City of **Stirling**
City of Choice

Local Housing **Strategy**

FOREWORD

The Local Housing Strategy sets out the City's vision and objectives for the provision of housing and the built form over the next five years and beyond. This document provides the details within a broader strategic framework established under the City's draft Local Planning Strategy. The draft Local Planning Strategy recognises that the City's close geographical proximity to the Perth CBD, together with its rich character and diversity of opportunities "provide a foundation for transforming the City into a vibrant, mixed use municipality that while maintaining a strong employment core can continue to provide an exciting range of residential choices". The draft Local Planning Strategy identifies some of the key housing related issues as being the simultaneous decrease of average household size, increase in average dwelling size, and rising dwelling densities. It recommends the City monitor these trends and give attention to sustainability in the planning of new residential development.

The Strategy is guided by the City's vision, of Stirling being a "City of Choice". As such, housing must provide for the diverse needs of households of varying size and composition, and appropriate forms of housing must be accessible to the entire cross section of our population.

The City is committed to furthering the goals of establishing a sustainable community. Housing and related activities comprise the greater portion of the built environment, and have a major bearing on infrastructure and other land uses. Hence, the Housing Strategy will play an important role in furthering the sustainability agenda.

As a result of far reaching changes occurring in our society, it is time for us once again to revisit the theme of housing and the built environment. This is to ensure that we continue to understand the main issues pertaining to this sector, and can respond by identifying the outcomes that will deliver a form that will continue to serve our community effectively into the future.

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PART 1
Summary

SUMMARY

A Local Housing Strategy provides the overall framework in which a local council assesses the existing allocation of housing types and densities. Existing density allocations and housing forms are reviewed in order to identify problems that may relate to the current provision of housing and issues pertaining to wider built environment are explored.

Stirling's population and household structure continues to change, with a growing proportion of elderly and a larger number of small households. The population is projected to continue ageing over the next decade and beyond. The reduction in household size may have largely tapered off, as there has been a sharp decline in the recent past, taking Stirling well below the Perth metropolitan average. However, the point of stabilization is very low, at around two people per dwelling. As much as two thirds of the City's resident population live alone or with one other person, and around a third of households are comprised of only a single person.

The changing demographic and household size does not appear to be reflected in the provision of new housing in the municipality. Average house sizes have been increasing over a long period of time, and this trend has accelerated in the recent past. As such there is a mismatch between household size and the built form.

Universal Design

With the exception of the public housing sector, providers are rarely supplying dwellings built to allow ageing in place; they are largely failing to apply Universal Design Principles. These requirements can only be imposed by the City in cases where an applicant is seeking to obtain a density bonus under the current R Codes, and this concession only applies to developments incorporating a minimum of five dwellings. Council could respond to this limitation by changing its policy environment to extend this bonus to smaller developments in suitable locations (accessible to commercial centres and public transport).

Housing Affordability

During the last census interval there has been a marked decrease in housing affordability for both tenants and first homebuyers. This is in large measure a reflection of the steep increase in land values and rents over this time. Compounding the problem is the decreasing provision of public housing. The presence of so many small and elderly households at a time of rising housing cost pressures and declining availability of smaller dwelling units, raises questions about the ability of some of these residents to continue living in Stirling. In turn, employers may find it difficult to attract or retain workers if they are priced out of the local housing market. Stirling aspires to be the "City of Choice" and should endeavour to provide the required diversity of housing options and foster a climate favourable to business investment and employment growth.

Opportunities for improvement

The growing shortage of both smaller and appropriately designed and priced dwellings is interpreted as an example of "market failure". It is argued the problem can be mitigated by careful selective intervention, through the introduction of new statutory provisions. These could include a mix of significant development bonuses and planning requirements to ensure adequate provision of appropriate dwellings in suitable locations (proximate to activity centres and high frequency transit routes). The development of a housing policy could be one means for furthering these objectives.

Supporting the development of mixed-use and higher density precincts is considered to be an important

contribution the City can make to advance the metropolitan strategic planning objectives espoused by Network City. Stirling is providing significant scope for urban consolidation in re-development areas including the Mirrabooka Regional Centre, Stirling City Centre, the Scarborough Environs Area Strategy (SEAS), and local centres such as the Inglewood Town Centre.

Opportunities for infill will also become available in the Glendalough Station Precinct, and the City's draft town planning scheme - proposed Local Planning Scheme Number 3 – would allow medium density R80 residential development in commercial and business zones that currently cap maximum permissible densities at R40. To date the market has expressed little interest in pursuing medium density residential development in Business and Town Centre zones (with the exception of Inglewood), but it is hoped the proposed up-coding will make these areas more attractive for mixed-use developments. In addition to these initiatives, the City has committed to undertaking Activity Corridor studies for Beaufort Street and Scarborough Beach Road commencing in 2009, and recognises the need to plan for a future Wanneroo Road Activity Corridor. The City will also explore the suitability of providing higher density housing in the Herdsman Business Park as part of a comprehensive review of the Osborne Park Industrial Area. These initiatives will help identify further opportunities for medium or higher density and mixed-use developments in appropriate locations.

The City's Local Area Planning process is actively engaging with the community to identify the scope for further planning improvements to each area and this endeavour is also helping to identify additional locations suitable for urban infill. Further opportunities to increase the provision of higher density development may include lots fronting Public Open Space reserves (recognising that the loss of private amenity can be more easily offset by proximity to public parks). Properties that are adjacent to Right of Ways could also be considered as suitable for medium density development. Design guidelines and appropriate development incentives (e.g. split codings) could be successfully applied to sites incorporating an amalgamation of contiguous lots in areas meeting appropriate locational criteria (such as proximity to parks or rights of way).

The City has a number of urban precincts with recognised heritage values. The Strategy recognizes the importance of preserving the character of the built form in these areas. Densification or infill development is not supported in these precincts, and the preferred approach is to reduce residential densities, in light of ongoing pressure for demolition and re-development. An alternative approach could be the application of split codings, whereby an applicant agreeing to retain a heritage dwelling would be assessed under a higher density coding.

Medium and higher density development has proceeded apace in various parts of the City. The Local Housing Strategy welcomes the provision of a greater diversity of housing and opportunities for medium density infill development. However, it is recognised that development outcomes for infill development in both Stirling and across the wider Perth region has been variable, with some proposals failing to adequately address design features such as building façades, arrangements for car parking provision, and landscaping. A review of the City's planning policies may be required, in order to more consistently achieve outcomes characterized by aesthetically pleasing forms of infill development.

While house sizes have tended to increase, lot sizes have either been stable or falling. This implies increased site coverage of buildings, and a concomitant decrease in open space. The absence of street trees in some of our suburban streets, reinforces the lack of greenery, and increases the so called "Urban Heat Island Effect", whereby ambient air temperatures can be several degrees higher than in areas with greater tree cover. One adverse consequence of this phenomenon is the increased use of air conditioners, which are largely powered

by fossil fuel derived energy sources. An effective means to address this growing problem is to increase provision of street trees.

Until recently, growing environmental consciousness has not been coupled with significant changes to the design of residential dwellings. The ecological footprint of our housing has tended in many respects to increase. Minor improvements to dwelling design and construction have been offset by increases in house sizes. As such, we are experiencing surging demands for electricity, and continued high per capita consumption of water. WA has the world's highest per capita Greenhouse Gas Emissions, partly attributed to the design of our housing, which has largely failed to take account of our climatic conditions. Improvements to the design of new houses are beginning to occur and the "bar" has again be raised with recent changes to the Building Codes of Australia. The new Five Star Plus ratings have seen the introduction of features such as efficient hot water heaters and requirement for plumbing to an alternative water source (such as rainwater tanks) in the standard home.

Further opportunities to build on these reforms does however need to be identified at a local level, and these could be applied via a housing and/or sustainable dwellings policy. A performance based, self-assessment system, such as the BASIX package implemented in NSW, and the online sustainability approval model being used in WA by the Armadale Redevelopment Authority, offers much scope to further improve sustainability outcomes and encourage design innovation without "pushing out" approval times for new applications. A co-operative agreement with the building industry could see the establishment of a scheme to ensure enhanced recovery and re-use of building materials. This would help reduce harmful carbon emission levels further, as dwellings embody much energy in the manufacture of their components.

The built environment also tends to create a high level of car dependency, which further increases per capita consumption of climate changing fossil fuels, and leaves large sections of the community and business exposed to the vagaries of a capricious and volatile global energy market. Poor road connectivity, absence of commercial and community facilities within walking distance of homes, and inadequate cross-suburban public transport services set the built environment context in which much of our housing is being provided. Single-use "big box" shopping centres sited in a "sea" of asphalt, serve the surrounding residential hinterland. Selective actions applied under the City's transport, industrial and commercial strategies, provisions proposed under draft Local Planning Scheme 3, and continuing work on Activity Corridor Reviews and Local Area Planning, will help to gradually address these concerns by identifying additional opportunities for higher density and mixed use developments in precincts and corridors well connected to high frequency transit services. In addition to these key land use planning initiatives, the City is also progressing work on its Climate Change Action Plan and has established a Peak Oil Working Group to introduce measures to further mitigation objectives and build resilience in the face of uncertainty and change.

LOCAL HOUSING STRATEGY OUTCOME TABLE

Focus Area 1: Housing Provision and Needs
- There is a significant increase in the provision of single and two bedroom dwellings.
- A greater proportion of appropriately located dwellings incorporate Universal Design Principles.

Focus Area 2: Community Housing Provision and Housing Affordability
- Housing affordable to tenants and owner-occupiers is developed in the municipality.
- A constructive partnership is fostered between the City and community housing providers.

Focus Area 3: Sustainability of the Built Form
- Sustainable design features are incorporated in new and existing housing.
- Building materials are recycled for use in new buildings.
- Existing residential areas are retrofitted to reduce auto-dependency.
- Development and building designs to conserve water and energy

Focus Area 4: Employment and Transport
- The availability of locally based employment matching the skills of the resident workforce increases
- Integration of housing and employment is achieved in the City's mixed-use developments.
- A modal shift towards walking, cycling and public transport occurs amongst the City's resident workforce by improving the accessibility of employment areas.

Focus Area 5: Adaptation to Climate Change and Energy Supply Vulnerability
- Housing and the built environment are adapted for projected changes to climate.
- A robust urban form and economic structure develops which helps protect residents and businesses from the effects of major energy and water price increases and supply disruptions

Focus Area 6 - Design Qualities of Infill Housing
- Medium and high-density areas assume an aesthetically pleasing form.
- High quality parks and public spaces offset the reduction of private open space.
- The character of heritage precincts and individual heritage buildings are preserved.

Focus Area 7: Directions 2031 Implementation
- Higher density residential dwellings are integrated with shopping centres and commercial precincts.
- Population densities increase within the pedsheds of Activity Centres and Corridors.
- Commercial centres offer a greater range of services and employment and are integrated with open spaces and streets.

PART 2
Background Report

INTRODUCTION

Overview

A Local Housing Strategy provides the means for a local authority to assess the current mix of housing forms and densities prevailing within its boundaries. This exercise is undertaken with a view to identifying possible shortfalls in the provision of housing and the built environment in relation to current or predicted future needs of residents.

In 1992 the then Department for Planning and Urban Development (DPUD) prepared a guideline entitled The Preparation, Form and Content of Local Housing Strategies to assist local authorities with the preparation of a housing strategy. As stated by the DPUD guide, the purpose of a Local Housing Strategy is to provide a rationale for local authorities to determine future housing needs, thereby informing the process of shaping policies addressing housing types and densities. Clause 88 of the Planning and Development Act (2005) requires five yearly reviews of a local planning scheme (although exemptions can apply where no changes to a scheme are proposed). A Local Housing Strategy should be prepared as part of this review process.

The City has proceeded to develop a proposed new scheme (Local Planning Scheme Number 3), which was advertised in 2008 and is expected to be gazetted in 2010. No major changes are proposed to residential zonings, as this question is to be informed by a comprehensive Local Area Planning process that commenced last year. Determining the suitability of density provisions in each area is to be achieved through this community engagement exercise. One change proposed in draft Local Planning Scheme 3 is to raise the permissible residential densities in commercial zones to R80, with a requirement for commercial uses on the ground level of new developments. This new provision has been proposed in order to stimulate appropriate forms of mixed use development over the coming years.

This Local Housing Strategy establishes the basic principles according to which density allocations should be determined in collaboration with the community. As such, it identifies the main issues pertaining to the municipality and proposes outcomes that address areas of concern. In conjunction with the Local Area Planning process, this should help achieve a positive shared vision of the future underpinned by comprehensive planning, research and community dialogue. The issues pertaining to this Strategy and the proposed outcomes identified herein will be reviewed in another five years time as part of the development of a future Local Housing Strategy.

Background

On 13 September 1985, the City of Stirling District Planning Scheme Number 2 was gazetted. This replaced the District Planning Scheme Number 1, gazetted on 17 October 1974.

In 1989 Council resolved to embark on a scheme review, prompted by calls from residents for reductions in density allocations. The City also introduced residential development policies to address concerns surrounding the negative amenity impact, in particular the poor external appearance and loss of landscaping commonly associated with urban infill. However in May 1990, Council decided that instead of pursuing a comprehensive scheme review to assist in the process of developing a new scheme, it would instead, review the scheme through a series of studies that could result in scheme amendments where required. Due to the interest in density, as reflected by public submissions received by Council, the decision was taken to develop a residential density strategy.

A consulting firm, Hames Sharley Australia, was commissioned to prepare a study of residential densities, and in September 1991 presented its report to Council, recommending the current density allocations be retained, and that pockets of higher density be identified in future development areas on currently vacant sites, and areas of high accessible land in various parts of the municipality. Council elected not to endorse these recommendations, choosing instead to adopt an approach that was more locally focussed and attuned to the needs of a changing community, rather than a "broad brush" approach to density allocations. To further this objective, the City was divided into 17 Planning Management Areas (PMA's) prepared to facilitate community consultation. However, prior to this detailed assessment, Council adopted a Local Housing Strategy, which considered demographic trends and projected housing needs. The Strategy was adopted in 1993.

The Local Housing Strategy made a number of recommendations in respect to heritage protection, traffic, housing affordability, density allocation, and accessibility. Infill was encouraged in areas that were within walking distance of public transport, convenience shopping and public open space. The Strategy also recommended the PMA process evaluate opportunities for consolidation in areas of high convenience including regional employment nodes, major shopping centres, regional civic and recreational centres and railway stations. The Strategy also noted the importance of addressing the concerns of the community in order to elicit a spirit of co-operation as opposed to confrontation when considering infill. To this end it proposed extensive consultation as part of the density review process, with the three key questions being: where, how and what kind of housing to provide. This entailed determining the locations for infill, establishing acceptable designs/ appearance for the new developments and deciding what mix of densities should be provided.

The PMA process found there was an overall level of satisfaction with current densities, while also identifying certain 'hotspots' that had potential for higher densities based on community preferences and absence of infrastructure and other constraints. The City's current range of densities was established by the PMA exercise, having been adopted by subsequent amendments to the District Planning Scheme. In some areas there was a reduction in density (e.g. parts of Mt Lawley) as a result of resident concerns, while a number of suburbs were rezoned from low to medium density codings. The majority of housing in these areas was owned by the then State Commission Housing, which was eager to redevelop their landholdings, this being facilitated by a higher coding.

On 25th October 2005 Council resolved the following in relation to future directions on density and housing:

- "That Council CONFIRM its view that the City's range of densities and rate and range of development
- respond adequately to strategic imperatives, community need, community preference and state policies;

some refinement may be appropriate in certain circumstances, but that a general presumption against substantial review or change remain.

- That a revised Local Housing Strategy be PREPARED reflecting this position and giving greater direction on instances where changes to density might be appropriate in accordance with the criteria detailed in this report (particularly focused in close proximity to major activity / transport nodes, though taking into account issues such as 'walkability' and heritage impact).

- That further consideration to changes to residential densities which might be appropriate OCCUR as part of the proposed Local Area Planning process, guided by the Local Housing Strategy (once complete) and community input."

City of Stirling Planning Principles

A set of guiding principles have been established to guide the development and implementation of this strategy, these principles are:

Sustainability
Sustainability requires balancing the current and future needs of the community, the environment and the economy to provide quality of life for today and tomorrow's communities.

Community Capacity
Individuals, groups and organisations will be empowered to become active citizens through the provision of information about plans and decisions that affect them, opportunities to be involved in the planning and decision making process, and support of community initiatives.

Equality & Equity
All members of the community have an equal right to enjoy a quality lifestyle and specific locations, user groups or segments of the community will not be disadvantaged. Intergenerational equity also requires that the rights and needs of future generations will also be provided for.

Financial Responsibility & Resource Efficiency
The City must be responsible and accountable in how it uses and manages public funds, assets and resources. This strategy will guide investment, spending, maintenance, and natural resource use in an efficient, equitable and sustainable manner.

Choice and Diversity
This strategy will encourage and provide for choice and diversity in lifestyle, cultures, housing, transport and environments.

Proactive Leadership
The City and the stakeholders in planning in the City play a proactive and innovative role in facilitating change driven by a clear vision for the future

Strategy Vision

The City Of Stirling will accommodate its population in socially inclusive and environmentally sustainable communities characterised by housing that is recognised as being attractive, sustainable, and appropriate to the needs of its residents. An increasing share of new housing provision will be integrated with public transport and commercial and community facilities, and the built environment in all areas will become increasingly pedestrian friendly.

Strategy Objectives

Objective 1
To expand the supply of housing matching the underlying needs of the resident population.

Objective 2
To facilitate the provision of buildings incorporating an ecologically sustainable design.

Objective 3
To progress a positive change in the built environment to a form more conducive to pedestrians, cyclists and public transport users.

Objective 4
To prepare the City and the community for the projected changes in climate and energy supply Vulnerability.

Objective 5
To protect the heritage and character of the City's Heritage Protection Areas.

Objective 6
To achieve aesthetically pleasing forms of development in medium and higher density areas.

Objective 7
To increase population densities within the pedestrian catchments of Activity Centres and Corridors.

PLANNING CONTEXT
Study Area

The study area consists of all the land within the municipal boundaries of the City of Stirling. The City comprises of thirty-one suburbs covering approximately 100 square kilometres, situated between the Indian Ocean and the North East Metropolitan authorities of Bayswater and Swan. According to the census data of 2006, the total population of Stirling was 176 868. The City currently has a population of around 183 000. Until 1988, the suburb of Maylands (population 8 931) belonged to the City, but in July 1998 it was transferred to the City of Bayswater after the reorganisation of local government boundaries.

The administrative centre of the City is situated approximately 9km north of the Perth CBD, and is strategically located near the Mitchell Freeway and Karrinyup Road, forming part of the designated Stirling Strategic Regional Centre (Metroplan, 1990), which also incorporates the Innaloo Shopping Centre and Osborne Park Hospital. Other important transport links in the municipality include Wanneroo Road and Alexander Drive (north-south), Beaufort Street (southwest-northeast), Scarborough Beach Road and Reid Highway (east-west), as well as the railway line running between Mandurah and Clarkson on the freeway median reserve.

The City has two main industrial areas situated at Osborne Park and Balcatta. These areas provide a range of manufacturing, wholesale and service industry functions and offer bulky goods retailing along many of their key arterial roads. The Herdsman Business Park has developed into the main administrative node of the North West Corridor.

The City also offers major golf courses and has a key tourist precinct at Scarborough Beach. A number of shopping centres serve the predominantly residential suburbs of Stirling. The City is provided with a full hierarchy of shopping centres, from local neighbourhood centres up to the regional shopping centres of Karrinyup and Innaloo.

The City's suburbs were developed over a long period of time, and consequently manifest varied characteristics. These changes can be observed in the built form (architectural style of housing) with pre-war houses in Mt Lawley and Inglewood, post-war housing in much of the balance of the municipality and examples of more recent housing in the northern suburbs of Carine and Mirrabooka. The newest subdivisions at Princeton and Roselea exhibit contemporary forms of housing. The road layout also changes from the pre-war and early post war grid pattern to the advent of the cul-de-sac and curvilinear street layout in newer areas. The City's older suburbs tend to have lower population densities/housing occupancy rates, particularly in areas that have experienced infill redevelopment such as Glendalough, while the newer suburbs exhibit larger household size and are populated by a greater proportion of families.
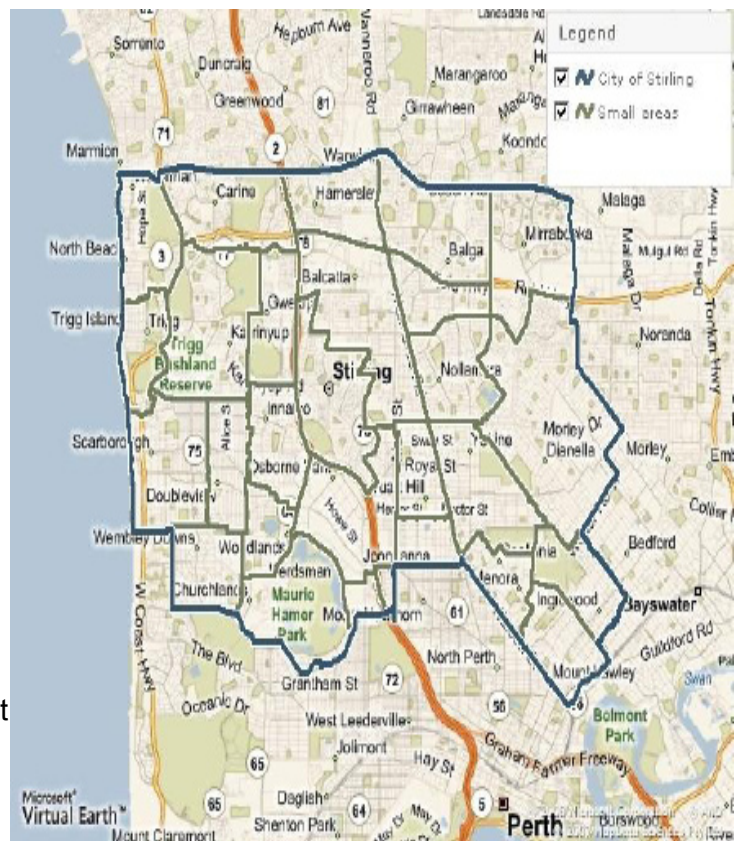
Regional Context

Stirling is a middle ring municipality surrounded by several local authorities sited in the urban periphery, including Wanneroo, Joondalup and Swan, as well as a number of inner-ring Councils including Cambridge, Vincent and Bayswater.

The City of Swan is sited in the Swan Valley to the west of the Darling escarpment. The area has experienced ongoing population growth, and is home to the Midland Redevelopment Authority. Planning measures protect the heritage qualities of the Swan Valley, and the Council is also keen to protect natural environmental values.

Joondalup is an outer metropolitan authority best known for its innovative transit oriented centre. Joondalup continues to promote housing choice, and is recognized for providing a range of dwellings including detached and terraced housing with rear access and parking, multi-story apartments and mixed used dwellings with active ground level uses and housing on upper floors.

The City of Wanneroo is situated to the north and east of Joondalup. Wanneroo has long been known as the fastest growing local authority in Western Australia, and its Council is now beginning to apply "Smart Growth" initiatives to create a more sustainable urban form, leading to energy efficient outcomes through measures such as lot orientation, road permeability and conservation of natural areas. Wanneroo also seeks to providing housing choice, revitalize older suburbs, integrate development with public transport and create communities with an identity linked to the natural and built environment.

Bayswater is an inner/middle-ring area sited to the south east of Stirling. The Council supports the goals of urban consolidation and streetscape enhancement. Bayswater is also committed to protecting heritage and natural environmental values.

The Town of Vincent is sited to the south and west of Stirling. It is a fully developed area, formerly part of the City of Perth. Vincent values sustainability and heritage, and wants to foster a vibrant, multicultural community with a sense of place.

State Planning Context

Regional Residential Density Guidelines for the Perth Metropolitan Region

In 1994 DPUD published a guideline for residential densities referred to as the Regional Residential Density Guidelines for the Perth Metropolitan Region. The guideline encouraged provision of a greater range and density of housing in anticipation of projected demographic trends, with higher density housing being sited close to areas served by public transport, shopping, recreation and workplaces. The need for local authorities to consult with the Water Authority to make better use of infrastructure without exceeding available capacity was also noted. The document defined "Strategic Residential Localities" (including "Strategic Regional Centres", railway stations, universities, major hospitals and bus interchanges) as being suitable for a variety of housing types and densities. The following principle was established with regard to allocation of housing density: low density is suitable in areas with heritage/streetscape values; medium density should be provided near arterial roads in areas situated close to schools, Local or District Centres; high density needs to be sited where it would not impact on the amenity of adjoining low density residential uses, and be close to arterial roads provided with bus services.

DC Policy 1.6 and SPP 3

The Western Australian Planning Commission's (WAPC) Development Control Policy 1.6 Planning to Support Transit Use and Transit Oriented Development cites the principle of encouraging higher density residential and mixed uses within the walkable catchments of public transport nodes. The policy also quotes the WAPC's Statement of Planning Policy Number 3 Urban Growth and Settlement (SPP 3) as identifying the following principles:

*   Support higher density residential development around neighbourhood centres and public transport nodes/interchanges;
*   Cluster retail, recreational and other uses in activity centres around transit nodes;
*   Locate new development of employment, retail, health, education and leisure activities to be accessible to users of all alternative transport modes.

SPP3 also draws attention to the importance of revitalising neighbourhoods in existing urban areas. The issues outlined are the need to provide for a greater range of housing, widening transport choices, providing greater opportunities for social interaction and conserving water. The importance of supplying affordable medium and high-density housing in inner and middle suburbs is also noted. The Policy establishes the objective of responding to social and economic needs while recognising community, heritage and environmental values and constraints; promoting development that reduces demand for energy, travel and water while providing access to local employment, all travel modes, and affordable housing in a form that enhances a community's sense of place.

Development Control Policy 1.6 states that mixed use developments around public transport nodes achieve the following objectives: a single trip to one location can serve multiple purposes (reducing the necessity of undertaking several different trips), travel demand is generated in both directions, and trips are spread beyond peak periods, thereby improving the efficiency of transit services. The Commission supports the use of the "ped shed" concept, (which encompasses areas within walkable distance of transit). According to the Policy, Transit Oriented Developments (TOD's) should manifest the following attributes: a grid pattern to improve walkability; diversity of lot sizes to facilitate future redevelopment to higher intensities; enhancement of cycling infrastructure. The WAPC expects densities of at least R25 in transit precincts, and substantially higher in places situated near train stations, bus interchanges or along bus routes with service frequencies

equivalent to rail. The Commission will work with local authorities to achieve these density increases in practice through application of development incentives.

Trip generating uses such as space-intensive employment (e.g. leisure facilities, shops, schools and tertiary education services (though extensive playing fields should not dominate transit oriented developments), aged housing, community services, civic buildings, hospitals and social services should be sited in these developments. Land extensive and low employment generating activities such as general industry and bulky goods retailing should not be sited in transit precincts unless they can demonstrate a role in supporting public transport. A robust approach to planning is encouraged to facilitate a more intensive re-use of sites, for example multi level car parks in place of large open air parking, and more intensive uses such as higher density residential developments and mixed uses. There should be a high level of amenity along pedestrian routes including awnings over footpaths, street trees, lighting and continuous footpaths in order to promote walking and use of public transport. Active uses should be located on ground levels to provide interest, activity and surveillance.

The policy encourages redevelopment of existing areas sited around transit nodes through the preparation of precinct plans. In Stirling, opportunities may present themselves around the Glendalough and Stirling Station. Such plans should take into account community values. Local authorities are encouraged to liaise with the Public Transport Authority to determine existing and proposed transit routes and services. Local planning strategies should identify opportunities for integrating transit and land use, replace surface parking with uses more supportive of public transport, plan for appropriate statutory Scheme provisions to facilitate these outcomes (such as floor space bonuses and parking concessions) and provide design guidelines for transit precincts. A Local Planning Strategy should also identify future population and housing demand ten years into the future. The type of housing for which there will be a demand should be assessed and opportunities for infill and higher density identified, particularly near activity centres.

Liveable neighbourhoods

Many of these same principles are incorporated in the Liveable Neighbourhoods Design Guidelines that have been prepared specifically for Greenfield developments and larger scale Brownfield redevelopments. The emphasis is on legibility and permeability, taking advantage of accessible locations to create the preconditions for thriving commercial centres and efficient transit provision. Creation of a street network that optimizes walkable access to centres, schools and public transport is an important objective noted by the guideline. As well, designing buildings to promote walking is discussed. In Stirling, there may be opportunities to apply some of these principles in areas of potential development such as the Glendalough Station Precinct, Dianella Industrial Area or the proposed Roselea East Structure Plan Area. Moreover, the ongoing planning of commercial centres provides the opportunity to deliver outcomes in alignment with these objectives, including provision of higher density residential accommodation and enhancements to the pedestrian environment, rationalization of surface car parking and enhancements to the aesthetic properties of the built form.

Directions 2031

Directions 2031: Draft Spatial Framework for Perth and Peel was released in June 2009 to set the direction towards shaping the future of Perth and Peel. Although the role of the new Strategy is yet to be defined, it is assumed that it builds on the previous *Network City: Community Planning Strategy for Perth and Peel* and represents the highest level of strategic land use planning for the region. Both Strategies envisage a network of "Activity Centres" interconnected by Transit links. Network City had previously labelled these links as "Activity Corridors" and Directions 2031 has removed this concept. "Activity Centres" are also supported

by "Transport Corridors", providing freight services and catering to high-speed, cross-regional vehicle traffic. The "Activity Centres" are mixed-use precincts providing employment, retail, commercial, and civic uses, and housing residents in higher density forms of development.

This description represents a vision statement rather than a description of the current metropolitan structure, which continues to be defined by a number of single use centres (such as shopping centres and industrial areas) surrounded by low-density residential suburbs. Many busy roads are either surrounded by low density residential developments, with supportive suburban uses such as fuel stations and car-oriented fast food outlets, or have been constructed as segregated infrastructure accommodating high speed- cross regional traffic (e.g. the freeways, Roe, Tonkin, and Reid Hwy, etc). The latter conform to the "transport corridor" notion. Mixed-use centres are also uncommon (the Main St commercial centre and the Inglewood Town Centre being one such node in Stirling).

Therefore, Directions 2031 requires a lot of implementation work before its goals can become a defining reality. In this context, local housing strategies can be instrumental in the process of turning the vision into a reality, in as much as these local government initiatives can help bring about the detailed changes required on the ground.

Housing Strategy of Western Australia

The draft Housing Strategy of Western Australia defines the goals of providing a housing future characterised by affordability, sustainability, diversity and accessibility. Although the Strategy pays tribute to the quality of the existing housing stock, it recognises the importance of improving the sustainability of the built form in order to reduce per capita water, energy and materials consumption, and improve accessibility to services and employment. On a similar note, while the Strategy acknowledges the high rate of home ownership, it is cognisant of the effect that rapid population growth and a diminished level of funding for state housing provision is having on housing affordability, including for rental properties. Equity is one of the main principles established by the Strategy, defined as ensuring adequate diversity of housing to enable people to continue residing in the communities of their choice despite changing housing needs. The Strategy endorses the provision of more variety in the housing stock in response to an ageing population and falling average household size, expressing concern at the looming demographic mismatch between the supply of increasingly large, free standing dwellings, and likely future demand for smaller and more appropriate dwelling units.

The draft Strategy recognises that falling net availability of public housing as a result of reduced Commonwealth funding is contributing to a housing affordability crisis, particularly for lower income tenants. The New Living urban renewal program is commended for increasing the social mix in Perth's suburbs while providing opportunities for renewal and improved social conditions in areas previously dominated by public housing provision. However, the Strategy draws attention to the difficulty in providing new replacement accommodation in accessible areas (infill housing) due to local authority reluctance to support medium density zoning and a tendency to impose what it sees as being difficult development conditions. In light of the importance of reducing barriers to workforce participation, a designated objective of the Commonwealth Government, State Housing Authorities should ensure adequate provision of new public housing stock in areas accessible to employment and public transport.

The collective purpose of all these policies and strategies at the State Government level can be summed up as comprising a few core principles. These include the following elements. Transport (and transit) should be integrated with land uses (in particular trip-generating uses such as medium/high density residential,

commercial and community services). Urban sprawl needs to be reined in, and urban consolidation should be encouraged in the most appropriate areas. These sites will correspond to the "Activity Corridors" and "Activity Centres" discussed in Network City, as they are to be supported by high frequency transit, an appropriate mix of land uses and a pedestrian friendly environment. Housing choices need to be widened, as the average household size is decreasing and the population is ageing, while the built form is increasingly characterised by large dwellings. Affordability is an increasing concern and needs to be addressed. The State's housing and built environment should assume a more sustainable form, as there is an urgent need to reduce per capita consumption of water and energy as a response to environmental concerns.

City of Stirling Planning Context

All development and land use in the City of Stirling is controlled by District Planning Scheme Number 2. These statutory provisions are in turn, in alignment with the broader requirements of the Metropolitan Region Scheme. The Scheme provisions are informed by the City's draft Local Planning Strategy, and development assessment decisions are further guided by reference to planning policies adopted by Council.

The draft Local Planning Strategy is the City's over-arching strategic document. Its strategic direction is based on the City's corporate Strategic Plan, whose vision is for Stirling to be a "city of choice". Specific areas such as housing, transport and commercial centres are addressed by individual strategies based on the draft Local Planning Strategy.

Specifically in relation to housing, the draft Local Planning Strategy identifies the following issues: socio-economic spatial segregation; high and rising land prices; concurrent reduction in household sizes, increasing house sizes and increasing dwelling density. The Strategy notes that even with increasing densities there may in future be a shortage of affordable housing in Stirling. The effect of increasing house sizes has resulted in an increase in the built footprint. This could have implications for the patterns of leisure and use of public open space.

Actions identified to address these issues include: further investigation via a Community Needs Survey; density changes only to be made in response to land owner applications; response to inequities made via the Community Needs Analysis and Community Development programmes; investigate options for increasing the emphasis on sustainability in development policies, and support development of strategies and policies for implementing sustainability objectives at the state level.

The City is actively undertaking a Local Area Planning Community Consultation exercise. The Council has already adopted a number of Local Area Plans.

The process is based on the philosophy of deliberative democracy, and was successfully applied on a metropolitan scale in 2004 as part of the Dialogue with the City community engagement exercise. Community engagement of this type involves sharing information with residents, collecting their views, and undertaking workshops to establish a shared vision underpinned by sound data to inform the plan making process.

Land Use and Demographic Profile
History of Population Growth / Development

The City of Stirling's population increased rapidly in the post-war era before entering onto a more gentle growth trajectory in the 1970s, as the availability of large parcels of easily developable land grew more scarce and the urban development front crept further north. Over this time interval, the population has grown

from a base of 30 989 in 1947, to 167 578 in 2001. Since the early 1970's, growth has been modest, having been facilitated by increased housing stock made available from continuing infill development in established suburbs and newer residential subdivisions such as Carine and Hamersley (1970's), Mirrabooka (1980's), and the smaller developments of Roselea and Princeton at the beginning of the new century.

Land Availability

The City's internal research suggests that a sufficient number of lots have yet to be developed and/or re-subdivided to their full potential in existing built up areas to accommodate an additional 46 000 dwellings in the municipality without any further increase in density codings. The City's population is projected to increase from around 185 687 in 2006 to 232 446 in 2031, an increase of 46 759 (City of Stirling population statistics, 2008). Given the average dwelling occupancy rate of 2.09, it would appear that there is not going to be any housing and land shortage in the municipality in the foreseeable future, as the additional population could be accommodated in approximately 22 372 new dwellings.

This forecast is of course underpinned by the assumption that all property owners will be interested in subdividing and developing their properties to their maximum potential. This would ensure that a sufficient provision of land and housing occurs. In reality it is always going to be difficult to gauge how many property owners will seek to maximize the development potential of their respective properties, as determined by the current density coding. Some landowners will place a higher value on retaining their current lifestyle than on seeking a maximum return on investment. Nevertheless, should even a half of landowners with development potential exercise their development rights, there would still be an adequate number of new houses constructed over this twenty-five year time interval to satisfy projected housing demand. Moreover, the City is planning to facilitate the provision of additional housing stock in major brownfield re-developments such as Stirling City Centre and the Glendalough Station Precinct, as well as the re-development that will occur as part of the SEAS project in Scarborough and the Mirrabooka Regional Centre. The former has been estimated to contribute an additional 3200 dwelling units to the City's housing stock, translating into an estimate 4500-5000 residents, while the former may generate another 1500 dwellings units or so. Stirling City Centre and the Glendalough Station Precinct could collectively provide housing opportunities for tens of thousands of residents by 2031.

The other assumption behind this assessment is that the population projection represents a reliable guide to future demographic expansion. It needs to be remembered that every projection is an estimation based on a number of different assumptions. Hence a projection, or forecast, is just that, and cannot possibly take into account the full range of factors that could significantly alter the actual population growth rate that will occur. For example, should the City resolve to endorse even higher population targets to help accommodate a greater proportion of new metropolitan population growth within existing urban areas, the actual growth rate would probably exceed the current projections. By the same token, if support for major re-development projects was withdrawn or some areas were downcoded the figure might be lower.

Finally, it should also be noted that the average household occupancy rates could fall over this time period (increasing the requirement for new houses). In the metropolitan region, there was a decline from 3.12 persons per household in 1971 to 2.54 in 1996 (Future Perth). This is projected to continue, with WA's average household size declining from 2.6 in 1996 to 2.2-2.3 by 2021 (WA Housing Strategy 2002). Stirling's average household size is only 2.09 per dwelling, significantly below the state and metropolitan average. However, this does not rule out further modest decreases from taking place in the future. In addition to availability, other pertinent questions relate to future housing provision such as appropriateness, affordability,

sustainability and aesthetic qualities.

Age of Housing Stock

The City's building stock comprises a range of dwellings built in different eras. The pattern accords to the general outward movement of building activity. Hence, the recently developed suburbs are characterized by a new building stock whereas in the established areas, the median dwelling age is reflective of the presence of many older dwellings constructed during the initial development phase. The table below displays data on the median ages of the different forms of housing by suburb.

Table 1 - Age By Dwelling Type By Suburb

Suburb	Single Houses	Flats & Apartments	Strata & Grouped Dwellings
BALCATTA	1971	1970	1992
BALGA	1969	1980	1980
CARINE	1980	n.a.	1977
CHURCHLANDS	1986	1977	1986
COOLBINIA	1961	1960	1961
DIANELLA	1973	1967	1988
DOUBLEVIEW	1960	1966	1998
GLENDALOUGH	1957	1970	1986
GWELUP	1997	n.a.	1995
HAMERSLEY	1975	1972	1977
INGLEWOOD	1952	1969	1981
INNALOO	1963	1965	2000
JOONDANNA	1960	1969	1988
KARRINYUP	1972	1975	1980
MENORA	1965	2004	1977
MIRRABOOKA	1988	1989	1991
MOUNT LAWLEY	1965	1971	1980
NOLLAMARA	1963	1962	2001
NORTH BEACH	1968	1970	1979
OSBORNE PARK	1969	1969	1981
SCARBOROUGH	1963	1968	1988
STIRLING	1986	1968	1980
TRIGG	1972	1969	1977
TUART HILL	1963	1969	1988
WATERMANS BAY	1985	1968	1978
WEMBLEY	1999	1976	1979
WEMBLEY DOWNS	1970	1966	1977
WESTMINSTER	1965	1969	1998
WOODLANDS	1966	1985	1985
YOKINE	1963	1968	1989

Department of Land Information, 2006

Areas with an old housing stock, ageing population and appropriate provision of services may be considered ripe for redevelopment, incorporating opportunities for aged/dependent persons accommodation, smaller dwellings and affordable housing.

Housing Tenure

Housing tenure varies significantly between areas of the City, there being a high level of home ownership in some suburbs, as opposed to much lower rates in others. In some places, public rental plays a significant role, while in may other areas private rental dominates. Figure 1, below shows the spread of tenures:
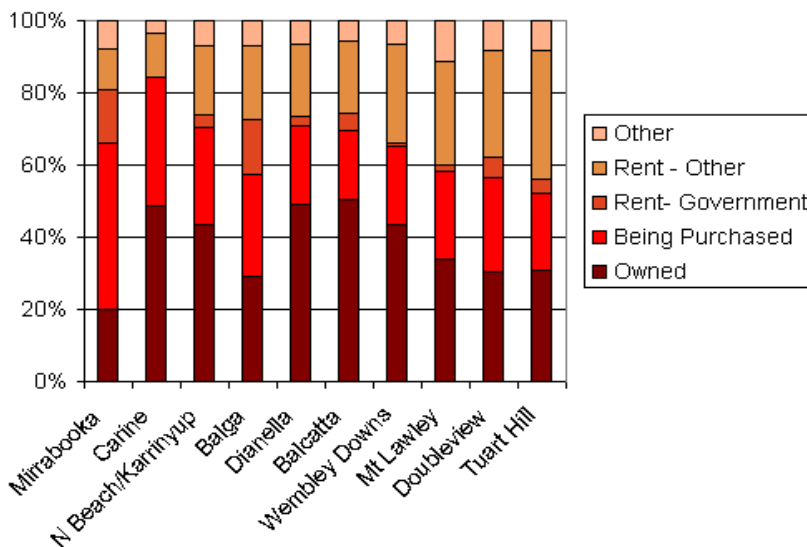

Figure 1 - Housing Tenures by Local Areas, 2001

Infrastructure Services

Until relatively recently, the main infrastructure constraint in Stirling and much of the metropolitan region was the lack of a reticulated sewerage network. However, virtually the entire municipality is now covered by reticulated sewerage, the main exception currently being parts of the Osborne Park Industrial Area. Discussions with the Water Corporation indicate there is spare capacity in the system, implying provision of infill housing will not be constrained by inadequate water and sewerage infrastructure. However, the Water Corporation should be informed prior to the City considering a change in residential density in any given area.

The City's lots are provided with the full complement of urban infrastructure services including reticulated water and sewerage, electricity, gas, telecommunications and a network of sealed roads. Ongoing improvements include the gradual extension of underground power and continuing enhancements to telecommunications provisions. The latter is particularly relevant, as current business locations housing "quaternary sector" or informational industries, are increasingly reliant on high speed Internet access. As with the provision of sewerage, the City is not the responsible agent and has limited scope to change service delivery. However, the City can be an advocate of change, working with service providers to represent the interests of its stakeholders.

The City has been provided with a substantial road network. This includes the Mitchell Freeway and several alternative regional roads. The freeway and other major road arteries experience heavy traffic flows and jams during peak periods, and this tendency could worsen in both Stirling and across the wider metropolitan area if population growth combines with car dependent development. Road arteries such as Scarborough Beach Rd and Hutton St are experiencing considerable strain as a consequence of poor design, high demand and under-utilisation of alternative travel modes. Improvements to these routes will be progressed by the City in collaboration with the Department for Planning and Infrastructure. Key objectives will be to improve

road safety for vehicles and pedestrians, increase road efficiency, and increase the scope for alternative travel modes. Modal shift, pedestrian amenity, dispersed traffic flows, and Intelligent Transport Systems are emerging as key elements of the new transport and land use planning paradigm.

Although the road network is generally adequate during off peak periods, there are some clear deficiencies with regard to walkability and provisions for cyclists, while high frequency transit routes rarely enjoy a dedicated lane along which to operate. A number of residential streets currently lack basic pedestrian amenities such as street trees and footpaths. Newer subdivisions were designed with cul-de-sac and curvilinear streets, resulting in longer point-to-point walking trips. Increasingly, the fear of crime has discouraged pedestrian usage of the "walkways" (Public Access Ways, or PAW's) provided between cul-de-sacs, as these are typically poorly surveyed and lit. Residents have at times lobbied their elected members to close these PAW's due to concerns their properties may be at increased vulnerability to crime.

Right of Ways are a legacy of the past, which pose a further dilemma for older suburbs across the Perth region, including a number of areas within Stirling. The City is currently working on a Rights of Way Management Strategy and a funding options issues paper to progress this matter. Currently, policy provisions allow for rear lots to be developed where these are served by an adjacent Right of Way of sufficient width, on condition developers upgrade the portion of lane between the subject property and the closest dedicated road. This has facilitated continuing redevelopment in areas with sufficiently high-density codings to permit infill.

The City is well provided for in terms of retail, recreational and community services, there being a full range and hierarchy of shopping centres (and some strip shopping), swimming pools and libraries. However, according to the City's draft Local Planning Strategy, some of the older and smaller local Centres are not faring as well as the larger and newer Neighbourhood Centres. Moreover, local shops and medical consulting rooms are absent from a number of more recent suburban areas, with the effect of increasing car-dependency in these areas. This is because it can be difficult for some residents to access "big box" shopping centres and distant medical centres by public transport due to difficulties associated with undertaking cross-suburban trips by this mode. Moreover, many of the large "box" shopping centres are essentially single use centres, dominated by retailing. This constrains their ability to create a diverse range of jobs and assist with the economic and cultural development of their host communities. They do not lend themselves particularly well to providing a foci for community interactions as they are not associated with public spaces, nor are they likely to generate much demand for public transport following the afternoon peak.

Appearance and Design Qualities of Existing Housing

As indicated by the figures in the preceding section, the City currently offers a variety of housing options. While the majority of existing housing comprises of single detached dwellings (with the proportion increasing) of various ages, sizes and architectural styles, the City also offers some medium and high-density

accommodation. The aesthetic properties and design characteristics within each class of development varies considerably. Some representative examples are shown below. They highlight the important role that attention to detail plays in the final outcome, and demonstrate that a density coding has no correlation to the quality of the ensuing built form, there being attractive dwellings and developments in low, medium and high density precincts. Given the desirability of accommodating a larger number of people within walkable catchment of activity nodes, a minimum R80 coding seems appropriate in this context.

Plate 1: Stirling, R20 – Large, two-storey residence with spacious front yard

Plate 2: Stirling, R20 – single storey residences at the end of a cul-de-sac

Plate 3: Stirling (St Anthony's Estate), R40 – close up of frontage

Plate 4 Stirling (St Anthony's Estate), R40 – single storey developments with parapet (common) walls.

Plate 5 Balcatta, R40 **–** Single storey villa development

Plate 6 Innaloo R40 – Two storey multiple dwellings

Plate 7 Inglewood, R40 – contemporary two storey multiple dwellings

Plate 8 : Glendalough R60 –– multiple dwellings in foreground; high rise in background (assessed under previous, high density coding)

Plate 9 Inglewood R60 – New, mixed-use developments with active ground level use

Plate 10 Inglewood R60 - Additional example of new mixed-use developments

FOCUS AREA 1 - HOUSING PROVISION AND NEEDS

Overview
Demographic Structure and Projections

The need to provide housing of an appropriate form is suggested by the City's population and household occupancy statistics. These show low and declining average household sizes, and project continued ageing of the population.

The main demographic trends in Stirling reflect broader changes to Australian society, including an ageing population and falling average household size. The median age in Stirling in 1996 was 34.8 years, 1.9 years more than the metropolitan median (Future Perth). In 2006, 14.2% of the population was aged 65 or over. This proportion will grow to 15.2% by 2016 and 17.7% by 2021. Put another way, the proportion of people aged between 60 and 75 (the "active elderly") will increase by 29% between 2006 and 2021, with the "frail elderly" population increasing by a similar proportion (28.8%). This has clear implications for the design and location of housing that will cater to these groups.

Age/lifecycle Stage	2006	2016	2021	% Change
15 – 24 house-hold formation	26000	24000	25550	-1.9
25 – 39 family formation	43600	43900	41700	-4.4
40 – 60 (post family formation)	47900	52300	55000	+14.8
60 – 75 (active elderly)	22800	27500	29400	+29
75+ (frail elderly)	13200	15500	17000	+28.8

Table 2 - Demographic Structure, City Of Stirling

Table 2 implies the need to increase appropriate forms of accommodation to the age groups that are projected to increase. Housing choice is likely to be valued by the elderly and other members of small households, and could enable many more people to continue residing in the City of Stirling, in close proximity to their existing social support networks, friends and family. The changing demographic structure of the City will not have an even geographical spread, with some areas experiencing a greater degree of ageing than others. Figure 2 below, displays the projected trends in population and age structure by Local Area.
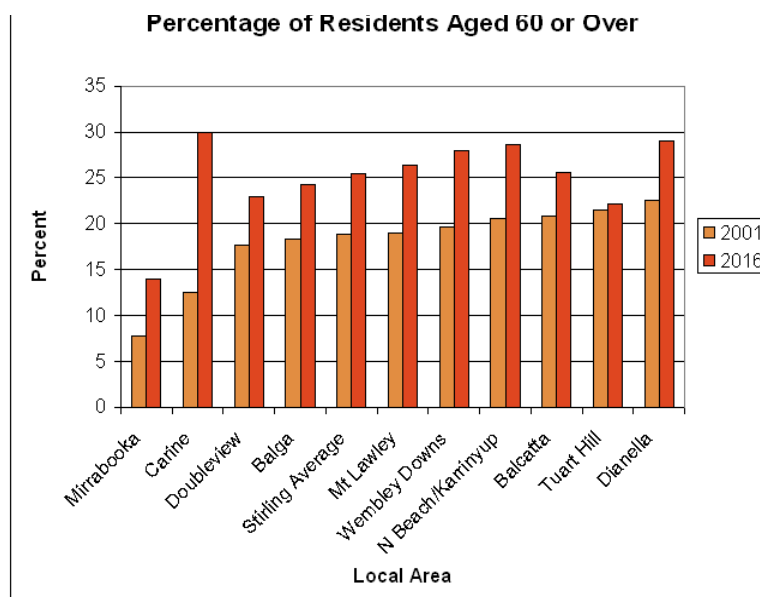
Figure 2 - Percentage of residents aged over 60

These figures show that the proportion of people aged 60 or over will increase in all the City's Local Areas. The greatest increase in percentage terms is projected to occur in the Carine Local Area.
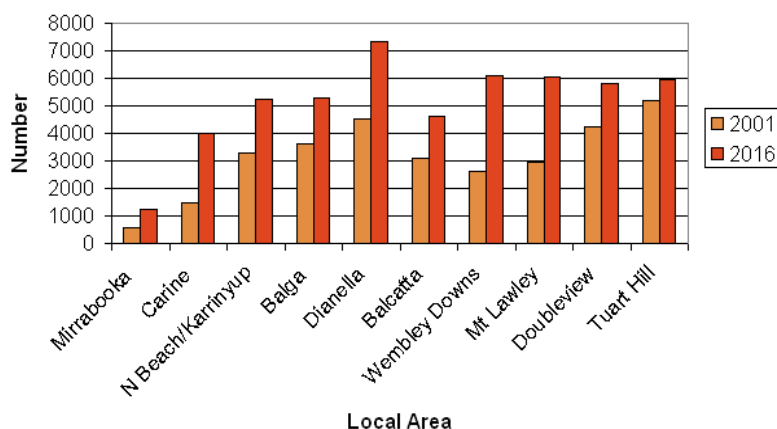
Figure 3 – Number of Residents Over 60

Expressing the projected change in numerical terms provides a clearer indication of the likely increase in demand (whether latent or expressed) for alternative housing. The above figures clearly demonstrate that the greatest increases are expected to occur in Carine, Dianella, Wembley Downs and Mount Lawley, with significant increases in North Beach and Karrinyup. A detailed numerical breakdown is provided in the table overleaf.

Local Area	Age/lifecycle	2006	2016	% Change	Numerical change
Mirrabooka	15-24	2359	1896	-19.6	-463
	25-39	1572	2845	+81	+1273
	40-59	2251	2023	-10.1	-228
	60-74	461	818	+77.4	+357
	75+	193	222	+15	+29
Carine	15-24	3247	1781	-45.2	-1466
	25-39	2858	4512	+57.9	+1654
	40-60	3737	2337	+37.5	-1400
	60-75	1414	2520	+78.2	+1106
	75+	486	654	+34.6	+168
North Beach and Karrinyup	15-24	2141	1535	-28.3	-606
	25-39	2446	2998	+22.6	+552
	40-60	2707	2574	-4.9	-133
	60-75	1628	1739	+6.8	+111
	75+	867	998	+15.1	+131
Balga	15-24	4474	3981	-11	-493
	25-39	4380	6139	+40.2	+1759
	40-60	5163	5083	-1.6	-80
	60-75	2769	2654	-4.2	-115
	75+	1322	1631	23.4	+309
Dianella	15-24	3962	3822	-3.5	-140
	25-39	5020	6268	+24.9	+1248
	40-60	6188	6588	+6.5	+400
	60-75	3441	3832	+11.4	+391
	75+	1856	2217	+19.5	+361
Balcatta	15-24	3135	2677	-14.6	-458
	25-39	3706	4875	+31.5	+1169
	40-60	4018	4452	+10.8	+434
	60-75	2071	2534	+22.4	+463
	75+	1006	1375	+36.7	+369
Wembley Downs	15-24	3812	3201	-16	-611
	25-39	4840	5413	+11.8	+573
	40-59	6031	6135	+1.7	+104
	60-75	2637	3331	+26.3	+694
	75+	1549	1690	+9.1	+141
Mt Lawley	15-24	4087	3239	-20.7	-848
	25-39	4821	5870	+21.8	+1049
	40-60	6110	5940	-2.8	-170
	60-75	2013	3293	+38.9	+1280
	75+	2088	1757	-15.6	-331
Doubleview	15-24	3613	4038	+11.8	+425
	25-39	6750	5456	-19.2	-1294
	40-60	6527	8132	+24.6	+1605
	60-75	2392	3009	+25.8	+617
	75+	1860	1844	0.9	-16
Tuart Hill	15-24	2994	4451	+48.6	+1457
	25-39	6930	5072	-26.8	-1858
	40-60	6722	8571	27.5	+1849
	60-75	2857	3228	+13	+371
	75+	2183	2134	2.2	-49

Table 3 - Demographic Statistics by Local Area
*Refer to Appendix for map delineating the boundaries of the Local Areas.

Clearly, the varied demographic structure has implications for service provision. Areas with higher growth in the aged population will experience greater demand for specialist aged services, and may experience stronger demands for more suitable accommodation. This provision should be steered toward areas close to commercial centres in order to cater to the needs of this group and reinforce patronage of local businesses and bus services, thereby helping provide a higher frequency public transport service to residents.

Dwelling Forms and Household Sizes

In the metropolitan region, there was a decline from 3.12 persons per household in 1971 to 2.54 in 1996 (Future Perth). This is projected to continue, with WA's average household size declining to 2.2-2.3 by 2021 (WA Housing Strategy 2002). Stirling's average household size is only 2.09 per dwelling, significantly below the state and metropolitan average. However, this does not rule out further modest decreases from taking place in the future.

The declining average household sizes have significant implications in terms of use of houses and demand for housing. In terms of household occupation levels, fully 67% of all dwellings are occupied by only one or two people, with 32.5% occupied by only one person. This contrasts with the provision of housing, with the average floor space of new dwellings increasing. Only 11.7% of the total dwelling stock in Stirling comprises of apartments (although 44% of dwellings were housing forms other than single detached dwellings, including semi-detached houses and apartments). The dwelling occupancy ratio was highest for detached houses (more likely to be occupied by family groups) and lowest for apartments. The average apartment only housed 1.5 people. This implies a case for providing a greater number of one and two bedroom apartments.

Dwellings	Total	Percentage
Separate house	44458	56.2
Semi-detached house	18403	23.3
Flat/Unit/Apartment	9270	11.7
Other	242	0.3
Total dwellings	79120	100

Table 4 - Dwelling Types in City of Stirling - 2001

Form of Housing	Ratio
Separate house	2.7
Semi-detached house	1.8
Flat/Unit/Apartment	1.5
TOTAL	2.1

Table 5 - Dwelling Occupancy Ratio in City of Stirling – 2001

As one would expect, there exists a considerable variation in the distribution of dwelling types within different parts of the municipality. Some areas are characterized by a high number of apartments and medium density accommodation, while in other localities the detached dwelling comprises a much larger share of the mix. Table 6 overleaf, shows the breakdown by Local Area*.

Local Area	Separate House	% Of Total	Attached House	% Of Total
Mirrabooka	2249	89.3	270	10.7
Carine	2034	86.3	324	13.7
North Beach and Karrinyup	5950	78	1681	22
Balga	7307	74.8	2458	25.2
Dianella	6757	71.7	2659	28.3
Balcatta	4816	68.9	2175	31.1
Wembley Downs	5894	61	3776	39
Mt Lawley	5375	59	3734	41
Doubleview	7144	50.7	6941	49.3
Tuart Hill	5103	34	9883	66
Total	52 629	60.8	33 901	39.2

Department of Housing and Works, 2006

*Refer to Appendix for map delineating the boundaries of the Local Areas.

Table 6 - Dwelling Type by Local Areas, 2005

The above figures should not be taken as a guide as to where additional infill might be warranted, or indeed the converse, that is, areas that might be deemed to have a full complement of attached housing options. Rather, they serve as an indication of the current geographical distribution of the built form. The question of where and what form of new housing to provide can be informed by reference to such parameters as demographic projections, availability of land and infrastructure, transport options and provision of local commercial and community services.

In this regard, Mirrabooka and Carine stand out as areas projected to experience significant levels of ageing while being characterized by a predominantly low density, detached housing stock. This raises questions as to the opportunity for this ageing population to remain in the area. The redevelopment of Mirrabooka should be commended in this regard, as widening housing choices in the locality should help in respect to this objective. However, when considering specific locations for infill housing catering to the elderly, as well as other groups seeking to reside in alternative housing, factors such as availability of local services and good public transport connections need to be considered. Opportunities for developing these forms of accommodation without comprising the amenity of existing suburbs is an additional consideration that needs to be taken into account.

The extent to which the market has been responding to opportunities for infill is shown by the table below, which lists the increase in housing provision by suburb. These figures also show the breakdown of residences into the different forms of housing (attached and non attached dwellings) and provide a measure of the extent to which housing provision matches the evolving demography.

Suburb	Separate House 1996	Separate House 2005	% Change	Attached House 1996	Attached House 2005	% Change
Balcatta	2377	2724	14.6	1251	1742	39.3
Carine	2016	2034	0.9	290	324	11.7
Churchlands	613	574	-6.4	496	439	-11.5
Coolbinia	510	529	3.7	54	60	11.1
Dianella*	5791	6757	16.7	2545	2659	4.5
Gwelup	548	971	77.2	72	141	95.8
Hamersley	1790	1873	4.6	225	205	-8.8
Karrinyup	2506	2791	11.4	457	469	2.6
Menora	630	658	4.4	663	559	-15.7
Mirrabooka	2212	2249	1.7	141	270	91.5
North Beach	772	878	13.7	621	671	8.1
Stirling	1525	2092	37.2	351	433	23.4
Trigg	863	932	8	184	189	2.7
Watermans Bay	247	378	53	299	211	-29.4
Wembley Downs	1468	1836	25.1	607	551	-9.2
Woodlands	864	1143	32.3	383	472	23.2
Total	**24 732**	**28 419**	**14.9**	**8639**	**9395**	**8.8**

Table 7 - Dwelling Type By Suburb – low Density Areas (R10-R20) DHW, 2006 *2001 figures

Suburb	Separate House 1996	Separate House 2005	% Change	Attached House 1996	Attached House 2005	% Change
Balga	2826	2946	4.3	1186	1041	-12.2
Dianella*	5791	6757	16.7	2545	2659	4.5
Doubleview	2127	2532	19	519	853	64.4
Glendalough	288	365	26.7	1055	1250	18.5
Herdsman	28	n.a.		29	n.a	
Inglewood	1390	1562	12.4	765	920	20.3
Innaloo	1654	1990	20.3	573	1374	139.8
Joondanna	760	928	22.1	1373	1466	6.8
Mt Lawley	1771	2626	48.3	1675	2195	31
Nollamara	2455	2861	16.5	468	980	109.4
Osborne Park	415	385	7.8	1616	1637	1.3
Scarborough	2505	2622	4.7	4086	4714	15.4
Tuart Hill	926	1087	17.4	2287	2548	11.4
Westminster	1401	1500	7.1	336	437	30.1
Wembley	2100*	2341	11.5	1744*	2018	15.7
Yokine	1988	2338	24.7	2606	2982	14.4
Total	26328	32840	24.7	25700	27074	5.4

Table 8 - Dwelling Type By Suburb – Medium Density Areas (R25 and above) DHW 2006 *2001 figures

These figures indicate there has been considerable building activity in the City over the past decade, there having been a net increase of 12 329 dwelling units, of which 10 199 were detached houses and 2130 were attached dwellings. The population during this interval increased by only 9136, from 172 911 in 1996, to 182 047 in 2005. The provision of housing is therefore increasing at a significantly faster pace than population growth. Most of the additional increase has been in the form of detached dwellings, with attached housing comprising only 17.3% of the net increase in dwelling stock. Given the projected increase in households in the post family formation stage, and the already high proportion of small households, these figures may be of some concern. They suggest there is a strong case for encouraging the provision of smaller dwellings units and attached housing. An ageing population also implies the importance of incorporating appropriate design standards into this new housing stock.

This argument is further underscored by a consideration of house sizes. The average house size is now 190m2. This figure is depressed by inclusion of a considerable number of small dwellings constructed in the pre-war and early postwar era. In the 1950s, the average floor space of a new house in Stirling was approximately 150m2, whereas a contemporary dwelling is more likely to range between 200m2 and 250m2.

Opportunities and Constraints Analysis
Implications of the Changing Demographic

The ageing population and falling household size has implications for the location, form, design qualities and size of housing.

Accessibility to community facilities and commercial services is of particular significance to the elderly population, some of whom may have constrained mobility. In the absence of an automobile it can be difficult to meet routine needs such as convenience shopping, visits to the doctor or trips to a library. The ageing generation of baby boomers may in time re-appraise their housing needs, and demand housing in accessible locations, in places within walking distance of local centres and high frequency transit. Currently this housing choice is constrained by limited supply.

Ageing couples and singles may wish to reduce the time and effort associated with the upkeep of a large dwelling and garden and move to a smaller unit, such as a villa or apartment. This would also help people wishing to "downshift" before retirement by reducing housing expenses.

Single person households and couple only households may also wish to be provided with the choice of smaller dwellings units. The time constraints of managing a larger dwelling and garden, and the fiscal burden associated with renting or purchasing a dwelling significantly larger than required by the occupants are not insignificant. Hence there is every indication increasing the variety of dwelling forms and sizes would be well received by the population at large, and help cater to the large number of small and/or elderly households.

One exception to the rule of increasing demand for smaller dwellings associated with falling average household size and the ageing population may be manifest in suburbs with a large migrant population from sub-Saharan Africa. This population is more likely to have large families, and consequently display different housing needs. Indeed, the State Housing Strategy notes the lack of large dwellings as an impediment to finding appropriate housing options for this community.

Likewise, there is likely to be unmet demand for families seeking an urban lifestyle in medium or higher density dwellings. Some apartments are too small to cater for a family group, and areas that have been

redeveloped in recent years in the inner city have lacked some of the amenities and facilities required by family groups. This latent demand can be surmised by reference to living arrangements in migrant country of origins and the changing values and growing appreciation of the benefits of accessibility in the wider Perth population. This trend is likely to be reinforced by the advent of rising fuel prices and growing concern over the ecological impacts of high carbon emissions.

==The City's Local Area Planning project is a means to identifying these (and other) issues, and should be accomodated as such. These smaller issues can be identified at the Local Area Planning level, therefore satisfying regional initiatives to cater for a growing and ageing population.==

Forms of Housing

The majority of dwellings provided by the market do not currently satisfy the design criteria allowing ageing in place, or Universal Design Principles which enable frail and/or handicapped individuals to use their homes with fewer impediments in their day to day activities. Since July 2003, the Department of Housing and Works has constructed all new dwellings to accessibility, visitability and adaptability standards in line with the Australian Standard of Adaptable Housing. There is therefore considerable justification for intervention in the provision of the built form, in order to increase the supply of housing incorporating these features. Ideally, smaller dwellings built to such Universal Design Principles should be sited adjacent to commercial precincts well served by transit as many of their occupants may not have access to an automobile or may in future find it increasingly difficult to bear the cost burden of higher fuel prices.

Recognizing the diversity of the aged population is also important, for although some people in the 60 – 75 year age group, known as the "active elderly", would prefer to "downshift" into villas or apartments in their suburb or locality, some members of certain immigrant groups may prefer retirement villages accommodating and catering to their respective community. Finally, some of those with family and social support networks may favour residing in a "granny flat" at the back of their existing house, or living in a smaller dwelling close to supportive relatives and friends.

A change to the City's Scheme provisions may also help to encourage and/or remove impediments to increasing provision of aged/dependent persons housing in highly accessible locations. For example, split coding may create a sufficient incentive for developers to provide single bedroom and/or aged accommodation close to commercial nodes. Where the base coding ranges from R20 – R40, and the higher coding could be R80 or above, this would likely provide a sufficiently powerful incentive for the development industry and landowners to respond in a manner that would increase the supply of such housing where it is most needed, thereby removing an impediment to ageing in the suburbs (lack of suitable housing options). This result would also complement the State Housing Strategy's equity principle – providing opportunities for people to continue living in the community of their choice, even after they may need to move to more appropriate housing.

Beyond the use of such market-based incentives (density bonuses) and Scheme provisions mandating minimum provision of suitable housing, the City could also become a direct service provider – building and maintaining retirement homes – either on its own or in partnership with community housing groups or the State Government (DHW). This would help fill the "gap" left by the private market for elderly households on a limited budget without the asset base needed to move into a retirement village. Partnerships between the public, private and community housing sectors could be achieved in large redevelopment areas such as the future Stirling City Centre.

The increasing provision of large detached houses and rising average floor space of new dwelling units

contrasts sharply with the falling size of the average household within the municipality. This results in greater levels of underutilized floor space, and represents a misallocation of resources in the economy, and an unnecessary burden on the natural environment. Larger houses on smaller lots reinforce the Urban Heat Island Effect, further compounded by limited street tree provision in some areas. Studies show that ambient air temperatures can be several degrees higher in built up areas with limited tree cover. This change in microclimatic conditions encourages greater use of air conditioners. Larger dwellings also consume more raw materials and energy in their construction, (so called "embodied energy"), which further detracts from the goal of a more sustainable urban form. Reduced tree cover may also be associated with loss of biodiversity. Some of the credit financing this construction and development activity is provided from abroad, and is expressed as part of the national current account deficit.

Moreover, over-provision of large dwellings exacerbates the problem of housing affordability, as individuals are unable to choose a dwelling more in line with their needs and budget. On a related theme, older people who wish to "downshift" are unable to continue residing in the area with which they are familiar. All this undermines choice, and is therefore at odds with the City's overarching goals, of being a "City of Choice".

The problem with housing is that once provided, the built form persists into the future, with an approximate turnover rate of only 2.5% per annum. Therefore although demographic structure, community values or social trends may change, there is limited opportunity to respond to new demands.

However, the City may have various statutory mechanisms at its disposal that can help change the characteristics of new housing. Scheme provisions and planning policies can be effective in steering the market toward provision of a more balanced housing mix.

Council or State Government can also play a role in educating the building and development industry about potential opportunities. This would include raising their awareness about the changing demographics, including the growing number of small households, ageing population and migrants with large family groups. The Department of Housing and Works could also be encouraged to be pro-active and provide a greater proportion of large dwellings in areas that are proposed to accommodate new immigrant communities with special needs.

Increasing the Provision Of Appropriate Forms of Infill Housing

The growing tendency of the market to provide an increasing number of large, detached dwellings represents a concern due to the implied mismatch between likely future demand (driven by changing demographic and household characteristics) and supply. Deliberate interventions in the operation of the market are therefore warranted. One means to redress this mismatch could be through implementation of statutory mechanisms including scheme provisions.

Split Coding and Mandatory Statutory Provisions

Split coding represents one potentially effective tool for guiding the form of development, by rewarding market players who facilitate outcomes sought by the local authority. The Local Area Planning exercise should help identify specific areas that are suitable for urban consolidation, to which the split codes could be applied. These sites should have the required characteristics including proximity to local services and public transport, and a supportive local community. They will tend to coincide with the walkable catchments of Activity Corridors and Activity Centres.

Developers wishing to have their applications assessed according to the higher density coding would need

to meet the City's planning criteria. These would relate to the important objectives identified by the Local Housing Strategy, such as increased provision of single and two bedroom dwellings. A designated Housing Policy could also establish minimum benchmarks for new proposals for multiple dwelling units, such as minimum provision of affordable dwellings designed with Universal Design Principles. For example, where more than five units would be proposed as part of a housing development, no less than 20% of the homes would need to be affordable. This is defined as housing that does not exceed more than 30% of the incomes of individuals on the bottom two-income quintiles (i.e. lower 40% of incomes). A minimum proportion of single and two bedroom dwellings would also need to be provided.

Design Guidelines

Reviewing the City's design guidelines for infill housing may help facilitate the provision of superior quality housing which would in turn be more likely to build a stronger case for regeneration of existing residential areas. In the past, community opposition to urban consolidation has sprung from disillusionment with the resulting urban form. In many cases higher density residential development was associated with buildings comprising poor aesthetic qualities, monotony of design and insufficient detail to amenity protection measures. In part, this reflected the traditional approach to town planning, which set minimum prescriptive standards in relation to setbacks, heights and parking provision, as opposed to an outcomes focus, that seeks to achieve an attractive and engaging form of development. The Strategy therefore recommends the review of our design guidelines to ensure new housing achieves the desired outcomes.

The City's planning guidelines should help ensure provision of buildings that address the streetscape in a positive manner, afford surveillance of the public realm and incorporate sustainability design elements. Due consideration should be accorded to articulation of facades, use of different colours and textures, appropriate building scale and bulk, and aesthetically sensitive car parking provision (parking access behind or underneath the built form). Prominent architectural features should be considered for corner sites to improve legibility, impart a stronger sense of place and build civic pride. Windows from habitable rooms should face the street, and north and west facing openings should be protected by suitable measures such as awnings or balcony overhangs. Opportunities for cross-ventilation and protection of neighbouring visual and aural amenity are further elements that should be included in the Council's residential policies.

Responding to the Ageing Population and New Demographics

Housing Needs of the Elderly

The Strategy recognizes that in future, the elderly will comprise a greater proportion of the City's population, and that there will also be significant growth in the number of people in a post-family formation stage. However, the elderly do not comprise a uniform population, there being significant differences in levels of mobility, income, education, extent of family support, and ethnic, religious and cultural backgrounds. As such there is a need to offer diverse housing options for the older members of the community. This will include provision of appropriately designed housing in or adjacent to commercial centres well served by transit, and continued development of "granny flat" accommodation. Incentives to encourage growth in the provision of this form of housing include the development of a new Housing Policy to set minimum requirements for housing units incorporating these design elements. Another measure that should be considered is to relax the criteria applying to the provision of a density bonus for "Aged/dependent Accommodation". Currently the Residential Design Codes restrict the bonus to developments including five or more dwellings. This requirement could be waived in suitable areas (locations within a short distance of a commercial centre).

Both ancillary accommodation (granny flats) and aged and dependent persons dwellings (smaller dwellings that incorporate appropriate design features) are currently permitted by the Scheme and the R Codes. Aged/ dependent person's dwellings are assessed with a generous density bonus (one third site area concession) under the current R Codes arrangements in order to create incentives for increased provision of this housing form. However, the density bonus only applies in circumstances where the proponent provides a minimum of five dwellings. A clause could be introduced into a future housing policy adopted by Council enabling this provision to be relaxed (i.e. apply the bonus to provision of fewer than five aged/dependent persons dwellings) to further encourage development of this type of housing. However, in order to prevent development of aged/dependent housing in unsuitable locations, the relaxed standard should only apply in areas that meet minimum accessibility criteria as would be defined by such a policy. By contrast, ancillary accommodation implies a degree of care and co-operation within a larger family unit, and may therefore be more appropriate even in low density, car dependent suburbs.

Catering To Small Households and Providing Housing Choice to Families
The need to increase provision of small dwellings is well established and will be assisted by facilitating redevelopment to higher densities in the new urban centres of the municipality. Mandating minimum provision of single and two bedroom dwellings can further augment this outcome. However, there also needs to be recognition of the need for our new redevelopment areas to be inclusive of family groups, this being achieved by providing suitable facilities and amenities (such as playgrounds, child care centres, bike paths, etc) and mandating the minimum provision of higher density housing suitable for family groups. This could include facilitating the provision of larger sized dwelling units in "low rise" developments close to local parks and amenities. Community allotments within short walking distance of low rise apartments and townhouses would enable children growing up in urban communities to experience gardening and small scale food production.

Future housing diversity opportunity could also be acheived by simply widening the definition of ancillary accomodation. At present, ancillary accomodation is restricted to family/relations use only. Widening the definition to allow for non-related single adults to live there would facilitate provision for more affordable rent for community members such as students or single adults.

Outcomes

- There is a significant increase in the provision of single and two bedroom dwellings.
- A greater proportion of appropriately located dwellings incorporate Universal Design Principles.

FOCUS AREA 2
COMMUNITY HOUSING & HOUSING AFFORDABILITY

# FOCUS AREA 2 - COMMUNITY HOUSING & HOUSING AFFORDABILITY

Overview
Provision of Public Housing

The provision of public housing is distributed unevenly across the City. Some areas are well catered for while other suburbs provide limited access to this service. The tables and figures below show a breakdown, according to areas with a relatively high provision of public housing, and areas with a relatively low provision.

Local Area	Total Dwellings			Department of Housing	
	Separate Houses	Multi-Residential Dwellings	Total	State Housing	Market Presence %
Mirrabooka	2249	270	2519	406	16.1
Balga	7307	2458	9765	1450	14.8
Doubleview	7144	6941	14085	926	6.6
Balcatta	4816	2175	6991	325	4.6
Tuart Hill	5103	9883	14986	694	4.6
North Beach and Karrinyup	5950	1681	7631	290	3.8
Dianella	6757	2659	9416	276	2.9
Mt Lawley	5375	3734	9109	238	2.6
Wembley Downs	5894	3776	9670	81	0.8
Carine	2034	324	2358	5	0.1

Table 9 - Dwelling Type By Local Areas, 2005 – Adapted from 2005 figures
(Refer to Appendix for map delineating the boundaries of the Local Areas)

The overall provision of public housing has declined from comprising 7.2% of the total housing stock in 1991, to representing only 4.5% in 2005.
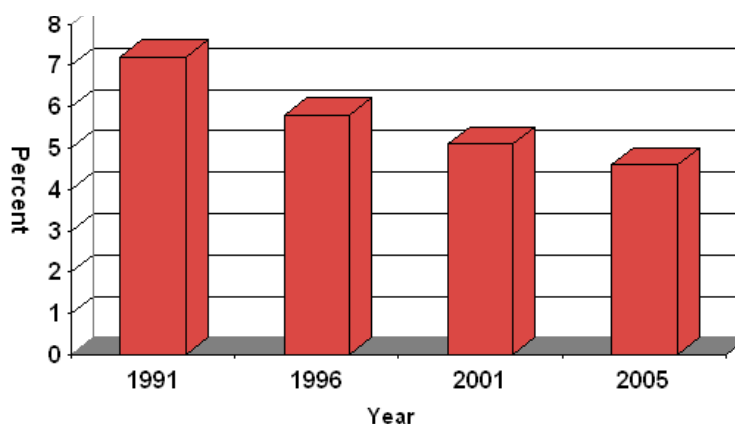
Figure 4 - Public Housing as a Percentage of Total Housing Stock, City of Stirling

Housing Affordability - Costs and Rents

The declining provision of public housing represents a concern for several reasons. The rental market is currently extremely tight. REIWA estimates the rental vacancy rate as being only 1.8% in Perth, well below the industry benchmark figure of 3%. With demand for housing so strong, both rents and land values have increased recently in the Perth region. Figures released by the Institute in 2006 showed the median weekly rent was approximately $270.00 for houses and $250.00 for units, giving a mean figure of $260.00 for residential rental properties (in the September quarter of 2008, rents had gone up to $350.00). This contrasts with the position in 2001, when the median weekly rent was $147.00. This represents a 77% increase between 2001 and 2006. Over the same time, median incomes grew by 42%, from $790.00 to $1121.00 per week in Western Australia. Therefore many people, especially those on lower incomes, are experiencing considerable housing stress, and may find it very difficult to rent in the area of their choice due both to physical shortage and costs. Saving for a deposit becomes harder for those wishing to enter the housing market as increasing rents erode disposable incomes. Median house prices have increased far more sharply than rent, having grown from $240 000 in June 2004, to $440 000 in September 2006, an 83% rise. Over this period, median incomes increased by 28%, from $875.00 per week to $1121.00 per week.

Year	Median Income	Median Rent	Median House Price
2001	$790.00	$147.00	$168 000
2006	$1121.00	$260.00	$440 000
% Change	+42%	+77%	+260%

Table 10 - Changing levels of Housing Affordability

Most of Stirling's suburbs are priced above the Perth metropolitan average, reflecting the desirability of coastal and near-city living. The main exception relates to the north-eastern suburbs of Mirrabooka, Balga, and Westminster. The Local Planning Strategy notes that this may result in further concentration of affordable housing, exacerbating social inequities. However, the Department of Housing and Works aims to reduce the concentration of social housing in areas where it comprises a significant portion of the total mix, and concentrate new provision in areas with a lower proportion of public housing, targeting areas well served by commercial and community facilities. Nevertheless, the Department does operate on fixed budgets, (and has experienced declining funding in real terms during the last decade), and its ability to provide housing rests on land purchases, which now consume a greater proportion of the budget and place constraints on housing provision.

The Department's objective of increasing provision of housing in areas accessible to services complements the outcomes sought by this Strategy. As such, applications should be processed expeditiously and innovations in housing design and layout encouraged by the City. Provision of affordable housing in mixed-use developments, townhouses and apartments would represent a welcome addition to the housing stock. This can be achieved through building constructive partnerships with key enablers including DHW, community housing providers, and private sector developers.

Declining housing affordability has both social equity and economic implications. In regards to the former, one can argue that increasing levels of housing stress at a time of unprecedented wealth represents a social injustice. Indeed, to a certain extent this outcome is an inadvertent result of the boom itself, which has raised disposable incomes for some and encouraged more people to migrate to Western Australia. Both these

factors increase effective demand for housing, driving costs higher. The relative decline in public housing provision exacerbates the matter, by removing the opportunity for lower income groups to access affordable housing. This in turn increases the competition for available private sector rental properties, further driving up costs in this sector.

As an ever-greater proportion of household incomes cover rent and mortgage repayments, the amount of a household's disposable income available for discretionary spending also declines. This will diminish effective demand for goods and services, resulting in lower levels of local economic activity than would otherwise be the case. A more serious and indirect impact of the house price boom could be felt once house prices stall or recede, and fewer homeowners sustain consumer spending through refinancing their mortgage. Attracting workers may also prove increasingly difficult, particularly if employees on lower incomes are "pushed out" of Stirling into urban fringe areas. These locations may be too remote from workplaces in the municipality for the displaced workers, especially when factoring in variables such as rising housing costs (even in the outlying areas), modest wage increases, lack of transit services and the potential for rising fuel prices.

Opportunities and Constraints Analysis
Public Housing
Declining provision of public housing has compounded the effects of the housing affordability crisis on low-income residents, many of whom are increasingly being forced to compete for private rental properties at a time of record low vacancy rates. Increasingly, public housing is being provided only for the poorest members of the community, especially those without a regular wage or salary. Low-income earners are therefore amongst the most vulnerable to the affordability crisis. Should they be forced out of the municipality, there may be an issue in trying to retain the workforce required by many of the City's businesses. The inability to access appropriately priced housing (for rental and/or owner occupiers) further detracts from the City's vision as being a place of choice.

The difficulty in responding to these issues are manifold. Public Housing is the responsibility of State Government, which in turn depends on funding allocation from the Commonwealth. Private sector rents and house prices are determined by the interplay of market forces governing supply and demand, and are influenced by such parameters as investment strategies, consumer confidence, employment availability, incomes, interest rates and credit.

Developer Provision of Affordable Housing
Some communities have responded to declining housing affordability by mandating developer provision of affordable housing. This has become an increasingly important local government role in North America. For example, the municipality of Boulder, Colorado, requires new residential developments to be comprised of at least 20% affordable housing units. In WA, the East Perth Redevelopment Authority (EPRA) has a housing affordability policy requiring developers to provide between 10 and 15% of new housing as affordable accommodation. In turn, a robust definition of affordability is applied by these authorities. This essentially states that no more than 30% of the household income of people within the bottom two income quintiles (lowest 40% of income earners) should be allocated to housing.

Stirling can choose the means for addressing the housing affordability crisis. It can adopt a similar approach to EPRA and those American and European municipalities mandating developer provision of affordable housing. This could involve the introduction of provisions in a new Housing Policy, which would require the provision of affordable housing in all developments comprising five or more dwelling units for example. Alternatively, affordable renter or owner/occupier housing could be provided by the developer in return for a density bonus.

As the market responds to these new planning requirements and incentives, opportunities are likely to emerge for partnership arrangements between private developers and community housing providers, as the latter have experience with design, enjoy a detailed understanding of sub-markets, and have accumulated significant operational experience with property management. The City may wish to adopt measures requiring or encouraging affordability in all larger developments, or target this form of housing within walking distance of activity nodes well served by transit. The City should also work closely with the Department of Housing and Works, assessing developments expeditiously and encouraging a flexible, performance based approach to such applications, in order to help foster innovative solutions embracing contemporary concepts in urban design, such as affordable dwellings in mixed-use developments and residential apartments provided in revitalized local centres.

Community Housing

The City can play a useful role as a facilitator of affordable and diverse housing, in order to supplement the provision of social housing from DHW, and reduce the shortfall of affordable and suitable accommodation. One means of achieving this outcome is to foster constructive partnerships with agents in the emerging community housing sector. Groups such as Foundation Housing help provide affordable accommodation to a diverse clientele including "key workers" and retirees on fixed incomes, both of whom are being increasingly priced out of many rental markets. These organisations access funds from State Government and have gained considerable experience in developing and managing residential and mixed use developments. There is scope for local councils to help "leverage" these funds by leasing landholdings to housing providers or introducing appropriate zoning provisions (targeting higher density or mixed use provisions in strategic locations).

There is significant potential to help facilitate the development of housing diversity within future redevelopment areas such as the proposed Stirling City Centre and Glendalough Station Precinct. Zoning provisions could mandate minimum provision of affordable housing in new multiple dwellings. Landholdings in public ownership could be leased or sold to providers of affordable and diverse housing for both tenants and owner occupiers. The international Non Government Organisation Habitat for Humanity specialise in making low cost housing available for owner occupiers on a limited income, and include arrangements such as "sweat equity", whereby homebuyers make an in kind contribution to the cost of house construction, in the form of free labour being provided in return for the provision of affordable housing.

The ideal to which Stirling should strive, consists of a vision characterized by a greater number of affordable rental and owner-occupier housing in locations accessible to civic and commercial facilities and public transport. This housing should meet the needs of residents, and therefore embrace a variety of designs, including homes of different sizes and styles, reflective of our diverse households. Finally, affordable housing should also incorporate designs allowing for liveability, accessibility and visitability for the elderly and people with disabilities.

Outcomes

• Housing affordable to tenants and owner-occupiers is developed in the municipality.

• A constructive partnership is fostered between the City and community housing providers.

FOCUS AREA 3
SUSTAINABILITY OF THE BUILT FORM

FOCUS AREA 3 - SUSTAINABILITY OF THE BUILT FORM

Overview
Housing Provision

In Stirling, the provision of housing is increasing at a much faster rate than the population, reflecting decreasing average household sizes. However, dwellings are becoming larger. The average house size is now 190m2. This figure is depressed by inclusion of a considerable number of small dwellings constructed in the early postwar era and before. In the 1950s, the average floor space of a new house in Stirling was approximately 150m2, whereas a contemporary dwelling is more likely to range between 200m2 and 250m2. We are accommodating fewer people in bigger houses.

While housing tended to become larger, medium density areas have experienced re-subdivision of lots into smaller land parcels. Therefore, the building envelope of a contemporary dwelling is more likely to occupy a significant proportion of the land area, which can result in higher ambient temperatures (urban heat island) in the absence of effective "offsets" such as adequate street tree planting. The combination of larger dwellings and higher air temperatures has encouraged the increased use of air-conditioning.

Housing embodies a lot of energy, as the manufacturing of key building components such as concrete, bricks and tiles is an energy-intensive process. As house sizes creep upward, the per capita energy and material consumption of the population rises, all things being equal. Increasing housing diversity, including providing a higher proportion of housing that better matches prevailing household size can help reduce the 'ecological footprint' of the community. Other measures could include technical improvements in manufacturing processes resulting in higher energy efficiency, increasing the proportion of electricity generated by renewable means, use of substitute materials that embody less energy, and finally increasing the recycling of building materials. Currently, very few building materials are recycled in Western Australia, so there is huge potential to achieve significant sustainability gains. In addition to saving energy, water and materials, there is reduced demand on landfills as a result of increased recycling in general, with the building industry being no exception to this rule.

The urban design of Stirling's suburbs varies according to the timing of development. Suburbs developed prior to the age of mass motoring tend to be characterized by a grid road pattern, now widely seen as being legible and permeable and thus desirable attributes of urban form. More attention was paid to walkability and accessibility, hence the prevalence of corner shops, small retail centres, 'main streets', footpaths and street trees.

In the postwar era rising car ownership was seen to reduce dependency on transit and walking. Providing sufficient parking and vehicle access came to be seen as the biggest challenge. Rising traffic volumes resulted in planning responses that have since become discredited by the professional body, including elaborate schemes to keep through traffic out of neighbourhoods, most effectively achieved by adopting a cul-de-sac design. This 'solution' to rising traffic volumes was usually associated with longer average walk trip lengths, and constrained local commercial opportunities (particularly where shops were sited in the middle of the new subdivision). Public transport providers played a constant game of 'catch up' during this era, devising new bus routes to fit the new suburbs, rather than being an integral part of the urban design process. Land uses were sharply segregated, and developments were freed up from the constraint of being tied to locations proximate to existing mass transit lines. All these developments and trends have produced a car oriented, and what

many describe as a car dependent form of development, with associated implications for oil consumption, pollution and Greenhouse Gas emissions.

Opportunities and Constraints Analysis
Sustainability of the Built Form

The increasing use of air-conditioning, itself driven by increasing house sizes, decreasing tree cover (and hence higher ambient air temperatures) and poor architectural design features, drives up demand for electricity. This is at significant cost to the health of the natural environment, because much of the electricity feeding the South West interconnected grid is generated by combusting fossil fuels, adding to the problem of global warming and air pollution. Therefore, any measure to reduce household energy consumption can help reduce the State's contribution to this global problem, and needs to be supported by all levels of government, business and community.

Climate change has expressed itself in declining winter rainfall in the South West of Australia, which has increased water supply problems to households and businesses. Although residential consumption only accounts for approximately 13% of freshwater used in WA, the contribution of the residential sector needs to be incorporated into any viable strategy to address this problem.

In NSW, a new residential dwelling must comply with a sustainability building index known as BASIX, which requires strict performance standards to be met, such as significantly reduced water and energy consumption. This requirement is typically addressed by designers through provision of rainwater tanks to supply water for toilets, laundries and gardens. Energy efficiency can be enhanced by providing double-glazing, insulation and ensuring a northerly aspect for living areas. At a state and national level, a major driver of change has been the ongoing revisions being made to the Building Codes of Australia (BCA). The latest revisions are known as the Five Star + requirements. Stage One standards were introduced in September 2007, while Stage Two of the reforms were introduced in 2008. By contrast to BASIX, which sets reduction targets without prescribing how these should be achieved, the Five Star reforms have prescriptive standards consisting of the following requirements:

Required Features under 5 Star+ - Stage One - (Sep 2007)
• 3 or 4 Star taps, showers & toilet fittings
• Swimming pool blankets
• Limit distance of taps from hot water heater
• Efficient hot water heater (solar, 5 Star gas, or efficient electric heat pump)
• Roof/wall/floor insulation
• Rigorous criteria assessing window size/location (5 Star requirement as of May 2007)

Stage Two – (2008)
• New homes be plumbed so that they can be connected to an approved alternative water supply at a later date (an alternative water supply may include water tanks, bore water and third pipes).
• New homes on suitable lots be plumbed to enable connection at a later time to a grey water diversion system.
• New homes with a high water demand for landscaping have an approved alternative water supply for appropriate non-potable use; and
• New homes with a high water demand for internal use have an approved alternative water supply for appropriate non-potable use

Increasing the provision of smaller dwellings can also help in the reduction of energy usage, both during the construction phase and while the house is occupied (reduced heating/cooling requirements), and should be supported on sustainability grounds. Council should also consider supporting the objective of seeking further improvements to the design qualities of proposed housing (i.e. extending beyond the scope of the recent revisions to the BCA). This might be further achieved through collaboration with the Department for Planning and Infrastructure, in order to pilot a WA version of BASIX or alternatively, by introducing a new planning policy that sets mandatory standards above and beyond the recent changes to the BCA's Five Star+ initiative. The Armadale Redevelopment Authority has introduced an online self-assessment system, which generates a certificate that has to be lodged with a new development application. Stirling could also introduce an online self-assessment package, certified by an external auditor, and randomly checked by the City's designated sustainability assessor (this would be a newly created position in the Approvals Business Unit). This process would help improve sustainability outcomes without adding to the approval timeframes.

A means to encourage retrofitting existing houses is also required, due to the slow turnaround of the housing stock, estimated to be at a rate of 2.5% per annum by the draft State Housing Strategy. Retrofitting the existing built stock should also extend to energy efficiency measures and complement existing State and Federal Government programmes such as the rebates that are available for solar hot water systems, rainwater tanks and photovoltaic cells. Retrofitting might be achieved through planning measures granting development bonuses and/or conditions of approval on applications for house extensions and renovations. Public education and fiscal incentives could also play a role in increasing the uptake of sustainable designs in existing dwellings. Perhaps the most effective and practical measure, given the relatively high ownership turnover rates of properties, would be a requirement to mandate the incorporation of minimum housing sustainability provisions (e.g. insulation, awnings, double glazing) at the point of sale. In other words, titles could only be transferred upon completion of this obligation.

Neighbourhood Design

Curvilinear streets and cul-de-sacs, sometimes punctured by narrow Pedestrian Access Ways (PAW's) frequently designed with only limited opportunity for passive surveillance, characterize the urban form in all of Perth's more recent suburbs, including those in Stirling. Moreover, many of the streets lack footpaths and street trees. The barriers to walkability are numerous, in that trip lengths tend to be maximized by the road layout and the walking environment lacks the basic amenities that make walking a pleasant experience. Although potential pedestrian access is sometimes provided by the PAW's, the changed social environment (i.e. higher crime rate, and increased fear of crime) now means that these designs are redundant as many people fear walking along poorly surveyed routes.

The inappropriate road layout and absence of local commercial services and public transport routes, creates a car-dependent pattern that is rapidly becoming obsolete in the wake of rising fuel prices and growing concern over the implications of a carbon-saturated atmosphere. Although the world market price of oil and gas is highly volatile, reflecting seasonal variations in demand, changing levels of economic growth in key consuming nations, and geo-political factors, an upward trend has been manifest since 2000, with a growing body of evidence suggesting global output of oil and gas may peak in the near future, and thereafter decline, leading to an escalation of prices. It is important to be cognisant of this scenario, and provide a robust urban form that does not become obsolete in the event of high liquid hydrocarbon prices.

Rising oil prices and climate change are two scenarios that need to be recognized by public authorities. High liquid fuel prices render large sections of suburbia redundant in the absence of policies redressing car-

dependence. The cost of constructing and maintaining the road network is also linked to the price of crude, in that not only does the machinery and labour employed to undertake this activity rely on petroleum, the road itself is constructed of tarmac, an oil derivative. Sealing the extensive network of Right of Ways could therefore increase the cost burden of maintaining the road system beyond what would otherwise be the case, and one could argue that such a significant expansion of the road network could only be justified if it enables redevelopment to a higher density, thereby spreading the cost burden amongst a larger population.

Retrofitting the existing car-oriented suburbs is also required. This goal can be achieved by creating a pedestrian friendly environment where absent (planting street trees, providing footpaths) opening new road links where viable or creating safer pedestrian routes where this cannot be achieved. The City has recently undertaken to improve the lighting and design of some PAW's in Carine, and this provides an indication of the scope that may exist for successful urban retrofitting. Encouraging the provision of local services is also a required step. Corner shops and general practitioner services both provide day-to-day destinations that can potentially be undertaken by foot where provided within easy walking distance of homes. Changes to the Scheme's Use Class Table would remove legal impediments to re-localisation (i.e. Consulting Rooms/ Consulting Rooms Group Practice being changed from X uses to P uses, and Corner Shops being changed from AA to P). This would complement the objectives of the City's Local Planning Strategy to retain and enhance local centres in order to "promote walkable neighbourhoods with access to all facilities", and recognize the strategy's statement that "local centres and corner shops play a vital role in meeting the day to day needs of the community."

However, it is recognized that the market would need to respond to these opportunities, and recent trends have tended to see amalgamation and centralization of medical and retail services. Moreover, amendments to the Scheme would entail advertising and may draw a negative response from sections of the community. As such, this action would need to be preceded by widespread community consultation and careful assessment of market trends to ensure viability and acceptance.

Enhancing the future provision of public transport also needs to be considered. This not only entails providing decent shelters incorporating weather protection and timetable information, it can also include planning for the provision of dedicated transit lanes along busy routes that could evolve into light rail corridors in future. The prime candidates are the Activity Corridors of Network City.

Shuttle bus services may be needed in cases where a large elderly population resides in car dependent suburbs. Such bus services could provide access to local commercial centres that are not within walking distance of the homes of the elderly. In anticipation of likely oil price inflation, it would be greatly preferable for such a mini-bus fleet to be powered by viable alternative fuels that may include CNG (compressed natural gas) or locally produced bio-diesel. Locally sourced bio-fuels could be made from green waste or algae photo-bioreactors (an experimental "third generation" bio-fuel that is widely considered to have significant future potential).

In the interim, existing Transperth services will play an increasingly important role. Fortuitously, the bus fleet is being progressively replaced by natural gas powered vehicles (CNG), with Transperth able to negotiate long-term contracts with gas suppliers indexing fuel price rises to inflation. This provides a degree of robustness in the event of future rapid oil price rises, as WA will continue to have substantial natural gas reserves in the short and intermediate term future. The main challenge facing bus operators under this scenario relates to the very low proportion of trips undertaken by public transport. Expressed differently, this translates into high car dependency. A sudden oil price rise would see large and quite literally overwhelming numbers of motorists

attempting to switch their journey to public transport, thereby completely overstretching the limited resources available for even the peak periods. Transperth is already operating at full capacity, in spite of serving only around 6% of all trips. Off peak services may be less severely affected, but it is difficult to envisage the full range of problems that may emerge (e.g. employers may restructure the work day, effectively extending the peak periods, and supply of components may be disrupted, resulting in more frequent vehicle break downs, etc).

Providing transit links to employment areas is another important consideration. The City will work to increase public transport provision in key employment centres, and has already succeeded in leveraging public and private sector investment to facilitate the provision of a new high-frequency shuttle bus service in the Herdsman Business Park. This local success story has provided a useful workable template for future projects entailing developer contributions in return for bonuses and other incentive mechanisms. A comprehensive review of the Osborne Park Industrial Area and the Scarborough Beach Road Activity Corridor will lay the foundations for a significant improvement of pedestrian and visual amenity, target intensification of business activity, and establish clear ground rules for private sector contributions to high quality transit infrastructure.

Sense of Place

In re-shaping the built environment and responding to its vulnerabilities there is also scope to develop a greater sense of place. Opportunities to apply a distinct 'palette' for each location will present themselves in the provision of street furniture, taps and fountains, footpaths, bus shelters and other infrastructure made available in the pedestrianised built form. Selection of trees and other vegetation can also reinforce an area's identity. Retention of natural environments and distinct architectural forms achieved through protection of heritage and bio-diversity can also re-enforce the distinct properties of an area. New and existing public spaces can become the site for locally grounded cultural expression including provision of new structures and selection of plant species, and facilitate the development of social capital and community interaction.

Outcomes

- Sustainable design features are incorporated in new and existing housing.

- Building materials are recycled for use in new buildings.

- Existing residential areas are retrofitted to reduce auto-dependency.

- Development and building designs to conserve water and energy.
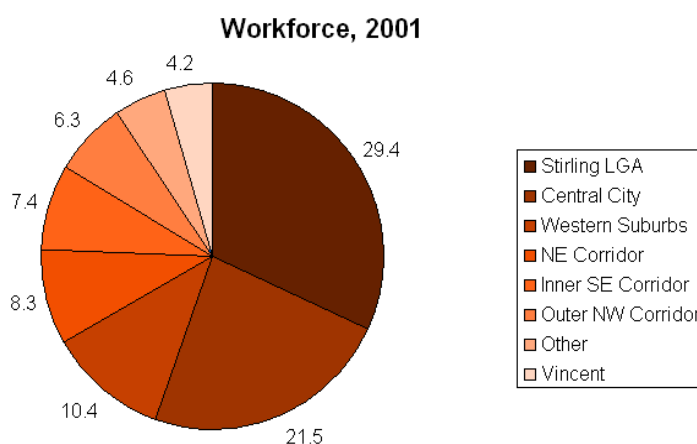
FOCUS AREA 4
EMPLOYMENT AND TRANSPORT

FOCUS AREA 4 - EMPLOYMENT AND TRANSPORT

Overview
Employment Areas

There are a number of employment areas within the municipality, Osborne Park and Balcatta being the most significant of these. The Perth Central Area, comprising of the CBD, Northbridge and West Perth are situated close to many of the City's residential areas, and are well connected by road and public transport links.

Stirling has a very high degree of potential employment self-sufficiency, there being approximately eight jobs for every ten resident workers. However, less than 30% of the City's resident workforce are actually employed within the municipality, there being a significant level of difference between the actual and potential employment self sufficiency rate. Central Perth represented the next most significant place of employment, reflecting its important role within the metropolitan hierarchy. A large proportion of Stirling's workforce is commuting to neighbouring regions of Perth, such as the Western Suburbs (hosting employment nodes such as Subiaco and Nedlands), and the North East Corridor. The inner South East Corridor also attracts a significant number of workers from Stirling, there being major metropolitan employment areas within Belmont, Welshpool and Kewdale. In spite of its geographic proximity, the outer North West Corridor, comprising of Joondalup and Wanneroo, provides slightly fewer jobs to the City's resident workers than the inner South East Corridor, which may largely be due to the limited provision of employment in this region.

Workforce, 2001

Legend:
- Stirling LGA
- Central City
- Western Suburbs
- NE Corridor
- Inner SE Corridor
- Outer NW Corridor
- Other
- Vincent

Values: 29.4, 21.5, 10.4, 8.3, 7.4, 6.3, 4.6, 4.2

Figure 5 – Main destinations of the City's resident workforce (DPI Research, 2006)

Notwithstanding the availability of employment within the City, and proximity of Stirling's inner suburbs to central Perth, there do exist some areas of concern in relation to employment. The Herdsman Business Park is poorly connected to the transit services operating along Scarborough Beach Road. Bus services to Osborne Park's industrial precincts are missing or inadequate for the workforce. The same problem applies to Balcatta, which is also characterized by inadequate bus services and lack of integration with the Warwick Station. These issues are being addressed as part of the City's Transport Strategy and the Osborne Park Industrial Area Strategy.

The City's main journey to work travel patterns can be represented spatially (as presented on the next page).

Figure 6 – Journey to Work Travel Patterns of Stirling's Resident Workforce (ABS,2001)

Table 11 below, shows the relationship, or degree of correlation, between the occupations of Stirling's resident workforce, and the occupations available within the local authority boundaries.

Occupation	Stirling's Resident Workforce		Stirling's Workforce		
	Number	Percent	Number	Percent	Shortfall
Managers & Administrators	5278	6.8	4344	7.3	934
Professionals	16 585	21.5	10 064	17	6521
Associate Professionals	10 298	13.3	7600	12.85	2698
Tradespersons	8729	11.3	7543	12.75	1186
Clerical, sales & service	24 687	31.9	20 041	33.9	4646
Production & Transport	4620	6	4331	7.3	289
Inadequately described/not stated	1326	1.7	517	0.9	809
Total	77 309	100	59 157	100	17 083

Table 11 - Employment Composition of Stirling's Resident Workforce and Workforce

The figures imply that the greatest opportunity to increase the actual self-sufficiency rate is by encouraging growth in the provision of professional, clerical and sales employment within the municipality.

As previously stated, the figures for actual self-sufficiency of employment are of somewhat less concern than indicated, as many resident workers not employed within this local authority are either employed across a neighbouring municipal boundary, or alternatively, are occupied in central Perth. The latter is not only relatively close to Stirling, but no less importantly, enjoys sound transit links.

Travel Mode of Employed Workers

Of rather more concern is that few of the workers employed in Stirling travel to work by non-car modes. The table below illustrates the breakdown.

Mode	Number	Percent
Car	44 809	75.74
Public Transport	1 601	2.71
Bicycle	429	0.73
Walked	860	1.45
Other	1543	2.61
Worked at Home	2686	4.54
Did not go to work	6734	11.38
Not Stated	498	0.84
Total	59 160	100

Table 12 -Mode of Travel of Workers Employed in Stirling LGA (Source: ABS, 2001)

Mode	Osb Park Industrial Area	Herdsman Business Park	Osborne Park East	Stephenson Hwy Precinct	Stirling Regional Centre	Balcatta
Car	84.6	83.9	80.5	87	67.6	85.4
Public Transport	3.4	2.5	6.6	2.5	5	1.7
Bicycle	0.8	0.7	0.8	0.8	0.4	0.9
Walked	0.5	0.6	1.3	0.2	1.7	0.4
Other	2.6	1.8	3.3	3.5	2	2.5
Worked at Home	0	0.1	0.4	0	1.3	0.4
Did not go to work	7.2	9.9	6.4	5.5	20.8	8
Not stated	0.8	0.4	0.7	0.4	1.2	0.7

Table 12 -Travel Mode of Workers Employed in Key Employment Areas (Source: ABS, 2001)

What these figures point to is the overwhelming dominance of the car as the preferred mode of travel. Indeed the presentation of the figures unwittingly understates the dominance of this mode, due to the inclusion of certain categories not capturing the actual mode of travel. For example, we can probably assume that most of those who did not go to work on census day also used the car on most occasions when they went to work. The presence of many part time employment opportunities in the Stirling Strategic Regional Centre probably accounts for the large proportion of respondents who reported they did not go to work on census night. Some of those who worked from home on that day may also use the car to reach work on the days they are required at their workplace.

Opportunities and Constraints Analysis
Integration of Housing and Public Transport

Many households within the City reside in areas that are not well served by transit. This particularly relates to non-radial, cross-suburban trips, and travel outside of peak periods, as commuters travelling to and from the central city during the morning and afternoon peaks are generally provided with a reasonable service, in terms of journey time and service frequency (although there are significant differences in the quality of service provision between suburbs).

As the built form, road layout and distribution of land uses have already been established, change can only be achieved incrementally. However, the City should aim to achieve a better integration between the provision

of new housing and public transportation services, as part of a coherent long-term strategy. This objective can be pursued by implementing the recommendations of this Housing Strategy and applying the objectives of the Transport Strategy. In practical, specific terms this means support for additional dwelling stock in areas provided with the best transit services, or places that have strong potential to be served by future high capacity transit. In other words, the City should pursue opportunities for more urban consolidation in optimal locations. This needs to be done in consultation with local communities as part of the Local Area Planning exercise, and by applying the principles discussed in this Strategy.

Targeting higher density development in the most suitable locations can be associated with a number of key benefits. To begin with, increasing the density of population within the walkable catchments of our local centres and higher frequency public transport routes can be amongst the most important means to reduce people's dependence on the private motor vehicle.

Because developers are able to enjoy a higher return on their investments where more density is permitted, the City has greater potential to obtain a higher level of developer contributions to essential infrastructure, and is more likely to encounter a positive response to any development bonuses or split codings that are made available. For instance, developers could be required to contribute to a fund that is established to provide for upgraded footpaths, street trees and furniture, transit infrastructure, and public art (sculptures, fountains, etc). This in turn will help promote these redeveloped/revitalized nodes and corridors, ensuring continuing political and community support for the concept. This could be termed an Activity Centre/Corridor Improvement Fund.

Targeting density in these locations also implies that housing choices are improved, since much of the existing suburban housing is retained, while new forms of housing are also provided. Because the consolidation is targeted, the character, lifestyle and amenity of established low-density garden suburbs are not compromised, resulting in greater community acceptance and support.

Accessibility and Design of Employment Areas

Employment

A large proportion of Stirling's resident workers are employed within the municipality or neighbouring regions, and many Stirling workers are employed in central Perth. This means that a large number of short work trips are being undertaken, with associated potential environmental and quality of life gains. However, although the majority of Stirling's resident workers are not undertaking long work trips, many of those employed outside the Perth CBD are driving to work. The majority of workers employed in our main employment nodes of Osborne Park and Balcatta use their car to access their workplace.

Mixed Use Areas

There is scope to increase integrated employment and housing opportunities within Stirling further. Opportunities exist at local commercial centres and town centres. These areas may allow for mixed use and medium density residential development in future. Other major opportunities exist in the Stirling City Centre, Glendalough Station Precinct, the SEAS area in Scarborough, Mirrabooka Regional Centre, and potentially within parts of the Herdsman Business Park. There is also likely to be a further net gain in employment in parts of Osborne Park (particularly the Herdsman Business Park and Stephenson Avenue precincts) as a result of intensification of land uses, facilitated by sound transport links and other infrastructure, and the generous statutory provisions such as the exemption of a height limit. Much of this employment will be integrated with future housing provision and transit use.

Space for home businesses and home offices could be provided as part of the design of dwellings in our town and local centres. This would complement the provision of mixed-use buildings, in which some of the people working in the ground level shop units could reside in the overlying residential unit.

Provision of short stay accommodation in some of the redeveloped centres such as SEAS and Stirling City Centre would also help generate additional direct and indirect employment for people in the tourism and hospitality industry, in part by extending activities into the night and creating a more vibrant urban environment.

Office and Industrial Areas

Driving the demand for office space is the shortage of commercial floor space in the Perth CBD and the booming state economy. While the economy cannot be expected to indefinitely maintain its current momentum, the long-term trend to office decentralization seems firmly established. Stirling offers some of the best-placed land outside the CBD, in terms of proximity to the freeway and the main north-south passenger rail line, and distance from the centre of metropolitan Perth. As discussed, the City also enjoys a large professional, administrative and clerical workforce that can be employed to work in the new offices.

Existing employment nodes which are primarily accessed by private motor vehicle represent a greater constraint, in as much as the built environment already exists. In some cases, accessibility could be improved with new or better bus services. Retrofitting the urban form represents a longer term and more ambitious plan to improve accessibility but one that is already under way. The City is for example committed to undertaking planning initiatives seeking to improve the connectivity of the Herdsman Business Park to Scarborough Beach Road, in order to enable employees to walk to the high frequency bus routes along that road, and has already succeeded in securing public and private sector contributions for a successful new bus service connecting the office park to Glendalough Station. There may also prove to be opportunities in future to add a residential component into the land use mix at Herdsman Business Park and King Edward Road Precinct.

A comprehensive review of the Osborne Park Industrial Area (forming part of the Scarborough Beach Road Activity Corridor Study) will commence in 2009. This initiative will help to achieve outcomes encouraging walking, cycling and public transport trips, such as upgraded footpaths, street trees and bus shelters. A similar imitative could be applied to Balcatta in future.

Scarborough Beach Road, which bisects Osborne Park Industrial Area and services the Stirling City Centre, is also evolving into an Activity Corridor, which implies further improvements to transit services. This bodes well for employees working in Stirling City Centre, Herdsman Business Park, and the industrial premises north of the road that are within walking distance of these transit services.

Freight accessibility will also be important, and will be facilitated by an upgrade of Scarborough Beach Road (rationalization of crossovers, and provision of turning lanes, median strips, etc). Longer-term opportunities may also exist to service factory units and warehouses by rail, using the existing passenger line (Mandurah-Clarkson) and possible Light Rail links to carry freight (in some cases operating during the night in order to avoid conflicting with passengers). This would be an especially important adaptive change in the event of a fuel price spike, or a steep decline in world oil output following the peaking of global oil production. Without consideration to intermodal facilities and utilization of energy-efficient rail based solutions, rising fuel costs could potentially undermine the competitiveness of Stirling's industrial areas compared to their counterparts in other parts of the metropolitan region that are served by rail infrastructure.

Outcomes

• The availability of locally based employment matching the skills of the resident workforce increases.

• Integration of housing and employment is achieved in the City's mixed-use developments.

• A modal shift towards walking, cycling and public transport occurs amongst the City's resident workforce by increasing the accessibility of employment areas.

FOCUS AREA 5
CLIMATE CHANGE & ENERGY VULNERABILITY

FOCUS AREA 5 - CLIMATE CHANGE & ENERGY SUPPLY VULNERABILITY

Overview
Climate Change

Climate change has thus far expressed itself in a drying winter climate for the South West region of Australia. According to the CSIRO, rainfall has declined by 10%, while runoff into dams has fallen by 30% since the 1970s. There could be a further decline in precipitation of between 5% and 40% by 2030. Since the mid 1970s the Water Corporation has responded to the reduced runoff into dams by tapping into more diverse sources including the Gnangarra Water Mound (with evidence of over-drawing from this renewable resource) and placing water restrictions on households.

In addition to putting pressure on the supply of drinking water, this drying trend has also resulted in a receding water table, as the superficial aquifer declines in response to reduced recharge. Private garden bores have been re-sunk to greater depths where they have run dry. Groundwater in coastal areas is experiencing increased seawater incursion, posing challenges to reticulation of reserves and gardens. Areas built over submerged peat lenses may be vulnerable to subsidence as the peat bodies dry and contract, and this could result in structural damage to overlying buildings and infrastructure. The entire Perth basin is subsiding by 5mm per year. The drying climate can also be expected to exacerbate the problem of acidification of soil and groundwater, with implications for public infrastructure including corrosion of road foundations in vulnerable areas.

The CSIRO also predicts greater vulnerability to coastlines. The UN's Intergovernmental Panel on Climate Change has published sea level rise scenarios ranging between 18cm and 59cm during the course of this century (IPCC 2007). CSIRO and the Australian Greenhouse Office (AGO) also warn of increased power disruptions, as demand for electricity rises while water scarcity creates issues for power generation (need for adequate volumes of cooling water). Coastal reserves are likely to experience significant erosion, and municipalities may respond by constructing sea walls. Alternatively they may decide this option is excessively costly and opt for a phased retreat from the sea and accept the loss of public assets.

In future, there are likely to be more extreme weather events, such as very high velocity wind gusts and floods. According to the AGO, a 25% increase in peak gusts can result in a 650% increase in building damage.

Peak Oil

In future, our energy supply is likely to become more vulnerable to disruption, and our energy costs could increase, according to the International Energy Agency (IEA). The World Energy Outlook 2006, states that "energy supplies are neither secure nor sustainable" (IEA, 2006). The warning was repeated in the IEA's 2008 report, which described current patterns of use as "patently unsustainable" and warned that recent decreases in oil prices threatened to bring forward a substantial supply shortfall by 2015 as a result of supply constraints and decreasing investment in new production (low prices undermining the commercial feasibility of expensive oil field development). There is a growing concentration of liquid hydrocarbon production in a small number of states, some of which may become politically unstable. Combusting oil, coal and natural gas releases carbon dioxide, thus contributing to global climate change. Demand for fossil fuels is soaring, increasing the depletion rate of these non-renewable energy sources.

Although a divergent range of professional opinions exist concerning the timing of the peaking of world oil

and gas production, most forecasts place the peaking somewhere between 2005 and 2020. As suggested by the earlier figure, some commentators are of the view that world output of conventional crude oil has already peaked. Amongst the "early peakers" are such eminent voices as Chris Skrebowski (editor of Petroleum Review), Colin Campbell and Jean Laherre (retired petroleum geologists), the late Samsan Ali Bakhitari (former vice president of the Iranian National Oil Company) and Matt Simmons (a Houston investment banker financing the energy industry, who was Undersecretary for Energy in the first Bush administration). The German based Energy Watch Group has placed the timing of the peaking of conventional crude oil as 2006. The most optimistic estimates are generated by some professional economists and oil companies, including Cambridge Energy Research Associates (which expects peaking not to occur prior to 2030) and the Exxon Corporation, which does not foresee any problem supplying increasing volumes of oil into the future.

However the exact timing is of little significance from a planning perspective due to the long lead times associated with rebuilding the urban infrastructure. As noted by Robert Hirsch, author of a US Department of Energy report published in February 2005 entitled Peaking of World Oil Production: Impacts, Mitigation & Risk Management, "Mitigation will require an intense effort over decades. This inescapable conclusion is based on the time required to replace vast numbers of liquid consuming vehicles and the time required to build a substantial number of substitute fuel production facilities. There will be no quick fixes. Even crash programs will require more than a decade to yield substantial relief ". Moreover, as noted by the Senate Committee Report into Australia's Future Oil Supply and Alternative Transport Fuels (Commonwealth, 2007), the optimistic scenarios are underpinned by an unbridled faith in people's ability to find creative responses to problems, (in this case discovery of major new reserves, design of technology capable of economically extracting lower grade fossil fuels, etc) whereas it is more prudent to consider likely estimates of known reserves, and alternatives that are currently available.

In May 2006, the Portland City Council resolved to adopt a Peak Oil Task Force. The Task Force published its report in March 2007. It predicts major consequences for food production, transport and land use, the economy and employment, and public services. Most of the findings and recommendations are consistent with other studies prepared over the years.

The Report predicts falling agricultural output. This is chiefly because nitrogenous fertilizers are produced from natural gas, and pesticides are synthesized from oil. These chemicals have greatly increased crop yields. Farm machinery runs on oil and its use could therefore also become more restricted in future if alternative fuel sources are not developed. This is significant because modern farm equipment displaced draft animals that required extensive pasture land for grazing, thereby freeing up additional land for cultivation. The Report also notes that as long distance transport becomes more expensive, out of season and imported food will experience the greatest decline of consumption. Highly processed foods are also highly energy dependent and will also play a less important role than today. As a consequence, there will be growing pressure to grow food locally.

As transportation (both freight and passenger) becomes more costly, significant changes to transport and land use can be expected. The importance of rail and water transport for goods movement will increase, while road and air freight will significantly contract. This will increase demand for intermodal facilities in industrial areas. There will be growing demand for housing near jobs, services and public transport. The poor could be pushed out to edges of communities, where they would be required to spend more income on transport. The relocation of business & housing may create new neighbourhood and town centres. There is likely to be increased pressure for mixed use and higher density development, which may conflict with zoning

restrictions. Business may shift closer to customers, workers and intermodal transport. Maintenance of road infrastructure will be difficult due to loss of revenue as a result of declining fuel tax receipts (fewer cars on the road) and falling government revenues generally. The price of asphalt, an oil derivative, will rise. Hence the cost of road maintenance and construction will increase significantly.

The impacts on the economy and employment are expected to vary by sector. New opportunities will present themselves in the supply of goods and services related to energy efficiency and renewable energy technologies. Companies manufacturing components for the railway and shipping industry could also prosper. Agriculture and retailing servicing local markets will grow in importance. The most vulnerable sectors include extractive goods and energy intensive manufacturing, and the production and sale of luxury goods and services. The construction sector is likely to be amongst the worst affected. This is due both to the diminishing purchasing power of consumers, and as a result of rising construction costs. Long distance tourism is threatened by rising air travel costs.

The Report also predicts that housing costs will rise, pushing people into lower quality housing choices. There is predicted to be a growth in shared housing, assisted housing and homelessness. Rising heating bills and loss of income due to unemployment, wage loss and inflation, will result in housing consuming a greater share of household budgets. Foreclosures will increase, and house prices/rents may fall, but not in time to avoid a crisis situation for many. As incomes are stretched, people may skimp on maintenance, resulting in a deterioration of the housing stock, and people may also compromise safety and hygiene. House prices may rise in areas close to jobs and services, forcing out the poor, who will find it more difficult to access jobs and services. The Portland report warns that a lack of heating could increase prevalence of illness. In our context, lack of air conditioning and poorly designed housing are likely to take a greater toll on health, especially if there continues to be a net loss of trees and vegetation in our built up areas, and if global climate change delivers hotter summer temperatures.

Opportunities and Constraints Analysis

Many of the responses to the twin dilemma of declining world oil supplies and global warming will be identical or at least similar. However, each problem throws up its own unique concerns, which will need to be addressed separately. In the case of Portland, the Peak Oil Taskforce Report recommendations are envisaged to be considered as amendments to their Council's existing Local Action Plan on Global Warming. It is important to avoid implementing changes that would achieve progress on one front, only to undermine efforts in the other area of concern.

Climate Change

In response to southern Australia's drying climate trend, our three tiers of government could begin to revise building codes and planning policies to achieve provision of more water efficient dwellings. This process has already commenced, particularly in regard to new energy efficiency standards, in as much as the Building Code of Australia, the Residential Design Codes (WA), various local authority planning policies, and some State based planning codes (most notably the NSW BASIX package) to a greater or lesser extent already insist on design responses that minimise consumption of energy, and in some cases, of fresh water, in order to mitigate climate change. Improving water efficiency is an example of responding to both the causes and consequences of climate change, for reduced water usage conserves energy (mitigating climate change) and also helps to adapt the population to the effects of climate change that are already occurring (declining winter rainfall).

Specific opportunities that present themselves to the City of Stirling include conducting a trial, or 'pilot' of WABASIX. This performance-based development assessment system would introduce mandatory savings in both water and energy usage. Other potential 'tools' include planning policies with specific provisions (such as mandatory rainwater tanks, trickle irrigation systems for gardens, grey water harvesting, etc), and ongoing public education campaigns.

Because the turnover rate of housing is slow, it will also prove necessary to incorporate sustainability retrofits into the existing housing stock. This could be achieved by applying the adopted policy/s or code to any development application for a renovation/extension, or at the point of sale (houses change ownership frequently, meaning rapid uptake of sustainability retrofitting under this arrangement). The City could also chose to help finance the uptake of new water and energy efficiency measures. It could explore the use of fiscal tools such as a rebate, financed through a development levy. Such a levy might apply to developments associated with a larger than average ecological 'footprint', such as those comprising of demolitions of new buildings, or exceeding a certain floor space. The City could also consider forming partnerships with service providers to co-finance such rebates from the separate revenue streams of the respective authorities.

The adverse climatic effects of global warming are not restricted to diminishing winter rainfall. Extreme weather events, including high velocity wind gusts, are also predicted to occur in future as a result of climate change. Should State and Federal authorities fail to respond by implementing revisions to building and planning codes, the City may need to consider taking a proactive and independent lead, in order to ensure the provision of a resilient housing stock. The City's Engineering Department may need to re-consider their approach to stormwater management, if existing compensating basins and drainage infrastructure proves inadequate to handling the additional loads associated with extreme weather events.

The other consequences of our drying climate include receding groundwater and encroaching seawater into coastal aquifers. These raise some very serious and difficult issues.

The City may need to consider alternative sources of water for irrigating coastal reserves in future, such as greater use of rain runoff from roads and roof spaces for example. Given the receding water table, it seems increasingly likely that at some point in the future, State Government may be forced to meter and charge for usage of public and private garden bores. As so much of our housing is sited in beautiful garden suburbs comprising spacious private gardens and expansive public open space reserves, it may be prudent to encourage or mandate grey water systems and/or rainwater tanks as alternative sources of water, combined with encouragement or compulsion to adopt trickle irrigation systems. The City is taking the lead, having recently identified various "hydro-zones" in its POS reserves, which will result in a variable watering regime.

Because the receding water table will in some cases heighten the risk of acid sulfate soils and peat lenses drying out, the problem of groundwater acidification needs to be considered. The City will be required to monitor surface and groundwater on a regular basis, and if acidification is increasing and groundwater plumes are spreading, steps will be required to safeguard infrastructure (concrete in roads and buildings are particularly vulnerable to corrosion). Where it is too late to redress problems, it will prove necessary to replace and rebuild what has been damaged. The City will also need to determine if peat lenses which dry out could collapse and cause structural damage to overlying buildings, including houses, and if so, what measures could be applied to address the problem.

Peak Oil

Some of the responses to diminishing supplies of crude oil and natural gas will be international in scope, and many new initiatives could occur under the auspices of supra-national bodies such as the IEA. Many actions will also take place at the level of the individual nation-state.

International and national measures likely to be pursued with increased vigour include securing alternative energy supplies, improving energy-efficiency standards in motor vehicles and aircraft, structural adjustment of national economies, and increased exploration efforts. Some of these responses could contradict initiatives to reduce Greenhouse Gas pollution. For example coal liquefaction (converting coal into synthetic oil) would result in a net increase in carbon emissions unless technical solutions such as carbon capture and storage are able to work. Likewise, improving energy efficiency may not by itself succeed in reducing per capita consumption of fuel to the extent envisaged due to the workings of the so called "Rebound Effect", whereby savings are offset by greater use (such as when motorists respond to what effectively becomes cheaper motoring due to enhanced fuel economy standards by driving longer distances). National governments are also likely to place renewed emphasis on public transport provision, and some may elect to become more engaged in urban and regional planning. These measures could prove more effective solutions in the long run to addressing the twin dilemma of a global energy crisis and climate change.

At the local authority level, policy measures most likely to effectively mitigate the adverse impact of declining economically efficient energy supplies are related to reducing dependency on the private motor vehicle. These responses will complement work on climate change mitigation, and include many of the items on the "New Urbanist" agenda including, but not limited to, increasing the integration of transport and land use, improving the pedestrian environment, reducing car dependent low density sprawl, and increasing the role of alternative transport. The previous section outlined in more detail the types of changes to the built environment that should be pursued. Although these responses will prove to be highly effective, they can only yield results in the medium to long-term future.

The role of local government could also be increasingly one of crisis management, to an ongoing long emergency. Demand for oil is largely "inelastic", that is, demand does not respond greatly to price, since it is very difficult to find substitutes in many critical applications, and the market will therefore simply bear the higher cost. Hence, a small shortfall in supply results in a large price increase. For example, the Arab oil embargo reduced world oil supply by around 6-7%; however prices increased by 50% in October 1973 and doubled in January 1974 (Portland Peak Oil Taskforce, 2007).

Local governments and their clients are likely to be faced with a continuing set of challenges as they are forced to adapt their lives and activities to the carbon constrained future. Hard pressed residents, ratepayers and businesses are likely to look to all three levels of government for relief, guidance and support. There will be many difficulties posed by oil scarcities and rising energy costs. For example, new ways of providing community services, such as aged care support, will need to be devised. Some residents will find it difficult to access work places or retail outlets. In some cases, their jobs will disappear in response to the disruptive economic influence of energy shortfalls. Major challenges could also lie ahead for the retail sector, as it becomes increasingly difficult to obtain supplies in a timely and predictable manner, and delivery costs spiral upwards. Turnover could fall significantly, if the real incomes of their clientele experience a decline and/or customers find it difficult to reach the shops.

In terms of strategic land use planning, the major contribution that can be made includes the following initiatives. Residential infill development should be targeted in areas proximate to public transport and community

and commercial services. The City should make use of the enhanced development opportunities to enter into constructive "Public Private Partnerships" that facilitate major upgrades to the pedestrian environment and transit infrastructure (the Activity Centre/Corridor Improvement Funds). These can take the form of mandatory developer contributions in higher density areas and further contributions in return for concessions or "bonuses". Applying fees for on-street parking and introducing congestion charging on key road arteries could also be used as additional funding mechanisms. Enhanced transit services and infrastructure will help connect residents to areas providing employment and places in the metropolitan area offering other important services such as hospitals and universities.

As peak oil drives up transport costs, there may well be a reversal of recent trends in the world's economic geography. Rather than continually expand, international trade is likely to contract. Under this scenario, economies once again become more self-sufficient; the economy "re-localises". An increasing proportion of goods and services are produced and consumed locally. Rather than seeing a burgeoning expansion in the import-dependent and car-oriented retail "showroom" sector, the City's Approvals Department is more likely to experience a surge in applications for new manufacturing and repair industries. Thinking strategically, this implies the need to protect the remaining industrial land, and only consider rezoning such land where this can be justified with reference not only to immediate, but also to long term needs and considerations.

Since rail transport is far more efficient than road freight, there will likely be renewed interest in railways as arteries for transporting our goods. Industrial areas, and large shopping precincts that can make use of rail-based infrastructure could well thrive at the expense of their counterparts lacking this infrastructure. The City could examine the scope for utilising the northern passenger line for freight distribution in order support the Osborne Park and Balcatta industrial areas. Alternatively, should an expansion of light rail occur, (such a network could quite conceivably be financed by developers with possible further contributions from State Government), it may be possible to carry goods as well as passengers on the network, thereby easing the burden on retailers, manufacturers and businesses in the wholesale sector.

As transport costs rise, and the key inputs into conventional agriculture become more scarce and costly, (particularly nitrogenous fertiliser manufactured from natural gas; oil-based pesticides; fuels for operating farm machinery) there is likely to be renewed interest in locally sourced food. The City may be able to help by educating people in methods of organic food production. Land could be set aside or reserved for crop planting. For example, a portion of our Public Open Space reserves could be leased as community allotments to the City's residents and/or to individuals wishing to grow permaculture crops on a commercial basis. The City could also help foster partnerships between growers based in nearby locales such as Wanneroo and consumers living in Stirling; i.e. "community supported agriculture". Facilitation and/or provision of new growers markets would help with distribution. The City could also encourage rooftop gardens in some higher density areas. Finally, there may be scope to partner with neighbouring municipalities and leverage developer contributions in order to construct a new passenger/freight transit corridor connecting Stirling with growers in Wanneroo.

The City could also help local manufacturers identify new market opportunities. This would assist with maintaining employment and could ensure provision of new types of locally made farm tools useful in locally based permaculture. Other market opportunities are likely to include energy efficiency and renewable energy technologies, building insulation, and recycling. Being able to source such goods and services from the local market would help buffer against rising transport costs, and enable residents and businesses to support the local economy. Suitably qualified officers from the City could help work with business during the transition

to identify and capitalise on opportunities and minimise the costs. The City could even make available small grants to entrepreneurs with promising ideas, subject to availability of funds and endorsement by a qualified panel. A preferential City purchasing policy might also help establish a new market for locally based innovative industries.

The City should also make use of every possible mechanism to encourage uptake of renewable energies. The concept of a rebate funded through a selective development levy was explored earlier in this section, and comprises one example of a possible funding tool. Another approach would be to require photovoltaic cells in all developments seeking a density bonus in areas earmarked for targeted infill. Increasing the provision of renewable energy is not only a good thing in itself (being a practical method of reducing pollution and emissions of climate altering gases), but will also help shock proof the economy during the turbulent times ahead. If our community can generate a substantial amount of its own power, and potentially even feed surplus energy into the grid, it will both save money and lower exposure to external risks, while also providing some of the electricity that could be utilised by emerging technologies, including cars powered by efficient batteries or compressed air. Electric bikes are another low-cost alternative transport technology that would benefit.

Since the totality of issues raised by "peak oil" and climate change are so complex, it will prove necessary to continue finding and implementing solutions via the existing Greenhouse Action Plan, as well as developing a new Peak Oil Strategy. This section of the Local Housing Strategy aims to complement this process and further inform the preparation of actions delivered under the auspices of these strategies.

Outcomes

•   Housing and the built environment are adapted for projected changes to climate.

•   A robust urban form and economic structure develops which helps protect residents and businesses from the effects of major energy and water price increases and supply disruptions.

FOCUS AREA 6 - DESIGN QUALITIES OF INFILL HOUSING

Overview

In the past, opposition to urban consolidation was partly driven by a concern relating to the design qualities of the final built product. Other objections also played a role, and included criticisms about lack of housing choice (perceptions that family households would be constrained into living in high rise towers with no private open space), altered social composition of neighbourhoods, and loss of traditional streetscapes, built form and heritage. There was a general apprehension that these trends would become dominant features of the urban landscape as a result of blanket infill replacing freestanding homes with units or flats.

It is time to stress that urban consolidation will play an important and useful role in the future planning and evolution of the urban form in the Perth Metropolitan Region, and is supported by this Local Housing Strategy and the State Government's metropolitan planning initiatives. However, in no sense does Council support "broad brush" rezoning of low-density areas without any regard for community values, availability of critical infrastructure or protection of heritage. This is reflected in the City's Local Area Planning project which includes extensive community consultation, aligning community, City and State Government priorities. A theme repeatedly stressed by the Strategy is the need to target infill development into the most effective and appropriate locations, and ensure the future built form meets high aesthetic standards. This approach, coupled with the Local Area Planning project, will help to achieve the continued availability of housing choice within the district.

Stirling is very well placed to help the State Government's Directions 2031 Strategy achieve targets of accommodating a larger share of future population growth within existing urban areas without at all compromising the qualities of existing low density suburbs. As discussed in previous sections of the Strategy, the key centres of the future – the SEAS area in Scarborough, Stirling City Centre, Glendalough Station Precinct, and Mirrabooka Regional Centre - will accommodate very large numbers of people without adversely affecting lower density suburbs. Infill development is proceeding apace in the medium density suburbs (Nollamara, Westminster, Balga and Doubleview) and stylish new mixed-use developments will increasingly be provided in local and town centres (recent developments fronting Beaufort Street in Inglewood provide a working template of these forms of developments). Additional housing may also be provided in other areas of the City (subject to addressing environmental constraints and landowner interest) including East Roselea and some of the existing media sites in Dianella.

The City of Stirling has a diverse housing stock. Chief criticisms relate to the mismatch of house sizes with household sizes, inadequate energy and water efficiency standards, and the poor appearance of some of the medium and higher density developments. Previous sections of the Strategy have explored the issues of house sizes and environmental properties of the built form.

Notwithstanding the considerable diversity of our current housing stock, two trends stand out. One relates to the falling household size, the other concerns declining provision of attached housing. All over Perth, detached housing has been increasing as a proportion of the housing stock, while small households comprise an increasing proportion of the overall share. This trend has recently re-emerged in Stirling, after a period in which there was a large amount of attached housing provision (to some extent this reflects changing definitions, statutory provisions and design solutions; i.e. duplexes have increasingly been superseded by survey strata lots culminating in the same number of grouped dwellings or "villas" per unit land area). Hence, there will be a need to reverse this trend and provide more flats, units and townhouses. Impediments to

the provision of higher density housing are being removed, with increasing scope for such developments in our local centres and redevelopment areas such as Scarborough and Mirrabooka. However, the City could take a more aggressive stance, and refuse applications for developments in commercial centres that do not incorporate a residential element.

In order to attract people to urban living, and win lasting, widespread community and political acceptance of urban infill, even of the targeted form advocated by the Strategy, it is important to recognise that the quality of the new urban form must accord to high standards. This entails providing efficient and engaging contemporary design solutions to the building stock and built environment context. Rather than rezoning every low-density suburb into a medium density R40 or similar density coding, the City should focus on facilitating the provision of attractive apartments, townhouses and mixed-use buildings set in an aesthetically pleasing context.

Opportunities and Constraints Analysis
Medium Density Areas

There are a few key recurring themes relating to the perceived urban design flaws of urban consolidation. Some apply to garden suburbs re-coded to medium density zoning, while others concern higher density developments. A couple of cross cutting themes also can be identified (such as parking and access, and a perceived nexus between density and anti-social behaviour).

In regard to urban infill in formerly low-density suburbs, there is a concern that as average lot sizes shrink, there is a corresponding decrease in the amount of vegetation, including tree cover provided. Hence, the aesthetic character of the area changes, and ambient air temperatures can increase. In some cases there is also a proliferation of unattractive driveways and crossovers, (with potential loss of street trees). Where large numbers of people share accommodation in a single tenanted dwelling, there may be inadequate parking, resulting in verge parking. When the urban retrofitting is not done according to a comprehensive plan applying to each street block, the infill housing tends to be provided behind existing houses. If R Code provisions relating to passive surveillance are not applied, there can be a façade of blank garage doors or walls at the end of each driveway, creating an unfriendly and less secure atmosphere.

The Local Housing Strategy does not advocate re-coding more of our low-density suburbs to medium density, as garden suburbs have many fine attributes such as abundant private open space and tree cover, which are strongly valued by their residents. It is however, considered important to address concerns relating to our existing medium density suburbs.

The City's policy environment and staff resourcing arrangements may need to be revisited, in order to secure greatly increased provision of street trees and private landscaping (as this can partly offset rising air temperatures caused by the inevitable loss of trees on private lots). For example, applicants who can justify removal of a street tree could be required to pay a tree replacement fee above the existing requirement to replace a lost tree with a new one acceptable to Council. In general terms, the City should strive to limit the proliferation of new crossovers. Additional resources would enable the Approvals Business Unit to employ a landscaping officer who could assess applications to remove and replace street trees and help Compliance to protect these green assets.

Consideration needs to be given to front setbacks and verges. The importance of ensuring adequate levels of passive surveillance, provision of screened bin storage areas, and construction of attractive building facades are details that need to be carefully considered during the development application process. It

is recommended Council's streetscape policy be revised, to prohibit garages and carports forward of the building setback line, in order to prevent the development of inappropriate "snout houses" and shading of living room windows.

The City should ensure it provides sufficient attention to local parks and public spaces through the Public Open Space Strategy (as residents should be able to "trade" the loss of private gardens for parkland incorporating enhanced features). This can also be achieved by continuing with the community based planning initiative known as Local Area Planning, in order to identify community needs and preferences. Developments fronting parks could be assessed under a higher density coding due to proximity to open space, subject to meeting appropriate design standards.

Some of these changes may require internal organisational innovations. For example planning applications for grouped dwellings could be vetted by the landscaping officer based in the Approvals Business Unit, ensuring attractive front gardens and non-paved common property areas are provided. In rare cases where two bays per dwelling may not suffice, on-street parking should be facilitated, as this is an acceptable alternative to destructive verge parking (with loss of lawns and shrubs). This may require changes to the City's parking policy, with provision of permits for residents and visitors. Resourcing may need to be increased for the City's Parks Business Unit, to ensure they are able to increase provision of street trees.

Retention of heritage qualities is considered an important objective, as it helps to retain a strong sense of place, so often lacking in hastily built "cloned" dormitory suburbs, and provides a tangible link to the past. The Strategy recommends Council give consideration to protecting these precincts from inappropriate redevelopment pressure. A practical means to augment existing policy provisions would be to either reduce the density coding applying to heritage precincts or alternatively, applying a split coding. The latter would effectively permit subdivision and new development subject to the preservation of existing heritage structures such as houses and outbuildings.

Where possible, medium and higher density precincts should be designed to be served by rear access and parking arrangements. Unfortunately, this arrangement can usually only be achieved in circumstances where a development is commencing on the basis of a "clean sheet" as in the Stirling City Centre or in suburbs that are served by existing Right of Ways, such as Doubleview. This does not rule out scope for future developments entailing lot amalgamation and re-subdivision that incorporate such New Urbanist design principles (though multiple land ownership patterns suggest this will be a relatively infrequent occurrence). Such an outcome could however be encouraged by applying split codings to some of our R40 suburbs; developments that provide rear access (typically following lot amalgamation/re-subdivision) being assessed under a higher (e.g. R60 or R80) coding. An important guiding principle should be functionality and security, in particular relating to the ability of waste management vehicles to use the rear lanes (or suitable pedestrian access to the front street, enabling rubbish collection from existing roads) and the provision of passive surveillance and lighting. Some of these matters will be progressed as part of the City's Right of Way Management Strategy.

Higher Density and Mixed Use Precincts

Higher density areas have been criticised for being set in large "sterile" spaces, designed with uninteresting facades and not being integrated with other activities. There may be inadequate passive surveillance, and apartments can have high running costs (maintenance of common property facilities including lifts, lights, hot water systems, air-conditioning, etc). Where they are adjacent to low-rise developments there can be legitimate angst from neighbours relating to overlooking and overshadowing concerns. Inadequate public transportation

services and a poor walking and/or cycling environment can reinforce car-dependency, the impacts of which may be magnified in areas of higher population density, resulting in greater levels of automobile traffic and parking/access problems.

In addressing these concerns, the City can respond by "raising the bar" at the development assessment stage. This could be achieved by developing new or revised policy and Scheme provisions. The traditional approach to Town Planning was too often based on setting minimum prescriptive standards in relation to setbacks, heights and parking provision, as opposed to an "outcomes" focus, that seeks to achieve an attractive and engaging form of development, while retaining flexibility to allow for building innovation and site-specific design responses. A successfully revised statutory policy environment would probably entail applying both performance-based design requirements and appropriate forms of prescriptive standards. The applicant would need to demonstrate compliance with these respective requirements. These could relate to articulation of facades and use of different colours and textures, provision of car parking behind or underneath the building, and appropriate forms of landscaping. Prominent architectural features should be considered for corner sites to improve legibility, impart a stronger sense of place, and build civic pride. Approval should always be subject to windows from habitable rooms facing the street, while north and west facing openings should be protected by suitable measures such as awnings or balcony overhangs. Opportunities for natural lighting and cross-ventilation, and protection of neighbouring visual and aural amenity, are also features that should be included in the City's residential planning policies and consistently applied to achieve good urban design and built form outcomes.

The City is also moving towards adopting a larger scale approach, by treating neighbourhoods and redevelopment areas as discrete entities. This approach tends to express itself in the identification of chosen "palettes" informed by existing traditions or community expectations; preparation of design guidelines for separate urban precincts; and planning the overall urban design of each higher density area. These measures will help determine the scale, bulk and height of each street block; plan the setbacks, verge treatments and street level "activation" along each road; and ensure provision of high quality pedestrian environments and engaging and attractive public spaces.

The ability to use developer contributions and enter into constructive Public Private Partnerships is explored in the next chapter, in relation to revitalized commercial centres incorporating residential developments and redevelopment of land in designated Activity Centres and Corridors. Higher density development/ redevelopment opportunities are associated with windfall profits to developers, some of which can be ploughed back into the sites to ensure the highest quality urban environments that showcase these developments, and can sustain ongoing activity by providing the best infrastructure, such as higher capacity transit and up to date telecommunications.

Outcomes

• Medium and high-density areas assume an aesthetically pleasing form.

• High quality parks and public spaces offset the reduction of private open space.

• The character of heritage precincts and individual heritage buildings are preserved.

FOCUS AREA 7

DIRECTIONS 2031 IMPLEMENTATION

FOCUS AREA 7 - DIRECTIONS 2031 IMPLEMENTATION

Overview

Implications of Directions 2031

The recently released Directions 2031 document is the new guiding strategic framework for the Greater Perth Region, and therefore has major significance for strategic planning in the City of Stirling. Similar to Network City, Directions 2031 envisages the Perth region being comprised of an interconnected network of centres, served by high frequency transit. Each region of the metropolis would harbour significant levels of diverse activities, in order to limit the need for long distance travel. In the Network City document, high order uses such as commercial offices, department stores, hospitals, and entertainment venues, as well as high-density housing, would cluster in new Activity Centres, interconnected by Activity Corridors. However, a number of transport corridors would also be provided to ensure opportunities for efficient freight movement and cross-regional travel. Directions 2031 removes the emphasis put on Activity Corridors and instead focuses on defining the hierarchy of Activity Centres in the Greater Perth Region.

The successful implementation of the Directions 2031 Strategy would see the nexus between transport and land use re-established in Perth after a long hiatus of several decades in which planning was dominated by a mobility paradigm. This resulted in development of automobile-dependent communities. However, in order for this conceptual strategy to find practical application, the support of each respective local authority will be required.

In this respect, the City of Stirling's Local Housing Strategy can be instrumental in helping achieve the goals of Directions 2031. The Council will need to support the development potential of Activity Centres. Introducing new statutory mechanisms such as minimum densities, incentives for lot amalgamations, and appropriate developer contributions and design guidelines all represent potential means for progressing this agenda.

Additionally, Directions 2031 aims to accommodate 47% of all new dwellings within existing built up areas. The City will play an important role in achieving this objective. Significant potential for new residential and employment provision exist in Stirling City Centre, the Glendalough Station Precinct, the SEAS area in Scarborough, the Mirrabooka Regional Centre and in the many local centres that are envisaged to become mixed-use nodes. In addition, considerable future infill is anticipated in medium density suburbs such as Nollamara, Westminster, Balga and Doubleview.

Redevelopment of Activity Centres

The Local Housing Strategy seeks to increase opportunities for transit use by improving the integration of land use and public transport planning. In respect to Directions 2031 this means supporting infill housing within the walkable catchments of activity corridors and centres. The nature of the built form also needs to be considered, in order to ensure adequate provision of housing with suitable characteristics within these preferred locations. This means adequate supply of affordable dwellings, and residences of an appropriate size and design to cater for small households and the elderly (while also recognising the need to attract family groups). Ensuring development of buildings with agreeable aesthetic properties in these locations should also be a priority.

These outcomes can be achieved by agreeing to assess developments incorporating desired features under a higher coding, mandating the provision of a certain percentage of special purpose dwellings (affordable housing, single bedroom dwellings or age sensitive accommodation), and adopting a set of design guidelines under which higher density developments would be assessed.

The design of residential and mixed-use developments in close proximity to activity corridors and within activity centres will need to consider the issue of noise attenuation from traffic and non-residential uses. Again, this outcome could be achieved through adopting a relevant policy or design guideline applicable to higher density housing provided in these types of locations.

Another specific means with which to further the goals of the State Strategies will be to revisit the form and purpose of the suburban shopping centres. These single use facilities, surrounded by "seas" of surface parking and low-density housing are widely seen as lacking in vitality, interest and aesthetically pleasing designs. As they already provide retailing, and are associated with the potential for new development opportunities, these nodes can be redesigned to incorporate medium and high density housing, non retail commercial services, and vibrant public spaces fronted by active uses to help build social capital, and make the suburbs more interesting. This will complement the goal of the City's draft Local Planning Strategy, which seeks to create the right conditions for the long-term sustainability and enhancement of the existing centres by promoting the transition of the City from a suburban area to an inner city urban area, ensuring centres remain accessible and provide a wide range of functions, and locate employment generating activities at centres.

Typically our existing commercial nodes are comprised of single-use shopping centres. Our major traffic arteries are either fast-moving corridors connecting different metropolitan regions (such as the Mitchell Freeway and Reid Highway) or slow moving main roads fronted by a mix of predominately low density residences and commercial developments including showrooms, fuel stations and fast food outlets (such as Wanneroo Rd and Scarborough Beach Rd). In older suburbs we have examples of centres and corridors that already display many of the qualities we now associate with Activity Centres/Corridors, namely Beaufort St, and to a lesser extent, parts of Main St.

The majority of our commercial centres are currently dominated by single uses, namely retailing. Their walkable catchments tend to be lacking in a significant amount of higher density residential development and generally display poor walkability. These characteristics impede their future growth and development. Hence, an important principle espoused by this Strategy, is to support a comprehensive redevelopment of the ped sheds of identified Activity Centres. Such redevelopment could be supported by increasing density codings, and by enhancing the qualities of the urban environment.

Developments embracing design principles informed by New Urbanism (rear access and parking) could be assessed under a higher coding to encourage lot amalgamation and re-subdivision. Alternatively, a single higher coding could be used to incentivise the market to achieve these outcomes. Improvements to the urban design qualities of our Activity Centre precincts could also be achieved by systematically and comprehensively upgrading our road reserves and other land owned by the City (e.g. greater provision of street trees, benches, footpaths) and mandating better design standards from developers ensuring the provision of attractive forms of higher density housing. The City could also capture some of the surplus value generated by redevelopment. This could be achieved through the formation of Public Private Partnerships between the City and private developers, which in turn could help fund a variety of amenity-enhancing measures, and go some way towards financing upgraded infrastructure (e.g. transit) in collaboration with the relevant State authorities.

Stirling's existing shopping centre hierarchy is fully developed. As stated by the City's draft Local Planning Strategy, the purpose of future Council strategies will be to "retain and enhance the vitality, amenity, profitability and level of service of the existing shopping centre network". The Local Housing Strategy can play a pivotal role in furthering this endeavour, complementing the work of relevant commercial strategies and policies.

The Strategy goal relating to targeted urban consolidation around transit oriented, mixed-use precincts would be well served by the revitalisation of our shopping centres. "Re-inventing" the role of shopping centres and other commercial sites is a principle supported by this Strategy. It is considered desirable for us to move away from the "old model" which comprised of the car oriented and largely single use, retail node, characterised by spacious, ground floor retail services surrounded by a "sea" of car parking. These centres lack diversity or interest. They rarely if ever host activities after shopping hours. The only public space tends to be car parking and some paved areas around the perimeter of the under-cover shopping complex. Rather than attractive facades we see barren walls. Apart from retailing, we may find the occasional bank branch, travel agent or hairdresser, but hardly a robust mix of services and activities that one would normally associate with the phrase "centre" or the terms "node" or "hub". We never find accommodation within these developments, neither permanent nor short stay.

Opportunities and Constraints Analysis

Stirling's shopping hierarchy is diverse and well established. The older suburbs tend to have strip shopping along "main streets", reflective of their grid street pattern context, which was formed during the pre-automobile dominated stage of urban development. These sites are characterised by an increasing diversity of uses. They can be thought of as existing "Activity Corridors" and are becoming increasingly popular with many in the community. They are now seen as offering significant benefits including better non car based access and establishing a sense of place, which is so often lacking in the more recent suburbs. Some of these precincts could benefit from some further upgrading and streetscape enhancement. It should be noted, however, that in recent years the City has increasingly played its part, as seen from the improvements to the urban design qualities of Inglewood Town Centre and the Main Street shopping precinct.

In most developed suburbs, the WAPC's *Metropolitan Centres Policy* has guided development. This policy places centres into a hierarchy based on size as defined by retail floor space and no limits are placed on ancillary services. However, a new draft State Planning Policy *Activity Centres for Perth and Peel*, is set to replace the *Metropolitan Centres Policy*. In this Policy, local nodes are defined as Neighbourhood and Local Centres, while the large, "big box" shopping centres have been classified as Regional and District Centres. The draft policy also requires that Centre plans be prepared for all Centres (except local and regional) prior to major development being permitted.

Some of the smaller centres, providing convenience shopping, have struggled over the years. According to the draft Local Planning Strategy, the larger and newer Neighbourhood Centres are tending to fare better than the older and smaller Local Centres. The increasing popularity of Regional Centres appears to be at the expense of some of these smaller centres. The City is supportive of the role of smaller centres and has produced urban design studies (e.g. Flora Terrace) focussing on pedestrian/vehicle access, paving and landscaping.

The larger centres are currently experiencing a high degree of commercial success and enjoy wide customer patronage. However, most customers rely on their automobile to access these shops with resultant negative environmental externalities. Other criticisms relate to the lack of opportunities for small business, (shopping centre proprietors tend to favour large franchises over start-ups) uniform architectural designs, limited range of non-retail services and the absence of public spaces.

The City is actively engaged in the planning of the ambitious redevelopment of one of its largest shopping centre precincts, being Mirrabooka Regional Centre. Many of the themes identified in this Strategy were

applied to the structure plan and scheme provisions guiding the redevelopment, and comprised elements such as a main street with active street frontages, mixed uses, public spaces and medium-density residential developments. This is the model to emulate in order to provide for more diverse housing choices, and increase opportunities for locally based employment and services. This endeavour will also help to create a sense of place, facilitate developments of a higher aesthetic standard, and create opportunities for human interaction, thereby building civic pride and social capital.

By reinventing the role of our shopping centres, we move away from the single use centre model that "dies" after close of shopping hours, to creating engaging and vibrant activity centres, with active uses fronting streets and inclusive new public spaces. Increasing the residential population in and around these centres increases their market size, enhancing commercial opportunities for existing businesses and opening possibilities for new firms. Activating the frontages of these new streets and public spaces expands the scope for business and creates fertile ground for entrants into new niche markets. This complements the draft Local Commercial Strategy's objectives of increasing employment and providing a wide range of functions, and results in activity being spread longer during the course of the day and into the evening. This in turn boosts the sense of vitality, and improves the business environment. It also helps to create a more even flow of people than current arrangements, thereby helping public transport providers who currently struggle to meet peak demand and face losses related to maintaining a large fleet that is under-utilised for much of the day.

Increasing the scope for residential and commercial development, and improving the urban design qualities of these centres creates the potential for significant net capital gains for landowners, developers and business operators. It is only equitable that a portion of these private gains, or "windfalls" goes back to the community. Hence, the Council should consider applying a Public Private Partnership model, whereby it creates a sustainable new source of money for the Activity Centre Improvement Funds that were contemplated in the previous section, when exploring the future direction of development in a more carbon constrained world. Light rail systems, enhanced pedestrian environments (footpaths, street trees/furniture), high-capacity telecommunications infrastructure, and public art and sculpture, are possibilities that emerge as a consequence of mutually beneficial collaboration between public and private sectors and the different levels of government. This helps achieve an urban form with stronger foundations and facilitates an attractive urban design that wins recognition for the City. The concept of urban living is successfully promoted, resulting in more uptake of alternative living arrangements to the traditional detached dwelling, helping increase housing choices, constrain outward sprawl and reinforce the viability of transit services.

Redevelopment of areas within the walking catchment of existing commercial centres will need to be guided by the City, and can be expected to face numerous barriers, chief amongst which are the diverse ownership patterns of landholdings, existing investments in built form and infrastructure, and prevailing lot boundaries.

The City cannot compel the owners of a shopping centre site to be redeveloped with activated street frontages, or to supply residential or commercial floorspace in the absence of an application for a new centre or major expansion of an existing one. Nor can the City require shopping centres and other commercial landowners to consolidate surface car parking and make room for vibrant public places or new developments. However, the City can engage with all major landowners, playing the role of being a "champion" of change, and could also make provision for planning approvals to be conditional on provision of these uses and facilities.

Beyond such measures, the City can also change the zoning and policy environment prevailing over the walkable catchments of shopping centres, removing potential statutory barriers that may constraint their future growth and redevelopment. By making redevelopment within the ped sheds of our shopping centres

and existing commercial nodes more viable and indeed attractive, we create an environment in which major landowners derive greater benefits from engaging in our redevelopment efforts. Mutually beneficial outcomes in this context could include better integration of shopping centre sites with their urban surrounds, rationalisation of surface parking (taking advantage of improved accessibility via non-car based modes) and provision of non-retail uses including residential apartments (which could become more commercially feasible as a result of a comprehensive urban regeneration of their walkable catchments). Short or long stay accommodation units could be sited above (i.e. new levels built over an existing structure) or adjacent to existing shopping centres/commercial sites. Alternatively these could be integrated into a new redevelopment.

Outcomes

• Higher density residential dwellings are integrated with shopping centres and commercial precincts.

• Population densities increase within the pedsheds of Activity Centres.

• Commercial centres offer a greater range of services and employment and are integrated with open spaces and streets.

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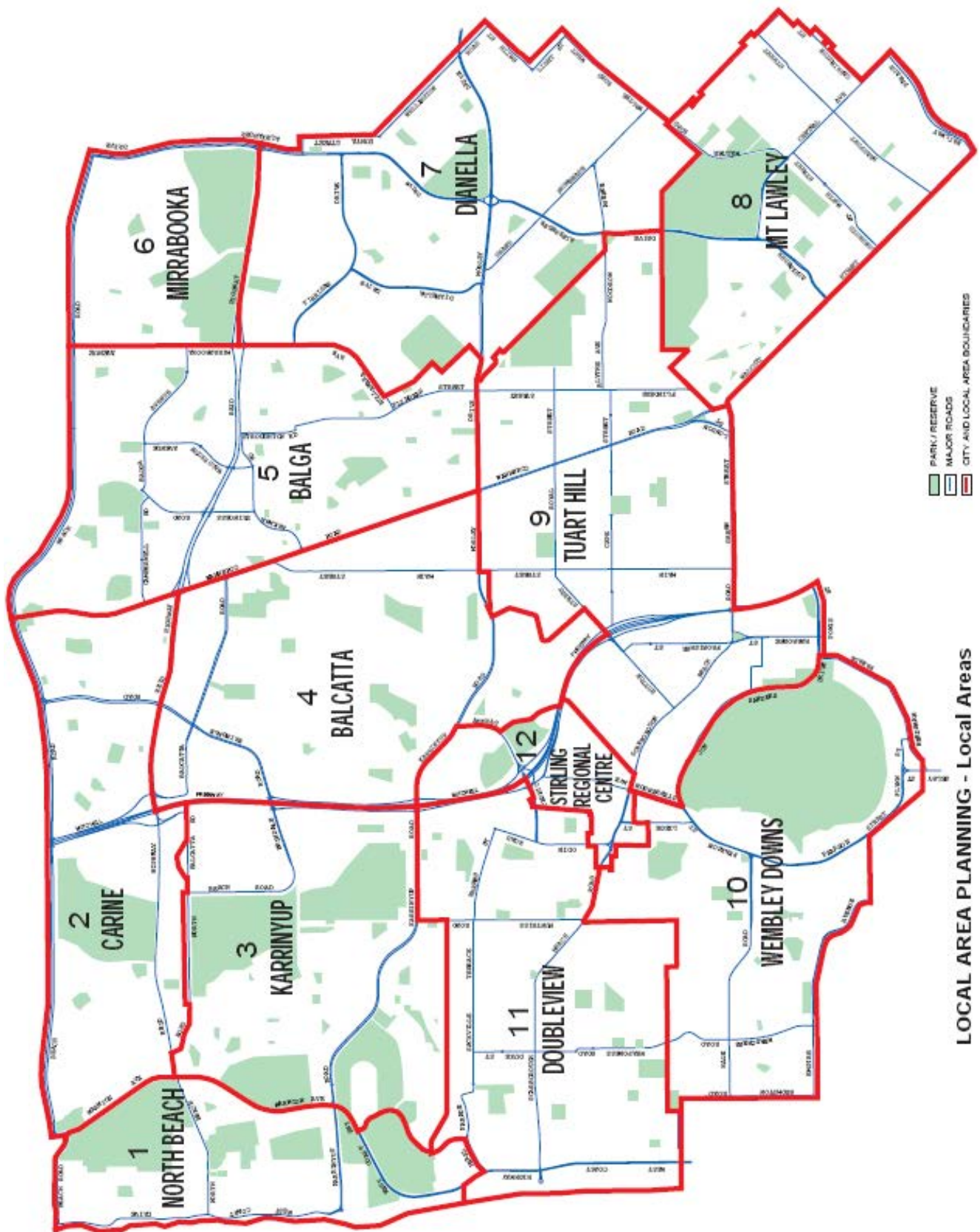
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APPENDIX
Local Area Planning Map

LOCAL AREA PLANNING - Local Areas

PARK / RESERVE
MAJOR ROADS
CITY AND LOCAL AREA BOUNDARIES