (refer Appendix A, B & C, Table 3). It was found that the growth area could support two major activity centres (MACs), up to six large neighbourhhood activity centres (NACs), approximately six small neighbourhood activity centres and one other centres with bulky goods and non retail uses.

MELBOURNE'S SOUTH EAST GROWTH AREA: ACTIVITY CENTRE REQUIREMENTS
RESIDENTIAL AREAS - OPTION A

Figure 9



LEGEND

- Study Area
- Primary Roads
- Secondary Roads
- POWERNET Alignment
- Light Rail / High Frequency Bus Route
- Existing Rail Easement
- Proposed Rail Line
- Proposed Railway Station
- Proposed Orbital Rail
- Existing and Proposed Major Road Network

LAND NOT SUITABLE FOR RESIDENTIAL DEVELOPMENT

- Precincts not included in Analysis
- Parks and Green Space
- Land Subject to Inundation
- Transmission Line Easement
- Farming Land
- Existing Residential Uses
- Existing Constraining Uses
- Former Rail Line

Date: 24/11/2010
Completed by: Megan
Job number: 10-063
Job title: Melbourne's South East Growth Area:Activity Centre Requirements

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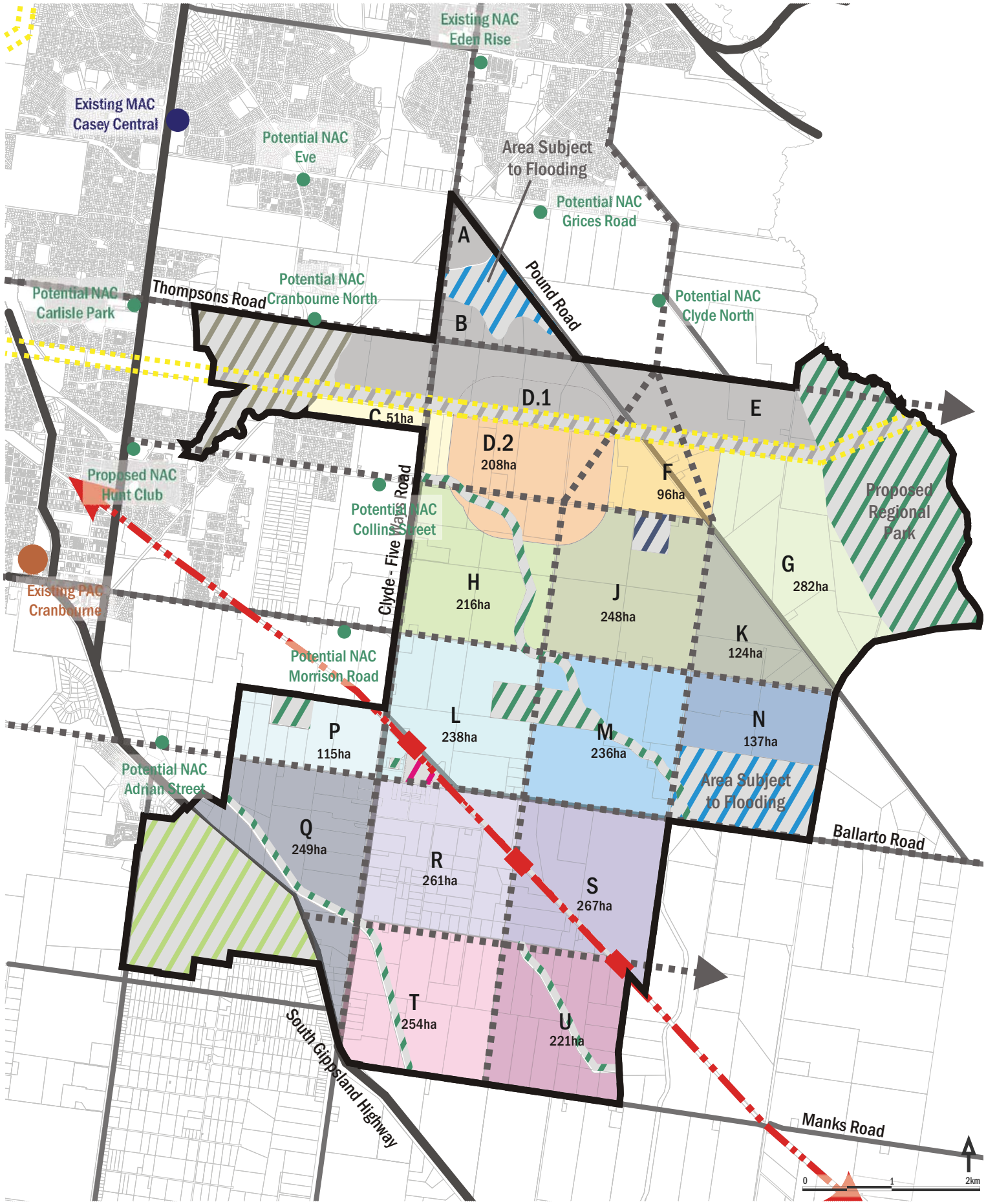
MELBOURNE'S SOUTH EAST GROWTH AREA: ACTIVITY CENTRE REQUIREMENTS
RESIDENTIAL AREAS - OPTION B

Figure 10



LEGEND

- Study Area
- Primary Roads
- Secondary Roads
- POWERNET Alignment
- Light Rail / High Frequency Bus Route
- Existing Rail Easement
- Proposed Rail Line
- Proposed Railway Station
- Proposed Orbital Rail
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- Parks and Green Space
- Land Subject to Inundation
- Transmission Line Easement
- Farming Land
- Existing Residential Uses
- Existing Constraining Uses
- Former Rail Line
- Heritage Overlay

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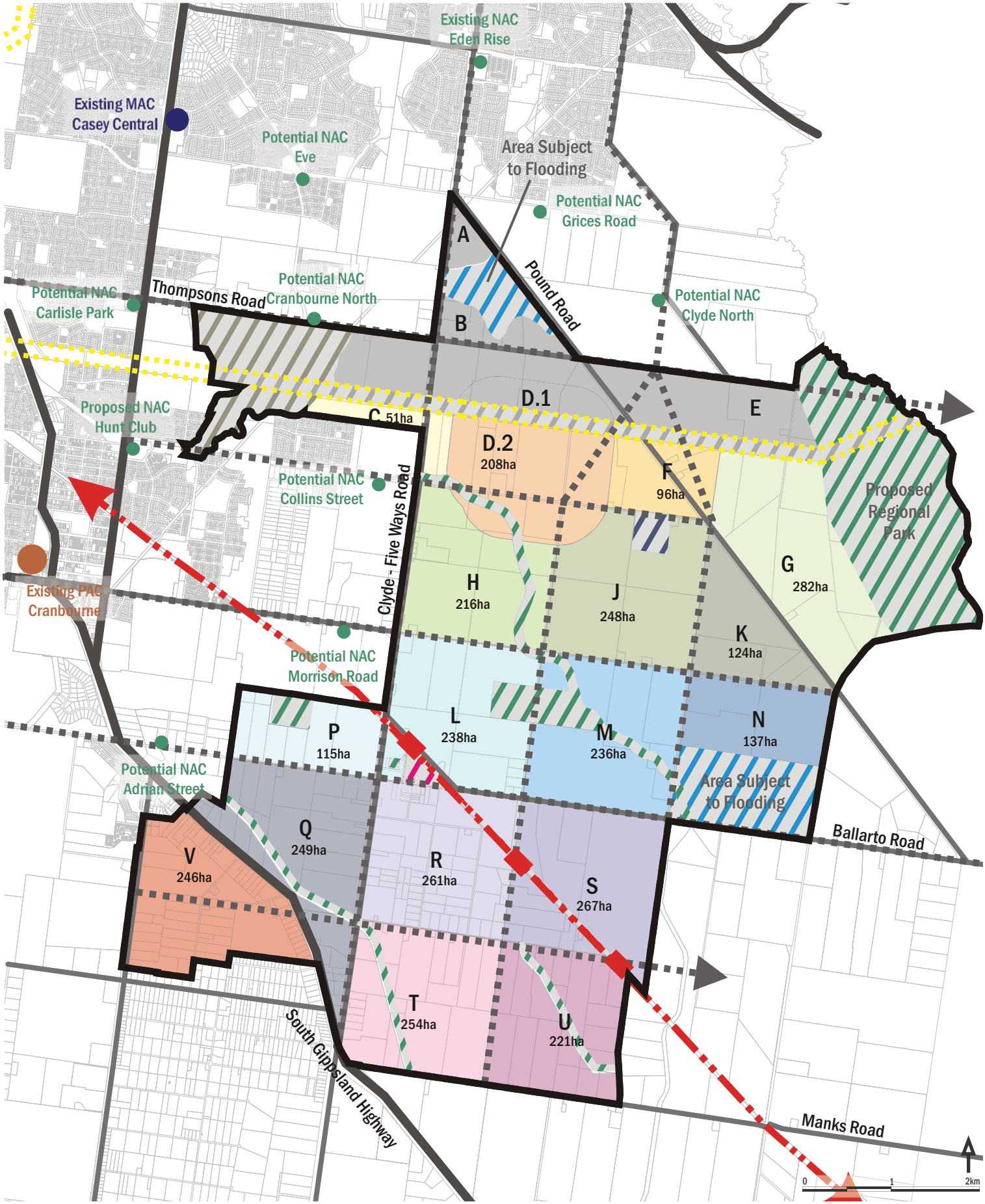
MELBOURNE'S SOUTH EAST GROWTH AREA: ACTIVITY CENTRE REQUIREMENTS
RESIDENTIAL AREAS - OPTION C (PREFERRED)

Figure 11



LEGEND

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4.7 Locational Principles

A set of location principles has been created by the consultants to given Council direction when assessing the location of all activity centres and bulky goods precincts.

Table 4: Locational Principles

Activity Centre Principles	Description
Major Activity Centres	
Strategic	
Principal Public Transport Networks (PPTN)	Location at a highly accessible public transport node served by PPTNs. Location at an existing or planned railway station
Road Networks	Ideally located at the intersection of two arterial roads.
Effective coverage of Growth Area	Ensure existing and proposed residential areas have easy access to activity centres.
Access to employment areas / Interface with employment areas	All activity centres should be located within close proximity to existing and proposed employment areas to share transport and retail services.
Distance from existing Principal Activity Centres and Major Activity Centres	New principal and major activity centres should not be located in surrounding major centres primary catchment and should be far enough away from existing centres to ensure that they are viable.
Sense of Place	Centres should be able to create an identifiable sense of place by taking advantage of existing natural features e.g. views of surrounding watercourse, hills etc.
Site Context	
Level 1 Criteria	
Site size	Large enough to allow for retail, commercial, community, recreational, educational and supporting uses.
Avoid contiguous development near "holes"	Ensure the centre is located away from areas adjacent to "black holes" e.g. old mines and extractive industry uses.
Road network configuration	Ensure the centre is visible from main roads with local streets within the centre. Street based centres are encouraged however major arterial roads are not suitable for shopping strips.
Broad ecological values	Ensuring the centre respects ecological values of an area.
Level 2 Criteria	
Topography	Ensure centre respects topographic nature of the site.
Areas prone to flooding	Check for areas prone to flooding and make appropriate actions.
Scenic values	Enhance the centre by maximising views of surrounding areas.
Heritage values	Respect and draw ideas from heritage sites within the centre.

Activity Centre Principles	Description
Large Neighbourhood Activity Centres	
Principal Public Transport Networks	Preferred location is at a train station or bus node.
Road networks	Preferred at an intersection to two arterial roads.
Accessibility and convenience	Large neighbourhood centres should be located in highly accessible locations for surrounding residential catchments.
Interface with employment areas	Locate close to employment areas to ensure efficient use of transport services.
Holes in the urban fabric	Avoid locating the centre close to "black holes" e.g. extractive industry.
Parks and public land	Where possible locate the centre near parks and public reserves.
Economic sustainability	Ensure that siting of large neighbourhood centres does not negatively impact upon the viability of larger centres in the retail commercial hierarchy. The co-location of a diverse range of retail goods and services and social and community infrastructure should complement each other and help to ensure the long-term viability and economic sustainability of these types of centres.
Small Neighbourhood Activity Centres	
Principal Public Transport Network	Small neighbourhood centres should be serviced by a local bus network.
Road networks	These centres do not have the same access advantages as the higher order MACs and large NACs. However at the least they should be located on the secondary road network, including sub-arterial and collector roads.
Accessibility and convenience	Small neighbourhood centres should be centrally located to their respective catchments to maximise accessibility. It is important that they are within a walkable distance from as much of the catchment as possible and provide a convenient location for the day-to-day needs of the community that aren't within walking distance to MACs and large NACs.
Co-location with other uses	Small neighbourhood centres should co-locate with other uses that will add greater value for the community and the wider retail commercial hierarchy. Other uses that would underpin long-term viability may include: • aged care / retirement home facility; • primary school, school or tertiary institution; and • child care / maternal health centre.
Holes in the urban fabric	Avoid locating close to uses that may negatively affect the amenity and viability of the centre ('black holes').
Parks and public land	Where possible locate the centre near parks and public reserves.

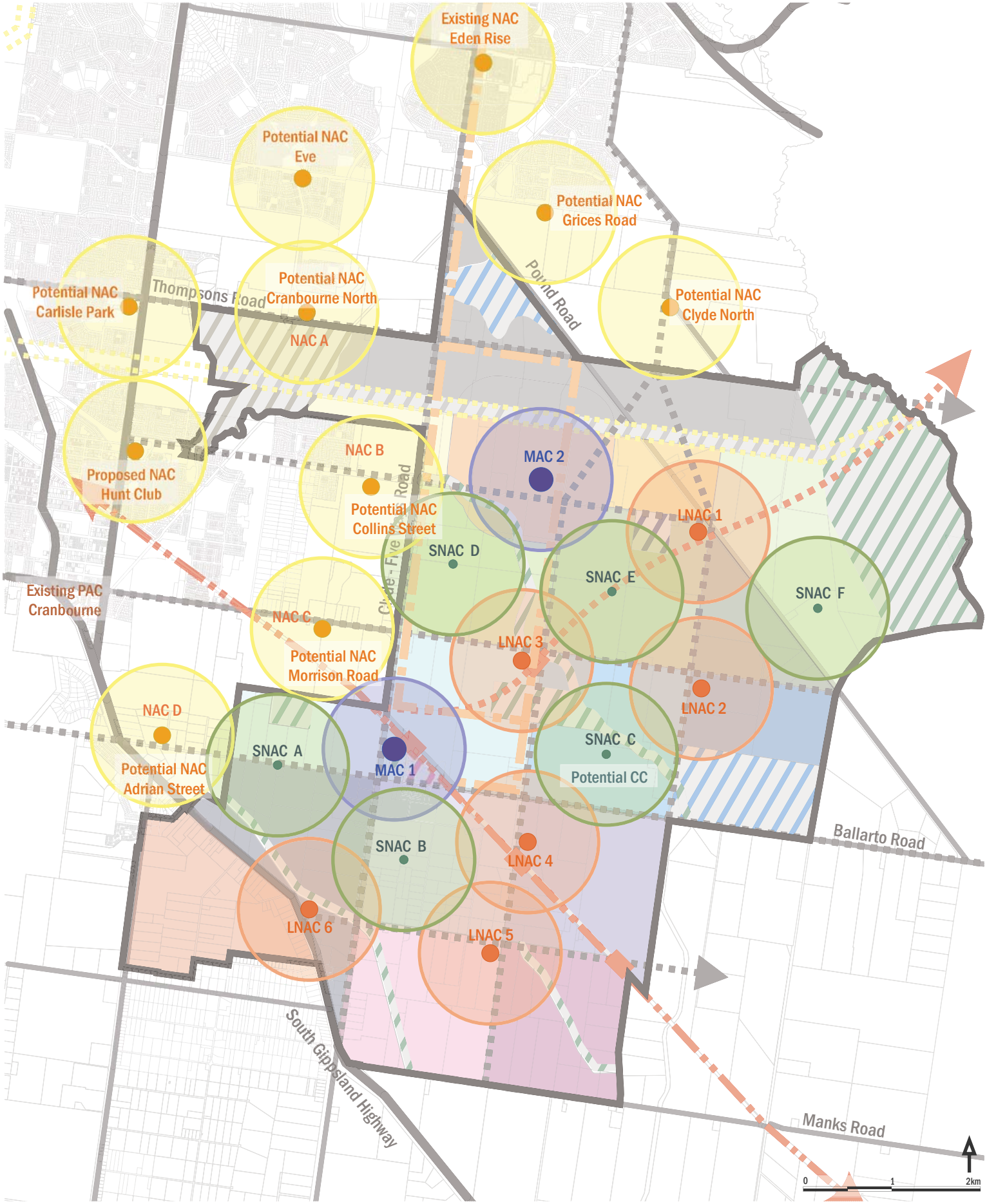
Activity Centre Principles	Description
Economic sustainability	Small neighbourhood centres should continue to strengthen and complement the overall network of centres through the avoidance of poor locational siting that may generate planning blight, e.g. located in very close proximity to larger MACs and larger NACs.
Bulky Goods Precincts	
Principal Public Transport Network	The location of bulky goods precincts on the principal public transport network is preferred but not a prerequisite for site selection. Buses may service the precinct depending on location.
Road networks	These precincts should be at highway side or key arterial road locations. Close proximity to freeway access is preferred.
Accessibility and convenience	Due to the discretionary nature of bulky goods retailing, bulky goods precincts do not necessarily need to be in close proximity or surrounded by residential communities. It is however, very important that they are highly accessible by private vehicle with sufficient space for car parking in high demand periods.
Economic sustainability	The location of the bulky goods precinct should ensure that they are in highly accessible and strategic locations in well designed precincts in order to maximise patronage and long-term viability.
Co-location with other uses	Ideally, bulky goods precincts may co-locate with a limited range of other retail goods and community services. These may include a small cafe or take-away food store, an open space reserve with playground or possibly a community facility such as a library.
Holes in the urban fabric	Where possible, locations that are significantly detrimentally affected by other adjacent uses ('black holes') should be avoided.

4.8 Potential Activity Centre Hierarchy and Location

There are a total of eight major and large neighbourhood activity centres proposed for the study area, encompassing two MACs and six LNACs. A potential activity centre hierarchy can be seen in Figure 12, which shows 800m walkable catchments for MACs, LNACs and SNACs. The centres are all strategically located along major roads, public transport nodes where possible and have sufficient residential catchments. Ensuring that most residents have access to an activity centre within walking distance encourages people to access local centres on foot or by cycling for their day-to-day needs. Those precincts which are not within 800m of an activity centre are generally located on the outer edge of the investigation area and are likely to have lower densities.

MELBOURNE'S SOUTH EAST GROWTH AREA: ACTIVITY CENTRE REQUIREMENTS
WALKABLE CATCHMENTS (800M)

Figure 12



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Date: 24/11/2010
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4.9 CPG Guiding Principles

The guiding principles in the Briefing Paper for the Casey Growth Area Framework Plan (CPG, October 2010) reflect the principles of the C21 Strategy. Table 5 shows how the proposed allocation of centres and residential precincts responds to the guidelines set out by CPG for the City of Casey (2010).

Table 5: CPG Guiding Principles and Renaissance Response

Principles	Renaissance Response
Enhancing Biodiversity	
Create a network of linked natural places	A network of open space has been created by linking the urban flood zones and land subject to inundation overlays which is complemented by strategically located parks along the way.
Restore Cardinia Creek Valley	The land adjoining Cardinia Creek is proposed as a regional park which would include the restoration of the edge of the Creek.
Biodiversity assets are values	The proposed precincts aim to enhance biodiversity by providing numerous regional parks and links between them.
Making Casey Sustainable	
Plan for climate change	Before any development in the growth area occurs a set of sustainability principles for dwelling construction should be created.
Sustainable Transport	
Walking, cycling and public transport are preferred modes of transport	The growth area will connect to existing and proposed walking and cycling paths. The decommissioned rail line will be upgraded and functioning and a new rail line may extend through Clyde and Clyde North. A light-rail/ high frequency bus route is also proposed as can be seen in Figure 7.
Provide high capacity frequent public transport	The reinstatement of the former rail line will enable high capacity public transport trips to the city prior to any additional rail infrastructure being constructed.
Extend open space and trail network through open space	Open space will be extended throughout the growth area connecting regional parks and activity centres
Integrate land use and transport planning	Land use and transport plans should occur concurrently. This plan sets aside land for roads prior to any residential calculations. Land for local parks and schools is also excluded from the total developable area.
Provide connections to the south east region	The new growth area will function with a strong grid pattern road network which links directly to existing roads in the south east region. The extended rail line will connect residents and workers in the area to major employments hubs of Cranbourne, Dandenong and Melbourne CBD.

Principles	Renaissance Response
Business and Jobs	
Create a great place to invest and do business	The proposed Thompsons Road employment precinct to the north of the powerlines will provide jobs for people in the new growth area. If people can work and live near public transport, major roads, activity centres and open space the growth area will be a highly desirable location to live and work.
Take advantage of distinct institutions and key commercial centres in Casey	The growth area is directly linked to Monash University in Berwick through Clyde Road (Clyde - Five Ways Road). This road will form the western spine of the growth area with strong links to Berwick to the north and to South Gippsland Highway to the south.
More jobs close to home	The employment area and activity centres will generate a substantial number of jobs in the growth area.
Connect residents to jobs	Residents will be able to connect to employment areas through the road network in a private vehicle or via a bus which will connect the employment areas and activity centres to residential areas and major public transport nodes (train stations, bus interchage)
Support working local	The growth area should provide employment for one third of the population.
Build smart communities	
Enhance rural industry	A urban / rural edge is proposed for the south east of the growth area as shown in Figure 6 & 7. Rural Industry will be encouraged to locate in these areas.
Planning Communities	
Housing and lifestyle choice	People will be able to prioritise public transport, access to employment, proximity to activity centres, proximity to Casey Fields, location of regional parks and the proposed location of services and infrastructure when choosing where to live.
Integrate constrained land	The plan aims to integrate constrained land by proposing primarily residential uses to the south of the power line alignment. The former extractive industry area can be converted into an activity centre with high density housing which is close to the existing areas of Casey and will serve the new areas too.

4.10 Accessibility, Connectivity and Planning Requirements

The City of Casey Activity Centre Strategy (2006 but currently under review) details guiding principles and objectives which remain relevant in the current context (refer Table 6).

Table 6: City of Casey: Activity Centre Framework and Renaissance Planning Response

	City of Casey Activtiy Centre Strategy (2006) Activity Centre Framework			
	Major Activity Centre	Large Neighbourhood Activity Centre	Small Neighbourhood Activity Centre	Bulky Goods Precinct
Objectives	To provide a comprehensive range of shopping, entertainment and community facilities and services. To recognise and encourage the centre's function as a social focus by providing suitable indoor and outdoor places for people to meet throughout the day and week.	To provide a range of convenience shopping and selected weekly goods and services as well as neighbourhood oriented community facilities. To recognise and encourage the centre's function as a social focus by providing places for people to meet.	To provide a minimal level of convenience goods and services for neighbourhood areas as well as passing traffic. To recognise and encourage the centre's function as a social focus.	To provide a range of bulky goods and complementary goods and services at highly accessible and strategic locations in well designed precincts.
Catchment Population	50,000 to 75,000 persons	10,000 to 25,000 persons	2,000 to 4,000 persons	
Defining retail element of centre role	Discount Department Store(s), supermarkets and wide variety of goods and services.	Supermarkets, specialty shops and related goods and services	A limited cluster of goods and services not anchored by a supermarket	Large bulky goods tenancies (generally over 1,000 square metres GLA in size).
Functions provided	Sub-regional, large neighbourhood, small neighbourhood, and peripheral sales precinct.	Large and Small Neighbourhood Centres	Convenience	Typically regional or sub-regional

	Renaissance Planning Response			
	Major Activity Centre	Large Neighbourhood Activity Centre	Small Neighbourhood Activity Centre	Bulky Goods Precinct
Objectives	The MACs proposed are large enough to contain a range of retail shops, services and to meet community needs	The larger neighbourhood centres proposed for the growth area could accommodation one or two supermarkets to meet day-to-day and weekly shopping requirements.	The small NACs proposed are likely to contain only a very limited range of retail goods and services which would meet day-to-day and convenience requirements.	The bulky goods precincts planned to adjoin the MACs are likely to incorporate a range of bulky goods retailing, with a number of larger stores with footprints beyond 1,000 square metres GLA.
Catchment Population	Proposed MACs achieve this catchment population	Proposed LNACs achieve this catchment population	n/a	n/a
Defining retail element of centre role	Both MACs could accommodate multiple DDSs as required.	All LNACs are proposed to have at least one supermarket and supporting services.	The defining retail component of small neighbourhood activity centres would be a small grocery / convenience store, perhaps as part of a service station.	Depending on the availability of suitable land adjoining the MACs, it could be possible for a large bulky goods store to be accommodated in the precincts, such as a Bunnings.
Functions provided	n/a	n/a	n/a	n/a

	City of Casey Activtiy Centre Strategy (2006) Activity Centre Framework			
	Major Activity Centre	Large Neighbourhood Activity Centre	Small Neighbourhood Activity Centre	Bulky Goods Precinct
Opportunity for Choice	**Retail and goods and services** • several supermarkets and a number of mini-majors; • at least one discount department store; • wide range of retail and non-retail tenancies; • peripheral sales. **Leisure and Entertainment** • passive open space reserve / square; • sports and recreation facilities; • entertainment and leisure facilities such as cinemas. **Commercial and Professional Services** • a wide range of professional and other commercial services. **Civic and Community Facilities** • some government offices and services; • library, leisure centre, range of community facilities. **Education and Institutional** • range of education services including tertiary, secondary and primary schools; • religious facilities; • range of specialist health services.	**Retail and goods and services** • Supermarket(s); • 15 to 20 retail and other tenancies; • medical services; • wide range of other possible retail / commercial uses to co-locate. **Leisure and Entertainment** • open space reserve with playground; • sporting, recreation and leisure facilities. **Commercial and Professional Services** • potential for some limited opportunities. **Community Facilities** • multi-functional community building; • child care facilities. **Education and Institutional** • education facilities such as primary school and those based at the community centre; • religious facilities; • range of specialist health services.	**Retail goods and services** • up to five shops • service station • medical services • range of other possible retail commercial uses to co-locate. **Leisure and Entertainment** • open space reserve with playground. **Community Facilities** • Child care facilities; • multi-functional community building; • aged care facility / retirement home. **Education and Institutional** • Religious facilities; • education facilities such as a primary school and those based at a community centre; • range of specialist health services.	**Retail goods and services** • large, bulky tenancies, for example over 1,000 square metres in size • complementary retail goods and services floorspace. **Community facilities** • Open space reserve with playground.

	Renaissance Planning Response			
	Major Activity Centre	Large Neighbourhood Activity Centre	Small Neighbourhood Activity Centre	Bulky Goods Precinct
Opportunity for Choice	Both of the proposed MACs are large enough to support multiple supermarkets, discount department stores and a range of retail and non-retail tenancies. Approximately 27 per cent of the global estimate of gross land requirements is set aside for open space and roads (refer Appendix A, B & C: Table 6). Approximately 14 per cent of the global estimate of gross land requirements is set aside for regional and sub regional community, health and education facilities. Approximately 14 per cent of the global estimate of gross land requirements is set aside for commercial and community activities.	The six large NACs proposed to be within the study area can support multiple supermarkets and a range of retail and non-retail tenancies. Approximately 27 per cent of the global estimate of gross land requirements is set aside for open space and roads (refer Appendix A, B & C: Table 6). Approximately 14 per cent of the global estimate of gross land requirements is set aside for local community, health and education facilities. Approximately 14 per cent of the global estimate of gross land requirements is set aside for commercial and community activities.	The six small NACs proposed can support a small grocery / convenience store and a very limited number of complementary retail goods and service tenancies. Approximately 27 per cent of the global estimate of gross land requirements is set aside for open space and roads (refer Appendix A, B & C: Table 6). Approximately 14 per cent of the global estimate of gross land requirements is set aside for local community, health and education facilities. Approximately 14 per cent of the global estimate of gross land requirements is set aside for commercial and community activities.	Bulky goods precinct sites are proposed to adjoin the MACs can support a significant amount of bulky goods floorspace with a limited range of complementary retail goods floorspace.

	City of Casey Activity Centre Strategy (2006) Activity Centre Framework			
	Major Activity Centre	Large Neighbourhood Activity Centre	Small Neighbourhood Activity Centre	Bulky Goods Precicnt
Accessibility	• Located with excellent access by the arterial road network • accessible from a number of entrances for cars, bicycles and pedestrians • good public transport access and modal interchange • ensure safe pedestrian network within and to the centre to avoid conflict points with traffic • linked by joint use pathways to a linear open space network • sufficient car and bicycle parking provided for high demand periods • located to best provide access to catchment and where possible locate on the PPTN and major public transport corridor	• Locate retail frontage to arterial road or secondary arterial road • goods access for cars, bicycles and pedestrians • good public transport access • ensure safe pedestrian network within and to the centre to avoid conflict points with traffic • linked by joint use pathways to a linear open space network • sufficient car and bicycle parking provided for high demand periods • located to best provide access to catchment and where possible locate on the PPTN and major public transport corridors	• Locate retail frontage to arterial road, sub-arterial road or major trunk collector road • goods access for cars, bicycles and pedestrians • public transport access • ensure safe pedestrian network within and to the centre to avoid conflict points with traffic • linked by joint use pathways to a linear open space network • sufficient car and bicycle parking provided for high demand periods • centrally located to catchment	• Located with good access by State Highway or key arterial roads. Close proximity to freeway access is an advantage • good public transport access • ensure safe pedestrian network within and to the centre to avoid conflict points with traffic • linked by joint use pathways to a linear open space network • sufficient car and bicycle parking provided for high demand periods.

	Renaissance Planning Response			
	Major Activity Centre	Large Neighbourhood Activity Centre	Small Neighbourhood Activity Centre	Bulky Goods Precinct
Accessibility	Both of the proposed MACS are located in key strategic locations. MAC (1) is located on the proposed Railway Station and MAC (2) on a major north south road in the growth area. Both MACs are on the proposed light rail / high frequency bus route which connects to the PPTN. Both MACs are near open space networks. The MACs will service the population of the growth area and residents in adjoining areas.	All of the proposed LNACS are on major roads and three of them area located along the proposed rail way line with one fronting onto the South Gippsland Highway. The location of the NACs ensure that as much of the study area is covered as possible whilst locating the NACs on major roads and along side public transport. As shown in Figure 13 most of the residential precincts are accounted for with 1.5km radius around the proposed LNACs.	It is proposed that each of the small NACs would be located on the secondary road system within the study area. The location of the proposed Small LNACs services those areas not already within an 800 metre walking catchment of either the MACs or the NACs and ensures that almost the entirety of the study area is able to access day-to-day needs by foot.	The bulky goods precincts are proposed to be primarily located adjacent to / adjoining they MACs which means that will be in key strategic, highly accessible locations. With MAC (1) located on the proposed railway station and the major road network and MAC (2) located on a major north-south road in the growth area. Further to this, both MACs are located on the proposed light rail / high frequency bus route which connects to the PPTN, further improving accessibility to the adjoining bulky goods precincts.

4.11 Activity Centre Land Requirements

To determine activity centre land requirements the gross leasable area was converted to gross floor area then to gross building area where all shopfront and one third of commercial and community floorspace is located on the ground level. The balance of 67 per cent of commercial and community floorspace is assumed to be located on upper levels floors.

First estimate of gross land area requirements for individual centres can be seen in Appendix A, B & C: Table 5. Additional analysis which takes into account an allowance for roads and open space, regional and sub-regional community, health and education facilities and provision for higher density housing and special accommodation sum to give the total estimate of global land requirements as shown in Appendix A, B & C: Table 6.

These land estimates take account of the core activities of the centre, and include roads, open space, district level special facilities together with provision for higher density housing within the centre.

- The **major activity centres** are estimated to require approximately 63 hectares of land each.
- The **large neighbourhood activity centres** are estimated to require 12.6 hectares each which will cater for core activities and additional land requirements for road and open space together with an allowance for health and community facilities.
- **Small neighbourhood activity centres** are estimated to require approximately 1 hectares of land each which includes roads, open space and local special provisions.
- **Other centres** which includes primarily bulky goods and non retail stores will require 32 hectares of land.

Table 7: Global Estimate of Activity Centre Floorspace

Activity Centre Type	Global Estimate of Gross Land Area Requirements (ha)		
	Option A	Option B	Option C (Preferred)
1: Major Activtiy Centre	65.0	61.9	63.6
2: Major Activity Centre	65.0	61.9	63.6
Large Neighbourhood Activity Centre	12.8	11.8	12.6
Total Large Neighbourhood Activity Centres	76.8	71.0	75.8
Small Neighbourhood Activity Centre	1.1	1.1	1.1
Total Small Neighbourhood Activity Centres	6.4	6.3	6.3
Other Centre(s)*	32.4	31.0	31.9
Total	245.5	232.1	241.2

4.12 Application of Activity Centre System

The distribution of large activity centres (MACs and LNACs) as seen in Figure 13 ensures that 95 per cent of the residential precincts in the investigation area are within 1.5km of a large activity centre. People living in the core of the investigation area typically have access to two or more centres as can be seen with the overlapping circles. Even residents on the outer edges of the investigation area (likely to be urban / rural zone, refer Figure 7) have access to at least one large activity centre within 1.5km

An analysis of potential catchments for the two major activity centres (MACs) can be seen in Figure 14. The general location of these MACs is agreed with by Renaissance Planning, Deep End Services and Beveridge Williams (refer Figure 14). However, provision and location of large neighbourhood activity centres (LNACs) is not consistent between the consultants reports. The consultants at Renaissance have allowed for 6 large neighbourhood activity centres where the other consultants have allowed for more. The location of the LNACs has been determined using the locational principles set out in Table 4.

Figure 14 shows the potential location of the MACs and their likely catchment. Table 8 uses the indicative catchment areas for the two centres and sums the estimated resident population and the population of areas outside the investigation. Note, they are not discrete domains. The approximate location of MAC 1 will ensure it has a catchment population of approximately 80,000 people. There are two options for the location of MAC 2. The first is on the intersection of two proposed roads and the second is located parallel to the other MAC on Clyde - Five Ways Road. The catchment population for the second options draws on more areas outside of the investigation area and as a result has a catchment population of approximately 94,600 people, while the first option would have a catchment population of 68,500 people (refer Figure 14).

Table 8: Major Activity Centre Catchments

Activity Centre Type	Estimated Resident Population within the Study Area			Estimated Resident Population outside the Study Area*	Total Catchment Population		
	Option A	Option B	Option C (Preferred)		Option A	Option B	Option C (Preferred)
1: Major Activtiy Centre (Option 1)	79,000	72,440	77,310	3,750	82,750	76,190	81,060
2: Major Activity Centre* (Option 1)	46,110	45,450	45,450	23,080	69,190	68,530	68,530
2: Major Activity Centre* (Option 2)				49,170	95,280	94,620	94,620
Total	125,110	117,890	122,760	76,000	247,220	239,340	244,210

*Assumes a density of 14 dwellings per hectare with 2.85 people in each dwelling.

MELBOURNE'S SOUTH EAST GROWTH AREA: ACTIVITY CENTRE REQUIREMENTS
POTENTIAL ACTIVITY CENTRE ACCESS NETWORK (1.5KM RADIUS)

Figure 13

LEGEND

- Study Area
- Primary Roads
- Secondary Roads
- POWERNET Alignment
- Light Rail / High Frequency Bus Route
- Existing Rail Easement
- Proposed Rail Line
- Proposed Railway Station
- Proposed Orbital Rail
- Existing and Proposed Major Road Network

Activity Centre Network

- Major Activity Centre (MAC)
- Large Neighbourhood Activity Centre (LNAC)
- Neighbourhood Activity Centre outside Study Area (NAC)

Date: 24/11/2010
Completed by: Megan
Job number: 10-063
Job title: Melbourne's South East Growth Area:Activity Centre Requirements

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MELBOURNE'S SOUTH EAST GROWTH AREA: ACTIVITY CENTRE REQUIREMENTS
MAJOR ACTIVITY CENTRE CATCHMENTS

Figure 14

Existing NAC Eden Rise
Existing MAC Casey Central
Potential NAC Eve
MAC 2 (Option 2) Catchment
Potential NAC Grices Road
NAC A
Potential NAC Cranbourne North
Thompsons Road
Potential NAC Carlisle Park
MAC 2 (Option 1) Catchment
Pound Road
Potential NAC Clyde North
MAC 2 (Option 2)
MAC 2 (Option 1)
NAC B
Proposed NAC Boat Club
Potential NAC Collins Street
Clyde - Five Ways Road
LNAC 1
Existing PAC Cranbourne
NAC C
Potential NAC Morrison Road
LNAC 3
LNAC 2
MAC 1 Catchment
NAC D
MAC 1
Potential NAC Adrian Street
LNAC 4
Ballarto Road
LNAC 6
LNAC 5
South Gippsland Highway

Estimated MAC Catchment within Study Area - Option C

Activity Centre Type	Estimated Resident Population	Estimated Resident Population outside the Study Area*	Total Catchment Population
	Option C (Preferred)		Option C (Preferred)
1: Major Activtiy Centre (Option 1)	77,310	3,750	81,060
2: Major Activity Centre* (Option 1)	45,450	23,080	68,530
2: Major Activity Centre* (Option 2)		49,170	94,620
Total	122,760	76,000	244,210

Source:
Future Road Network and Public Transport - Growth Area Framework Powerpoint (City of Casey)
Deep End Activity Centres - City of Casey Activity Centre Analysis (Deep End, November 2010)
Beveridge Williams Activity Centres - Presentation to GAA Casey-Cardinia Growth Area Framework Plan (Beveridge Williams, November 2010)

0 1 2km

LEGEND

- Study Area
- Primary Roads
- Secondary Roads
- POWERNET Alignment
- Light Rail / High Frequency Bus Route
- Existing Rail Easement
- Proposed Rail Line
- Proposed Railway Station
- Existing and Proposed Major Road Network
- Land not included in Analysis
- Land suitable for residential development

Activity Centres
- Existing and Proposed Neighbourhood Activity Centre

Renaissance Planning
- Proposed MAC (2)
- Proposed LNAC (6)

Beveridge - Williams
- Proposed MAC (2)
- Proposed NAC (7)

Deep End Services
- Proposed MAC (2)
- Proposed NAC (8)

Date: 24/11/2010
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4.13 Growth Area Employment Potential

Direct employment effects were assessed on the basis of the relationship between employment and activity centre floorspace applying ratios of employment per 100m^2 GLA for activity types. The employment density ratios are shown in Appendix D: Table 1 & 2. It will be seen that the highest ratios are for food and groceries floorspace and the lowest ratios are for bulky goods floorspace and community activities.

Appendix D: Table 1 & 2 shows the projected direct on-site employment that these activities would likely generate in the post-construction phase. The employment estimates below exclude other district and regional facilities for community and health where allowances for land requirements have been taken into account. The employment estimates also exclude off-site multiplier effects, or additional jobs that the activity centres would likely generate through district and regional multipliers and through subsequent expenditure effects generated by employees, and no provision has been made in Appendix D: Table 1 & 2 for significant employment that would be generated in the construction phase.

Employment estimates were also generated for the Thompsons Road employment precinct (refer Appendix D: Table 1). The stretch of land south of Thomspsons Road and north of the transmission line easement is approximately 300 hectares. By allowing for 40 per cent occupancy of land and assuming that between 0.7 and 1.2 jobs will be generated per 100m^2 GLA it can be assumed that between 6,040 and 10,360 jobs will be generated in the precinct.

5 conclusions

6 conclusions

The investigation and analysis undertaken by the consultants clearly shows that almost all of the projected demands identified for the investigation can be accommodated *in situ*, that is directly in the growth area or in activity centres in the adjoining areas.

The investigations and analysis also found that in order to ensure that there is adequate service coverage of the investigation areas by future activity centres it is desirable to apply a flexible concept for large neighbourhood activity centres; that is to allow for larger neighbourhood activity centres to ensure a high quality of service provision to potential future urban areas in the growth area. The LNACs should provide enough land to allow for potential expansion of the thriving centres if the market requires it once the areas have reached capacity.

appendices 6

economic analysis: residential precincts **option a**

A

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix A: Residential Precincts - Option A
Table A.1
Residential Precincts

Reference Area	Precinct Area (hectares)	Potential Developable Area[1] (hectares)	Gross Residential Area[2] (hectares)	Residential Development Allotments** (15 dwellings / ha)	Estimated Households**[3]	Potential Estimated Resident Population**[4]
A*	25	24	n/a	n/a	n/a	n/a
B*	193	190	n/a	n/a	n/a	n/a
C	51	49	49	740	710	2,020
D.1*	51	51	n/a	n/a	n/a	n/a
D.2	208	204	190	2,850	2,740	7,810
E*	148	142	n/a	n/a	n/a	n/a
F	96	88	82	1,230	1,180	3,360
G	282	276	257	3,850	3,700	10,550
H	216	207	193	2,890	2,770	7,890
J	265	255	237	3,560	3,420	9,750
K	134	124	116	1,730	1,660	4,730
L	258	245	228	3,410	3,270	9,320
M	257	246	229	3,430	3,290	9,380
N	267	256	238	3,570	3,430	9,780
P	115	111	103	1,540	1,480	4,220
Q	249	241	224	3,360	3,230	9,210
R	261	249	232	3,480	3,340	9,520
S	267	259	241	3,620	3,480	9,920
T	254	246	229	3,440	3,300	9,410
U	221	216	201	3,010	2,890	8,240
Total Study Area	3,817	3,680	3,047	45,710	43,890	125,110

*Land North of power line easement is not included in the study
** Rounded to the nearest 10 units
[1] *Excludes Major Roads (assume roads are 35m including tree reserve)*
[2] Assumes 7 per cent of land is put aside for schools sites and recreation areas. Except in precinct C which is too small to accommodate any major facilities
[3] Assumes 4 per cent vacancy rate
[4] Approximate population at 2.85 people per occupied dwelling

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix A: Residential Precincts - Option A
Table A.2
Activity Centre Floorspace per Capita Provision Estimates 2010

Major Activity Group	Floorspace Provision per Capita (m^2)		
	Market Based	Allowing for 4 per cent vacant floorspace	After Escape Expenditure*
Supermarkets	*0.55*	*0.57*	***0.49***
Other Food	*0.31*	*0.32*	***0.26***
Total Food, Groceries and Liquor	0.86	0.90	**0.75**
Retail Non-Food (excl. BG)	0.66	0.69	**0.58**
Bulky Goods	0.44	0.46	**0.37**
Retail Services	0.19	0.20	**0.16**
Total	2.15	2.24	1.86

* Assume 15 to 20 per cent escape expenditure to surrounding areas

Commercial Floorspace Provision Rates

Source: Actvity Centre Floorspace Provision, City of Casey (2003)

Commercial: Major Activity Group	Floorspace Provision per Capita (m^2)	
	Existing Structure	Allowing for 4 per cent vacant floorspace
Entertainment	0.09	0.10
Office / Commercial	0.39	0.40
Community Services	0.38	0.40
Total	0.86	0.90

Note: Table shows existing structure of floorspace in Casey excluding PACs. Thus, escape expenditure is not applicable.

Appendix A: Residential Precincts - Option A

Table A.3

Floorspace Estimates

Activity Centre Type	Total Floorspace by Major Activity Group (m^2 GLA)				Number of supportable centres	Average Size per Centre (m^2 GLA)			
	Core Retail	Bulky Goods[1]	Non - Retail[2]	Total		Core Retail	Bulky Goods[1]	Non - Retail[2]	Total
Major Activity Centres	94,000	32,100	49,400	175,500	2	47,000	16,100	24,700	87,800
Large Neighbourhood Activity Centres	76,000	n.a	24,900	100,900	6	12,700	n.a	4,200	16,900
Small Neighbourhood Activity Centres	6,000	n.a	3,000	9,000	6	1,000	n.a	500	1,500
Other*	10,000	13,800	35,200	59,000	1	10,000	13,800	35,200	59,000
Total	186,000	45,900	112,500	344,400	n.a	n.a	n.a	n.a	n.a

*Includes homemaker centres, bulky goods clusters and employment precincts.

[1] Note 70 per cent of Bulky Goods have been assigned to be co-located with MAC's with 30 per cent at other locations. Alternatively all bulky goods floorspace could be co-located with MACs.

[2] Non - Retail includes Entertainment, Office / Commercial and Community Services

NB: Figures are rounded to the nearest 100 units.

Appendix A: Residential Precincts - Option A

Table A.4

Projected Floorspace Allocation by Centre Type

Major Commodity Group	Activity Centre Floorspace by Major Commodity Group (m^2 GLA)							
	1: Major Activity Centre	2: Major Activity Centre	Large Neighbourhood Activity Centre	Total Large Neighbourhood Activity Centres	Small Neighbourhood Activity Centre	Total Small Neighbourhood Activity Centres	Other Centre(s)*	Total Floorspace
Shopfront Activities								
Food, Groceries and Liquor	33,050	33,050	8,280	49,680	550	3,300	6,270	125,350
Household Goods	16,600	16,600	1,620	9,720	130	780	90	43,790
Bulky Goods	4,110	4,110	570	3,420	150	900	16,350	28,890
Retail Services	9,290	9,290	2,190	13,140	170	1,020	1,090	33,830
Total: Shopfront Activities Floorspace	63,050	63,050	12,660	75,960	1,000	6,000	23,800	231,860
Commercial and Community Activities:								
Entertainment	1,690	1,690	390	2,340	-	-	6,390	12,110
Office and Commercial	9,650	9,650	1,280	7,680	330	1,980	21,380	50,340
Community Services	13,360	13,360	2,480	14,880	170	1,020	7,430	50,050
Total: Commercial and Community Activities	24,700	24,700	4,150	24,900	500	3,000	35,200	112,500
Total	87,750	87,750	16,810	100,860	1,500	9,000	59,000	344,360

NB: Figures are rounded to the nearest 10 units

*Includes homemaker centres, bulky goods clusters and employment precincts.

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix A: Residential Precincts - Option A
Table A.5
Minimal Estimate of Activity Centre, Shopfront and Commercial and Community Activities

Activity Centre Type	Shopfront and Commercial and Community Area Requirements						
	Allocated Floorspace m^2 GLA		Gross Floor Area (GFA) m^2			Gross Building Area[1] (m^2)	First Estimate of Gross Land Area Requirements[2] (ha)
	Shopfront Activities	Commercial and Community Activities	Shopfront Activities	Commercial and Community Activities	Total		
1: Major Activity Centre	63,050	24,700	70,060	27,440	97,500	88,010	26.4
2: Major Activity Centre	63,050	24,700	70,060	27,440	97,500	88,010	26.4
Large Neighbourhood Activity Centre(s)*	12,670	4,150	14,080	4,610	18,690	17,350	5.2
Total Large Neighbourhood Activity Centres	76,020	24,900	84,480	27,660	112,140	104,100	31.2
Small Neighbourhood Activity Centre(s)**	1,000	500	1,110	560	1,670	1,440	0.4
Total Small Neighbourhood Activity Centres	6,000	3,000	6,660	3,360	10,020	8,640	2.6
Other Centres***	23,800	35,200	26,440	39,110	65,550	43,860	13.2
Total	231,920	112,500	257,700	125,010	382,710	332,620	99.8

[1]Gross Building Area assumes that Commercial and Community Activities are three storey
[2]Excludes roads, open space and special provision e.g. campuses, council offices and major recreation facilities
*Assumes all Large Neighbourhood Activity Centres are the same size
**Assumes all Small Neighbourhood Activity Centres are the same size
***Includes homemaker centres, bulky goods clusters and employment precincts.
NB: Figures are rounded to the nearest 10 units.

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix A: Residential Precincts - Option A
Table A.6
Global Estimate of Activity Centre Land Requirements

Activity Centre Type	Activity Centre Requirements (ha)				
	First Estimate of Gross Land Area Requirements [1]	Provision for additional uses			Global Estimate of Gross Land Area Requirements
		Allowance for Roads and Open Space Requirements	Provision for Regional and Sub-regional Community, Health and Education Facilities [2]	Commercial and Community Activities	
1: Major Activity Centre	26.4	19.3	9.6	9.6	65.0
2: Major Activity Centre	26.4	19.3	9.6	9.6	65.0
Large Neighbourhood Activity Centre(s)*	5.2	3.8	1.9	1.9	12.8
Total Large Neighbourhood Activity Centres	31.2	22.8	11.4	11.4	76.8
Small Neighbourhood Activity Centre(s)**	0.4	0.3	0.2	0.2	1.1
Total Small Neighbourhood Activity Centres	2.6	1.9	0.9	0.9	6.4
Other Centre(s)***	13.2	9.6	4.8	4.8	32.4
Total	99.8	72.8	36.4	36.4	245.5

[1] Gross Building Area assumes that Commercial and Community Activities are three storey
[2] Excludes roads, open space and special provision e.g. campuses, council offices and major recreation facilities
*Assumes all Large Neighbourhood Activity Centres are the same size
**Assumes all Small Neighbourhood Activity Centres are the same size
***Includes homemaker centres, bulky goods clusters and employment precincts.
NB: Figures are rounded to the nearest 10 units.

economic analysis: residential precincts **option b**

B

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix B: Residential Precincts - Option B

Table B.1
Residential Precincts

Reference Area	Precinct Area (hectares)	Potential Developable Area[1] (hectares)	Gross Residential Area[2] (hectares)	Residential Development Allotments** (15 dwellings / ha)	Estimated Households**[3]	Potential Estimated Resident Population**[4]
A*	25	24	n/a	n/a	n/a	n/a
B*	193	190	n/a	n/a	n/a	n/a
C	51	49	49	740	710	2,020
D.1*	51	51	n/a	n/a	n/a	n/a
D.2	208	204	190	2,850	2,740	7,810
E*	148	142	n/a	n/a	n/a	n/a
F	96	88	82	1,230	1,180	3,360
G	282	276	257	3,850	3,700	10,550
H	216	207	193	2,890	2,770	7,890
J	248	238	221	3,320	3,190	9,090
K	134	124	116	1,730	1,660	4,730
L	238	224	209	3,130	3,000	8,550
M	236	225	210	3,140	3,010	8,580
N	137	126	117	1,750	1,680	4,790
P	115	111	103	1,540	1,480	4,220
Q	249	241	224	3,360	3,230	9,210
R	261	249	232	3,480	3,340	9,520
S	267	259	241	3,620	3,480	9,920
T	254	246	229	3,440	3,300	9,410
U	221	216	201	3,010	2,890	8,240
Total Study Area	3,628	3,491	2,872	43,080	41,360	117,890

*Land North of power line easement is not included in the study
** Rounded to the nearest 10 units
[1] *Excludes Major Roads (assume roads are 35m including tree reserve)*
[2] Assumes 7 per cent of land is put aside for schools sites and recreation areas. Except in precinct C which is too small to accommodate any major facilities
[3] Assumes 4 per cent vacancy rate
[4] Approximate population at 2.85 people per occupied dwelling

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix B: Residential Precincts - Option B

Table B.2

Activity Centre Floorspace per Capita Provision Estimates 2010

Shopfront: Major Activity Group	Floorspace Provision per Capita (m^2)		
	Market Based	Allowing for 4 per cent vacant floorspace	After Escape Expenditure*
Supermarkets	*0.55*	*0.57*	***0.49***
Other Food	*0.31*	*0.32*	***0.26***
Total Food, Groceries and Liquor	0.86	0.90	**0.75**
Retail Non-Food (excl. BG)	0.66	0.69	**0.58**
Bulky Goods	0.44	0.46	**0.37**
Retail Services	0.19	0.20	**0.16**
Total	2.15	2.24	1.86

* Assume 15 to 20 per cent escape expenditure to surrounding areas

Commercial Floorspace Provision Rates

Source: Actvity Centre Floorspace Provision, City of Casey (2003)

Commercial: Major Activity Group	Floorspace Provision per Capita (m^2)	
	Existing Structure	Allowing for 4 per cent vacant floorspace
Entertainment	0.09	0.10
Office / Commercial	0.39	0.40
Community Services	0.38	0.40
Total	0.86	0.90

Note: Table shows existing structure of floorspace in Casey excluding PACs. Thus, escape expenditure is not applicable.

Appendix B: Residential Precincts - Option B

Table B.3

Floorspace Estimates

Activity Centre Type	Total Floorspace by Major Activity Group (m^2 GLA)				Number of supportable centres	Average Size per Centre (m^2 GLA)			
	Core Retail	Bulky Goods[1]	Non - Retail[2]	Total		Core Retail	Bulky Goods[1]	Non - Retail[2]	Total
Major Activity Centres	90,000	30,300	46,600	166,900	2	45,000	15,150	23,300	83,450
Large Neighbourhood Activity Centres	70,000	n.a	23,500	93,500	6	11,700	n.a	3,900	15,600
Small Neighbourhood Activity Centres	6,000	n.a	2,800	8,800	6	1,000	n.a	500	1,500
Other*	10,000	13,000	33,200	56,200	1	10,000	13,000	33,200	56,200
Total	176,000	43,300	106,000	325,400	n.a	n.a	n.a	n.a	n.a

*Includes homemaker centres, bulky goods clusters and employment precincts

[1] Note 70 per cent of Bulky Goods have been assigned to be co-located with MAC's with 30 per cent at other locations. Alternatively all bulky goods floorspace could be co-

[2] Non - Retail includes Entertainment, Office / Commercial and Community Services

NB: Figures are rounded to the nearest 100 units.

Appendix B: Residential Precincts - Option B

Table B.4

Projected Floorspace Allocation by Centre Type

Major Commodity Group	Activity Centre Floorspace by Major Commodity Group (m^2 GLA)							
	1: Major Activity Centre	2: Major Activity Centre	Large Neighbourhood Activity Centre	Total Large Neighbourhood Activity Centres	Small Neighbourhood Activity Centre	Total Small Neighbourhood Activity Centres	Other Centre(s)*	Total Floorspace
Shopfront Activities								
Food, Groceries and Liquor	31,530	31,530	7,630	45,780	550	3,300	6,060	118,200
Household Goods	15,837	15,837	1,500	9,000	130	780	90	41,540
Bulky Goods	3,920	3,920	520	3,120	150	900	15,800	27,660
Retail Services	8,860	8,860	2,020	12,120	170	1,020	1,050	31,910
Total: Shopfront	60,147	60,147	11,670	70,020	1,000	6,000	23,000	219,310
Commercial and Community Activities:								
Entertainment	1,600	1,600	370	2,220	-	-	6,025	11,450
Office and Commercial1	9,100	9,100	1,210	7,260	310	1,860	20,166	47,490
Community Services	12,600	12,600	2,340	14,040	160	960	7,009	47,210
Total: Commercial and Community Activities	23,300	23,300	3,920	23,520	470	2,820	33,200	106,140
Total	83,447	83,447	15,590	93,540	1,470	8,820	56,200	325,450

NB: Figures are rounded to the nearest 10 units.

*Includes homemaker centres, bulky goods clusters and employment precincts

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
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Appendix B: Residential Precincts - Option B

Table B.5

Minimal Estimate of Activity Centre and for Shopfront and Commercial and Community Activities

Activity Centre Type	Shopfront and Commercial and Community Area Requirements						
	Allocated Floorspace m^2 GLA		Gross Floor Area (GFA) m^2			Gross Building Area[1] (m^2)	First Estimate of Gross Land Area Requirements[2] (ha)
	Shopfront Activities	Commercial and Community Activities	Shopfront Activities	Commercial and Community Activities	Total		
1: Major Activity Centre	60,150	23,300	66,830	25,890	92,720	83,840	25.2
2: Major Activity Centre	60,150	23,300	66,830	25,890	92,720	83,840	25.2
Large Neighbourhood Activity Centre(s)*	11,670	3,920	12,970	4,360	17,330	16,030	4.8
Total Large Neighbourhood Activity Centres	70,020	23,520	77,820	26,160	103,980	96,180	28.9
Small Neighbourhood Activity Centre(s)**	1,000	470	1,110	520	1,630	1,430	0.4
Total Small Neighbourhood Activity Centres	6,000	2,820	6,660	3,120	9,780	8,580	2.6
Other Centre(s)***	23,000	33,200	25,560	36,890	62,450	42,060	12.6
Total	219,320	106,140	243,700	117,950	361,650	314,500	94.4

[1] Gross Building Area assumes that Commercial and Community Activities are three storey
[2] Excludes roads, open space and special provision e.g. campuses, council offices and major recreation facilities
*Assumes all Large Neighbourhood Activity Centres are the same size
**Assumes all Small Neighbourhood Activity Centres are the same size
***Includes homemaker centres, bulky goods clusters and employment precincts
NB: Figures are rounded to the nearest 10 units.

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix B: Residential Precincts - Option B

Table B.6

Global Estimate of Activity Centre Land Requirements

Activity Centre Type	Activity Centre Requirements (ha)				
	First Estimate of Gross Land Area Requirements [1]	Provision for additional uses			Global Estimate of Gross Land Area Requirements*
		Allowance for Roads and Open Space Requirements	Provision for Regional and Sub-regional Community, Health and Education Facilities [2]	Commercial and Community Activities	
1: Major Activity Centre	25.2	18.4	9.2	9.2	61.9
2: Major Activity Centre	25.2	18.4	9.2	9.2	61.9
Large Neighbourhood Activity Centre(s)*	4.8	3.5	1.8	1.8	11.8
Total Large Neighbourhood Activity Centres	28.9	21.1	10.5	10.5	71.0
Small Neighbourhood Activity Centre(s)**	0.4	0.3	0.2	0.2	1.1
Total Small Neighbourhood Activity Centres	2.6	1.9	0.9	0.9	6.3
Other Centre(s)***	12.6	9.2	4.6	4.6	31.0
Total	94.4	68.9	34.4	34.4	232.1

[1] Gross Building Area assumes that Commercial and Community Activities are three storey
[2] Excludes roads, open space and special provision e.g. campuses, council offices and major recreation facilities
*Assumes all Large Neighbourhood Activity Centres are the same size
**Assumes all Small Neighbourhood Activity Centres are the same size
***Includes homemaker centres, bulky goods clusters and employment precincts
NB: Figures are rounded to the nearest 10 units.

economic analysis: residential precincts **option c (preferred)**

(including Devon Meadows)

C

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix C: Residential Precincts - Option C (Preferred)

Table C.1
Residential Precincts

Reference Area	Precinct Area (hectares)	Potential Developable Area[1] (hectares)	Gross Residential Area[2] (hectares)	Residential Development Allotments**[5] (15 dwellings / ha)	Estimated Households**[3]	Potential Estimated Resident Population**[4]
A*	25	24	n/a	n/a	n/a	n/a
B*	193	190	n/a	n/a	n/a	n/a
C	51	49	49	740	710	2,020
D.1*	51	51	n/a	n/a	n/a	n/a
D.2	208	204	190	2,850	2,740	7,810
E*	148	142	n/a	n/a	n/a	n/a
F	96	88	82	1,230	1,180	3,360
G	282	276	257	3,850	3,700	10,550
H	216	207	193	2,890	2,770	7,890
J	248	238	221	3,320	3,190	9,090
K	134	124	116	1,730	1,660	4,730
L	238	224	209	3,130	3,000	8,550
M	236	225	210	3,140	3,010	8,580
N	137	126	117	1,750	1,680	4,790
P	115	111	103	1,540	1,480	4,220
Q	249	241	224	3,360	3,230	9,210
R	261	249	232	3,480	3,340	9,520
S	267	259	241	3,620	3,480	9,920
T	254	246	229	3,440	3,300	9,410
U	221	216	201	3,010	2,890	8,240
V	246	240	223	1,780	1,710	4,870
Total Study Area	3,874	3,730	3,095	44,860	43,070	122,760

*Land North of power line easement is not included in the study
** Rounded to the nearest 10 units
[1] *Excludes Major Roads (assume roads are 35m including tree reserve)*
[2] Assumes 7 per cent of land is put aside for schools sites and recreation areas. Except in precinct C which is too small to accommodate any major facilities
[3] Assumes 4 per cent vacancy rate
[4] Approximate population at 2.85 people per occupied dwelling
[5] Note that for Precinct V it is assumed that there are 8 dwellings per hectare

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix C: Residential Precincts - Option C (Preferred)

Table C.2

Activity Centre Floorspace per Capita Provision Estimates 2010

Shopfront: Major Activity Group	Floorspace Provision per Capita (m^2)		
	Market Based	Allowing for 4 per cent vacant floorspace	After Escape Expenditure*
Supermarkets	*0.55*	*0.57*	***0.49***
Other Food	*0.31*	*0.32*	***0.26***
Total Food, Groceries and Liquor	0.86	0.90	**0.75**
Retail Non-Food (excl. BG)	0.66	0.69	**0.58**
Bulky Goods	0.44	0.46	**0.37**
Retail Services	0.19	0.20	**0.16**
Total	2.15	2.24	1.86

* Assume 15 to 20 per cent escape expenditure to surrounding areas

Commercial Floorspace Provision Rates

Source: Actvity Centre Floorspace Provision, City of Casey (2003)

Commercial: Major Activity Group	Floorspace Provision per Capita (m^2)	
	Existing Structure	Allowing for 4 per cent vacant floorspace
Entertainment	0.09	0.10
Office / Commercial	0.39	0.40
Community Services	0.38	0.40
Total	0.86	0.90

Note: Table shows existing structure of floorspace in Casey excluding PACs. Thus, escape expenditure is not applicable.

Appendix C: Residential Precincts - Option C (Preferred)

Table C.3

Floorspace Estimates

Activity Centre Type	Total Floorspace by Major Activity Group (m^2 GLA)				Number of supportable centres	Average Size per Centre (m^2 GLA)			
	Core Retail Goods	Bulky Goods[1]	Non - Retail[2]	Total		Core Retail Goods	Bulky Goods[1]	Non - Retail[2]	Total
Major Activity Centre	92,000	31,500	48,500	172,000	2	46,000	15,800	24,300	86,100
Large Neighbourhood Activity Centre	75,000	n.a	24,400	99,400	6	12,500	n.a	4,100	16,600
Small Neighbourhood Activity Centre	6,000	n.a	2,900	8,900	6	1,000	n.a	500	1,500
Other*	10,000	13,500	34,500	58,000	1	10,000	13,500	34,500	58,000
Total	183,000	45,000	110,400	338,300	n.a	n.a	n.a	n.a	n.a

*Includes homemaker centres, bulky goods clusters and employment precincts

[1] Note 70 per cent of Bulky Goods have been assigned to be co-located with MAC's with 30 per cent at other locations. Alternatively all bulky goods floorspace could be co-located with MACs.

[2] Non - Retail includes Entertainment, Office / Commercial and Community Services

NB: Figures are rounded to the nearest 100 units.

Appendix C: Residential Precincts - Option C (Preferred)

Table C.4

Projected Floorspace Allocation by Centre Type

Major Commodity Group	Option B: Residential Areas							
	1: Major Activity Centre	2: Major Activity Centre	Large Neighbourhood Activity Centre	Total Large Neighbourhood Activity Centres	Small Neighbourhood Activity Centre	Total Small Neighbourhood Activity Centres	Other Centre(s)*	Total Floorspace
Shopfront Activities								
Food, Groceries and Liquor	32,370	32,370	8,170	49,020	550	3,300	6,190	123,250
Household Goods	16,260	16,260	1,600	9,600	130	780	90	42,990
Bulky Goods	4,030	4,030	560	3,360	150	900	16,150	28,470
Retail Services	9,100	9,100	2,160	12,960	170	1,020	1,080	33,260
Total: Shopfront	61,760	61,760	12,490	74,940	1,000	6,000	23,510	227,970
Commercial and Community Activities:								
Entertainment	1,660	1,660	380	2,280	-	-	6,260	11,860
Office and Commercial1	9,470	9,470	1,260	7,560	310	1,860	20,960	49,320
Community Services	13,120	13,120	2,430	14,580	170	1,020	7,280	49,120
Total: Commercial and Community Activities	24,250	24,250	4,070	24,420	480	2,880	34,500	110,300
Total	86,010	86,010	16,560	99,360	1,480	8,880	58,010	338,270

NB: Figures are rounded to the nearest 10 units.

*Includes homemaker centres, bulky goods clusters and employment precincts

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix C: Residential Precincts - Option C (Preferred)

Table C.5

Minimal Estimate of Activity Centre and for Shopfront and Commercial and Community Activities

Activity Centre Type	Shopfront and Commercial and Community Area Requirements						
	Allocated Floorspace m^2 GLA		Gross Floor Area (GFA) m^2			Gross Building Area[1] (m^2)	First Estimate of Gross Land Area Requirements[2] (ha)
	Shopfront Activities	Commercial and Community Activities	Shopfront Activities	Commercial and Community Activities	Total		
1: Major Activity Centre	61,750	24,250	68,610	26,940	95,550	86,210	25.9
2: Major Activity Centre	61,750	24,250	68,610	26,940	95,550	86,210	25.9
Large Neighbourhood Activity Centre(s)*	12,500	4,070	13,890	4,520	18,410	17,110	5.1
Total Large Neighbourhood Activity Centres	75,000	24,420	83,340	27,120	110,460	102,660	30.8
Small Neighbourhood Activity Centre(s)**	1,000	480	1,110	530	1,640	1,430	0.4
Total Small Neighbourhood Activity Centres	6,000	2,880	6,660	3,180	9,840	8,580	2.6
Other Centre(s)***	23,500	34,500	26,110	38,330	64,440	43,210	13.0
Total	228,000	110,300	253,330	122,510	375,840	326,870	98.1

[1]Gross Building Area assumes that Commercial and Community Activities are three storey
[2]Excludes roads, open space and special provision e.g. campuses, council offices and major recreation facilities
*Assumes all Large Neighbourhood Activity Centres are the same size
**Assumes all Small Neighbourhood Activity Centres are the same size
***Includes homemaker centres, bulky goods clusters and employment precincts
NB: Figures are rounded to the nearest 10 units.

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (February 2011)
Reference 10-063

Appendix C: Residential Precincts - Option C (Preferred)

Table C.6

Global Estimate of Activity Centre Land Requirements

Activity Centre Type	Activity Centre Requirements (ha)				
	First Estimate of Gross Land Area Requirements [1]	Provision for additional uses			Global Estimate of Gross Land Area Requirements*
		Allowance for Roads and Open Space Requirements	Provision for Regional and Sub-regional Community, Health and Education Facilities [2]	Commercial and Community Activities	
1: Major Activity Centre	25.9	18.9	9.4	9.4	63.6
2: Major Activity Centre	25.9	18.9	9.4	9.4	63.6
Large Neighbourhood Activity Centre(s)*	5.1	3.7	1.9	1.9	12.6
Total Large Neighbourhood Activity Centres	30.8	22.5	11.2	11.2	75.8
Small Neighbourhood Activity Centre(s)**	0.4	0.3	0.2	0.2	1.1
Total Small Neighbourhood Activity Centres	2.6	1.9	0.9	0.9	6.3
Other Centre(s)***	13.0	9.5	4.7	4.7	31.9
Total	98.1	71.6	35.8	35.8	241.2

[1] Gross Building Area assumes that Commercial and Community Activities are three storey
[2] Excludes roads, open space and special provision e.g. campuses, council offices and major recreation facilities
*Assumes all Neighbourhood Activity Centres are the same size
**Assumes all Convenience Activity Centres are the same size
***Includes homemaker centres, bulky goods clusters and employment precincts
NB: Figures are rounded to the nearest 10 units.

employment estimates D

Melbourne's South-East Growth Area: Activity Centre Requirements

Surveys and Analysis by Renaissance Planning (November 2010)
Reference 10-063

Appendix D: Employment Estimates

Table D.1

Thompsons Road and Other*: Potential Employment Precinct

Precinct	Precinct Area (hectares)	Allowing for 40% Occupancy (m^2)	Gross Floor Area (m^2)	Gross Leasable Area (m^2)	Range of Jobs generated	
					Low (@ 0.7 jobs / 100m^2 GLA)	High (@ 1.2 jobs / 100m^2 GLA)
Thompsons Road Precinct	299	1,195,200	1,015,900	863,500	6,040	10,360

Appendix D: Employment Estimates

Table D.2

Number of Jobs Generated in Proposed Activity Centres - Option A

Precinct	Jobs Generated Per 100m^2 GLA	Number of Jobs Generated in Activity Centres - Option A: Residential Areas							
		1: Major Activity Centre	2: Major Activity Centre	Large Neighbourhood Activity Centre	Total Large Neighbourhood Activity Centres	Small Neighbourhood Activity Centre	Total Small Neighbourhood Activity Centres	Other Centres[1]	Total Floorspace
Shopfront Activities									
Food, Groceries and Liquor	4.5	1,490	1,490	370	2,240	20	150	-	5,370
Household Goods	3.5	580	580	60	340	5	30	-	1,530
Bulky Goods	2.5	100	100	10	90	4	20	410	720
Retail Services	3.5	330	330	80	460	10	40	-	1,160
Total: Shopfront		2,500	2,500	520	3,130	38	240	410	8,780
Commercial and Community Activities:									
Entertainment	1.5	30	30	10	40	-	-	100	200
Office and Commercial1	3.5	340	340	40	270	10	70	750	1,770
Community Services	1.5	200	200	40	220	3	20	110	750
Total: Commercial and Community Activities		570	570	90	530	13	90	960	2,720
Total		3,070	3,070	610	3,660	51	330	1,370	11,500

** Rounded to the nearest 10 units

[1] Includes homemaker centres, bulky goods clusters and employment precincts

[2] Note 70 per cent of Bulky Goods have been assigned to be co-located with MAC's with 30 per cent at other locations. Alternatively all bulky goods floorspace could be co-located with

Appendix D: Employment Estimates

Table D.3

Number of Jobs Generated in Proposed Activity Centres - Option B

Precinct	Jobs Generated Per 100m² GLA	Number of Jobs Generated - Option B: Residential Areas							
		1: Major Activity Centre	2: Major Activity Centre	Large Neighbourhood Activity Centre	Total Large Neighbourhood Activity Centres	Small Neighbourhood Activity Centre	Total Small Neighbourhood Activity Centres	Other Centres[1]	Total Floorspace
Shopfront Activities									
Food, Groceries and Liquor	4.5	1,420	1,420	340	2,060	20	150	-	5,050
Household Goods	3.5	550	550	50	320	5	30	-	1,450
Bulky Goods	2.5	100	100	10	80	4	20	400	700
Retail Services	3.5	310	310	70	420	10	40	-	1,080
Total: Shopfront		2,380	2,380	470	2,880	40	240	400	8,280
Commercial and Community Activities:									
Entertainment	1.5	20	20	10	30	-	-	90	160
Office and Commercial1	3.5	320	320	40	250	10	70	710	1,670
Community Services	1.5	190	190	40	210	2	10	110	710
Total: Commercial and Community Activities		530	530	90	490	12	80	910	2,540
Total		2,910	2,910	560	3,370	50	320	1,310	10,820

** Rounded to the nearest 10 units

[1] Includes homemaker centres, bulky goods clusters and employment precincts

[2] Note 70 per cent of Bulky Goods have been assigned to be co-located with MAC's with 30 per cent at other locations. Alternatively all bulky goods floorspace could be co-located with

Appendix D: Employment Estimates

Table D.4

Number of Jobs Generated in Proposed Activity Centres - Option C

Precinct	Jobs Generated Per 100m² GLA	Number of Jobs Generated - Option B: Residential Areas							
		1: Major Activity Centre	2: Major Activity Centre	Large Neighbourhood Activity Centre	Total Large Neighbourhood Activity Centres	Small Neighbourhood Activity Centre	Total Small Neighbourhood Activity Centres	Other Centres[1]	Total Floorspace
Shopfront Activities									
Food, Groceries and Liquor	4.5	1,460	1,460	370	2,210	20	150	-	5,280
Household Goods	3.5	570	570	60	340	5	30	-	1,510
Bulky Goods	2.5	100	100	10	80	4	20	400	700
Retail Services	3.5	320	320	80	450	10	40	-	1,130
Total: Shopfront		2,450	2,450	520	3,080	40	240	400	8,620
Commercial and Community Activities:									
Entertainment	1.5	20	20	10	30	-	-	90	160
Office and Commercial1	3.5	330	330	40	260	10	70	730	1,720
Community Services	1.5	200	200	40	220	3	20	110	750
Total: Commercial and Community Activities		550	550	90	510	10	90	930	2,630
Total		3,000	3,000	610	3,590	50	330	1,330	11,250

** Rounded to the nearest 10 units

[1] Includes homemaker centres, bulky goods clusters and employment precincts

[2] Note 70 per cent of Bulky Goods have been assigned to be co-located with MAC's with 30 per cent at other locations. Alternatively all bulky goods floorspace could be co-located with