

Shire of Ashburton

Local Planning Strategy



Endorsed by the
Western Australian Planning Commission

21st June 2021

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LOCAL PLANNING STRATEGY

Part One

Certified for Advertising: 27 March 2018

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	Revision	Reviewer	Date Issued
Shire of Ashburton Local Planning Strategy	16/028-1	RC	Jan-17
	16/028-2	RC	Sep-17
	16/028-3	RC	Nov-17
	16/028-4	RC	Apr-18
	16/028-5	BL	Mar-21
	16/028-6	BL	Apr-21

In association with:

Essential Environmental – Environment

Serling Consulting – Civil Engineering

Donald Veal Consultants – Traffic and Transport

ADVERTISING

The Shire of Ashburton Local Planning Strategy certified for advertising on 27 March 2018.

Signed for and on behalf of the Western Australian Planning Commission

Sean Collingwood

*an officer of the Commission duly authorised by the Commission
(pursuant to the Planning and Development Act 2005)*

Date: 27 March 2018

ADOPTED

The Shire of Ashburton hereby adopts the Local Planning Strategy, at the Ordinary meeting of the Council held on the

10 day of November 2020

Kerry White

SHIRE PRESIDENT

Kenn Donohoe

CHIEF EXECUTIVE OFFICER

ENDORSEMENT

Endorsed by the Western Australian Planning Commission.



*an officer of the Commission duly authorised by the Commission
(pursuant to the Planning and Development Act 2005)*

Date: 21/06/21

PREAMBLE

This Local Planning Strategy provides the strategic land use and development rationale for delivering the Shire of Ashburton's vision of a vibrant and prosperous place for work, leisure and living. It has a particular focus on the three towns of Onslow, Tom Price and Paraburdoo as the major settlements administered by the Shire of Ashburton. The Local Planning Strategy assumes that these three towns will remain the hubs for population growth and new housing, commerce and employment, community services and facilities, and tourism.

The Strategy forms part of an integrated suite of documents that collectively form the Shire's planning framework, consisting of its Strategic Community Plan, the Local Planning Strategy, and its local planning scheme. The Strategy is a guiding document that can be amended as required, such as when there are significant changes in policy or if other factors emerge that would influence the growth and development of the towns, Aboriginal communities, or rural areas within the Shire. By its nature, it is intended to be dynamic, providing flexibility rather than being prescriptive, so that it is responsive to the Shire's and the community's aspirations.

The Shire of Ashburton experienced unprecedented population growth, infrastructure investment, and economic development during the resources boom, with the towns of Onslow, Tom Price and Paraburdoo particularly affected. Building on this recent growth, it is an opportune time for the Shire to develop and implement its strategic vision for the sustainable and long-term development of the main townsites and Aboriginal communities. This strategic focus and planning direction for the next 15 years will provide guidance to the local government in terms of land use, development control and infrastructure coordination in the context of the Shire's broader environmental, social, and economic goals.

The Shire of Ashburton is embracing the opportunities presented to it as a result of the resources boom, leveraging these to identify and deliver the community's needs and aspirations. As described in its recently adopted *Strategic Community Plan 2017 - 2027*, the Shire is committed to delivering vibrant and active communities, economic prosperity, heritage and environment protection, quality services and infrastructure, and inspiring governance. The Local Planning Strategy contributes to achieving these strategic community goals within the context of the State's planning framework.

The Shire's current local planning scheme, the *Shire of Ashburton Local Planning Scheme No. 7 (LPS 7)*, is to be revoked and replaced following the preparation of a new local planning scheme, anticipated to occur following the adoption of this Strategy. The Local Planning Strategy is a statutory requirement under the *Planning and Development Act 2005* and forms the strategic basis for preparing a new local planning scheme.

The local governments across the Pilbara region have inherited a legacy from the resources boom through the development of mining and hydrocarbon industries, and services that support the major producers. More recently however, shifts in global market demand for the region's major exports of oil, gas and iron ore have changed the economic landscape, with reduced prices for these commodities reflected in resource companies seeking greater production efficiencies and general spending reductions. Further, the transition of many major projects from labour-intensive construction phases to operational phases has also led to the reduction in the number of temporary workers across the region. A positive response to this new economic environment will be to focus on greater economic diversification as a means towards creating more resilient towns that can better withstand booms and busts within the mining and oil and gas sectors.

The Strategy consists of two parts:

Part 1 – The Strategy incorporates the strategic plans and actions required to implement the Strategy.

Part 2 – Local Profile and Context Report provides the relevant background to the Strategy, including the analysis of information and the rationale for the Strategy.

During 2016, a number of stakeholder meetings were held and Stakeholder Position Statements were completed, which have been valuable in identifying issues and opportunities relevant to the Local Planning Strategy.

LIST OF ACRONYMS

AAGR	Average Annual Growth Rate
ABS	Australian Bureau of Statistics
ANSIA	Ashburton North Strategic Industrial Area
BAL	Bushfire Attack Level as defined in SPP 3.7 Planning in Bushfire Prone Areas
BHL	Bushfire Hazard Level as defined in SPP 3.7 Planning in Bushfire Prone Areas
CHRMAP	Coastal Hazard Risk Management and Adaptation Plan
FIFO	Fly-In, Fly-Out
LPS	Local Planning Strategy
OLS	Obstacle Limitation Surface
OMSB	Onslow Marine Support Base
PAN-OPS	Procedures for air navigation services – aircraft operations
PDC	Pilbara Development Commission
R-Codes	Residential Design Codes of Western Australia
SPP	State Planning Policy
LPS 7	Shire of Ashburton Local Planning Scheme No. 7
UCL	Unallocated Crown Land
WA	Western Australia
WAPC	Western Australian Planning Commission
WFA	Workforce Accommodation
WWTP	Wastewater Treatment Plant

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1 INTRODUCTION

This is the Shire of Ashburton's first Local Planning Strategy and it represents the land use planning rationale and justification for achieving its strategic planning goals within a regional and state-wide context. The Local Planning Strategy provides a vision for a time horizon of approximately 15 years and is a prerequisite to undertaking a review of the existing Local Planning Scheme No. 7 (LPS 7). The Strategy sets objectives for addressing social, environmental, resource management and economic factors, which would affect land use and development. The Local Planning Strategy has regard to State and regional planning policies, adopted structure plans, and the existing local planning framework.

The Shire of Ashburton is located within the Pilbara region of Western Australia (refer **Figure 1**) and covers an area of 100,910 square kilometres. The Shire was formed in 1972, as a result of the amalgamation of the Shires of West Pilbara and Tableland. In 2016, the Shire of Ashburton was home to approximately 13,026 people.

The Pilbara region is a significant economic contributor to the State and National economy by being a major source of natural resource wealth, primarily through its iron ore and hydrocarbon reserves. The State Government has directed significant expenditure into the Pilbara region, primarily focused on Karratha, but with funds also allocated throughout the region. This expenditure has facilitated positive economic and community outcomes guided through the *Pilbara Regional Investment Blueprint* and delivered through the *Pilbara Planning and Infrastructure Framework* and the *Royalties for Regions* programme. It has been calculated that for every \$1 spent through the programme, there has been an equivalent \$1.50 spending of private sector investment. This level of investment within the Pilbara region has helped create a greater level of permanency in the towns, and this is expected to strengthen in the future.

In addition to iron ore and oil and gas, the Shire's other significant economic contributors include its tourism industry, pastoral leases, and indigenous cultural tourism. To sustainably maintain the economic strength of the region, key regional towns must be given the opportunity to develop as self-sufficient communities that provide their own character, amenity, services, employment, and other needs of their residents and visitors. The transformation and diversification of local economies will enhance liveability and produce a wider range of opportunities for the community.

1.1 PURPOSE OF THE LOCAL PLANNING STRATEGY

The Strategy is not a stand-alone document, but forms part of an integrated suite of documents that collectively form the Shire's planning framework, consisting of the *Strategic Community Plan*; the Local Planning Strategy; and LPS 7. The Strategy is a guiding document that can be amended to respond to changes in policy and other factors that may influence the Shire's growth and development over time. By its nature it is a dynamic document, providing flexibility rather than being prescriptive, to achieve the Shire's, and ultimately the community's, aspirations.

The Local Planning Strategy:

- (a) Sets out the long-term planning directions for the local government;
- (b) Applies State or regional planning policies that are relevant to the Strategy; and
- (c) Provides the rationale for zoning or classification of land under the local planning scheme.

The Strategy expresses the strategic vision, policies and proposals for the local government. The Strategy may be used to partner with and/or lobby State and Federal government to implement the strategies and actions, acknowledging that some implementation will need to extend beyond land use planning. Collective and coordinated planning within all levels of government and the private sector will build confidence and assist with prioritising infrastructure and service provision.

1.2 FORMAT OF LOCAL PLANNING STRATEGY

The Strategy consists of two parts in accordance with the *Local Planning Manual*.

- **Part One** – The Local Planning Strategy incorporates the strategic plans and actions required to implement the Strategy.
- **Part Two** – Local Profile and Context Report (prepared in conjunction with the Project Consultant Team) provides the relevant background to the strategy, including analysis of information and the rationale for the Strategy.

The Strategy was produced by the Shire of Ashburton's project consultant team:

- Environmental (Essential Environmental);
- Traffic & Transport (Donald Veal Consultants);
- Strategy Report and Economic (Taylor Burrell Barnett); and
- Service Infrastructure (Serling Consulting).

Other significant contributions to the formulation of the Strategy have included:

- *Pilbara Cities*;
- *Pilbara Regional Investment Blueprint*;
- *Pilbara Planning and Infrastructure Framework*;
- *Onslow Townsite Strategy, Onslow Townsite Expansion Structure Plan and Onslow Townsite Expansion Stage 1 Development Plan*;
- *Assessment of Accommodation Need in Tom Price, Onslow and Paraburdoo* (2015 and Onslow Update 2016);
- *Regional HotSpots Land Supply Updates – Newman and Tom Price* (2015); and
- Available information from Rio Tinto in relation to growth and development within Tom Price and Paraburdoo.

1.3 STRATEGY AREA

The Shire contains four townsites (Onslow, Paraburdoo, Tom Price and Pannawonica), four recognised Aboriginal Settlements (Bellary Springs (Innawonga), Wakathuni, Youngaleena Bunjima, and Ngurrawaana), one town-based community (Bindi Bindi), as well as a number of Aboriginal communities including Jundaru, Noualla and Yathalla. There are numerous isolated mining workforce accommodation camps throughout the Shire with limited opportunities for interaction or integration with permanent, established communities.

This Strategy outlines the Shire's preferred growth pattern scenario for Onslow, Tom Price and Paraburdoo. It provides strategic objectives and actions that address population growth (in townsites, Aboriginal communities and rural areas), economic development/diversification, traffic and transport, community services and spaces, natural environment and resource protection, infrastructure and utilities. It will guide land use planning over a 15-year period and provide the rationale for land use and development controls established in the local planning scheme and other plans and policies.

The medium-term population forecasts for the Shire indicate population growth could range from 12,200 to 15,400 people by the year 2026. This growth will primarily occur within Onslow, Tom Price and Paraburdoo, maximising opportunities for new and existing residents to interact, and to use existing utilities, retail, commercial, recreational and community facilities. As a company town, Pannawonica is outside the scope of this Strategy, and any population changes in Pannawonica will be directed by Rio Tinto.

The Strategy applies to the Shire of Ashburton local government area, as illustrated in **Figure 1**. The Shire of Ashburton is one of four local governments in the Pilbara Region, sharing borders with the Shires of Exmouth and Carnarvon to the west; Shires of Upper Gascoyne and Meekatharra to the south; Shire of East Pilbara and Town of Port Hedland to the east; and the City of Karratha to the north.

Figure 1 Location of the Shire of Ashburton



The Shire of Ashburton is located approximately 1,000 kilometres north of Perth. It stretches approximately 500 kilometres west to east from the coastal beaches, rocky headlands, mudflats and mangroves around Onslow, across the Stewart Hills to Pannawonica, and the Hamersley Ranges to Tom Price and Paraburadoo.

The Shire is best known for mining, agriculture and fishing and is home to some of the world's largest open cut mines and immense pastoral leases. It is also known for its rugged hinterland where its ancient landscape supports a growing tourist industry.

2 STRATEGIC COMMUNITY PLAN AND ALIGNMENT TO THE STRATEGY

The Shire's Community Vision is articulated in the *Living Life – Strategic Community Plan 2017-2027*:

We will embrace our unique Pilbara environment and lifestyle through the development of vibrant, connected and active communities that have access to quality services, exceptional amenities and economic vitality.

The overall objective of this Local Planning Strategy is to guide growth and development in the towns and rural and rangeland areas over the next 15 years. Strategies and actions have been prepared having regard to the five goals established in the *Strategic Community Plan 2017-2027*, so that planning goals are closely aligned to the community's aspirations and vision for the Shire of Ashburton.

The Strategy vision statements as set in **section 3** of Part 1 of the Strategy give serious consideration to economic growth and diversification, sustainable population growth, protecting the heritage and environment, and the governance of the Shire, reflecting the goals and objectives below as set in the *Strategic Community Plan 2017-2027*.

Goal 1 – Vibrant and Active Communities

- Objective 1 – Connected, caring and engaged communities
- Objective 2 – Sustainable Services, Clubs, Associations and Facilities
- Objective 3 – Quality education, healthcare, childcare, aged care and youth services
- Objective 4 – A rich cultural life

Goal 2 – Economic Prosperity

- Objective 1 – Strong local economies
- Objective 2 – Enduring partnerships with industry and government
- Objective 3 – Well-managed tourism

Goal 3 – Unique Heritage and Environment

- Objective 1 – Flourishing natural environments
- Objective 2 – Leading regional sustainability
- Objective 3 – Celebration of history and heritage

Goal 4 – Quality Services and Infrastructure

- Objective 1 – Quality public infrastructure
- Objective 2 – Accessible and safe towns
- Objective 3 – Well-planned towns

Goal 5 – Inspiring Governance

- Objective 1 – Effective Planning for the Future
- Objective 2 – Community ownership
- Objective 3 – Council leadership
- Objective 4 – Exemplary team and work environment

3 VISION STATEMENTS

Vision statements have been prepared for the Local Planning Strategy to align with the five goals of the *Strategic Community Plan 2017-2027*, as demonstrated below. The Vision Statements have direct connection to the Strategies and Actions contained in **section 5**.

Vibrant and Active Communities

The Shire of Ashburton will have a sustainable and permanent residential population that predominately is based in the towns of Onslow, Tom Price, Paraburdoo and Pannawonica. This will focus on carefully considered growth and well-planned expansion of the towns. The Aboriginal Settlements will be properly serviced to improve the quality of life for their residents.

Economic Prosperity

The Shire of Ashburton will enjoy a diversified economy that takes advantage of transformational opportunities. The towns will benefit from a range of retail and commercial businesses to meet existing and future demand. In addition, the Shire will continue to be known for its significant iron ore and oil and gas resources which will continue to be significant contributors to the local, state, and national GDP.

Unique Heritage and Environment

The Shire of Ashburton will, by necessity, be a leader in climate adaptation, environmental protection and conservation, and will be known for its commitment to hold onto its natural, Aboriginal and European heritage.

Quality Services and Infrastructure

The Shire of Ashburton will have planned for and worked towards delivering a range of community facilities and infrastructure that will contribute to a high quality of life for its residents. The towns will also have long-term and sustainable sources of power, water, solid waste recycling/disposal and effluent waste treatment. The Shire will remain well connected by road, sea and air.

Inspiring Governance

Ensure the Local Planning Strategy maintains a strong relationship between the integrated planning processes of the Shire of Ashburton through its Strategic Community Plan, Corporate Business Plan and budgeting processes and its local planning framework.

Ensure the Local Planning Strategy is periodically monitored and reviewed to ensure it provides the necessary justification and rationale for the local planning scheme and policies.

3.1 VIBRANT AND ACTIVE COMMUNITIES

Vision Statement

The Shire of Ashburton will have a sustainable and permanent residential population that predominately is based in the towns of Onslow, Tom Price, Paraburdoo and Pannawonica. This will focus on carefully considered growth and well-planned expansion of the towns. The Aboriginal Settlements will be properly serviced to improve the quality of life for their residents.

Goal

Liveable towns that attract permanent residents to live, work, recreate, and socialise together. The towns are the main settlements within the Shire, and will be well planned to predict and provide for the ongoing sustainable provision of services, utilities and other community needs such as housing, retail, and employment options.

Vibrant and Active Communities

Key objectives being considered through this Strategy are as follows:

- Tom Price, Paraburdoo and Onslow communities will be liveable, sustainable, with the population having appropriate access to services and facilities;
- Housing supply within towns should be diverse, resilient to climate change, functional and address the needs of youth, young adults, family groups, and aged persons;
- Long-term development opportunities for residential development and growth should only occur where developments will be well-integrated and functional components of the townsites;
- State Government agencies should ensure that appropriate services are delivered within Aboriginal Settlements;
- Encourage workforce accommodation being located within Onslow, Tom Price and Paraburdoo wherever possible, to avoid workforce in camps that have limited access to services and are remote.

3.1.1 POPULATION GROWTH

Population growth in the Shire of Ashburton has been examined and interrogated through a range of strategic documents. The *WA Tomorrow* series of population forecasts are based on historical trends and extrapolates these through assumptions and methodology to produce forecast trends. The forecast trends in *WA Tomorrow Population Report No. 10* represents the official State Government forecasts for the years 2014-2026, and are relevant to the Local Planning Strategy's 15-year strategic outlook.

Pilbara Regional population

For the period of 2005-2013, population growth rates for the Pilbara were between 3.2-5.4%. The situation has changed due to the recent downturn experienced within the mining sector. Pilbara population grew from 49,413 people in 2006 to 65,062 in 2013 before declining towards 61,435 in 2016. Historical trends demonstrate how fluctuations in market conditions can place pressure on towns to accommodate population growth and demand.

The *Pilbara Regional Investment Blueprint* sets what it calls an 'aspirational yet achievable' population target of 200,000 by 2035, an increase of 135,000 across the region. Tom Price, Paraburdoo and Onslow should grow in a sustainable manner that ensures communities can develop with availability and access to a range of necessary services, employment opportunities, and housing choice.

Ashburton local government population growth trends

The latest 2016 census data estimates the Shire's population to be 13,026 people. Compared to the national average, demographic analysis (contained in Part 2) indicates: a disproportionate ratio of males to females; a higher ratio of Indigenous Australians; and a relatively low ratio of residents older than 65.

ABS information supports the inference that future population growth is likely to be directly impacted by the growth or contraction of the mining and oil and gas industry sectors. These industry sectors are likely to continue as a significant influence on population growth rates within the local government, highlighting the necessity for the Shire and State Governments to emphasise transformational economic opportunities that will contribute towards a more diversified employment base. Diversification of the economy and a broader employment base may lessen the impacts of mining and oil and gas on population growth/decline rates.

Census data is examined further within Part 2. The average annual growth rate has been calculated for the townsites and the overall Shire showing that between 2006 and 2016:

- Onslow's population has grown an average of 0.52% per annum;
- Tom Price's population on average has grown 2.68% per annum;
- Paraburdoo's population on average has grown 1.43% per annum; and
- Pannawonica's population on average has grown 1.00% per annum.

Overall, the total townsite population growth between 2006 and 2016 AAGR was 1.82% per annum, whilst the Shire's 2006-2016 AAGR was 13.11% per annum. This suggests that the census has counted FIFO workforce into the overall numbers for the Shire, and there has been a significant increase in FIFO workforce accommodated outside of townsites.

It will be important for future housing and development to cater for the demographics of the region, taking into account the particular needs of key sectors including youth, young adults, and aged persons. Areas of focus for improving liveability will also contribute towards retaining population in the long term. Identified areas of focus include – safety, health and wellbeing, education and training, lifestyle, the sense of community, and community connectedness.

3.1.1.1 PREFERRED GROWTH PATTERN

The Corporate Business Plan has utilised data sourced from the ABS and compiled by iD, which provides the following contextual pattern of growth (refer **Figure 2**). Anticipated population growth affects the level of service delivery and timing of new services and infrastructure by the local government, state government agencies, and utilities/service providers. It is important to ensure local government services are provided in line with projected population growth.

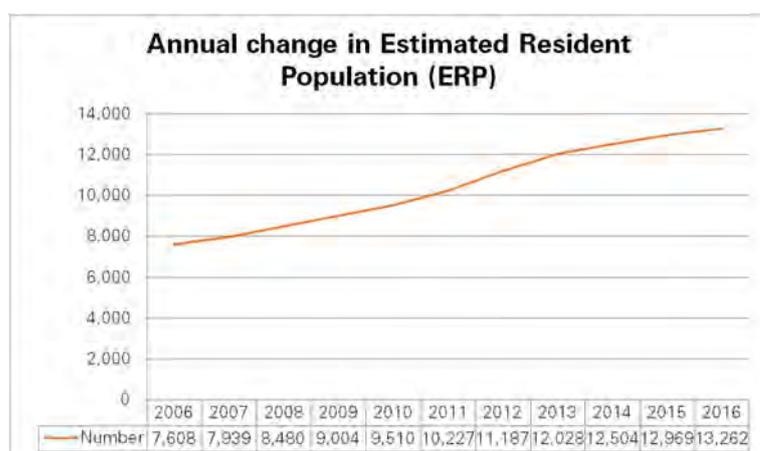


Figure 2 Annual Change in Estimate Resident Population (source: Shire of Ashburton; .id; ABS 2017)

The Strategy has selected Band C as referred to in **Table 1** as a guide for future growth forecasting, as this represents what is considered to be a stable pattern of growth.

Table 1 Population Bands – Average Annual Growth Rate (Source: WA Tomorrow)

Year	Band				
	A	B	C	D	E
2016	1.44%	2.12%	2.65%	3.11%	3.86%
2021	1.59%	1.95%	2.23%	2.48%	2.89%
2026	1.19%	1.62%	1.99%	2.25%	2.77%

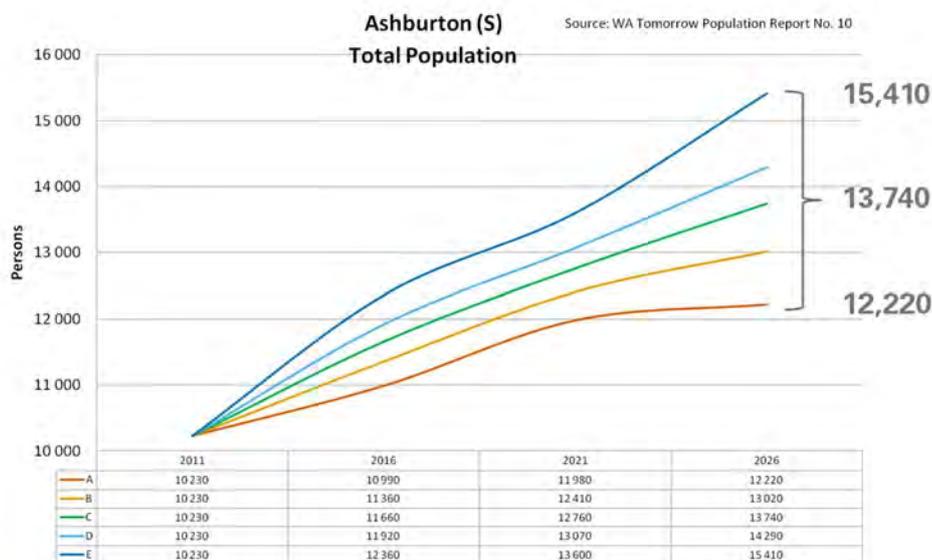
Figure 3 shows Band C as a green line. The Band C annual average growth rate is 2.65% in 2016, 2.23% in 2021, and 1.99% in 2026. While these growth rates may be optimistic, they provide a practical guide for anticipated population growth.

WA Tomorrow indicated that the Shire's population is expected to grow by 3,510 people (from 10,230 to 13,740) over a 16-year period. It is noteworthy that the Band C projection has potentially been met (as per the population counts recorded in the ABS 2016 Census), although it may also be reasonable to consider that transient workers have being counted and included in the census data.

It is anticipated that the Shire's permanent population will grow comparably to the Pilbara Region, continuing to account for approximately 16.5%-16.6% of the Pilbara's population. The Strategy primarily considers the means to plan for and facilitate population growth as it occurs, and the land use implications for the Shire. The rapid population growth and the accompanying externalities (pressure on housing, availability of land, availability of utilities and services etc.) can be averted through implementing the actions recommended in this Strategy.

The preferred growth pattern places the emphasis on accommodating population growth within Onslow, Tom Price and Paraburdoo. These townsites are most suitable for accommodating population growth as they are established service centres that provide the level of services and facilities expected in small regional towns with Karratha and Port Hedland providing the additional services of higher order towns. Whilst Onslow, Tom Price and Paraburdoo are relatively isolated from one another, in regional terms the towns work well to complement and supplement each other. These towns also provide services and other conveniences for surrounding mining activities, Aboriginal communities, pastoralists and tourists/visitors.

Figure 3 Medium Term Population Forecast 2016-2026 (Source: WA Tomorrow)



3.1.1.2 RETAIL FLOORSPACE FOR POPULATION GROWTH

Based on Band C Population growth, the Shire requires an estimated 25,593m² retail space, comprising 10,160m² of retail floorspace and an additional 4,355m² for bulky goods retail. This would likely be distributed amongst Onslow, Tom Price and to Paraburdoo as opportunities arise. The land area considers the net leasable area, and additional land for other land requirements such as warehouse/storage space and car parking.

3.1.1.3 CONTRIBUTING FACTORS TO POPULATION GROWTH

The Strategy acknowledges a few factors that may have a bearing on population growth, including:

- Economic conditions for the mining, oil and gas industry sectors, and the subsequent demand for permanent and temporary accommodation within townsites and rural areas;
- Construction workforce accommodation camps for remote projects;
- Operational workforce accommodation for mining, oil and gas ventures; and
- The need to provide suitable housing diversity for a broad range of community needs.

3.1.2 TOWNSITE CHARACTER STATEMENTS AND GROWTH IMPLICATIONS

The Shire's populated places include four townships. Onslow is a coastal port town and is the oldest township in the Shire. Tom Price, Paraburdoo, and Pannawonica each originated as closed, company-owned mining towns, with Tom Price and Paraburdoo transitioning to predominantly freehold townships through a 'normalisation' process. Tom Price, being the largest of the Shire's towns, is also local government's administrative centre.

The Strategy visually describes a spatial response to the preferred growth pattern through land use options as depicted on:

- **Plan 1 Shire Wide Strategy Plan;**
- **Plan 2 Onslow Town Site Strategy Plan;**
- **Plan 3 Tom Price Town Site Strategy Plan;** and
- **Plan 4 Paraburdoo Town Site Strategy Plan.**

State Agreements carry implications for zoning and compatible land use planning, either by restricting other development or use of burdened land, or by negating the requirement for Local Government development approval. Pannawonica remains a 'closed town' located on a Crown lease and subject to the *Iron Ore (Robe River) Agreement Act 1964* providing housing and other services to Rio Tinto Iron Ore employees and their families. As such, a town site strategy plan has not been prepared for Pannawonica.

It is understood that most of the State Agreements are not shown on a map, making it difficult to identify affected land across the district. Ongoing collaboration between the Shire, major proponents and the State Government will ensure good governance and understanding of the legislative obligations of the State Agreements while showing due regard to Scheme's land use and development provisions.

Many Aboriginal people reside in Bindi Bindi, Wakathuni, Jundaru, Bellary Springs (Innawonga), Youngaleena Bunjima and Ngurrawaana.

The Local Planning Strategy considers the growth opportunities and issues for Onslow, Tom Price and Paraburdoo, and provides an overall Strategy Plan for the whole of the Shire. It identifies vacant and underdeveloped land with the potential to meet future land requirements to ensure sufficient supply in the event another mining cycle stimulates significant population growth. As Pannawonica is a closed town, population changes would be as directed by Rio Tinto in accordance with its State Agreement and as such, there is no strategy plan prepared for the Local Planning Strategy. The Shire's relative isolation from major manufacturing and supply centres significantly inflates construction costs, creating a challenging housing construction environment. This increases the importance of considering the total lifecycle cost for new development, ensuring that new housing is designed and constructed to suit existing climate, changing household demographics, the ability of different building to resist local conditions (particularly heat and salt), and respond to projected climate change.

3.1.2.1 TOM PRICE TOWNSITE

Tom Price is located approximately 1,600 kilometres from Perth and is situated on the edge of the Hamersley Ranges. Established in 1967, the town is a picturesque, modern and fully serviced town that has been designed to blend with the natural environment.

Tom Price is the administrative centre for the Shire and has been the location of the local government's administrative offices since 1990.

Tom Price presents a green and pleasant landscape setting which strongly contrasts with the scenic backdrop of hills with iron-rich colouration. Landscaping around homes and within the town generally incorporates lawn with a preference for Pilbara native shrubs and ground covers, whilst palm trees are also notable. It also incorporates tree species that have been proven to be suitable for high wind areas. The extensive landscaping assists with softening the appearance of the town and provides respite, shade and habitat. Landscaping provides visual relief to the surrounding aridity of the landscape, as well as providing dust suppression within the town.

Attractive places and spaces will enhance the liveability and attractiveness of the towns. Guidance through the preparation of local planning policies or scheme provisions should be investigated in order to promote sustainable design principles that are responsive to the Pilbara climate, to address the use of finite resources (such as water), and to enhance the liveability and wellbeing of residents.

The perimeter of the town is generally constrained due to the topographical and rocky characteristics of the land and has been a consideration and addressed within the **Plan 3 Tom Price Town Site Strategy Plan**. Buildings and housing have high construction costs due to the isolated nature of Tom Price (and Paraburdoo and Pannawonica). Development needs to consider total life-cycle costs of housing, whilst having due regard to existing weather patterns and future climate change.

Tom Price Town Centre

The town centre offers a range of services to support the local community including retail, commercial, business services, and areas for recreation.

The Tom Price town centre has experienced some revitalisation through upgrades for commercial/retail space and public domain improvements. This promotes the town centre as the commercial and community hub for the town. The amenity of the town centre is enhanced through its attractive landscaping and mature trees, seating, shade structures and playgrounds for children.

Recognising that population and isolation pose risks to business sustainability, Rio Tinto currently provides subsidies to tenancies, contributing to the strengthening and diversification of the retail options.

The Shire owns a 5,000m² lot in freehold title in the town centre, this site was previously proposed for a new Shire administration building. Construction of such a facility in this location would contribute to the sustainable growth of the town centre and this proposal should progress when funds are made available. A new Shire administration building is proposed to be located on the current site on the periphery of the designated civic centre of Tom Price.

Industry – Tom Price

Major mining projects in the vicinity of Tom Price have driven growth and investment within the town. Such projects have included the Marandoo mine expansion, Solomon project and Brockman 4 expansion. Whilst most mining projects are now in operational phases with relatively smaller workforces, there remains a requirement for workforce accommodation to cater for peak employment numbers during future construction phases and shuts/maintenance periods.

There is a limited supply of additional industrial land available within Tom Price, and areas are identified on the **Plan 3 Tom Price Town Site Strategy Plan** and the Tom Price Issues and Opportunities Plan in Part 2 of the Local Planning Strategy.

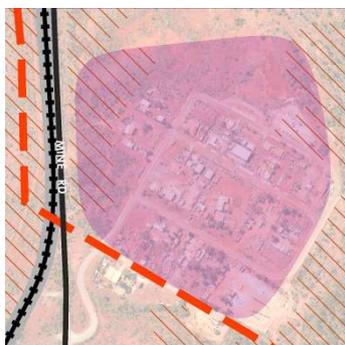
Tom Price's Mixed Business area remains constrained by landform and the railway line to the west. Some expansion has occurred within the last 5-6 years, with the Shire holding a development lease for a portion of Crown land adjacent to the existing 'Mixed Business' zone that is intended for subdivision and development. Future expansion areas may need to be considered in the context of their capability of having viable industrial businesses.

Rio Tinto holds a Crown Lease for land close to its Tom Price mining operation that is zoned 'Industry', sub-leasing lots to businesses and contractors engaged directly or indirectly on its mining operations.

One relatively unconstrained potential industrial development site is located on Nameless Valley Drive, approximately 1.5km north-west of the Tom Price Caravan Park. This land, described as Lot 41 on Plan 184619 is a Crown reserve (Reserve number 38467), created for 'Agricultural Research Station and Gravel'. The site's relatively large size (over 27 hectares), relatively close proximity to Tom Price, yet suitably removed from other sensitive land uses make this a suitable site for further investigation area to meet future industrial land supply needs.



Expansion opportunity adjacent to Tom Price's Mixed Business area, Doradeen Road



Rio Tinto Crown Lease on Lot 19 Mine Road, Plan 241873



Lot 41 on Plan 184619 (Reserve 38467), Nameless Valley Drive

Tourism – Tom Price

Tourism is a relatively small industry in Tom Price, providing opportunities for additional diversification and growth within the local economy. Tom Price benefits from its accessibility to nearby highways, Paraburdoo Airport, and its relative proximity to Karijini and Millstream Chichester National Parks. The local government is a strong advocate for the sealing of the Karratha to Tom Price road, now known as Manuwarra – Red Dog Highway, to improve connectivity, safety, and expansion of economic activities in the vicinity of the road. This road passes by Millstream Chichester National Park and Karijini National Park, so any improvements would have a positive impact on the tourism sector.

The town acts as a service centre for travellers purchasing supplies travelling through the region, particularly for those visiting Karijini National Park. The town can work further on attracting national park tourists and visitors to visit and/or stay longer in town. Tom Price has the potential to capitalise on its proximity to Karijini National Park; however, this requires significant investment in infrastructure and marketing/tourism awareness. Encouraging tourism will be a key factor in creating additional jobs and further diversifying and expanding the Shire's economy.

There are a range of short-stay accommodation available within the town, with the Tom Price caravan park located approximately 3km west of the townsite. Accommodation in Tom Price should be investigated for opportunities to improve the quality and range of options available, including making more mining workforce accommodation available to tourists when not required for workers. Other facilities that support caravans and motor homes can also enhance the appeal of the town for visitors and tourists including large parking bays, sewage drop points, and improved information about available services and facilities.



Tom Price Social and Community Infrastructure

Tom Price is well serviced with sports and recreation facilities, some of which have experienced recent upgrades, increasing capacity and improving their functionality and use for the community. Upgrades have been completed to the Clem Thompson Memorial Oval and the Area W oval, as well as the completion of a new skate park.

The network of open space fulfils a dual function, providing overland flow paths for drainage purposes. Drainage provides an ongoing challenge in Tom Price due to the heavy summer rainfalls, the resistance to infiltration by the dry, inorganic soils and rock, and the topography of the town being in the lee of surrounding hills. Future subdivision and development will need to consider and cater for drainage.



Tom Price Townsite Growth

Established as a company town, Rio Tinto remains the predominant landowner and developer in Tom Price. Employment-driven population growth has been the main contributing factor to more recent residential development proposals within the townsite, with recent subdivision and development of land identified through the 'Lazy Lands' project to the north of town, taking advantage of existing services and roads for new housing.

Previous forecasts cited in the *Regional HotSpots Land Supply Update* (WAPC 2015) indicated Tom Price's residential population could reach 4,750 by 2020. However, this is not reflected in population figures, putting population numbers closer to 3,500. Whilst this may be an aspirational growth target for Tom Price, it is recognised that the townsite has the capacity to accommodate infill housing and new residential development that would be supported by the town's existing facilities and services.

The *Regional HotSpots Land Supply Update* (WAPC 2015) considered areas suitable for urban infill and development, identifying sufficient undeveloped land in Tom Price to accommodate the housing required to support any new major mining project or expansionary demands. In addition to larger, undeveloped sites, there are currently more than 40 vacant residential lots available within the townsite for infill housing, with a number of these suitable for development as grouped or multiple dwellings. The Local Planning Strategy supports further investigations into the development capacity of these areas and has identified areas for infill and expansion both in the Issues and Opportunities Plan in Part 2, and the **Plan 3 Tom Price Town Site Strategy Plan**.



The FIFO model has created demand for workforce accommodation in town and within the vicinity of Tom Price. This provides for greater demand in purpose-built workforce accommodation, which would generally not be conducive to converting to family-type housing. This accommodation can in some circumstances be converted or utilised for tourist accommodation.

3.1.2.2 PARABURDOO TOWNSITE

Paraburdoo is located 80 kilometres south of Tom Price. It is a small town that accommodates the operational workforce for surrounding mines. Located within a 'saddle' between two drainage lines to the north and south, the town has remarkable views towards the nearby Hamersley Ranges, and provides a relatively flat landscape within town that is easy for residents to walk and cycle. The topography and features surrounding the town have influenced its spatial arrangement, and have been a consideration in the **Plan 4 Paraburdoo Town Site Strategy Plan**.

The local climate can be pleasant during winter days, although nights can be cold, whilst summer daytime temperatures average above 35 degrees. With good rainfall, the area can also experience springtime blooms of seasonal wildflowers that transform the landscape with colour, although this can lead to significantly increased fire fuel loads requiring careful and constant management.

Paraburdoo Town Centre

Retail and business services are located in the Paraburdoo Town Centre within a landscaped precinct that is well connected to the surrounding residential areas via a regular road grid. The Paraburdoo Primary School, hospital, police station, child care centre, and the new Community Hub are all centrally located, as is Rio Tinto's Rocklea Palms workforce accommodation facility.

Within the centre of town, the shopping centre contains a supermarket, pharmacy, news agency, café, hairdresser, post office, and other shops. The Shire's administration office and public library is also located within this complex, providing community space and services. Rio Tinto also has office space located near the Town Centre.

Should expansion of the Paraburdoo town centre become necessary, there is extensive managed parkland surrounding the existing buildings that could be developed while retaining sufficient public open space and recreational facilities.



Industry – Paraburdoo

Paraburdoo is serviced by a small industrial area west of the townsite, with a smaller mixed business zone acting as a light industrial area immediately south of the town. Paraburdoo’s industry activity is tied closely to the iron ore mining industry, with businesses depending heavily on work generated directly or indirectly from mining operations. The small industrial area is considered to be suitable for expansion should this be required as shown on the **Plan 4 Paraburdoo Town Site Strategy Plan**. However, as the surrounding land comprises a Crown lease held by Rio Tinto’s leasehold, further expansion requires surrender of some land from this lease. Expansion in the short term is unlikely however, as vacant lots remain within the industrial area, suggesting that the town is sufficiently supplied with industrial land. It is recommended that the Shire work with Rio Tinto to investigate land capability and opportunities for expansion of the Paraburdoo Industry Area to ensure sufficient unencumbered land is available should this be required.

In the past, major mining projects in the vicinity have supported local industry whilst Rio Tinto is understood to subsidise some industrial rents in the Paraburdoo light industrial area. However, a number of businesses have since left the townsite due to the downturn in mining activity. Future expansion areas may need to be considered in the context of the town’s capability of attracting and retaining viable industrial businesses.



Tourism – Paraburdoo

Paraburdoo is a gateway to the national parks in the Shire. Paraburdoo Airport is strategically important as it is the main connection from Perth for visitors to gain access to Paraburdoo, Tom Price, Karijini National Park and Millstream Chichester National Park. Paraburdoo also provides outback, scenery and indigenous experiences.

Limited accommodation is available in town for tourists with some accommodation available at the Paraburdoo Inn. Rooms can occasionally become available within Rocklea Palms, and 10 caravan spaces are available at the Caravan Park on Mine Road. Future tourism accommodation could be developed in Paraburdoo that can also be used as workforce accommodation if the need arises.

Paraburdoo Social and Community Infrastructure

Paraburdoo has a wide range of community facilities in the Town Centre including a primary school, swimming pool, bowling club, ovals, child care centre, skate park, oval, tennis, basketball and squash courts. A number of land parcels are also landscaped and reticulated for open space or public recreation.



The Paraburdoo Golf Course is located on the town's western edge, with the Paraburdoo BMX and Motor Cross tracks located north of the town accessible from Beasley Road and El Caballo Road.

A number of areas could be developed or enhanced for public open space in accordance with the purpose of their reserves, and these could assist in providing greater amenity to residents. These areas of undeveloped land are shown in Part 2 on the Issues and Opportunities Plan for Paraburdoo.

Located in the town centre, the Community Hub (CHUB) is currently under construction and will provide shared-use club facilities for sporting clubs, and an indoor recreation centre with two squash courts. Upgrades to the facilities within the Paraburdoo swimming pool have also under construction, improving this facility.

Road Improvements

The beautification of entry roads and key neighbourhood roads will contribute to the amenity of the townsite, and landscaping can assist in passive wayfinding to help identify legible routes within the townsite. These have been shown in Part 2 on the Issues and Opportunities Plan for Paraburdoo.

Paraburdoo Townsite Growth

Originating as a purpose-built mining company town, Paraburdoo's housing stock is generally reflective of the town's 47+ year mining legacy. With its heavy reliance on the mining industry, Paraburdoo will expand or contract along with global market movements and demand for resources. Accordingly, given the town's limited recent growth, there is little impetus to prepare any growth plans without a compelling, regionally significant reason to do so.

There are approximately 40 vacant lots available within the townsite for residential infill. Whilst some new housing is anticipated to replace some existing housing on vacant lots, no further residential expansion is currently proposed in town. In addition to the infill opportunities, there are a number of residential-zoned vacant superlots with existing road frontage, suitable for further residential subdivision or grouped housing development.

The Paraburdoo townsite has extensive areas of 'residential developed' zoned land that has been incrementally developed in response to demand, and these are reflected on the **Plan 4 Paraburdoo Town Site Strategy Plan**. Given the high costs of constructing new houses, this development trend would be expected to only occur in the future if housing demand warrants additional housing stock in the town.

Should Paraburdoo experience significant demand, sufficient serviced land with direct road frontage is already available for development. As such, the Local Planning Strategy has contemplated a number of areas of opportunity for infill housing and urban expansion to capitalise on existing road frontages and access to services, which are reflected on the Issues and Opportunities Plan – Paraburdoo in Part 2 of the Strategy. The Shire can advocate for long-term development opportunities to be investigated for residential purposes as well-integrated and functional components of the townsite.



3.1.2.3 ONSLOW TOWNSITE

The Old Onslow townsite was originally established in 1883 at the mouth of the Ashburton River. The original townsite was abandoned in 1925 following repeated cyclone damage as well as siltation and flooding issues. The town was relocated to Beadon Creek, where access to deeper water assisted in establishing a fleet of pearl luggers and a small port facility.

Onslow gained importance as a workforce town due to its proximity to the Ashburton North Strategic Industrial Area (ANSIA). Onslow's accessibility has been progressively enhanced through the opening of the new ring road (Onslow Road) and significant redevelopment of the Onslow Airport. The town has strongly held on to its identity and history following its relocation, with an emphasis on its organic development with a lesser emphasis from the impact of the large mining and petroleum industries that dominate to the south-west at ANSIA.

While it is a relatively small town, Onslow has an extensive range of community facilities as well as commercial, industrial and tourism operations. The Shire maintains a strong presence within Onslow with the development of new Council Chambers and Civic Offices on Second Avenue. The town has matured with notable tree-lined streets, foreshore improvements providing amenity along the coastline, and development of attractive areas of public open space.

The town is situated on Beadon Point close to the coastline, bringing with it a strong cultural connection with the water. The coastal relationship of the town is exemplified through the proximity of development, particularly near the sea wall at First Avenue (refer **Figure 4**). This proximity to the coast also brings with it some level of risk during severe weather events where storm surges and intermittent flooding from stormwater can lead to some areas being temporarily affected or inaccessible by water. The Shire has invested in drainage infrastructure to maintain town access and to reduce the time that water takes to drain. Looking to the future, the Shire will need to consider future modelled coastal processes, including sea level rise from climate change, which will pose some challenges for the townsite.

Bindi Bindi is a town-based Aboriginal community comprising 24 houses and an estimated population of 120¹. Located on Second Avenue, Bindi Bindi is relatively separate from the overall townsite.



Figure 4 Sunrise Beach (L); Landscaped land behind the Sea Wall, First Avenue (R)

Wherever possible, new residential areas should integrate with existing urban development, building new connections to the road, drainage, and public open space network. New residential areas are depicted on the **Plan 2 Onslow Town Site Strategy Plan** and should take account of the well-connected movement network, have regard to the landscape and vegetation patterns in the locality, and maximise opportunities for climate-responsive design (i.e. shade, passive cooling, ventilation and access to sea breezes). New residential areas may be developed to offer a variety of housing options, potentially with a mix of detached houses of various sizes, residential buildings to accommodate a mix of residents, and terrace/town house dwellings to meet changing demographics.

Onslow Town Centre

The Onslow town centre is oriented to Second Avenue and includes a number of tourism developments, commercial businesses and town services including the Shire of Ashburton's new Council Chambers and Civic Offices.

The town centre is subject to long-term coastal processes as described and discussed in the *Coastal Hazard Risk Management and Adaptation Plan for the Onslow Coast* (CHRMAP). The *Onslow Townsite Strategy* recommends that the commercial / civic centre be gradually transitioned outside the coastal hazard risk area, emphasising the need for the Shire to consider its position on this and other options for compliance with SPP 2.6 and its Guidelines.

CHRMAP Recommendation Actions

The CHRMAP makes a number of recommendation actions for responding to and mitigating coastal process risks to the Onslow townsite, several of which are relevant to the scope of this Local Planning Strategy including:

Avoid / Retreat Actions

- R1. A detailed review of current zoning and land use permissibility within zones should be undertaken in light of the results of the risk assessment outcomes.*

¹ <http://regionalservicesreform.wa.gov.au/p/factsheets>

- R2. *Appendix 12 SCA in LPS 7 should be reviewed to reflect the outcomes of the CHRMAP process and, where relevant, include specific clauses for example, to ensure that actions are enforceable.*
- R3. *The existing Conservation, Recreation & Nature zoning should be maintained / extended along the coastline, seaward of 2110 hazard line.*
- R4. *Move the Strategic Industry zone near jetty inland of 2110 hazard line.*
- R5. *Prior to development of Lot 381 consider adjusting north east boundary to be inland on 2110 hazard line.*
- R6. *Consideration should be given to amending the scheme to extend the local scheme reserve for the foreshore area beyond the 2110 coastal hazard line a sufficient distance to accommodate relocation of foreshore assets. Where this may impact on private land, consideration should include risk of claims arising.*
- R7. *The SCA should be extended inland to the 2110 coastal hazard line along the length of coastline, from the southern extent of the study area to 4 Mile Creek.*
- R8. *The for the current 100 year planning horizon the SCA extent should be should be defined by the 4.5 m AHD contour.*
- R10. *Review of the CHRMAP every five years is to include a review of the SCA extent and relevant provisions including Appendix 12 of TPS 7 [and the Local Planning Strategy, where appropriate].*
- R12. *Identify areas within the SCA and study area where avoidance of development altogether is the most advisable strategy.*
- R14. *Intensification of development at the Bindi Bindi community should not be permitted. Renewal of existing infrastructure should only be considered with appropriate flood flood-resistant design.*
- R15. *No new development should be contemplated within the defined 2110 hazard area other than low impact, (relatively) low value and/or removable structures.*
- R16. *Applications in areas identified as being at risk from coastal processes should consider the predicted lifespan of the proposed development and its potential impact on other land during that lifetime. Temporary land uses that can be removed before or when a nominated trigger is reached might be considered.*
- R17. *No further subdivision of land within the 2110 hazard area should be contemplated, nor further intensification of existing development.*
- R18. *Planning should guide the evolution or migration of the town to less hazardous areas, from a flooding and coastal erosion perspective.*
- R19. *It is recommended that the Shire adopt a policy for relocation of public and Shire owned assets from within the SCA at end of their lifecycle wherever possible, and that the Shire's Asset Management Plan be updated to reflect the relocation policy.*
- R21. *Consideration should also be given to the long term possibility of relocating the Bindi Bindi community to higher ground.*

Accommodate Actions

- R26. *A detailed review of current zoning within the SCA and land use permissibility within zones is recommended.*

R30. It is recommended that design guidelines be developed to specifically address measures for protection from inundation.

Having regard to the SPP 2.6 hierarchy of risk adaptation and mitigation options (Avoid, Retreat, Accommodation and Protect), it is important to determine the long-term future of the Town Centre. **Plan 2 Onslow Town Site Strategy Plan** outlines possible locations to transition town centre uses and services, should they become affected by future coastal processes and/or modelled sea level rise. Further investigation and detailed design and community/stakeholder engagement would be necessary to determine the most appropriate long-term solution for addressing climate change and coastal processes on the town centre. It is likely that the long-term considerations of the townsite are beyond the lifespan of this *Local Planning Strategy*. However, it also needs to be considered now to avoid deferring a more costly and significant issue to future generations.

Industry – Onslow

Beadon Creek Boat Harbour

Beadon Creek Boat Harbour is strategically important as it contributes to safe mooring for boats associated with marine services, fishing and tourism. The Beadon Creek Boat Harbour is the gateway to the many islands off the Onslow coast and an important supply base supporting offshore oil and gas operations. A new marine support base is currently under construction that will significantly increase Onslow's capacity and importance as an offshore support facility.

The Department of Transport manages the Beadon Creek waterfront as a Crown reserve, leasing land within the reserve to businesses for a variety of port-related industry. Whilst the overall site is not fully developed, the Beadon Creek Boat Harbour will provide for some additional industrial land. However, the water body and flood plain present physical barriers constraining any significant expansion of this area. The close proximity of a tourist accommodation facility also requires careful consideration when planning for any intensification of the harbour facility.

The Department of Transport prepared a *Land Use Framework* as the basis for future land use and development within the harbour and whilst Council has not considered this planning framework for any official status, it is a valuable assessment tool given due regard when the Shire assesses applications for development approval.



Onslow Salt

The *Onslow Solar Salt Agreement Act 1992* regulates Onslow Salt's operations and future expansion. Specifically, this State Agreement ensures that mining leases and lands the subject of any Crown Grant lease, licence, or easement granted to Onslow Salt be zoned for use or otherwise protected, so that Onslow Salt can undertake and carry out its activities in accordance with the State Agreement. In practical terms, this means that Onslow Salt's development and land use activities are exempt from local government planning control where they relate to actions pursuant to the Agreement.

The operations of Onslow Salt are taken into account by the ANSIA, which also has its buffers in place via the Improvement Scheme No. 1. The long-term growth of the Onslow townsite will have to consider the impacts of growth on the operations of Onslow Salt.



General Industry

Onslow's General Industry Area is bound by Beadon Creek Road and McAullay Road. The General Industry Area is limited in its ability to expand due to proximity of short-stay accommodation to the north, Beadon Creek to the east, residential development to the west, and native title, drainage, and waterways to the south.

Should an agreement with the native title holders result in these rights and interests being extinguished, a limited eastern expansion of the Onslow General Industry Area towards Beadon Creek Boat Harbour may be possible, with potential road extensions to Cornish Way and Shanks Road. Opportunities for industry to expand southwards along the eastern side of McAullay Road can be investigated, depending on drainage studies and the ability to fill land to achieve suitable finished floor levels.

An area of undeveloped land within the Shire's Common Reserve (Reserve 19291) is zoned 'Industry' on the LPS 7 scheme maps. This zoned land could be investigated, subject to the management order, for future industrial development. It would be preferable to transition general industry uses from the existing General Industry Area to the 'Industry' zoned land as general industry uses would then be further away from sensitive land uses. The Shire's Common Reserve presents an opportunity to develop new industry with sufficient buffers from residential areas. The Onslow General Industry Area on Beadon Creek Road can be investigated for transitioning to a light or service industry area given its proximity to other sensitive land uses.

Onslow Airport Mixed Business Precinct

The Shire owns the land associated with the Onslow Airport Mixed Business Precinct in freehold title. This land is being offered for sale or lease. This land, comprising 34 hectares, will provide for a range of mixed business, light and service industries.

The Shire is currently in the process of reviewing LPS 7 to include the model scheme provisions introduced in the *Planning and Development (Local Planning Schemes) Regulations 2015*. The Shire intends to rezone the Onslow Airport Mixed Business Precinct to 'Light Industry' in line with the zone and objectives contained in the *Regulations*. It is not anticipated that land use permissibility will significantly change from what currently is permissible on the land.

Further expansion to the north and south of the existing Onslow Airport Mixed Business Precinct could be considered and investigated further, should further land be necessary to meet future demand for light industry developments. Other areas for investigation could be land fronting McAullay Road, and land within the WWTP buffer (between Onslow Road and McAullay Road) for mixed business, light and service industry.



Tourism – Onslow

Onslow is a hub for tourism that has a coastal or island focus, with industrial tourism as a growing sector. A range of tourism activities are within proximity to Onslow, including the Old Onslow townsite, Four Mile Creek and Onslow Salt industrial-style tourism experiences, the Ashburton River, termite mounds, Mackerel Islands (operators of Thevenard Island and Direction Island), Monte Bello Islands, Sunrise, Sunset and Four Mile beaches. Onslow has two caravan parks with units and caravans for hire, as well as hotels and other short-stay accommodation options.

Swimming, snorkelling and fishing are all tourist activities that are easily accessible from Onslow. Tourism is an important sector to investigate and identify what activities, attractions, and accommodation could be developed within and leveraged from Onslow. Access to Onslow is enhanced by the recently expanded Onslow Airport offering daily flights from Perth, and has road connections to North West Coastal Highway, through to other regional cities and towns. Longer term, it will be important to ensure sufficient seats on flights to/from Onslow can be retained for tourists.



Onslow Social and Community Infrastructure

Onslow has a number of popular recreational facilities that include the community garden, oval, swimming pool and the beach foreshore areas. A new skate park and basketball court have also been completed. The Barrarda Estate includes areas of public open space, providing walkable access to all houses, and creating amenity and a sense of place.



Road Improvements

Improvements to the road network into Onslow have provided a hierarchical focus for tourism and visitor traffic to travel more directly into town along Onslow Road. McAullay Road is intended to take freight and other heavier traffic for the General Industrial Area, Beadon Creek Boat Harbour and the Onslow Airport Mixed Business Precinct. Other road improvements in town may be undertaken as a result of resolving internal legibility issues or for flood/drainage mitigation. Further investigations and consultation with the Shire, DoT, DPLH, and MRWA, need to be undertaken to determine the addition of a new road to Beadon Creek Harbour.

Onslow Townsite Growth

The previous planning goal was to ensure sufficient developable land be available to facilitate a town that can accommodate up to 3,500 people. Given the revised estimates is that the population should stabilise around 950-1,000 people through the medium term, and assuming that no new major projects commence within the Strategy's timeframe, this previous population growth forecast is unlikely to occur. It should be noted that the accommodation capacity of 3,500 people was considered in the context of a forecasted population of 12,000 people residing in the Shire in 2013.



The *Onslow Townsite Expansion Development Plan* identified areas that were potentially suitable for urban development but required more detailed planning. Under the base case projections assumed in this Strategy, 68 out of 100 additional dwellings required have already been constructed within the Barrarda Estate.

Urban development and growth within Onslow will need to have regard to coastal processes and hazards, and physical, infrastructure and industrial considerations. Having regard to the CHRMAP, future urban infill and development will consider coastal processes, climate change and the impacts on the existing town centre and urban development in low lying areas from flood events, tidal inundation and sea level rise.

The gazettal of the *ANSIA Improvement Scheme No. 1* considered the accommodation of construction and operational workforce within the ANSIA. The latest planning decision relating to the ANSIA permits Chevron Australia to house the Wheatstone operational workforce in the existing construction camp until 2032. This decision will significantly reduce pressure for housing demand in Onslow and is a lost opportunity for town-based population growth. Notwithstanding, this Strategy will not prejudice the potential for the Wheatstone workforce to eventually be relocated into Onslow, and accordingly the Strategy identifies sufficient land for additional housing demand.

DevelopmentWA's (formerly Landcorp) Barrarda Estate has contributed to housing stock in town. The decision not to construct the Wheatstone Operations Accommodation Village in the Barrarda Estate, and the multiplier effect this would have created in Onslow will be delayed at least 15 years, at which time the State's planning approval for the accommodation village in the ANSIA will expire.

The Shire will continue to advocate for long-term development in the townsite for workforce accommodation as an integrated part of the urban fabric. The Local Planning Strategy recognises that future industry upturns could again trigger a rise in housing demand. As a result, the townsite will remain capable of bringing land online for urban infill or urban expansion, should it be warranted.

3.1.2.4 PANNAWONICA TOWNSITE

Gazetted in 1972 as a closed town, Pannawonica's growth is dependent upon Rio Tinto's workforce requirements. In the 2016 Census, Pannawonica had a population of 695 people and 305 dwellings. This represents an increase from the 2011 Census, where Pannawonica had a population of 651 and 269 private dwellings. It is also understood the population can reach towards 800 people. Whilst it remains a closed town, Pannawonica is exempt from the Shire of Ashburton's planning control, and therefore its direction of growth is dependent upon Rio Tinto's requirements. It is also noted that the town site has a limited lifespan and that the once mining operation ceases the town may be returned to soil.

Pannawonica Townsite Growth

As a means of extending the lifespan of dwellings, Rio Tinto has previously undertaken a programme of refurbishments to ensure a modernised range of accommodation is available to workforce and families.

The residents of Pannawonica are served by a primary school, police service, medical centre, day-care centre, post office, library, supermarket, milk bar, tavern and hotel, sportsmen's club, bank agencies, service station swimming pool and an open-air cinema.

The Strategy recognises that, whilst outside of the Shire's planning control, Pannawonica is an important townsite within the Pilbara region and should be carefully considered by Rio Tinto for long-term viability and sustainable growth.

3.1.3 ABORIGINAL SETTLEMENTS

The Wakathuni, Youngaleena Bunjima, Bellary Springs (Innawonga) and Ngurrawaana communities are currently being rezoned to 'Settlement' under LPS 7 and are considered to be Aboriginal Settlements under SPP 3.2. Wakathuni, Youngaleena Bunjima, Bellary Springs (Innawonga) and Ngurrawaana are subject to the preparation of Layout Plans by the Department of Planning, Lands and Heritage.

The SPP 3.2 does not consider a number of communities (including Wirrlu Murra, Bindi Bindi, Jundaru, Yalathala and Westside) to be Aboriginal Settlements and it is understood that the Department of Planning, Lands and Heritage will not be preparing Layout Plans or applying a 'Settlement' zone to these.

At a State level there is recognition of the challenges faced by remote Aboriginal communities. State government agencies remain responsible for delivering existing services. It will remain important to work with stakeholders, service providers and State Government agencies to ensure appropriate services are adequately planned and delivered for Aboriginal Settlements.

The Shire is an advocate for the State government and service providers to deliver standards of living and services to the Aboriginal Settlements that are comparable to what's experienced in the towns. The appropriate identification of facilities will be necessary for providing appropriate facilities for health, education, childcare, community meeting places, sporting and recreation. Waste management in particular can be an ongoing issue and requires appropriate siting of wastewater and solid waste facilities.

3.1.4 WORKFORCE ACCOMMODATION

The Shire acknowledges the WAPC's *Position Statement – Workforce Accommodation*, dated January 2018, and supports the fundamental position that, wherever possible, workers are housed in established towns where they are able to both contribute to and benefit from local social and economic opportunities. Accommodating workers in the towns is critical to improving their viability, vitality, and resilience, while addressing many of the mental health issues identified in the West Australian Parliament's Education and Health Standing Committee's discussion Paper on FIFO mental health (2014). The Shire also acknowledges that s.120 of the *Mining Act 1978* limits the Shire's ability in determining land use and development associated with mining operations, including workforce accommodation.

Accordingly, for the purpose of this Strategy, FIFO workforce types are broken down into two main categories: construction and operational. These categories correspond to the construction and production phases of resource projects, with the most notable difference being the workforce size and length of employment.

The Shire has recently experienced the construction workforce requirements for a single project exceeding 7,000 workers, with the corresponding operational workforce requiring approximately 300 workers. The construction phase for such projects will typically last from 2-5 years, with individual employees often engaged for short periods of between 6 and 12 months. Examples of projects with construction phases (and workforce requirements) are railways, mines, LNG facilities and major infrastructure (roads, power, water, public works).

In contrast, operational workforces are relatively smaller than construction workforces, and are required for the lifetime of the project, tending to be employed on a permanent basis.

In addition to the construction and operational workers, 'Specialist' workforces may also be periodically engaged during the operational phase of projects, for example, for management, technical expertise or plant maintenance ('shut-down') purposes. Similar to the construction workforce, this specialist workforce is often large (up to or in excess of 1000 workers for a major maintenance project) and only engaged for a short period of time, often only days or weeks.

While the Shire generally does not support the FIFO employment model, it does acknowledge the need to engage construction and specialist workers on a temporary basis for large and/or highly technical construction and maintenance projects, with these workers being housed in purpose-built facilities that may be remote from townsites and suited for short-term accommodation. For development within reasonable proximity to an established town, it is the Shire's preference that associated accommodation facilities be constructed in or in close proximity to the town, provided the camps can be appropriately located and screened and that workers be managed so as to not overwhelm existing services and facilities. This will encourage these workers to make use of existing social, recreational, and retail facilities. It is accepted that for practical and safety reasons, workers engaged in remote areas (e.g. greater than 50 km travel from town), are more appropriately located closer to their workplace.

With regard to operational workers however, the Shire strongly opposes the FIFO model and the housing of permanently employed staff in short-term accommodation, preferring that such workers be employed on a residential basis, contributing to the growth and development of towns within the Shire.

Accordingly, whilst continuing to acknowledge legislative confines, the Shire will remain a strong advocate for resource companies to pursue residential development opportunities for operational workforce accommodation in Tom Price, Paraburdoo and Onslow. Conditional support of construction workforce accommodation in townsites may be considered for specific projects, with such accommodation constructed and operated to a high standard. In this regard, Shire support will be contingent on written commitments from resource companies that construction workforce accommodation will not convert to 'operational camps'.

It is acknowledged that the mining and oil and gas sectors have in place a range of harm minimisation strategies and support in place for their workforces, but that these are not standardised across the industry sectors and the Shire sees this land use planning strategy as an integral component to improving the health impacts created by stressors of working in the resource industries while also addressing the Shire's strategic goals as described in its *Strategic Community Plan 2017 – 2027*.

3.1.4.1 WORKFORCE ACCOMMODATION – ONSLOW AND ANSIA

Chevron Australia's construction and operational workforce reside in its Wheatstone Construction Village located in the ANSIA, with the Western Australian Planning Commission recently approving use of the Village until 2032. Third parties are prohibited from accessing this accommodation facility, although there is land available in the Improvement Scheme No. 1 Area for construction of additional construction workforce accommodation. However, it is considered unlikely that additional workforce accommodation would be constructed during the term of this Strategy.

As the Wheatstone project transitions from a construction to an operational phase, the required workforce will decline significantly. With the recent development approval from the WAPC for the operational workforce to reside in the existing construction camp, there is no identified short or medium-term use for the nine-hectare site in the Barrarda Estate initially created as the site for the Wheatstone Operations Accommodation Village.

The Shire advocates for the provision of higher quality, more permanent accommodation within the Onslow townsite to take in workforce engaged in major construction or maintenance projects. A number of privately owned accommodation facilities within Onslow are currently utilised for this purpose. The Shire is a strong advocate for workforce being in town, and this can be encouraged at a company level through the delivery of workforce accommodation in Onslow that is of a higher quality than in the campsites.

As noted, there is no apparent need for Chevron Australia's site at this time. It is therefore important to consider scenarios for the short and long-term development of Chevron Australia's Lot 4001 as a well-integrated component of the townsite. Development that would prejudice the development of the land for workforce accommodation beyond Chevron Australia's 15-year approval to utilise the ANSIA facility for operational workforce should not be considered.

3.2 ECONOMIC PROSPERITY

Vision Statement

The Shire of Ashburton will enjoy a diversified economy that takes advantage of transformational opportunities. The towns will benefit from a range of retail and commercial businesses to meet existing and future demand. In addition, the Shire will continue to be known for its significant iron ore and oil and gas resources which will continue to be significant contributors to the local, state, and national GDP.

Goal

Have a diverse local economy that promotes and supports growth in a range of sectors including mining, oil and gas, tourism, industry, retail and commerce, agriculture, aquaculture, and small business.

Economic Prosperity

Key objectives being considered through this Strategy are as follows:

- Ensure heavy and general industrial development is appropriately directed towards the Ashburton North Strategic Industrial Area, and general industry zoned areas in proximity to the Onslow, Tom Price and Paraburdoo townsites.
- Support the appropriate diversification of the local economy having regards to transformational opportunities in the sectors of tourism, industry, retail and business, and agricultural and aquaculture pursuits within the rural and rangeland areas.
- Retail and commercial development within Tom Price and Paraburdoo remain focused on the existing town centres to meet existing and future demand.
- Further investigations are required to consider the long-term transition of the Onslow town centre and its services and facilities to areas outside the coastal hazard risk area.

3.2.1 TOURISM AND SHORT-STAY ACCOMMODATION

Attractions and Amenities

The North West is recognised for its outback, scenery and indigenous experiences. In the economic context, tourism is a very small contributor to current economic activity, however its value can be sustainable over time and opportunities are available for its increased contribution. Increased promotion of tourist attractions, particularly for Karijini National Park and other natural assets, would assist in drawing visitors to the Shire.

Aboriginal culture, heritage and experiences are significant tourism assets and engagement with traditional owners should be considered to ensure that cultural heritage values are not lost. Arts and cultural programs with the local Indigenous communities would work to further attract national and international recognition.

The Pilbara Regional Council has recently completed a feasibility study into developing mountain biking trails through and close to Tom Price.

A number of pastoral leaseholders are developing farm-stay and camping elements that are contributing to the types of authentic tourism experiences available in the region. An example is the recently completed 'camping with custodians' facility at Peedamulla Station.

In Onslow, diversification of the visitor experience depends on a broad range of tourism products related to islands, fishing tourism, national parks, indigenous art and culture, and the increasing market potential for industrial tourism. There are opportunities to leverage from nature based tourism and heritage and Aboriginal tourism development. Management and planning of sustainable tourism activities such as camping, boating, swimming, fishing, and 4WDing, and development around sensitive coastal environments such as beaches, river mouths (Beadon Creek), and seagrass meadows, will be critical with population and industry growth, development of tourism, and townsite expansion.

Accommodation

Onslow accommodation is becoming more accessible as occupancy rates normalise, due to lower accommodation demand from construction workforce. As accommodation becomes more affordable, it will be more appealing or accessible for greater number of visitors. Accommodation options in Onslow include self-contained units and motel rooms, two caravan parks, and a free camping facility at the mouth of the Ashburton River.



Tom Price is acknowledged as a tourism destination for visitors to Karijini National Park and there is an opportunity for in-town mining accommodation to transition to short-stay accommodation if there is demand (i.e. Windawarri Lodge, Marandoo Annex) or additional land to the north of Karijini Lodge could be considered for expansion. Accommodation in Paraburdoo is currently limited, with some options available at the caravan park and the Paraburdoo Inn.

New tourism accommodation would need to be considered in the context of the broadened tourism experiences and products that would have a competitive advantage within the Shire. It would be important, from a land use and planning perspective, to consider mechanisms such as flexible utilisation between short stay accommodation, workforce accommodation, and permanent residential development. Other incentives may include the provision of land for iconic tourism use at reduced or no cost and government underwriting of portions of some strategic tourism developments.

Accessibility

The Shire has the ability to capitalise on its airport infrastructure. Some seats are available on flights from Perth to Onslow and Paraburdoo. Broadly, the airports in the Pilbara and Kimberley would struggle to attract sufficient passenger numbers to warrant international flight connections, thus, the emphasis would remain on flights from Perth and potentially between some of the regional airports.

Tom Price has no airport, with access to Paraburdoo Airport via a private bus service provided for the mining industry but made available as a fee-paying service to the public. The bus service meets each flight into or out of Paraburdoo Airport and takes approximately 45 minutes.

A helicopter tour business has recently commenced operation in Tom Price, providing another means for exploring and experiencing the local area.

Mackerel Islands Resort (Direction Island and Thevenard Island) and Montebello Islands are accessible from Beadon Creek Boat Harbour (and proposed marina). Once the proposed marina expansions are completed, it will open up additional benefits for increasing access to islands and the coastline for tourism and recreation.

The Shire of Ashburton advocates sealing of the Karratha - Tom Price Road. The improvement and sealing of the Karratha - Tom Price Road is considered an ideal opportunity to generate substantial economic benefits for the Pilbara and the State through both increased tourism and improved freight traffic movement. This route will provide for a more legible connection between Karratha and Tom Price. Further, the Shire strongly advocates the improvement of the access to Mount Augustus.

Awareness

The economic contribution of tourism is affected by seasonality of visitation, geographical isolation, and the (real or perceived) shortage of adequate accommodation and facilities.

Tourism within the region is an under-utilised resource that has the ability to provide many economic benefits, particularly for the major towns. The promotion of tourism in the region requires significant investment in the marketing of tourism opportunities, upgrading of infrastructure and consideration of accommodation options. A tourism strategy would need to focus on product development, marketing and promotions, and training and support. The groups to target would be older couples, backpackers, international couples, nature-based visitors and cruise ship passengers.

3.2.2 INDUSTRY

As outlined in greater detail in Part 2, industry and particularly mining and oil and gas industry sectors, are the predominant economic generators within the Shire. Industrial development has also been described in earlier detail for each townsite. The larger oil and gas and mining proponents are generally addressed through State Agreements.

DevelopmentWA and the WAPC are responsible for administering the ANSIA. Land is available for heavy industry and general industry. Land remains available in ANSIA for complementary industrial development. The Shire will support heavy industry and general industry that are compatible with existing uses being located within the ANSIA, where buffers are already taken into consideration.

3.2.3 RETAIL AND COMMERCIAL CENTRES

The Shire was reported in 2015 to have the lowest number of advertised commercial leases, and one of the highest advertised retail and office average annual lease costs in Western Australia.

Future population growth can increase demand for retail and bulky goods trade, although Karratha is likely to absorb much of this demand given the demonstrated willingness of residents to travel to this centre for major shopping. The overall distribution of additional retail and bulky good floorspace would be dependent upon the population growth experienced within the individual town sites. The Strategy needs to identify appropriate land available for future retail and commercial development, to predict and provide for forecasted population growth.

3.2.4 RURAL AND RANGELANDS

The rural and rangelands areas of the Shire are under a range of tenure arrangements, whether unallocated Crown Land, pastoral leases, mining tenements and leases, or leases for Aboriginal communities. The Shire's rural and rangeland areas are home to the Millstream Chichester and Karijini National Parks, Barrow Island 'A Class' Nature Reserve and an extensive number of Conservation Parks and Nature Reserves.

The rangeland and rural areas of the Shire are characterised by their red earth ranges, the great Pilbara rivers that flow across the landscape, the range of flora and fauna, and several land uses including pastoralism, agriculture, tourism, mining and indigenous activities.

The untapped value of the rangeland and rural areas will progressively be unlocked through opportunities in appropriate natural resource management, future protection of remnant vegetation and areas of significant value, and the emergence of new economic sectors.

Whilst mining and petroleum will dominate for decades to come, the Shire's rangelands and rural areas will continue to deliver long-term positive and sustainable economic opportunities in pastoralism, agriculture, tourism, aquaculture, and traditional land and cultural practices.

Pastoralism

Pastoral activities are likely to continue throughout the majority of the Shire. There appears to be a correlation between the worst areas of degradation and erosion, and the most valuable pasture lands. Pastoral activities have an impact on native vegetation, flora and fauna, erosion and other factors that need to be adequately addressed and managed by pastoral landowners. Pastoralist management practices are currently transitioning, with more ecologically sustainable and regenerative extensive farming practices appropriate to the Pilbara region being undertaken.

The cattle industry sector has been identified as a transformational economic opportunity. A number of town planning considerations can be taken into account for the benefit of encouraging further pastoral and agricultural pursuits within the Shire, including:

- Consideration of natural resource management and land management practices to minimise negative impacts and contribute towards sustainable pastoralism.
- Protection and maintenance of remnant vegetation and areas with significant values.
- Directing agricultural pursuits so that they minimise impacts such as clearing, bushfire management, uncontrolled access, weeds, pests and feral animals.
- Coordinate with the Pastoral Lands Board and DPIRD to support Ecologically Sustainable Rangeland Management (ESRM) planning within the Shire.



Agriculture

The Pilbara climate is in a similar zone to other countries that produce and export high value products. Asia and the Middle East are attractive markets that demand products capable of being grown in the Pilbara. 22 countries are identified as 'high potential' target markets for new agricultural products.

Legislation currently allows for irrigation of a range of crops on a pastoral lease. A number of irrigated agricultural developments could be possible on a medium-to-large scale. Success will depend on products that are robust, mechanically harvested, can thrive in the heat, and can be achieved at a globally competitive scale.

Expansion of projects like Rio Tinto's Hamersley Agricultural Project may prove to be viable opportunities. Mine-sourced dewater surplus can be reinjected for reuse for agricultural and other purposes.

The Pilbara Hinterland Agricultural Development Initiative (PHADI) provides for the future of irrigated agricultural development, through Royalties for Regions, by supporting public and private sector investment decisions for new irrigated agricultural developments. There are opportunities for investigating the capability and suitability for irrigated agriculture. A wide range of agricultural products have been identified, some which have proven experience and others which will require new skills, new investment, new systems and capital. 'Transforming Agriculture in the Pilbara' is recognised as the next phase from the PHADI project.

The Shire is an advocate towards investigations into export market opportunities for crops/food products that could be grown in the Pilbara. It will be important to collaborate with the Pilbara Development Commission, government agencies, leaseholders, Traditional Owners and the pastoral industry for delivering projects and other outcomes, through demonstration and prospective projects. It will be important to ensure intensive agricultural proposals are appropriate to the sustainable capability of the land.

Aquaculture

Aquaculture is an emergent industry sector. It requires development of the sector to a level where it is of a sustainable scale to be economically viable and internationally competitive. Aquaculture projects (R&D etc) present opportunities that can contribute towards investment and ultimately, employment. The Shire is an advocate for investigations into market opportunities for aquaculture products. A number of investigations have already been undertaken through the Pilbara Development Commission, including through its inaugural Aquaculture WA State Forum held in 2016.

The emergence of new sectors such as aquaculture may require particular consideration of the industry's land requirements, environmental management, and export logistics. Onshore areas within 10km of Onslow near McCann Well, and some land in Tom Price has previously been identified to be of interest. Thevenard Island was identified for possible offshore/nearshore aquaculture.

Aquaculture requirements warrant appropriate risk management to address bio-security, water use, and wastewater management.

3.3 UNIQUE HERITAGE AND ENVIRONMENT

Vision Statement

The Shire of Ashburton will, by necessity, be a leader in climate adaptation, environmental protection and conservation, and will be known for its commitment to hold onto its natural, Aboriginal and European heritage.

Goal

Protect and maintain environmental, heritage and natural values now and into the future.

Proactively plan for, manage and mitigate against environmental hazards and other risks that have the potential impact on the health of the community and on the built and natural environment.

Unique Heritage and Environment

Key objectives being considered through this Strategy are as follows:

- To ensure that environmental, heritage and natural values are protected and maintained into the future.
- To ensure that the physical and natural environment supports the needs of the community, in terms of parks, recreation, conservation and natural areas.
- To support the ongoing protection and conservation of terrestrial, marine and aquatic biodiversity.
- To ensure that the towns and Aboriginal settlements within the Shire are designed and planned to address hazards and risks.
- To ensure that matters of natural, Aboriginal and European heritage value are protected, maintained and celebrated.

3.3.1 HERITAGE

3.3.1.1 ABORIGINAL, EUROPEAN AND NATURAL HERITAGE

A number of Aboriginal, European and natural heritage sites are identified on various heritage lists. Opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements and tourism opportunities with traditional owners, and optimise opportunities for Indigenous training, employment and businesses. It would be appropriate to review and update the Municipal Heritage Inventory to be used as the Heritage list in the Scheme.

A number of Aboriginal, European and natural heritage sites are identified on various heritage lists (national, state and local) that are identified in the Environmental Profile (refer **Appendix A** – section 2.8 of the Environmental Profile). Protection of heritage is an ongoing commitment at all levels of government.

3.3.1.2 CULTURAL HERITAGE

A number of Registered Aboriginal Heritage Sites are located within the Shire (refer **Appendix A** – section 2.8 of the Environmental Profile).

Whilst heritage is primarily managed through State and Commonwealth legislation, opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements and tourism opportunities with Traditional Owners. The Shire is an advocate for opportunities in Indigenous training, employment and businesses. This should include effective engagement with the appropriate Traditional Owners depending on the location of heritage sites and business opportunities, to support protection of cultural values.

There is an opportunity for working with Traditional Owners as part of protecting Aboriginal heritage and Aboriginal culture. This can include involvement of Traditional Owners in a range of cultural, eco-tourism and environmental management and cultural/eco-tourism. The Pilbara has many opportunities which should be supported and developed.



3.3.2 COASTAL PROCESSES AND FLOODPLAINS

Coastal recreational activity should be considered in the context of its cumulative impacts on sensitive environments, in terms of minimising impacts. Expansion of tourism, commercial fishing, aquaculture and resource industry activity will increase pressure on sensitive and productive coastal marine environments which provide habitats and breeding grounds (seagrass meadows, turtles nesting on beaches, river mouths/intertidal mud flats) for marine life. Recreational activity (camping, boating, fishing, swimming and 4WDing) around sensitive coastal environments associated with population growth and industry development will also impact upon local biodiversity and environmental values.

Sea level rise and coastal vulnerability will increase along the coastline in the near future. Management of existing infrastructure and planning future development will require consideration of vertical allowances and setback distances.

Increases in rainfall event intensity may result in greater localised flooding and increased pressure on stormwater systems. Stormwater systems should be designed with contingency for increased rainfall intensity.

3.3.3 CLIMATE CHANGE

Increases in temperature and extreme weather events are projected to occur as a result of climate change. This would have the potential to impact on the health of the environment and the community, as well as the maintenance of public lands and capacity of infrastructure systems including those managed by the Shire.

Increases in extreme weather events, particularly bushfires as well as rainfall/tropical cyclones, may require development to be located away from areas of risk and/or improved emergency management responses and plans. Infrastructure would need to be designed adequately to manage extreme weather conditions.

3.3.4 ACID SULPHATE SOILS

Declining soil and land quality can occur as a result of activity where acid sulphate soils are disturbed. This leads to the release of acid and heavy metals which can cause significant harm to the environment and infrastructure. Appropriate management of acid sulphate soils, particularly in areas of high risk where changes in groundwater are likely or mining is proposed, is required, consistent with current best practice.

3.3.5 BUSH FIRE RISK

The majority of the Shire is indicated as being located within a Bush Fire Prone Area as designated by the Fire and Emergency Services (FES) Commissioner. A Bushfire Hazard Level assessment (BHL) has been prepared in consultation with the Department of Planning, Lands and Heritage and the Department of Fire and Emergency Services (refer Appendix C in Part 2). It was prepared to focus on areas within the vicinity of the Onslow, Tom Price and Paraburdoo townsites, in order to identify infill and expansion areas that can be developed where there is low or moderate bushfire risk.

Some clearing of land would be required for areas identified for urban expansion. No biodiversity issues have been identified that would preclude clearing land for urban expansion, thereby this would remove much of the bushfire hazard in these locations. The existing and proposed road network, as shown in Part 2 of the Local Planning Strategy can provide accessibility between townsites and can provide accessibility from peripheral development exposed to residual bushfire risk, to areas of low bushfire hazard and exposure within urban areas.

It is noted that the Shire has a separate emergency management plan in place, that considers and plans for necessary actions and investment to manage the risk of bushfire to its community, including strategic emergency evacuation plans. Other management responses may also be required. Dust generated from bushfires should be monitored and management responses developed to inform the public regarding health risks during bushfire events. Management of fuel loads without exceeding threshold air quality standards should also be considered through the development of an Air Quality Management Plan, and a program of regular fuel reduction which minimises air quality impacts on townsites and sensitive environments, on advice from the Bushfire and Natural Hazards Cooperative Research Centre.

3.3.6 CONSERVATION AREAS

The Shire is well known for its impressive terrestrial, marine and aquatic biodiversity. The level of reservation (in terms of percentage of area) within the Shire of Ashburton is greater than the rest of the Pilbara region. A significant proportion of the Shire's biodiversity is protected in a number of conservation areas (refer to Part 2 - Appendix A). A number of new reserves are proposed, including Mulgalands Conservation Park and West Hamersley Range Conservation Park. The proposed new additions within the conservation areas may be supported by the Shire of Ashburton.

Whilst the management of public access and visitor numbers is through the Department of Biodiversity Conservation and Attractions, the Shire can also contribute some local support in endeavours such as the active management of weeds, uncontrolled access, and feral animals. Overall, management of public access and visitor numbers would be undertaken in a manner that balances tourism, visitation and conservation values.

3.3.7 OPEN SPACE

Significant areas within the townsites are within managed Crown reserves for public recreation. Based on forecasted population, it is predicted through the Shire's Strategic Asset Management Plan for the same level or slight increase of younger families is expected (which use parks, playgrounds and recreation space).

The Shire would carefully consider population growth and demographic changes in towns, and the consequential supply and quality of public open space. Notwithstanding projected changes in climate, the Shire would promote landscaping where appropriate to be of low-water use, drought tolerant, and resilient to high winds or cyclonic events.

Increases in temperature are likely to result in increased needs for cooling and/or impacts on environmental and public health. Consideration should be given to mitigate heat impacts in regional towns and the need for green infrastructure and shade in public and private places in the built environment. This may also result in an increase in water demands, and thus adequate water sources. Development should also incorporate passive solar design and breezeways.

3.4 QUALITY SERVICES AND INFRASTRUCTURE

Vision Statement

The Shire of Ashburton will have planned for and worked towards delivering a range of community facilities and infrastructure that will contribute to a high quality of life for its residents. The towns will also have long-term and sustainable sources of power, water, solid waste recycling/disposal and effluent waste treatment. The Shire will remain well connected by road, sea and air.

Goals

A robust local government portfolio of community and infrastructure assets that can be maintained for their total lifecycles.

Movement and freight networks that are maintained and managed by the relevant stakeholders/government agencies that accommodate the existing and future requirements of industry, residents and tourism.

Appropriate placement of utilities and infrastructure, and their ongoing protection through buffers and other land use controls.

Quality Services and Infrastructure

Key objectives being considered through this Strategy are as follows:

- To ensure that appropriate community infrastructure is appropriately planned for, provided in a timely manner and thereafter maintained having regard to total lifecycle costs.
- To ensure that the local road network is, within the capacity of the local government, well maintained and enhanced through appropriate design, construction and maintenance.
- Ensure that the Shire has air freight and carrier connections to Perth and other regional destinations.
- Ensure that the marine facilities within the Shire are appropriately planned for, having regard to community and industry expectations.
- Ensure that long-term sustainable sources of power, water, solid waste recycling/disposal and effluent waste treatment are considered and planned for.
- Protect industry, utilities and other strategically important infrastructure and facilities through the use of buffers and other land use controls to avoid inappropriate encroachment by sensitive land uses and development.

3.4.1 COMMUNITY SERVICES

Community Facilities and Infrastructure Assets

The Shire of Ashburton has analysed the number of assets across the local government district for ongoing maintenance and management. Advancements in technology and materials can assist in reducing maintenance costs or offset asset replacement. A *Map and Gap Analysis* conducted in 2012 identified a high level of investment. Chevron Australia, Rio Tinto and BHP Billiton have also introduced funding programs to support a range of community-based projects and activities. Priorities were identified in the *Strategic Community Plan* for Onslow, Pannawonica, Paraburdoo, Tom Price and remote Aboriginal Communities. Careful consideration of population growth in towns, with the supply of services, will be an essential part of the Shire's administration in the future in order to balance community infrastructure with budgeting requirements.



The Shire will continue to review the need for new and existing community facilities, and analyse the whole-of-lifecycle costs to ensure facilities are capable of being maintained to an acceptable community standard. It will maintain and review its *Strategic Asset Management Plan*. Where practical and reasonable, the Shire will advocate the co-location of facilities and services in proximity to town centres.

Education Facilities

Within the Shire, 1,123-1,155 students were recorded in 2016 to attend local schools, including:

- Onslow Primary/Secondary School (100-103 students);
- Pannawonica Primary School (113 students);
- Paraburdoo Primary School (195-205 students);
- North Tom Price Primary School (207-214 students);
- Tom Price Primary School (222-231 students); and
- Tom Price Senior High School (286-289 students).

The Tom Price Primary School, North Tom Price Primary School, Tom Price Senior High School and Paraburdoo Primary School have combined to form the Ashburton School Alliance (ASA). Combined schools student activities are organised through the ASA.

The Onslow Primary/Secondary School on Simpson Street has a student population between 95-125, aged between 4-17 years, with approximately 52% of the students from Thalanyji, Yindjibarndi and Banyjima Aboriginal groups.

As the *Onslow Townsite Expansion Structure Plan* provided for an additional 3,500 people, it also identified a future High School site indicatively within the Urban Expansion Area. This is reflected on **Plan 2 Onslow Town Site Strategy Plan**. Future planning for the expansion of the Onslow Townsite will ensure that a future 6 hectare school site will be appropriately identified and set aside for future acquisition by the Department of Education.

Government Services

Whilst Tom Price serves as the administrative centre for the Shire, Onslow provides a number of satellite office functions for the Shire of Ashburton. The delivery of the new Shire Complex within Onslow provides the community with a modern, multi-purpose civic facility that incorporates Council Chambers, hall, library and workspace for local government officers. This ensures that there remains a presence of the local government within the town, providing a key connection for the community.

3.4.2 TRAFFIC AND TRANSPORT AND EXISTING AND PROPOSED MAJOR TRANSPORT ROUTES

Given the low population levels throughout the Shire, traffic flows on most roads are well within capacity. The levels of growth expected within the planning horizon of this Strategy are not expected to change any great extent.

A number of traffic and transport issues have been identified in Part 2 of the Local Planning Strategy. There are a number of avenues open to local governments for accessing additional funding for various purposes, including Federal and State Blackspot programmes etc. In the case of black spot funding, it is not always necessary for a project to be based on a cost benefit analysis, and sites with no significant crash history may be eligible for funding if potential safety issues have been identified within a formal Road Safety Audit report.

The Shire needs to identify all such opportunities, and develop a strategy for maximising the amount of funding that can be accessed. In most cases, this will involve the early identification of projects in order to ensure that a robust case can be presented.

3.4.3 AIR AND MARINE INFRASTRUCTURE

3.4.3.1 ONSLOW AIRPORT

Onslow Airport is the key gateway for FIFO workers and for visitors to Onslow by providing direct flights to/from Perth. It provides a significant contribution to the local community. The Onslow Airport incorporates the airport terminal building and associated airside and landside infrastructure.

Onslow Airport is owned and operated by the Shire of Ashburton and its long-term direction and framework is guided by the *Airport Master Plan Onslow Airport* (February 2016) and the Obstacle Limitation Surface that is in place. The Strategy acknowledges the important consideration of a future extension for the existing main runway which will allow the Airport to accommodate larger jet aircraft and rotary wing aircraft.

The *Master Plan* establishes a long-term framework for the Onslow Airport and facilities, and protects future development against the effects of current decisions. The Shire of Ashburton will aim to prepare ANEF contours for the Onslow Airport. Long-term, Airport Future Obstacle Limitation Surfaces and Onslow Airport's flight paths may constrain building heights. It would be important to reflect the current Obstacle Limitation Surface as a special control area within the local planning scheme.

In addition to the Obstacle Limitation Surface, Onslow Airport utilises an instrument-controlled approach system called PANS-OPS, a system of rules for designing instrument approach and departure procedures. Such procedures are used to allow aircraft to land and take off when instrument meteorological conditions impose instrument flight rules. In order for this critical safety system to remain effective, any intrusion into the airspace surrounding the airport greater than 50 metres in height, including physical objects, smoke, or other particulate matter must be introduced into the computer modelling. This could also be reflected in the local planning scheme.

3.4.3.2 PARABURDOO AIRPORT

Paraburdoo Airport provides accessibility for workers to be transferred by bus to the nearby towns of Paraburdoo (9km away) and Tom Price (71km away), and to FIFO camps. Bus transfers and car hire assist visitors and locals in accessing the airport to and from Tom Price. Rio Tinto is currently responsible for the operation and maintenance of the Paraburdoo Airport under General Lease 104721. The strategy acknowledges that future growth and long term sustainability regarding tourism in the Shire could be restricted.

3.4.3.3 PORTS

Pilbara Ports Authority (PPA) is responsible for common-user marine assets and port-vested land at the Port of Ashburton in accordance with the *Port Authorities Act 1999*, and the PPA has released its *Port of Ashburton Master Plan*.

The Port of Onslow is managed and operated by the Department of Transport. It is managed in accordance with the *Shipping and Pilotage Act 1967* and the *Marine and Harbours Act 1981*. It has a Land Use Framework for the boat harbour.

The Barrow Island port is a Restricted Port due to the vessel activity associated with Gorgon, and permission must first be obtained from the Barrow Island Marine Controller.



3.4.4 WATER

Potable Water

Public Drinking Water Source Areas are provided by existing groundwater supplies. The Strategy will require statutory protection of public drinking water supply areas in accordance with relevant water source protection plans, Department of Water and Environmental Regulation's Water Quality Protection Note 25, and SPP 2.7. Groundwater is available for allocation in many aquifers, however, declining rainfall in coastal areas may result in reduced recharge and consequently availability in these areas in the future, particularly as population and industry expands. Public drinking water is supplied predominately from groundwater.

Water supplies are provided by Water Corporation. Water supplies and wastewater management for Tom Price, Paraburdoo and Pannawonica are supplied by Rio Tinto. The intent is to develop a water desalination plant in the ANSIA Improvement Scheme area. This service is intended primarily for Onslow town usage, with potential for ANSIA users to connect thereafter. This will lower the reliance on water supplied from the Cane River bore field once the desalination plant is constructed.

The use of mine run-off and water extraction may be a difficult yet potentially viable water supply option. There are opportunities for expanding irrigation for investigation in the Pilbara hinterland, from using excess water from mine dewatering. The Shire is an advocate for the sustainable abstraction of potable water sources and water reuse/recycling associated with mines and townsites.

Water Management

Rainfall data indicates that average annual rainfall has declined around Onslow, yet has increased in inland areas. It will be important for adequate consideration of the management of flood risk, and associated sediment transport in townsites and industrial areas.

Better Urban Water Management has been designed to facilitate better management of urban water resources, ensuring an appropriate level of consideration to the total water cycle. It is recognised that the Shire is a Waterwise Council, and it should continue to investigate and expand water efficiency opportunities, such as irrigation of public open space and sports ovals where practical. The Shire will be responsible for reviewing existing townsite drainage systems and ensure appropriate water quality of stormwater and runoff is addressed.

The Shire could also investigate partnerships to establish water recycling and reuse schemes to provide fit-for-purpose sources of water where practical, as an alternative to groundwater use to support future development.

Wastewater

Appropriate sewage facilities for all towns and adequate systems in place for smaller scale settlements and Aboriginal communities.

Onslow wastewater treatment plant capacity was doubled, funded by the Wheatstone Project, and provides for the long-term future growth of Onslow. The odour buffer area applies to the upgraded WWTP. The Shire is an advocate for the ongoing delivery of sewage infrastructure in towns and adequate systems for smaller scale settlements and Aboriginal communities.

3.4.5 ENERGY

Onslow town power supplies are provided by Horizon Power. Undergrounding of power lines has been undertaken for Onslow. Town power supplies for Tom Price, Paraburdoo and Pannawonica are supplied by Rio Tinto.

A gas fired power plant will be soon completed within the ANSIA Improvement Scheme area. This facility is intended primarily for Onslow town usage, with potential for ANSIA users to connect thereafter. The scale of the gas power plant is potentially affected by the proposed renewable energy microgrid by Horizon Power.

There is some presence of renewable energy sources in the local government area including a renewable energy microgrid for Onslow, proposed by Horizon Power. The global microgrid market is experiencing transformational growth, which tend to combine conventional and renewable sources, and battery storage technology. As technological advancements continue, renewable energy solutions and microgrids will become more cost competitive, more reliable and better understood to be alternative approaches to electricity generation, distribution and storage. Renewable energy sources and microgrids can help to build resilience and reliability in the electricity network, through stabilising energy supply to demand, and also work to offset carbon emissions. Microgrids may assist with delivering reliable and viable energy solutions.

3.4.6 WASTE MANAGEMENT

Federal funding has been secured for a Class IV waste facility for Onslow. Landfills operate outside of Paraburdoo and Tom Price. The State Government will be responsible for ensuring Aboriginal communities have effective waste management to minimise pollution and risks to human health and water sources. A joint dirty Material Recovery Facility is recognised as an opportunity for Newman and Tom Price.

There are limited opportunities to divert recyclable material from landfills. Infrastructure and market opportunities could arise in relation to recycling. There are a number of opportunities for Pilbara regional waste processing facilities and recyclable products. The Shire is an advocate for a State Government comprehensive waste recycling and disposal plan for strategic waste transfer, collection, treatment, recycling and disposal facilities. This will ensure the future diversion of waste from landfills through reduction, reuse and recycling opportunities.

3.4.7 BUFFERS

It is crucial for economic and public health purposes to ensure buffers around industry and infrastructure are appropriately identified and secured from inappropriate land uses, and the safety and amenity of surrounding land uses is addressed. Buffer areas should be investigated for all industrial categories; major infrastructure; waste water treatment plants and power generation facilities. Planning for future industrial development and provision of appropriate buffers to existing and new industries will be implemented through the scheme review. Buffers are then to be shown as special control areas on the Scheme Maps.

3.4.8 SERVICE CORRIDORS AND SITES FOR UTILITIES

High pressure gas transmission pipelines do not require development approval. The Shire may have a role in approving the construction of facilities in the initial stages, i.e. the construction camps, waste water treatment facilities, and road usage. The Shire will have regard to DC Policy 4.3 Planning for High-Pressure Gas Pipelines policy measures to assess proposals that in the vicinity of any high-pressure gas pipelines in the Shire.

3.4.9 TELECOMMUNICATIONS

Broadcast Australia operates a number of townsite-based telecommunication facilities.

Existing mobile phone coverage is generally limited to townsites, mines, camps and sections of the North West Coastal Highway. Greater mobile phone coverage will improve convenience and safety for all towns, district roads, highways, and areas frequented by the community, workers and visitors. This will require planning for appropriate servicing and delivery of infrastructure, including telecommunications.

Proposed telecommunication links to South East Asia will improve bandwidth within the Shire, and its connections to neighbouring markets. Future mine sites will benefit from telecommunications as companies roll-out automated systems (i.e. Rio Tinto's "Mine of the Future" program and its automated drilling and haulage systems).

The Shire is supportive of the ongoing improvement of availability, coverage, and reliable accessibility to telecommunications services (telephone, mobile network, broadband) and TV/radio broadcasting. The Shire will advocate for an effective state-wide telecommunications network.

4 IMPLICATIONS, ISSUES AND OPPORTUNITIES

The following tables 2-13 provide a summary of the implications, issues and opportunities that are derived from the analysis and background research contained in Part 2 of the Local Planning Strategy.

Table 2 Implications, issues and Opportunities – State and Regional Planning Context

State and Regional Planning Context	Implications	Issues	Opportunities
State Planning Strategy	Six inter-related principles of community, economy, environment, infrastructure, regional development and governance	<p>Balancing natural resource and landscape values with industrial pursuits (mining, energy, ecotourism, pastoralism).</p> <p>Ensuring sustainable development is supported by infrastructure and service investment.</p> <p>Recognising the valuable contributions of Aboriginal culture within the Pilbara region.</p>	<p>Maintaining the region’s significant contribution to Australia’s GDP.</p> <p>Advocating State government investment into strengthening resilience in the Pilbara Region through attracting and retaining people and businesses.</p> <p>Embracing and celebrating Aboriginal culture to instil a strong sense of place, belonging and community spirit.</p> <p>Native Title information being recognised and reflected in the Local Planning Strategy plans.</p>
Pilbara Cities	Vision to build Karratha and Port Hedland as ‘Pilbara Cities’ supported by other towns.	Requires public and private investment in amenity and liveability in towns.	Drive investment into towns through the Royalties for Regions programme.
Pilbara Regional Investment Blueprint	A plan for investment, economic transformational opportunities, priority actions and investment opportunities.	<p>Ensuring a prosperous and secure future for the Pilbara region.</p> <p>Recognising opportunities to diversify the economy.</p> <p>Recognising mining and energy sectors will dominate for decades to come.</p>	<p>Planning for anticipated population growth with an emphasis and focus on the three main settlements of Onslow, Tom Price and Paraburdoo, and recognised Aboriginal Settlements.</p> <p>Ensuring the land use planning framework within the Shire is able to readily respond to changes in the economy that can rapidly affect the growth, stabilisation and decline in population numbers within the towns as well as remote communities and camps.</p> <p>Target investment for retaining permanent residents in towns and settlements.</p> <p>Link the transformational opportunities in the Blueprint with aims and goals within the Local Planning Strategy.</p>

State and Regional Planning Context	Implications	Issues	Opportunities
Pilbara Planning and Infrastructure Framework	Regional framework for identifying land, sites and corridors for major industries.	Have regard to the Framework in the preparation of local planning strategies and schemes.	Update the infrastructure priorities within the Shire of Ashburton to ensure population forecasts are supported by appropriate infrastructure and services.
SPP 2 Environment and Natural Resources Policy	Defines principles and considerations that represent good and responsible planning in terms of environment and natural resource issues.	<p>Integrate environment and natural resource management with broader land use planning and decision-making.</p> <p>Protect, conserve and enhance the natural environment.</p> <p>Promote and assist in the wise and sustainable use and management of natural resources.</p>	<p>Improve and promote best-practice natural resource management at a local government level.</p> <p>Areas for focus include: weed management, soil stabilisation and dust, groundwater, extraction of basic raw materials, illegal dumping, protecting wetlands and water courses.</p>
SPP 2.5 Rural Planning	Guides decision-making on rural land and for rural living purposes.	<p>Identify areas for rural or agricultural purposes.</p> <p>Recognise significant basic raw materials.</p> <p>Appropriately identify waste facilities in rural areas within local planning schemes.</p> <p>Manage and improve environmental and landscape attributes.</p>	<p>Promote flexibility within 'Rural' zoning to cater for a wide range of land uses that may support primary production, small-scale tourism, regional facilities, environmental protection and cultural pursuits.</p> <p>Promote landscape protection and ecological biodiversity within rural areas.</p>
SPP 2.6 State Coastal Planning Policy	Guidance for the coastal zone including managing development and land use change; establishment of coastal foreshore reserves; and to protect, conserve and enhance coastal values.	<p>Development setbacks for coastal processes.</p> <p>Risks to people and property from storm surge and severe storm inundation.</p> <p>Consideration of sea level rise, vertical allowances and setback distances will be required when managing existing infrastructure and planning future development, as per IPCC and CSIRO modelling and coastal vulnerability studies. Ensure that any substantial future development is supported by a current storm surge and flood inundation study consistent with the most current predictions for sea level rise and coastal processes, consistent with SPP 2.6.</p>	<p>Recognising development as variations to clause 7.4 of SPP 2.6: industrial and commercial development that is demonstrably dependent on a foreshore location.</p> <p>Planning for coastal processes and future risk management and adaptation, particularly within Onslow, which has several areas affected by future predicted sea level rise and storm surge.</p> <p>The CHRMAP and available report (MP Rogers & Associates, 2011) regarding coastal processes and inundation for the Onslow Townsite, to be recognised and addressed in the Local Planning Strategy and future Scheme Review.</p>
SPP 2.7 Public Drinking Water Source Policy	Ensure land and development is compatible with the long-term protection and management of water resources.	There are a number of important water sources which provide water for public supply within the region. Priority source protection areas to be identified in local planning strategies.	<p>Identify priority source protection areas in local planning schemes. Adopt scheme provisions for protection of public drinking water source areas.</p> <p>Consideration should be given to the reservation and/or use of a special control area to improve the level of</p>

State and Regional Planning Context	Implications	Issues	Opportunities
		<p>Land use and development to consider management of priority source protection areas.</p> <p>Planning decision-making should be consistent with the Department of Water and Environmental Regulation's Water Quality Protection Note: Land Use Compatibility within Public Drinking Water Source Areas (2016) in the vicinity of any drinking water borefields, including the requirements for well-head protection zones.</p> <p>Although allocation currently remains in some aquifers and investigations into available groundwater supplies are continuing, declining rainfall in coastal areas may result in reduced recharge and consequently availability in these areas in the future, particularly as population and industry expands.</p> <p>Dewatering/over-abstraction has also impacted local groundwater levels, potentially affecting groundwater-dependent pool ecosystems and wetlands through drying up and loss of habitat. This in turn can impact wildlife and cultural and social values. This is especially critical given the presence of nationally important wetlands in the Shire.</p>	<p>protection of public drinking water sources in future, particularly in relation to Bungaroo Creek water reserve.</p>
<p>SPP 2.9 Water Resources</p>	<p>Develop and protect water resources in an economically and environmentally responsible way.</p>	<p>Promote the management and sustainable use of water resources.</p> <p>Maintaining or improving the quality and quantity of water resources.</p> <p>It is recognised that the Shire is a Waterwise Council, and it should continue to investigate and expand water efficiency opportunities, such as irrigation of public open space and sports ovals where practical.</p> <p>Due to increasing demand for water associated with residential growth and industrial expansion, it is considered that water recycling and reuse to provide fit-for-purpose sources of water should continue to be investigated in Onslow and other townsites where practical, as an alternative to groundwater use. This will require cooperation with the Water Corporation and Rio Tinto.</p>	<p>Promote the objectives of SPP 2.9 in considering water availability, water quality and water efficiency for ecological, mining, industrial and domestic potable purposes.</p> <p>Townships and communities associated with waterways in the Shire may be subject to risk of flooding. Any proposed development should be consistent with SPP 2.9, and in Onslow, consistent with the <i>Local Water Management Strategy</i>, and address flood risk appropriately.</p> <p>Adequately manage the risk of flooding, and consequences particularly associated with sediment transport management, in townsites and industrial areas through application of SPP 2.9. The Shire may also need to review existing townsite drainage systems and ensure appropriate levels of service will be maintained as development occurs (such as at Onslow Airport).</p>

State and Regional Planning Context	Implications	Issues	Opportunities
		Landfill sites are a potential source of pollutants to ground and surface waters. These land uses, and others with the potential to pollute ground and surface waters must be carefully located, designed, managed and monitored to avoid impacts.	
SPP 3 Urban Growth and Settlement	Sets out the principles and considerations that apply planning urban growth and settlement.	Manage urban growth and settlement, planning for liveable neighbourhoods. Coordination of services and infrastructure. Planning for Aboriginal communities.	Planning for well-located and serviced town centres that provide the needs of the community. Planning for managed urban expansion of towns having regard to population forecasts. Planning for and coordinating appropriate servicing and delivery of infrastructure. Advocate the preparation of Layout Plans for the Shire's Aboriginal settlements.
SPP 3.1 Residential Design Codes	Residential development requirements for a range of housing types and densities, character and amenity, conservation of heritage values, environmentally sensitive design.	Application of appropriate residential densities to address projected housing demand. Justification for local variations to the R-Codes.	Planning for residential development that has due regard to the local climate, natural hazards, and local community expectations for housing typologies. Outline local variations through scheme provisions or local planning policy. Consider the impact of workforce accommodation within towns, with a focus on development integrating with neighbourhood character and amenity.
SPP 3.2 Aboriginal Settlements	Sets out a process for ensuring the planning needs of large permanent Aboriginal communities are accommodated through the preparation and approval of layout plans, and that they are appropriately zoned in local planning schemes.	Prepare Layout Plans for Aboriginal Settlements – Ngurrawaana, Bellary Springs (Innawonga), and Youngaleena Bunjima.	Recognise Wakathuni Layout Plan as the primary document guiding development within the community. Advocate preparation of Layout Plans for all Aboriginal settlements. Coordinate services and infrastructure to Aboriginal settlements.
SPP 3.4 Natural Hazards and Disasters	Planning for natural disasters as a fundamental element in the preparation of all statutory and non-statutory planning documents.	Take into account natural elements (climate, soils, hydrology etc) that may create hazards. Consider long-term changes to risk such as climate change and land use change.	Incorporate hazard mitigation and other measures into the local planning scheme. Such matters may relate to cyclone events, contaminated sites, floodplains, bush fire, industrial risks. Guidance should be sought from environmental agencies with regards to appropriate separation distances to manage noise and dust for new industrial areas.

State and Regional Planning Context	Implications	Issues	Opportunities
			Odour from industries and waste water treatment plants should be considered as part the location of any new development.
SPP 3.5 Historic Heritage Conservation	Sets out the principles of sound and responsible planning for the conservation and protection of Western Australian historic heritage.	A number of national, state and local heritage sites are within the local government area. Heritage is a consideration for assessing and determining development applications.	Identify significant sites within the local planning scheme through the Municipal Heritage Inventory.
SPP 3.7 Planning in Bushfire Prone Areas	Guides the implementation of effective risk-based land use planning and development.	Majority of the Shire of Ashburton is within a bushfire prone area. The majority of the Shire is identified as being Bush Fire Prone. Future planning and development within Bush Fire Prone areas will need to meet the requirements of SPP 3.7 and the <i>Guidelines for Planning in Bushfire Prone Areas</i> (WAPC, 2015).	Consideration for bushfire risk based planning in bushfire prone areas. Consideration also should be given to the location of firebreaks in semi-rural areas around townsites and emergency management including access routes.
SPP 4.1 Industrial Interface (draft)	Ensure buffers around industry and infrastructure are appropriately identified and secured from inappropriate land uses, and the safety and amenity of surrounding land uses is addressed.	Buffer areas for all industrial categories; major infrastructure; waste water treatment plants and power generation facilities.	Planning for future industrial development and provision of appropriate buffers to existing and new industries. Buffers shown as special control areas on the Scheme Maps.
SPP 5.2 Telecommunications Infrastructure	Facilitate an effective state-wide telecommunications network.	Due regard to SPP 5.2 during the preparation of the local planning strategy. Limited telecommunications coverage across the Shire.	Advocate expansion of telecommunications coverage beyond towns and some sections of highways. Planning for appropriate servicing and delivery of infrastructure, including telecommunications.
SPP 5.4 Road and Rail Noise	Protect people from unreasonable levels of transport noise.	Use assessment criteria in the SPP 5.4 and Guidelines.	Protect major transport corridors and infrastructure from encroachment of incompatible uses, through a range of means in the local planning scheme (zoning, special control areas, and development provisions).
SPP 7 Design of the Built Environment	Sets out the principles, processes and considerations which apply to the design of the built environment.	Consider local design issues when assessing proposals. Application of <i>Liveable Neighbourhoods</i> in design of urban development, structure planning and subdivision.	Have regard to the 10 design principles contained in SPP 7 for the assessment of proposals. Promote character and amenity through local design vernacular. Advocate development to have due regard to local design guidelines.

State and Regional Planning Context	Implications	Issues	Opportunities
Development Control Policies	A range of operational policies to guide the WAPC's decision making on subdivision and development.	Consider the provisions of DC Policies in considering applications for subdivision and development.	Development to respond to the local planning scheme and have due regard to applicable DC Policies.

Table 3 Implications, Issues and Opportunities – Local Planning Context

Local Planning Context	Implications	Issues	Opportunities
Shire of Ashburton 10 Year Strategic Community Plan 2017-2027	<i>Living Life</i> is the Shire's 10-year <i>Strategic Community Plan</i> and articulates its vision for the towns of Onslow, Tom Price and Paraburdoo.	Embed the community goals within the strategic planning for the local government area.	Over time, the Local Planning Strategy may need to be reviewed and updated to maintain the close relationship between the Vision, goals and objectives of the <i>Strategic Community Plan</i> and this Local Planning Strategy.
Corporate Business Plan 2013-2017	The Corporate Business Plan implements the first four years of the <i>Living Life Strategic Community Plan</i> .	Identifies priorities for six theme areas.	Utilise the Local Planning Strategy for addressing priorities outlined in the Corporate Business Plan. The Shire will undertake a review of its Corporate Business Plan and the Local Planning Strategy may need to be reviewed and updated.
Shire of Ashburton Strategic Asset Management Plan 2016-2020	Provides a comprehensive overview of the assets to be maintained to an appropriate level of service, or replaced.	There is an identified renewal expenditure and funding gap. Assets to be replaced/disposed may identify land of buildings for re-use.	Strategic planning should consider the most appropriate growth scenarios for the population, to maximise the level of accessibility of existing and future residents and business to relevant infrastructure assets.
Onslow Airport Master Plan	Long-term framework for the Onslow Airport and facilities, and protects future development against the effects of current decisions.	Shire of Ashburton will prepare ANEF contours for the Airport. Airport Future Obstacle Limitation Surfaces and Onslow Airport's flight paths may constrain building height. Consider flight paths, ANEF and Obstacle Limitation Surface for the future extension of the runway.	Reflect the current Obstacle Limitation Surface as a special control area within the local planning scheme.

Local Planning Context	Implications	Issues	Opportunities
Shire of Ashburton Local Planning Scheme No. 7 (LPS 7)	Provides the statutory planning framework for decisions made by the local government.	<p>This Local Planning Strategy provides the rationale and justification for the preparation of a new local planning scheme, or amendments.</p> <p>Incorporation of the Model Provisions and integration of the Deemed Provisions contained in Schedules 1 and 2 of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>.</p> <p>The Shire has an extensive local planning policy manual.</p> <p>Structure Planning is likely to continue to be undertaken to guide certain land use and development.</p> <p>The current Municipal Heritage Inventory is old (1999) and considered places that required further research or reconsideration before being added to the Inventory. The Municipal Heritage Inventory can be used the Heritage List in the local planning scheme.</p>	<p>The Shire intends to review the LPS 7 in order to incorporate the Deemed Provisions and align its zones and reserves with those contained in the Model Provisions of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>.</p> <p>The Shire will need to undertake a review of its Municipal Heritage Inventory.</p> <p>Undertake a broad review of the local planning policy manual and undertake modifications to adopted policies, to align with the amended LPS 7 and Scheme Review.</p> <p>Investigate opportunities to guide townsite expansion through broad-scale structure plans.</p> <p>Review extent of existing development and facilitate new development in appropriate locations to support the Shire's objectives.</p>
Ashburton North Strategic Industrial Area (ANSIA)	<p>Improvement Plan No. 41 provided the head of power for the Improvement Scheme No. 1.</p> <p>The Improvement Scheme No. 1 and Guide Plan is the operational scheme for the ANSIA.</p>	<p>Western Australian Planning Commission (WAPC) operates and implements the Improvement Scheme No. 1. The WAPC is the decision-maker for development applications.</p> <p>Under the Improvement Scheme No. 1, the 'Workforce Accommodation' and 'Special Use No. 1' zones are provided and would allow operational workforce to be based within the ANSIA, which will have an impact on Onslow's population and growth.</p>	Shire of Ashburton will advocate and plan for workforce to be accommodated within the Onslow townsite wherever possible. This enables workforce to have access to town facilities and social cohesion.
Onslow Townsite Strategy	A response to the opportunities and challenges facing Onslow in the context of recent major industrial development and the potential for significant population growth.	<p>Maintain the town's character and lifestyle values of town residents.</p> <p>Fulfil the 3 objectives of sustainable living, economic vitality and community wellbeing.</p>	<p>Incorporate these objectives into the local planning scheme and local planning policies.</p> <p>Appropriately plan for ultimate development scenarios for Onslow.</p>
Onslow Townsite Expansion Structure Plan	Provides the overall structure for accommodating 3,500 people in the townsite.	<p>Identified areas subject to future investigation, which are reflected in the Issues and Opportunities Plan.</p> <p>Large live-work lots to McAullay Road to have regard to SPP 5.4 Road and Rail Noise provisions.</p>	<p>Identified non-residential land uses within the area bound by the Waste Water Treatment Plant odour buffer.</p> <p>Provision of 6 hectare School site as per Department of Education requirements.</p>

Local Planning Context	Implications	Issues	Opportunities
			<p>Long-term development of Lot 4001 as an integrated component of the townsite.</p> <p>Review of the future transition of the town centre towards a location that is not affected by predicted sea level rise and inundation.</p>
Onslow Townsite Expansion Stage 1 Development Plan	Enabled delivery of residential land in Onslow in response to mounting housing pressure due to the development of ANSIA.	<p>Chevron Australia's operations village site is retained for workforce accommodation development.</p> <p>Shire of Ashburton expects well-integrated development with the existing townsite.</p>	<p>Apply the relevant planning principles and objectives of the Onslow Townsite Strategy in any future modifications to the Development Plan.</p> <p>Support investigations in to the ultimate use of Chevron Australia's landholding.</p>
CHRMAP for the Onslow Coast	Some infrastructure and low lying areas of the Onslow townsite are at risk of steadily rising sea levels, combined with storm events.	The CHRMAP has identified key strategies and actions for planning for future adaptation in the immediate (<5 years) and short term (5-10 years).	Have regard to the recommendations contained in the CHRMAP for the planned adaptation and management of risk for the Onslow townsite.
Onslow Townsite Planning Coastal Setbacks & Development Levels	Report accounted for coastal processes and investigated severe storm inundation	Have regard to the coastal inundation scenarios for determining appropriate response for urban development.	Incorporate modelling from the report on coastal vulnerability for planning in Onslow.
Living in the Regions 2013 State Report	To understand barriers to living in regions; measure quality of life in regions; and guide regional development initiatives.	Acknowledge the aspects of regional living that could influence people moving, living and continuing to live in the Pilbara.	Have regard to the findings of the 2013 report and future survey reports.

Table 4 Implications, Issues and Opportunities – Land Tenure and Local Environmental Profile

Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
Land Tenure	<p>Overall land tenure is Crown land.</p> <p>Crown land is unallocated, or is subject to reserves, or to leases.</p> <p>Freehold land is more typical within the three townsites of Onslow, Tom Price and Paraburdo.</p>	<p>Pastoral leases are issued by the Department of Planning, Lands and Heritage.</p> <p>Amendments to the <i>Land Administration Act 1997</i> propose to introduce rangeland leases. These will have a broader range of uses than the more limited scope of pastoral leases.</p>	<p>While heritage is primarily managed through State and Commonwealth legislation, opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements with traditional owners and optimise opportunities for Indigenous training, employment and businesses. Consideration should also be made to native title and</p>

Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
		<p>While conservation reserves are managed by the Department of Biodiversity, Conservation and Attractions, the Shire may consider active management of the following issues to assist in conservation and protection of biodiversity regarding uncontrolled access, weeds and feral animals.</p>	<p>ILUAs where applicable, when considering any planning or development proposals, in discussion with appropriate traditional owners.</p>
<p>Native Title</p>	<p>A number of native title determination areas and native title claim areas cover the Shire of Ashburton.</p> <p>Pastoral leases and the proposed rangeland leases (under the Land Administration Act 1997) do not extinguish native title, and are able to co-exist.</p>	<p>Urban expansion within townsites should be alienated from Crown land as freehold land. There may be implications associated with addressing native title and Aboriginal heritage.</p>	<p>Engagement with traditional owners is required to meet legislative requirements of native title. Increased benefits may be observed through an elevated level of involvement of the traditional owners within the Shire in terms of land and cultural heritage management.</p> <p>Identify Crown land for urban expansion or other uses and work with agencies and the representative Traditional Owners to address native title and Aboriginal heritage within Onslow, Tom Price and Paraburdoo.</p> <p>Ensure that land is ready for future/anticipated housing supply within townsites.</p>
<p>Local Environmental Profile</p>	<p>Environmental Profile contained in Appendix A provides a thorough analysis of the natural environment.</p>	<p>Increases in temperature and extreme weather events are projected to occur as a result of climate change. This would have the potential to impact on the health of the environment and the community, as well as the maintenance of public lands and capacity of infrastructure systems including those managed by the Shire.</p> <p>Sea level rise and coastal vulnerability will increase along the rangelands coastline in the near future. Management of existing infrastructure and planning future development will require consideration of vertical allowances and setback distances.</p> <p>Expansion of tourism, commercial fishing, aquaculture and resource industry activity will increase pressure on sensitive and productive coastal marine environments which provide habitats and breeding grounds (seagrass meadows, turtles nesting on beaches, river mouths/intertidal mud flats) for marine life. Recreational activity (camping, coating, fishing, swimming and 4WDing) around sensitive coastal environments associated with population growth</p>	<p>Temperature – Increases in temperature are likely to result in increased needs for cooling and/or impacts on environmental and public health. Consideration should be given to heat island impacts in regional towns and the need for green infrastructure and shade in public and private places to mitigate heat increases in built environments. This may also result in an increase in water demands, and thus adequate water sources. Development should also incorporate passive solar design and breezeways.</p> <p>Extreme weather – Increases in extreme weather events, particularly bushfires as well as rainfall/tropical cyclones, may require development to be located away from areas of risk and/or improved emergency management responses and plans. Infrastructure adequate to manage extreme weather conditions will also require consideration.</p> <p>Rainfall change – Increases in rainfall event intensity may result in greater localised flooding and increased pressure on stormwater systems. Stormwater systems</p>

Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
		<p>and industry development will also impact upon local biodiversity and environmental values.</p> <p>Coastal spaces which support recreational activity should consider cumulative impacts on sensitive environments and minimise impacts through appropriate management.</p> <p>The majority of the Shire is indicated as being located within a Bush Fire Prone Area of Western Australia as designated by the Fire and Emergency Services (FES) Commissioner - this is addressed through the Bushfire Hazard Level Assessment prepared for the Local Planning Strategy.</p> <p>The Shire is well known for its impressive terrestrial, marine and aquatic biodiversity. A significant proportion of the Shire's biodiversity is protected in a number of conservation areas.</p>	<p>should be designed with contingency for increased rainfall intensity.</p> <p>Dust – Dust generated from bushfires should be monitored and management responses developed to inform the public regarding health risks during bushfire events. Management of fuel loads without exceeding threshold air quality standards should also be considered through the development of an Air Quality Management Plan, and a program of regular fuel reduction which minimises air quality impacts on townsites and sensitive environments, on advice from the Bushfire and Natural Hazards Cooperative Research Centre. Dust from localised extraction and production of minerals, particularly near townsites, should be monitored and infringement notices issued where necessary, consistent with the Extractive Industries Local Law 2013.</p> <p>Greenhouse gas emissions – Emissions which result from Shire operations may be reduced through increased use of renewable energy and implementation of actions to improve energy efficiency.</p> <p>Asbestos – The Shire should maintain advice with regards to potential for health risks from the former mine sites and associated communities.</p> <p>Resource extraction – Clearing of the land for resource extraction results in a loss of biodiversity and can lead to erosion. Mining activities impact on the visual landscape of the Shire; can result in off-site impacts on nearby land uses including dust, noise and light; and can also lead to the lowering of groundwater tables.</p> <p>Acid sulphate soils – Declining soil and land quality can occur as a result of activity where acid sulphate soils are disturbed. This leads to the release of acid and heavy metals which can cause significant harm to the environment and infrastructure. Appropriate management of acid sulphate soils, particularly in areas of high risk where changes in groundwater are likely or mining is proposed, is required, consistent with current best practice.</p> <p>Contaminated sites – Given that contaminated sites within the Shire are located within operational oilfield facilities, and within the Wittenoom abandoned townsite,</p>

Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
			<p>consideration should be given to processes established under the Contaminated Sites Act 2003, particularly in coordination with the Department of Planning, Lands and Heritage with respect to Wittenoom. In addition, any unsewered residential and industrial areas within the Shire have the potential to lead to contamination of land and groundwater and alternative treatment units should be used in areas of high environmental risk.</p> <p>Waste management – Consideration should be given to opportunities to establish local or regional waste management and/or recycling facilities as population in the region increases, as well as opportunities to subsidise recycling schemes. This should include industries with multiple benefits such as waste to energy plants.</p> <p>Soil and vegetation condition – Vegetation retention assists in the maintenance of soil health. Soils and vegetation (grasslands and shrublands) in good condition are also associated with higher agricultural productivity. Supporting the development and planning process of Ecologically Sustainable Rangeland Management (ESRM) Plans for land managers in coordination with the Pastoral Lands Board and DPIRD should also be considered.</p> <p>Commercial activity – Planning for and management of activities associated with the resources industry, commercial fishing and aquaculture must consider impacts on sensitive coastal environments which provide habitat for coastal and marine life. Consideration should be given to the location of supporting industrial areas, which adequately manage any potential off-site or environmental impacts. In addition, coastal spaces which are shared with recreational activity should be planned to ensure multiple, cumulative impacts on sensitive environments are considered and impacts are appropriately managed.</p> <p>Tourism – management and planning of sustainable tourism activity such as camping, boating, swimming, fishing, and 4WDing, and development around sensitive coastal environments such as beaches, river mouths (Beadon Creek), and seagrass meadows, will be critical with population and industry growth, development of tourism, and townsite expansion. Engagement with</p>

Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
			<p>traditional owners should be considered to ensure that cultural heritage values are not lost, particularly within the native title area for the Thalanyji community.</p>

Table 5 Implications, Issues and Opportunities – Population and Housing

Population and Housing	Implications	Issues	Opportunities
Pilbara regional population	<p>Within the period of 2005-2013, population growth rates were between 3.2-5.4%, down to 0.2% in 2013-2014 and -0.7% in 2014-2015.</p>	<p>The <i>Pilbara Regional Investment Blueprint</i> sets what it calls an aspirational yet achievable population target of 200,000 by 2035, an increase of 135,000 across the region.</p> <p>Population growth rates have more recently stabilised, however historical trends indicate that fluctuations in market conditions can place pressure on towns to accommodate population growth and demand.</p>	<p>Tom Price, Paraburdoo and Onslow should grow in a sustainable manner that ensures communities can develop with availability and access to a range of necessary services, employment opportunities, and housing choice.</p>
Ashburton local government population growth trends	<p>ABS data indicates within Ashburton that there is a stabilisation of the population.</p> <p>Demographic analysis indicates a disproportionate ratio of males to females, a lower than national average median age, a higher ratio of Indigenous Australians, and a low ratio of residents older than 65.</p>	<p>ABS information supports the inference that future population growth is likely to be directly impacted by the growth or contraction of mining and oil and gas industry sectors. These industry sectors will likely continue to have a significant influence on population growth rates within the local government.</p> <p>It will be important for future housing and development cater for the demographics of the region, taking into account the particular needs of key sectors including all youth, young adults, and aged persons.</p>	<p>Diversification of the economy and a broader employment base may lessen the impacts of mining and oil and gas on population growth/decline rates.</p> <p>Areas of focus for improving liveability – safety; health and wellbeing; education and training; lifestyle; sense of community; community connectedness.</p>
Ashburton demographics	<p>At the following census periods, the percentage of the Shire population recorded within towns (Onslow, Tom Price, Paraburdoo, Pannawonica) was as follows:</p> <p>2001 – 89%.</p> <p>2006 – 92%.</p> <p>2011 – 60%.</p> <p>2016 – 45.6%</p>	<p>Current population estimates from official sources at the town level can be potentially unreliable or not available.</p> <p>The census data in 2011 and 2016 show a disconnect from previous census periods, as a lower ratio of Ashburton's population was counted within the townsites. This may be related to the census also picking up respondents in workforce camps.</p>	<p>In 2017, the ABS released the first packages of the 2016 Census data. Subsequent release of data may provide a more accurate snapshot of population and other demographic trends for the townsites and the Shire overall.</p> <p>Further information can be sought in relation to the ratio of townsite population and workforce campsite population trends.</p>
Aboriginal Settlements	<p>DPLH considers that, under SPP 3.2, the following are considered to be Aboriginal Settlements:</p> <p>Wakathuni</p> <p>Youngaleena Bunjima</p>	<p>There is State level recognition of challenges for remote Aboriginal communities.</p> <p>State government agencies remain responsible for delivering existing services.</p>	<p>Advocate the Shire's position, that the State Government agencies should ensure appropriate services are adequately planned and delivered for Aboriginal Settlements.</p>

Population and Housing	Implications	Issues	Opportunities
	Bellary Springs (Innawonga) Ngurrawaana		
Population Growth Forecasts	<p>Aspirational population growth forecasting appears to have been based on historical growth rates seen during 2005 and 2013, in lieu of more recent trends of population stabilisation.</p> <p><i>WA Tomorrow</i> (2015) population forecasts consider lower growth rates (2.65% in 2016, 2.23% in 2021, 1.99% in 2026). These growth rates may be currently optimistic, however provide a good guide on anticipated population growth.</p>	Anticipated population growth may affect the ultimate direction of service delivery by local government, government agencies, and utilities/service providers.	<p>Ensure local government services are in line with projected population growth.</p> <p>Cater for growth for approximately 3,500 additional people to 2026.</p> <p>Identify land to ensure sufficient supply is available, should significant population growth demand occur in another mining cycle.</p>
Onslow Housing Stock	<p>There have been considerable additions to housing stock in Onslow during 2014-2017.</p> <p>Urban development and growth within Onslow will need to have regard to coastal processes and hazards, and physical, infrastructure and industrial considerations.</p> <p>Native title and Aboriginal heritage will need to be addressed for Crown land identified for new development or expansion.</p>	<p>The resident population should stabilise around 950-1,000 persons through the medium term without any additional significant projects beyond those operating or planned.</p> <p>68 new dwellings have been completed within the Barrarda Estate, with additional vacant lots available. Some future demand could be absorbed by available vacant lots.</p>	<p>The Onslow Townsite Expansion Structure Plan identified some areas for future planning. Consider options for these and whether the Local Planning Strategy should recommend land uses for these areas. Check future planning areas on the Structure Plan.</p> <p>Ensure future urban infill and development suitably considers coastal processes, climate change and the impacts on the existing town centre and urban development in low lying areas from flood events, tidal inundation and sea level rise.</p>
Paraburdoo Housing Stock	Paraburdoo will expand or contract as mining activity does. There is little impetus to intervene in any growth plans unless there is a compelling, regionally significant reason to do so.	<p>There are approximately 41 vacant lots available within the townsite for infill housing. Preference for new housing would be towards available vacant lots.</p> <p>Development investigations for new expansion should consider land with direct road frontage and service availability. Clearing permits may be required in some cases. Aboriginal Heritage matters would need to be addressed as part of any investigations.</p>	<p>Support post-mining diversification of the economic sectors in town, including Aboriginal services, and tourism.</p> <p>Prepare and present scenarios for the long-term development opportunities for residential purposes in Paraburdoo, and to seek agreement on the planned development of land as well-integrated and functional components of the townsite.</p>

Population and Housing	Implications	Issues	Opportunities
Tom Price Housing Stock	<p>The WAPC <i>HotSpots Update</i> considers Tom Price could reach a resident population of 4,750 however this is not reflected in population figures, putting population numbers closer to 3,500.</p> <p>Sufficient land has been identified to accommodate new project or expansionary demands. The Shire is undertaking Scheme Amendments that will make identified land available for future development within Tom Price, including Area W.</p>	<p>There are approximately 46 vacant lots available within the townsite for infill housing. A number of lots may be large enough to accommodate grouped or multiple dwelling development.</p> <p>The <i>HotSpots Update</i> considered areas for urban infill and development and the Local Planning Strategy supports further investigations into their development capability.</p>	<p>Support amendments to the local planning scheme that contribute towards bringing de-constrained land forward for consideration as urban infill or urban development.</p> <p>Prepare and present scenarios for the long-term development opportunities for residential purposes in Tom Price, and to seek agreement on the planned development of land as well-integrated and functional components of the townsite.</p>
Workforce Accommodation – Onslow and ANSIA	<p>Chevron Australia operates its workforce accommodation campsite within the ANSIA.</p> <p>A number of properties within Onslow are used for workforce accommodation, whether for Government Regional Officer Housing, or housing for workforce for Chevron Australia, Onslow Salt, BHP Billiton and others.</p> <p>There is high demand for workforce accommodation for the Wheatstone project construction period. Workforce demand is expected to fall away through 2017.</p>	<p>The Wheatstone project is transitioning from construction to operational phases. As construction activity moves towards completion, workforce numbers will decline.</p> <p>Other proponents do not have access to Chevron's workforce accommodation site within the ANSIA.</p> <p>BHP Billiton may require workforce accommodation within the ANSIA should the Macedon Wet Gas Compression project proceed.</p> <p>There is no short-term plan to develop the 'Operational Village' Lot 4001 within the Onslow townsite.</p>	<p>Provide and plan for the development of the 'Operational Village' on Lot 4001 within the Onslow townsite, as a well-integrated component of the townsite.</p> <p>Promote the provision of higher quality, more permanent accommodation within the Onslow townsite.</p>
Workforce Accommodation – Tom Price and Paraburdoo	<p>Workforce camps are considered to have legacy issues for the local government. When they are located beyond the townsites, the result is a lack of integration with the local communities, and limited opportunities for social interaction.</p>	<p>As iron ore prices decline, iron ore producers are anticipated to find cost reduction strategies or solutions, including reducing reliance on human labour to undertake some parts of operations. Technological advancement, the use of automated technology and drove vehicles, can contribute towards a reduction in operational workforce.</p> <p>There are concerns at a State level that FIFO work could lead to a heightened risk of mental health issues.</p>	<p>The Shire of Ashburton maintains its position on requiring operational workforce to be directed towards existing townsites.</p> <p>Prepare scenarios for the short and long-term development opportunities of land and buildings for Workforce Accommodation in Tom Price, Paraburdoo and Pannawonica, as well-integrated and functional components of townsites.</p>
Aged Care	<p>Whilst there are some limited aged person dwellings within the Shire, there</p>	<p>There is an urgent need for aged care accommodation and respite facilities, particularly for the Indigenous community.</p>	<p>Consider demand for aged care sites within the towns.</p>

Population and Housing	Implications	Issues	Opportunities
	are no purpose-built dwellings to accommodate their particular needs.	It is understood that Regional Development Australia is conducting an aged care housing strategy across the Pilbara region.	

Table 6 Implications, Issues and Opportunities – Economy and Employment

Economy and Employment	Implications	Issues	Opportunities
Economic Growth	<p>Forecasts show a gradual recovery in global, national and state economic growth, domestic economic activity and growth in exports.</p> <p>There appears to be resilience in the number of businesses within the Shire.</p> <p>The Shire of Ashburton has a higher than average SEIFA score, indicating lower levels of disadvantage. However, disadvantage is still pronounced within the Indigenous community.</p>	<p>The Pilbara Region is exporting unprecedented levels of iron ore, whilst experiencing weaker iron ore prices.</p> <p>Business growth may be leveraged from mining, or growth in other industry sectors (agriculture, tourism, construction, etc.).</p>	<p>The Local Planning Strategy can facilitate future urban and industrial development through identifying land areas suitable for town growth, should it be required.</p> <p>Support diversification of the economy to broaden the scope of its regional export potential.</p> <p>Support government initiatives to reduce socio-economic disadvantage within the Indigenous community.</p>
Building Activity	Shire reports indicated an approximate growth rate of 1.2%, based on creation of new lots.	New lots may be required to address projected population increase within the townsites.	Identify land for urban infill and urban investigation, with a view to ensure that capable land is de-constrained and available, should demand warrant growth to occur.
Oil and Gas Resources	Significant economic benefits are generated from oil and gas, particularly from Gorgon and Wheatstone.	<p>Commitments have been made by Chevron Australia for critical and social infrastructure within Onslow, as part of its State Development Agreement.</p> <p>The major oil and gas development are located within the ANSIA. The Shire has limited scope given it has no authority over the ANSIA.</p>	<p>Liaison and coordination with the Western Australian Planning Commission and State Agencies in relation to major proposals and developments occurring, that may have an impact on social, economic or environmental factors within the Shire.</p> <p>Ongoing liaison with the State Government in sourcing funding commitments to critical and social infrastructure.</p>
Mining	<p>Iron Ore is the most significant resource (in export terms) within the Shire of Ashburton.</p> <p>Global competition; mining company decision making; costs of extraction; access; infrastructure; and</p>	Iron ore reserves across Australia may last for another 65 years, noting that the majority of iron ore is located in the Pilbara Region.	<p>Work with mining companies and State Agencies in relation to ensuring the community's needs and expectations are being considered and met through ongoing mining activity within the Shire.</p> <p>Work with Department of Planning, Lands and Heritage, State Agencies, and service providers to ensure that</p>

Economy and Employment	Implications	Issues	Opportunities
	<p>environmental, social and political factors all play a role in the viability of iron ore projects.</p> <p>Recognition that the Mining Act is not subject to the Planning and Development Act.</p> <p>Recognise that State Agreements exist and grant particular rights to mining companies.</p> <p>Development of worker accommodation can fall under the scheme.</p>	<p>Agreements can leverage the provision of critical and social infrastructure for supporting the liveability and sustainability of towns.</p> <p>Issuing of mining leases and tenements can have a bearing on the use of land.</p> <p>Mining projects are supported by workforce accommodation (i.e. construction camps), which can be isolated from communities and services.</p>	<p>appropriate infrastructure is in place to minimise bottlenecks for projects.</p> <p>Ongoing liaison with the State Government in sourcing funding commitments to critical and social infrastructure.</p> <p>Advocate for workforce accommodation to be located in close proximity of construction project sites, to minimise impacts on land; support worker accommodation within gazetted townsites.</p>
Salt	<p>Onslow Salt is an established operation, with a local workforce based in Onslow.</p> <p>A more recently announced proposal by K+S is still in planning phase. Future employees may be housed in Exmouth or Onslow.</p>	<p>Onslow has the capacity and facilities available for accommodating employees for the proposed salt operations.</p> <p>The Asian market is in proximity and is experiencing growth in demand for industrial salt.</p>	<p>Ensure that Onslow is the town of choice for housing of employees for projects in proximity to the town.</p> <p>Work with Onslow Salt and K+S to maintain a good working relationship between the salt operations and the town.</p>
Economic Transformational Opportunities	<p>Government investment is occurring into a range of economic transformational opportunities.</p> <p>The Shire is in proximity to Asian markets, other international markets such as the Middle East, and domestic markets.</p>	<p>Opportunities have been identified in sustainable commercial-scale algae; bio-fuels; irrigated agriculture; beef; high-tech greenhousing; aquaculture; tourism.</p> <p>Diversification of the economy can help to build robust communities, diversify employment choices, and encourage a greater spread of skill sets and knowledge.</p>	<p>Facilitate and encourage new, emerging or growth industry sectors to consider establishing themselves within the local government area.</p> <p>Work with State Agencies and service providers to ensure the Shire and the region is ready for economic transformation projects, whether through appropriate education and training, infrastructure, services, or other business needs.</p>
Employment	<p>Employment is heavily oriented to mining and construction, followed by accommodation and food services; and transport, postal and warehousing.</p> <p>The emphasis of mining and construction work is represented by 65% of labour force working more than 49 hours per week.</p>	<p>Significant employment growth can be anticipated in professional, scientific and technical services; and transport, postal and warehousing.</p> <p>Long work weeks and FIFO employment is noted to have detrimental health impacts on individuals, relationship impacts on their networks, and socio-economic impacts on communities.</p>	<p>Economic transformational opportunities could improve the ability to broaden employment, and potentially lead to growth in other professional occupations.</p> <p>Variety in job types and employment choice may assist in bringing in a broader demographic group, including women.</p>
Workforce Development	<p>Projections anticipate a more diverse employment distribution in the Pilbara Region by 2035. Actions need to be</p>	<p>Occupations experiencing critical workforce shortages include trade, education, professional services, health care, mining, hospitality, and community service workers.</p>	<p>Support government initiatives to identify future workforce development and skills and ensure that these can be addressed.</p>

Economy and Employment	Implications	Issues	Opportunities
	<p>taken in advance to facilitate growth in other employment sectors.</p> <p>At a State level, education and training providers will work harder to predict and provide more relevant vocational courses that will be valued by industry, and also help deliver skill sets that will future-proof the workforce to future economic changes / transformational opportunities.</p>	<p>Most post-school qualifications attained in the Pilbara are insufficient to meet the requirements of the employment market.</p> <p>Low attendance is recorded at the education and training institutions that are available in the Pilbara region (i.e. primary schools, high schools, community schools, State Training Provider campuses, college campuses, education outlets).</p> <p>Attendance rates and Literacy and numeracy results for Pilbara Students are below State averages, which have an impact on local capacity for graduates to meet industry demand at the working age. Schools also have difficulties attracting staff.</p> <p>Accurately characterising the Pilbara Aboriginal population is difficult; however the above issues are broadly applicable. Literacy and numeracy levels are low, which can create barriers to gaining employment. Pilbara Aboriginal residents have a lower average schooling (19.4%) completed relative to the Western Australian Aboriginal population (20.6%).</p>	<p>Vocational education and training is likely to be an important means of providing post-school qualifications for the workforce. Apprenticeships and traineeships assist in up-skilling the workforce; however the State has identified that more work is required to ensure an appropriate number of participants are in training.</p> <p>All levels of government, education stakeholders and industry all actively collaborate to increase participation, workforce development and training outcomes.</p>

Table 7 Implications, Issues and Opportunities – Retail and Commerce

Retail and Commerce	Implications	Issues	Opportunities
Lease and Sale Data	<p>The Shire was reported in 2015 to have the lowest number of advertised commercial leases, and one of the highest advertised retail and office average annual lease costs.</p> <p>The Shire had the lowest reported number of industrial/warehouse properties advertised for sale.</p>	<p>Project population growth and more residents living permanently in towns will help to sustain more retail activity and potential expansion of retail and commercial.</p>	<p>Identify the Town Centres for Onslow, Tom Price and Paraburdoo within the Strategy. Zone the Town Centres in the Scheme with the aim to encourage and facilitate a compatible range of retail, commercial, mixed use, community/civic, entertainment and hospitality uses.</p> <p>Ensure the Town Centres are accessible by walking, cycling and vehicles.</p>

Retail and Commerce	Implications	Issues	Opportunities
	Growth in non-residential building approvals peaked and since declined.		
Relocation of commercial/civic centre Onslow	Modelling identifies risks of inundation and coastal processes that would impact on the Onslow commercial/civic centre.	The Onslow Townsite Strategy recommends relocation of the commercial / civic centre outside of the coastal hazard risk area, and the need for the Shire to consider its position on this and other options for compliance with SPP 2.6 and its Guidelines.	Identify alternative locations for accommodating the relocation of the Onslow commercial / civic centre, to ensure that future growth and adaptation of the town is not prejudiced by short-term development decisions.
Modelled Floor Space Demand – Shire-wide	Future population growth can increase demand for retail and bulky goods trade. The overall distribution of additional retail and bulky good floorspace would be dependent upon the population growth experienced within the individual town sites.	The Strategy needs to identify appropriate land available for future retail and commercial development, to predict and provide for forecasted population growth. Based on Band C Population growth, a total land area of 25,593m ² may be required to service the requisite growth of 10,160m ² of retail floorspace and 4,355m ² in bulky goods retail. The land area considers the net leasable area, and additional land for other land requirements such as warehouse/storage space and car parking.	Identify land within the town centres of Tom Price and Paraburdoo for supporting future retail and commercial development, commensurate with population growth. Undertake a retail sustainability assessment for the three townsites to confirm future land and floorspace requirements, based on projected population growth. Support the incubation of retail and small business.

Table 8 Implications, Issues and Opportunities – Industry

Industry	Implications	Issues	Opportunities
ANSIA	DevelopmentWA and WAPC are responsible for administering the ANSIA. Land is available for heavy industry and general industry.	Land remains available in ANSIA for complementary industrial development.	Support heavy industry and general industry that are compatible with existing uses, being located within the ANSIA, where buffers are already taken into consideration.
Industry – Onslow	Onslow's General Industry Area, near Beadon Creek, is limited in its ability to expand due to proximity of short-stay accommodation, the waterways and unknown capability for drainage. The Beadon Creek Boat Harbour will provide for some additional industrial	Industrial development and growth may be investigated within Onslow, having regard to the coastal processes and hazards, drainage implications, minimum floor level requirements, height limitations, infrastructure, native title, heritage and environmental matters.	Consider investigations for an eastern expansion of the Onslow General Industry Area towards Beadon Creek Boat Harbour, with potential road extensions made to Cornish Way and Shanks Road. Expansion for future industrial development can be investigated, potentially along McAullay Road, between

Industry	Implications	Issues	Opportunities
	<p>land, and is a working boat harbour and port facility.</p> <p>The Onslow Airport Mixed Business Precinct provides for light and service industry and mixed business. It may be enhanced with road access to Onslow Road, and possible expansion.</p>	<p>Coastal processes, climate change and the impacts on the existing town centre and urban development in low lying areas from flood events, tidal inundation and sea level rise.</p> <p>Onslow Salt operations associated with its evaporation and crystalliser ponds, stockpiles, conveyor system and jetty. As part of the State Agreement, sensitive land uses may be impacted by the operations. Technical studies may be required to determine appropriate buffer requirements, or for structural treatments for new development, to minimise potential impacts. Development within the hydrological catchment for Onslow Salt must ensure there are no adverse impacts.</p> <p>Port facilities at Beadon Creek Boat Harbour, as public works, are exempt from development control. Beadon Creek waterbody and floodplain are physical barriers to expansion of industry.</p>	<p>the existing Onslow General Industry Area and Onslow Airport Mixed Business Precinct.</p> <p>Other land for investigation could be land within the WWTP buffer (between Onslow Road and McAullay Road) for mixed business, light and service industry.</p> <p>Longer-term expansion of the Onslow Airport Mixed Business Precinct over land held in freehold by the Shire of Ashburton may be investigated, if land demand exceeds supply.</p>
Industry – Tom Price	<p>Tom Price's Mixed Business area is constrained by landform, and the railway line to the west. Some expansion has happened within the last 5-6 years.</p>	<p>Expansion of the Tom Price Mixed Business area may be investigated for land fronting Doradeen Road.</p> <p>Rio Tinto subsidises rents within the Tom Price Mixed Business area. Future expansion areas may need to be considered in the context of their capability of having viable industrial businesses.</p>	<p>Consider land capability investigations to confirm whether land fronting Doradeen Road for industry/mixed business. Investigate opportunities for connecting the road network, should land gradients allow.</p> <p>Investigate options for industrial development within Reserve 38467.</p>
Industry – Paraburdoo	<p>Paraburdoo's Industry Area is within Rio Tinto's lease holding, with lots in freehold or leased to operators. Major mining projects in the vicinity have supported local industry in the past</p>	<p>Vacant land is available within the townsite boundary and surrounding the Paraburdoo Industry Area.</p> <p>Rio Tinto subsidises rents within the Paraburdoo Industry Area. Future expansion areas may need to be considered in the context of their capability of having viable industrial businesses.</p>	<p>Investigate land capability and opportunities for expansion of the Paraburdoo Industry Area.</p> <p>Consider future land use direction for the existing Drive-In.</p>

Table 9 Implications, Issues and Opportunities – Rural and Rangeland Areas

Rural and Rangeland Areas	Implications	Issues	Opportunities
Pastoralism	<p>Pastoral activities may continue throughout the majority of the Shire.</p> <p>There appears to be a correlation between the worst areas of degradation and erosion, and the most valuable pasture lands.</p>	<p>Pastoral activities have an impact on native vegetation, flora and fauna, erosion and other factors that need to be adequately addressed and managed by pastoral landowners. Pastoralism can be ecologically sustainable with appropriate management in place.</p> <p>Cattle from Minderoo station is live exported, with potential for exports through Port Hedland.</p>	<p>Cattle industry sector has been identified as a transformation economic opportunity.</p> <p>A number of planning considerations can be taken into account for the benefit of encouraging further pastoral and agricultural pursuits within the Shire:</p> <ul style="list-style-type: none"> • Consideration of natural resource management and land management practices to minimise negative impacts and contribute towards sustainable pastoralism. • Ensuring that remnant vegetation and areas with significant values are protected and maintained. • Agricultural pursuits should be directed such that they minimise impacts as a result of clearing, bushfire management, uncontrolled access, weeds, pests and feral animals.
Agriculture	<p>The Pilbara Hinterland Agricultural Development Initiative (PHADI) provides for future of irrigated agricultural development, through Royalties for Regions, supporting public and private sector investment decisions for new irrigated agricultural developments.</p> <p>22 countries are identified as 'high potential' target markets for new agricultural products that could be grown in the Pilbara.</p>	<p>Legislation currently allows for irrigation of a range of crops on a pastoral lease.</p> <p>A number of irrigated agricultural developments could be possible on a medium-to-large scale.</p> <p>There are opportunities for large areas of soils to be investigated for capability and suitability for irrigated agriculture.</p> <p>Mine dewater surplus can be reinjected for reuse for agricultural and other purposes.</p>	<p>Work and collaborate with the partnerships held between DPIRD, PDC, DRD, Aboriginal groups and the pastoral industry for delivering projects and other outcomes, through demonstration and prospective projects.</p> <p>Ensure intensive agricultural proposals, are appropriate to the sustainable capability of the land.</p> <p>Expansion of projects like Rio Tinto's Hamersley Agricultural Project may arise as future opportunities.</p>
Future Growth in Agriculture	<p>Asia and Middle East are attractive markets that demand products that the North of WA can produce.</p> <p>The Pilbara climate is in a similar zone to other countries that produce and export high value products.</p>	<p>Success will depend on products that are robust, mechanically harvested, can thrive in the heat, and can be achieved at scale to be globally competitive.</p> <p>A wide range of agricultural products have been identified, some have proven experience and others will require new skills, new investment, new systems and capital.</p>	<p>Encourage investigations into export market opportunities for crops/food products that could be grown in the Pilbara.</p>
Aquaculture	<p>Aquaculture is an emergent industry sector. It requires development of the sector to a level where it is of a</p>	<p>Aquaculture projects (R&D etc) present opportunities that may contribute to investment, employment.</p>	<p>Encourage investigations into market opportunities for aquaculture products that could be grown in the Pilbara.</p> <p>The emergence of new sectors such as aquaculture may require particular consideration of the industry's land</p>

Rural and Rangeland Areas	Implications	Issues	Opportunities
	<p>sustainable scale to be economically viable and internationally competitive.</p> <p>Thevenard Island was identified for possible offshore/nearshore aquaculture.</p> <p>Onshore areas within 10km of Onslow, near McCann Well, and some land in Tom Price were identified as inland areas of interest.</p>	<p>Aquaculture requirements appropriate risk management to address biosecurity, water use, wastewater management.</p>	<p>requirements, environmental management, and export logistics.</p>
<p>Conservation Areas</p>	<p>The level of reservation within the Shire of Ashburton is greater than the rest of the Pilbara region.</p>	<p>Management of conservation reserves under the Department of Biodiversity Conservation and Attractions.</p> <p>A number of new reserves are proposed, including Mulgalands Conservation Park and West Hamersley Range Conservation Park.</p> <p>Management of public access and visitor numbers in a manner that balances tourism, visitation and conservation values.</p>	<p>Shire could consider active management of weeds, uncontrolled access, and feral animals.</p> <p>There are proposals for new additions within the Conservation areas, which can be supported by the Shire of Ashburton.</p>

Table 10 Implications, Issues and Opportunities – Tourism and Visitors

Tourism and Visitors	Implications	Issues	Opportunities
<p>Attractions and Amenities</p>	<p>The North West is considered for its outback experiences, scenery experiences and indigenous experiences.</p> <p>In the economic context, tourism is a very small contributor to current economic activity, however its value can be sustainable over time and opportunities are available for its increased contribution.</p> <p>Mackerel Islands Resort (Direction Island and Thevenard Island) and Montebello Islands are accessible from Beadon Creek Boat Harbour (and proposed marina).</p> <p>Attractions around Onslow include the Old Onslow historical townsite, Onslow Salt, the Ashburton River, termite mounds and Sunrise, Sunset and Four Mile beaches.</p> <p>Tom Price is considered to be the gateway to Karijini National Park. The town acts as a service centre for people to purchase necessary supplies in anticipation of staying within the National Park. Tom Price has the potential to capitalise on its proximity to Karijini National Park; however this requires significant investment in infrastructure and marketing/tourism awareness.</p> <p>Aboriginal culture, heritage and experiences are significant tourism assets.</p>	<p>Onslow is a hub for tourism that has a coastal or island focus.</p> <p>Tom Price and Paraburdoo can provide outback, scenery and indigenous experiences.</p> <p>Some attractions or activities (such as fishing and island-based tourism) are perceived to be expensive for the general public.</p>	<p>Develop the breadth and range of tourism products related to islands, fishing tourism, national parks, and indigenous art and culture.</p> <p>Increased promotion of tourist attractions including increased promotion and marketing, particularly for Karijini National Park and other natural attractions.</p> <p>Opportunities to leverage from nature based tourism and heritage and aboriginal tourism development.</p> <p>Arts and cultural programs to attract national and international recognition.</p>
<p>Accommodation</p>	<p>Accommodation options in Onslow include two caravan parks, free camping facility, self-contained units and motel rooms.</p> <p>Onslow accommodation is becoming more accessible as occupancy rates</p>	<p>Tom Price is acknowledged as a tourism destination for visitors to Karijini National Park and there is an opportunity for in-town mining accommodation to transition to short-stay accommodation if there is demand (i.e. Windawarri Lodge, Marandoo Annex) or additional area to the</p>	<p>Consider mechanisms such as flexibility between short stay accommodation and permanent residential development, provision of land for iconic tourism use at reduced or no cost and government underwriting of portions of some strategic tourism developments.</p>

Tourism and Visitors	Implications	Issues	Opportunities
	normalise, due to lower accommodation demand from construction workforce.	north of Karijini Lodge to be considered for expansion purposes.	
Accessibility	<p>Some seats are available on flights from Perth to Onslow and Paraburdoo.</p> <p>Tom Price is accessible by road to Paraburdoo Airport.</p>	<p>Regional airports to expand to cater for increased passenger flights to increase visitation.</p> <p>The improvement and sealing of the Karratha - Tom Price Road is considered an ideal opportunity to generate substantial economic benefits for the Pilbara and the State through both increased tourism and improved freight traffic movements.</p>	<p>Capitalise on proximity to Asia and its airport infrastructure.</p> <p>The RFDS airstrip near Tom Price could be investigated for upgrading to an airport.</p> <p>Shire of Ashburton advocates sealing of the Karratha - Tom Price Road.</p>
Awareness	Tourism within the region is regarded as an under-utilised resource that has the ability to provide many economic benefits, particularly for the major towns of Onslow, Tom Price and Paraburdoo.	<p>Seasonality of visitation, geographical isolation, the shortage of adequate accommodation and facilities.</p> <p>The promotion of tourism in the region requires significant investment in the marketing of tourism opportunities, upgrading of infrastructure and consideration of accommodation options.</p>	<p>Product development, marketing and promotions, and training and support, targeting older couples, backpackers, international couples, nature-based visitors and cruise ship passengers.</p> <p>Opportunities for increased promotion of tourist attractions including increased promotion and marketing of industrial tourism experiences (e.g. visitors to ANSIA and Onslow Salt), conference and training location.</p> <p>Preparation of a Tourism Strategy as identified in the Strategic Community Plan.</p> <p>Upgrade and expand Visitor Centre facilities and services, tourism accommodation, camping grounds and associated facilities.</p>

Table 11 Implications, Issues and Opportunities - Community, Recreation and Open Space

Community, Recreation and Open Space	Implications	Issues	Opportunities
Community Facilities	<p>The Shire of Ashburton has analysed the number of assets across the local government district for ongoing maintenance and management.</p> <p>Advancements in technology and materials can assist in reducing maintenance costs or offset asset replacement.</p>	<p>A <i>Map and Gap Analysis</i> conducted in 2012 identified a high level of investment. Chevron and BHP Billiton have also introduced funding programs to support a range of community-based projects and activities.</p> <p>Priorities were identified in the <i>Community Strategy Plan</i> for Onslow, Pannawonica, Paraburdoo, Tom Price and remote Aboriginal Communities.</p> <p>Careful consideration of population growth in towns, with the supply of services.</p>	<p>Review the need for new and existing community facilities and analyse the whole-of-lifecycle costs to ensure facilities are capable of being maintained to an acceptable community standard.</p> <p>Maintain the <i>Strategic Asset Management Plan</i> which reflects the community facilities and assets for ongoing maintenance and management.</p> <p>Where practical and reasonable, encourage the development of new community facilities within co-located facilities, or in proximity to town centres.</p>
Schools	<p>Department of Education's Pilbara Education Regional Office is responsible for public schools. 6 public schools are identified in the Shire of Ashburton.</p>	<p>Four schools have combined as the Ashburton School Alliance, which organise combined schools student activities.</p> <p>6ha site in Onslow for future school.</p>	<p>Support local government use of facilities and open spaces in relation to school student activities.</p>
Public Open Space	<p>Significant areas within the townsites are within managed Crown reserves for public recreation.</p>	<p>Prediction for the same level or slight increase of younger facilities is expected (which make use of parks, playgrounds and recreation space).</p>	<p>Careful consideration of population growth and demographic changes in towns, with the supply and quality of public open space.</p> <p>Promote landscaping where appropriate to be of low-water use, drought tolerant, and resilient to high winds or cyclonic events.</p>

Table 12 Implications, Issues and Opportunities – Urban Design, Character and Heritage

Urban Design, Character and Heritage	Implications	Issues	Opportunities
Urban Design	Buildings and housing have high construction costs due to the isolated nature of the towns. Development needs to consider a total life-cycle cost to ensure that built form is most appropriate having regard to existing weather patterns and climate, future projected climate change.	Guidance that promotes sustainable design principles, is responsive to the Pilbara climate, address the use of finite resources (such as water) and enhance the liveability and wellbeing of residents. Attractive places and spaces will enhance the liveability and attractiveness of the towns.	Implement Design Guidelines for Onslow. Prepare local planning policy for climate change. Prioritise higher quality landscaping along gateway entrances into the townsites, and along Neighbourhood Roads.
Aboriginal, European and Natural Heritage	A number of Aboriginal, European and natural heritage sites are identified on various heritage lists.	Consider ability to use land for Aboriginal purposes, including Native Title, Aboriginal Heritage, and other pursuits including Aboriginal tourism. Work closely with Traditional Owners in terms of getting their involvement in environmental management and cultural/eco-tourism (running the caravan park, organising tours in places such as Millstream etc.). Focus of this development/industry has been in the Kimberley, and that the Pilbara has many such opportunities which should be supported and developed.	Review and update the Municipal Heritage Inventory to be used as the Heritage list in the Scheme. Require, where appropriate, that heritage matters are addressed in structure plans and design guidelines. Consider opportunities for the protection and enhancement of identified sites as part of any assessment of development and/or subdivision applications. Opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements and tourism opportunities with traditional owners, and optimise opportunities for Indigenous training, employment and businesses.

Table 13 Implications, Issues and Opportunities – Infrastructure Services

Infrastructure Services	Implications	Issues	Opportunities
Power	<p>Onslow town power supplies are provided by Horizon Power.</p> <p>Town power supplies for Tom Price, Paraburdoo and Pannawonica are supplied by Rio Tinto.</p> <p>There is some presence of renewable energy sources in the local government area including a renewable energy microgrid for Onslow, proposed by Horizon Power.</p>	<p>Intent is to develop a gas fired power plant within the ANSIA Improvement Scheme area. This service is intended primarily for Onslow town usage, with potential for ANSIA users to connect thereafter. The scale of the gas power plant is potentially affected by the proposed renewable energy microgrid by Horizon Power.</p> <p>Underground power has been completed for Onslow.</p> <p>Global microgrid market is experiencing transformational growth, which tend to combine conventional and renewable sources, and battery storage technology.</p>	<p>Growth/expansion of towns will need to consider the capacity of existing power supplies, proposed/future power supplies, and the required transmission infrastructure.</p> <p>Microgrids may assist with delivering reliable and viable energy solutions.</p>
Gas Transmission Pipelines	<p>High pressure gas transmission pipelines do not require development approval.</p>	<p>The Shire may have a role in approving the construction of facilities in the initial stages, i.e. the construction camps, waste water treatment facilities, and road usage.</p>	<p>Apply DC Policy 4.3 <i>Planning for High-Pressure Gas Pipelines</i> policy measures to assess proposals that in the vicinity of any high-pressure gas pipelines in the Shire.</p>
Potable Water	<p>Public Drinking Water Source Areas are predominately groundwater supplies.</p>	<p><i>Long term Utility intent is to develop a water desalination plant in Onslow. This service is intended primarily for Onslow town usage. However, abundance of water supplied from the Cane River bore field may lead to a deferral of the water desalination plant being constructed.</i></p> <p><i>The use of mine run-off and water extraction may be a difficult yet potentially viable water supply option.</i></p> <p><i>There are opportunities for expanding irrigation for investigation in the Pilbara hinterland, from using excess water from mine dewatering.</i></p>	<p>Support the sustainable abstraction of potable water sources.</p> <p>Support water reuse/recycling associated with mines and townsites.</p> <p>Protect public drinking water supply areas in accordance with relevant water source protection plans, Department of Water and Environmental Regulation's Water Quality Protection Note 25, and SPP 2.7.</p>
Water Management	<p>Rainfall data indicates that average annual rainfall has declined around Onslow yet has increased in inland areas.</p> <p>Adequate management of flood risk, and associated sediment transport in townsites and industrial areas requires consideration.</p>	<p><i>Better Urban Water Management</i> has been designed to facilitate better management of urban water resources, ensuring an appropriate level of consideration to the total water cycle.</p> <p>It is recognised that the Shire is a Waterwise Council, and it should continue to investigate and expand water efficiency opportunities, such as</p>	<p>Review existing townsite drainage systems and ensure appropriate water quality of stormwater and runoff is addressed.</p> <p>The Shire could also investigate partnerships to establish water recycling and reuse schemes to provide fit-for-purpose sources of water where practical, as an alternative to groundwater use to support future development.</p>

Infrastructure Services	Implications	Issues	Opportunities
		irrigation of public open space and sports ovals where practical.	
Wastewater	Appropriate sewage facilities for all towns and adequate systems in place for smaller scale settlements and Aboriginal communities.	Onslow wastewater treatment plant capacity was doubled, funded by the Wheatstone Project, providing long-term future growth of Onslow. The odour buffer area applies to the upgraded WWTP.	Support ongoing delivery of sewage infrastructure in towns and adequate systems for smaller scale settlements and Aboriginal communities.
Solid Waste Management	There are limited opportunities to divert recyclable material from landfills. Infrastructure and market opportunities will arise in relation to recycling and diverting resources from landfills.	There are a number of opportunities for Pilbara regional waste processing facilities and recyclable products. A joint dirty Material Recovery Facility is recognised as an opportunity, for Newman and Tom Price. A feasibility study recommended a new waste management facility for Onslow be capable of accepting Class 3 and Class 4 waste.	Support a State Government comprehensive waste recycling and disposal plan for strategic waste transfer, collection, treatment, recycling and disposal facilities. Support diversion of waste from landfills through reduction, reuse and recycling opportunities. Ensure Aboriginal communities have an effective waste management programme to minimise pollution and risks to human health and water sources.
Telecommunications	Broadcast Australia operates a number of townsite-based telecommunication facilities. Existing mobile phone coverage is generally limited to townsites, mines, camps and segments of the North West Coastal Highway.	Greater mobile phone coverage for all towns, district roads and highways, and areas frequented by the community, workers and visitors will improve convenience and safety. Future mine sites will benefit from telecommunications as companies roll-out automated systems (i.e. Rio Tinto's "Mine of the Future" program and its automated drilling and haulage systems). Proposed telecommunication links to South East Asia will improve bandwidth within the Shire, and its connections to neighbouring markets.	Support the ongoing improvement of availability, coverage, and reliable accessibility to telecommunications services (telephone, mobile network, broadband) and TV/radio broadcasting.

5 STRATEGIES AND ACTIONS

The following strategies and actions have application across the Shire of Ashburton. For driving a strong connection between the *Strategic Community Plan* and the Local Planning Strategy, vision statements have been prepared under the five goals, as demonstrated in **section 3**, which underpin the strategies and actions for implementation.

5.1 VIBRANT AND ACTIVE COMMUNITIES

INFILL HOUSING AREAS	
Strategies	Actions
<p>Infill Housing Areas</p> <ol style="list-style-type: none"> 1. Prioritise infill development over urban investigation areas for new housing development, except for Onslow where the CHRMAP shall take precedence in identifying areas for urban growth. 2. Promote a range of housing types and densities to accommodate a range of community needs. 3. Promote infill housing to maximise the uptake of existing vacant lots. 4. Encourage opportunities for infill housing that would benefit from direct existing road frontage and the ability to readily connect to existing services. 	<p>Infill Housing Areas</p> <ol style="list-style-type: none"> 1. Where appropriate, increase the residential density codes to support new residential development on existing lots in town or adjacent to existing development where services are readily available, in preference to new residential expansion areas on the periphery of towns. 2. Consider the Residential Infill Areas, as shown on Strategy Plans, for short-term infill development in order to facilitate higher dwelling yields. 3. Support subdivision applications that rationalise existing lots so as to increase the potential dwelling yield. 4. Advocate for the provision of affordable housing product for key workers and low income earners. 5. Prepare a local planning policy for guidance that promotes sustainable design principles, is responsive to the Pilbara climate, addresses the use of finite resources (such as water) and enhance the liveability and wellbeing of residents. 6. Support projects that provide the replacement of ageing dwelling stock, minor lot area adjustments to create additional lots, or development of existing vacant lots. 7. Identify and rezone land to provide for a variety of housing types, with a consideration of medium-range densities around: <ol style="list-style-type: none"> a. Residential Buildings that support workforce accommodation; b. Public Open Space; c. Schools (future or proposed); d. Town Centres; and/or e. Elevated land that avoids areas subject to flooding or coastal hazards. 8. Support delivery of dwelling types and a built form that incorporates universal design principles.

INFILL HOUSING AREAS

Strategies	Actions
	<ol style="list-style-type: none"> Support and promote urban design outcomes and strategies that encourage more active transport within townsites.

URBAN INVESTIGATION AREAS

Strategies	Actions
<p>Urban Investigation Areas</p> <ol style="list-style-type: none"> Promote a range of housing types and densities to accommodate a range of community needs. Encourage the orderly expansion of the townsites of Onslow, Tom Price and Paraburdoo in a manner that provides for appropriate diversity in housing types, availability of open space, safe and legible movement networks, and access to existing shopping, businesses, services and community facilities. Consider development of urban investigation areas once infill land has been developed. 	<p>Urban Investigation Areas</p> <ol style="list-style-type: none"> Rezone Urban Investigation Areas as shown on Strategy Plans to 'Urban Development' in the local planning scheme. This zone will require the preparation of structure plan(s) to guide development and land use, drainage, public open space, movement network, to address the bushfire protection criteria set out in the Guidelines for Bushfire Prone Areas, and staging. Within the Scheme Review, rezone surplus 'Residential' zoned land in the Paraburdoo Townsite to the 'Urban Development' zone, to enable structure planning. Advocate for the delivery of project-ready land to accommodate growth in the townsites. Support subdivision and development which has regard to local climatic factors and contributes to the character and identity of the towns. Request an amendment to the Onslow Townsite Boundary to reflect the development footprint that is envisaged through the Onslow Townsite Expansion Structure Plan. Support and promote urban design outcomes and strategies that encourage more active transport within townsites.

AGED CARE FACILITIES

Strategies	Actions
Aged Care	Aged Care

AGED CARE FACILITIES

Strategies	Actions
<ol style="list-style-type: none"> 1. Encourage the introduction of aged care facilities that are suitable within the existing community. 2. Support the development of dwellings within the community that are robust and adaptable to address universal access requirements for ageing in place. 	<ol style="list-style-type: none"> 1. Land for existing and/or future aged care accommodation / facilities being protected under the local planning scheme, such as the 'Civic and Community' reserve, having regard to the objectives of the reserve under the Model Provisions of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>.

ABORIGINAL SETTLEMENTS

Strategies	Actions
<p>Aboriginal Settlements</p> <ol style="list-style-type: none"> 1. Support the appropriate planning of Aboriginal Communities that have regard to the needs of residents. 2. Plan for sustainable and resilient Aboriginal settlements within the Shire. 3. To recognise Aboriginal Settlements through the Local Planning Strategy and local planning scheme. 4. Collaboratively plan for the orderly and coordinated development of Aboriginal Settlements. 	<p>Aboriginal Settlements</p> <ol style="list-style-type: none"> 1. Aboriginal Settlements recognised under SPP 3.2 and located within the local government area shall be zoned 'Settlement' having regard to the objectives of the zone in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. 2. Collaborate with the Department of Planning, Lands and Heritage during their preparation of Layout Plans for Aboriginal Settlements.

WORKFORCE ACCOMMODATION

Strategies	Actions
<p>Workforce Accommodation</p> <ol style="list-style-type: none"> 1. Acknowledge the important role of Workforce Accommodation for contributing towards project viability, workforce convenience being in proximity to project sites, and the economic stimulus benefits to the local government district as a result. 2. Consult with proponents to ensure a balanced approach is fostered for the appropriate and reasonable accommodation of workers. 	<p>Workforce Accommodation</p> <ol style="list-style-type: none"> 1. Actively pursue the provision of construction workforce accommodation associated with major projects within established townsites wherever possible. 2. Retain the long-term development option of Chevron Australia's 'Operational Village' on Lot 4001 within the Onslow townsite, as a well-integrated workforce accommodation development within town.

WORKFORCE ACCOMMODATION

Strategies	Actions
<p>3. Encourage construction workforce in proximity to project sites, and operational workforce within the existing townsites of Onslow, Tom Price, Paraburdoo and Pannawonica.</p>	<p>3. Where Development Approval for workforce accommodation is necessary under the local planning scheme, require proponents to demonstrate how they will mitigate the potential social impacts and health issues associated with remote accommodation camps, impacts on existing communities, and how they will provide quality accommodation, support services and facilities.</p> <p>4. Include the Workforce Accommodation land use definition and permissibility in the Zoning Table for the appropriate zones in the local planning scheme.</p>

5.2 ECONOMIC PROSPERITY

SHORT-STAY ACCOMMODATION	
Strategies	Actions
<p>Short-Stay Accommodation</p> <ol style="list-style-type: none"> 1. Provide specific infrastructure that will encourage and facilitate short-stay accommodation development and other types of tourism development. 2. Develop new investment through business development and support, and marketing opportunities with relevant stakeholders. 	<p>Short-Stay Accommodation</p> <ol style="list-style-type: none"> 1. Prepare a Strategy to identify land for strategic tourism development, and seek State Government intervention and assistance to secure land. 2. As part of the Scheme Review zone Worker Accommodation & Short Stay Accommodation areas as shown on Strategy Plans, as 'Tourism' having regard to the zone objectives under the Model Provisions of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>: <ol style="list-style-type: none"> a. Lot 381 on Plan 205462, Onslow; b. No. 3 Second Avenue, Onslow; c. No. 6 Second Avenue, Onslow (Ocean View Caravan Park); d. Lot 100 on Plan 403216, Onslow (Discovery Holiday Park); e. Lots 551, 552, and 533 on Plan 181876, Parsley Street, Onslow; f. No. 66 Nameless Valley Drive, Tom Price (Tom Price Tourist Park); g. No. 841 Stadium Road, Tom Price (Windawarri Lodge); h. Lots 3010, 3011, 3013, 3014, 3016 and 3017 on Plan 51300, Tom Price; i. Lot 1 Camp Road, Paraburdoo (Paraburdoo Caravan Park); j. Lot 61 on Plan 215305, Paraburdoo (Rocklea Palms); k. Lot 622 McRae Avenue, Paraburdoo (Paraburdoo Inn); l. Lot 623 McRae Avenue on Plan 14726, Paraburdoo; m. Lot 603 Rocklea Road on Plan 15080, Paraburdoo; n. Lots 605, and 606 on Diagram 80075, Paraburdoo; o. Lot 604 Rocklea Road on Diagram 72499, Paraburdoo; and p. Eastern portion of Lot 61 on Plan 215305, Paraburdoo.

SHORT-STAY ACCOMMODATION

Strategies	Actions
	<ol style="list-style-type: none"> 3. Insert appropriate tourism land use definitions and permissibility in the Zoning Table for the 'Tourism' zone and other appropriate zones in the local planning scheme. 4. Allow a mix of land uses and use of innovative/modular construction methods for tourism developments. 5. Increase supply of short-stay accommodation to ensure availability for tourists and short-term workforce demands. 6. Provide meeting facilities, dump points for caravans, infrastructure for arrivals by sea or air.
<p>Ecotourism and Heritage Tourism</p> <ol style="list-style-type: none"> 1. Support ecotourism and heritage tourism opportunities which celebrate the unique natural beauty, biodiversity and cultural values of the Shire. 	<p>Ecotourism and Heritage Tourism</p> <ol style="list-style-type: none"> 1. In the 'Rural' zone, support the introduction of low impact, nature-based, eco-tourism or cultural tourism uses, with guidance through provisions in the Scheme and a local planning policy.

INDUSTRY

Strategies	Actions
<p>Industry</p> <ol style="list-style-type: none"> 1. Identify areas for industrial expansion in proximity to townsites. 2. Promote the appropriate location of industrial development that supports strategic industry, general industry, and light/service industry sectors. 3. Support the diversification of industrial services available within the Shire to assist in providing viable industrial land for expansion. 4. Promote multiple users of infrastructure, services, and networks to minimise duplication and inefficiency. 	<p>Industry</p> <ol style="list-style-type: none"> 1. Consider the Future Industry / Mixed Business areas as shown on the Strategy Plans to be zoned 'Industrial Development' in the local planning scheme. This zone will require the preparation of structure plan(s) to guide development and land use, drainage, movement network, and staging. 2. Support heavy industry and general industry uses that are compatible with existing uses to be located within the ANSIA. 3. Promote the transition towards light industrial development along Beadon Creek Road where there is an interface to urban development. 4. Allow light/service industry and mixed business development within the Onslow Airport Mixed Business Precinct.

INDUSTRY

Strategies	Actions
	<ol style="list-style-type: none"> 5. Investigate the viability for future expansion of light/service industrial and general industrial uses to the immediate south of the Onslow Airport Mixed Business Precinct. 6. Rezone land within the Reserve 19291 on Onslow Road as 'General Industry' as shown on the Strategy Plans as an extension to the industrial zone, having regard to the zone objectives under the Model Provisions of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. This land area requires a road connection to Onslow Road and any such road will be located outside of the Onslow Salt State Agreement area. 7. Allow for expansion of light industry adjacent to existing industry areas within Paraburdoo and Tom Price.

RETAIL AND COMMERCIAL CENTRES

Strategies	Actions
<p>Retail and Commercial Centres</p> <ol style="list-style-type: none"> 1. Encourage compact, walkable, comfortable, attractive and safe Town Centres. 2. Promote Town Centres as hubs for government services, business services, community services, and public recreation. 3. Promote the Town Centres as the principal places to shop, do business, socialise, relax and recreate. 	<p>Retail and Commercial Centres</p> <ol style="list-style-type: none"> 1. Identify the Town Centres within Onslow, Tom Price and Paraburdoo within the Strategy. 2. Zone the Town Centres in the Scheme to accommodate a compatible range of retail, commercial, mixed use, community/civic, entertainment and hospitality uses. 3. Ensure Town Centres are accessible to all age groups and persons, through the adequate provision of footpaths, cycling, and public transport (where feasible).

RURAL AND RANGELANDS

Strategies	Actions
<p>Rural and Rangelands</p> <ol style="list-style-type: none"> 1. Protect rural land from incompatible land uses and protect high quality land for cattle, agriculture or pastoral purposes. 2. Support compatible uses in the hinterlands of the townsites of Onslow, Tom Price and Paraburdoo, where these contribute to quality of life, recreation and liveability. 3. Recognise the rights and customs of Traditional Owners in relation to their ability to access and use lands and waterways. 	<p>Rural and Rangelands</p> <ol style="list-style-type: none"> 1. Allow for incidental and discretionary land uses in the 'Rural' zone to be inserted into the Scheme recognising that rural land is intended to be a highly flexible zone for a range of land uses, and the zone can also accommodate natural landscape values and environmental considerations. 2. Insert aquaculture as a land use in the 'Rural' zone and include provisions to consider appropriate measures including bio-security, water use, wastewater management and buffers if required. 3. Advocate development of higher capability land suitable for agriculture and agriculture-related projects, as mapped for the Pilbara Hinterland Agricultural Development Initiative by the Department of Primary Industries and Regional Development. 4. Advocate that pastoralists and pastoral leases undertake and operate in a sustainable manner and incorporate regenerative farming methods to assist in reducing degradation and erosion. 5. Investigate the viability of irrigated agricultural, taking into the account the limited lifespan and volatility of operational extractive industries (due to market forces) and dewatering surplus.

5.3 UNIQUE HERITAGE AND ENVIRONMENT

HERITAGE	
Strategies	Actions
<p>Heritage</p> <p>1. Support the protection of sites of natural heritage, Indigenous cultural heritage significance, and European cultural heritage within the district.</p>	<p>Heritage</p> <p>1. Review and update the Municipal Heritage Inventory to be used as the Heritage list in the Scheme.</p> <p>2. Require, where appropriate, that heritage matters are addressed in structure plans and design guidelines.</p> <p>3. Protect identified sites as part of any assessment of development and/or subdivision applications.</p>

COASTAL PROCESSES AND FLOODPLAINS	
Strategies	Actions
<p>Coastal Processes and Floodplains</p> <p>1. Adopt a long-term development approach for the Onslow townsite as a result of forecasted sea level rise and storm surge events.</p> <p>2. Ensure that appropriate risk management and adaptation planning assessments are undertaken in known areas that are at risk of tidal inundation, storm surge, coastal processes, and/or flooding.</p>	<p>Coastal Processes and Floodplains</p> <p>1. Implement the land use planning recommendations of the <i>Coastal Hazard Risk Management and Adaptation Plan</i> for the Onslow Coast as part of the Scheme Review.</p> <p>2. Review and update as required the Special Control Areas in the local planning scheme to ensure finished floor levels are appropriate, and that development is supported by an assessment of the impact of potential coastal processes, flood and storm surge events:</p> <ul style="list-style-type: none"> a. Onslow coastal hazard; b. Onslow floodplains; c. Areas of tidal inundation risk. <p>3. Review the Shire's Local Emergency Recovery Plan(s) in relation to associated impacts on public health.</p>

NATURAL RESOURCE MANAGEMENT AND ENVIRONMENTAL PROTECTION AREAS

Strategies	Actions
<p>Natural Resource Management and Environmental Protection Areas</p> <ol style="list-style-type: none"> 1. Recognise the contribution the natural environment values provide to liveability, health, lifestyle and economy. 2. Support conservation, protection and management of natural resources, where possible, to enhance land quality, resilience to erosion, water quality, fauna and flora, and ecosystem function. 	<p>Natural Resource Management and Environmental Protection Areas</p> <ol style="list-style-type: none"> 1. Classify existing and/or proposed areas of environmental importance within the 'Environmental Conservation' reserve, having regard to the objectives of the reserve in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. 2. Prepare provisions in the Scheme that aim to address objectives of natural resource management, water quality, and environmental protection.

ACID SULPHATE SOILS

Strategies	Actions
<p>Acid Sulphate Soils</p> <ol style="list-style-type: none"> 1. Promote the appropriate identification and management of acid sulphate soil risks to avoid potential adverse impacts on the natural and built environment. 	<p>Acid Sulphate Soils</p> <ol style="list-style-type: none"> 1. Require development in areas of moderate to high risk of acid sulphate soils meet the requirements of the Western Australian Planning Commission's <i>Acid Sulfate Soils Planning Guidelines</i>.

BUSH FIRE RISK

Strategies	Actions
<p>Bush Fire Risk</p> <ol style="list-style-type: none"> 1. Promote the appropriate management of bush fire risks to Townsites and Aboriginal communities. 2. Promote appropriate management of bush fire risks to remote camps, tourism sites and pastoral homesteads. 3. Identify improvements to the road network to ensure that vehicle access and egress is available and safe during a bushfire event. 	<p>Bush Fire Risk</p> <ol style="list-style-type: none"> 1. Ensure future planning and development within Bush Fire Prone Areas meets the requirements of State Planning Policy 3.7: <i>Planning in Bushfire Prone Areas</i> and the <i>Guidelines for Planning in Bushfire Prone Areas</i>. 2. Structure Plans for investigation areas should develop a bushfire attack level (BAL) contour map to determine the residual bushfire exposure risk to future development and identify the need for any future construction standards in line with AS 3959 and bushfire protection criteria.

BUSH FIRE RISK

Strategies	Actions
	3. Consider the location of fire service access routes in semi-rural areas around townsites and emergency management though the preparation of emergency management plans for these areas.

CONSERVATION AREAS

Strategies	Actions
<p>Conservation Areas</p> <ol style="list-style-type: none"> 1. Reinforce the objectives for environmental protection and biodiversity conservation, tourism and recreational values of the National Parks, Marine Parks Nature Reserves and Conservation Parks. 2. Support and encourage the State Government implementation of best management practices for its Conservation Areas. 3. Support proposals additional land being included in Conservation Areas. 4. Manage public access, visitor numbers, and appropriate management where increased human activity may potentially impact on conservation values. 	<p>Conservation Areas</p> <ol style="list-style-type: none"> 1. Classify existing and/or proposed Conservation Areas within the 'Environmental Conservation' reserve, having regard to the objectives of the reserve in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>: <ol style="list-style-type: none"> a. Karijini National Park; b. Millstream-Chichester National Park; c. Cane River Conservation Park; d. West Hamersley Range Conservation Park (proposed); e. Mulgalands Conservation Park (proposed); f. Mungaroona Range Nature Reserve; g. Barlee Range Nature Reserve; h. Barrow Island Nature Reserve; i. Tent Island Nature Reserve; j. Thevenard Island Nature Reserve; k. Boodie, Double Middle Islands Nature Reserve; l. Serrurier Island Nature Reserve; m. Little Rocky Island Nature Reserve; n. Burnside & Simpson Island Nature Reserve; o. Bessieres Island Nature Reserve; p. Y Island Nature Reserve; q. Locker Island Nature Reserve; r. Airlie Island Nature Reserve; s. Great Sandy Island Nature Reserve; t. Victor Island Nature Reserve; u. Gndaroo Island Nature Reserve; v. Round Island Nature Reserve; w. Rocky Island Nature Reserve; x. Whalebone Island Nature Reserve; and y. Ex-Wanna Station.

CONSERVATION AREAS

Strategies	Actions
	2. Identify compatible uses in the scheme or a local planning policy for the 'Environmental conservation' reserve, in consultation with Department of Biodiversity, Conservation and Attractions.

OPEN SPACE

Strategies	Actions
<p>Open Space</p> <ol style="list-style-type: none"> 1. Recognise the differences in function of public open space for sport, recreation, natural landscape/amenity, and drainage. 2. Support the development and maintenance of public open space and landscaping in a manner that is reflective of the climate, and low maintenance. 3. Promote and improve the visual appearance of the townsites to have references to cultural heritage, the historical emergence of the towns, their character and sense of place. 4. Appropriately use hard and soft landscaping treatments, tree planting to improve the visual appearance and relief of the townsites. 	<p>Open Space</p> <ol style="list-style-type: none"> 1. Classify existing and/or proposed public open space within the 'Public Open Space' reserve, having regard to the objectives of the reserve in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. 2. Require higher quality landscaping along gateway entrances into the townsites, and along Neighbourhood Roads. 3. Require local endemic vegetation within landscaping of public domain, where appropriate. 4. Planting of vegetation in areas under the Shire's care and control shall be low-water use, drought tolerant, and resilient to high winds or cyclonic events.

5.4 QUALITY SERVICES AND INFRASTRUCTURE

COMMUNITY SERVICES	
Strategies	Actions
<p>Community Services</p> <ol style="list-style-type: none"> 1. Recognise that community infrastructure and services can encourage community cohesion and create a sense of belonging in the townsites. 2. Promote and support the ongoing and sustainable delivery of community infrastructure and services that are suitable for the resident population. 3. Encourage the organised co-location of community facilities to optimise efficient delivery of services. 	<p>Community Services</p> <ol style="list-style-type: none"> 1. To maximise efficient use of facilities, seek to have co-located community facilities within townsites or close to residents. 2. Classify land within local planning scheme reserves for community facilities within 'Civic and Community' reserve or the 'Public Purposes' reserves, as appropriate, having regard to the objectives for the reserves in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>.

TRAFFIC AND TRANSPORT	
Strategies	Actions
<p>Traffic and Transport</p> <ol style="list-style-type: none"> 1. Ensure road and rail infrastructure incorporate appropriate public safety requirements and can accommodate mining and freight demands. 2. Maximise the amount of funding that can be accessed for traffic and transport upgrades and projects. 3. Advocate the improvement and sealing of the Karratha-Tom Price Road to provide a safe and efficient link to higher order services and facilities provided in Karratha for the residents of the Shire of Ashburton. 4. Support means of improving road safety and minimising issues associated with maintenance, fatigue, and other environmental or behavioural aspects. 	<p>Traffic and Transport</p> <ol style="list-style-type: none"> 1. Identify appropriate road projects to submit for funding for various purposes. 2. Identify primary transport corridors (road and rail) in the Strategy and Scheme. 3. Advocate or undertake Road Safety Audits for sites that have been identified by the Local Government to have potential safety issues. 4. Advocate the sealing of Karratha-Tom Price Road to generate substantial economic benefits for the Pilbara and the State through both increased tourism and improve freight traffic movements. 5. Advocate Main Roads to investigate and construct Road Train assembly points to provide necessary facilities to ensure that these vehicles can be safely operated on the appropriately designated roads. 6. Support the development of roadhouses to provide essential facilities for both tourist and freight traffic, including fuel, water, food and rest areas.

AIR AND MARINE INFRASTRUCTURE

Strategies	Actions
<p>Air and Marine Infrastructure</p> <ol style="list-style-type: none"> 1. Recognise the main airports (Onslow and Paraburdoo) and ports (Barrow Island, Ashburton and Beadon Creek) as strategic infrastructure that requires protection from incompatible use and development. 2. Protect the existing and future airspace requirements for Onslow Airport to meet the relevant requirements of the Civil Aviation Safety Authority (CASA). 3. Recognise the importance of Beadon Creek Boat Harbour to accommodate the growing marine servicing industry. 4. Develop a strategy to improve and maintain air transport connections to the Onslow and Paraburdoo Airports, including the expansion of airport infrastructure. 	<p>Air and Marine Infrastructure</p> <ol style="list-style-type: none"> 1. Have regard to the Port of Ashburton Master Plan, including any recommendations of the Plan that may be relevant to the Scheme. 2. Implement the land use planning recommendations from the Onslow Airport Master Plan based on the extension of the runway to 2,200m total length. 3. Update the Onslow Airport OLS on the Scheme map to account for the realigned runway. 4. Plan for future upgrade opportunities to Onslow Airport for airside and landside facilities and infrastructure. Protect the drainage requirements of the Airport from stormwater flowing from neighbouring development areas. 5. Classify the following facilities within the 'Strategic Infrastructure' reserve, having regard to the objective of the reserve in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>: <ol style="list-style-type: none"> a. Onslow Airport; b. Beadon Creek Boat Harbour; c. Paraburdoo Airport. d. Tom Price Airport e. Yardie Landing 6. Include Special Control Areas in the local planning scheme for the: <ol style="list-style-type: none"> a. Onslow Airport Obstacle Limitation Surface (as amended); b. Onslow Airport Aircraft Noise Exposure Forecast N70 contour (when prepared). 7. Investigate the requirement and necessity for studies into the need for a buffer around the Beadon Creek Boat Harbour to ensure that the long term operations of the harbour are not prejudiced by incompatible land uses. 8. Review and amend the Onslow Townsite Strategy Plan to reflect the 'Strategic Infrastructure' reserve for the Beadon Creek Boat Harbour

UTILITIES

Strategies	Actions
<p>Utilities</p> <ol style="list-style-type: none"> 1. Recognise that the private sector funds a significant number of services, including electricity generation and distribution, sewer (waste water) and water supply. 2. Support the delivery of town utility services to promote population growth, based on demand, scale, timing and funding. 3. Promote the coordination of the supply of utility infrastructure and services between the Federal, State and Local Government and the private sector. 	<p>Utilities</p> <ol style="list-style-type: none"> 1. Support the long-term delivery of sustainable water supplies to Onslow through the Cane River bore field and the delivery of a water desalination plant within the ANSIA Improvement Scheme area. 2. Support the long-term delivery of sustainable electricity generation and distribution to townsites. 3. Support investment and development of projects for renewable energy and microgrid technology, to provide sustainable alternative sources of electricity generation.

WATER

Strategies	Actions
<p>Water</p> <ol style="list-style-type: none"> 1. Reflect the importance of Priority 1 (P1), Priority 2 (P2) and Priority 3 (P3) Public Drinking Water Source Areas (PDWSAs) and ensure their protection where necessary through classification under local planning scheme reserves. 2. Encourage and promote the responsible consumption of water by industry and consumers. 3. Identify water re-use options and opportunities. 4. Promote the use of wastewater recycling. 5. Support innovation leading to the creation of new ways to address water scarcity and optimised delivery of services and infrastructure. 6. Advocate for townsites and Aboriginal Communities to be supported with appropriate drainage infrastructure. 	<p>Water</p> <ol style="list-style-type: none"> 1. Existing and/or proposed PDWSAs be protected in the scheme in the 'Public Purposes' reserve having regard to the objectives for the reserve in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. 2. Support the long-term delivery of sustainable water supplies to Onslow through the Cane River bore field and the delivery of a water desalination plant within Onslow. 3. Support water reuse/recycling programmes or schemes associated with mine sites and townsites. 4. Upgrade existing townsite drainage systems and ensure appropriate levels of service can be maintained as development occurs and water quality including sediments in stormwater is addressed.

WASTE MANAGEMENT

Strategies	Actions
<p>Waste Management</p> <ol style="list-style-type: none"> 1. Reduce resource consumption and move towards more community acceptance for smaller ecological footprints, including optimising reuse and recycling of waste materials. 2. Monitor and upgrade existing waste management facilities and practices. 3. Promote appropriate waste management practices in Aboriginal Communities. 4. Investigate potential opportunities for improved access to markets for recycled products. 	<p>Waste Management</p> <ol style="list-style-type: none"> 1. Investigate options for the Shire’s waste collection practices to incorporate recycling. 2. Classify waste management facilities in proximity to Onslow, Tom Price and Paraburdoo in the ‘Public Purposes’ reserve, having regard to the objectives for the reserve in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. 3. Advocate for Aboriginal communities to have effective waste management programme to minimise pollution and risks to human health and water sources. 4. Progress approvals required for the construction of the Regional Class IV Waste Management Facility near Onslow. 5. Investigate future expansion of the Regional Class IV Onslow Waste facility site.

BUFFERS

Strategies	Actions
<p>Buffers</p> <ol style="list-style-type: none"> 1. Ensure that appropriate buffers for strategic industry and essential infrastructure are identified to avoid land use conflict and/or unacceptable risk from encroachment by people and development. 	<p>Buffers</p> <ol style="list-style-type: none"> 1. Recognise that the ANSIA Improvement Plan No. 1 includes industrial buffers that are required to preserve the integrity of the ANSIA. 2. Include Special Control Areas in the local planning scheme to reflect the buffers required for the following: <ol style="list-style-type: none"> a. Onslow Wastewater Treatment Plant, Tom Price Wastewater Treatment Plant and Paraburdoo Waste Water Treatment Plant; b. Public Drinking Water Supply Areas – Priority 1, Priority 2 and Priority 3 proclaimed areas and wellhead protection zones, within the local government district; c. Onslow Waste Transfer Site, Tom Price Landfill and Paraburdoo Landfill; and d. High pressure gas pipeline licence areas.

BUFFERS

Strategies	Actions
	3. Allow for compatible uses to be developed, where appropriate, within buffer areas.

SERVICE CORRIDORS AND SITES FOR UTILITIES

Strategies	Actions
<p>Service Corridors and Site for Utilities</p> <ol style="list-style-type: none"> 1. Reflect the importance of essential physical infrastructure and its provision to serve the local communities. 2. Protect essential services corridors and facilities. 3. Protect people from unacceptable levels of risk from high-pressure gas pipelines. 	<p>Service Corridors and Site of Utilities</p> <ol style="list-style-type: none"> 1. Classify existing and/or proposed sites for utilities within the 'Public Purposes' reserve having regard to the objectives for the reserve in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. 2. Apply DC Policy 4.3 <i>Planning for High-Pressure Gas Pipelines</i> policy measures to assess proposals that are in the vicinity of any high-pressure gas pipeline within the local planning scheme area. Such measure can include identification of pipeline licence areas on scheme maps and with appropriate provisions located in schedules of the scheme provided for in the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>, or through a Special Control Area.

TELECOMMUNICATIONS

Strategies	Actions
<p>Telecommunications</p> <ol style="list-style-type: none"> 1. Promote the extension of telecommunications mobile phone coverage for all towns, district roads, and areas frequented by the community, workers and visitors. 	<p>Telecommunications</p> <ol style="list-style-type: none"> 1. Classify land within local planning scheme reserves for telecommunications within 'Public Purposes – Infrastructure Services' reserve, including broadcasting facilities, having regard to the objectives for the reserves in the Model Provisions <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>.

TELECOMMUNICATIONS

Strategies	Actions
2. Promote the roll-out of the National Broadband Network to support innovation and knowledge development, e-commerce, e-learning, communication between isolated transient workers and their family/friend networks.	2. Advocate the ongoing improvement of availability, coverage and accessibility to telecommunications services (telephone, mobile network, broadband) and TV/radio broadcasting.

6 IMPLEMENTATION, MONITORING AND REVIEW

Inspiring Governance

- Ensure the Local Planning Strategy maintains a strong relationship between the integrated planning processes of the Shire of Ashburton through its *Strategic Community Plan*, *Corporate Business Plan* and budgeting processes and its local planning framework.
- Ensure the Local Planning Strategy is periodically monitored and reviewed to ensure it provides the necessary justification and rationale for the local planning scheme and policies.

6.1 IMPLEMENTATION

The means of implementing the Strategy will primarily be through a review of the local planning scheme. The Strategy is to be used not only as a guide to assist the Shire and the WAPC in planning and decision making capacities, but should also be used by the community and other stakeholders (including State Government agencies) to inform themselves on relevant matters and to inform Council's budget preparation and corporate business planning.

The Shire prepared a 'health check' report to the Council on 9 December 2015 which made recommendations that:

- a. The existing LPS 7 be amended to comply with the *Regulations*; and
- b. That officers would work towards the ultimate preparation of a new local planning scheme.

The Shire is reviewing the local planning scheme with the aim to bring it into conformity with the *Regulations*.

6.2 MONITORING AND REVIEW OF THE LOCAL PLANNING STRATEGY

Once endorsed, the Strategy is a live document. **Figure 5** summarises the three main processes under the *Planning and Development (Local Planning Schemes) Regulations 2015* that would deal with how the endorsed Local Planning Strategy should be reviewed, amended, or revoked.

6.2.1 AMENDMENT TO LOCAL PLANNING STRATEGY

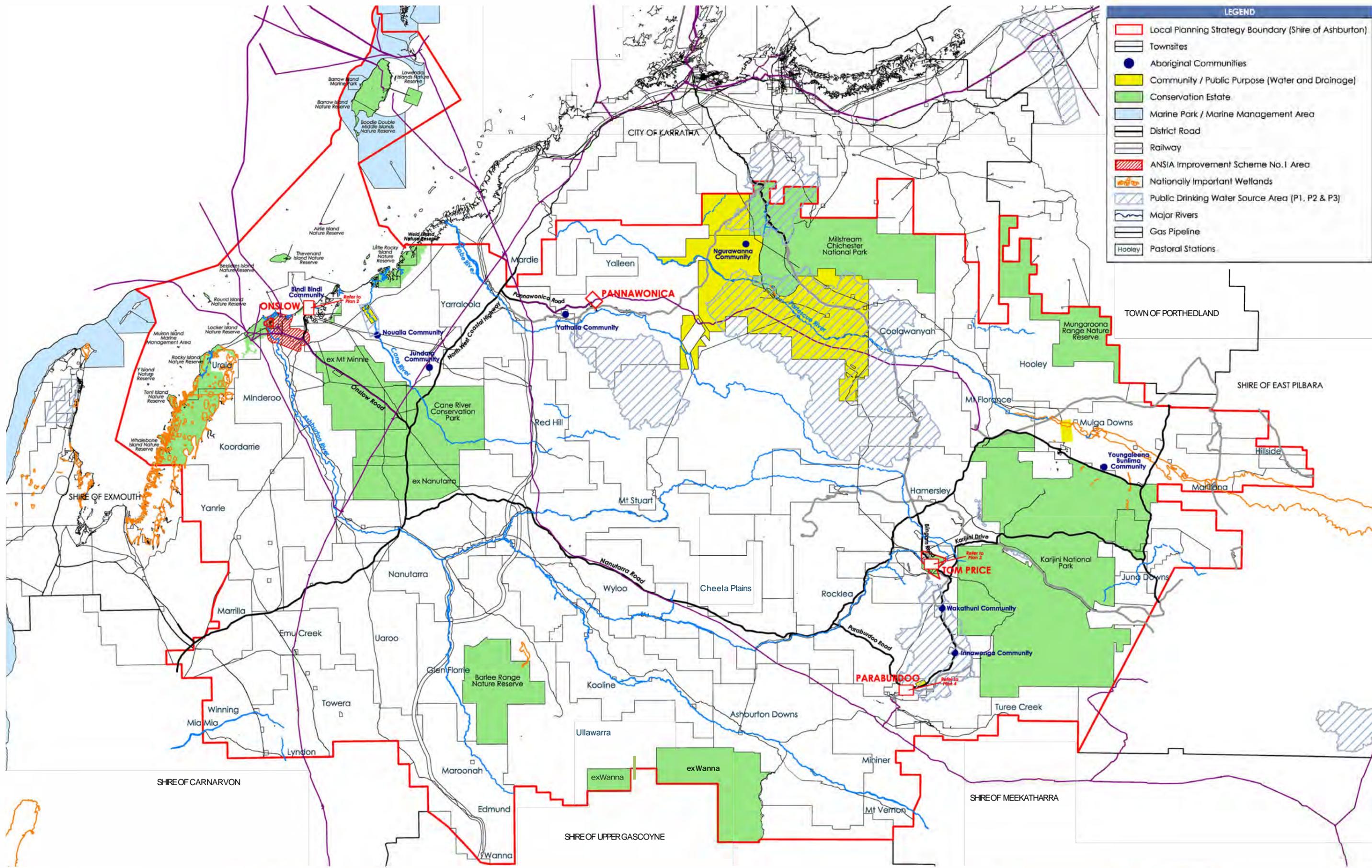
The Strategy is designed to achieve the community's vision for anticipated land use and development within the Shire. The Strategy was also designed to offer a time horizon of 15 years, depending on growth and the development or emergence of key industrial or resource projects.

Future challenges and issues to address within the Shire may not necessarily be predictable or able to be initially covered in sufficient detail in the Strategy. It is foreseeable that as new issues or information becomes available, the Strategy can be amended as required.

Figure 5 Process for Monitoring and Review



STRATEGY PLANS

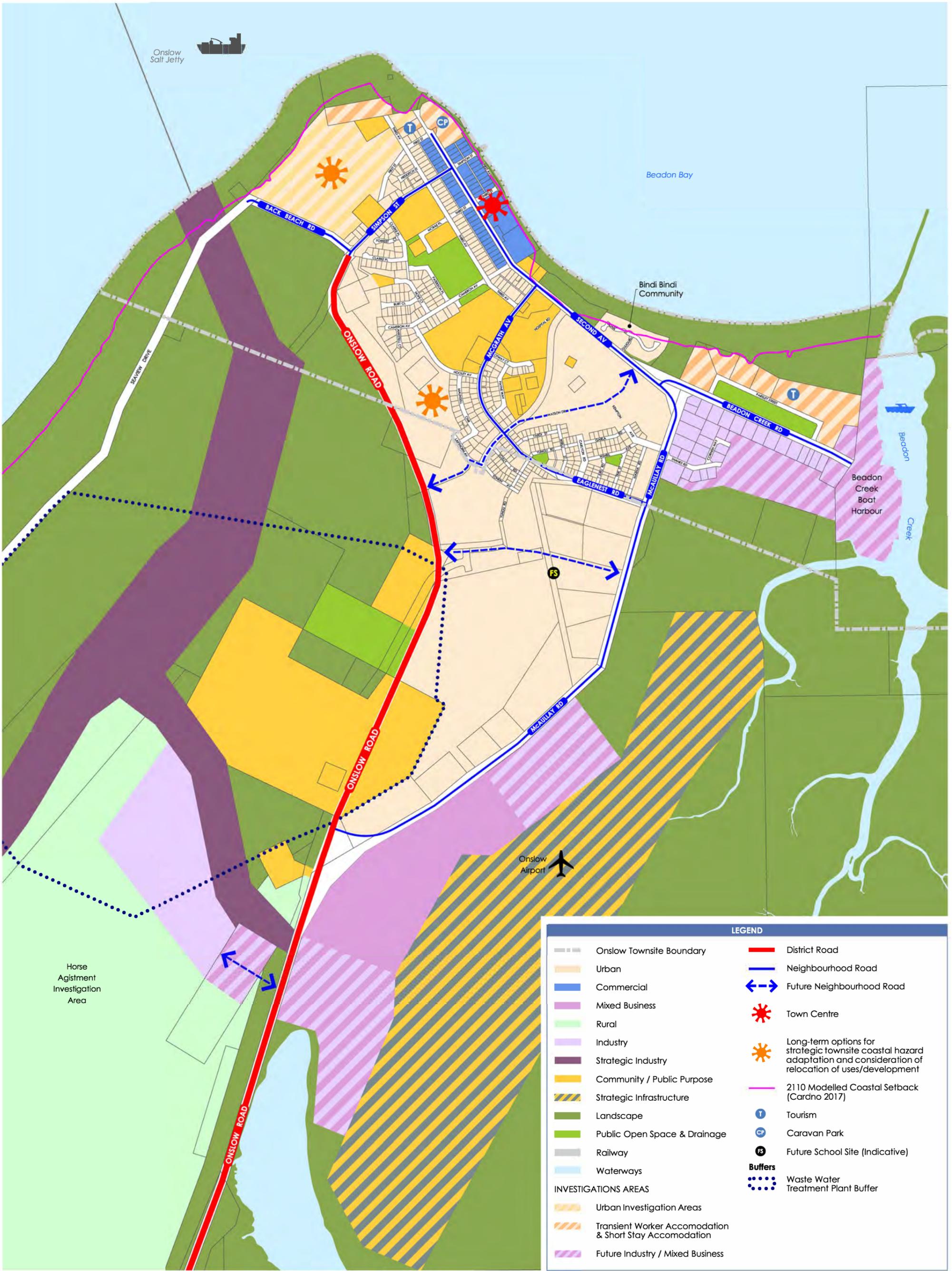


LEGEND	
[Red outline]	Local Planning Strategy Boundary (Shire of Ashburton)
[Black outline]	Townsites
[Blue dot]	Aboriginal Communities
[Yellow fill]	Community / Public Purpose (Water and Drainage)
[Green fill]	Conservation Estate
[Blue fill]	Marine Park / Marine Management Area
[Black line]	District Road
[Grey line]	Railway
[Red hatched]	ANSIA Improvement Scheme No.1 Area
[Orange hatched]	Nationally Important Wetlands
[Blue hatched]	Public Drinking Water Source Area (P1, P2 & P3)
[Blue wavy line]	Major Rivers
[Black line]	Gas Pipeline
[Grey outline]	Hooley Pastoral Stations

PLAN 1 ASHBURTON STRATEGY
 Local Planning Strategy
 A Shire of Ashburton Project

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 d: 3 Jan 2017
 p: 1 6/028/013A

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PLAN 2 ONSLOW TOWNSITE STRATEGY PLAN
 Local Planning Strategy
 A Shire of Ashburton Project

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 d: 6 Apr 2018
 p: 16/028/013D

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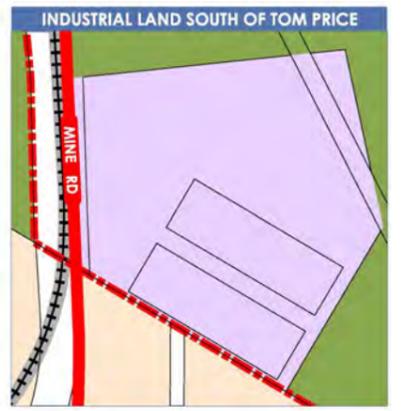
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LEGEND

- Tom Price Townsite Boundary
- Urban
- Commercial
- Industry
- Community / Public Purpose
- Rural
- Landscape
- Public Open Space & Drainage
- Railway
- District Road
- Neighbourhood Road
- Town Centre
- Tourism
- Caravan Park

INVESTIGATION AREAS

- Urban Investigation Areas
- Transient Worker Accommodation & Short Stay Accommodation
- Future Industry / Mixed Business





PLAN 4 PARABURDOO TOWN SITE STRATEGY PLAN

Local Planning Strategy
A Shire of Ashburton Project



s: 1:15,000@A3
d: 19 Sept 2017
p: 16/028/013C

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LOCAL PLANNING STRATEGY

Part Two

Certified for Advertising: 27 March 2018

Prepared for Shire of Ashburton
Prepared by Taylor Burrell Barnett

ashburton.wa.gov.au

	Revision	Reviewer	Date Issued
Shire of Ashburton Local Planning Strategy	16/028-1	RC	Jan-17
	16/028-2	RC	Sep-17
	16/028-3	RC	Nov-17
	16/028-4	RC	Apr-18
	16/028-5	BL	Mar-21
	16/028-6	BL	Apr-21

In association with:

Essential Environmental – Environment
Serling Consulting – Civil Engineering
Donald Veal Consultants – Traffic and Transport

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1 INTRODUCTION

The Part 2 of the Local Planning Strategy contains the Local Profile and Context Report. This Part 2 provides the relevant background to the Strategy, including analysis of information and the rationale for the Strategy. At the end of each section there is a summary table of the issues and implications, with identified opportunities that translate into the strategies and actions. The summary tables are also contained at the part of the Part 1 of the Local Planning Strategy.

The content of the Local Planning Strategy is structured as follows:

- Section 2 – State and Regional Planning Context;
- Section 3 – Local Planning Context;
- Section 4 – Land Tenure and Local Environmental Profile;
- Section 5 – Population and Housing;
- Section 6 – Economy and Employment;
- Section 7 – Retail and Commerce;
- Section 8 – Industry;
- Section 9 – Rural and Rangeland Areas;
- Section 10 – Tourism and Visitors;
- Section 11 – Community, Recreation and Open Space;
- Section 12 – Urban Design, Character and Heritage;
- Section 13 – Traffic and Transport;
- Section 14 – Infrastructure Services; and
- Section 15 – Townsite Issues and Opportunities.



2 STATE AND REGIONAL PLANNING CONTEXT

The purpose of this Chapter is to discuss the issues and implications that are relevant to the Shire, based on an analysis of State and Regional literature, projects and policies. The State and Regional Planning Context section has been prepared to cover:

- The State Planning Strategy;
- Pilbara Cities initiatives;
- State Planning Policies;
- Layout Plans;
- Regional Strategies, Regional and Sub-regional Structure Plans; and
- Operational Policies, guidelines, forecasts and reports.

The Local Planning Strategy provides a context for the local planning scheme through consideration and justification of the planning issues and opportunities available to the Shire. **Figure 1** provides a contextual summary.

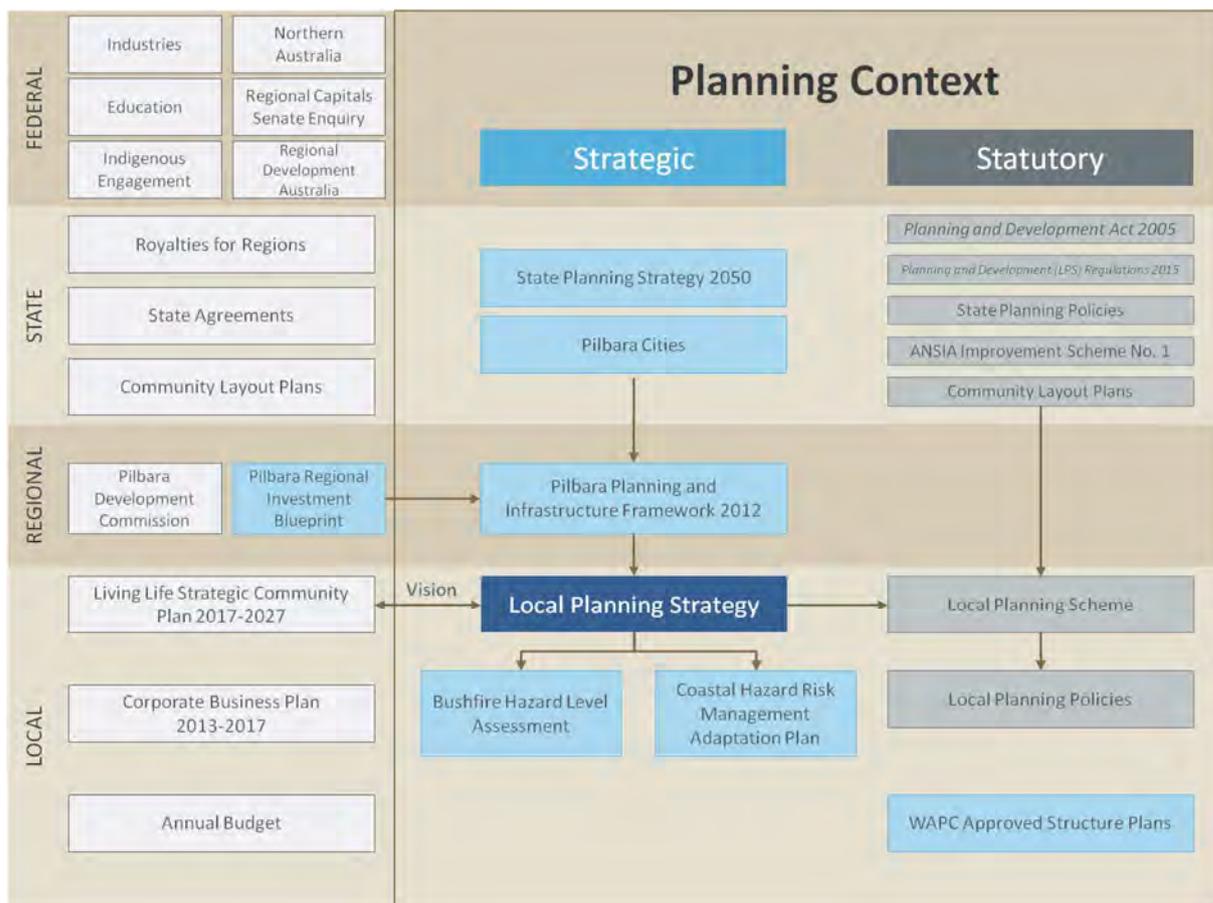


Figure 1 Planning Context to the Local Planning Strategy

2.1 STATE PLANNING STRATEGY

The *State Planning Strategy* (WAPC, 2014) presents a vision for Western Australia to 2050 and beyond, based on a framework of planning principles, strategic goals and State strategic directions. It is the overarching strategic document that informs planning and regional development, as illustrated in **Figure 2**.

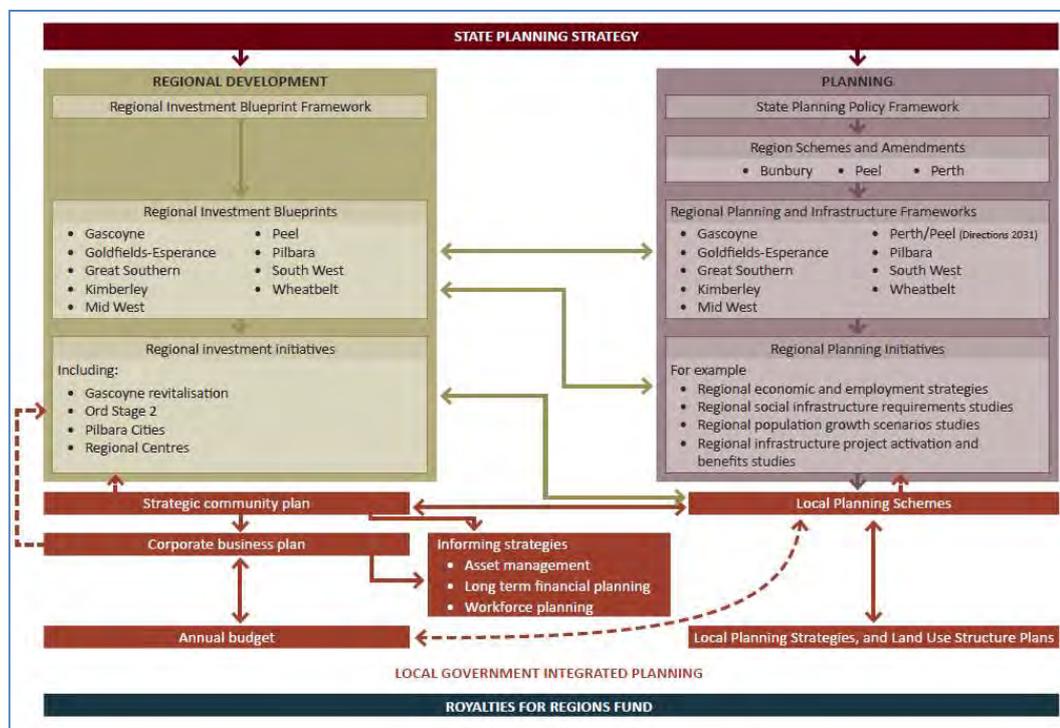


Figure 2 State Planning and Development Framework (WAPC, 2014)

The six inter-related principles of the *State Planning Strategy* are applicable to the Pilbara Region:

- **Community:** enable diverse, affordable, accessible and safe communities;
- **Economy:** facilitate trade, investment, innovation, employment and community betterment;
- **Environment:** conserve the State's natural assets through sustainable development;
- **Infrastructure:** ensure infrastructure supports development;
- **Regional development:** built the competitive and collaborative advantages of the regions; and
- **Governance:** build community confidence in development processes and practices.

The *State Planning Strategy* divides Western Australia into three sectors – Northern, Central and South West. The Shire of Ashburton is within the Northern sector. The Northern sector is recognised for its significant contribution to Australia's Gross Domestic Product, and its collaborative advantages with the Northern Territory and Queensland (WAPC, 2014). It has the ability to continue the development of agricultural and resource projects. It has the potential to promote its natural environment through sustainable development of ecotourism, as well as its potential to become a mineral and energy resource province (including renewable energy). Periods of further economic growth and development are expected with emerging partnerships in South East Asia, India and Africa (WAPC, 2014).

The State Government has targeted the Pilbara for strengthening its resilience through attracting and retaining people and businesses on a more permanent basis. The embracing and celebrating of Aboriginal culture can instil a strong sense of place, belonging and community spirit (WAPC, 2014).

2.2 PILBARA CITIES

Pilbara Cities aims to transform key Pilbara towns into major urban centres and encourage settlement on a permanent basis. “*The Pilbara Cities’ vision is to build the population of Karratha and Port Hedland into cities of 50,000 people by 2035, with other Pilbara towns growing into more attractive, sustainable communities*” (PDC, 2015). The *Pilbara Cities* vision aims to boost the population of the Pilbara Region, primarily through the growth of Karratha, Port Hedland and Newman. These three cities would provide for a population of 115,000 by 2035, whilst ensuring that other Pilbara towns (like Onslow, Paraburdoo and Tom Price) grow to be attractive, sustainable and prosperous.

Since 2010, *Pilbara Cities* has contributed towards towns receiving considerable public and private sector investment in amenity and liveability enhancements. *Pilbara Cities* has helped contribute to \$1.7 billion of investment through the State’s *Royalties for Regions* program. For every \$1 in *Pilbara Cities* expenditure spent, there has been \$1.50 of investment (PDC, 2016). The program has focused on infrastructure coordination, land availability and development, economic diversification, and community projects and engagement.

The *Pilbara Planning and Infrastructure Framework* (WAPC, 2012) provides the method for delivering the Pilbara Cities vision and sets out goals, objectives and actions. The *Pilbara Planning and Infrastructure Framework* is described further in **section 2.2.2**.



2.2.1 PILBARA REGIONAL INVESTMENT BLUEPRINT

The *Pilbara Regional Investment Blueprint* (PDC, 2015) sets out a vision for the region in 2050 as follows:

“In 2050, the Pilbara will have 200,000 people living in vibrant, modern and inclusive cities and communities which offer quality services, career choice, affordable living and strong local communities. The economy will feature diverse, innovative and resilient local and international firms underpinned by the resources and energy industries.”

The *Pilbara Regional Investment Blueprint* is a plan for investment, outlining transformative strategies, priority actions and investment opportunities. The following **Table 1** reflects the transformational opportunities that could assist in positive economic and community outcomes for the region. The *Pilbara Regional Investment Blueprint* will ensure a prosperous and secure future for the Pilbara region. The level of investment within the Pilbara region has helped create a level of permanency for settlements and this is expected to strengthen in the future (PDC, 2015). Continual transformation and diversification of local economies and enhanced liveability will produce a range of opportunities for the region.

Table 1 Transformational Opportunities (PDC, 2015)

Approach	Regional Pillar	Transformational Opportunity
Enabling	Land Access and Economic Infrastructure	Normalised property market and land access
		Secure and sustainable infrastructure services
	Education, Training and a Skilled Workforce	Lifelong education
		Workforce development and skilled migration
	People and Communities	Diverse and vibrant intergenerational communities
Innovative local and remote healthcare delivery		
Value-Adding	Logistics, Engineering and Supply Chains	Maritime maintenance, Safety & emergency management
		Industrial fabrication, assembly and technology
	Innovation and Advanced Technology	Business digital connectivity
		Automation technology and services
	Diverse and Robust Small to Medium Sized Businesses	Small to Medium sized Businesses support
Streamlining governance		
Diversifying	Agriculture & Aquaculture	High value agriculture and cropping
		Aquaculture, algae biofuels and co-products
	Energy	Energy production
		Energy export
	Tourism	Nature based tourism
Heritage and Aboriginal tourism development		

2.2.2 PILBARA PLANNING AND INFRASTRUCTURE FRAMEWORK

As shown in **Figure 3** the *Pilbara Planning and Infrastructure Framework* (WAPC, 2012) is a regional framework from which land for major industries and sites and corridors for major infrastructure can be set aside. The *Framework* guides the preparation of local planning strategies and schemes across the Pilbara.

The *Framework* vision reflects the ‘whole of government’ agenda for the physical development of the Pilbara, aiming for a resident population of more than 140,000 by the year 2035. As part of the vision, Karratha and Port Hedland will be supported by Tom Price, Onslow, Paraburdoo and Pannawonica. The settlement structure also acknowledges Aboriginal settlements.

The intent has been to develop the regional cities (Karratha, Port Hedland and Newman) with the support of ‘major towns’ such as Tom Price and Onslow, and ‘towns’ such as Paraburdoo and Pannawonica. For the Shire of Ashburton, growth in employment in mining, petroleum and oil and gas sectors has been a significant contributor towards population growth. Over time, new transformational opportunities as outlined in *Pilbara Regional Investment Blueprint* will further contribute to the ongoing sustainability and economic stability of the cities and towns.

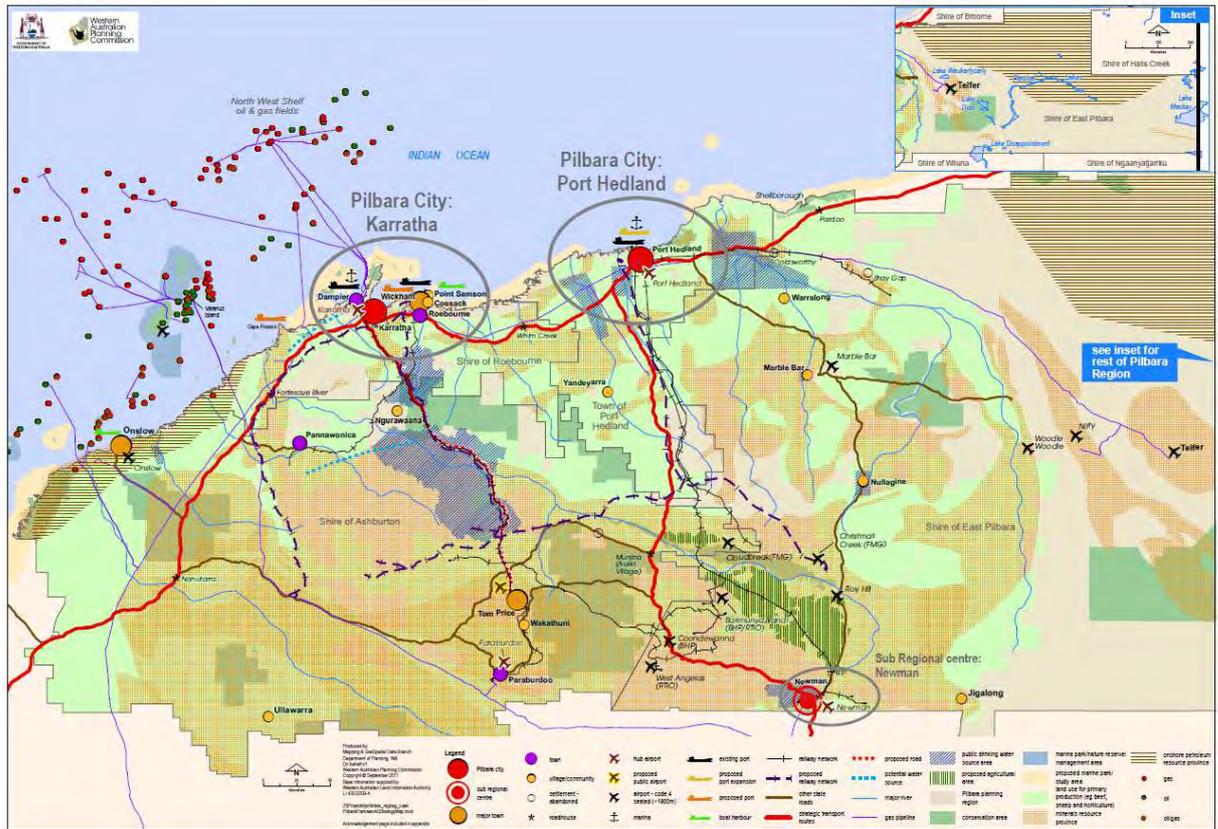


Figure 3 Pilbara Planning and Infrastructure Framework Strategy Plan

The *Pilbara Planning and Infrastructure Framework* outlined a number of infrastructure priorities for the Pilbara Region to be achieved by 2015, covering utility infrastructure, community facilities, transport, natural environment, cultural heritage, development, and governance (WAPC, 2012). Whilst the priorities within the *Framework* are completed or well-progressed, some of the principles and priorities remain ongoing opportunities from a local planning strategy perspective. For the purposes of outlining the context for the Shire of Ashburton, infrastructure and services requirements are discussed in **section 14**.

2.3 STATE PLANNING POLICIES

The following provides a summary of the State Planning Policies (SPP) that are relevant to the Local Planning Strategy.

2.3.1 SPP 2 ENVIRONMENT AND NATURAL RESOURCES POLICY

SPP 2 (WAPC, 2003) defines the principles and considerations that represent good and responsible planning in terms of environment and natural resource issues within the framework of the *State Planning Strategy*.

The policy will be supplemented by more detailed planning policies, on particular natural resources matters that require additional information and guidance. These supplementary policies may also be state planning policies and should be implemented in conjunction with this SPP.

2.3.2 SPP 2.5 RURAL PLANNING POLICY

SPP 2.5 *Rural Planning* (WAPC, 2016) guides decision-making on rural land and for rural living purposes throughout Western Australia. SPP 2.5 is applicable within the local government area as follows:

Application (s.3.1 of SPP 2.5)		Exemption (s.3.2 of SPP 2.5)	
(a)	Land zoned for rural or agricultural purposes in a region or local planning scheme	(a)	The extraction of basic raw materials within the Perth and Peel planning regions
(b)	Land identified or proposed for rural living in an endorsed scheme or strategy	(b)	Areas subject to State Agreement Acts
(c)	Rural land uses on rural zoned land	(c)	Mining that is in accordance with the Mining Act 1978, with the exception of basic raw materials on Crown Land
(d)	Rural land uses on land that is not zoned for rural purposes	(d)	Existing approvals in retrospect, including structure plans, subdivisions and development
(e)	Land that may be impacted by rural land uses		

The predominant tenure for rural land within the Shire is in the form of pastoral leases, as defined by Part 7 of the *Land Administration Act 1997*. Pastoral leases were subject to renewals from 1 July 2015. Some exclusion areas to pastoral leases were also taken for public purposes (e.g. conservation, expansion of townsites, etc). Pastoral leases by their nature tend to have a limited scope of land uses that could be considered.

In addition, proposed legislative changes to the *Land Administration Act 1997* have been sitting in Parliament regarding rangelands lease tenure. Rangelands aim to broaden the land use that could be pursued. In turn, should Rangeland leases be introduced into legislation this opens up significant investment opportunities. This will increase the value of pastoral/rangeland leases and trigger increased investment, potentially in activities such as horticulture and tourism. This will broaden use where it is consistent with protecting the rangelands as a resource.

SPP 2.5 promotes flexibility for rural zones and a wide range of land uses that may support primary production, small-scale tourism, regional facilities, environmental protection and cultural pursuits (WAPC, 2016). Areas for irrigated agriculture have been identified through the Department of Primary Industries and Regional Development's (DPRIRD)(then Department of Agriculture and Food) Pilbara Hinterland Agricultural Development Initiative (PHADI, refer **section 9.2**). Irrigated agriculture may help diversify the economic value and crop output of the rural areas within the Shire. As such, it will be important for the rural zone to recognise these opportunities and enable land managers to be able to pursue irrigated agricultural opportunities.

The Environmental Profile (refer **Appendix A**) acknowledges that a substantial range of minerals have been identified across the Shire by the Department of Mines, Industry Regulation and Safety (then Department of Mines and Petroleum or DMP). However, no significant resources of basic raw materials are currently known to occur within the local government area (DMP, 2016). Accordingly, no areas are required to be protected under the scheme at present.

The local government landfills are likely to remain in rural areas. In accordance with SPP 2.5, new landfills would be subject to scheme amendment processes and environmental referral. The local government in discussion with the State has constructed a new waste site for Onslow. It will be important for these to be adequately planned for within the rural area with the local planning scheme to provide adequate development control, such as classifying the facilities within reserves, incorporating special control areas for their buffers, and development controls to ensure compatible land use mix.

2.3.3 SPP 2.6 STATE COASTAL PLANNING POLICY

SPP 2.6 (WAPC, 2013) provides an approach to the consideration of often competing needs and desires in coastal areas in a way that takes into account the values of the coastal zone. The policy ensures that current and future generations of Western Australians can benefit from opportunities presented by the values and resources of the Western Australian coast.

SPP 2.6 applies to the coast throughout Western Australia with the objectives to:

- *protect, conserve and enhance coastal values, particularly in areas of landscape, nature conservation, indigenous and cultural significance;*
- *provide for public foreshore areas and access to these on the coast;*
- *ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities; and*
- *ensure that the location of coastal facilities and development takes into account coastal processes including erosion, accretion, storm surge, tides, wave conditions, sea level change, and biophysical criteria.*

Guidance is provided for land use and development decision-making within the coastal zone including managing development and land use change; establishment of coastal foreshore reserves; and to protect, conserve and enhance coastal values. The policy recognises and responds to regional diversity in coastal types; requires that coastal hazard risk management and adaptation is appropriately planned for; encourages innovative approaches to managing coastal hazard risk; and provides for public ownership of coastal foreshore reserves.

SPP 2.6 outlines the requirements in terms of the application of coastal foreshore reserves and development setbacks for physical processes. Coastal setbacks refer to the distance required between development and specific coastal features to provide for the protection of both physical and ecological factors. The policy provides a number of variations to the standard case, where development may need to occur within an area identified to be potentially impacted by physical processes within the 100-year planning timeframe. Clause 7.4 of the SPP 2.6 identifies Industrial and Commercial development (e.g. marinas, recreational boating facilities and port facilities) as examples of variations. Clause 7.4 notes the following:

Industrial and commercial development that is demonstrably dependent on a foreshore location. Such development may include, for example, marinas for tourism and recreational boating facilities, cage based aquaculture operations, and port facilities.

Developments that may be considered as variations under clause 7.4 include:

- Port of Ashburton;
- Onslow Salt wharf and associated development;
- A future wharf coastal-dependent work(s) for the Ashburton Salt project (dependent on the project going ahead);
- Port of Onslow / Beadon Creek Boat Harbour;
- Other tourism facilities, recreational boating facilities (including boat launching ramps); and
- Existing / future aquaculture operations.

Coastal Hazard Risk Management and Adaptation Planning (CHRMAP)

SPP 2.6 outlines a hierarchy of risk adaptation and mitigation options, generally as Avoid, Retreat, Accommodation and Protect. The *Coastal Hazard Risk Management and Adaptation Planning Guidelines* (CHRMAP Guidelines) expand upon section 4 the *State Coastal Planning Policy Guidelines* (WAPC, 2012) and provide an overview and explanation of:

- The process of undertaking CHRMAP;
- Determining appropriate content for CHRMAP; and
- Assessing options for appropriate management and adaptation to risk.

The best-practice processes adopted in the CHRMAP Guidelines has been followed in the preparation of a CHRMAP for Onslow (Cardno, 2017).

Coastal Processes

Along other parts of the coastline where protection is not afforded by the existing seawall, erosion can be expected (MP Rogers & Associates, 2011). Table 2.2 of the MP Rogers report identifies recommended severe storm allowances to account for this modelled erosion. Table 5.1 of the MP Rogers report identified total recommended setbacks from the coastline; although the seawall provided notable protection for the existing townsite.

The report indicates the seawall is not expected to fail based on simulated beach erosion models (MP Rogers & Associates, 2011). However, it is not designed for the modelled 100-year ARI event and may experience damage during storms or cyclone activity.

Finished Floor Levels for development within town should have regard to the recommendations of the report, which have been generated through calculations for the 100-year water level, allowance for climate change (100-year planning horizon), and contingency factor for safety (MP Rogers & Associates, 2011). Recommended Finished Floor Levels are identified for 'Residential or Non-Emergency Response Infrastructure', 'Critical or Emergency Response Infrastructure', with lesser weight given to lower value infrastructure or land uses.

The Strategy advocates for development in Onslow to have due regard to physical coastal processes and recommended Finished Floor Levels. Scheme Amendment 24 to LPS 7 inserted scheme provisions including recommended Finished Floor Levels for various types of development. These may be required to be reviewed in the context of the studies that have been undertaken by MP Rogers & Associates (2011) and Cardno (2017).

2.3.4 SPP 2.7 PUBLIC DRINKING WATER SOURCE POLICY

SPP 2.7 (WAPC, 2003) applies to proclaimed Public Drinking Water Source Areas (PDWSAs) throughout Western Australia. The objective of this policy is to ensure that land use and development within PDWSAs is compatible with the protection and long-term management of water resources for public water supply. The proclaimed PDWSAs within the Shire of Ashburton are tabled in **section 14.3.1** and discussed in the Environmental Profile (refer **Appendix A**).

The policy specifies that all priority (P1, P2, and P3) source protection areas should be shown as special control areas in region schemes and local planning schemes. This will be in accordance with the recommendations of any relevant land use, water management strategy, or water source protection plan. In the absence of a region scheme the Local Planning Strategy can identify all priority source protection areas. In this instance, the priority source protection areas are outlined on **Plan 1 Shire Wide Strategy Plan**.

Furthermore, land uses and developments in all priority source protection areas that have the potential to impact detrimentally on the quality and quantity of public drinking water supplies should not be permitted. Land use and development may be favourably considered where it can be demonstrated, having regard to advice from the Department of Water and Environmental Regulation, that such impacts can be satisfactorily managed.

The local planning scheme and local government decisions on land use and development should have regard for any adopted policy or relevant environmental protection policy on public drinking water supply.

2.3.5 SPP 2.9 WATER RESOURCES

SPP 2.9 (WAPC, 2006) pledges Western Australia to pursuing sustainability through an integration of environmental protection, social advancement and economic prosperity. This vision is encapsulated in *A State Water Strategy for Western Australia* (Government of WA, 2003), which seeks to develop and protect water resources in an economically and environmentally responsible way by providing a whole government framework for setting strategies and plans for water resources.

This policy provides clarification and additional guidance to planning decision-makers for consideration of water resources in land use planning strategies, proposals and applications.

The objectives of SPP 2.9 are to:

- *protect, conserve and enhance water resources that are identified as having significant economic, social, cultural and/or environmental values;*
- *assist in ensuring the availability of suitable water resources to maintain essential requirements for human and all other biological life with attention to maintaining or improving the quality and quantity of water resources; and*
- *promote and assist in the management and sustainable use of water resources.*

Water issues are outlined further in **section 14.3** and in the Environmental Profile (refer **Appendix A**). The Strategy promotes the objectives of SPP 2.9, given the vital need of water availability, quality and efficiency within the Pilbara for ecological, mining, industrial and domestic potable purposes.

2.3.6 SPP 3 URBAN GROWTH AND SETTLEMENT

SPP 3 (WAPC, 2006) sets out the principles and considerations that apply to planning for urban growth and settlement.

The objectives of this policy are:

- *To promote a sustainable and well planned pattern of settlement across the State, with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.*
- *To build on existing communities with established local and regional economies, concentrate investment in the improvement of services and infrastructure and enhance the quality of life in those communities.*
- *To manage the growth and development of urban areas in response to the social and economic needs of the community and in recognition of relevant climatic, environmental, heritage and community values and constraints.*
- *To promote the development of a sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community.*
- *To coordinate new development with the efficient, economic and timely provision of infrastructure and services.*

The policy sets out principles and considerations which apply to planning for urban growth and settlements and of these, five of the seven policy measures can be considered to be applicable:

- Creating sustainable communities;
- Managing urban growth and settlement across Western Australia;
- Planning for liveable neighbourhoods;
- Coordination of services and infrastructure; and
- Planning for Aboriginal communities.

2.3.7 SPP 3.1 RESIDENTIAL DESIGN CODES

The R-Codes (WAPC, 2015) set out residential development requirements to provide for a range of housing types and densities; local neighbourhood character; amenity; conservation of heritage values; and environmentally sensitive design. They must be given regard when assessing and determining development applications. Local variations can be approved subject to clear justification.

The LPS 7 superimposes residential density codes on land zoned 'Residential'. Where no coding applies in the 'Residential' zone, the default density is 'R20'. The following **Table 2** indicates the typical density codes within Onslow, Tom Price and Paraburadoo.

Table 2 Typical Residential Density Codes

Townsite	Typical Residential Density Coding	Townsite	Typical Residential Density Coding	Townsite	Typical Residential Density Coding
Onslow	R12.5 (Bindi Bindi)	Tom Price	R20	Paraburadoo	R20
	R20		R30		R30
	R12.5/30		R50		R50

Within Onslow, the split coding of R12.5/30 applies to existing and future development areas. The higher density of R30 is applied when connection to reticulated sewerage is available. Also within Onslow, LPS 7 may permit residential development in the following circumstances:

ONSLow		
Residential zone Density code	Development potential, where sewerage and water is available	Conditions
R20	Two grouped dwellings on a vacant lot comprising not less than 875m ² with a minimum site area of 435m ² per grouped dwelling	Formal advertising Reduced setbacks to reflect R30 code
	Grouped dwellings at a maximum density of R30 on a vacant lot greater than 1,500m ²	Consideration of likely impacts of development on area provisions (Part 7 of LPS 7), any relevant local planning policy, and amenity of immediate locality
Other zones	Density code	Conditions
Commercial and Civic Tourism	R50	For land within Onslow Hazard Special Control Area, residential development shall not exceed R30
Industrial	N/A	One caretaker's dwelling (1 bedroom with a total floor area 80m ²) permitted on a lot

Within Tom Price and Paraburadoo, and where sewerage and water is available, LPS 7 may permit the development of grouped dwellings in the following circumstances:

TOM PRICE and PARABURDOO		
Density code	Development potential	Conditions
R20 or greater	Two grouped dwellings on a lot comprising not less than 874m ² with a minimum site area of 437m ² per grouped dwelling	Formal advertising
R20	Grouped dwellings at a maximum density of R30 on a lot greater than 1,500m ²	Formal advertising Consideration of likely impacts of development on area provisions (Part 7 of LPS 7), any relevant local planning policy, and amenity of immediate locality
R30	Grouped dwellings at a maximum density of R40 on a lot greater than 1,500m ²	Consideration of likely impacts of development on area provisions (Part 7 of LPS 7), any relevant local planning policy, and amenity of immediate locality

Within the local government area, workforce accommodation (whether intended as permanent or temporary structures), is regarded as residential development and is subject to the R-Codes. For workforce accommodation proposed in areas not zoned 'Residential', the R-Codes requirements may be varied with justification. Generally, a signed agreement may be required to detail the rehabilitation and conversion of workforce accommodation, and the timeframes.

2.3.8 SPP 3.2 ABORIGINAL SETTLEMENTS

SPP 3.2 (WAPC, 2011) sets out a process for ensuring the planning needs of large permanent Aboriginal communities are accommodated through the preparation and approval of layout plans, and that they are appropriately zoned in local planning schemes. The SPP 3.2 only applies to Aboriginal Settlements, intended to be wholly or principally inhabited by persons of Aboriginal descent. The SPP 3.2 requires a minimum of 5 houses connected to essential services provided by one or more state agency(s). The number of settlements and known reserves are contained in **Table 3**.

Under the *Planning and Development (Local Planning Schemes) Regulations 2015*, a 'Settlement' zone can apply to existing and proposed Aboriginal settlements. The zone would require preparation and endorsement of a layout plan in accordance with SPP 3.2, and ensure that development accords with the layout plan. The Department of Planning, Lands and Heritage is responsible for the orderly and proper development of these Aboriginal settlements, through the preparation of layout plans. Three Aboriginal Communities that are consistent with SPP 3.2 exist within the Shire, of these only Wakathuni has an endorsed layout plan.

A project is being undertaken for Pilbara Town Based Reserves, expected to be completed by mid-2017 (PDC, 2016). The project will deliver individual plans for each of the eight town based reserves across the region. This may result in extending services and responsibility to residents in their current homes, or it may result in the State Government supporting residents to relocate (PDC, 2016). Any plans developed for town based reserves (such as Bindi Bindi) within the Shire of Ashburton could be considered for adoption by Council under the local planning scheme as local planning policies.

Table 3 Aboriginal Settlements within the Local Government Area (Source: Shire of Ashburton)

Community / Settlement Name	No. of Dwellings	Essential Service Provider/s	Existing Endorsed Layout Plan	Tenure
Bellary Springs (Innawonga)	9	Meta Mala (Department of Communities)	No	Rocklea Pastoral Lease
Wakathuni	26	Meta Mala (Department of Communities)	Yes – November 2012	Leasehold
Youngaleena Bunjima	7	Remote Areas Service Provider	No	Crown Lease
Ngurrawaana	11	Meta Mala (Department of Communities)	No	

2.3.8.1 LAYOUT PLANS

The Department of Planning, Lands and Heritage previously considered that, based on the criteria in SPP 3.2, the following are considered to be an Aboriginal Settlement:

- Wakathuni;
- Youngaleena Bunjima;
- Bellary Springs (Innawonga); and
- Ngurrawaana.

Wakathuni has an existing endorsed Layout Plan. There have been no 'Endorsed' or 'Ratified' layout plans for Youngaleena Bunjima, Ngurrawaana and Bellary Springs (Innawonga). Various plans may have been in circulation or utilised over time, however, these plans have no authority and have not been endorsed by the WAPC.

Wakathuni

Wakathuni falls within a Crown Reserve leased to the Wakathuni Aboriginal Corporation. The lease covers an area of 1,662.532 hectares.

The Wakathuni Layout Plan (Hames Sharley, 2000) aims to coordinate the delivery of municipal services by those responsible for the provision and maintenance of services and infrastructure. Wakathuni Layout Plan 1 was endorsed by the WAPC on 2 October 2001. Amendment 7 to Wakathuni Layout Plan 1 was endorsed by the WAPC on 29 August 2017 (refer **Figure 4**). All endorsed Layout Plans can be found here for reference - <https://www.dplh.wa.gov.au/information-and-services/layout-plans>.

The Layout Plan is the primary document guiding development within the community. The Layout Plan allows the Shire to better program its provision of municipal services to meet the future needs of the community.

Community social infrastructure is limited to the clinic located by the office, providing childcare facilities and assistance to women. A community meeting place is near the office (Hames Sharley, 2000). At the centre of the loop road is an area set aside for sporting and recreation facilities, with a football oval and playground equipment.



Figure 4 Wakathuni Layout Plan 1 (WAPC 2017)

Ngurrawaana

Ngurrawaana is a medium-sized Aboriginal community and is situated within the Yindjibarndi country. The community is located within the Determined Ngarluma/Yindjibarndi (WAD6017/1996) native title claim area¹.

Bellary Springs (Innawonga)

Bellary Springs (Innawonga) is located on Paraburdoo – Tom Price Road, between Paraburdoo and Tom Price. The community is located within the Determined Yinhawangka (WAD340/2010) native title claim area.

Youngaleena Bunjima

Youngaleena Bunjima is located on Nanutarra Munjina Rd, between Tom Price and Auski Roadhouse. The community is located within the Determined Banjima (WAD6096/1998) native title claim area.

Not Considered Aboriginal Settlements

The following are not considered to be Aboriginal Settlements by the Department of Planning, Lands and Heritage. Layout Plans will not be prepared for these places and a 'Settlement' zone under the scheme would not be applicable:

- Wirrlu Murra;
- Bindi Bindi;
- Jundaru (Peedamulla Station);
- Yalathala; and
- Westside.

2.3.9 SPP 3.4 NATURAL HAZARDS AND DISASTERS

SPP 3.4 (WAPC, 2006) addresses planning for natural disasters and minimising the adverse impacts of natural disasters on communities, the economy and the environment.

The objectives of this policy are to:

- *include planning for natural disasters as a fundamental element in the preparation of all statutory and non-statutory planning documents, specifically local planning schemes and amendments, and local planning strategies; and*
- *through the use of these planning instruments, to minimise the adverse impacts of natural disasters on communities, the economy and the environment.*

Planning instruments are to take into account natural elements (climate, soils, hydrology etc) that may create hazards, as well as:

- the built environment;
- community awareness;
- historical events; and
- the potential for long-term changes to risk such as climate and land use change.

¹ <http://broom02.revolv.com/main/index.php?s=Ngurrawaana%20Community>

By way of example, LPS 7 requires a fully enclosed store room for every dwelling to store domestic outdoor items during cyclone events. These may form part of a dwelling or a permanent outbuilding.

Another example is land zoned 'Residential', which could be potentially contaminated, shall not be approved until possible soil and groundwater contamination is resolved.

2.3.10 SPP 3.5 HISTORIC HERITAGE CONSERVATION

SPP 3.5 (WAPC, 2007) sets out the principles of sound and responsible planning for the conservation and protection of Western Australian historic heritage.

A number of national, state and local heritage sites are within the local government area. As outlined in the Environmental Profile (refer **Appendix A**), the Shire's role in heritage is to identify significant sites within the local planning scheme. The local planning scheme can designate heritage areas (and local planning policies) and establish a heritage list (such as the Municipal Heritage Inventory). Heritage is a consideration for assessing and determining development applications.

Decision-making should be consistent with the *Heritage of Western Australia Act 1990* and *Aboriginal Heritage Act 1972*. The *Aboriginal Heritage (Marandoo) Act 1992* clarifies that the *Aboriginal Heritage Act 1972* does not apply to land described in Part 1 of Schedule 1, Part 1 of Schedule 2, or Part 1 of Schedule 3, or to any object situated on or under any of that land.

2.3.11 SPP 3.7 PLANNING IN BUSHFIRE PRONE AREAS

This policy (WAPC, 2015) seeks to guide the implementation of effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure.

It applies to all higher order strategic planning documents, strategic planning proposals, subdivision and development applications located in designated bushfire prone areas (unless exemptions apply). SPP 3.7 also applies where an area is not yet designated as bushfire prone but the proposed development is planned in a way that introduces a bushfire hazard (e.g. revegetation).

The spatial extent of Bushfire Prone Areas have been identified for the townsites on the Issues and Opportunities Plans in **section 15** (refer **Figure 53**, **Figure 54** and **Figure 55**).

In accordance with SPP 3.7 and the *Guidelines for Planning in Bushfire Prone Areas* (WAPC, 2017), the Local Planning Strategy addresses bushfire risk in a focused manner. A Bushfire Hazard Level assessment (GHD, 2017) was undertaken for all investigation and infill areas identified within the towns of Tom Price, Paraburdoo and Onslow to consider how bushfire risk may influence future development. The Bushfire Hazard Level assessment is contained in **Appendix C**.

The towns are influenced by a moderate bushfire hazard level. Whilst pockets of extreme hazard level were modelled and mapped within Tom Price, the small size and spatial extent of these areas makes it unlikely they would present an extreme hazard in reality. Subject to design and having regard to the *Guidelines* (WAPC, 2017), these areas can be developed. These areas would need to consider appropriate services and vehicular access, and site design to meet policy requirements.

Some clearing of land would be required for areas identified for urban expansion. No biodiversity issues have been identified that would preclude clearing land for urban expansion, thereby this would remove much of the bushfire hazard in these locations.

It is noted that the Shire has a separate emergency management plan in place, that considers and plans for necessary actions and investment to manage the risk of bushfire to its community, including strategic emergency evacuation plans. Other management responses may also be required. Dust generated from bushfires should be monitored and management responses developed to inform the public regarding health risks during bushfire events. Management of fuel loads without exceeding threshold air quality standards should also be considered through the development of an Air Quality Management Plan, and a program of regular fuel reduction which minimises air quality impacts on townsites and sensitive environments, on advice from the Bushfire and Natural Hazards Cooperative Research Centre.

2.3.12 SPP 4.1 INDUSTRIAL INTERFACE (DRAFT)

Draft SPP 4.1 (WAPC, 2017) seeks to ensure buffers around industry and infrastructure are appropriately identified and secured from inappropriate land uses, and the safety and amenity of surrounding land uses is addressed. The objectives of the draft amended policy are to:

- *Protect existing and proposed industry, and infrastructure facilities from encroachment by incompatible land uses that would adversely affect efficient operations;*
- *Avoid land use conflict between existing and proposed industry/infrastructure facilities and sensitive land uses; and*
- *Promote compatible land uses in areas impacted by existing and proposed industry and infrastructure facilities.*

Buffer areas should be designated for existing and proposed Strategic Industrial Areas; infrastructure facilities of State significance which generate off-site impacts; individual industrial sites/facilities of State significance which generate off-site impacts; and as determined by the Minister for Planning on advice from the Western Australian Planning Commission. These will be applied consistent with SPP 4.1 and relevant EPA buffer guidance statements.

Buffers are shown on the Scheme Maps for the Waste Water Treatment Plants. Wittenoom is also subject to a special control area that prohibits development to minimise health impacts and risks of exposure related to the asbestos contamination in the area.

A potential buffer issue is identified for Beadon Creek Boat Harbour, where there is land available for future industrial development that is associated with the marina and planned for through the *Land Use Framework* (refer **section 8.4.1.1**). However, there are practical difficulties of new industrial development which would have to address emissions and manage risk in relation to the existing tourism development that is in the vicinity of the working harbour. Other land along Beadon Creek Road has been considered for tourism, although this land is not considered to be the highest valued land for such activity/use.

Other buffers may be required for high-pressure gas pipelines. The DC Policy (refer **section 14.2**) provides generic setbacks for development to pipelines.

Buffers have informed the boundaries of the ANSIA Improvement Scheme No. 1. Buffer distances have been considered and investigated in relation to the Onslow Salt operations. Where buffer distances are satisfied, this is considered to comply with the policy's objectives.

The Shire has modelled buffers for the waste facilities outside Onslow, Tom Price and Paraburdoo. These are relatively distant from townsite expansion areas, however should be given due consideration if sensitive land uses are proposed in proximity.

2.3.13 SPP 5.2 TELECOMMUNICATIONS INFRASTRUCTURE

SPP 5.2 (WAPC, 2015) establishes a framework for preparation, assessment and determination of applications for telecommunications facilities to facilitate an effective state-wide telecommunications network.

This SPP is generally well understood and applied by local governments and strategically does not add significant complications to the planning of the local government. Due regard will be given to the SPP during the review of the local planning scheme, structure plans, and development applications for telecommunications infrastructure.

It is noted that within the Shire there is limited telecommunication coverage. Mobile phone coverage is predominately around the main towns (Onslow, Tom Price, Paraburdo, and Pannawonica) with some limited coverage on the highways, at Chevron's operations on Barrow Island, and sparsely around Karijini National Park. Over time, coverage could expand along major transport routes and around major developments.

2.3.14 SPP 5.4 ROAD AND RAIL NOISE

In September 2019, SPP 5.4 *Road and Rail Noise* become operational. SPP5.4 seeks to minimise the impact of road and rail noise on noise-sensitive land uses/development. It also seeks to protect the functionality of major transport corridors and infrastructure from encroachment of incompatible uses.

The objectives of the Policy are to:

- *Protect the community from unreasonable levels of transport noise;*
- *Protect strategic and other significant freight transport corridors from incompatible urban encroachment;*
- *Ensure transport infrastructure and land-use can mutually exist within urban corridors;*
- *Ensure that noise impacts are addressed as early as possible in the planning process; and*
- *Encourage best practice noise mitigation design and construction standards.*

SPP 5.4 applies to primary roads, secondary roads and railways for passenger or freight rail. Of relevance to the Shire of Ashburton, the following roads in **Table 4** are identified in Appendix 9 of the *Implementation Guidelines*. The Policy also applies to the freight railways within the Shire.

Table 4 SPP5.4 Classified Roads in Shire of Ashburton (WAPC, 2017)

Road Name	Classification	Start Point/Intersection	End Point/Intersection
Onslow Road	Primary Road	McAullay Road	North West Coastal Highway
McAullay Road	Primary Road	Onslow Road	Beadon Creek Road
Pannawonica Road	Regional Freight Road	North West Coastal Highway	Deepdale Road
North West Coastal Highway	Regional Freight Road	<i>Extends through and beyond the local government boundary</i>	
Great Northern Highway	Regional Freight Road	<i>Extends through and beyond the local government boundary</i>	
Nanutarra Road	Primary Road	North West Coastal Highway	Munjina Road
Paraburdo Road	Primary Road	Nanutarra Road	Beasley Road
Beasley Road	Primary Road	Paraburdo Road	Mine Road
Mine Road	Primary Road	Rocklea Road	Beasley Road
Rocklea Road	Primary Road	Tom Price Paraburdo Road	Mine Road
Bingarn Road	Primary Road	Nanutarra Road	Mine Road
Mine Road	Primary Road	Bingarn Road	Tom Price Paraburdo Road
Tom Price Paraburdo Road	Regional Freight Road	Mine Road	Rocklea Road
Warlu Road	Proposed Primary Road	North West Coastal Highway, City of Karratha	Roebourne Wittenoom Road

Road Name	Classification	Start Point/Intersection	End Point/Intersection
Roebourne Wittenoom Road	Proposed Primary Road	Warlu Road	Rio Tinto Rail Access Road
Rio Tinto Rail Access Road	Proposed Primary Road	Roebourne Wittenoom Road	Nanutarra Road / Bingarn Road intersection
Munjina Road	Primary Road	Nanutarra Road	Great Northern Highway
Karijini Drive	Regional Freight Road	Tom Price Paraburdoo Road	Great Northern Highway

The policy (WAPC, 2017) emphasises the application of the precautionary principle of avoidance where there is risk of future land use conflict. In most circumstances, the identified roads and railways are predominately not close to noise sensitive land uses. It becomes more relevant where the identified roads intersect or pass through the towns or adjacent to campsites, Aboriginal settlements or communities. In these instances, the trigger distances are 300 metres for primary roads, regional freight roads, and freight railways (WAPC, 2017). The *Implementation Guidelines* contain model special control area provisions for local planning schemes, to apply to applicable roads and railways.

Noise should be considered at the earliest possible stages of the planning process and not defer its resolution or management to subdivision or development assessment stage. This should include due regard to the policy measures that seek to apply noise criteria in order to demonstrate mitigation against the noise impacts.

2.3.15 SPP 7 DESIGN OF THE BUILT ENVIRONMENT

On 24 May 2019, SPP 7 *Design of the Built Environment* become operational. The policy sets out the principles, processes and considerations which apply to the design of the built environment across Western Australia. It provides an overarching framework for the State Planning Policies that deal with design related issues.

SPP 7 is intended to guide and complement other state planning policies, and apply to the design, review and assessment of activity centre plans, structure plans, local development plans, subdivision, residential development, institutional development and public works.

SPP 7 establishes 10 design principles that have been considered to be relevant to the urban design and character of the Shire (refer **section 12.1**). SPP 7 will have relevance to the Shire's consideration and determination of development applications.

2.3.15.1 LIVEABLE NEIGHBOURHOODS

Liveable Neighbourhoods is an operational policy that falls under the framework of SPP 7. *Liveable Neighbourhoods* is implemented for the purposes of the design and assessment of structure plans and subdivision for new urban areas in the metropolitan area and country centres. *Liveable Neighbourhoods* is applied in the design and approval of urban development, structure planning and subdivision for greenfield sites and for the redevelopment of large brownfield and urban infill sites. New residential development would have regard to *Liveable Neighbourhoods*.

2.4 OPERATIONAL POLICIES

2.4.1 DEVELOPMENT CONTROL POLICIES

The WAPC has adopted a range of operational Development Control (DC) Policies to guide its decision making on subdivision and development applications. These policies apply when the Shire and the WAPC consider applications for subdivision or development:

- DC 1.1 Subdivision of Land - General Principles (2020)

- DC 1.2 Development Control - General Principles (draft 2018)
- DC 1.3 Strata Titles (2009)
- DC 1.5 Bicycle Planning (1998)
- DC 1.7 General Road Planning (draft 2018)
- DC 2.2 Residential Subdivision (2017)
- DC 2.3 Public Open Space in Residential Areas (2002)
- DC 2.4 School Sites (1998)
- DC 2.6 Residential Road Planning (1998)
- DC 3.4 Subdivision of Rural Land (2016)
- DC 4.1 Industrial Subdivision (1988)
- DC 4.2 Planning for Hazards and Safety (1991)
- DC 4.3 Planning for High-Pressure Gas Pipelines (draft 2016) (also refer **section 14.2**)
- DC 5.1 Regional Roads (Vehicular Access) (draft 2018).

2.5 IMPLICATIONS FOR STATE AND REGIONAL PLANNING CONTEXT AND KEY ISSUES FOR LOCAL PLANNING STRATEGY

The following **Table 5** considers the implications, issues and opportunities from a state and regional planning context and summarises the key issues to be addressed in the Local Planning Strategy as it relates to the State and Regional planning context.

Table 5 Implications, Issues and Opportunities – State and Regional Planning Context

State and Regional Planning Context	Implications	Issues	Opportunities
State Planning Strategy	Six inter-related principles of community, economy, environment, infrastructure, regional development and governance	<p>Balancing natural resource and landscape values with industrial pursuits (mining, energy, ecotourism, pastoralism).</p> <p>Ensuring sustainable development is supported by infrastructure and service investment.</p> <p>Recognising the valuable contributions of Aboriginal culture within the Pilbara region.</p>	<p>Maintaining the region's significant contribution to Australia's GDP.</p> <p>Advocating State government investment into strengthening resilience in the Pilbara Region through attracting and retaining people and businesses.</p> <p>Embracing and celebrating Aboriginal culture to instil a strong sense of place, belonging and community spirit.</p> <p>Native Title information being recognised and reflected in the Local Planning Strategy plans.</p>
Pilbara Cities	Vision to build Karratha and Port Hedland as 'Pilbara Cities' supported by other towns.	Requires public and private investment in amenity and liveability in towns.	Drive investment into towns through the Royalties for Regions programme.
Pilbara Regional Investment Blueprint	A plan for investment, economic transformational opportunities, priority actions and investment opportunities.	<p>Ensuring a prosperous and secure future for the Pilbara region.</p> <p>Recognising opportunities to diversify the economy.</p> <p>Recognising mining and energy sectors will dominate for decades to come.</p>	<p>Planning for anticipated population growth with an emphasis and focus on the three main settlements of Onslow, Tom Price and Paraburdoo, and recognised Aboriginal Settlements.</p> <p>Ensuring the land use planning framework within the Shire is able to readily respond to changes in the economy that can rapidly affect the growth, stabilisation and decline in population numbers within the towns as well as remote communities and camps.</p> <p>Target investment for retaining permanent residents in towns and settlements.</p> <p>Link the transformational opportunities in the Blueprint with aims and goals within the Local Planning Strategy.</p>
Pilbara Planning and Infrastructure Framework	Regional framework for identifying land, sites and corridors for major industries.	Have regard to the Framework in the preparation of local planning strategies and schemes.	Update the infrastructure priorities within the Shire of Ashburton to ensure population forecasts are supported by appropriate infrastructure and services.
SPP 2 Environment and Natural Resources Policy	Defines principles and considerations that represent good and responsible planning in terms of environment and natural resource issues.	<p>Integrate environment and natural resource management with broader land use planning and decision-making.</p> <p>Protect, conserve and enhance the natural environment.</p> <p>Promote and assist in the wise and sustainable use and management of natural resources.</p>	<p>Improve and promote best-practice natural resource management at a local government level.</p> <p>Areas for focus include: weed management, soil stabilisation and dust, groundwater, extraction of basic raw materials, illegal dumping, protecting wetlands and water courses.</p>

State and Regional Planning Context	Implications	Issues	Opportunities
SPP 2.5 Rural Planning	Guides decision-making on rural land and for rural living purposes.	<p>Identify areas for rural or agricultural purposes.</p> <p>Recognise significant basic raw materials.</p> <p>Appropriately identify waste facilities in rural areas within local planning schemes.</p> <p>Manage and improve environmental and landscape attributes.</p>	<p>Promote flexibility within 'Rural' zoning to cater for a wide range of land uses that may support primary production, small-scale tourism, regional facilities, environmental protection and cultural pursuits.</p> <p>Promote landscape protection and ecological biodiversity within rural areas.</p>
SPP 2.6 State Coastal Planning Policy	Guidance for the coastal zone including managing development and land use change; establishment of coastal foreshore reserves; and to protect, conserve and enhance coastal values.	<p>Development setbacks for coastal processes.</p> <p>Risks to people and property from storm surge and severe storm inundation.</p> <p>Consideration of sea level rise, vertical allowances and setback distances will be required when managing existing infrastructure and planning future development, as per IPCC and CSIRO modelling and coastal vulnerability studies. Ensure that any substantial future development is supported by a current storm surge and flood inundation study consistent with the most current predictions for sea level rise and coastal processes, consistent with SPP 2.6.</p>	<p>Recognising development as variations to clause 7.4 of SPP 2.6: industrial and commercial development that is demonstrably dependent on a foreshore location.</p> <p>Planning for coastal processes and future risk management and adaptation, particularly within Onslow, which has several areas affected by future predicted sea level rise and storm surge.</p> <p>The CHRMAP and available report (MP Rogers & Associates, 2011) regarding coastal processes and inundation for the Onslow Townsite, to be recognised and addressed in the Local Planning Strategy and future Scheme Review.</p>
SPP 2.7 Public Drinking Water Source Policy	Ensure land and development is compatible with the long-term protection and management of water resources.	<p>There are a number of important water sources which provide water for public supply within the region. Priority source protection areas to be identified in local planning strategies.</p> <p>Land use and development to consider management of priority source protection areas.</p> <p>Planning decision-making should be consistent with the Department of Water and Environmental Regulation's <i>Water Quality Protection Note: Land Use Compatibility within Public Drinking Water Source Areas</i> (2016) in the vicinity of any drinking water borefields, including the requirements for well-head protection zones.</p> <p>Although allocation currently remains in some aquifers and investigations into available groundwater supplies are continuing, declining rainfall in coastal areas may result in reduced recharge and consequently availability in these areas in the future, particularly as population and industry expands.</p>	<p>Identify priority source protection areas in local planning schemes. Adopt scheme provisions for protection of public drinking water source areas.</p> <p>Consideration should be given to the reservation and/or use of a special control area to improve the level of protection of public drinking water sources in future, particularly in relation to Bungaroo Creek water reserve.</p>

State and Regional Planning Context	Implications	Issues	Opportunities
		<p>Dewatering/over-abstraction has also impacted local groundwater levels, potentially affecting groundwater-dependent pool ecosystems and wetlands through drying up and loss of habitat. This in turn can impact wildlife and cultural and social values. This is especially critical given the presence of nationally important wetlands in the Shire.</p>	
<p>SPP 2.9 Water Resources</p>	<p>Develop and protect water resources in an economically and environmentally responsible way.</p>	<p>Promote the management and sustainable use of water resources.</p> <p>Maintaining or improving the quality and quantity of water resources.</p> <p>It is recognised that the Shire is a Waterwise Council, and it should continue to investigate and expand water efficiency opportunities, such as irrigation of public open space and sports ovals where practical.</p> <p>Due to increasing demand for water associated with residential growth and industrial expansion, it is considered that water recycling and reuse to provide fit-for-purpose sources of water should continue to be investigated in Onslow and other townsites where practical, as an alternative to groundwater use. This will require cooperation with the Water Corporation and Rio Tinto.</p> <p>Landfill sites are a potential source of pollutants to ground and surface waters. These land uses, and others with the potential to pollute ground and surface waters must be carefully located, designed, managed and monitored to avoid impacts.</p>	<p>Promote the objectives of SPP 2.9 in considering water availability, water quality and water efficiency for ecological, mining, industrial and domestic potable purposes.</p> <p>Townships and communities associated with waterways in the Shire may be subject to risk of flooding. Any proposed development should be consistent with SPP 2.9, and in Onslow, consistent with the <i>Local Water Management Strategy</i>, and address flood risk appropriately.</p> <p>Adequately manage the risk of flooding, and consequences particularly associated with sediment transport management, in townsites and industrial areas through application of SPP 2.9. The Shire may also need to review existing townsite drainage systems and ensure appropriate levels of service will be maintained as development occurs (such as at Onslow Airport).</p>
<p>SPP 3 Urban Growth and Settlement</p>	<p>Sets out the principles and considerations that apply planning urban growth and settlement.</p>	<p>Manage urban growth and settlement, planning for liveable neighbourhoods.</p> <p>Coordination of services and infrastructure.</p> <p>Planning for Aboriginal communities.</p>	<p>Planning for well-located and serviced town centres that provide the needs of the community.</p> <p>Planning for managed urban expansion of towns having regard to population forecasts.</p> <p>Planning for and coordinating appropriate servicing and delivery of infrastructure.</p> <p>Advocate the preparation of Layout Plans for the Shire's Aboriginal settlements.</p>

State and Regional Planning Context	Implications	Issues	Opportunities
SPP 3.1 Residential Design Codes	Residential development requirements for a range of housing types and densities, character and amenity, conservation of heritage values, environmentally sensitive design.	Application of appropriate residential densities to address projected housing demand. Justification for local variations to the R-Codes.	Planning for residential development that has due regard to the local climate, natural hazards, and local community expectations for housing typologies. Outline local variations through scheme provisions or local planning policy. Consider the impact of workforce accommodation within towns, with a focus on development integrating with neighbourhood character and amenity.
SPP 3.2 Aboriginal Settlements	Sets out a process for ensuring the planning needs of large permanent Aboriginal communities are accommodated through the preparation and approval of layout plans, and that they are appropriately zoned in local planning schemes.	Prepare Layout Plans for Aboriginal Settlements – Ngurrawaana, Bellary Springs (Innawonga), and Youngaleena Bunjima.	Recognise the Wakathuni Layout Plan as the primary document guiding development within the community. Advocate preparation of Layout Plans for all Aboriginal settlements. Coordinate services and infrastructure to Aboriginal settlements.
SPP 3.4 Natural Hazards and Disasters	Planning for natural disasters as a fundamental element in the preparation of all statutory and non-statutory planning documents.	Take into account natural elements (climate, soils, hydrology etc) that may create hazards. Consider long-term changes to risk such as climate change and land use change.	Incorporate hazard mitigation and other measures into the local planning scheme. Such matters may relate to cyclone events, contaminated sites, floodplains, bush fire, industrial risks. Guidance should be sought from environmental agencies with regards to appropriate separation distances to manage noise and dust for new industrial areas. Odour from industries and waste water treatment plants should be considered as part the location of any new development.
SPP 3.5 Historic Heritage Conservation	Sets out the principles of sound and responsible planning for the conservation and protection of Western Australian historic heritage.	A number of national, state and local heritage sites are within the local government area. Heritage is a consideration for assessing and determining development applications.	Identify significant sites within the local planning scheme through the Municipal Heritage Inventory.
SPP 3.7 Planning in Bushfire Prone Areas	Guides the implementation of effective risk-based land use planning and development.	Majority of the Shire of Ashburton is within a bushfire prone area. The majority of the Shire is identified as being Bush Fire Prone. Future planning and development within Bush Fire Prone areas will need to meet the requirements of SPP 3.7 and the <i>Guidelines for Planning in Bushfire Prone Areas</i> (WAPC, 2015).	Consideration for bushfire risk based planning in bushfire prone areas. Consideration also should be given to the location of firebreaks in semi-rural areas around townsites and emergency management including access routes.
SPP 4.1 Industrial Interface (draft)	Ensure buffers around industry and infrastructure are appropriately identified and secured from inappropriate land	Buffer areas for all industrial categories; major infrastructure; waste water treatment plants and power generation facilities.	Planning for future industrial development and provision of appropriate buffers to existing and new industries.

State and Regional Planning Context	Implications	Issues	Opportunities
	uses, and the safety and amenity of surrounding land uses is addressed.		Buffers shown as special control areas on the Scheme Maps.
SPP 5.2 Telecommunications Infrastructure	Facilitate an effective state-wide telecommunications network.	Due regard to SPP 5.2 during the preparation of the local planning strategy. Limited telecommunications coverage across the Shire.	Advocate expansion of telecommunications coverage beyond towns and some sections of highways. Planning for appropriate servicing and delivery of infrastructure, including telecommunications.
SPP 5.4 Road and Rail Noise	Protect people from unreasonable levels of transport noise.	Use assessment criteria in the SPP 5.4 and Guidelines.	Protect major transport corridors and infrastructure from encroachment of incompatible uses, through a range of means in the local planning scheme (zoning, special control areas, and development provisions).
SPP 7 Design of the Built Environment	Sets out the principles, processes and considerations which apply to the design of the built environment.	Consider local design issues when assessing proposals. Application of <i>Liveable Neighbourhoods</i> in design of urban development, structure planning and subdivision.	Have regard to the 10 design principles contained in SPP 7 for the assessment of proposals. Promote character and amenity through local design vernacular. Advocate development to have due regard to local design guidelines.
Development Control Policies	A range of operational policies to guide the WAPC's decision making on subdivision and development.	Consider the provisions of DC Policies in considering applications for subdivision and development.	Development to respond to the local planning scheme and have due regard to applicable DC Policies.

3 LOCAL PLANNING CONTEXT

3.1 SHIRE OF ASHBURTON STRATEGIC COMMUNITY PLAN 2017-2027

Living Life is the Shire of Ashburton's 10-year Strategic Community Plan for 2017-2027. *Living Life* (SoA, 2017) outlines the Shire's vision "We will embrace our unique Pilbara environment and lifestyle through the development of vibrant, connected and active communities that have access to quality services, exceptional amenities and economic vitality".

The *Local Planning Strategy* builds upon this overall Community Vision, and articulates that the towns of Onslow, Tom Price and Paraburdoo will continue to support the community's requirements and needs. The community goals are embedded within the strategic planning for the local government area. The *Local Planning Strategy* also works in alignment with the strategic community goals and objectives.

Goal 1 – Vibrant and Active Communities

- Objective 1 – Connected, caring and engaged communities
- Objective 2 – Sustainable Services, Clubs, Associations and Facilities
- Objective 3 – Quality education, healthcare, childcare, aged care and youth services
- Objective 4 – A rich cultural life

Goal 2 – Economic Prosperity

- Objective 1 – Strong local economies
- Objective 2 – Enduring partnerships with industry and government
- Objective 3 – Well-managed tourism

Goal 3 – Unique Heritage and Environment

- Objective 1 – Flourishing natural environments
- Objective 2 – Leading regional sustainability
- Objective 3 – Celebration of history and heritage

Goal 4 – Quality Services and Infrastructure

- Objective 1 – Quality public infrastructure
- Objective 2 – Accessible and safe towns
- Objective 3 – Well-planned towns

Goal 5 – Inspiring Governance

- Objective 1 – Effective Planning for the Future
- Objective 2 – Community ownership
- Objective 3 – Council leadership
- Objective 4 – Exemplary team and work environment

3.2 CORPORATE BUSINESS PLAN 2013-2017

The Shire of Ashburton Corporate Business Plan was adopted on 21 August 2013, is the first of its type for the local government area. It outlines the first four years of implementing the *Living Life* Strategic Community Plan.

The Corporate Business Plan (SoA, 2013) developed priorities in six theme areas, outlined in the table below, which the *Local Planning Strategy* can provide inputs.

Community inclusion and participation
Identifying growth scenarios having regard to the Shire's geography, culture, and economic development opportunities and issues. Identifying community capacity building opportunities and issues. Providing a platform for community engagement on the long-term planning for the local government area.
Provision of infrastructure that enables economic and social vitality
Identifying community assets within the planning framework, including their provision, land status, and retention. Drawing together the Town Centre revitalisation plans. Having regard and due consideration of drainage issues relevant to Paraburdoo and Tom Price (refer section 4). Identifying strategies and aims for implementing the bike plan.
Economic strength and development
Identifying land for future industrial and residential development. Recognising future population growth within the scenarios for the townsites. Consideration of tourism within the local planning framework.
Staying ahead of the game
Setting a clear direction for the planning and development of the Shire of Ashburton.
Governance
Linking the Federal, State, Regional and Local planning objectives to the implementation of the local planning scheme.
Organisation Stability
Coordinating organisational issues that are relevant to the local planning framework.

3.3 SHIRE OF ASHBURTON STRATEGIC ASSET MANAGEMENT PLAN 2016-2020

The Shire's *Strategic Asset Management Plan* (SoA, 2016) provides a comprehensive overview of the assets that are identified, managed and have the potential to be maintained to an appropriate level of service or replaced. Particularly, it categorises assets into buildings, roads, stormwater drainage, footpaths, parks & recreation, and town infrastructure.

The Shire's asset portfolio represents its commitment to operational expenditure on maintaining levels of services for infrastructure assets, over a 15-year period. It identifies that there is a gap between renewal expenditure and funding availability. When considering the financial viability of assets, strategic planning should consider the most appropriate growth scenarios for the population of the Shire, to maximise the level of accessibility of existing and future residents and businesses and the relevant infrastructure assets.

As buildings and assets reach the end of their useable life, the Shire may be able to dispose of the buildings (and potentially the land if appropriate or surplus to requirements). Any future change in use of Council land will need to be considered in the context of this Local Planning Strategy.

A summary overview of community facilities is described in **section 11.1**.

3.4 SHIRE OF ASHBURTON LOCAL PLANNING SCHEME NO. 7

The Shire of Ashburton Local Planning Scheme No. 7 (LPS 7) was gazetted on 24 December 2004. The Shire prepared a 'health check' report to the Council on 9 December 2015, which made recommendations into relation to bringing the scheme text into compliance with the *Planning and Development (Local Planning Schemes) Regulations 2015*. The decision has been to prepare a new local planning scheme. The Shire has been working on the draft new planning scheme, which would ultimately supersede the LPS 7 once it is gazetted.

The aims of the LPS 7 provide the current strategic basis for decisions made by the local government:

- (a) *To facilitate development that responds to the character and amenity, geographical context and environmental constraints of the Shire and its urban and rural areas.*
- (b) *To provide areas available for urban development where there is a perceived potential for population growth and provide development standards for urban development.*
- (c) *To locate recreation, commercial and community services in central places within urban centres to maximise access and efficiency of infrastructure provision.*
- (d) *To respond to potential strategic industry and resource development.*
- (e) *To provide areas and development standards for local industrial and mixed business development.*
- (f) *To provide sites and development standards for recreation, community uses and public infrastructure, including infrastructure corridors for transporting multiple types of materials and energy of regional and state significance.*
- (g) *To identify the location and land requirements of roads within a defined State, regional and local hierarchy.*
- (h) *To allow the continued use of rural land for pastoral and other associated rural and remote uses, particularly rural settlements.*
- (i) *To identify areas for conservation, recreation and natural landscapes which are important for ecological, heritage and amenity purposes in addition to the major tourist assets of the Shire.*
- (j) *To facilitate development that takes account of the heritage value of places, buildings and objects.*
- (k) *To acknowledge the health risks within the Wittenoom townsite.*
- (l) *To facilitate development that has regard for the long term protection of natural resources, such as clean air, water, soil and biological diversity.*
- (m) *To facilitate the orderly development of Onslow Structure Plan.*
- (n) *To assist in the effective implementation of regional plans and policies, including the State Planning Strategy.*

The LPS 7 outlines a number of reserves, zones and special control areas that apply within the local government area:

Scheme Reserve	Scheme Zone	Special Control Area
<ul style="list-style-type: none"> - Open Space <ul style="list-style-type: none"> o Conservation, Recreation and Nature Landscape o Parks, Recreation and Drainage - Roads <ul style="list-style-type: none"> o State/Regional o Local - Other Public Purposes <ul style="list-style-type: none"> o Cemetery o Energy o Port Facilities o Telecommunications o Waste Disposal and Treatment o Water and Drainage - Other Purposes <ul style="list-style-type: none"> o Infrastructure 	<ul style="list-style-type: none"> - Commercial and Civic - Community <ul style="list-style-type: none"> o Airport o Education o Community - Industrial and Mixed Business Development - Industry - Mixed Business - Residential - Rural - Rural Living - Special Use - Strategic Industry - Tourism - Urban Development 	<ul style="list-style-type: none"> - Cane River Water Reserve Area - Onslow Airport Height Restrictions Area - Onslow Coastal Hazard Area - Tidal Inundation Area - Turee Creek, Mt Lionel and Mt Stevenson Borefields - Waste Water Treatment Plant Odour Buffer - Wittenoom

3.4.1 LOCAL PLANNING POLICIES

The following local planning policies apply:

- ENG10 Guidelines for Urban Development
- LPP01 Transportable Dwellings New and Second-hand
- LPP02 Home Occupations/ Home Businesses

- LPP03 Advertising Signs
- LPP04 Retail Uses in the Industrial Zone
- LPP05 Alfresco Dining
- LPP06 Caretaker Accommodation
- LPP07 Cat Pounds and Catteries
- LPP08 Dog Kennels
- LPP09 Non Residential Land Uses in Residential Areas
- LPP10 Design Guidelines for the Tom Price Town Centre
- LPP11 Cash-in-lieu Car Parking Requirements
- LPP12 Mineral Exploration
- LPP13 Transient Workforce Accommodation
- LPP14 Percent For Public Art Policy
- LPP15 Parking and Setback - First Avenue, Onslow
- LPP16 Outbuildings Assessment
- LPP17 Consultation for Planning Proposals
- LPP18 Conversion of Dwellings and Outbuildings to Residential Buildings
- LPP19 Unauthorised Existing Development
- LPP20 Social Impact Assessment
- LPP21 Assessment of Applications Under Clause 6.10.4 and 6.10.5 Local Planning Scheme No.7
- LPP22 Assessment of Applications Under Clause 6.6.3 Local Planning Scheme No. 7
- LPP23 Assessment of Applications Under Clause 6.6.2 Local Planning Scheme No. 7
- LPP24 Consideration of Group Housing Development and Bedrooms
- LPP25 Onslow Coastal Hazard Area - Scheme Control Area
- LPP26 Onslow Interim Town Centre Design Guidelines
- LPP27 Interim Car Parking Provisions (Onslow)
- LPP28 Beadon Bay Village Concept Plan (Version 2)
- LPP29 Lot 381 Second Avenue/Third Avenue Onslow

3.4.2 MUNICIPAL HERITAGE INVENTORY

The Municipal Heritage Inventory (O'Brien Planning Consultants, 1999) (MHI) identifies assessed places, with 29 listed for various levels of heritage management. The MHI considered a further 17 places, however considered that these required further research or reconsideration before being added to the Inventory. Given the age of the MHI, it is recommended to be reviewed and updated.

3.4.3 STRUCTURE PLANS

The Shire has endorsed Structure Plans for:

- Gregory Way, Paraburdoo – this structure plan has been implemented through subdivision; and
- Onslow Townsite Expansion Stage 1 Development Plan (refer **section 3.6.2**).

Structure planning is likely to continue to be undertaken to ensure that future expansion of the townsites will be undertaken in an orderly and properly planned manner. It is the preference of the local government that townsite growth would be considered:

- Firstly for infill housing development on available serviced lots;
- Secondly for reconfiguration of existing lots to alter lot boundaries or re-subdivide existing lots, where this would result in a net increase in lot yield; and

- Thirdly through structure planning for expansion areas.

3.5 ASHBURTON NORTH STRATEGIC INDUSTRIAL AREA (ANSIA)

3.5.1 IMPROVEMENT PLAN NO. 41 – ASHBURTON NORTH STRATEGIC INDUSTRIAL AREA

Improvement Plan No. 41 – Ashburton North Strategic Industrial Area (Improvement Plan No. 41) was prepared pursuant to s.119 of the *Planning and Development Act 2005* and gazetted on 13 March 2015. The Improvement Plan No. 41 provided the head of power for the preparation of the *Ashburton North Strategic Industrial Area Improvement Scheme No. 1* (ANSIA Improvement Scheme No. 1).

3.5.2 ANSIA IMPROVEMENT SCHEME NO. 1

The ANSIA Improvement Scheme No. 1, including the Guide Plan, came into effect on 30 September 2016 coinciding with its publication in the *Government Gazette*. LPS 7 ceases to have effect on the Improvement Scheme No. 1 area. The Improvement Scheme No. 1 area includes the industrial buffers to preserve the integrity of the ANSIA. The Improvement Scheme No. 1 boundary is reflected on the LPS 7 Scheme Maps and is reflected on the Strategy Plans.

A Guide Plan is included within Appendix A of the Improvement Scheme No. 1. Structure plans and development plans under LPS 7 have ceased to be applicable within the Improvement Scheme No. 1 area, including the:

- ANSIA Structure Plan;
- Wheatstone Development Plan;
- ANSIA Stages 1B & 1C Development Plan; and
- Eastern General Industrial Area Outline Development Plan.

Within the Improvement Scheme No. 1, several fit-for-purpose land use definitions were prepared, to achieve the objectives set out under the Improvement Plan 41. The uses include 'Harbour and marine facilities', 'Industry – hydrocarbon processing', 'Industry – strategic extraction', 'Supply base', 'Workforce accommodation', 'Utility – public', and 'Utility – private'.

Operational workforce may be considered under the 'Workforce accommodation' use, and may be considered within the 'Workforce Accommodation' zone and the 'Special Use No. 1' zone, as identified on the Guide Plan. The result of allowing operational workforce within the ANSIA will have bearing on Onslow's population growth rates into the future. By 31 December 2018, the Workforce Accommodation located within the General Industrial area (near Macedon) would have to be decommissioned and if latent demand remains, such accommodation would thereafter be relocated to the 'Workforce Accommodation' zone.

It is noteworthy that the definition of 'Workforce accommodation' refers to modular or relocatable buildings. With the specific mention of modular or relocatable dwellings in the definition, it would be implied that higher quality, more permanent accommodation typologies will not be considered by the WAPC to be suitable for being in the ANSIA. Such higher quality accommodation therefore would likely be directed towards the Onslow townsite.

3.5.2.1 FUTURE INDUSTRY WORKFORCE REQUIREMENTS WITHIN ANSIA

An extension to BHP Billiton's Macedon Wet Gas Compression project may occur within a 5-10 year time horizon. Should an extension to BHP Billiton's Macedon Wet Gas Compression project occur, it is anticipated that a project workforce of around 100 employees would be required. No additional land will be required, as the footprint for the additional infrastructure has already been cleared next to the existing plant. Existing accommodation options may be utilised within the area.

Ongoing maintenance of the Wheatstone LNG plant will generate regular, biennial peak workforce numbers (typical 500-750 with biennial peaks 1,250-2,250). Chevron Australia proposes to accommodate the project's FIFO operational workforce at the Workforce Accommodation site, subject to securing necessary development approvals from WAPC and DevelopmentWA.

3.6 REGIONAL AND SUB-REGIONAL STRATEGIES AND STRUCTURE PLANS

3.6.1 ONSLOW TOWNSITE STRATEGY

The *Onslow Townsite Strategy* (SoA, 2011) was formally adopted by the Shire in July 2010 and endorsed by the WAPC in March 2011. The *Strategy* is a response to the opportunities and challenges facing Onslow, in the context of recent developments at the ANSIA and the potential population growth within the town. Through population growth, the town's character and its residents' easy-going lifestyle are important to maintain.

As such, the *Onslow Townsite Strategy* seeks to fulfil the three objectives of sustainable living, economic vitality and community wellbeing. Future development within the Onslow Townsite should have regard to these objectives and the relevant development principles.

Once endorsed by the WAPC, the *Local Planning Strategy* will supersede the *Onslow Townsite Strategy*. Any departures from the *Onslow Townsite Strategy* are discussed in **section 5.3**.

3.6.2 ONSLOW TOWNSITE EXPANSION STRUCTURE PLAN

The *Onslow Townsite Expansion Structure Plan* (TPG, 2016) reflects the planning processes that have been undertaken for the townsite. These have included Scheme Amendments 19, 21 and 22, the Structure Plan and the *Stage 1 Development Plan*, and the various subdivision applications that have been determined.

The *Structure Plan* (refer **Figure 5**) is consistent with the long-term strategic goal to ultimately provide for accommodating 3,500 people in the townsite. It should be noted that the accommodation capacity of 3,500 people is greater than the *WA Tomorrow* population forecasts (refer **section 5.3**). This does not mean that the *Structure Plan* is invalid, but helps future proof the ultimate development and sustainability of Onslow as a key town within the Shire of Ashburton, and within the Pilbara Region.

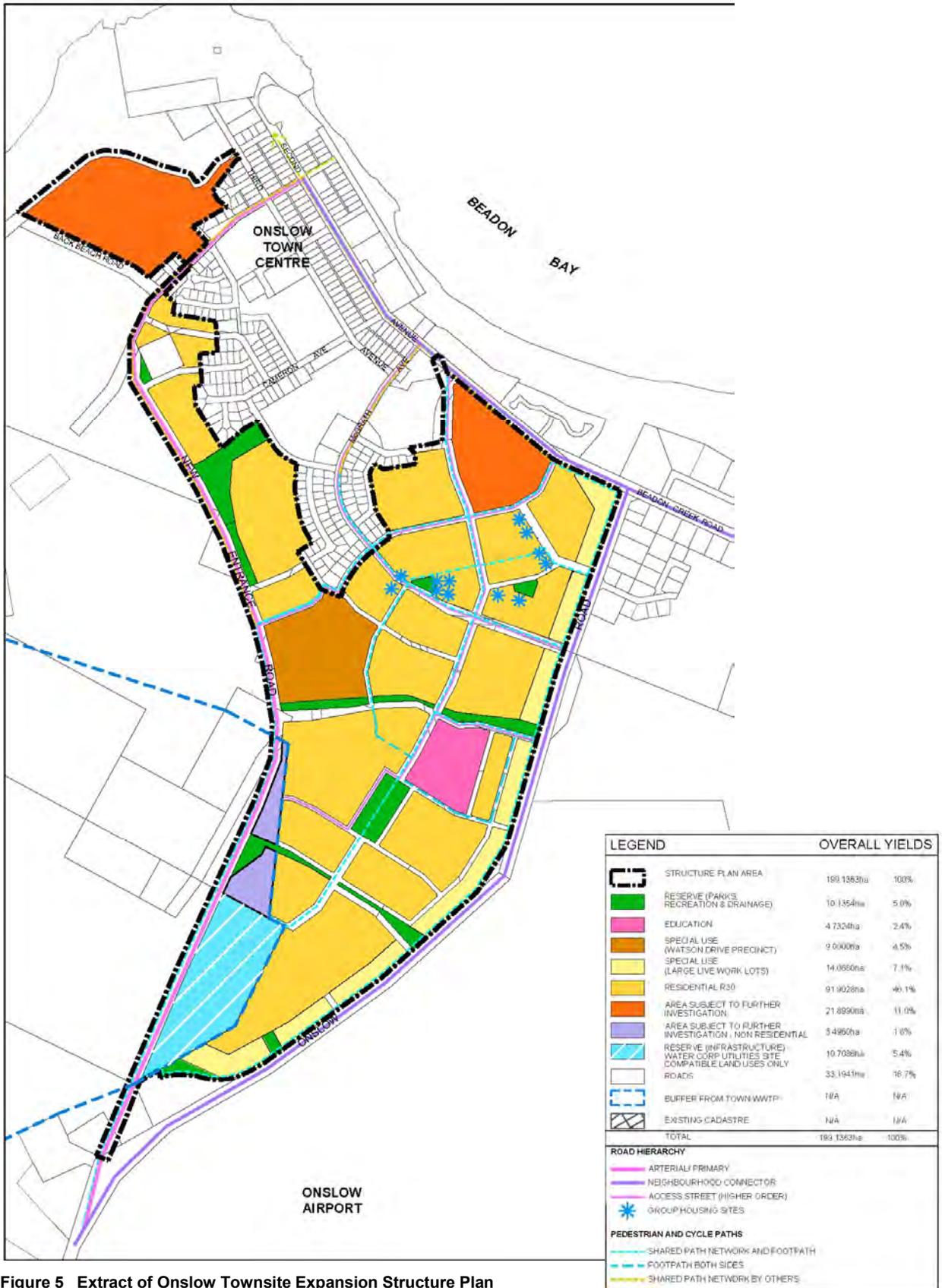


Figure 5 Extract of Onslow Townsite Expansion Structure Plan

3.6.3 ONSLOW TOWNSITE EXPANSION STAGE 1 DEVELOPMENT PLAN

The *Onslow Townsite Expansion Stage 1 Development Plan* (TPG, 2013) was certified by the Shire Council in July 2012 and the WAPC in March 2013. The *Stage 1 Development Plan* was prepared to enable delivery of residential land in Onslow, in response to mounting housing pressure due to the development of ANSIA. The *Stage 1 Development Plan* provides land use and development provisions for residential, Chevron Australia's site (Lot 4001), and public open space. Essentially, the *Stage 1 Development Plan* covered DevelopmentWA's Barrarda Estate area and Chevron Australia's proposed operations village site on Lot 4001.

The Stage 1 subdivision delivered 223 residential lots and two public open space reserves in order to bring forward land supply for residential purposes. The Stage 1 subdivision application was approved by the WAPC in March 2013. Barrarda Estate has been developed in accordance with the *Stage 1 Development Plan*.

Chevron Australia submitted a superlot subdivision application for a 9-hectare operations village site that was approved by the WAPC in March 2013. The lot has since been created yet remains vacant. The gazettal of the ANSIA Improvement Scheme No. 1 facilitates operational workers being housed within the Wheatstone Workforce Campsite and the adjacent 'Workforce Accommodation' zone. This is likely to be the preferred location for employee accommodation for the short-term.

The Shire's long-term aspiration is for Lot 4001 to be developed as an integrated workforce accommodation site. The *Stage 1 Development Plan* provides relevant planning principles and objectives for the site and identifies the need to prepare a Local Development Plan for the site, prior to development, to ensure the objectives are met. The Shire's expectations of a well-integrated development with the existing townsite should be given weight. It may be preferable to continue with the preparation of a Local Development Plan, in the absence of amending the *Stage 1 Development Plan*.

3.7 ONSLOW AIRPORT MASTER PLAN

Onslow Airport is owned and operated by the Shire of Ashburton, and is a Civil Aviation Safety Authority certified facility. The *Onslow Airport Master Plan* (REHBEIN Airport Consulting, 2016) sets out the long-term framework for the airport and facilities. In 2017, as part of implementing the framework, a business plan has been prepared for the construction of an aircraft hangar for rotary wing aircraft

The Onslow Airport is approximately 3 kilometres south of the Onslow townsite and approximately 75 kilometres to ANSIA. The Onslow Airport incorporates the airport terminal building and associated airside and landside infrastructure. It allows for the expansion of the runway and some expansion of uses.

3.8 GUIDELINES, FORECASTS AND REPORTS

A number of government reports have been considered in relation to Onslow, Tom Price and Paraburdoo, including:

- *Regional Hotspots Land Supply Update – Newman and Tom Price* (WAPC, 2015), refer **section 5.4.2**;
- *Pilbara Residential Housing & Land Snapshot* (PDC, 2016), refer **section 5.4.3**;
- *Assessment of Accommodation Need in Onslow* (AEC Group, 2016);
- *Assessment of Accommodation Need in Tom Price, Onslow & Paraburdoo* (AEC Group, 2015).

3.8.1 COASTAL HAZARD RISK MANAGEMENT & ADAPTATION PLAN FOR THE ONSLOW COAST

The *Coastal Hazard Risk Management & Adaptation Plan for the Onslow Coast* (Cardno, 2017) puts forward 37 recommendations for implementation for the current Onslow townsite. Of these, a number of key strategies and actions to plan for future adaptation in the immediate (<5 years) and short-term (5-10 years) may be summarised under the ‘avoid’, ‘retreat’, ‘accommodate’ and ‘protect’ risk management and adaptation hierarchy. The following **Table 6** identifies the key strategies and actions contained in the CHRMAP.

Table 6 Immediate and Short Term Strategies and Actions (Cardno, 2017)

Risk management and adaptation hierarchy	CHRMAP key strategies and actions
Avoid	<p>Implement changes to the land zonings that are currently covering undeveloped land within the designated 2110 coastal erosion hazard zones.</p> <p>Update the Special Control Area.</p>
Planned or managed retreat	<p>Immediate Action – Develop an integrated coastal and water management plan to guide stormwater management strategies and planned retreat from the town’s flood-prone areas.</p> <p>Short-term – Monitor sea level, coastal vegetation boundaries and storm erosion movements and review the hazard line estimates and strategies for retreat of public and private assets (including the Onslow Salt infrastructure) in the current foreshore zone. Review the foreshore land zone boundaries and adjust, where appropriate, to facilitate retreat of assets within the future foreshore zones.</p>
Accommodate	<p>Immediate action – Establish database of assets in the 2110 flood-prone area including present day value and projected end of life cycle. Identify options for mitigating the impacts of increased flooding, undertake a detailed cost-benefit analysis and communicate with the community and stakeholders to agree on preferred options and communicate the significance of residual risk.</p> <p>Review and adjust local government planning controls to ensure proposed developments in the flood prone areas accommodate the future threats and minimise liabilities.</p> <p>Incorporate coastal erosion and flooding risks into emergency response plans.</p> <p>Short term – monitor flood levels and extents and review boundaries and water level implications for the Hazard Control Area and planning controls.</p>
Protect	<p>Immediate action – Collect data on the geology of the Front Beach hinterland (including the possible sea wall extension to the northeast of the existing seawall) to assess whether the current hazard line estimates can be revised. Liaise with the stakeholders to assess future protect and retreat options at the end of life of houses in the housing estate.</p> <p>Short term – monitor beach profiles at Front Beach to assist considerations of future beach nourishment options.</p>

The planning horizon for the CHRMAP goes beyond that of this Local Planning Strategy. The future of the town is at threat from steadily rising sea levels, combined with storm events, which will affect the viability of low lying areas of the Onslow townsite. Coastal erosion is likely to threaten some infrastructure in the lee of the present Town Beach, including the Bindi Bindi community (Cardno, 2017). However, these considerations have been factored into the issues and opportunities for Onslow, refer **section 15.1**, in particular identifying the Onslow townsite and Bindi Bindi community for eventual relocation.

3.8.2 ONSLOW TOWNSITE PLANNING COASTAL SETBACKS & DEVELOPMENT LEVELS

The *Onslow Townsite Planning Coastal Setbacks & Development Levels* report on coastal vulnerability (MP Rogers & Associates, 2011) was commissioned by DevelopmentWA as part of their work on the *Onslow Townsite Expansion Structure Plan* (TPG, 2016) to account for coastal processes in accordance with the June 2003 gazetted version of SPP 2.6. The report utilised the recommended criteria outlined in a WAPC Position Statement published in 2010, which updated the requirements of the SPP 2.6. It was published prior to the SPP guidelines in July 2013 and September 2014.

The report indicates that the shoreline around Onslow has been generally stable or accreting in the longer term. Cyclonic activity is known to affect the shoreline and contributes to loss of vegetation and dunes, although these generally tend to recover over a period of time (MP Rogers & Associates, 2011).

The report investigated historical shoreline movement and modelled erosion to take into account recommended coastal setbacks. These were complemented with scenarios for sea level rise to determine a total recommended coastal setback for various intervals of coastline around Onslow.

The report investigated severe storm inundation for both a 'current day scenario' and a '100-year planning horizon' (MP Rogers & Associates, 2011). This considered full coastal inundation water levels, which are likely to be expected around Onslow given its close proximity to the coastline. The severe storm inundation has been included on the Issues and Opportunities Plan for Onslow, refer to **section 15.1** and **Figure 53**. The understanding is that the final CHRMAP for the Onslow Coast would supersede the MP Rogers & Associates report.

3.8.3 LIVING IN THE REGIONS 2013 STATE REPORT

The Department of Primary Industries and Regional Development (then Department of Regional Development) undertook the *Living in the Regions* survey to understand the barriers to living in the regions; to measure the quality of life in the regions; and to use that information to guide regional development initiatives (Department of Regional Development, 2013). It builds on the first survey that was undertaken in 1997.

The Department of Primary Industries and Regional Development conducted a *Living in the Regions Survey 2016* from 10 October to 30 November 2016. The region has undergone a remarkable transformation since 2013 when the last survey was conducted, so the results will be an important indicator of how this change is affecting residents' overall happiness and lifestyle. The survey results may be pivotal to shaping the future development of the Pilbara and regional WA.

The 2013 survey still provides valuable information in relation to the trends for people moving, living and continuing to live in the regions. Lifestyle was a major attraction, as was the quality of social life and career advancement (Department of Regional Development, 2013). The report notes that roughly one-third of Pilbara region respondents had been living within the region for less than 6 months, reflecting the high incidence of FIFO work. One-third had lived within the region between 6-20 years and one-third for over 21 years (Department of Regional Development, 2013).

Aspects of regional living were rated by respondents from a score of 1 to ten. Of the nine WA regions, the Pilbara region ranked:

- 1st in financial situation, and employment prospects;
- 8th in safety, health and general wellbeing, and education and training; and
- 9th in happiness; lifestyle, sense of community, and community connectedness.

What can be implied is that financial windfall opportunities and the significant number of jobs are factors for people wanting to live in the Pilbara. What makes it more challenging for retaining population is the ability to ensure lifestyle opportunities are in line with expectations. What is positive is that new arrivals to a region tend to engage in local activities quite quickly. Participation in sporting, community or volunteer activity indicated little differentiation between younger or older cohorts, although frequent sporting activity was more prevalent in young respondents. All age groups had more than half involved in regular local activity (Department of Regional Development, 2013). This appears to correlate with lifestyle and quality of social life as key reasons for living in the regions.

Plans to stay in the regions were considered by respondents. Of the survey sample, 41% indicated that they were considering moving. 58% of Pilbara respondents indicated they were seriously considering leaving hence the regional population may appear to be mobile, especially in areas of high economic activity (Department of Regional Development, 2013). The longer a person has lived in the region, the more likely they are to remain. The top five reasons for relocating were:

- Access to better shopping;
- Access to health services or better quality health services;
- Social activities;
- Cost of living is lower elsewhere; and
- To be closer to family.

Not all those intending to move were planning to leave their region, or regional Western Australia. Most people indicated that they were considering a number of options. For the Pilbara, 28% indicated an intention to stay. These are challenges that the State aims to address through building sustainable, vibrant, inclusive and resilient cities and towns.

The insights into living in the regions is helpful for both the State, local governments, non-government organisations and community groups to understand some of the factors of liveability and reasons why people would be drawn to live in the Pilbara region, what could compel them to remain as long-term residents, or what may drive them to relocate.

3.9 SUMMARY AND IMPLICATIONS FOR LOCAL PLANNING CONTEXT

The following **Table 7** considers the implications, issues and opportunities from a local planning context.

Table 7 Implications, Issues and Opportunities – Local Planning Context

Local Planning Context	Implications	Issues	Opportunities
Shire of Ashburton 10 Year Strategic Community Plan 2017-2027	<i>Living Life</i> is the Shire's 10-year <i>Strategic Community Plan</i> and articulates its vision for the towns of Onslow, Tom Price and Paraburdoo.	Embed the community goals within the strategic planning for the local government area.	Over time, the Local Planning Strategy may need to be reviewed and updated to maintain the close relationship between the Vision, goals and objectives of the <i>Strategic Community Plan</i> and this Local Planning Strategy.
Corporate Business Plan 2013-2017	The Corporate Business Plan implements the first four years of the <i>Living Life</i> Strategic Community Plan.	Identifies priorities for six theme areas.	Utilise the Local Planning Strategy for addressing priorities outlined in the Corporate Business Plan. The Shire will undertake a review of its Corporate Business Plan and the Local Planning Strategy may need to be reviewed and updated.
Shire of Ashburton Strategic Asset Management Plan 2016-2020	Provides a comprehensive overview of the assets to be maintained to an appropriate level of service, or replaced.	There is an identified renewal expenditure and funding gap. Assets to be replaced/disposed may identify land of buildings for re-use.	Strategic planning should consider the most appropriate growth scenarios for the population, to maximise the level of accessibility of existing and future residents and business to relevant infrastructure assets.
Onslow Airport Master Plan	Long-term framework for the Onslow Airport and facilities, and protects future development against the effects of current decisions.	Shire of Ashburton will prepare ANEF contours for the Airport. Airport Future Obstacle Limitation Surfaces and Onslow Airport's flight paths may constrain building height. Consider flight paths, ANEF and Obstacle Limitation Surface for the future extension of the runway.	Reflect the current Obstacle Limitation Surface as a special control area within the local planning scheme.
Shire of Ashburton Local Planning Scheme No. 7 (LPS 7)	Provides the statutory planning framework for decisions made by the local government.	This Local Planning Strategy provides the rationale and justification for the preparation of a new local planning scheme, or amendments. Incorporation of the Model Provisions and integration of the Deemed Provisions contained in Schedules 1 and 2 of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> . The Shire has an extensive local planning policy manual. Structure Planning is likely to continue to be undertaken to guide certain land use and development. The current Municipal Heritage Inventory is old (1999) and considered places that required further research or reconsideration before being added to the Inventory. The Municipal Heritage Inventory	The Shire intends to review the LPS 7 in order to incorporate the Deemed Provisions and align its zones and reserves with those contained in the Model Provisions of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> . The Shire will need to undertake a review of its Municipal Heritage Inventory. Undertake a broad review of the local planning policy manual and undertake modifications to adopted policies, to align with the amended LPS 7 and Scheme Review. Investigate opportunities to guide townsite expansion through broad-scale structure plans. Review extent of existing development and facilitate new development in appropriate locations to support the Shire's objectives.

Local Planning Context	Implications	Issues	Opportunities
		can be used the Heritage List in the local planning scheme.	
Ashburton North Strategic Industrial Area (ANSIA)	Improvement Plan No. 41 provided the head of power for the Improvement Scheme No. 1. The Improvement Scheme No. 1 and Guide Plan is the operational scheme for the ANSIA.	Western Australian Planning Commission (WAPC) operates and implements the Improvement Scheme No. 1. The WAPC is the decision-maker for development applications. Under the Improvement Scheme No. 1, the 'Workforce Accommodation' and 'Special Use No. 1' zones are provided and would allow operational workforce to be based within the ANSIA, which will have an impact on Onslow's population and growth.	Shire of Ashburton will advocate and plan for workforce to be accommodated within the Onslow townsite wherever possible. This enables workforce to have access to town facilities and social cohesion.
Onslow Townsite Strategy	A response to the opportunities and challenges facing Onslow in the context of recent major industrial development and the potential for significant population growth.	Maintain the town's character and lifestyle values of town residents. Fulfil the 3 objectives of sustainable living, economic vitality and community wellbeing.	Incorporate these objectives into the local planning scheme and local planning policies. Appropriately plan for ultimate development scenarios for Onslow.
Onslow Townsite Expansion Structure Plan	Provides the overall structure for accommodating 3,500 people in the townsite.	Identified areas subject to future investigation, which are reflected in the Issues and Opportunities Plan. Large live-work lots to McAullay Road to have regard to SPP 5.4 Road and Rail Noise provisions.	Identified non-residential land uses within the area bound by the Waste Water Treatment Plant odour buffer. Provision of 6 hectare School site as per Department of Education requirements. Long-term development of Lot 4001 as an integrated component of the townsite. Review of the future transition of the town centre towards a location that is not affected by predicted sea level rise and inundation.
Onslow Townsite Expansion Stage 1 Development Plan	Enabled delivery of residential land in Onslow in response to mounting housing pressure due to the development of ANSIA.	Chevron Australia's operations village site is retained for workforce accommodation development. Shire of Ashburton expects well-integrated development with the existing townsite.	Apply the relevant planning principles and objectives of the Onslow Townsite Strategy in any future modifications to the Development Plan. Support investigations in to the ultimate use of Chevron Australia's landholding.
CHRMAP for the Onslow Coast	Some infrastructure and low lying areas of the Onslow townsite are at risk of steadily rising sea levels, combined with storm events.	The CHRMAP has identified key strategies and actions for planning for future adaptation in the immediate (<5 years) and short term (5-10 years).	Have regard to the recommendations contained in the CHRMAP for the planned adaptation and management of risk for the Onslow townsite.
Onslow Townsite Planning Coastal Setbacks & Development Levels	Report accounted for coastal processes and investigated severe storm inundation	Have regard to the coastal inundation scenarios for determining appropriate response for urban development.	Incorporate modelling from the report on coastal vulnerability for planning in Onslow.

Local Planning Context	Implications	Issues	Opportunities
<p>Living in the Regions 2013 State Report</p>	<p>To understand barriers to living in regions; measure quality of life in regions; and guide regional development initiatives.</p>	<p>Acknowledge the aspects of regional living that could influence people moving, living and continuing to live in the Pilbara.</p>	<p>Have regard to the findings of the 2013 report and future survey reports.</p>

4 LAND TENURE AND LOCAL ENVIRONMENTAL PROFILE

This section is structured to discuss:

- Land Tenure, including Native title; and
- Summary overview of the Environmental Profile (contained in **Appendix A**).

4.1 LAND TENURE

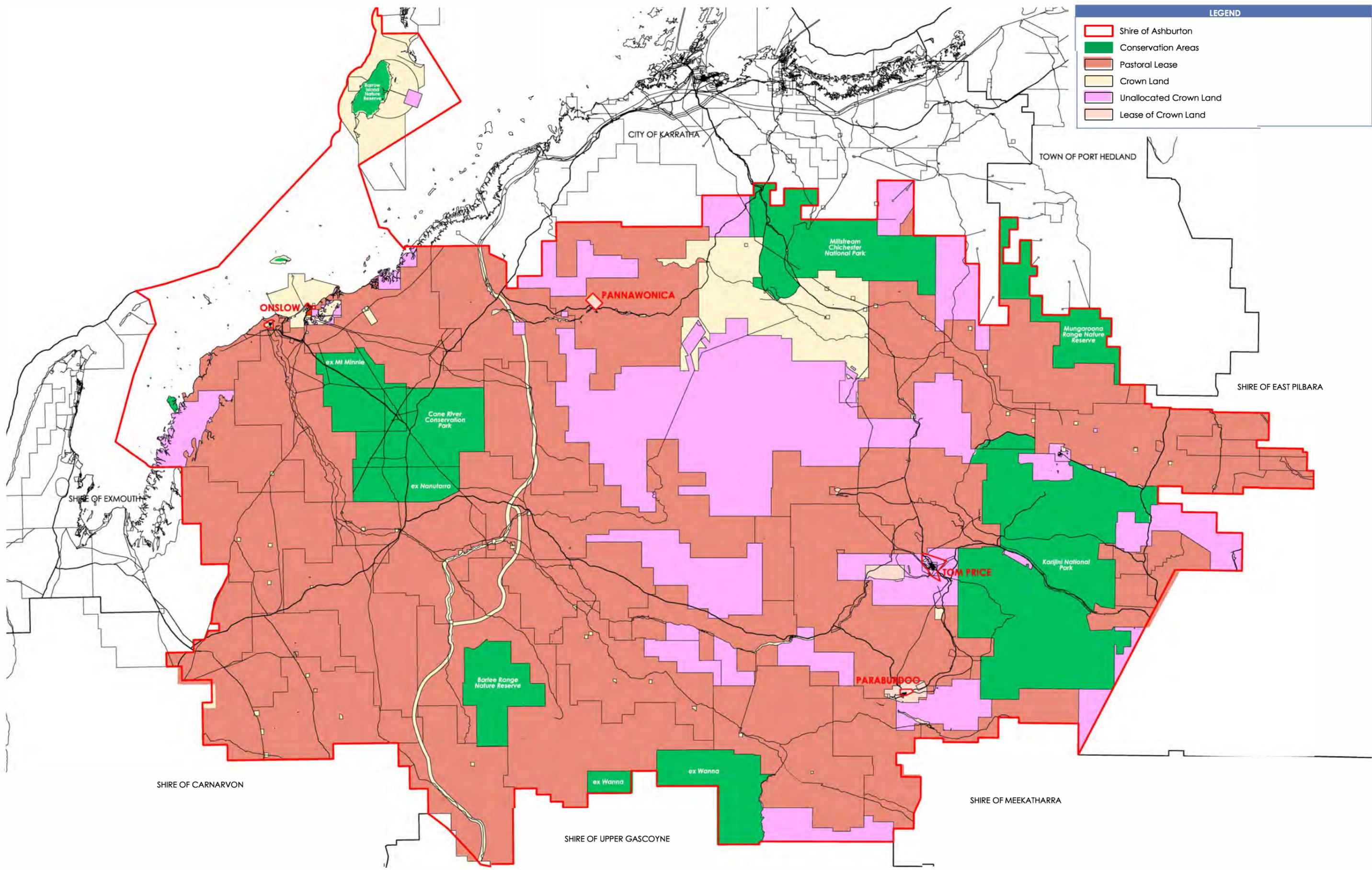
The Shire of Ashburton has an area of 100,816.2 square kilometres (ABS, 2016), which represents approximately 4% of Western Australia's land area. It is the equivalent of 44% of Victoria's land area, and is almost 1.5 times the land area of Tasmania. The large scale of the local government area is in contrast to its low population of around 13,000 people.

The predominant land tenure within the Shire is Crown land (refer **Figure 6**). This situation is reflected across most of regional Western Australia. Of the Crown land, a number of land parcels are identified as unallocated crown land, whilst the majority of Crown Land is subject to reserves and management orders, or leases (such as pastoral leases, or mining leases) and other leases to Aboriginal communities (such as Wakathuni).

Onslow demonstrates that a vast majority of lots are freehold (refer **Figure 7**). The Onslow land tenure plan indicates that Chevron Australia, Onslow Salt and the Shire of Ashburton own a number of properties in freehold. This reflects Onslow Salt's workforce population within town, and the 50 houses built for Chevron employees within the Barrarda Estate.

Paraburdoo and Tom Price contain a significant proportion of leased or freehold owned land by Hamersley Iron (Rio Tinto), refer **Figure 8** and **Figure 9**. These are also subject to State Agreements (refer **section 8.1**). A number of properties are also owned in freehold by others, including the Shire of Ashburton.

Pannawonica is a closed town owned by Hamersley Iron and the Shire of Ashburton does not have care and control within the townsite boundary.



LEGEND	
	Shire of Ashburton
	Conservation Areas
	Pastoral Lease
	Crown Land
	Unallocated Crown Land
	Lease of Crown Land

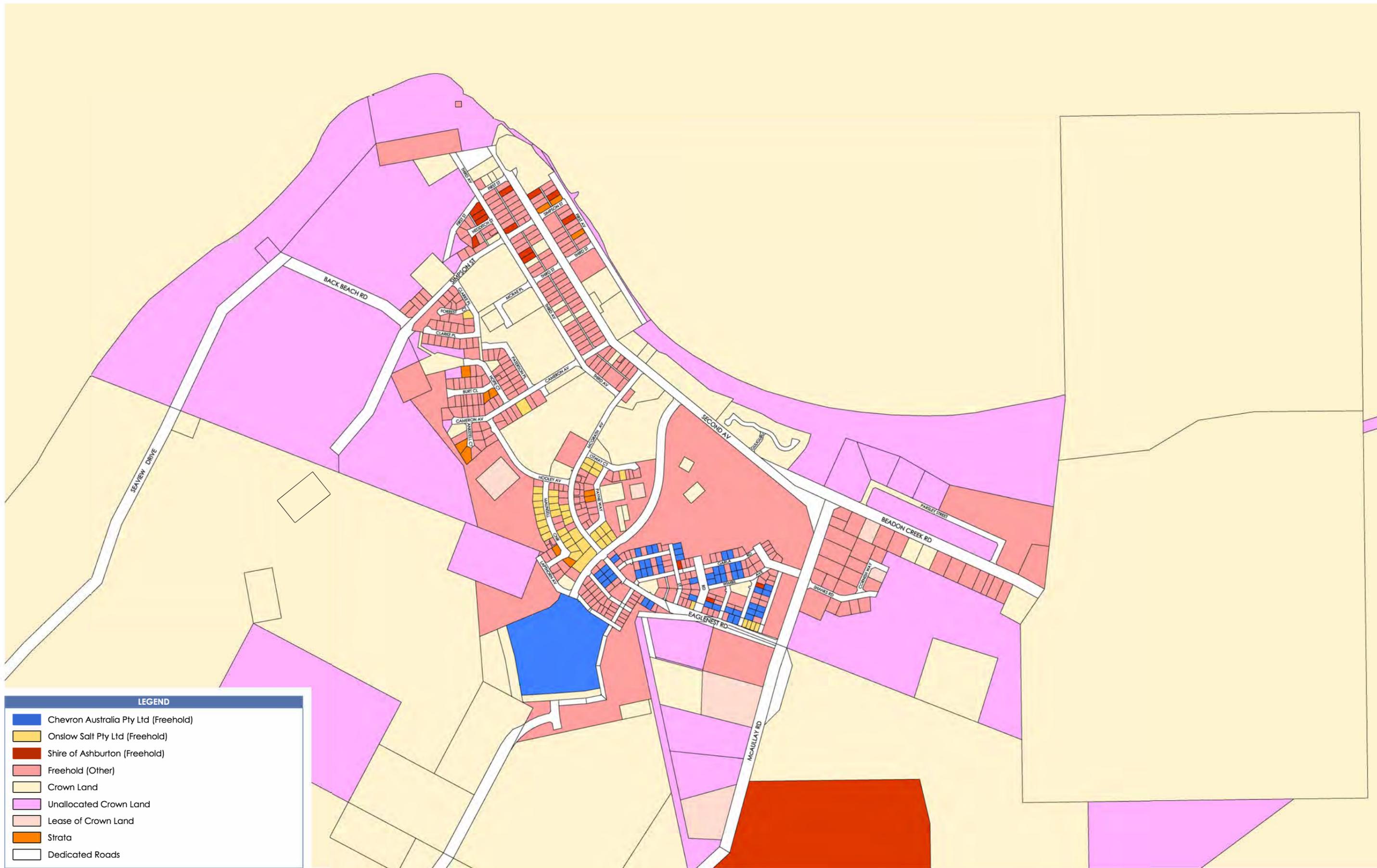
GENERALISED LAND OWNERSHIP AND TENURE - OVERALL

Local Planning Strategy
A Shire of Ashburton Project



d: 7 Dec 2016
p: 16/028/015

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LEGEND

- Chevron Australia Pty Ltd (Freehold)
- Onslow Salt Pty Ltd (Freehold)
- Shire of Ashburton (Freehold)
- Freehold (Other)
- Crown Land
- Unallocated Crown Land
- Lease of Crown Land
- Strata
- Dedicated Roads

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LEGEND

- Hamersley Iron Pty Ltd (Freehold)
- Channar Mining Pty Ltd; Sinosteel Channar Pty Ltd (Freehold)
- Shire of Ashburton (Freehold)
- Freehold (Other)
- Crown Land
- Unallocated Crown Land
- Lease of Crown Land
- Strata
- Dedicated Roads

GENERALISED LAND OWNERSHIP AND TENURE - PARABURDOO

Local Planning Strategy
A Shire of Ashburton Project

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d: 7 Dec 2016
p: 16/028/015

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4.1.1 NATIVE TITLE

Traditional owners have special rights to use unallocated Crown land for traditional purposes (except to the degree restricted by any valid law). Within the Pilbara region, access to land and water sources is important for Aboriginal people as these sources are linked to their way of life and system of beliefs. Their beliefs require regularly performed rituals and to conduct lore business at water sources. Water sources can also act as boundaries to the countries of different language or tribal groups.

Native title is the recognition in Australian law that some Aboriginal people continue to hold native title rights to lands and water arising from their traditional lore and customs. The bundle of native title rights of a particular group will depend on the recognised traditional lore and customs of those people. Aboriginal and Torres Strait Islander people can apply to the courts to have their native title rights recognised under Australian law. Native title holders have the right to be compensated if governments compulsorily acquire their native title rights in order to grant exclusive tenure to others for the purpose of a future act.

4.1.1.1 FUTURE ACTS AND IMPACTS ON NATIVE TITLE

A “future act” is a proposed activity or development on land and/or waters that may affect native title, by extinguishing it or by creating interests that are inconsistent with the existence or exercise of native title. Common examples of future acts in Western Australia are the proposed grants of mining or land titles by the Department of Mines, Industry Regulation and Safety, Department of Primary Industries and Regional Development, and Department of Planning, Lands and Heritage respectively.

Native title can co-exist with other forms of land title (such as pastoral leases) but is extinguished by others (such as freehold). Some other forms of land tenure also extinguish native title. The vesting of reserves under section 33 of the *Land Act 1933* totally extinguishes native title in Western Australia.

The proposed amendments to the *Land Administration Act 1997* to introduce rangeland leases are intended to co-exist with native title. A rangelands lease will not extinguish native title rights, and interests and the granting of the lease will be subject to compliance with the *Native Title Act 1993*. Rangeland leases would not be suitable for intensive land uses over a relatively small area of land, where a lease under s79 of the *Land Administration Act 1997* may be more appropriate.

Within the townsites of Onslow, Tom Price and Paraburdoo, native title rights may continue to exist within unallocated Crown Land parcels of land. Further consultation would be necessary to determine where native title and Aboriginal heritage exists in these areas. This consultation would be undertaken with the applicable native title representatives / Aboriginal corporations including Yamatji Marlpa Aboriginal Corporation (YMAC), Buurabalayji Thalanyji Aboriginal Corporation (BTAC) and Eastern Guruma.

4.1.1.2 NATIVE TITLE DETERMINATIONS

Areas of the Shire subject to native title determinations or native title claims are outlined in **Figure 10** (NNTT, 2016). A number of recognised native title determinations are partially or wholly within the Shire of Ashburton, including:

- Thalanyji (BTAC);
- Thudgari People;
- Puutu Kunti Kurrama and Pinikura (PKKP);
- Kuruma Marthudunera (Part A);
- Eastern Guruma;
- Jurruru People Part A;

- Ngarluma/Yindjibarndi; and
- Banjima People.

YMAC is the native title representative body for the Pilbara region. YMAC represents groups for a number of native title claims that are partially or wholly within the Shire of Ashburton, including:

- Budina People;
- Kariyarra People; and
- Yinhawangka People.

Thalanyji Native Title Determination Area

Onslow is located within the native title determination area for the Thalanyji people. Native title was awarded to the Thalanyji people on 18 September 2008 (BTAC, 2016). Within the native title determined area for the Thalanyji people, mining and pastoral leases, as well as any private or government construction and maintenance works on the determined land are managed by BTAC.

Yinhawangka Native Title Claim Area

The Yinhawangka native title claim area covers approximately 10,150 square kilometres, within the Shires of Meekatharra and Ashburton. YMAC is instructed to seek recognition of exclusive possession native title for areas of cultural significance, with negotiations proceeding with the State. YMAC assisted the Yinhawangka people and BHP Billiton Iron Ore reach a project agreement in 2016. An Indigenous Land Use Agreement was negotiated with the State which created a managed reserve with a management order to the Yinhawangka Aboriginal Corporation for the Bellary Springs (Innawonga) Community and surrounds for social, cultural and economic development purposes.

Eastern Guruma Native Title Determination Areas

The Eastern Guruma native title determination area surrounds Tom Price (NNTT, 2007) and the Eastern Guruma People Part B determination area largely covers the area of the Tom Price township (NNTT, 2012).

The undetermined portion of the Eastern Guruma application, described by the parties as 'the Part B Area', has remained in mediation before the National Native Title Tribunal. The Part B Area covers the town of Tom Price and is comprised of many large tracts of unallocated Crown land subject to prior extinguishing acts.

Extinguishment of Native title over the full extent of Tom Price has occurred however under s 47B of the *Native Title Act 1993* extinguishment over some of the crown land must be disregarded. Native title was not found to exist over public works, residential freehold, roads, some reserves and leases, and certain areas of vacant Crown land (NNTT, 2012). The Eastern Guruma People will not be able to veto future development in the area, but their native title rights must be taken into account (NNTT, 2012).

Eastern Guruma Pty Ltd is owned by members of the Eastern Guruma group and provides employment and career opportunities for Eastern Guruma members and other Aboriginal people. Eastern Guruma Pty Ltd provides services including civil and mining, facilities management, drilling and landscaping for several resource companies.

4.2 ENVIRONMENTAL PROFILE

The Environmental Profile contained in **Appendix A** provides a thorough analysis of the natural environment. The key issues and implications identified within the Environmental Profile are reflected in **section 4.2.1**.

The broad and diverse landforms of the Shire, from the Hamersley Ranges in the inland east, to the flood plains and coast in the west, underpin the soil, water and vegetation characteristics. The great river systems that flow across the Shire, through the steep gorges and hills and across the scrubby steppe regularly flood the surrounding landscape during the wet season and from tropical cyclones. The river systems form important catchments for surface water runoff and feed groundwater systems.

Increases in temperature and extreme weather events are projected to occur as a result of climate change. This would have the potential to impact on the health of the environment and the community, as well as the maintenance of public lands and capacity of infrastructure systems including those managed by the Shire.

Sea level rise and coastal vulnerability will increase along the rangelands coastline in the near future. Management of existing infrastructure and planning future development will require consideration of vertical allowances and setback distances.

Expansion of tourism, commercial fishing, aquaculture and resource industry activity will increase pressure on sensitive and productive coastal marine environments which provide habitats and breeding grounds (seagrass meadows, turtle nesting on beaches, river mouths/intertidal mud flats) for marine life. Recreational activity (camping, coating, fishing, swimming and 4WDing) around sensitive coastal environments associated with population growth and industry development will also impact upon local biodiversity and environmental values.

Coastal spaces which support recreational activity should consider cumulative impacts on sensitive environments and minimise impacts through appropriate management.

The majority of the Shire is indicated as being located within a Bush Fire Prone Area of Western Australia as designated by the Fire and Emergency Services (FES) Commissioner. Any future planning and development within a designated Bush Fire Prone area should be consistent with the requirements of SPP 3.7 (refer **section 2.3.11**).

4.2.1 ENVIRONMENTAL ISSUES

A summary list of issues and opportunities is provided:

- Weed management – this has become problematic. In particular, *Aerva javanica* (Kapok bush), *Leucaena leucocephala* (Coffee Bush, previously used as cattle feed, which invades riparian areas and disturbs the ecological regimes associated with waterways), *Parkinsonia aculeata*, and *Prosopis glandulosa/glandulosa x velutina/pallida* (Mesquite, a declared plant (noxious weed) and weed of national significance which is particularly problematic towards the coast near the Fortescue river delta and in/around Tom Price).
- Soil stabilisation and dust – high winds and human disturbance (construction/industry) can result in significant sand drift and dust, and it is often not properly managed. It is particularly problematic in coastal Onslow.
- Groundwater – in terms of the lack of knowledge of availability/quality and competing interests (mining vs. drinking water vs. agricultural use).
- Sand mining from creek beds for extraction of basic raw materials/concrete manufacturing has negative impacts on waterway ecosystems and habitats.
- Illegal dumping of oils/asbestos and other rubble/goods is problematic in the Shire as it is not monitored/managed very much.
- Wetlands and marshes are particularly sensitive and require appropriate management and protection.

4.3 SUMMARY AND IMPLICATIONS FOR LAND TENURE AND LOCAL ENVIRONMENTAL PROFILE

The following **Table 8** considers the implications, issues and opportunities from a land tenure and local environmental profile context.

Table 8 Implications, Issues and Opportunities – Land Tenure and Local Environmental Profile

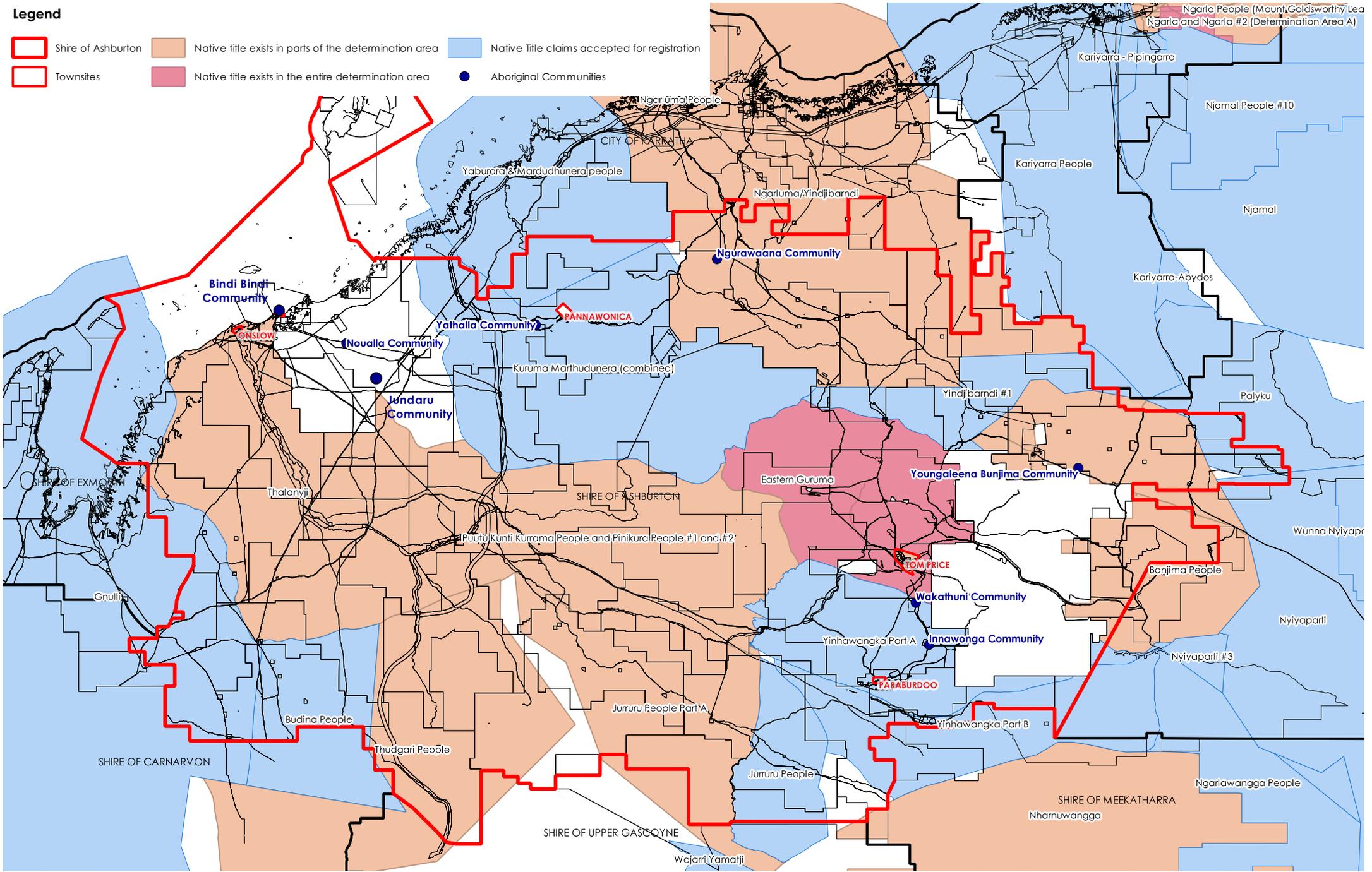
Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
Land Tenure	<p>Overall land tenure is Crown land.</p> <p>Crown land is unallocated, or is subject to reserves, or to leases.</p> <p>Freehold land is more typical within the three townsites of Onslow, Tom Price and Paraburdoo.</p>	<p>Pastoral leases are issued by the Department of Planning, Lands and Heritage.</p> <p>Amendments to the <i>Land Administration Act 1997</i> propose to introduce rangeland leases. These will have a broader range of uses than the more limited scope of pastoral leases.</p> <p>While conservation reserves are managed by the Department of Biodiversity Conservation and Attractions, the Shire may consider active management of the following issues to assist in conservation and protection of biodiversity regarding uncontrolled access, weeds and feral animals.</p>	<p>While heritage is primarily managed through State and Commonwealth legislation, opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements with traditional owners and optimise opportunities for Indigenous training, employment and businesses. Consideration should also be made to native title and ILUAs where applicable, when considering any planning or development proposals, in discussion with appropriate traditional owners.</p>
Native Title	<p>A number of native title determination areas and native title claim areas cover the Shire of Ashburton.</p> <p>Pastoral leases and the proposed rangeland leases (under the <i>Land Administration Act 1997</i>) do not extinguish native title, and are able to co-exist.</p>	<p>Urban expansion within townsites should be alienated from Crown land as freehold land. There may be implications associated with addressing native title and Aboriginal heritage.</p>	<p>Engagement with traditional owners is required to meet legislative requirements of native title. Increased benefits may be observed through an elevated level of involvement of the traditional owners within the Shire in terms of land and cultural heritage management.</p> <p>Identify Crown land for urban expansion or other uses and work with agencies and the representative Traditional Owners to address native title and Aboriginal heritage within Onslow, Tom Price and Paraburdoo.</p> <p>Ensure that land is ready for future/anticipated housing supply within townsites.</p>
Local Environmental Profile	<p>Environmental Profile contained in Appendix A provides a thorough analysis of the natural environment.</p>	<p>Increases in temperature and extreme weather events are projected to occur as a result of climate change. This would have the potential to impact on the health of the environment and the community, as well as the maintenance of public lands and capacity of infrastructure systems including those managed by the Shire.</p> <p>Sea level rise and coastal vulnerability will increase along the rangelands coastline in the near future. Management of existing infrastructure and planning future development will require consideration of vertical allowances and setback distances.</p> <p>Expansion of tourism, commercial fishing, aquaculture and resource industry activity will increase pressure on sensitive and productive coastal marine environments which provide habitats and breeding grounds (seagrass meadows, turtles nesting on beaches, river mouths/intertidal mud flats) for marine life. Recreational activity (camping, coating, fishing, swimming and 4WDing) around sensitive coastal</p>	<p>Temperature – Increases in temperature are likely to result in increased needs for cooling and/or impacts on environmental and public health. Consideration should be given to heat island impacts in regional towns and the need for green infrastructure and shade in public and private places to mitigate heat increases in built environments. This may also result in an increase in water demands, and thus adequate water sources. Development should also incorporate passive solar design and breezeways.</p> <p>Extreme weather – Increases in extreme weather events, particularly bushfires as well as rainfall/tropical cyclones, may require development to be located away from areas of risk and/or improved emergency management responses and plans. Infrastructure adequate to manage extreme weather conditions will also require consideration.</p> <p>Rainfall change – Increases in rainfall event intensity may result in greater localised flooding and increased pressure on stormwater systems. Stormwater systems should be designed with contingency for increased rainfall intensity.</p>

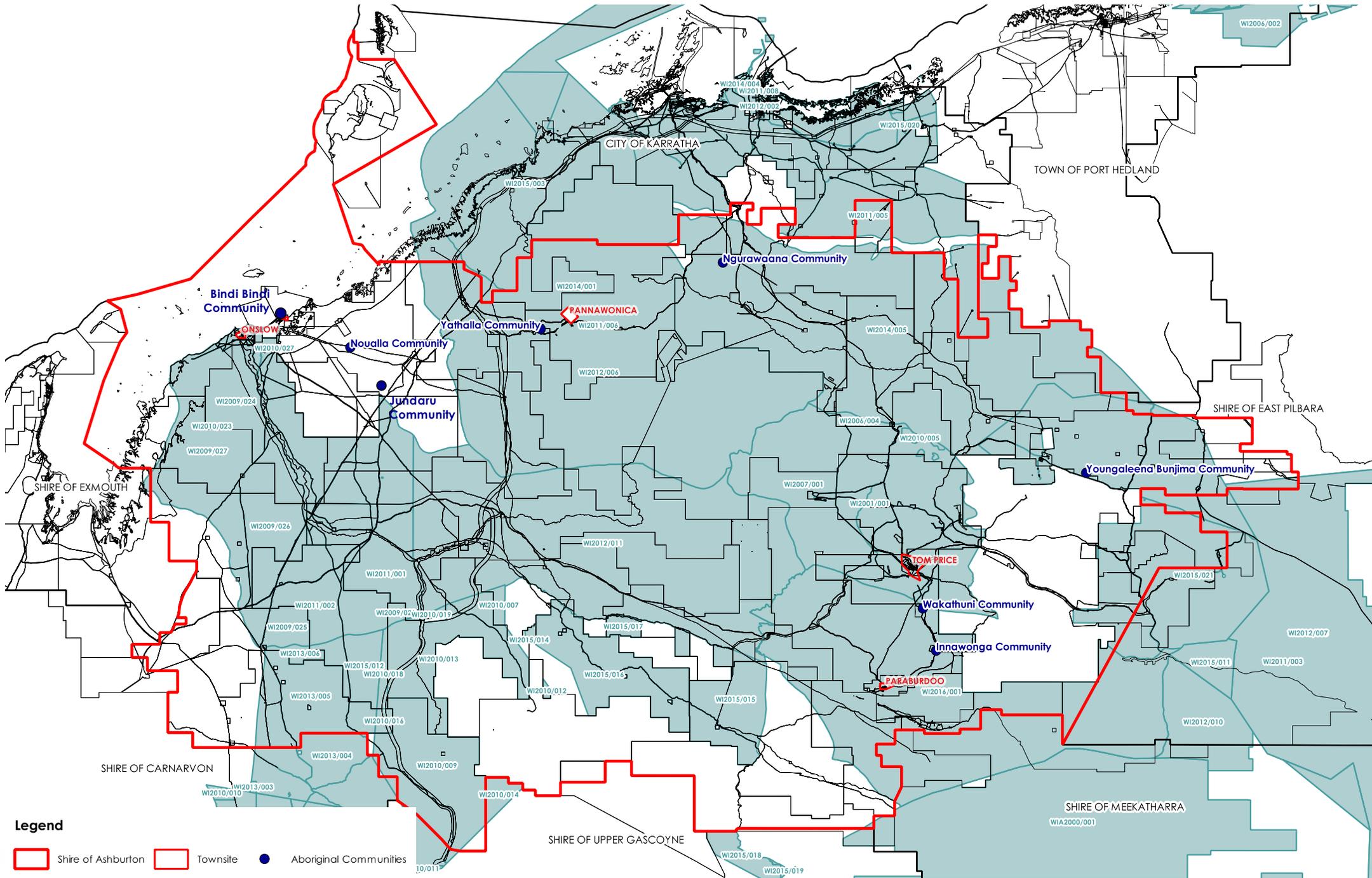
Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
		<p>environments associated with population growth and industry development will also impact upon local biodiversity and environmental values.</p> <p>Coastal spaces which support recreational activity should consider cumulative impacts on sensitive environments and minimise impacts through appropriate management.</p> <p>The majority of the Shire is indicated as being located within a Bush Fire Prone Area of Western Australia as designated by the Fire and Emergency Services (FES) Commissioner - this is addressed through the Bushfire Hazard Level Assessment prepared for the <i>Local Planning Strategy</i>.</p> <p>The Shire is well known for its impressive terrestrial, marine and aquatic biodiversity. A significant proportion of the Shire's biodiversity is protected in a number of conservation areas.</p>	<p>Dust – Dust generated from bushfires should be monitored and management responses developed to inform the public regarding health risks during bushfire events. Management of fuel loads without exceeding threshold air quality standards should also be considered through the development of an Air Quality Management Plan, and a program of regular fuel reduction which minimises air quality impacts on townsites and sensitive environments, on advice from the Bushfire and Natural Hazards Cooperative Research Centre. Dust from localised extraction and production of minerals, particularly near townsites, should be monitored and infringement notices issued where necessary, consistent with the <i>Extractive Industries Local Law 2013</i>.</p> <p>Greenhouse gas emissions – Emissions which result from Shire operations may be reduced through increased use of renewable energy and implementation of actions to improve energy efficiency.</p> <p>Asbestos – The Shire should maintain advice with regards to potential for health risks from the former mine sites and associated communities.</p> <p>Resource extraction – Clearing of the land for resource extraction results in a loss of biodiversity and can lead to erosion. Mining activities impact on the visual landscape of the Shire; can result in off-site impacts on nearby land uses including dust, noise and light; and can also lead to the lowering of groundwater tables.</p> <p>Acid sulphate soils – Declining soil and land quality can occur as a result of activity where acid sulphate soils are disturbed. This leads to the release of acid and heavy metals which can cause significant harm to the environment and infrastructure. Appropriate management of acid sulphate soils, particularly in areas of high risk where changes in groundwater are likely or mining is proposed, is required, consistent with current best practice.</p> <p>Contaminated sites – Given that contaminated sites within the Shire are located within operational oilfield facilities, and within the Wittenoom abandoned townsite, consideration should be given to processes established under the <i>Contaminated Sites Act 2003</i>, particularly in coordination with the Department of Planning, Lands and Heritage with respect to Wittenoom. In addition, any unsewered residential and industrial areas within the Shire have the potential to lead to contamination of land and groundwater and alternative treatment units should be used in areas of high environmental risk.</p> <p>Waste management – Consideration should be given to opportunities to establish local or regional waste management and/or recycling facilities as population in the region increases, as well as opportunities to subsidise recycling schemes. This should include industries with multiple benefits such as waste to energy plants.</p>

Land Tenure and Local Environmental Profile	Implications	Issues	Opportunities
			<p>Soil and vegetation condition – Vegetation retention assists in the maintenance of soil health. Soils and vegetation (grasslands and shrublands) in good condition are also associated with higher agricultural productivity. Supporting the development and planning process of Ecologically Sustainable Rangeland Management (ESRM) Plans for land managers in coordination with the Pastoral Lands Board and DPIRD should also be considered.</p> <p>Commercial activity – Planning for and management of activities associated with the resources industry, commercial fishing and aquaculture must consider impacts on sensitive coastal environments which provide habitat for coastal and marine life. Consideration should be given to the location of supporting industrial areas, which adequately manage any potential off-site or environmental impacts. In addition, coastal spaces which are shared with recreational activity should be planned to ensure multiple, cumulative impacts on sensitive environments are considered and impacts are appropriately managed.</p> <p>Tourism – management and planning of sustainable tourism activity such as camping, boating, swimming, fishing, and 4WDing, and development around sensitive coastal environments such as beaches, river mouths (Beadon Creek), and seagrass meadows, will be critical with population and industry growth, development of tourism, and townsite expansion. Engagement with traditional owners should be considered to ensure that cultural heritage values are not lost, particularly within the native title area for the Thalanyji community.</p>

Legend

- Shire of Ashburton
- Native title exists in parts of the determination area
- Native Title claims accepted for registration
- Townsites
- Native title exists in the entire determination area
- Aboriginal Communities





Legend

- Shire of Ashburton
- Townsite
- Aboriginal Communities

REGISTERED AND NOTIFIED INDIGENOUS LAND USE AGREEMENTS (ILUA)

Local Planning Strategy
A Shire of Ashburton Project

Source: National Native Title Tribunal,
ILUA Registered Notified Nat,
8 Oct 2016

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5 POPULATION AND HOUSING

Population and demographic information for the Pilbara region can be sourced from the ABS Census Data (ABS, 2012), (ABS, 2016) and from the PDC's website (REMPPLAN, 2017). The PDC website has considered statistics across the region and the following data has been extracted for the Shire of Ashburton.

This section is structured to discuss the background context as well as implications, issues and opportunities in relation to:

- Ashburton Demographics;
- Observed Population Growth Trends;
- Population Growth Forecasts;
- Housing Characteristics; and
- Development Scenarios.

5.1 ASHBURTON DEMOGRAPHICS

At the 2016 Census, the population for the Shire of Ashburton was officially recorded at 13,026 whilst another 12,572 people were counted as visitors – with 1% from the same statistical area; 67% from other regions of WA; 15% from Queensland; 7% from NSW; 6% from Victoria; and remainder from Tasmania, SA, ACT and NT (ABS, 2016).

Based on census data, the resident population has increased by approximately 3,025 people between 2011 and 2016, and by approximately 3,923 people between the census periods of 2006 and 2011. Current population estimates from official sources at the town level indicate that approximately 46% of the counted population are within the four townsites. This provides an indication of the number of FIFO workers that were counted on census nights.

The following **Figure 12** provides an overview of the demographic characteristics for the Shire of Ashburton, based on the 2016 Census data.



			Shire of Ashburton	WA – Outback North	Western Australia	Australia
AGE		median age	36	33	36	38
INCOME		median weekly household income	\$2,456	\$2,202	\$1,595	\$1,438
FAMILY COMPOSITION (count based on families, not persons)		couple with children	33.2%	48%	45.3%	44.7%
		one parent with children	9.7%	15.8%	14.5%	15.8%
		couple without children	56.1%	34.1%	38.5%	37.8%
PLACE OF ENUMERATION		counted at home	49.0%	66.7%	94.0%	95.1%
		visitors within the same area	0.4%	0.4%	0.1%	0.1%
		total visitors from other parts of WA and other States and Territories	50.6%	32.9%	5.9%	4.7%
DWELLING TYPES (count based on dwellings, not persons)		separate house	6.1%	58.9%	68.6%	64.8%
		semi-detached, row or terrace house, townhouse	5.5%	6.7%	12.3%	11.3%
		flat or apartment	2.1%	4.0%	4.9%	11.7%
		other dwellings (inc. caravan, cabin, tents)	2.8%	3.8%	0.6%	0.7%
		unoccupied private dwellings	28.7%	25.8%	13.3%	11.2%
COST OF HOUSING		households with a mortgage	2.4%	13.3%	39.7%	34.5%
		median weekly rent	\$32	\$161	\$347	\$335
		median monthly mortgage repayment	\$2,000	\$2,443	\$1,993	\$1,755
		households renting	86.4%	72.7%	28.3%	30.9%
LANGUAGE SPOKEN AT HOME		speaks other language and english	11.4%	14.6%	17.6%	20.8%
		speaks english only	72.1%	69.2%	75.2%	72.7%
INDIGENOUS		aboriginal & torres-strait islander	7.9%	24.1%	3.1%	2.8%
SCHOOL/ EDUCATION		university attendance	4.7%	4.3%	13.9%	16.1%
		bachelor or higher degree	11.0%	12.6%	20.5%	32.1%
		vocational attendance	5.5%	4.8%	6.1%	5.9%
		not stated	58.2%	46.2%	25.8%	23.7%
		in school (pre school to secondary)	30.3%	43.0%	51.8%	51.6%
WORKING POPULATION		unemployment	2.0%	5.8%	7.8%	6.9%
		labour force participation	74.9%	65.8%	62.9%	60.3%
SOCIO-ECONOMIC DISADVANTAGE (2013, based on 2011 Census)		SEIFA index*	1,057	980	1,021	1,002
NEED FOR ASSISTANCE		has need for assistance	94	1,614	95,653	1,202,945

Figure 12 Overview of Shire of Ashburton Demographics (ABS, 2016)

5.1.1 POPULATION CHANGES

The following **Table 9** indicates population changes within the townsites between 2001 and 2016, based on available 'Usual Place of Residence' census data. This information is helpful for determining the approximate distribution of the population between the four towns, and a greater indication of the number of the population being counted in the rural/rangeland areas. The non-townsite population is potentially dominated by people being counted in camps. This can also be seen in the increase in workforce accommodation beds within the Shire (refer **section 5.3.2**). The amount of the Shire population that was recorded within the towns of Onslow, Tom Price, Paraburdoo, and Pannawonica increased during 2001-2006 but decreased during 2006-2011 as per **Table 9**.

Table 9 Population changes 2001-2016 (ABS, 2002), (ABS, 2007), (ABS, 2012), (ABS, 2016)

POPULATION CHANGES BETWEEN 2001 AND 2016 – Basic Community Profiles, Usual Place of Residence							
ANNUAL AVERAGE GROWTH RATE (AAGR) – Based on a yearly annual growth rate between each census period							
Year	Onslow	Tom Price	Paraburdoo	Pannawonica	Townsites	Townsites as a percentage of the Shire population	Shire of Ashburton
2016	857	3,005	1,380	695	5,937	45.6%	13,026
Growth Rate 2011-2016	28.68%	-4.12%	-8.49%	6.60%	-0.39%		6.05%
2011	666	3,134	1,508	652	5,960	60%	10,001
Growth Rate 2006-2011	15.83%	15.22%	-6.04%	-4.68%	6.73%		12.91%
2006	575	2,720	1,605	684	5,584	92%	6,078
Growth Rate 2001-2006	-29.45%	14.77%	32.97%	8.23%	11.15%		7.82%
2001	815	2,370	1,207	632	5,024	89%	5,637
Avg Growth Rate 2006-2016	0.52%	2.68%	1.43%	1.00%	1.82%		13.11%

The following **Table 10** illustrates the spatial areas of the four townsites, as per the 2016 Census.

Table 10 Census Areas for State Suburb Catchments as at 2016 (ABS, 2016)



Townsite demand on housing accommodation can generally be attributed to the number of resource sector developments that have occurred within the Shire and the Pilbara region. This analysis is broken down further for each town:

- It is noted that the population of Onslow may substantially increase during high season to approximately 3,000-4,000 people (SoA, 2017). A number of new houses have been built as referred to in **section 5.4.1**. The

construction of new homes has contributed to population growth within the townsites. As a consequence, the town service population is estimated at 1,160 people, with an estimated 850 permanent residents (AEC Group, 2016). The estimation of 850 residents is consistent with the 2016 census.

- Additional housing has been developed within the northern half of Tom Price. The Shire of Ashburton is also investigating land within Area W through Scheme Amendments 27 and 31. These land areas were also identified in the *HotSpots Update* (WAPC, 2015).
- The population of Pannawonica has remained relatively stable, although Rio Tinto calculates the population to be approximately 800 people (Rio Tinto, 2015). It is understood that during 2009-2012, Rio Tinto refurbished all 230 houses within the town and upgraded community and commercial infrastructure (Rio Tinto, 2015).

5.1.2 AGE-SEX DISTRIBUTION

The following **Figure 13** shows a shift in the age of Shire residents, with:

- Decreasing proportion of residents aged 0-24 years;
- Stabilising proportion of residents aged 25-44 years, and 65 years and over; and
- Increasing proportion of residents aged 45-64 years.

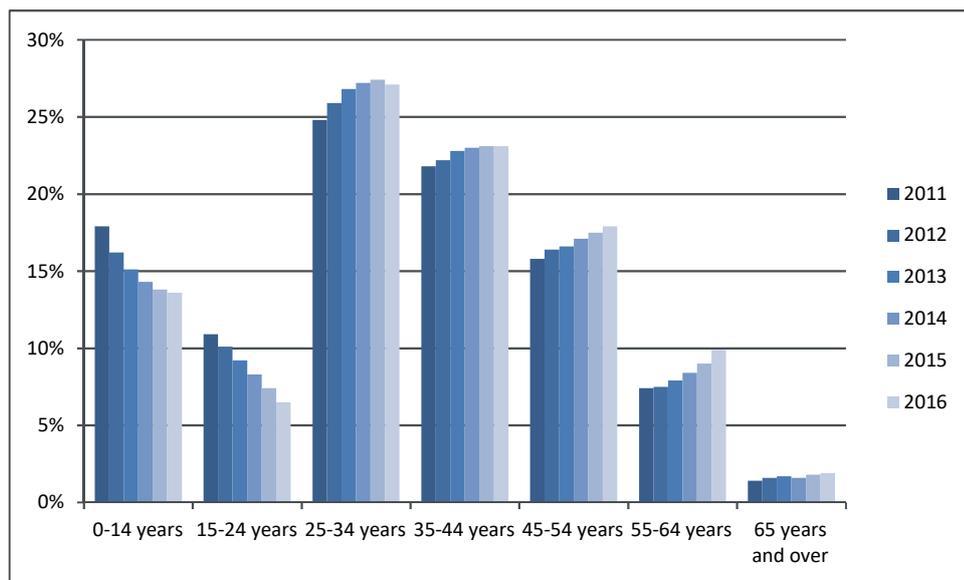


Figure 13 Estimated Resident Population – Persons (Percentage) (ABS, 2016)

The ratio of males to females has notably increased from 56% male in 2006, 65% male in 2011, to 72% male in 2016 (ABS, 2016). This imbalance is forecasted through *WA Tomorrow* to continue, refer **Figure 14**. It would be strategically important to improve the balance in the male-female ratio closer towards the regional or State average, in order to improve the representation of both genders. Greater balance within the community would contribute to more long-term lifestyle choices (i.e. single people seeking partners could then choose to remain within the Shire).

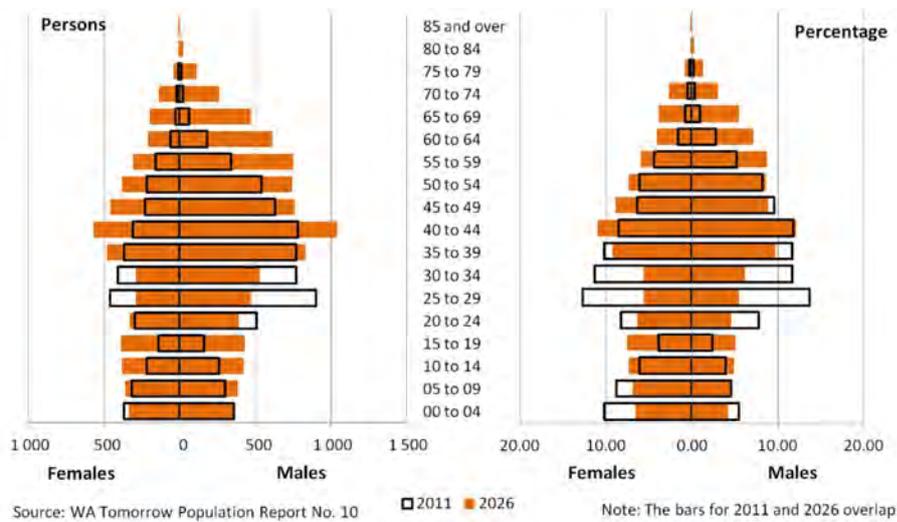


Figure 14 Age-Sex Distribution – Band C (WAPC, 2015)

As discussed in **section 3.8.3**, the longer that people remain within the region the more likely they are to stay. This is particularly relevant to Onslow, which has a reasonably stable long-term population base when compared with other resource towns (AEC Group, 2016). It is important for the Shire and neighbouring local governments to focus on the attributes that not only attract people to stay (such as work) but to remain and age in place in a manner that enhances their own lives and their family formations (such as shopping, services, quality of life, social life, recreation, etc).

5.1.3 INDIGENOUS STATUS

Figure 15 illustrates the ratio of the population being of Aboriginal and Torres Strait Islander origin (REMPAN, 2017). The percentage of the population identified as Aboriginal and Torres Strait Islander was 9.3% in 2011 (Profile.id, 2016) and 7.9% in the 2016 census (ABS, 2016). The data indicates an increase in 348 Aboriginal and Torres Strait Islanders between the census periods of 2006 and 2011, and a further increase of 90 Aboriginal and Torres Strait Islanders between the 2011 and 2016 census periods.

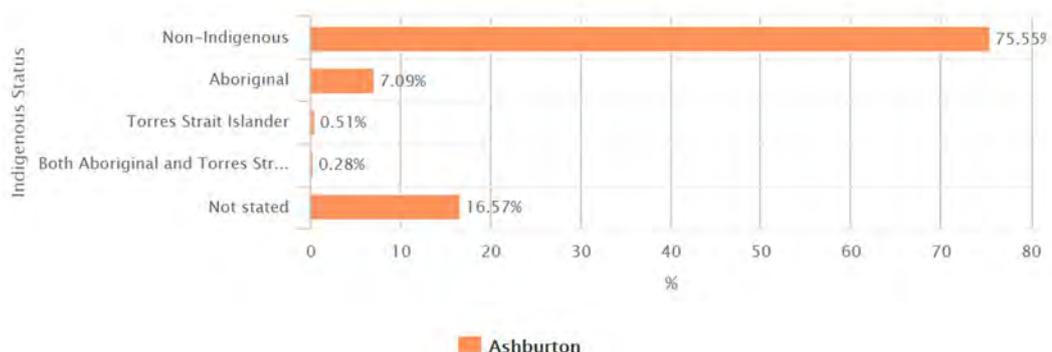


Figure 15 Indigenous Status, Shire of Ashburton (REMPAN, 2017)

Based on the 2016 census, the following number of Aboriginal and/or Torres Strait Islanders were counted for each town: Onslow – 181 (or 21.1%); Tom Price – 291 (or 9.7%); Paraburdoo – 124 (or 8.9%); and Pannawonica – 65 (or 9.4%).

5.1.3.1 ABORIGINAL SETTLEMENTS

The Wakathuni, Youngaleena Bunjima, Bellary Springs (Innawonga) and Ngurrawaana communities are being rezoned to 'Settlement' under the Shire's local planning scheme and are considered to be Aboriginal Settlements under SPP 3.2 (refer **section 2.3.8**). The SPP 3.2 does not consider a number of communities (including Wirrlu Murra, Bindi Bindi, Jundaru, Yalathala and Westside) to be Aboriginal Settlements and it is understood that the Department of Planning, Lands and Heritage will not be preparing Layout Plans or applying a 'Settlement' zone to these.

The following community populations have been made available from various sources (Hames Sharley, 2000) (SoA, 2017):

- Wakathuni – approximately 90 people and 26 houses. The Wakathuni Layout Plan indicates that approximately 10 dwellings will be needed over the life of the plan;
- Bindi Bindi – approximately 120;
- Bellary Springs (Innawonga) – approximately 50;
- Youngaleena Bunjima – approximately 50; and
- Ngurrawaana – approximately 30.

5.1.3.2 STATE GOVERNMENT ROADMAP TO REFORM

The State recognises a number of challenges in remote Aboriginal communities (Government of Western Australia, 2016):

- The scale/size and remoteness of Aboriginal communities;
- History of exclusion as communities were established in the colonial and Federation eras, and exodus of Aboriginal people from pastoral stations during the 1960s and homelands movement in 1970s;
- Living conditions and relationship to environmental health conditions;
- Impediments to self-determination due to land tenure and other limitations;
- Distance to markets, jobs, etc as a result of remote community locations; and
- *Ad hoc* and unmanaged delivery arrangements for key services.

The State government has committed to address challenges facing Aboriginal people in Western Australia, particularly within the regions. The roadmap seeks to set directions for reform that will aim to improve education opportunities, employment opportunities, childhood development, earlier intervention to help 'at risk' families, and to break the welfare trap (Government of Western Australia, 2016). The State government's roadmap sets direction statements for reform and the five principles underpinning reform include:

- Every child lives in a safe environment that nurtures early childhood development;
- Every child receives an education to equip them to make life choices;
- All adults can access training and employment or other purposeful occupation;
- Aboriginal people can maintain links to country, culture and kin; and
- Aboriginal people living remotely have certainty about the State Government's framework for investing in remote communities.

The State government will use its Regional Services Reform Unit to engage with Aboriginal families and communities on the roadmap's reform directions, and in the design and implementation of key initiatives. At the same time, the State government has committed to 10 priority actions for immediate implementation (Government of Western Australia, 2016):

The State Government will identify a number of communities with which it will work to upgrade essential and municipal infrastructure, and introduce commensurate charges.

In 2016-17, the State Government will commence a \$20 million initiative to ensure that residents of town-based reserves in the Pilbara receive the same services and opportunities, and are subject to the same payment responsibilities, as other residents of the relevant town.

The State Government will work with community leaders and organisations in Roebourne in 2016-17 to co-design a reorientation of government-funded services to respond better to local needs and achieve better local outcomes.

During 2016-17, the State Government will publish mapping of government funded services in the Kimberley and Pilbara to support work between government agencies, other organisations and communities on developing place-based service systems.

In 2016-17, the State Government will commence an initiative in Kununurra with community leaders and organisations to co-design a family-centred, earlier intervention service delivery model to support and enable better outcomes for local families.

The State Government will continue to support the trial and evaluation of the Cashless Debit Card in the East Kimberley.

The State Government will work with the Commonwealth Government to implement the Compulsory Rent Deduction Scheme in Western Australia.

The State Government will commit \$25 million towards a three-year Kimberley Schools Project, starting in 2016-17, that seeks to accelerate student improvement in schools and communities that opt-in to the project.

From 2016-17, the State Government will create new opportunities for Aboriginal people and businesses in the regions through State Government recruitment, purchasing and contracting practices.

The State Government will establish an Aboriginal Housing Fund of up to \$200 million to increase housing choices and support services for Aboriginal families in the North West over four years.

State government agencies remain responsible for delivering existing services for Aboriginal families and communities, and continue to improve them as part of their normal business (Government of Western Australia, 2016). Agencies will be required to support and implement the reform.

5.2 OBSERVED POPULATION GROWTH TRENDS

5.2.1 PILBARA REGIONAL POPULATION GROWTH TRENDS

The Pilbara regional population grew by 24% over a period of 10 years. The Pilbara regional population grew from 49,413 people in 2006 before peaking at 65,062 in 2013, and then declining between 1.13-2.43% from 2013-2016. This population growth correlates with a period of higher mining activity. **Figure 16** demonstrates the population change for the four local government areas (Ashburton, East Pilbara, Port Hedland and Karratha). It is notable that the Shire of Ashburton is the only local government to record consistent growth over the 10-year period.

Pilbara Region Population % Change

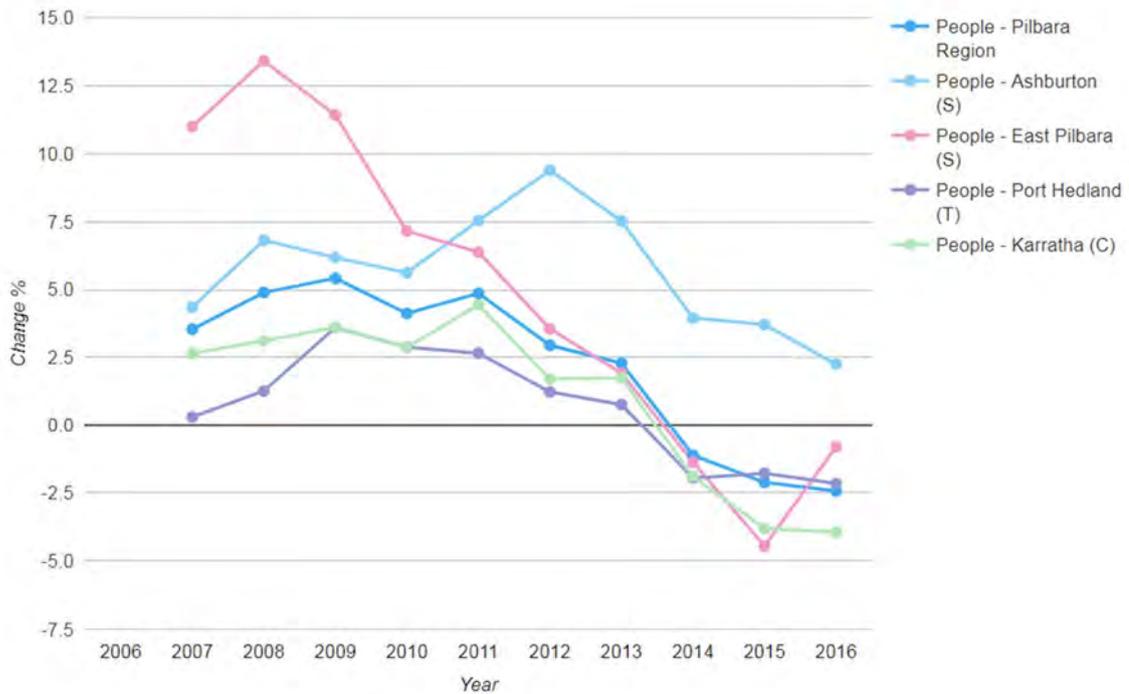


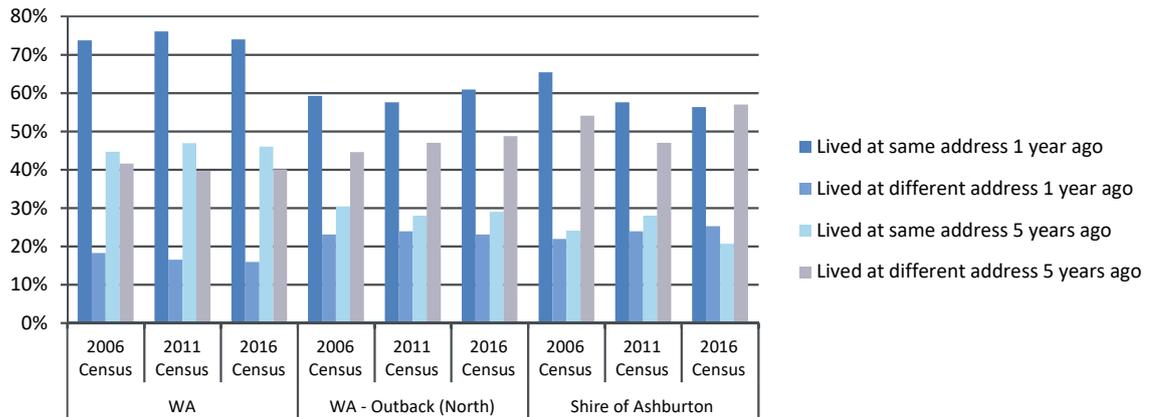
Figure 16 Population % Change by Local Government Area, 2006-2016 (REMPPLAN, 2017)

The *Pilbara Regional Investment Blueprint* sets what it calls an aspirational yet achievable population target of 200,000 by 2035, an increase of 135,000 people across the region. Focus will be on Port Hedland, Karratha and Newman, although the *Blueprint* does not intend to specify population growth targets for towns or cities. Instead, other cities and towns (such as Tom Price, Paraburdoo and Onslow) would also grow in a sustainable manner that ensures that communities can develop in a socially cohesive manner with the appropriate availability and access to necessary services, employment opportunities, and housing choice.

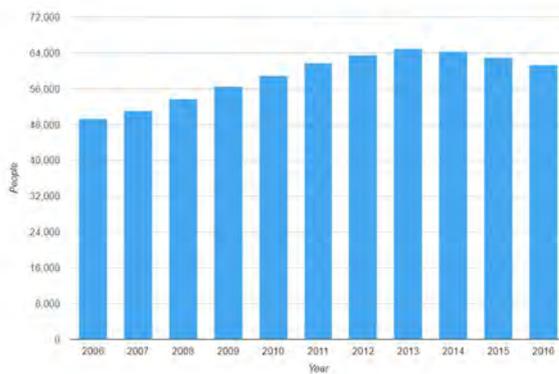
5.2.2 ASHBURTON LOCAL GOVERNMENT POPULATION GROWTH TRENDS

The 2016 ABS Census data provides interesting insight into the population growth trends for the Shire. The census identifies that there has been a higher trend of people living at different addresses (1 year ago and 5 years ago), implying a somewhat migratory population. **Figure 17** indicates that whilst the regional population has stabilised, population growth has been experienced in the Shire (REMPPLAN, 2017). This follows regional trends (refer **section 5.2.1**) where the transition of projects from construction to operational phases means smaller workforces are required. Residents may be moving to pursue other opportunities in other parts of the region.

There is a noted reduction of employment in the mining industry (a trend representative across Australia), which would attribute to population stabilisation and population migration. Given the strong relationship between town population and mining activity, there has been a marked reduction on housing demand and population growth. This can be observed through significant drops in property values (refer **section 5.4.3**).



Pilbara Region
Population



Ashburton (S)
Population

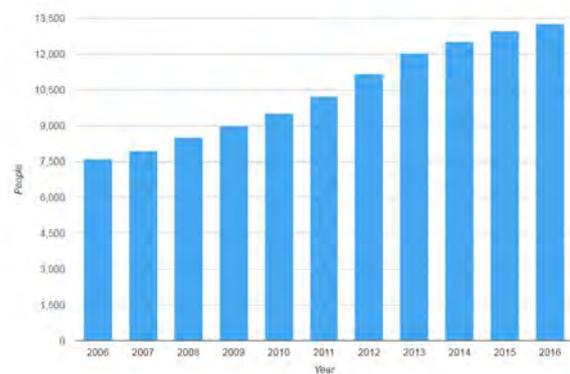


Figure 17 Population Growth, Pilbara Region and Shire of Ashburton (REMPAN, 2017)

Population growth has been brought on by housing demand as a result of the eight-year period of increased activity within the mining and oil and gas industry sectors. Whilst the data may be slightly different, both the REMPLAN and ABS information supports the inference that future population growth is likely to be directly impacted by the growth or contraction of commodity economic performance. The size of the employment sector of mining, oil and gas sectors will continue to play a role in population growth across the townsites and the region.

As discussed in **Chapter 6**, diversification of the economy can help strengthen the population and provide more of a buffer against changes in the mining and oil and gas industry sectors. As a greater number of occupations could be introduced across a wider range of sectors, this can help create with the permanency and resilience of the population. This also links to the opportunities to improve on liveability factors and other issues that, if promoted, can contribute to people deciding to settle within the Shire. Such areas of focus can be in safety; health and wellbeing; education and training; lifestyle; sense of community; and community connectedness.

5.3 POPULATION GROWTH FORECASTS

The Shire's *Corporate Business Plan* (refer **section 3.2**) assumed a projected increase in population of 5% per annum over the next 10 years. The assumptions behind this may have been associated with ongoing population growth due to pressures within Tom Price and Paraburdoo for additional workforce accommodation, and the establishment of the ANSIA.

The ANSIA in particular was expected to treble Onslow's population between 2011 and 2016 (Creating Communities, 2011). The State Government has gazetted the ANSIA Improvement Scheme No. 1, which considers construction and operational 'Workforce Accommodation' to be located within the ANSIA. Operational workforce within ANSIA will have a bearing on population growth in Onslow. The approval for Chevron Australia's operational workforce to be housed in the Wheatstone Construction Village for the next 15 years, rather than in Onslow, has potentially negated the need for additional housing stock. Through the ability for operational workforce to reside within the ANSIA, pressure for housing in Onslow would subside.

Growth in Tom Price, Paraburdoo and Pannawonica is largely governed by the level of activity within the mining industry. Current forecasts indicate that growth is likely to be limited to infill development and small green field site developments within and around the existing township footprints.

Limited population growth has been anticipated in Paraburdoo and Tom Price. Notwithstanding, investigations suggest that there is the ability for infill housing within both townsites, as well as opportunities for expansion of the urban footprint within the gazetted townsite boundaries. Paraburdoo and Tom Price population growth is largely dependent on accommodation demand for Rio Tinto's workforce. Vacancy rates are understood to be increasing in towns at present and no immediate increase in housing is required to meet demand.

5.3.1 WA TOMORROW POPULATION FORECASTS (2015)

WA Tomorrow is a series of population forecasts based on historical trends. The forecasts represent the best estimate of future population size if trends in fertility, mortality and migration continue. The *WA Tomorrow Population Report No. 10* (WAPC, 2015) contains the latest population forecasts by age and sex and represents the official State Government forecasts for the years 2014-2026. Given the timeframe of this Local Planning Strategy, the *WA Tomorrow* figures for 2014-2026 are considered to be relevant.

WA Tomorrow consists of five bands of forecasts (bands A to E). As the Strategy does not wish to favour one any particular probability of population growth, Band C is selected as the strategic scenario. 'Band C' represents the median forecast and represents a stable pattern of growth. The *WA Tomorrow* forecasts do not take into account unforeseen events that may change trends, such as significant shifts in government policy, significant economic shifts, natural disasters and epidemics.

5.3.1.1 PILBARA REGION 'BAND C' POPULATION TRENDS

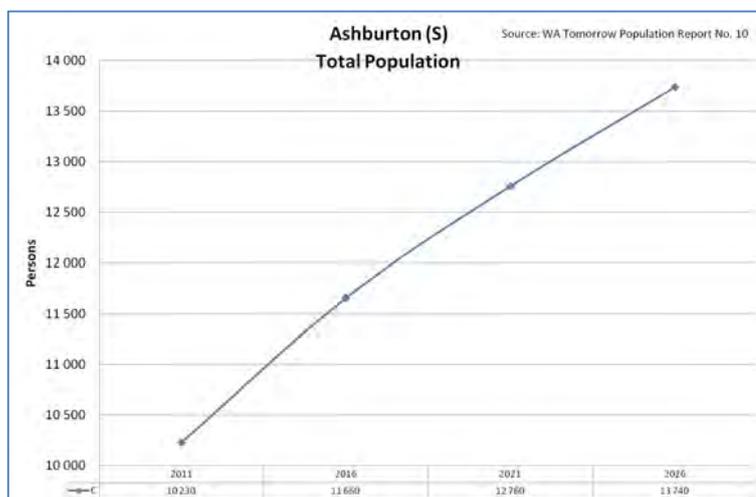
The following **Table 11** provides a comparison between the Band C growth projections for the Shire of Ashburton, the Pilbara Region, and Western Australia. The population growth projections are based on the average annual growth rates, refer **Table 13**. The data demonstrates that over the next 15 years, the Shire's population will slightly increase as a percentage share of the regional population. It is noted through the 2016 Census that the Pilbara regional population has weakened slightly whilst the Shire population has grown.

Table 11 Medium Term Population Characteristics 2016 to 2026 (WAPC, 2015)

Year	BAND C		
	Shire of Ashburton Population (% of Regional Population)	Pilbara Region Population (% of WA Population)	Western Australian Population
2011	10,230 (16.56%)	61,780 (2.63%)	2,353,370
2016	11,660 (16.51%)	70,610 (2.64%)	2,667,430
2021	12,760 (16.54%)	77,130 (2.59%)	2,975,910
2026	13,740 (16.66%)	82,490 (2.52%)	3,274,340

5.3.1.2 SHIRE OF ASHBURTON 'BAND C' POPULATION TRENDS

The following **Graph 1** indicates the population forecast from 2010-2026, based on the 'Band C' projections contained in *WA Tomorrow* (WAPC, 2015). This represents population growth of 3,510 people over a 16-year period.



Graph 1 Band C – Shire of Ashburton (WAPC, 2015)

The Band C annual average growth rates are demonstrated in **Table 12**. These rates are far lower than the assumed 5% per annum in the Corporate Business Plan. These rates are also much higher than the latest trends from 2013-2015 (ABS, 2017); however, the Band C annual average growth rate is also far lower than the rates of growth experienced during 2005-2013.

Table 12 Average Annual Growth Rates (Band C) (WAPC, 2015)

BAND C – AVERAGE ANNUAL GROWTH RATE			
Year	Shire of Ashburton	Pilbara Region	Western Australia
2016	2.65%	2.71%	2.61%
2021	2.23%	2.24%	2.37%
2026	1.99%	1.95%	2.23%

The AEC Group compiled a range of population projections and generated Population Projections (excluding visitors) for Onslow, Tom Price and Paraburdoo (including in-town Operational FIFO). These are summarised in **Table 13**.

Table 13 Population Projections (Exc. Visitors), Onslow, Tom Price, Paraburadoo.
Sources: (AEC Group, 2015) (AEC Group, 2016)

Year Ending	Onslow		Tom Price		Paraburadoo		Total
	Residents	In Town Operational FIFO	Residents	In Town Operational FIFO	Residents	In Town Operational FIFO	
2013	750	100	3,400	660	1,600	400	6,910
2014	770	140	3,430	660	1,600	400	7,000
2015	1,030	220	3,460	660	1,610	400	7,380
2016	850*	150*	3,480	660	1,610	400	7,150*
2017	970*	170*	3,500	660	1,600	400	7,300*
2018	1,000*	150*	3,520	660	1,600	400	7,330*
2019	1,010*	150*	3,540	660	1,590	400	7,350*
2020	1,030	130	3,540	660	1,580	400	7,340
2021	1,020	130	3,550	660	1,570	400	7,330
2022	1,020	130	3,550	660	1,560	400	7,320
2023	1,010	130	3,550	660	1,550	400	7,300
2024	980*	140*	3,550	660	1,540	400	7,270*

Note: * indicates projections from (AEC Group, 2016); remainder of projections from (AEC Group, 2015).

5.3.2 WORKFORCE ACCOMMODATION

Companies have increasingly taken advantage of air travel to use FIFO workforces in lieu of establishing new towns or settlements within the local government area. Advances in technology and cost advantages to industry have led to a substantial proportion of the district population being within workforce accommodation, which based on the 2016 census appears to be up towards 55%. At a national level, there was an 11-year growth period (2001-2012) for employment in mining, with the industry tripling in its workforce size and peaking in May 2012 (ABS, 2016). The sector then experienced a contraction of 18% between May 2012 and May 2015.

An interesting component of the 2016 Census is the count of 12,671 persons (excluding overseas visitors) within the Shire of Ashburton. This represents 51% of the total number of persons counted on census night in the Shire. Whilst the count would also include visitors visiting the area for tourist or non-work related purposes, it is evident in **Table 14** that there are a significant number of people aged between 25-64 years visiting from Queensland and other parts of Western Australia. The seven bolded bands in **Table 14** below equate to 9,223 persons or 72.8% of all visitors.

Table 14 Place of Usual Residence of Visitors on Census Night (by age) (ABS, 2016)

Visitors Counted	0-14 yrs	15-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75+ yrs	Total
From Shire of Ashburton	0.03%	0.06%	0.24%	0.21%	0.15%	0.11%	0%	0%	0.8%
NSW	0.11%	0.24%	1.66%	1.51%	1.82%	1.19%	0.77%	0.15%	7.4%
Victoria	0.14%	0.13%	1.37%	1.14%	1.38%	1.18%	0.60%	0.18%	6.2%
Queensland	0.05%	0.51%	3.45%	4.07%	3.80%	2.30%	0.47%	0.05%	14.7%
South Australia	0%	0.05%	0.58%	0.81%	0.78%	0.51%	0.24%	0.02%	3.0%
Western Australia	0.37%	2.73%	18.68%	17.20%	15.93%	9.66%	1.77%	0.37%	66.8%
Tasmania	0%	0%	0.12%	0.16%	0.18%	0.11%	0.02%	0%	0.6%
Northern Territory	0%	0.03%	0.08%	0.07%	0.09%	0.06%	0.03%	0.02%	0.4%
ACT	0%	0%	0%	0.06%	0%	0.02%	0.06%	0%	0.2%
Total Visitors	0.71%	3.67%	26.21%	25.18%	24.17%	15.16%	4.03%	0.81%	51.0%

The following numbers in **Table 15** help to identify where enumerated residents and visitors were counted in the 2016 Census. It is assumed that some respondents have replied in workforce accommodation such as in Talandji (where Wheatstone is located), Mount Sheila (the locality surrounding Tom Price), and Barrow Island. As such, whilst the census picks up population growth, this may be more likely due to respondents being 'counted at home' whilst being in workforce accommodation.

Table 15 Enumerated Population Figures (ABS, 2016)

Locality	Counted at home on Census Night (ABS, 2016)	Visitors (ABS, 2016)	Total Private Dwellings (and people) (ABS, 2016)
Barrow Island	1,823	3,777	0 (3 people)
Cane	3	9	0 (0 people)
Chichester	18	30	3 (10 people)
Fortescue	44	18	14 (30 people)
Hamersley Range	N/A	N/A	N/A
Innawanga	13	29	3 (8 people)
Juna Downs	224	463	0 (0 people)
Karijini	33	466	12 (26 people)
Millstream	17	96	8 (14 people)
Mount Sheila	1,004	1,613	0 (0 people)
Mulga Downs	159	162	8 (21 people)
Nanutarra	68	234	16 (30 people)
Onslow	748	404	440 (717 people)
Pannawonica	644	301	270 (564 people)
Paraburdoo	1,274	468	637 (1,148 people)
Peedamulla	11	0	5 (11 people)
Rocklea	272	271	41 (110 people)
Talandji	3,098	3,682	0 (4 people)
Tom Price	2,724	590	1,209 (2,545 people)
Wittenoom	11	36	10 (9 people)
Yannarie	8	37	0 (0 people)
ASHBURTON	12,195	12,671	2,675 (5,253 people)

Transient Worker Accommodation in the Pilbara was prepared by the Pilbara Development Commission (PDC, 2012) to investigate the extent of workforce accommodation within the Pilbara. The report identified an additional 7,587 beds for the Shire of Ashburton during 2012-2015, with the Wheatstone Construction Camp (now constructed) comprising the main component of the growth. Workforce campsite locations identified within the Shire of Ashburton are documented in **Table 16**. It is understood that the number of beds at the Wheatstone Camp has reduced to circa 4,500.

The report notes the complication of assessing the number of workforce accommodation beds, due to private homes, hotels and caravan parks also historically serving the mining sector (PDC, 2012). As such, it anticipates that workforce accommodation numbers are higher than what the report portrays. This also appears to be reflected in the 2016 ABS Census, which identified a high number of visitors in localities that have large camps (Barrow Island, Talandji, Mount Sheila).

Table 16 Shire of Ashburton Transient Workforce Accommodation Listing (SoA), (PDC, 2012), (AEC Group, 2016)

Name	Number of Beds (2011)	Projected Number of Beds (2012-2015)	Notes
Apache Varanus		181	Apache Energy
Beadon Bay	98		Beston Parks Land Co Pty Ltd
BGC Mobile Camp	48		BGC
Barrow Island	50	3,300	Chevron Australia Pty Ltd
Blacksmith		20	Flinders Mining
Bonnie Doon	100	90	Fortescue Metals Group
Brockman 2 / Nammuldi	386		Rio Tinto
Brockman 4	1,200		Rio Tinto
Brolga		332	Chevron Australia Pty Ltd
Compressor Station Accommodation	14		
Cowra	320		BHP Billiton
Delphine		60	Fortescue Metals Group
Eliwana		70	Fortescue Metals Group
Jundunmunnah	522	178	Rio Tinto
Juna Downs	100		Rio Tinto (Hamersley Iron)
Kirri Kulli	118		Rio Tinto
Macedon Construction Camp	350		BHP Billiton sold to Chevron Australia Pty Ltd
Koodaideri	48		Rio Tinto
Mackerel (Ashburton Resort Hotel)	41	25	
Marandoo FIFO	244		Rio Tinto
Marandoo Minesite	863		Rio Tinto
Mesa A	800		Rio Tinto
Mt Elvira Camp	20		Australian Premium Iron Joint Venture
Mt Minnie		57	WA Limestone
Pannawonica Tavern (inc Camp David)	251		Rio Tinto
Paulsens Gold Project	187		Northern Star Resources Ltd
Rocklea Palms	433	84	Rio Tinto
Silver Grass	90		Rio Tinto
Solomon Camp Castle	500		Fortescue Metals Group
Solomon Camp Kangi		1,768	Fortescue Metals Group
Solomon Camp Dally		986	Fortescue Metals Group
Ti Tree	50		Rio Tinto
Turbridgi Camp	14		DBP Development Group Pty Ltd
Wandoo Housing Project Village	141		Rio Tinto (Robe River Mining Co Pty Ltd)
Tom Price Camp (Construction)	400		Rio Tinto
WA Oil		100	Chevron Australia Pty Ltd
Weelamurra Camp	120		Hope Downs Joint Venture (Hamersley WA Pty Ltd and Hope Downs Iron Ore Pty Ltd)
Wheatstone Construction Camp	8,794		Chevron Australia Pty Ltd BHP has ability to use a camp at Macedon until 31 December 2018. Future accommodation would be within the 'Special Use No. 1' and 'Workforce Accommodation' zones, refer section 3.5 .

Name	Number of Beds (2011)	Projected Number of Beds (2012-2015)	Notes
Windawarri	250		Rio Tinto information indicates 458 rooms
West Pilbara Iron Ore Project (Cardo Camp)	50	1,000	Australian Premium Iron Joint Venture
Yandi		1,500	BHP Billiton
Yarri		68	Yarri Mining Pty Ltd
TOTAL	16,602	9,638	

The PDC report was prepared at a time where the Pilbara region was experiencing a construction boom; and a doubling of the Pilbara workforce was expected around the approximate time of the report being published (PDC, 2012). In contrast, a number of construction projects within Ashburton have been transitioning into operational phases, particularly within the ANSIA (Macedon, Wheatstone and Port of Ashburton). Therefore, and without significant projects entering a construction phase, overall workforce accommodation numbers are likely to progressively decline.

An ongoing issue raised is the limited consideration of legacy benefits for Pilbara communities from major resources projects. Opportunities are available to local governments in the Pilbara Region, through focussing on policy and scheme provisions that encourage workforce accommodation to be integrated into existing townsites. The local governments have the ability to apply scheme provisions and local planning policies/design guidelines to address issues such as workforce integration with towns, utility infrastructure, and time limits on developments (PDC, 2012).

5.3.2.1 FUTURE TRENDS IN FIFO WORKFORCE

FIFO will still be required to service off-shore and mine sites, so it is reasonable to assume that FIFO will remain as an important employment sector for the foreseeable future. FIFO enables the flexibility for companies to have staff on-site at short notice and for brief periods of time. It is also noteworthy that whilst construction workforces tend to be large and project-related, operational workforces can be small and therefore may be more reasonably expected to be accommodated within established towns. This holds true given that towns such as Tom Price, Paraburdoo and Pannawonica have existed as a direct result of providing housing for operational workforce.

The Council does not support FIFO as it considers that this leads to a loss of economic and social value to the Shire, and the regional area as a whole. The Council does acknowledge that there will be circumstances such as remoteness and limited life of a particular project (mining or industrial activity) that would result in a need for workforce accommodation camps to be established.

FIFO workers (i.e. predominately male, aged 25-45) tend to be from the demographic cohort that is at a higher risk of mental health issues and suicide. It is also important that the industry consider the vulnerability of its workforce to the additional stresses of FIFO work practices on a person.

The Education and Health Standing Committee's report on the impact of FIFO work practices on mental health (Parliament of Western Australia, 2015) held concern that FIFO work systems can become normalised work practices and can reduce the possibility of workers being able to choose between FIFO and a residential option, where such an option could be available. In this regard, the four towns (Onslow, Pannawonica, Paraburdoo and Tom Price) all provide residential accommodation options of varying type (i.e. relocatable dwellings, motel style accommodation, residential buildings, and houses). Optimising town sites for housing workers and their families is considered to be a more appropriate alternative to the development of campsites for operational/longer-term workforce requirements.

The Shire remains committed towards integrating workforce with towns. There are benefits for local communities and FIFO workforce. The location of the four townsites near major industrial developments (such as mine sites and the ANSIA) provides reasonable opportunities for operational workforce to reside within towns and not in camps.

5.4 HOUSING CHARACTERISTICS

The estimated housing supply within the four townsites is as follows (AEC Group, 2015), (AEC Group, 2016) & (Rio Tinto, 2015):

- Onslow – 495 dwellings, including 68 recently constructed in Barrarda Estate (ABS 2016 census indicated 440 private dwellings);
- Tom Price – 1,300 dwellings (ABS 2016 census indicated 1,209 private dwellings);
- Paraburdoo – 325 dwellings (ABS 2016 census indicated 637 private dwellings); and
- Pannawonica – 230 dwellings (ABS 2016 census indicated 270 private dwellings);

Across the Shire, nearly two thirds of households are renting, compared with only a third of houses in regional WA and 28% across WA (refer **Figure 18**). In contrast, only 3% of households had a mortgage, compared with 27% of regional WA and 36% of WA (Profile.id, 2016). This is fairly representative of the extent of houses owned by Rio Tinto in Pannawonica, Tom Price and Paraburdoo, company-owned houses in Onslow, and company-operated camps.

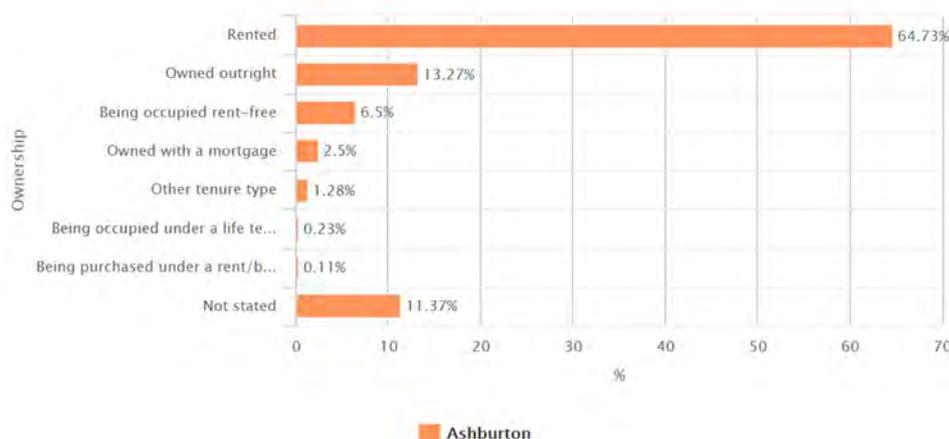


Figure 18 Housing – Tenure, Ashburton (REMPAN, 2017)

Figure 19 illustrates the extent of non-private dwellings to occupied private dwellings within the Shire of Ashburton (REMPAN, 2017).

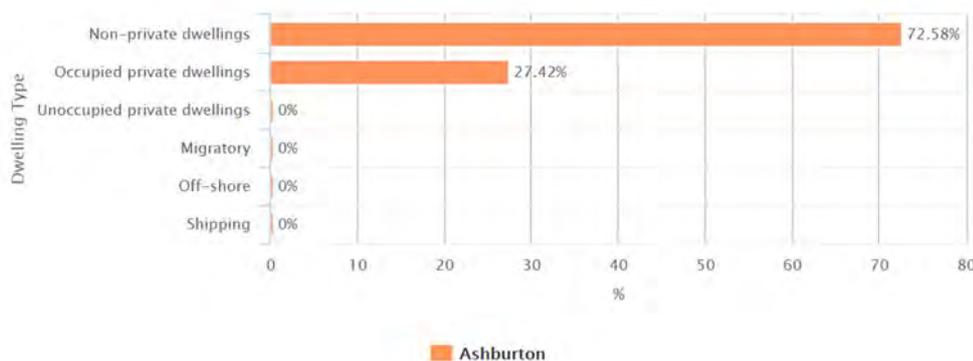


Figure 19 Housing – Dwelling Type, Ashburton (REMPAN, 2017)

5.4.1 HOUSING TRENDS

The *Pilbara Planning and Infrastructure Framework* (WAPC, 2012) considered a future regional demand for an additional 35,430 homes, although most of these would be within Karratha, Port Hedland and Newman. However, the report considers the new housing demand will mean more apartments, townhouses and other forms of medium and higher density living.

The AEC Group analysed dwelling demand, summarised for the three towns in **Table 17** as 'unmet demand'. It identified the demand projections from the perspectives of:

- **Social housing** – public housing generally provided by the Department of Communities;
- **Government Regional Officers' Housing (GROH)** – housing for Government Regional Officers including teachers in primary and secondary school roles, nurses, police officers, and fire-fighters;
- **Service Worker Accommodation** – someone who provides a service to the community but excludes GROH occupations, but tends to encompass broader occupational groups between low-moderate and moderate-income brackets, i.e. sales/shop assistants, general clerical workers, cleaners and laundry workers, community and personal service workers; and
- **Other housing.**

Table 17 Apparent and Latent Dwelling Demand Projections, Onslow, Tom Price, Paraburdoo.
Sources: (AEC Group, 2015), (AEC Group, 2016)

Type	Number of Dwellings		
	Onslow	Tom Price	Paraburdoo
Social Housing	1 x 1 BR unit 8 x 2 BR detached 3 x 3 BR detached	4 x 1 BR units 2 x 2 BR detached/units 3 x 3 BR detached	3 x 1 BR units 1 x 2 BR detached 1 x 3 BR detached
Government Regional Officers' Housing	1 x 4 BR detached	3 x 2 BR units 1 x 3 BR detached	1 x 3 BR detached 2 x 4 BR detached
Service Worker Accommodation	6 x 2 BR detached 6 x 3 BR detached	10 x 2 BR detached/units 10 x 3 BR detached	Nil
Other Housing	16 x 1-2 BR units 50 x 3-4 BR detached	4 x 1 BR units 4 x 2 BR detached/units 8 x 3 BR detached 2 x 4 BR detached	2 x 1 BR units 4 x 2 BR detached 6 x 3 BR detached 4 x 4 BR detached
Total	30 x 1-2 BR units 60 x 3-4 BR detached <i>90 total dwellings</i>	8 x 1 BR units 19 x 2 BR detached/units 22 x 3 BR detached 2 x 4 BR detached <i>51 total dwellings</i>	5 x 1 BR units 5 x 2 BR detached 8 x 3 BR detached 6 x 4 BR detached <i>24 total dwellings</i>
Total for all Towns (Onslow + Tom Price + Paraburdoo)	67 x 1-2 BR units 98 x 3-4 BR units <i>165 total dwellings</i>		

Housing supply is potentially addressed in all towns as follows:

- Onslow: Barrarda Estate – provides 210 lots as a first stage of the estate. 68 dwellings are constructed;
- Paraburdoo: vacant lots – approximately 41 lots are available for housing;
- Tom Price: vacant lots – approximately 46 lots are available for housing. A number of lots may be large enough to accommodate grouped or multiple dwelling development.

5.4.2 REGIONAL HOTSPOTS LAND SUPPLY UPDATES – NEWMAN AND TOM PRICE

The *Regional HotSpots Land Supply Update* (WAPC, 2015) provides detailed information in relation to land development and infrastructure constraints and opportunities for Tom Price.

The *HotSpots Update* analysed the townsite from the perspective of identifying land that could be available for future urban expansion. It identified a number of issues to address, including:

- Obstacles associated with urban consolidation of housing, which usually would require costly redevelopment, or lot amalgamation.
- Most new dwellings constructed in Tom Price are on Greenfield lots instead of existing lots.
- Based on a projected population increase to 4,750, there currently is not suitable residential land available to accommodate growth.
- Identification of additional industrial land was considered to be critical.
- Issues to consider include drainage through town.
- The distance of Tom Price to the Paraburdoo Airport as well as ability for convenient access to Royal Flying Doctor Services for patients.

5.4.3 PILBARA RESIDENTIAL HOUSING & LAND SNAPSHOT – QUARTER ENDING MARCH 2016

The *Pilbara Residential Housing & Land Snapshot – Quarter Ending March 2016* was prepared by the Pilbara Development Commission (PDC, 2016) and at the time of preparing the Strategy it represented the latest report of its kind for the Pilbara region. Data of note in relation to the Shire of Ashburton is outlined below. In summary:

- Rental prices are closely aligned with Perth across the Pilbara; and
- No vacant residential lots were sold and settled in the Pilbara for the March 2016 quarter.
- The number of advertised weekly cost of residential properties for rent within the Shire are as follows:
- Onslow – 16 (minimum \$350 – maximum \$1,950; average \$1,031);
- Tom Price – 13 (minimum \$400 – maximum \$950; average \$563);
- Pannawonica and Paraburdoo – nil.

By comparison, Karratha's average advertised weekly rental price has continued to decline to \$494 with 419 advertised residential properties for rent, whilst Newman's has experienced a slight increase by \$2 to \$375 with 128 advertised residential properties for rent.

The number of advertised 'for sale' price of residential properties within the Shire were as follows:

- Onslow – 17 (minimum \$189,000 – maximum \$1,150,000; average \$651,625);
- Paraburdoo – 2 (minimum \$295,000 – maximum \$320,000; average \$307,500);
- Tom Price – 19 (minimum \$280,000 – maximum \$885,000; average \$548,563);
- Pannawonica – nil.

By comparison, Karratha's continued to decline to a low of \$393,990, with 216 advertised residential properties for sale and Newman recorded the lowest figure of \$436,287, with 50 advertised residential properties for sale.

The number of residential lots advertised for sale within the Shire is as follows:

- Onslow – 5 (minimum \$129,000 – maximum \$995,000; average \$594,750);
- Paraburdoo, Tom Price and Pannawonica – nil;
- By comparison, Karratha had 25 lots for sale (average – \$261,720) and Newman had 6 (average – \$217,167).

The residential house and land activity within the Shire is subdued when considered in the context of the Pilbara region, with Onslow and Tom Price being the most active and Paraburdoo and Pannawonica having very little activity. Onslow continues to have much higher values across all areas, including rents, residential properties and lots. Median Values of houses have suffered notable drops in Onslow, Pannawonica and Tom Price (no available data from Paraburdoo). These are illustrated in **Figure 20**, **Figure 21** and **Figure 22**.



Figure 20 Median Value Houses – Onslow (homesales.com.au, 2017)

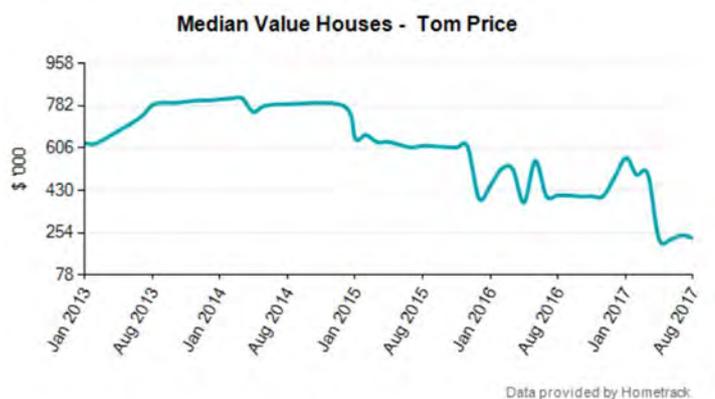


Figure 21 Median Value Houses – Tom Price (homesales.com.au, 2017)

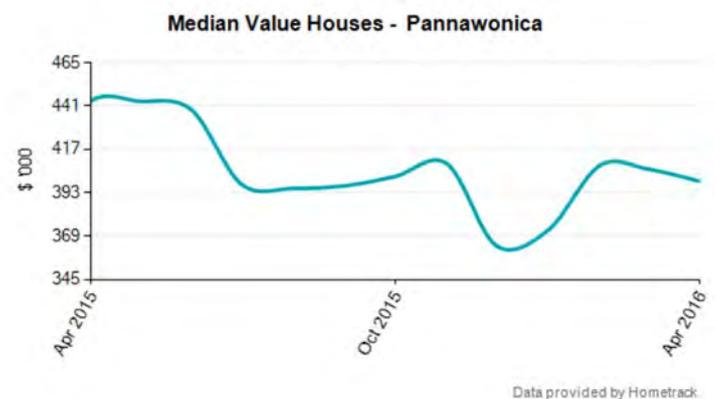


Figure 22 Median Value Houses – Pannawonica (homesales.com.au, 2017)

Dropping median values for houses can lead to issues where owners may have little to no equity in their homes. Homes that have dropped in value may lead to people unable to refinance until prices increase or loans can be paid off. There is risk that home values fall or households are hit by unemployment, with households then unable to refinance or repay loan amounts. There has been growth in the number of residential home loans in arrears. Some financial institutions including National Australia Bank (NAB) have compiled towns and suburbs where they have capped lending to property buyers because of growing risks in the housing market. For the Shire of Ashburton, the NAB listed suburbs requiring higher deposit requirements include Cane, Onslow, Peedamulla, Talandji, Yannarie, Pannawonica, Tom Price and Paraburdoo².

5.5 DEVELOPMENT SCENARIOS

5.5.1 TOM PRICE

At the 2016 Census, Tom Price had a stated population of 3,005 people. The *HotSpots Update* acknowledges that Tom Price could reach a resident population of approximately 4,750 (WAPC, 2015). This has not been reflected in the population figures contained within the *Assessment of Accommodation Need in Tom Price, Onslow and Paraburdoo* (AEC Group, 2015), which considers the population to be closer to 3,500 through towards 2024.

There are some potential expansion areas and these are shown on **Figure 55**. Sufficient land has been identified to accommodate new project or expansionary demands. The *HotSpots Update* identified land that could be made available for future development within Tom Price, including Area W (WAPC, 2015). This may imply that pressure for housing may not be significant in the short-term, however hindsight emphasises the need to be prepared to respond to sudden changes in housing demand. These expansion areas could also replace camps, as workers are housed in town in the longer-term.

5.5.2 ONSLOW

The *Onslow Townsite Strategy* (SoA, 2011) contemplated employment, household formation, housing demand and land requirements to accommodate five separate development scenarios, as reflected in **Table 18** below. Population forecasting is discussed in the *Onslow Townsite Strategy* and the preparation of the *Onslow Townsite Expansion Structure Plan* reflects the ability to accommodate significant population growth.

Table 18 Development Scenarios (SoA, 2011)

Scenario	Employment		Household Formation		Housing Demand		Total Dwellings	Gross Residential Land (ha)
	Base	Indirect	Single 30%	Family 70%	Units (400m ²)	Houses (700m ²)		
Base	100	60	48	112	48	162	210	21.40
Low	250	150	120	280	120	280	400	40.67
Medium	500	300	240	560	240	560	800	81.33
High	1,000	600	480	1,120	480	1,120	1,600	162.67
Extreme	1,500	900	720	1,680	720	1,680	2,400	244.00

² <https://www.domain.com.au/news/600-towns-and-suburbs-on-nab-property-lending-blacklist-20161022-gs8a17/>

The *Onslow Townsite Strategy* contemplates that the high demand scenario is possible in the longer term. Planning has considered the need to ensure the identified 162 hectares of residential land is capable of being brought on to accommodate this rate of development. The initial considered demand for at least 210 additional dwellings is largely accommodated through Stage 1 of DevelopmentWA's Barrarda Estate (AEC Group, 2016). Chevron Australia has recently taken possession of 50 residential house lots within Barrarda Estate. Onslow Salt owns five lots, with the Shire owns another three in freehold (refer **Figure 7**). The remainder are likely to be taken up by the private sector.

Chevron Australia has a 9-hectare site (Lot 4001) in Onslow, identified on the *Onslow Townsite Expansion Stage 1 Development Plan* as the 'Wheatstone Operations Village Precinct'. The *Development Plan* contemplated Lot 4001 for high-quality, resort style accommodation with good connectivity and presenting an appropriate frontage to adjacent residential areas. The assumptions contained in the *Onslow Townsite Strategy* remain relevant, albeit acknowledging that 'Workforce Accommodation' is a defined land use within the ANSIA Improvement Scheme No. 1 for construction and operational workforce (refer **section 3.5.2**). In particular, this is likely to impact on the future development of Lot 4001 (owned in freehold by Chevron Australia), which may not be required for workforce accommodation.

With the gazettal of the ANSIA Improvement Scheme No. 1, future planning for Lot 4001 may need to identify what long-term opportunities are available for its development as an integrated urban development within the Onslow Townsite, as well as what other uses may be considered complimentary with housing.

5.5.3 PARABURDOO

It is anticipated that Paraburdoo will expand or contract as mining does. There is little impetus to intervene in any growth plans for Paraburdoo unless there is a compelling regionally significant reason to do so. The growth of Paraburdoo is likely to have minimal impact on development scenarios in Onslow, Tom Price or the Pilbara Cities (Karratha, Port Hedland or Newman), due to the distance from these centres.

Rio Tinto is committed to the ongoing operation of Paraburdoo as a mining support centre. Post mining, the town is expected to contract to core activities; however, there would be opportunities for Aboriginal services and tourism within the town. There are no immediate plans to expand the urban area of Paraburdoo, and Rio Tinto has not built a significant amount of housing stock in the town since the 1970's. The economic implications for building homes will limit abilities to build new housing stock in the town.

5.6 SUMMARY AND IMPLICATIONS FOR POPULATION AND HOUSING

The long-term factor for a stable population is the ability to address the permanence of the workforce, and therefore the permanence of residents. The historical population growth has been driven by mining and oil and gas company requirements. As the strategic push is to diversify the economy, greater opportunities for permanent residents need to be available as the towns begin to transition towards a range of industrial sectors creating new employment and new housing needs.

The demographics of the region are unique. There is a growing and disproportionate ratio of males to females; 7.9% of the population being Indigenous Australian (2.8% national rate); and a low rate of residents older than 65 (1.81% compared to 13.99% of WA residents). It will be important to ensure future housing and development caters for more diverse and balanced social demographics, taking into account the particular needs of key sectors of the population (including Indigenous Australians, children, teens, and aged persons).

Limited population growth has been anticipated in Paraburdoo and Tom Price. Notwithstanding, investigations suggest that there is the ability for infill housing within both townsites, as well as opportunities for expansion of the urban footprint within the gazetted townsite boundaries. Paraburdoo and Tom Price population growth is largely dependent on accommodation demand for Rio Tinto's workforce. Vacancy rates are understood to be increasing in towns at present and no immediate increase in housing is required to meet demand.

Operational workforce within ANSIA will have a bearing on population growth in Onslow. Under the Improvement Scheme, a Special Use No. 1 and a Workforce Accommodation zone are provided. These zones allow operational workforce to be based within the ANSIA, which will have an impact on Onslow's population and growth.

The future risks of coastal hazards and flooding will influence the development of Onslow, particularly the path of risk management and adaptation that would be undertaken. Relocation of development is likely to be unavoidable particularly those areas in close proximity to the coast and floodplains. The Local Planning Strategy considers the planning undertaken on coastal hazards in order to ensure future growth and development of the town is not prejudiced by shorter-term decisions on the direction of growth and development.

Within Paraburdoo and Tom Price, the future development of housing would be considered in terms of the following preferences:

- Infill – by identifying lots that could be amalgamated and re-subdivided, to create additional lots. There are opportunities to investigate lot boundaries in context to existing dwellings, to identify if new lots can be created in existing areas;
- Corner lots – corner lots provide opportunities for subdivision, as a second street frontage allows for new dwellings to have a street presence;
- Greenfields – there may be existing land within range of services and with existing street frontages within the townsites. These land areas therefore would have a greater opportunity to be available for new housing whilst minimising servicing and other costs to development (given the high costs of construction of houses). Where such land is available, development should not jeopardise future urban expansion by ensuring future road connections, drainage lines and open space networks are considered; and
- Refurbishment – existing housing stock within the towns can date back a number of decades, and whilst the housing stock is ageing, there are financial advantages to refurbishing properties in lieu of demolition and rebuilding (unless demolition is necessary due to a structural or safety reason).

5.6.1 IMPLICATIONS FOR POPULATION AND HOUSING

The following **Table 19** considers the implications, issues and opportunities from a population and housing context.

Table 19 Implications, Issues and Opportunities – Population and Housing

Population and Housing	Implications	Issues	Opportunities
Pilbara regional population	Within the period of 2005-2013, population growth rates were between 3.2-5.4%, down to 0.2% in 2013-2014 and -0.7% in 2014-2015.	<p>The <i>Pilbara Regional Investment Blueprint</i> sets what it calls an aspirational yet achievable population target of 200,000 by 2035, an increase of 135,000 across the region.</p> <p>Population growth rates have more recently stabilised, however historical trends indicate that fluctuations in market conditions can place pressure on towns to accommodate population growth and demand.</p>	Tom Price, Paraburdoo and Onslow should grow in a sustainable manner that ensures communities can develop with availability and access to a range of necessary services, employment opportunities, and housing choice.
Ashburton local government population growth trends	<p>ABS data indicates within Ashburton that there is a stabilisation of the population.</p> <p>Demographic analysis indicates a disproportionate ratio of males to females, a lower than national average median age, a higher ratio of Indigenous Australians, and a low ratio of residents older than 65.</p>	<p>ABS information supports the inference that future population growth is likely to be directly impacted by the growth or contraction of mining and oil and gas industry sectors. These industry sectors will likely continue to have a significant influence on population growth rates within the local government.</p> <p>It will be important for future housing and development cater for the demographics of the region, taking into account the particular needs of key sectors including all youth, young adults, and aged persons.</p>	<p>Diversification of the economy and a broader employment base may lessen the impacts of mining and oil and gas on population growth/decline rates.</p> <p>Areas of focus for improving liveability – safety; health and wellbeing; education and training; lifestyle; sense of community; community connectedness.</p>
Ashburton demographics	<p>At the following census periods, the percentage of the Shire population recorded within towns (Onslow, Tom Price, Paraburdoo, Pannawonica) was as follows:</p> <p>2001 – 89%.</p> <p>2006 – 92%.</p> <p>2011 – 60%.</p> <p>2016 – 45.6%</p>	<p>Current population estimates from official sources at the town level can be potentially unreliable or not available.</p> <p>The census data in 2011 and 2016 show a disconnect from previous census periods, as a lower ratio of Ashburton's population was counted within the townsites. This may be related to the census also picking up respondents in workforce camps.</p>	<p>In 2017, the ABS released the first packages of the 2016 Census data. Subsequent release of data may provide a more accurate snapshot of population and other demographic trends for the townsites and the Shire overall.</p> <p>Further information can be sought in relation to the ratio of townsite population and workforce campsite population trends.</p>
Aboriginal Settlements	<p>DPLH considers that, under SPP 3.2, the following are considered to be Aboriginal Settlements:</p> <p>Wakathuni</p> <p>Youngaleena Bunjima</p> <p>Bellary Springs (Innawonga)</p> <p>Ngurrawaana</p>	<p>There is State level recognition of challenges for remote Aboriginal communities.</p> <p>State government agencies remain responsible for delivering existing services.</p>	Advocate the Shire's position, that the State Government agencies should ensure appropriate services are adequately planned and delivered for Aboriginal Settlements.

Population and Housing	Implications	Issues	Opportunities
Population Growth Forecasts	<p>Aspirational population growth forecasting appears to have been based on historical growth rates seen during 2005 and 2013, in lieu of more recent trends of population stabilisation.</p> <p><i>WA Tomorrow</i> (2015) population forecasts consider lower growth rates (2.65% in 2016, 2.23% in 2021, 1.99% in 2026). These growth rates may be currently optimistic, however provide a good guide on anticipated population growth.</p>	<p>Anticipated population growth may affect the ultimate direction of service delivery by local government, government agencies, and utilities/service providers.</p>	<p>Ensure local government services are in line with projected population growth.</p> <p>Cater for growth for approximately 3,500 additional people to 2026.</p> <p>Identify land to ensure sufficient supply is available, should significant population growth demand occur in another mining cycle.</p>
Onslow Housing Stock	<p>There have been considerable additions to housing stock in Onslow during 2014-2017.</p> <p>Urban development and growth within Onslow will need to have regard to coastal processes and hazards, and physical, infrastructure and industrial considerations.</p> <p>Native title and Aboriginal heritage will need to be addressed for Crown land identified for new development or expansion.</p>	<p>The resident population should stabilise around 950-1,000 persons through the medium term without any additional significant projects beyond those operating or planned.</p> <p>68 new dwellings have been completed within the Barrarda Estate, with additional vacant lots available. Some future demand could be absorbed by available vacant lots.</p>	<p>The Onslow Townsite Expansion Structure Plan identified some areas for future planning. Consider options for these and whether the Local Planning Strategy should recommend land uses for these areas. Check future planning areas on the Structure Plan.</p> <p>Ensure future urban infill and development suitably considers coastal processes, climate change and the impacts on the existing town centre and urban development in low lying areas from flood events, tidal inundation and sea level rise.</p>
Paraburdoo Housing Stock	<p>Paraburdoo will expand or contract as mining activity does. There is little impetus to intervene in any growth plans unless there is a compelling, regionally significant reason to do so.</p>	<p>There are approximately 41 vacant lots available within the townsite for infill housing. Preference for new housing would be towards available vacant lots.</p> <p>Development investigations for new expansion should consider land with direct road frontage and service availability. Clearing permits may be required in some cases. Aboriginal Heritage matters would need to be addressed as part of any investigations.</p>	<p>Support post-mining diversification of the economic sectors in town, including Aboriginal services, and tourism.</p> <p>Prepare and present scenarios for the long-term development opportunities for residential purposes in Paraburdoo, and to seek agreement on the planned development of land as well-integrated and functional components of the townsite.</p>
Tom Price Housing Stock	<p>The WAPC <i>HotSpots Update</i> considers Tom Price could reach a resident population of 4,750 however this is not reflected in population figures, putting population numbers closer to 3,500.</p> <p>Sufficient land has been identified to accommodate new project or expansionary demands. The Shire is undertaking Scheme Amendments that will make identified land available for future development within Tom Price, including Area W.</p>	<p>There are approximately 46 vacant lots available within the townsite for infill housing. A number of lots may be large enough to accommodate grouped or multiple dwelling development.</p> <p>The <i>HotSpots Update</i> considered areas for urban infill and development and the Local Planning Strategy supports further investigations into their development capability.</p>	<p>Support amendments to the local planning scheme that contribute towards bringing de-constrained land forward for consideration as urban infill or urban development.</p> <p>Prepare and present scenarios for the long-term development opportunities for residential purposes in Tom Price, and to seek agreement on the planned development of land as well-integrated and functional components of the townsite.</p>

Population and Housing	Implications	Issues	Opportunities
Workforce Accommodation – Onslow and ANSIA	<p>Chevron Australia operates its workforce accommodation campsite within the ANSIA.</p> <p>A number of properties within Onslow are used for workforce accommodation, whether for Government Regional Officer Housing, or housing for workforce for Chevron Australia, Onslow Salt, BHP Billiton and others.</p> <p>There is high demand for workforce accommodation for the Wheatstone project construction period. Workforce demand is expected to fall away through 2017.</p>	<p>The Wheatstone project is transitioning from construction to operational phases. As construction activity moves towards completion, workforce numbers will decline.</p> <p>Other proponents do not have access to Chevron's workforce accommodation site within the ANSIA.</p> <p>BHP Billiton may require workforce accommodation within the ANSIA should the Macedon Wet Gas Compression project proceed.</p> <p>There is no short-term plan to develop the 'Operational Village' Lot 4001 within the Onslow townsite.</p>	<p>Provide and plan for the development of the 'Operational Village' on Lot 4001 within the Onslow townsite, as a well-integrated component of the townsite.</p> <p>Promote the provision of higher quality, more permanent accommodation within the Onslow townsite.</p>
Workforce Accommodation – Tom Price and Paraburdoo	<p>Workforce camps are considered to have legacy issues for the local government. When they are located beyond the townsites, the result is a lack of integration with the local communities, and limited opportunities for social interaction.</p>	<p>As iron ore prices decline, iron ore producers are anticipated to find cost reduction strategies or solutions, including reducing reliance on human labour to undertake some parts of operations. Technological advancement, the use of automated technology and drove vehicles, can contribute towards a reduction in operational workforce.</p> <p>There are concerns at a State level that FIFO work could lead to a heightened risk of mental health issues.</p>	<p>The Shire of Ashburton maintains its position on requiring operational workforce to be directed towards existing townsites.</p> <p>Prepare scenarios for the short and long-term development opportunities of land and buildings for Workforce Accommodation in Tom Price, Paraburdoo and Pannawonica, as well-integrated and functional components of townsites.</p>
Aged Care	<p>Whilst there are some limited aged person dwellings within the Shire, there are no purpose-built dwellings to accommodate their particular needs.</p>	<p>There is an urgent need for aged care accommodation and respite facilities, particularly for the Indigenous community.</p> <p>It is understood that Regional Development Australia is conducting an aged care housing strategy across the Pilbara region.</p>	<p>Consider demand for aged care sites within the towns.</p>

6 ECONOMY AND EMPLOYMENT

6.1 ECONOMIC TRENDS

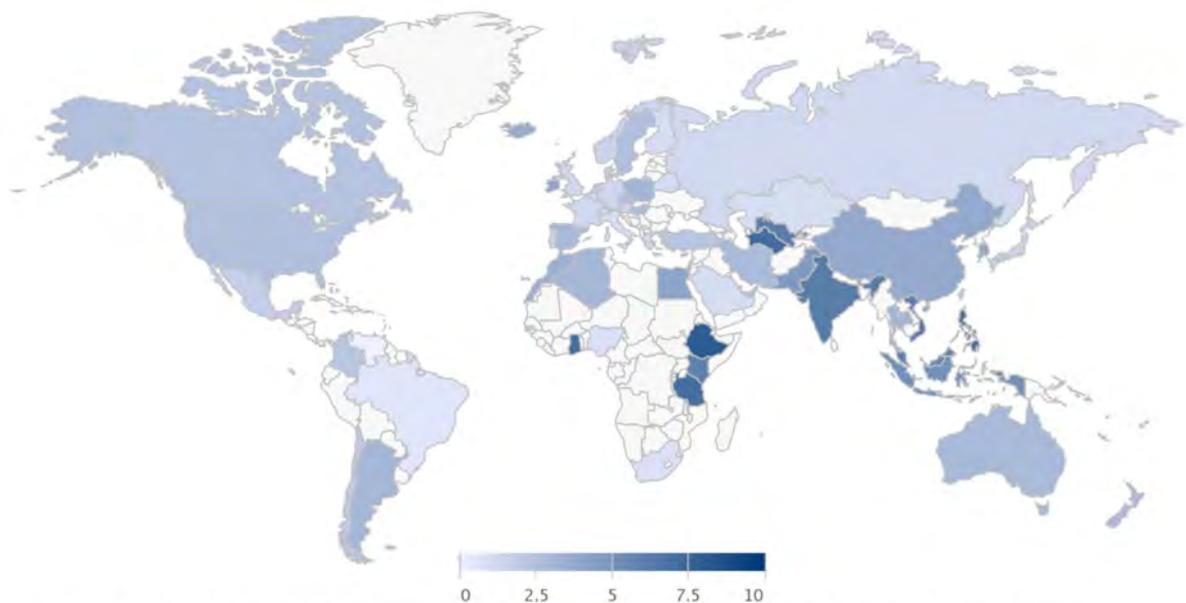
Economic development plays an integral role in the development of sustainable communities. The skills and composition of the local and regional labour force, its transport connections, infrastructure and other assets all contribute to an area’s economic success.

6.1.1 GLOBAL AND NATIONAL

Global growth was estimated to hit a low of 2.3% and was projected to rise to 2.7% in 2017 (World Bank Group, 2017). Global output growth is analysed to be remaining stable at about 3%, with stable or stronger-than expected pickup in growth in advanced economies (such as the USA, Spain, Japan and the United Kingdom) (IMF, 2017), (The Conference Board, 2017). There is a probability that ongoing global economic growth will be around 2.7% (World Bank Group, 2017). A number of emerging market and developing economies, such as China and India, have a strong bearing on demand for exports from the Pilbara Region. The International Monetary Fund forecasts some growth prospects for China are due to expected policy stimulus, however India’s economy had its growth estimates for 2016-2018 revised down due to its cash shortages and payment disruptions due to its recent currency note withdrawal and exchange initiative (IMF, 2017). Australia is positioned to have comparable or better outlooks for gross domestic product growth rates from 2016-2026 (The Conference Board, 2017), refer **Figure 23** and **Table 20**.

Table 20 Australia vs Other Mature Regions: GDP Growth rates, 2016-2026 (The Conference Board, 2017)

Global Outlook, GDP	Australia (Advanced Economy)	Other Mature Regions
Growth Rate 2016	3.1%	2.5%
Growth Rate 2017	2.9%	2.9%
Growth Rate 2017-2021	3.4%	3.0%
Growth Rate 2022-2026	2.8%	2.8%



Note: Projections are based on trend growth estimates, which – for the period 2017–2021 – are adjusted for remaining output gaps. Color ramp is based on GDP growth rates in 2017.
Source: The Conference Board Global Economic Outlook 2017, February update.

Figure 23 Global Outlook for GDP Growth rates, 2016-2026 (The Conference Board, 2017)

There are a number of economic risks that could impact on global economic growth (IMF, 2017), including:

- Policy shifts on global trade restrictions and migration restrictions;
- Weak commodity prices, although prices are firming;
- Vulnerability from high corporate debt, declining profitability, and weak bank balance sheets; and
- Geopolitical issues – war zones in Africa and Middle East; refugee migration to neighbouring countries and Europe; global terrorism activity; drought in eastern and southern Africa; and the spread of the Zika virus.

Oil prices have increased, reflecting an agreement among major producers to trim supply. Prices for base metals have strengthened due to infrastructure and real estate development in China.

At a global level, business is considered to stay focused on strengthening qualitative growth factors such as technology, innovation and skills (The Conference Board, 2017). Over the longer term, countries with economies highly dependent on commodity products would need to work to diversify their export bases (IMF, 2017).

6.1.2 NATIONAL

Over the past 40 years, annual growth in real GDP was at an average 3.1%. At a national level, Australia's GDP growth projections are considered to average 2.8% per annum until 2055 (Commonwealth of Australia, 2015), which is comparable to the 2022-2026 forecasted growth shown in **Table 20**. Average annual population growth for Australia is projected to be 1.2% to 2050. Average growth in GDP per person will decrease from 1.9% to 1.5% per annum. Underpinning these models are some key assumptions including an expected fall in the labour force participation rate largely due to ageing, a constant fertility rate (1.9 persons per household), and a constant net migration rate (0.6% per annum).

There is a role for the Federal Government to continue its efforts in leading and coordinating domestic policies to drive better environmental management and economic growth for future generations. Policies that create strong economic growth and a sustainable budget will ensure the Government is better placed to invest in environmental protection, which in turn can contribute to economic sectors such as tourism (Commonwealth of Australia, 2015). Environmental protection and management will also affect the quality of life for Australians.

The Federal Government is committed to rein in its debt levels. In preparing for the future, the Government is looking at steps to:

- Boost productivity and encourage higher workforce participation;
- Invest in critical aspects of Australia's infrastructure
- Stabilise and reduce debt, and to be able to respond to future economic shocks;
- Improve the tax system to ensure Australia is attractive for investment, boosts economic growth and creates new jobs;
- Focus efforts on efficient provision of services in the face of major demographic change; and
- Clarify the roles and responsibilities of Federal, State and Territory governments to reduce waste, duplication and second-guessing.

6.1.3 WESTERN AUSTRALIA

The State Government's 2016-17 Fiscal Budget (Government of Western Australia, 2016) provided the following economic outlook highlights:

- Following a decade of very strong growth averaging 5.3% per annum, the Western Australian economy is experiencing a period of below trend growth as activity consolidates at a high level.

- The economic transition in Western Australia from substantial investment in resources projects to the production and exports phase is having a more significant impact on the domestic economy than previously expected, with State Final Demand forecast to contract by a further 3.75% in 2016-17.
- Overall, the Western Australian economy (as measured by Gross State Product) is expected to grow by 1.25% in 2016-17, with a further decline in business investment and lower dwelling investment dampening the impetus to growth from an expansion in exports. This follows estimated growth of 1% in 2015-16.
- Softer domestic economic conditions are flowing through to the labour market, with employment and wages growth expected to remain low in 2016-17.
- Economic growth is expected to gradually recover to reach 3% by 2019-20, underpinned by a pick-up in consumer spending and an eventual return to modest growth in business investment, as well as the continued expansion of LNG exports over the forecast period.

The following **Figure 24** demonstrates the historic and forecast trends for economic and consumption growth in Western Australia.

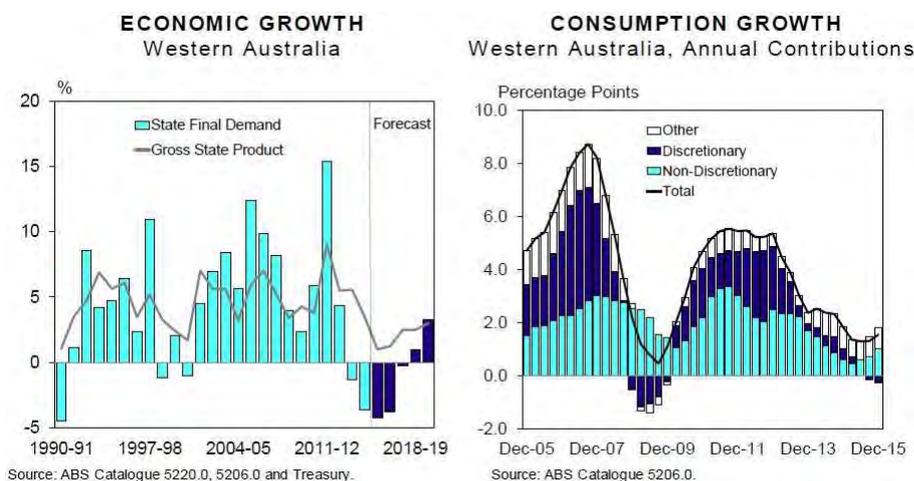


Figure 24 Economic Growth, Western Australia (Government of Western Australia, 2016)

Economic growth is forecast to gradually recover with support from domestic economic activity and growth in exports. Western Australia's economy and particularly its export markets are related to China, India, the rest of Asia, and in the Middle East. Western Australia's global market share is likely to remain constant, whilst competition emerges with exports from China, India, rest of Asia, South America and Central Africa.

It can be argued that because of the particular structure of the WA economy, achieving higher than average growth for a longer period of time may be possible based on the growth prospects in China and India. Primarily, such a conclusion is based on a continuation of China's growth, and WA's advantageous position as a supplier of key raw materials, especially iron ore, oil and gas, and high-quality agriculture and food products.

6.1.4 PILBARA REGION

The Pilbara is regarded to have a strong economy due in part to its plentiful supplies of minerals, petroleum and natural gas. The region accounted for 95% of iron ore and 99% of petroleum products (RDAP, 2013). It has been the focus of iron ore production since the 1960's, and the rapid development of industry, settlements, infrastructure and services can be directly linked to the rapid expansion of iron ore, oil and gas. There are other industries that provide for some diversification including tourism, livestock pastoralism and fishing.

Based on data from the ABS June 2015 Gross State Product, 2012/2013 National Input Output Tables and 2011 Census data, it is noted that the Shire of Ashburton contributed 29.82% of the gross regional product of the Pilbara. As a result of this strong emphasis on the production of iron ore, minerals and petroleum products, the Pilbara region contributes towards over a quarter of global iron ore production and over 6 percent of Australia's Gross Domestic Product (PDC, 2015). In turn, the Pilbara Region represented 10.91% of Western Australia's Gross State Product and 1.68% of Australia's gross regional product (REMPPLAN, 2017).

The Shire of Ashburton contributed 27.26% or \$12.882 billion towards the Pilbara regional economic output (REMPPLAN, 2017). The output generated by the Pilbara economy represented 9.15% of the Western Australian output and 1.41% of the total economic output generated in Australia.

Further economic diversification could be unlocked through agriculture, horticulture, aquaculture, tourism and renewable energy. In the future, economic diversification will help to ensure local workforces are employed in a wider range of industries. The region's competitive advantages, such as the presence of large mining and hydrocarbon industries, and proximity to Asia, will yield some opportunities. The regional economy is anticipated to leverage off the resource industries, and encompass more knowledge-based industries and an increasing capacity for exports (WAPC, 2012).

6.1.5 SHIRE OF ASHBURTON

The Shire of Ashburton contributes the following regional exports by Industry as per **Table 21**.

Table 21 Regional Exports by Industry (REMPPLAN, 2017)

Industry	Regional Exports by Industry					
	Ashburton		Pilbara Region		Western Australia	
Mining	\$9,878.699 million	(88.28%)	\$30,452.758 million	(83.65%)	\$81,214.783 million	(60.95%)
Construction	\$1,025.779 million	(9.17%)	\$4,139.985 million	(11.37%)	\$7,677.606 million	(5.76%)
Manufacturing	\$59.061 million	(0.53%)	\$742.867 million	(2.04%)	\$28,736.874 million	(21.57%)
Transport, Postal & Warehousing	\$52.450 million	(0.47%)	\$333.382 million	(0.92%)	\$2,572.956 million	(1.93%)
Remainder of Industry Sectors	\$173.995 million	(1.55%)	\$734.061 million	(2.02%)	\$13,050.089 million	(9.79%)
Total	\$11,189.984 million	(100%)	\$36,403.053 million	(100%)	\$133,252.308 million	(100%)

This emphasises the dominance of mining and construction within the Shire of Ashburton, and the benefits that could be realised through a greater diversification of the local economy, as discussed further.

6.2 BUILDING ACTIVITY

Total lot creation within the Shire has increased from 2,972 at the end financial year 2004, to a total of 4,177 at the end of 2015. This represented an increase of 1,205 lots across a 10-year period, giving an approximate growth rate of 1.2%. The Shire noted that the predominant increases in lot creation have been for the purposes of mining/industrial, reflective of the growth in these sectors within the local government district (SoA, 2015).

The Shire has collected building application data from August 2007 and published information in December 2015. This activity is expressed in **Figure 25** with a significant amount of non-residential building activity during 2009-2014. During that timeframe, the total number of building applications received by the Shire was 3,313, refer **Table 22**. Smaller-scale residential additions generated the most building application types, followed by building works on camp/mine/station sites, where the majority of employment is generated in the local government district.

Table 22 Building Application Totals by Type, 2007-2015 (SoA, 2015)

Building Application Types	Number		
	Residential	Commercial	Camps / Mines / Stations
Number	557 – residential dwelling 1,423 – residential additions	514 – commercial	819 – camp / mines / stations

Additional housing has recently been constructed, with 10 new homes for key Government workers in Onslow³. These are provided as 4 four-bedroom, 2 three-bedroom and 4 two-bedroom dwellings. In addition, Chevron Australia has also completed 50 modular homes that have been commissioned within DevelopmentWA’s Barrarda Estate⁴. The remainder of lots within the Barrarda Estate are available for sale.

Ashburton (S)

Building Approvals

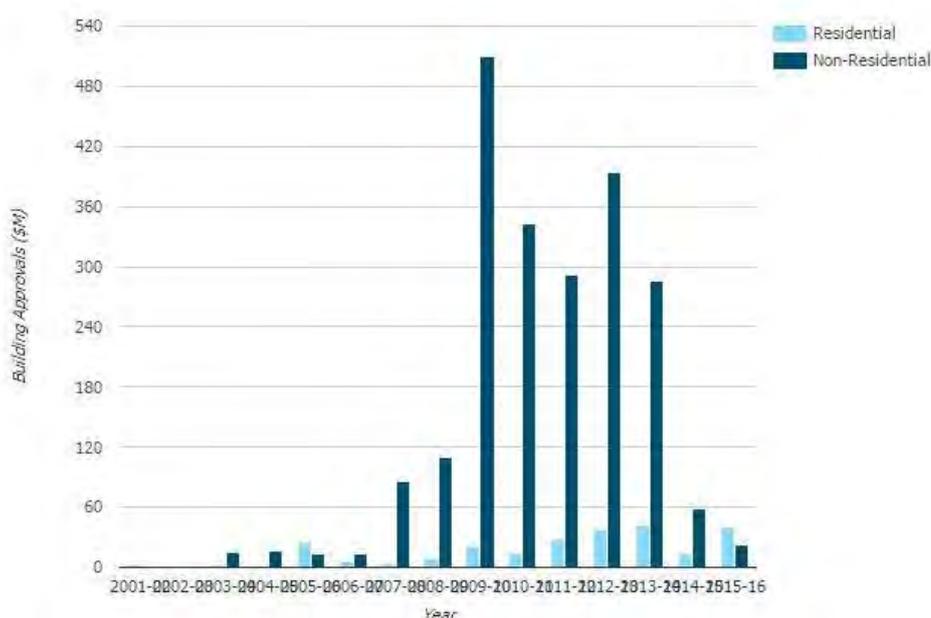


Figure 25 Building Approvals, Shire of Ashburton (REMPLAN, 2017)

6.3 OIL AND GAS RESOURCES

The Shire of Ashburton has a number of oil and gas tenements and wells, which are reflected in **Figure 26**. The DMP website indicates that many of the resources are shut in, undeveloped or depleted, as per **Table 23**.

Table 23 Status of Wells (DMP, 2017)

Well	Status	Discovery Date	Discovery Well
Barrow Island	Producing	August 1966	Barrow_M43A
Double Island	Shut In	January 2002	Double Island 1

³ <https://www.mediastatements.wa.gov.au/Pages/Barnett/2016/09/New-Onslow-homes-for-Government-workers.aspx>

⁴ <https://www.chevronaustralia.com/our-businesses/wheatstone/chevron-in-onslow>

Well	Status	Discovery Date	Discovery Well
North Alkimos	Shut In	June 2000	North Alkimos 1
Agincourt	Shut In	May 1996	Agincourt 1
Rosette	Depleted	July 1987	Rosette 1
Alkimos	Depleted	August 1994	Alkimos 1
Tanami	Depleted	June 1991	Tanami 1
Simpson	Shut In	June 2000	Tanami 4
Monet	Depleted	April 2004	Monet 1
Hoover	Depleted	April 2002	Hoover 1
West Cycad	Shut In	October 2006	West Cycad 1
Narvik	Undeveloped	November 1999	Narvik 1
Flinders Shoal	Undeveloped	April 1969	Flinders Shoal 1
Pasco	Undeveloped	April 1967	Pasco 1
South Pepper	Depleted	November 1982	South Pepper 01
North Herald	Depleted	March 1983	North Herald 1
Nasutus	Undeveloped	November 1999	Nasutus 1
Chervil	Depleted	June 1983	Chervil 1
Cyrano	Undeveloped	March 2003	Cyrano 1
South Chervil	Undeveloped	November 1983	South Chervil 1
Cadell	Undeveloped	November 1999	Cadell 1
Australind	Undeveloped	September 1993	Australind 1
Saladin	Depleted	June 1985	Saladin 01
Crest	Depleted	January 1994	Crest 1
Yammaderry	Depleted	July 1988	Yammaderry 1
Cowle	Depleted	December 1989	Cowle 1
Skate	Depleted	October 1991	Skate 01
Roller	Depleted	January 1990	Roller 01
Coaster	Undeveloped	December 1999	Coaster 1
Blencathra	Undeveloped	September 1995	Blencathra 1A
Tubridgi	Depleted	June 1981	Tubridgi 01
Mardie	Undeveloped	July 1967	Mardie 1

The Department of Jobs, Tourism, Science and Innovation implements State Agreements and State Development Agreements, and is the Lead agency to support the approvals processes for major resource projects. Under the Lead Agency Framework, the Department would manage, negotiate and coordinate planning, environmental, Aboriginal heritage, native title and other relevant approval processes across Government.

Chevron Australia generates significant economic benefits for Australia through its Gorgon and Wheatstone projects. These are two of the world's largest LNG projects. The ANSIA is continuing to develop as a major hydrocarbon processing precinct. Key infrastructure is committed to by Chevron including the Port of Ashburton (shipping channel, breakwater and materials offloading facility). Initial capital expenditure on the Gorgon and Wheatstone projects is in excess of \$84 billion, with over 900 contracts awarded to Australian suppliers to develop the projects; almost 19,000 workers have been directly employed; \$323 billion added to real incomes in Australia, and over \$1 trillion would be added to Australia's GDP between 2009 and 2040 (Chevron, 2016).

\$250 million has been committed by Chevron for critical and social infrastructure in Onslow as part of its obligations under the Wheatstone State Development Agreement (Chevron, 2016). Contributions by Chevron and the State have led to the new airport, power plant, hospital, government employee housing, swimming pool, access road into Onslow and housing subdivision (DSD 2015).

Also within the Shire, the Gorgon project involved the construction of a three-train, 15 mtpa LNG facility, and a 300 terajoule per day domestic gas plant. Around \$33 billion has been committed so far to Western Australian workers, suppliers and companies (DSD 2015). About 60 percent of the project total expenditure will have been spent within Australia.

6.4 MINING

Western Australia is home to a number of mineral resources. The Pilbara Region is best known for its iron ore reserves, and other minerals such as gold, silver, copper and manganese (Geoscience Australia, 2016).

Iron ore emerged as a significant export commodity during the latter half of the 1960s, once deposits were confirmed and the global demand for steel saw the iron ore prices being to increase. According to Geoscience Australia, iron ore reserves may last for another 65 years, based on current production rates (Geoscience Australia, 2016). The estimated lifespan of iron ore reserves will depend on a number of factors, possibly including (but not limited to):

- Global market positioning and competition,
- Multinational mining company decisions on which deposits to invest in,
- Development and extraction costs,
- Environmental, social and political factors; and
- Land access, infrastructure, and the location and scale of the mining operations.

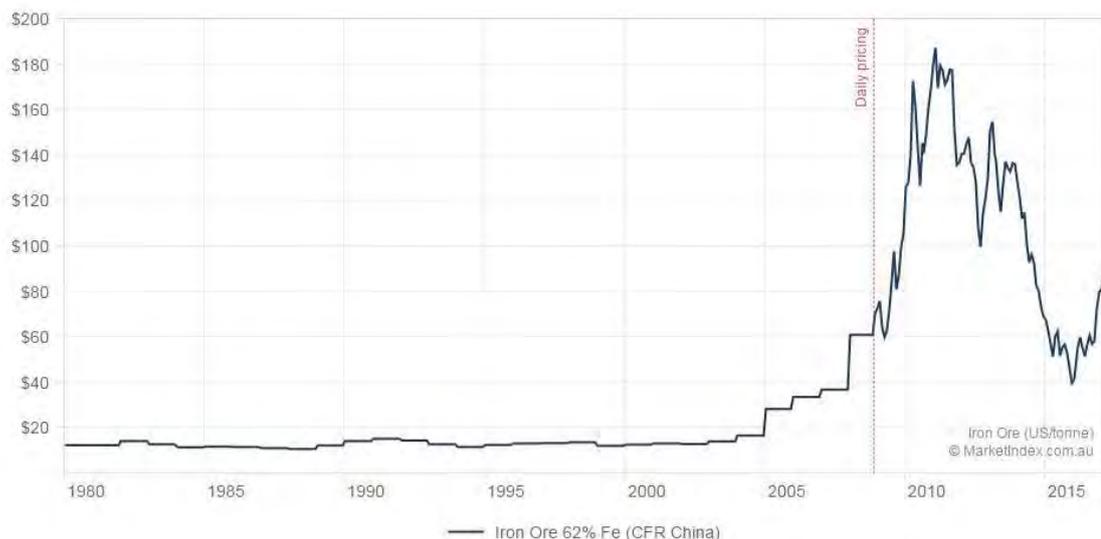


Figure 27 Historical Chart of Iron Ore Spot Prices – January 1980 to February 2017 (Market Index, 2017)

The above graph (**Figure 27**) illustrates the range of iron ore prices from January 1980 until February 2017. Prices at February 2017 were around \$88 USD per metric tonne. The Reserve Bank of Australia notes that “*the bulk of Australian iron ore producers are at the lower end of the global iron ore cost curve, which means that most Australian production remains profitable at current iron ore prices*” (RBA, 2015). The iron ore price at the time of the RBA’s remarks in February 2015 was \$62.69 USD per metric tonne; in February 2017 the spot price was \$88.80USD per metric tonne (Market Index, 2017).

As such, and as eluded to in the commentary above, mining operations may be forced to extract at greater efficiencies; place mines on care and maintenance; or defer/cancel developments or close operations (Geoscience Australia, 2016). The weakness in the iron ore price has decreased exploration and drilling.

Rio Tinto, BHP Billion and FMG are regarded as the largest operators in the Pilbara Region, although a number of smaller mining companies operate within the local government area.

FMG's Solomon Hub is developed to the north of Tom Price. The *Iron Ore (FMG Chichester Pty Ltd) Agreement Act 2006* establishes the preparation of a Community Development Plan, which covers training and employment for local residents, local purchasing of goods and services and regional development, contribution to community services and facilities, and developing a regionally based workforce.

Rio Tinto has a significant presence in the Shire, being a major landowner within Tom Price, Paraburdoo and Pannawonica. Rio Tinto Pilbara operations increased production to 309.9 megatonnes in 2015 and was expected to increase iron ore shipments to 350 megatonnes in 2016 (Geoscience Australia, 2016). Rio Tinto operates mines within the Shire as per **Table 24** below.

Table 24 Rio Tinto Mines (Rio Tinto, 2016)

Mine	Commenced Production	Workforce
Brockman 2 / Nammuldi	1992	FIFO
Brockman 4	2010	FIFO
Robe Valley Operations	Robe Valley 1972 Mesa A 2010 Mesa J 1992	49% residential; 51% FIFO (Pannawonica)
Mt Tom Price (including Western Turner Syncline)	1966	Residential (Tom Price)
Greater Paraburdoo	Paraburdoo 1972 Channar 1990 Eastern Range 2004	78% residential; 22% FIFO (Paraburdoo)
Marandoo	1994	FIFO

BHP operations were considered to increase 6% in the December 2015 half-year period to 131 megatonnes, with the company anticipating production to rise to 290 megatonnes over time as a result of operational efficiencies and increasing capacity (Geoscience Australia, 2016).

6.4.1 MINING TENEMENTS

Pursuant to section 120 of the *Mining Act 1978*, the provisions of any planning scheme in force under the *Planning and Development Act 2005* would be taken into account, but would not prohibit or derogate from the granting of a mining tenement or the carrying out of any mining operations authorised under the *Mining Act*. The Shire or the WAPC can inform the Minister in writing, that the mining lease or general purpose lease would, if granted, authorise the carrying on of mining operations contrary to the provisions of the local planning scheme. The Minister would consult and obtain the Minister for Planning's recommendation.

The Shire of Ashburton has a number of mining tenements and mines, which are reflected in **Figure 28**. The DMP website indicates that many of the resources are proposed or operating, as per **Table 25**.

Table 25 Status of Mining Tenements (DMP, 2017)

Tenement/Mine	Owner	Commodity	Operating Status
Manyingee	Avira Energy Limited (75%) Paladin Energy Ltd (25%)	Uranium	Proposed
Yanrey	Cauldron Energy Ltd	Uranium	Proposed
Paulsens	Intrepid Mines Ltd (Royalties) Northern Star Resources Ltd	Gold	Operating
West Pilbara – Mt Stuart / API	American Metals and Coal International, Inc (25.5%) Aquila Resources Pty Ltd (50%) Cullen Resources Limited (Royalties) Pohang Iron and Steel Co. Ltd (24.5%)	Iron Ore	Proposed

Tenement/Mine	Owner	Commodity	Operating Status
West Pilbara – Red Hill / API	American Metals and Coal International, Inc (15.3%) Aquila Resources Pty Ltd (30%) Pohang Iron and Steel Co. Ltd (14.7%) Red Hill Iron Ltd (40%)	Iron Ore	Proposed
Robe River – Deepdale	Mitsui & Co (Australia) Ltd (33%) Nippon Steel & Sumikin Resources Australia Pty Ltd (3.5%) Nippon Steel Australia Pty Ltd (10.5%) Rio Tinto (53%) Robe River Iron Associates (Unknown)	Iron Ore	Operating & Care and Maintenance
Bungaroo Creek – Yathala Well	Mitsui & Co (Australia) Ltd (33%) Nippon Steel & Sumikin Resources Australia Pty Ltd (3.5%) Nippon Steel Australia Pty Ltd (10.5%) Rio Tinto (53%) Robe River Iron Associates (Unknown)	Iron Ore	Proposed
Buckland – Bungaroo South	Iron Ore Holdings Limited (100%) Pilbara Ports Authority (Unknown)	Iron Ore	Proposed
Western Hub / FMG	Fortescue Metals Group (100%) Talisman Mining Ltd (Royalties)	Iron Ore	Proposed
Brockman 2 – Nammuldi – Silvergrass – Homestead	Hamersley Iron Pty Ltd	Iron Ore	Proposed & Operating
Brockman 4 Area	Hamersley Iron Pty Ltd	Iron Ore	Operating
Solomon – Greater Solomon	Flinders Mines Limited (Unknown) Fortescue Metals Group Ltd	Iron Ore	Operating & Proposed
Pilbara Iron	Flinders Mines Limited	Iron Ore	Proposed
Mt Pynton	Hamersley Iron Pty Ltd	Iron Ore	Proposed
Beasley River Limonites	Mitsui & Co (Australia) Ltd (33%) Nippon Steel & Sumikin Resources Australia Pty Ltd (3.5%) Nippon Steel Australia Pty Ltd (10.5%) Rio Tinto (53%)	Iron Ore	Proposed
Turner Syncline West	Hamersley Iron Pty Ltd	Iron Ore	Operating
Hardey / API	American Metals and Coal International, Inc (25.4%) Aquila Resources Pty Ltd (50%) Pohang Iron and Steel Co. (24.5%)	Iron Ore	Proposed
Turee Syncline Iron Ore	Hamersley Iron Pty Ltd	Iron Ore	Proposed
Paraburdoo	Hamersley Iron Pty Ltd Hancock Prospecting Pty Ltd (Royalties) Wright Prospecting Pty Ltd (Royalties)	Iron Ore	Proposed
Channar	Hamersley Iron Pty Ltd (60%) Hancock Prospecting Pty Ltd (Royalties) Sinosteel Ocean Capital Pty Ltd (40%) Wright Prospecting Pty Ltd (Royalties)	Iron Ore	Operating
Tom Price	Hamersley Iron Pty Ltd	Iron Ore	Operating
Marandoo	Hamersley Iron Pty Ltd	Iron Ore	Operating
Investigator	Flinders Mines Limited (Unknown) Fortescue Metals Group Ltd	Iron Ore	Proposed
Mulga Downs	Hancock Prospecting Pty Ltd	Iron Ore Manganese Ore	Proposed

6.4.2 SALT

6.4.2.1 ONSLOW SALT

The Onslow Salt saltfield is owned and operated by Shark Bay Salt Pty Ltd, a wholly owned subsidiary of Mitsui & Co Ltd⁵. The saltfield was built in the late 1990s and began shipment of salt in 2001. The saltfield was built by enclosing a vast natural flat area with sea wall levees and encompasses an area of 220 square kilometres. The 87 square kilometres occupied by the saltfield comprises of:

- 77 square kilometres for 6 evaporation ponds; and
- 10 square kilometres for 15 crystalliser ponds.

The salt is harvested, washed and stockpiled. It is exported by sea for a range of industrial purposes. The salt is loaded via conveyor belts from the stockpiles via the wharf to vessels.

The operation is subject to the *Onslow Solar Salt Agreement Act 1992*⁶. The *OSSA Act 1992* ratifies the agreement between the State and Onslow Salt Pty Ltd (Onslow Salt) to establish and operate a solar salt field at Onslow and for incidental and other purposes. The *OSSA Act 1992* indicated an initial production of 1 million tonnes of salt with a capacity to produce up to 2.5 million tonnes of salt per annum. Rights, obligations and responsibilities are outlined in the *OSSA Act 1992*.

It is understood the operation has a range of tenure, including some freehold, mining tenement lease, and general purpose lease. A gas pipeline, Water Corporation lease, Shire of Ashburton managed reserve, and a reserve for a golf course are also within the operational area. The lease ensures the company has rights, but does not offer totally secure tenure.

6.4.2.2 ASHBURTON SALT

The Ashburton Salt project was announced in May 2016 by K+S⁷ to be located south of the ANSIA and approximately 40 kilometres south-west of Onslow. The project is a response by K+S to move into the Asian market where there is growing demand for industrial salt.

The project is in the very early stages of planning. K+S is preparing documentation to apply for the necessary environmental permits and is completing a feasibility study for the project. The approval process is expected to last for 3-4 years, with a final decision then being made on whether to build the solar salt production facilities over a 2-year period. The estimated timeframe for being in operation is 2020-2021.

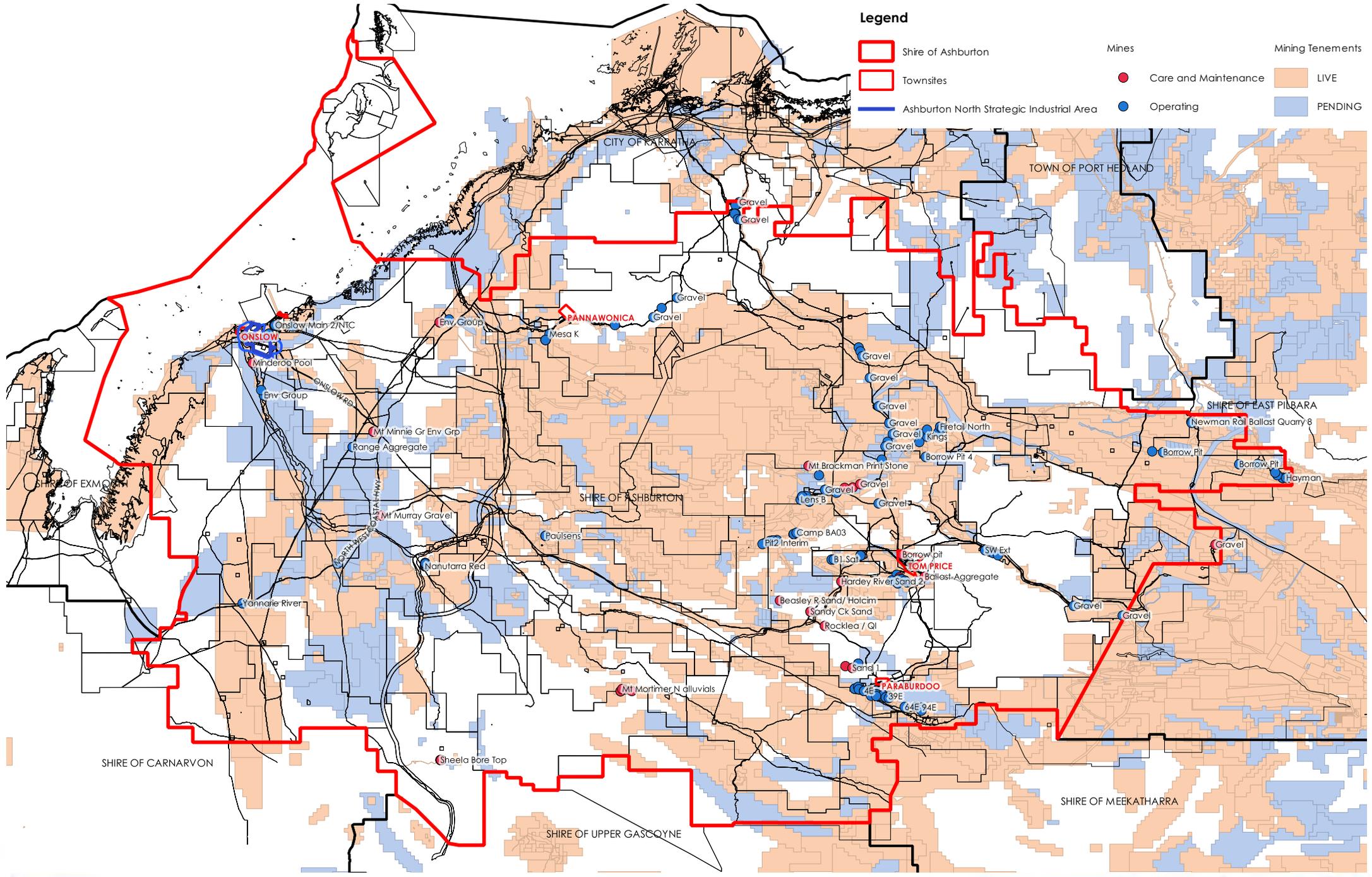
Annual production would be approximately 3.5 million tonnes per annum, with an approximate capital expenditure of \$350 million.

Currently, no State Agreement applies to the project.

⁵ <http://www.salt.com.au/os.php>

⁶ https://www.slp.wa.gov.au/legislation/statutes.nsf/main_mrtitle_660_homepage.html

⁷ <https://www.businessnews.com.au/article/350m-salt-project-unveiled>



Legend

- Shire of Ashburton
- Townsites
- Ashburton North Strategic Industrial Area
- Care and Maintenance
- Operating
- LIVE
- PENDING

6.5 BUSINESS TURNOVER

A number of businesses operate within the Shire. The following **Figure 29** identifies that between 2012-2015 there was:

- A reduction in businesses with a turnover of 0-\$50k;
- Near parity resurgence in businesses with a turnover of \$50k-\$100k;
- Slight reduction in businesses with a turnover of \$100k-\$200k;
- A notable decline in businesses with a turnover of \$200k-\$500k;
- A positive increase in businesses with a turnover of \$500k-\$2m; and
- Near parity in businesses with a turnover of \$2m or more.

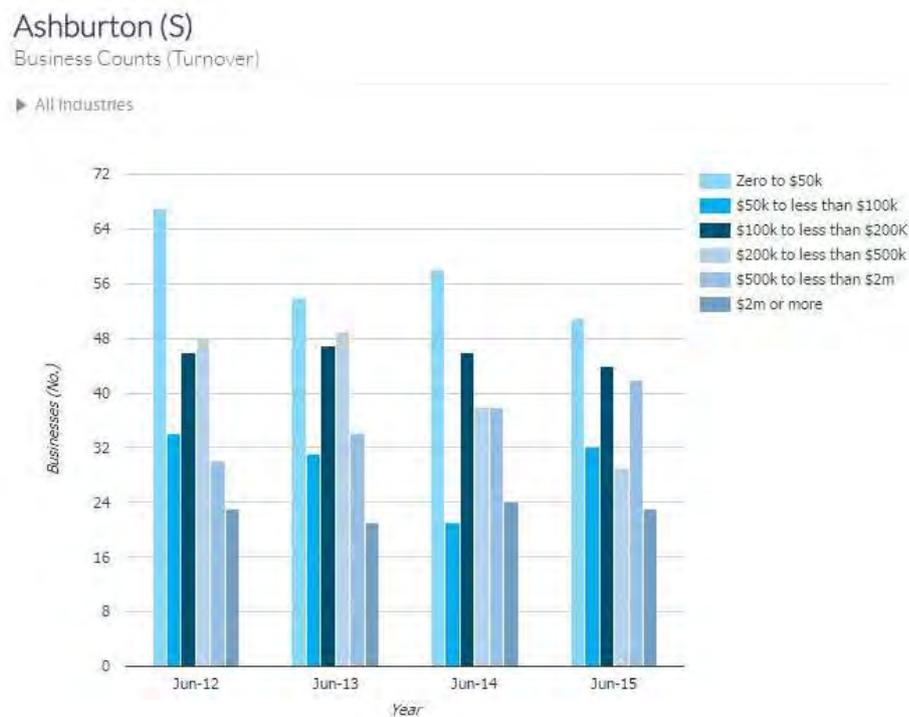


Figure 29 Ashburton Business Counts, Turnover

There appears to be resilience in the number of businesses within the Shire. Business growth may be leveraged from mining, or growth in other industry sectors such as agriculture, tourism, construction etc. Through diversification of the economy, broadening the scope of the economy could also contribute to a growth in business counts.

6.6 ECONOMIC TRANSFORMATIONAL OPPORTUNITIES

The diversification of the economy can help strengthen its adaptability and resilience to market changes, as a greater number of occupations will be spread across a wider range of sectors. Existing sectors include resources, agriculture, tourism and fisheries. Supporting services also contribute to a broadening of the economic base.

The *Pilbara Regional Investment Blueprint* identified new sources of growth through 'Transformational Opportunities' that will be catalysts for projects, refer **Table 1** in **section 2.2.1**. If transformational opportunities are not harnessed, the 'business as usual' trajectory is flat (RDAP, 2013) and population growth will not be as possible compared to an economy that includes a greater range of industry sectors/businesses and employment opportunities.

Opportunities within the Pilbara region (RDAP, 2013) have been identified in the sectors of:

- Sustainable commercial scale algae;
- Bio-fuels;
- High-tech greenhousing;
- Aquaculture fish farming and fish processing; and
- Tourism, and as a consequence, retail and food services.

Whilst the Local Planning Strategy does not aim to predict what transformational opportunities may arise within the Shire, it is able to facilitate the ability for new, emerging or growth industry sectors to be able to consider establishing themselves within the local government area. Capitalising on proximity to Asian, other international and domestic markets, the Shire's rangelands can prove to be a significant source for investment in a range of areas. The Shire is already home to industry sectors such as commodities, non-traditional cropping, agriculture, aquaculture, fishing, tourism, aviation, construction, health, education, and the public sector.

6.7 EMPLOYMENT

It is estimated that 44,956 people work in the Pilbara Region. Of these, the ratio is approximated as follows (REMPPLAN, 2017):

- 32.99% jobs in Karratha;
- 25.09% jobs in East Pilbara;
- 22.86% jobs in Ashburton; and
- 19.06% jobs in Port Hedland.

Mining, Construction, and Accommodation and Food Services are the top three employment industry sectors. For the Pilbara, mining jobs may typically increase or decrease irrespective of the population growth trends. For mining, the number of jobs available may be affected by the number of FIFO jobs which would imply local employment opportunities may not be as diverse or readily available.

Within the Shire of Ashburton and the Pilbara region, employment is heavily oriented to mining and construction, refer **Table 26**, followed by accommodation and food services; and transport, postal and warehousing. Sectors that are projected to have significant employment growth include professional, scientific and technical services; and transport, postal and warehousing (Department of Training and Workforce Development, 2013).

Table 26 Industry by Sector, Shire of Ashburton and Pilbara Region Source: (REMPPLAN, 2017)

Employment by Industry	Percentage	
	Shire of Ashburton	Pilbara Region
Mining	52.83%	41.15%
Construction	18.05%	18.69%
Accommodation & Food Services	6.14%	5.49%
Transport, Postal & Warehousing	4.19%	5.24%
Administrative & Support Services	2.73%	3.07%
Professional, Scientific & Technical Services	2.67%	3.04%
Education & Training	2.25%	3.40%
Retail Trade	1.79%	3.00%
Health Care & Social Assistance	1.77%	3.17%
Other Services	1.49%	2.45%
Manufacturing	1.17%	3.21%

Employment by Industry	Percentage	
	Shire of Ashburton	Pilbara Region
Wholesale Trade	0.78%	1.39%
Rental, Hiring & Real Estate Services	0.62%	1.53%
Agriculture, Forestry & Fishing	0.60%	0.36%
Electricity, Gas, Water & Waste Services	0.57%	1.01%
Information Media & Telecommunications	0.19%	0.21%
Financial & Insurance Services	0.18%	0.32%
Arts & Recreation Services	0.05%	0.22%

The above **Table 26** and following **Table 27** indicates the dominance of mining sector and occupations for technicians and trades workers and machinery operators and drivers. Whilst these tend to dominate in terms of employment, other sectors could experience strong employment growth. With projections that other industry sectors have growth opportunities, there is the ability to broaden employment opportunities. This would assist in providing greater representation of other industries. As such it is likely that in the longer term professional occupations may be more representative within the Shire.

Table 27 Workers by Occupation (REMPPLAN, 2017)

Occupation	Percentage		
	Shire of Ashburton	Pilbara Region	Western Australia
Technicians and Trades Workers	29.47%	29.29%	16.83%
Machinery Operators and Drivers	28.92%	21.52%	7.73%
Professionals	11.33%	12.91%	20.16%
Labourers	11.03%	11.67%	9.63%
Clerical and Administrative Workers	7.32%	9.40%	14.43%
Managers	6.56%	7.51%	12.28%
Community and Personal Service Workers	3.19%	4.29%	9.47%
Sales Workers	1.31%	2.42%	8.67%
Not Stated / Inadequately described	0.86%	0.99%	0.80%

6.7.1 UNEMPLOYMENT

The unemployment rate in the census was 1.3% compared to the Western Australian average of 4.7% (Profile.id, 2016). The following **Table 28** and **Figure 30** identify the dominance of males in the labour force and in employment.

Table 28 Employment, Unemployment and Total Labour Force, Shire of Ashburton (ABS, 2016)

Workforce (Male and Female)	Employed (of persons aged 15+yrs)			Unemployed	Total Labour Force	
	Full-Time	Part-Time	Away from Work		Labour Force	% Employment to Population
Male (2016)	66.2%	4.3%	6.2%	1.3%	77.8%	76.3%
Female (2016)	14.3%	4.7%	2.2%	4.2%	22.3%	64.5%
Male (2011)	59.5%	4.1%	6.1%	1.2%	70.6%	76.5%
Female (2011)	18.9%	6.9%	2.8%	2.9%	29.4%	67.1%
Male (2006)	51.6%	3.8%	5.8%	1.9%	62.5%	79.4%
Female (2006)	20.1%	12.8%	3.2%	3.3%	37.5%	63.4%

The extent of male full-time employees is indicative to the high rates of FIFO workers within the Shire. This is reinforced where nearly two-thirds of workers in the Shire of Ashburton working more than 49 hours per week, refer **Table 31**. An inference is that the workforce is over-represented as a male-dominant workforce within the construction, mining, and oil and gas sectors. These industry sectors typically have their employees on shift work. Shift work enables 24/7 operations, however FIFO based working environments can lead to risks associated with operating heavy machinery, demanding rosters, intensive commutes, disruptive sleep environments, and inexperienced workers (Wood, 2013). Fatigue research has received significant resources, and guidelines and legislation has been introduced to help with fatigue management and staff training. However, with FIFO environments it is implied that fatigue can never be completely removed.

Unemployment within the Pilbara region is well below the Western Australian unemployment rate, as shown in **Figure 30**.

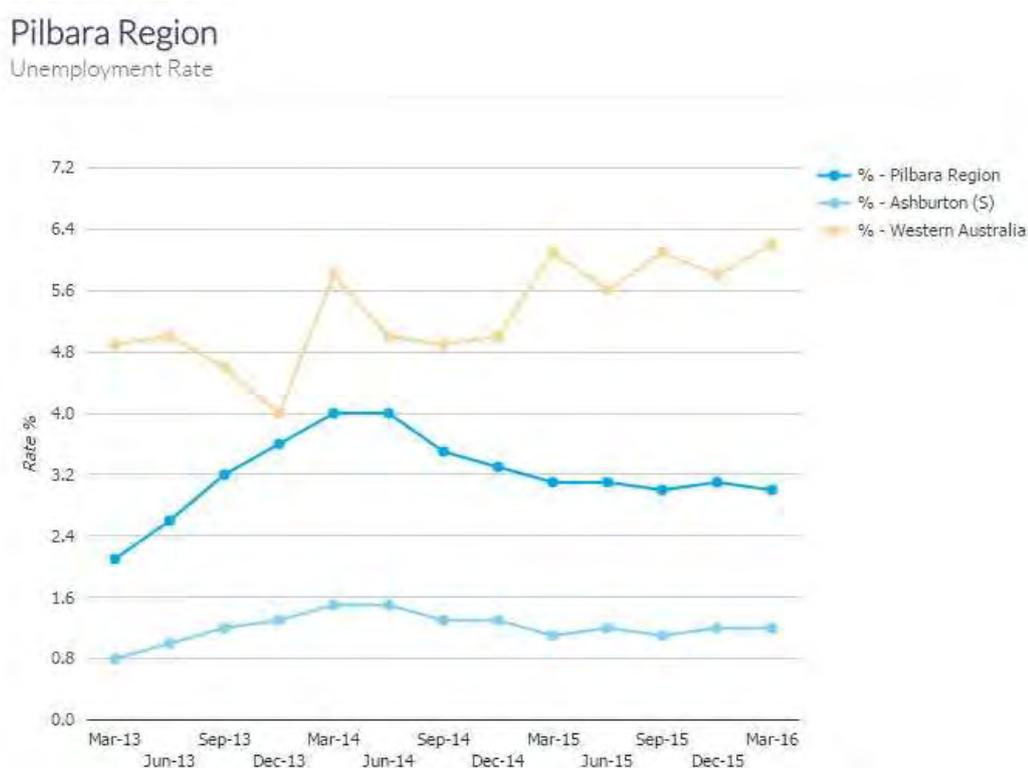


Figure 30 Unemployment Rates Source: (REMPPLAN, 2017)

6.7.2 WORKFORCE AGE COHORTS

In the 2016 census, the Shire of Ashburton had a labour force of 8,469 persons (77.8% male, 22.2% female) with an overall labour force participation rate of 74.9% (77.3% male, 67.7% female) (ABS, 2016). The age of the workforce is dominated mainly by 25-34 year olds (29.89%), 35-44 year olds (28.13%) and 45-54 year olds (22.2%), as shown in **Table 29**. This represented the highest participation rate out of all the local governments in the Pilbara region (regional average 68.7%) and higher than the Western Australian rate of 64% (Department of Training and Workforce Development, 2013). This can be an indication for potential local labour shortages as well as the driving forces of employment demand particularly in mining and construction.

Table 29 Workers in Pilbara and Ashburton by age (REMPPLAN, 2017)

Age cohort	Percentage		
	Shire of Ashburton	Pilbara Region	Western Australia
15-19	1.62%	2.56%	6.07%
20-24	8.02%	8.86%	9.98%
25-34	29.89%	28.50%	21.62%
35-44	28.13%	26.17%	22.60%
45-54	22.20%	22.48%	22.19%
55-64	9.46%	10.39%	14.46%
65-74	0.62%	1.02%	2.80%
Over 75	0.06%	0.02%	0.47%

Further to the distinct growth of the labour force within the Shire of Ashburton, the employment and unemployment rates have remained steady for the total population, refer **Table 30**.

Table 30 Changes in Employment, 2001-2011 (ABS, 2012)

Workforce (Male and Female)	Employed			Unemployed		Total Labour Force	
	Full-Time	Part-Time	Away from Work / Not Stated	Looking for Full-Time	Looking for Part-Time	Labour Force	Status not Stated
2001	68.33%	17.91%	10.4%	2.17%	1.18%	67.19%	7.61%
2006	73.34%	14.53%	9.76%	1.66%	0.70%	67.17%	14.49%
2011	80.15%	8.78%	9.75%	1.01%	0.31%	70.64%	18.18%

6.7.3 RATIO OF MALE TO FEMALE WORKFORCE

What is notable is the increase in the number of workers between 2001 and 2011 census periods, refer **Figure 31**. What is striking is the significant increase in male representation within the labour force, compared to female representation. This is understandably directly related to the dominance of male FIFO workers.

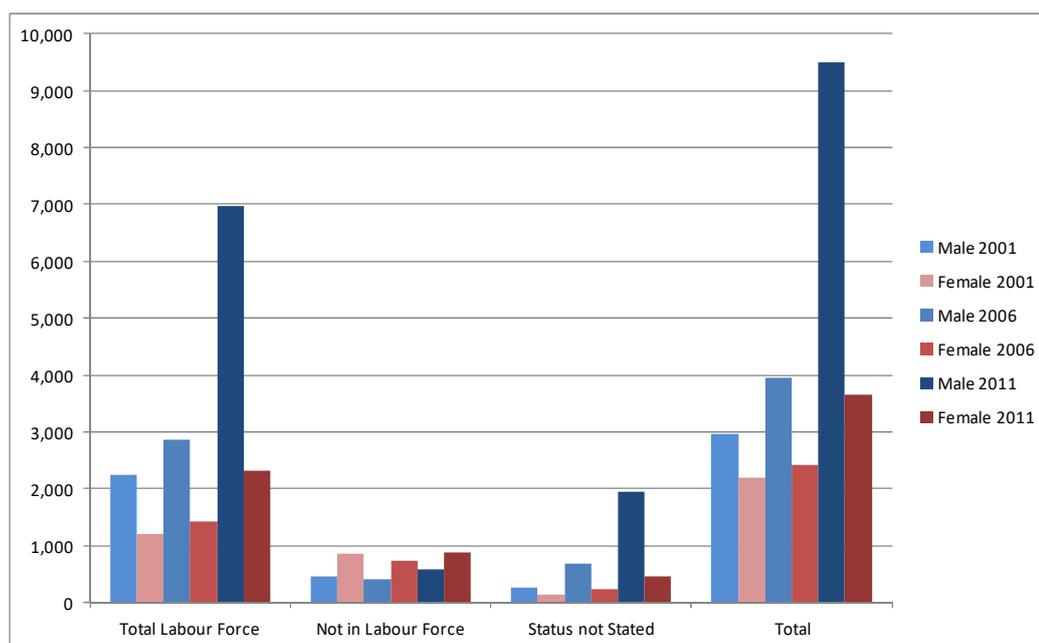


Figure 31 Changes in Labour Force, Shire of Ashburton (ABS, 2012)

The numbers above provide a broad overview of the changing dynamics of the employment status within the labour force. The total labour force as strengthened against the total population. Importantly, there is a significant distortion of the above numbers when divided into males and females, refer **Figure 32**.

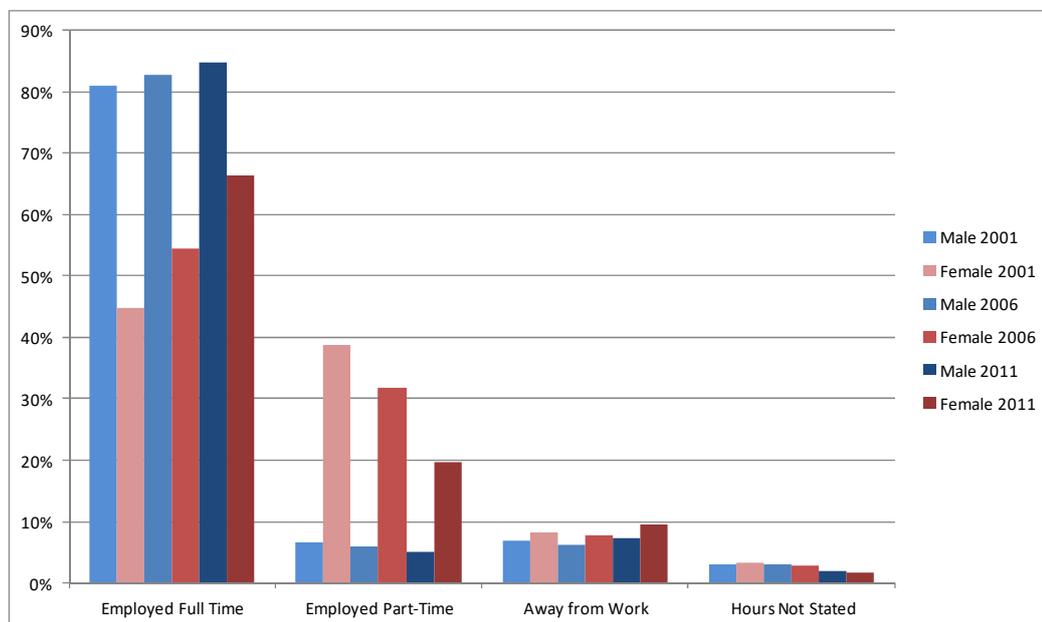


Figure 32 Changes in Employment (Male and Female), Shire of Ashburton 2001-2011 (ABS, 2012)

6.7.4 EMPLOYMENT AND HOURS WORKED

The ratio of the population aged over 15 has increased, from 72% to 82.2%. The employed population has increased from 97.6% to 98.3% (Profile.id, 2016). **Table 31** indicates that the Shire’s ratio of the workforce working 49 hours or more per week is of 65%. This is higher than the Pilbara regional average of 58%, and more striking is the comparison to the Western Australian average of 20%. It is notable that the factors and pressures imposed on workforce associated with FIFO employment can have detrimental health impacts on individuals, relationship impacts on their networks, and socio-economic impacts on communities (Parliament of Western Australia, 2015). Whilst the local population enjoys low rates of unemployment, it is illustrative in **Table 31** that company-imposed rosters lead to very high hours worked.

Table 31 Workers – by hours worked (REMPPLAN, 2017)

Number of Workers, by Hours Worked	Shire of Ashburton	Pilbara Region	Western Australia
0 hours	8.95%	7.49%	4.68%
1-15 hours	2.75%	3.19%	10.78%
16-24 hours	2.51%	2.91%	9.21%
25-34 hours	2.50%	3.34%	9.57%
35-39 hours	3.45%	5.58%	15.84%
40 hours	4.08%	7.72%	17.38%
41-48 hours	9.37%	10.41%	11.02%
49 hours or more	65.11%	58.08%	20.18%

6.7.5 INDEX OF ECONOMIC DISADVANTAGE

The Shire of Ashburton's Socio Economic Indexes for Areas (SEIFA) Index of Disadvantage, as shown in **Figure 33**, measures the relative level of socio-economic disadvantage based on a range of Census characteristics. The index is derived from attributes that reflect disadvantage such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations (REMPAN, 2017). A higher score on the index indicates a lower level of disadvantage. The score for the Shire of Ashburton is above the average. However, it is important to note that disadvantages are more pronounced within the Indigenous community, as referred to in **section 5.1.3.2**. Whilst a higher score is given for the Shire overall, there are pockets of the community that would experience greater disadvantage.

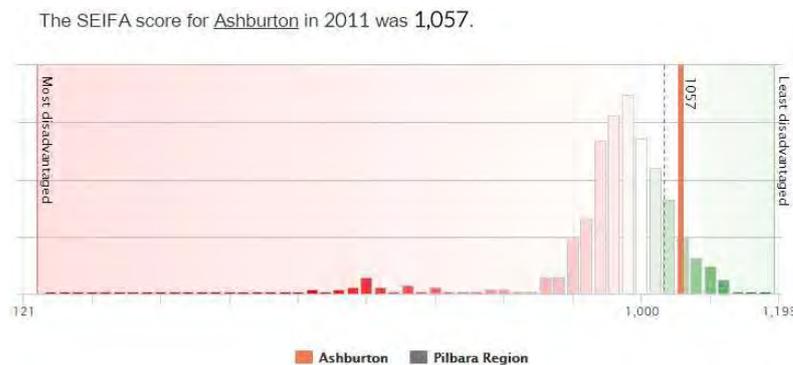


Figure 33 SEIFA Score, Shire of Ashburton (REMPAN, 2017)

The high score on the SEIFA index arguably is reflected by more than half of the workforce within the Shire earning over \$2,000 per week (refer **Table 32**). These high incomes typically are associated with FIFO work arrangements. Therefore, whilst incomes are high, a large number of these high-income earners would reside outside of the Shire (such as within Perth).

Table 32 Workers by Income (REMPAN, 2017)

Weekly Income Range	Shire of Ashburton	Pilbara Region	Western Australia
Negative / Nil Income	0.90%	0.82%	1.01%
\$1-\$199	0.96%	1.26%	4.29%
\$200-\$299	0.67%	0.89%	3.83%
\$300-\$399	0.70%	0.95%	4.93%
\$400-\$599	2.16%	2.54%	10.40%
\$600-\$799	2.75%	3.37%	12.27%
\$800-\$999	3.09%	4.21%	11.46%
\$1,000-\$1,249	5.59%	7.28%	12.60%
\$1,250-\$1,499	7.31%	8.34%	9.80%
\$1,500-\$1,999	17.82%	18.28%	12.68%
\$2,000 or more	56.93%	50.87%	14.92%
Not State / Not applicable	1.12%	1.20%	1.18%

6.7.6 SKILLING WA – PILBARA WORKFORCE DEVELOPMENT PLAN 2013-2016

The following **Table 33** gives an indication that there has been notable growth in the proportion of the workforce holding formal qualifications, and a lower proportion with no formal qualifications. There has been a notable growth in the proportion of the workforce with a vocational qualification, which can arguably be reflected by the qualifications required for construction workforce – predominately certificate III level qualifications with a relatively smaller pipeline of certificate I and II participants.

Table 33 Changes in Qualified Workforce 2006-2011 (ABS, 2012) (Profile.id, 2016)

Qualification Level	2011		2006		Change 2006 to 2011
	Number (Percentage)	Regional WA %	Number (Percentage)	Regional WA %	
Bachelor or Higher degree	796 (9.7%)	10.2%	407 (9.3%)	8.8%	+389
Advanced Diploma or Diploma	502 (6.1%)	6.4%	208 (4.8%)	5.7%	+294
Vocational	2,496 (30.4%)	22.6%	1,140 (26.1%)	19.1%	+1,356
No qualification	2,821 (34.3%)	46.9%	1,890 (43.2%)	51.2%	+931
Not stated	1,600 (19.5%)	13.8%	730 (16.7%)	15.1%	+870
Total Persons aged 15+	8,215 (100%)	100%	4,375 (100%)	100%	+3,840

Government educational investment is occurring in the Pilbara Region to boost opportunities for local training, including a new training facility at North Regional TAFE Karratha campus, for delivering new courses for training in electronics, communications, renewable energy, signalling and electro-technology maintenance⁸.

There are low levels of take-up of higher level vocational and training qualifications, especially in the oil and gas and downstream process manufacturing sectors. Existing job roles are being reshaped and there is demand for higher level skills (RITC, 2016). There is the capacity to deliver level 5 and 6 qualifications, although there is a need to match higher level skills with future job role needs amidst increased sophistication and technological advancement in the industry.

This is important, as higher level vocational training and education more directly relates to the job roles and skills necessary during the operational phase of a project. Workforce qualifications for construction phases are not directly transferrable to operational project workforces. Research confirmed that qualifications as they stand within the oil and gas and process manufacturing industries, do not meet the current needs of the industry (RITC, 2016). The biggest skills gaps to address generally revolve around leadership and business skills. Existing vocational courses on offer have been identified for changes to create new sets of qualifications or skill sets to meet industry needs.

The key objective of the *Pilbara workforce development plan 2013-2016* (WDP) is to identify current and future workforce development and skills needs, and to develop strategies to ensure that these needs can be addressed (Department of Training and Workforce Development, 2013). The WDP identifies workforce issues that can be taken into account as part of decision-making processes. The WDP also recognises the vision put forward through Pilbara Cities (refer **section 2.2.1**).

Projections anticipate a transition of the Pilbara economy towards more diverse employment distribution by 2035. Whilst this is beyond the timeframe of the Local Planning Strategy, actions may need to be taken well in advance to facilitate growth in other employment sectors that are currently under-represented (i.e. retail, health care, manufacturing, education and training).

⁸ <https://www.mediastatements.wa.gov.au/Pages/Barnett/2016/11/New-electrical-centre-delivers-training-in-Pilbara.aspx>

6.8 ECONOMIC AND EMPLOYMENT IMPLICATIONS

6.8.1 ECONOMIC IMPLICATIONS

In short:

- Onslow's economic growth is heavily dependent on LNG and salt.
- Paraburdoo and Tom Price's economic growth is heavily dependent on iron ore and other mineral reserves.

The Shire has been fortunate to capitalise on the previous resource boom, which facilitated in the funding of a number of facilities. Further, Rio Tinto operates within the townsites of Paraburdoo, Tom Price and Pannawonica, which provide more of an ongoing legacy through the establishment of facilities, housing, and the investment in community development.

By 2018, the Pilbara region is anticipated to have production value of \$211 billion, representing 17% of Australia's total GDP (RDAP, 2013), up from about 6.2% of total GDP (PDC, 2015). The mineral reserves within the region are sufficient to sustain current production levels for many years, and supply is anticipated to increase (RDAP, 2013). Known oil reserves could be exhausted in 20 years; known iron ore and LNG reserves could be sufficient for 50 years (RDAP, 2013). Whilst reserves are significant, these are still finite resources, and the economic sustainability of the region as a whole (and its towns and communities) will be dependent on economic diversification.

Rio Tinto, Chevron and BHP are all large sector businesses that contribute to the economy through mining and hydrocarbon industries. The development of towns, roads, infrastructure and utilities is a testament to their long-term presence within the Shire as well as their ongoing investment.

Other sectors to have consideration for include the service sectors that provide support to the mining and hydrocarbon industries. These tend to fluctuate depending on the economic conditions.

Tourism (nature-based, eco, industrial and Aboriginal), pastoralism, commercial fishing, agriculture and aquaculture, and local services are all considered to have a bearing on the economic profile of the Shire.

- Fluctuations to commodity prices can have a direct influence on workforce (i.e. projects may be postponed, scaled-back, cancelled, accelerated to meet new rising demand etc) and can lead to rising costs, shortages in local labour, housing and land.
- OCCI has previously provided an outline of economic issues and opportunities that may be relevant to the economic prosperity of business within Onslow
- Acknowledge the Onslow community would be boosted by construction activity.
- The location of the Shire is within the same time zone as many of the highest growth countries in the world, which can provide interesting opportunities.
- Future projects will provide direct and indirect job growth, such as the OMSB, Ashburton Salt, and community/social and infrastructure projects.
- Access to heavy strategic and industrial land and associated utilities and infrastructure.
- Establishment of new industries producing products from downstream processing of natural gas and by-products and associated employment generation.
- Provision of utility synergies.
- Access to port and facilities and airport as supply and/or service base.
- Expansion and extension of hydrocarbon projects.
- Investigation of opportunities for growth in pastoral tourism; agriculture; aquaculture.

6.8.2 EMPLOYMENT IMPLICATIONS

Sustainable population growth and retention will arguably rely in some part on the need for economic development and diversification. This is a major challenge for regional economies. To sustain positive and ongoing population growth, new jobs will be required to see improvements to employment self-sufficiency and employment self-containment. Investment in new businesses, new industry sectors, and new job creation will need to keep up with population growth.

The accommodation of operational workforce in townsites will contribute to their economic growth/self-sufficiency. Particularly, presence of operational workforce in permanent residences can contribute to population growth, making education, health, community, social, recreational services more justifiable to retain and maintain.

The Onslow Chamber of Commerce and Industry (OCCI) has documented issues in relation to competitive labour margins, which is more of a business sector issue than a planning matter. The OCCI also recognises the economic stimulus that has been generated as a result of investment at Wheatstone, Macedon, Beadon Creek Boat Harbour, Onslow light industrial land and Onslow Airport, and the Onslow Marine Supply Base.

- Employment generation associated with workforce accommodation camps and business opportunities during construction, operation and shutdown.
- Contract packages for procurement available through ProjectConnect (information provider for the Wheatstone project).
- BHP in cooperation with OCCI identifies opportunities for local business during operations and shutdown activities.
- Spending on community infrastructure by mining companies.
- Establishment of a helicopter base and operations to supply and provide workforce transfers to offshore facilities and sites.
- Recreational and lifestyle benefits associated with marina.
- Ensure Local Planning Strategy provides opportunities for land/growth for range of industry sectors, i.e. light industry, general industry, small business, health & education, core infrastructure (and buffers).

Mining and oil and gas industry sectors will continue to be dominant within the Pilbara Region. A key challenge will be to ensure education and training of the workforce will keep up with the predicted transformation of the workforce, with job roles not in existence today potentially becoming mainstream. Considering technological advancements and changes in how the industry will do business, there are a number of roles that will place a greater emphasis on leadership and business skills (RITC, 2016), such as:

- Virtual reality technology and its application in process manufacturing industries;
- Analytics and big data;
- Robotics managers and drone supervisors;
- Biotechnology installers;
- Project management skills;
- Analytical skills and pro-active problem solving;
- Stronger communication skills;
- Greater specialist knowledge in an array of technology and associated software.

There is an understanding at a regional, State, and national level that other industry sectors need to be promoted and cultivated, to help diversify the local economy. Education and training, liveability factors, and incentives to attract emerging or embryonic industry sectors, will need to be considered.

6.8.3 ISSUES AND OPPORTUNITIES FOR ECONOMY AND EMPLOYMENT

The following **Table 34** considers the implications, issues and opportunities from an economy and employment perspective.

Table 34 Implications, Issues and Opportunities – Economy and Employment

Economy and Employment	Implications	Issues	Opportunities
Economic Growth	<p>Forecasts show a gradual recovery in global, national and state economic growth, domestic economic activity and growth in exports.</p> <p>There appears to be resilience in the number of businesses within the Shire.</p> <p>The Shire of Ashburton has a higher than average SEIFA score, indicating lower levels of disadvantage. However, disadvantage is still pronounced within the Indigenous community.</p>	<p>The Pilbara Region is exporting unprecedented levels of iron ore, whilst experiencing weaker iron ore prices.</p> <p>Business growth may be leveraged from mining, or growth in other industry sectors (agriculture, tourism, construction, etc.).</p>	<p>The Local Planning Strategy can facilitate future urban and industrial development through identifying land areas suitable for town growth, should it be required.</p> <p>Support diversification of the economy to broaden the scope of its regional export potential.</p> <p>Support government initiatives to reduce socio-economic disadvantage within the Indigenous community.</p>
Building Activity	<p>Shire reports indicated an approximate growth rate of 1.2%, based on creation of new lots.</p>	<p>New lots may be required to address projected population increase within the townsites.</p>	<p>Identify land for urban infill and urban investigation, with a view to ensure that capable land is de-constrained and available, should demand warrant growth to occur.</p>
Oil and Gas Resources	<p>Significant economic benefits are generated from oil and gas, particularly from Gorgon and Wheatstone.</p>	<p>Commitments have been made by Chevron Australia for critical and social infrastructure within Onslow, as part of its State Development Agreement.</p> <p>The major oil and gas development are located within the ANSIA. The Shire has limited scope given it has no authority over the ANSIA.</p>	<p>Liaison and coordination with the Western Australian Planning Commission and State Agencies in relation to major proposals and developments occurring, that may have an impact on social, economic or environmental factors within the Shire.</p> <p>Ongoing liaison with the State Government in sourcing funding commitments to critical and social infrastructure.</p>
Mining	<p>Iron Ore is the most significant resource (in export terms) within the Shire of Ashburton.</p> <p>Global competition; mining company decision making; costs of extraction; access; infrastructure; and environmental, social and political factors all play a role in the viability of iron ore projects.</p> <p>Recognition that the <i>Mining Act</i> is not subject to the <i>Planning and Development Act</i>.</p> <p>Recognise that State Agreements exist and grant particular rights to mining companies.</p> <p>Development of worker accommodation can fall under the scheme.</p>	<p>Iron ore reserves across Australia may last for another 65 years, noting that the majority of iron ore is located in the Pilbara Region.</p> <p>Agreements can leverage the provision of critical and social infrastructure for supporting the liveability and sustainability of towns.</p> <p>Issuing of mining leases and tenements can have a bearing on the use of land.</p> <p>Mining projects are supported by workforce accommodation (i.e. construction camps), which can be isolated from communities and services.</p>	<p>Work with mining companies and State Agencies in relation to ensuring the community's needs and expectations are being considered and met through ongoing mining activity within the Shire.</p> <p>Work with Department of Planning, Lands and Heritage, State Agencies, and service providers to ensure that appropriate infrastructure is in place to minimise bottlenecks for projects.</p> <p>Ongoing liaison with the State Government in sourcing funding commitments to critical and social infrastructure.</p> <p>Advocate for workforce accommodation to be located in close proximity of construction project sites, to minimise impacts on land; support worker accommodation within gazetted townsites.</p>
Salt	<p>Onslow Salt is an established operation, with a local workforce based in Onslow.</p> <p>A more recently announced proposal by K+S is still in planning phase. Future</p>	<p>Onslow has the capacity and facilities available for accommodating employees for the proposed salt operations.</p>	<p>Ensure that Onslow is the town of choice for housing of employees for projects in proximity to the town.</p>

Economy and Employment	Implications	Issues	Opportunities
	employees may be housed in Exmouth or Onslow.	The Asian market is in proximity, and is experiencing growth in demand for industrial salt.	Work with Onslow Salt and K+S to maintain a good working relationship between the salt operations and the town.
Economic Transformational Opportunities	<p>Government investment is occurring into a range of economic transformational opportunities.</p> <p>The Shire is in proximity to Asian markets, other international markets such as the Middle East, and domestic markets.</p>	<p>Opportunities have been identified in sustainable commercial-scale algae; bio-fuels; irrigated agriculture; beef; high-tech greenhousing; aquaculture; tourism.</p> <p>Diversification of the economy can help to build robust communities, diversify employment choices, and encourage a greater spread of skill sets and knowledge.</p>	<p>Facilitate and encourage new, emerging or growth industry sectors to consider establishing themselves within the local government area.</p> <p>Work with State Agencies and service providers to ensure the Shire and the region is ready for economic transformation projects, whether through appropriate education and training, infrastructure, services, or other business needs.</p>
Employment	<p>Employment is heavily oriented to mining and construction, followed by accommodation and food services; and transport, postal and warehousing.</p> <p>The emphasis of mining and construction work is represented by 65% of labour force working more than 49 hours per week.</p>	<p>Significant employment growth can be anticipated in professional, scientific and technical services; and transport, postal and warehousing.</p> <p>Long work weeks and FIFO employment is noted to have detrimental health impacts on individuals, relationship impacts on their networks, and socio-economic impacts on communities.</p>	<p>Economic transformational opportunities could improve the ability to broaden employment, and potentially lead to growth in other professional occupations.</p> <p>Variety in job types and employment choice may assist in bringing in a broader demographic group, including women.</p>
Workforce Development	<p>Projections anticipate a more diverse employment distribution in the Pilbara Region by 2035. Actions need to be taken in advance to facilitate growth in other employment sectors.</p> <p>At a State level, education and training providers will work harder to predict and provide more relevant vocational courses that will be valued by industry, and also help deliver skill sets that will future-proof the workforce to future economic changes / transformational opportunities.</p>	<p>Occupations experiencing critical workforce shortages include trade, education, professional services, health care, mining, hospitality, and community service workers.</p> <p>Most post-school qualifications attained in the Pilbara are insufficient to meet the requirements of the employment market.</p> <p>Low attendance is recorded at the education and training institutions that are available in the Pilbara region (i.e. primary schools, high schools, community schools, State Training Provider campuses, college campuses, education outlets).</p> <p>Attendance rates and Literacy and numeracy results for Pilbara Students are below State averages, which have an impact on local capacity for graduates to meet industry demand at the working age. Schools also have difficulties attracting staff.</p> <p>Accurately characterising the Pilbara Aboriginal population is difficult; however, the above issues are broadly applicable. Literacy and numeracy levels are low, which can create barriers to gaining employment. Pilbara Aboriginal residents have a lower average schooling (19.4%) completed relative to the Western Australian Aboriginal population (20.6%).</p>	<p>Support government initiatives to identify future workforce development and skills and ensure that these can be addressed.</p> <p>Vocational education and training is likely to be an important means of providing post-school qualifications for the workforce. Apprenticeships and traineeships assist in up-skilling the workforce; however, the State has identified that more work is required to ensure an appropriate number of participants are in training.</p> <p>All levels of government, education stakeholders and industry all actively collaborate to increase participation, workforce development and training outcomes.</p>

7 RETAIL AND COMMERCE

The Shire does not have a retail strategy for the townsites. Retail and space for commercial enterprise would be largely determined by population growth, demand for services and retail, as well as available land. It is noted that Rio Tinto also subsidises some businesses within the towns under their management, in order to maintain basic levels of services for the population.

7.1 PILBARA COMMERCIAL PROPERTY AND LAND SNAPSHOT – QUARTER ENDING JUNE 2015

The *Pilbara Commercial Property & Land Snapshot – Quarter Ending June 2015* was prepared by the Pilbara Development Commission (PDC, 2015) and at the time of preparing the Strategy, was the latest available report of its kind. For context, data of note in relation to the broader Pilbara region is outlined below:

Commercial properties for lease:

- The number of industrial/warehouse properties increased and the lease price decreased;
- The number of retail properties advertised for lease decreased and the lease price decreased also; and
- The number of office properties advertised for lease is 25, the advertised rent decreased.

Commercial properties for sale:

- All average advertised sale price decreased across retail, office and industrial warehouse; and
- The advertised average vacant commercial land price decreased, 119 commercial properties were advertised for sale, of those for sale the highest proportion was for industrial/warehouse uses.

In relation to the Shire of Ashburton, data of note is summarised below.

- The Shire had the lowest number of advertised commercial leases; only office and retail were advertised;
- The Shire had one of the highest advertised retail and office properties average annual lease cost;
- The Shire had the lowest number of advertised commercial properties (vacant land);
- No retail, office or industrial/warehouse properties were advertised for sale; and
- The Shire experienced substantial growth in non-residential building approvals, consistent with all local governments in the Pilbara, which peaked in 2011/2012 and then has subsequently declined.

Consistent with the residential activity (refer **section 5.4.3**) within the Shire, commercial activity is also subdued.

7.2 RETAIL AND BULKY GOODS

An adequate supply of retail space would be required to reflect population growth scenarios. For the purposes of identifying possible land requirements, the Local Planning Strategy has applied assumed residential retail demand per capita and residential bulky good demand per capita rates, and used the Band C population forecasts to apply a multiplier to the future projected floor space requirements. The Local Planning Strategy assumes a 1:3 ratio for retail floor space and 1:4 ratio for bulky goods to the equivalent land requirements.

Table 35 indicates that an additional 25,593m² of land is projected to meet demand for retail and bulky good floor space between 2016 and 2026. This land would be distributed, as required, between the townsites of Onslow, Tom Price and Paraburdoo.

Table 35 General Projections for Retail and Bulky Good Floor Space Requirements

	2011	2016	2021	2026
Band C Population	10,230	11,660	12,760	13,740
Floor space Requirements per Capita				
Residential Retail Demand per Capita (m ²)	1.37	1.37	1.38	1.39
Add-on Trade	0.21	0.21	0.21	0.21
Residential Bulky Good Floor space Demand per Capita (m ²)	0.45	0.45	0.45	0.46
Add-on Trade	0.09	0.09	0.09	0.09
Floor space Demand – Shire of Ashburton				
Residential Retail Demand	14,015.1m ²	15,974.2m ²	17,608.8m ²	19,098.6m ²
Add-on Trade	2,148.3m ²	2,448.6m ²	2,679.6m ²	2,885.4m ²
Bulky good Retail Demand (m ²)	4,603.5m ²	5,247m ²	5,742m ²	6,320.4m ²
Add-on Trade	920.7m ²	1,049.4m ²	1,148.4m ²	1,236.6m ²
Land Requirements – Shire of Ashburton				
Total floor space	21,687.6m ²	24,719.2m ²	27,178.8m ²	29,541m ²
Land required 1:3 ratio for retail + 1:4 ratio for bulky goods	70,587m ²	80,454m ²	88,426.8m ²	96,180m ²
Net Land Required	-	9,867m ²	7,972.8m ²	7,753.2m ²
Current Available Land				
Onslow	88,973m ²	Land classified as 'Commercial' shown on Plan 2 – Onslow Town Site Strategy Plan		
Tom Price	111,894m ²	Land classified as 'Commercial' shown on Plan 3 – Tom Price Town Site Strategy Plan excluding Doradeen Road lots		
Paraburdoo	64,415m ²	Land classified as 'Commercial' shown on Plan 4 – Paraburdoo Town Site Strategy Plan		

It should be noted that this 'Band C' population is for the whole of the Shire and not limited to townsite residents. As such, the above floor space and land requirements should be deemed to be conservative, as they correspond to calculations for the Shire-wide population, and not the individual town site population growth projections.

As detailed townsite structure plans are prepared, further modelling for retail and bulky goods should be undertaken to ensure retail and other retail sustainability is considered in line with proposed development.

7.3 IMPLICATIONS FOR RETAIL AND COMMERCE

The following **Table 36** considers the implications, issues and opportunities from a retail and commerce context.

Table 36 Implications and Opportunities – Retail and Commerce

Retail and Commerce	Implications	Issues	Opportunities
<p>Lease and Sale Data</p>	<p>The Shire was reported in 2015 to have the lowest number of advertised commercial leases, and one of the highest advertised retail and office average annual lease costs.</p> <p>The Shire had the lowest reported number of industrial/warehouse properties advertised for sale.</p> <p>Growth in non-residential building approvals peaked and since declined.</p>	<p>Project population growth and more residents living permanently in towns will help to sustain more retail activity and potential expansion of retail and commercial.</p>	<p>Identify the Town Centres for Onslow, Tom Price and Paraburdoo within the Strategy. Zone the Town Centres in the Scheme with the aim to encourage and facilitate a compatible range of retail, commercial, mixed use, community/civic, entertainment and hospitality uses.</p> <p>Ensure the Town Centres are accessible by walking, cycling and vehicles.</p>
<p>Relocation of Onslow commercial/civic centre</p>	<p>Modelling identifies risks of inundation and coastal processes that would impact on the Onslow commercial/civic centre.</p>	<p>The <i>Onslow Townsite Strategy</i> recommends relocation of the commercial / civic centre outside of the coastal hazard risk area, and the need for the Shire to consider its position on this and other options for compliance with SPP 2.6 and its Guidelines.</p>	<p>Identify alternative locations for accommodating the relocation of the Onslow commercial / civic centre, to ensure that future growth and adaptation of the town is not prejudiced by short-term development decisions.</p>
<p>Modelled Floor Space Demand – Shire-wide</p>	<p>Future population growth can increase demand for retail and bulky goods trade.</p> <p>The overall distribution of additional retail and bulky good floorspace would be dependent upon the population growth experienced within the individual town sites.</p>	<p>The Strategy needs to identify appropriate land available for future retail and commercial development, to predict and provide for forecasted population growth.</p> <p>Based on Band C Population growth, a total land area of 25,593m² may be required to service the requisite growth of 10,160m² of retail floorspace and 4,355m² in bulky goods retail. The land area considers the net leasable area, and additional land for other land requirements such as warehouse/storage space and car parking.</p>	<p>Identify land within the town centres of Tom Price and Paraburdoo for supporting future retail and commercial development, commensurate with population growth.</p> <p>Undertake a retail sustainability assessment for the three townsites to confirm future land and floorspace requirements, based on projected population growth.</p> <p>Support the incubation of retail and small business.</p>

8 INDUSTRY

The Pilbara region is a large producer of mining and petroleum resources, accounting to 95% of the value of Western Australia's iron ore and two-thirds of Australia's oil and gas (PDC, 2015).

The Shire also has rural pursuits (refer **section 8.8**) that herald back to the agricultural legacies of the local government area.

8.1 STATE AGREEMENTS

The Department of Jobs, Tourism, Science and Innovation (formerly the Department of State Development) administers the *Government Agreements Act 1979* for State Agreements, of which some are within the Shire's local government area. It is understood that the following State Agreements⁹ apply (in whole or in part) within the Shire of Ashburton:

- *Barrow Island Act 2003* (which incorporate the Gorgon Gas Processing and Infrastructure Project Agreement)
- *Iron Ore (Channar Joint Venture) Agreement Act 1987*
- *Iron Ore (FMG Chichester Pty Ltd) Agreement Act 2006*
- *Iron Ore (Hamersley Range) Agreement Act 1963*
- *Iron Ore (Hope Downs) Agreement Act 1992*
- *Iron Ore (Robe River) Agreement Act 1964*
- *Iron Ore (Wittenoom) Agreement Act 1972*
- *Railway (Roy Hill Infrastructure Pty Ltd) Agreement Act 2010*
- *Railway and Port (The Pilbara Infrastructure Pty Ltd) Agreement Act 2004*
- *Onslow Solar Salt Agreement Act 1992*

8.2 ASHBURTON NORTH STRATEGIC INDUSTRIAL AREA

The Department of Jobs, Tourism, Science and Innovation (JTSI), under the State Government's Lead Agency Framework, is responsible for government coordination and delivery of the Ashburton North Strategic Industrial Area (ANSIA), 11 kilometres south-west of Onslow. JTSI administers the:

- Macedon domestic gas plant (BHP Billiton; \$1 billion); and
- Wheatstone liquefied natural gas (LNG) plant (Chevron Australia; \$29 billion).

Pilbara Ports Authority (PPA) was formed on 1 July 2014 as an amalgamation of the Port Hedland Port Authority and the Dampier Port Authority. PPA is the world's largest bulk export port authority, encompassing the ports of Dampier, Port Hedland and Ashburton, as well as the future ports of Anketell, Balla Balla and Cape Preston East.

In 2009, the State Government entered into a State Development Agreement with Chevron Australia for the Wheatstone project in the ANSIA. PPA is responsible for constructing the multi-user port, common user coastal area (CUCA) facilities and Eastern Infrastructure Corridor (EIC) (PPA, 2014).

As described in **section 3.5**, the State Government has established the planning framework for the ANSIA through its Improvement Plan No. 41 and the Improvement Scheme No. 1. The ANSIA provides for future strategic and general industrial development to support the major proponents.

⁹ <http://www.dsd.wa.gov.au/what-we-do/manage-state-agreements/list-of-state-agreements>

Chevron Australia announced its intention to develop the Wheatstone LNG and 200 terajoule per day domestic gas plant, with a final investment decision to proceed made in September 2011. Construction started in December 2011. The Wheatstone project includes an onshore facility in the ANSIA, initially with two LNG trains with a combined capacity of 8.9 million tonnes per annum.

A pipeline links Wheatstone with the Dampier to Bunbury Natural Gas Pipeline. DBP has completed the last pipeline, a gas lateral to the future Power Station site. All gas pipelines should be located within the Multi User Infrastructure Access Corridor (MUAIC). The pipeline for BHP Billiton's Macedon plant is also within the MUAIC.

Chevron Australia operates its workforce accommodation site within the ANSIA. Other proponents do not have access to the workforce accommodation site. Chevron Australia proposes to operate the Workforce Accommodation site for the Wheatstone FIFO operational workforce as per the ANSIA Improvement Scheme No. 1.

8.3 BARROW ISLAND

Barrow Island is controlled by Chevron Australia and is not publicly accessible. Chevron Australia operates the crude oil production facilities and the Gorgon LNG and domestic gas project at Barrow Island. Barrow Island has produced more than 320 million barrels of oil. The Barrow Island port is a Restricted Port due to the vessel activity associated with Gorgon, and permission must first be obtained from the Barrow Island Marine Controller.

Barrow Island was proclaimed as a "permanent reserve Class A" in 1910, and has been used for oil production since 1967. Chevron implements an environmental management plan to protect the island's largely intact ecology.

8.4 ONSLOW

8.4.1 GENERAL INDUSTRY AREA

The Onslow General Industry area covers just over 13 hectares of land, with 19% of the land contained in Crown Land lots and 81% of the land in freehold lots. It is located at the mouth of Beadon Creek, fronting Beadon Creek Road, Shanks Road and Cornish Way. It represents the industry precinct for the townsite for a range of general, light and service industry uses.

The land is predominately zoned as 'Industry' under the LPS 7. This zone is for industrial and associated land uses, providing for manufacturing, extraction or processing industries, public utilities, storage or wholesaling or similar business activities.

Lot 558 Beadon Creek Road is zoned 'Tourism' and Lot 460 Beadon Creek Road is classified 'Public Purposes – Port Facilities'.

Current limitations include:

- Proximity of short-stay accommodation at Discovery Holiday Park to the existing industrial uses, and the implications of noise-sensitive receptors in proximity to the Department of Transport's boat harbour at Beadon Creek, the future OMSB, and existing/future general industry.
- DoT is currently working with the Shire on a Community Boating Precinct in the Beadon Creek boat harbour, providing a small marina suitable for powered vessels only and incorporating the existing boat launching facility as identified in the *Beadon Creek Boat Harbour Land Use Framework* (DoT, 2014). The Local Planning Strategy can reflect the planning for the Community Boating Precinct and the broader intent for the Beadon Creek boat harbour.

8.4.1.1 BEADON CREEK BOAT HARBOUR

Beadon Creek is a working boat harbour and port facility that is managed and operated by the Department of Transport (DoT). DoT has prepared the *Beadon Creek Boat Harbour Land Use Framework* (GHD, 2014) as a result of the changing pressures and demand that has been placed on the boat harbour. Over time it has gone from catering to local demand and a small fishing charter industry, to a broader range of industrial and commercial activities.

The *Land Use Framework* is used by decision-makers to consider future development applications within the boat harbour. The boat harbour is reflected on the Strategy Plans.

The objectives of the *Land Use Framework* are:

- To provide the local government a clear understanding of the DoT's future land use intentions for the Beadon Creek Boat Harbour.
- To provide a clear framework for future development within the Beadon Creek Boat Harbour.
- To provide consistency in decision making within the Beadon Creek Boat Harbour in accordance with orderly and proper planning principles.
- To designate and protect land for recreational purposes.
- To facilitate uses which are compatible within the Beadon Creek Boat Harbour and port facility.

The boat harbour is divided into five precincts (GHD, 2014), also refer **Figure 34**:

- Precinct 1: Public fishing platform and public boating users;
- Precinct 2: Community Boating Precinct as the main recreation hub for use by the community and commercial operators, with a proposed public boat ramp, parking, boat pens, picnic area, and fishing infrastructure;
- Precinct 3: Major Industry Precinct for the offshore resource industry (restricted access);
- Precinct 4: Heavy Industry Precinct for land-based activities that do not require direct access to Beadon Creek (restricted access); and
- Precinct 5: Interface Precinct between the nearby Tourism areas and the Boat Harbour, providing setbacks, screening and landscaping.

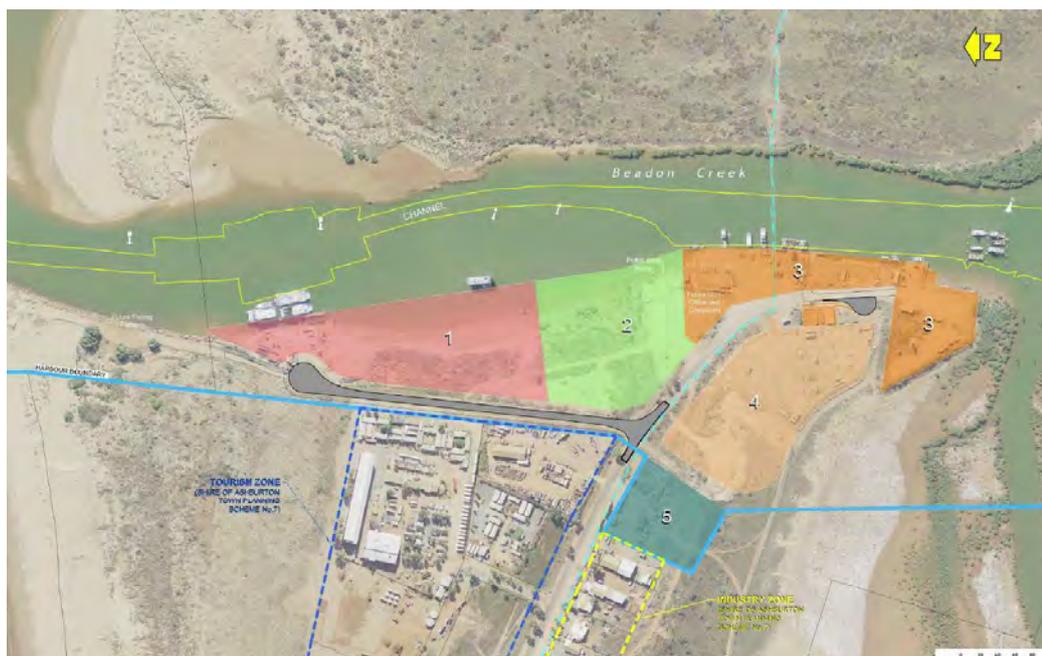


Figure 34 Beadon Creek Boat Harbour Precincts (GHD, 2014)

The *Land Use Framework* includes preferred land uses and development principles that would apply to the relevant precincts. These provisions can be given regard when considering proposals for land use and development within the Boat Harbour.

The Onslow Marine Supply Base (OMSB) is operational within the Beadon Creek Boat Harbour. The OMSB represents an important local economic opportunity, as it generates full-time employment opportunities and would service the hydrocarbon industry sector. The project included a dredging programme that enhanced the capability of the Beadon Creek facility to attract more service work for the northern Carnarvon Basin.

8.4.2 ONSLOW AIRPORT MIXED BUSINESS PRECINCT

The Onslow Airport Mixed Business Precinct is contained within Lot 9500 on Plan 405414, covering approximately 34.4 hectares. The precinct will provide for a range of light and service industry opportunities. The precinct is located south of the entry road to the Onslow Airport, and is bound by the existing airport facilities and McAullay Road and Onslow Road.

The *Onslow Airport Industrial Precinct Masterplan* provides spatial consideration for areas with preferences for warehousing, storage, light industry, logistics, and associated services. The *Onslow Airport Industrial Precinct Masterplan* provides land areas with preferred locations (refer **Figure 35**) for:

- Logistics – 18.5747 hectares;
- Fuel and truck service station and associated facilities including lay-up areas – 2.8737 hectares;
- General and Commercial Industry Uses / Offshore Chemicals – 5.0764 hectares; and
- Concrete, cement and mud manufacturing – 5.4688 hectares.

The *Masterplan* notes there is an indicative 25m wide road reserve that provides a loop, refer **Figure 35**. The road network design will depend on tenancy requirements and final land allocations. In addition, consideration could be made for the loop road to connect through to the Onslow Airport entry road.



Figure 35 OMSB Concept – Onslow Airport Industrial Precinct Master Plan

8.5 TOM PRICE MIXED BUSINESS AREA

The existing Tom Price Mixed Business area covers just over 11.3 hectares of land, with 8.5% of the land in unallocated Crown Land. The remaining land in lots is distributed as 74.3% freehold (others), 9.9% freehold (Shire of Ashburton), and 7.3% freehold (Hamersley Iron Pty Ltd). Rio Tinto subsidises rents within the Tom Price Mixed Business area. There is limited vacant land remaining within the Tom Price Mixed Business area, although additional supply was made available as a result of an expansion constructed 2012-2013, being the lots fronting Eucalyptus Court.

Under the LPS 7, the Tom Price Mixed Business area is zoned 'Mixed Business', which is intended to provide a range of light and service industrial land uses, showrooms and wholesale businesses which, by reason of their scale, character and operational requirements, are not generally appropriate to, or cannot conveniently or economically be accommodated within Commercial or Industrial zones.

A portion of Lot 39 Boonderoo Road and Lot 107 Eucalyptus Court are zoned as 'Industrial and mixed business/development'. Pursuant to the objectives of the zone, the intention is for the undeveloped land to be undertaken in accordance with a structure plan.

A portion of Lot 550 and the whole of Lot 551 on Boonderoo Road are classified as 'Parks, recreation and drainage' under LPS 7. These have been identified by the Strategy for industry, should the land be investigated to be capable of such development.

Leaseholders are responsible for buildings, including obtaining necessary approvals. The Shire has the ability to control the land uses that are contained within the Tom Price Industry Area, through zoning and development provisions under its local planning scheme.

8.6 PARABURDOO

8.6.1 PARABURDOO INDUSTRY AREA

The existing Paraburdoe Industry Area covers an area of 45.15 hectares, with 40.3% as Crown Land (one lot is UCL, remainder are Leases of Crown Land). The remaining is distributed as 54.7% freehold (others), 3% freehold (Shire of Ashburton), and 2% freehold (Hamersley Iron Pty Ltd).

The Crown land is generally leased to operators for a range of general and service industrial uses. The Paraburdoe Industry Area has historically been the location for businesses that provide support services to the mining industry. Major mining projects in the vicinity of Paraburdoe have supported local industry businesses in the past, including Paraburdoe, Channar and Eastern Ranges mines.

From a management perspective, Rio Tinto notes there are some issues with illegal littering and dumping within proximity of the Paraburdoe Industry Area.

8.6.2 GREGORY WAY MIXED BUSINESS AREA

The Gregory Way Mixed Business area covers approximately 44.8 hectares, with 7.4% of land as Crown land (Lots 52 and 59 Gregory Way as Crown reserves, and Lots 40 and 39 Camp Road as UCL). The remaining is distributed as 55.2% freehold (Hamersley Iron Pty Ltd), and 37.5% freehold (others). Some land within the Mixed Business area remains vacant, available for development.

The WAPC-endorsed Gregory Way Development Plan is applicable to the lots. The Development Plan provides for development within defined building envelopes for each property. The Development Plan identifies a number of preferred uses, with design requirements to ensure suitable and compatible land use and development is achieved.

8.7 INDUSTRY EXPANSION

8.7.1 ONSLOW GENERAL INDUSTRY AREA

There is merit in investigating the suitability for additional land being available in Onslow for general industry. Expansion for future industrial development can be investigated for an eastern expansion towards Beadon Creek Boat Harbour, with potential road extensions made to Cornish Way and Shanks Road. Considerations to address may include:

- Surrounding land is classified within the 'Public Purposes – Port Facilities' local scheme reserve. A scheme review may identify future expansion areas within a zone that considers future industrial development.
- Appropriate drainage treatment to prevent untreated runoff from reaching Beadon Creek.
- Maximise on-site infiltration or integrated drainage within new industrial areas.
- Appropriate height limits having regard to the Obstacle Limitation Surface for the Onslow Airport. Measures should be taken to consider the future extension of the main runway to accommodate larger jet aircraft.
- Ensure that caretaker dwellings are not permitted where within an area subject to excessive noise associated with the normal operations of the Onslow Airport.
- Appropriate hazard risk management and adaptation of the land in terms of Recommended Finished Floor Levels for development.
- Addressing any native title, heritage, and environmental matters.

8.7.2 MCAULLAY ROAD

Expansion for future industrial development can be investigated, potentially along McAullay Road, between the existing Onslow General Industry Area and Onslow Airport Mixed Business Precinct. The identification of land along McAullay Road needs to consider the future expansion of the urban area as contemplated by the *Onslow Townsite Expansion Structure Plan*. An appropriate interface along McAullay Road would need to be considered to ensure there is an attractive streetscape setting in order to provide relief and visual amenity for residential development on the western side of McAullay Road.

Therefore, the land between the Onslow General Industry Area and the Onslow Airport Mixed Business Precinct may only be suitable for interim/temporary uses or short-term (i.e. 10 years), or until there is residential development fronting the area where development then is relocated or suitable landscape treatments have been put in place and established. Should development warrant relocation, the land would need to be rehabilitated. Considerations to address may include:

- Appropriate on-site drainage infrastructure to prevent untreated runoff from reaching Beadon Creek, and to maximise on-site or precinct-based infiltration to ameliorate impacts on the Onslow Airport.
- Appropriate height limits being imposed, having regard to the Obstacle Limitation Surface for the Onslow Airport. Measures should be taken to consider the future extension of the main runway to accommodate larger jet aircraft.
- Ensure that caretaker dwellings are not permitted in locations subject to excessive noise associated with the normal operations of the Onslow Airport.
- Appropriate hazard risk management and adaptation of the land in terms of Recommended Finished Floor Levels for development.
- Addressing any native title, heritage, servicing and environmental matters.
- Ability to stage development in a manner where interim or temporary development that would not be compatible adjacent to residential development can then relocate and the land is capable of being rehabilitated.

8.7.3 LAND WITHIN WWTP BUFFER AREA

An existing area of land zoned for industry within the Reserve 19291 on Onslow Road could be investigated for general industry. This is reflected on the Issues and Opportunities Plan and shown on the Strategy Plan as an extension to the industrial zone. It is anticipated that this land would require a road connection to Onslow Road and would be located outside of the Onslow Salt State Agreement area.

Another location within Onslow for investigating land capability for mixed business, light and service industry development can be the land surrounding the water tanks between Onslow Road and McAullay Road and within (although not necessarily limited to) the waste water treatment plant (WWTP) buffer area. The WWTP buffer extends over Onslow Road and overlays some land that could be developed for compatible purposes (except residential or caretaker residences). This land has not been identified to be significantly impacted by the 1 in 500 ARI 2110 inundation extent modelled in the CHRMAP for the Onslow Coast (Cardno, 2017). Considerations to address may include:

- Appropriate on-site drainage infrastructure to prevent untreated runoff from reaching Beadon Creek, and to maximise on-site or precinct-based infiltration to ameliorate impacts on the Onslow Airport.
- Appropriate height limits being imposed, having regard to the Obstacle Limitation Surface for the Onslow Airport.
- Ensure that caretaker dwellings are not permitted within the WWTP buffer area.
- Appropriate hazard risk management and adaptation of the land in terms of Recommended Finished Floor Levels for development.
- Addressing any native title, heritage, servicing and environmental matters.

8.7.4 ONSLOW AIRPORT MIXED BUSINESS PRECINCT

Expansion of the area may be possible in the longer term, should industry demand exceed available land supply within the Precinct. The surrounding land is contained within Lot 9001 on Plan 405414, held in freehold by the Shire of Ashburton. Under the LPS 7, the surrounding land to the south is classified under the 'Public Purposes – Airport' local scheme reserve, with a portion in 'Special Use 4 – Transient Workforce Accommodation' for Shire staff use. Due to the use of some of the land to the south for Shire staff accommodation, some of the land is already cleared. Considerations to address may include:

- Appropriate on-site drainage infrastructure to prevent untreated runoff from reaching Beadon Creek, and to maximise on-site or precinct-based infiltration to ameliorate impacts on the Onslow Airport.
- Appropriate height limits being imposed, having regard to the Obstacle Limitation Surface for the Onslow Airport. Measures should be taken to consider the future extension of the main runway to accommodate larger jet aircraft.
- Access and road network for connecting through to the existing Mixed Business Precinct, if possible, or to Onslow Road.
- Ensure that caretaker dwellings are not permitted where within an area subject to excessive noise associated with the normal operations of the Onslow Airport.
- Appropriate hazard risk management and adaptation of the land in terms of Recommended Finished Floor Levels for development.
- Addressing any native title, heritage, servicing and environmental matters.

8.7.5 TOM PRICE MIXED BUSINESS AREA

The Tom Price Mixed Business area is constrained to the west and east by the existing topography; the existing railway to the west also acts as a significant physical barrier. To the south-east of the Tom Price Mixed Business area, some lower lying vacant land with frontage to Doradeen Road could be investigated for industrial development, that could be compatible (in terms of emissions and amenity) with existing residential development to the immediate east.

The LPS 7 has zoned Lot 9001 Boonderoo Road, Lot 350 Boonderoo Road South and Lot 524 Doradeen Road for 'Industrial and mixed business/development' zone, which contemplates future development guided by a structure plan. Together, these land parcels are calculated to be approximately 18.5 hectares, which is effectively a larger land area than the existing Tom Price Mixed Business area. Notwithstanding, the topographical constraints of the land may not yield as much developable land.

The Shire has vested management to Crown Reserve 38467 (Agricultural Research Station, Gravel use) on Lot 41 on Plan 184619, accessible from Nameless Valley Drive, west of Tom Price. The reserve has merit in being investigated for a change in its purpose, such as to industrial development, and investigated as a possible location for industry growth to service Tom Price. The **Plan 3 – Tom Price Town Site Strategy Plan** reflects the intention of the undeveloped land to be investigated for industrial and mixed business land use and development, which would proceed in accordance with a structure plan. Considerations to address may include:

- Topography and the amount of earthworks that would be required to deliver serviceable industrial/mixed business lots.
- Connectivity between Boonderoo Road, Boonderoo Road South, and Doradeen Road (if road connections can be achievable, noting gradients of the land).
- Maximise on-site infiltration or integrated drainage within new industrial areas.
- Addressing any native title, heritage, servicing and environmental matters.

8.7.6 PARABURDOO INDUSTRY AREA

The Paraburdoo Industry Area is in an area of relatively flat land, and vacant land is available within the Paraburdoo townsite boundary. Additional land could be investigated for expansion of the Industry Area, should demand exceed available supply.

The **Plan 4 – Paraburdoo Town Site Strategy** Plan reflects the intention to investigate land surrounding the Paraburdoo Industry Area for additional land, should demand for land arise. In addition, west of Gregory Way, the existing drive-in (and abutting UCL) could also be considered for industrial/mixed business development opportunities.

For both areas, considerations to address may include:

- Maximise on-site infiltration or integrated drainage within new industrial areas.
- Confirm servicing availability (Rio Tinto provides water and electricity services to Paraburdoo).
- Consider and address the proximity of the industry area to community/club facilities to the east.
- Addressing any native title, heritage, servicing and environmental matters.

8.8 IMPLICATIONS FOR INDUSTRY

The following **Table 37** considers the implications, issues and opportunities from an industry perspective.

Table 37 Implications, Issues and Opportunities – Industry

Industry	Implications	Issues	Opportunities
ANSIA	DevelopmentWA and WAPC are responsible for administering the ANSIA. Land is available for heavy industry and general industry.	Land remains available in ANSIA for complementary industrial development.	Support heavy industry and general industry that are compatible with existing uses, being located within the ANSIA, where buffers are already taken into consideration.
Industry – Onslow	<p>Onslow's General Industry Area, near Beadon Creek, is limited in its ability to expand due to proximity of short-stay accommodation, the waterways and unknown capability for drainage.</p> <p>The Beadon Creek Boat Harbour will provide for some additional industrial land, and is a working boat harbour and port facility.</p> <p>The Onslow Airport Mixed Business Precinct provides for light and service industry and mixed business. It may be enhanced with road access to Onslow Road, and possible expansion.</p>	<p>Industrial development and growth may be investigated within Onslow, having regard to the coastal processes and hazards, drainage implications, minimum floor level requirements, height limitations, infrastructure, native title, heritage and environmental matters.</p> <p>Coastal processes, climate change and the impacts on the existing town centre and urban development in low lying areas from flood events, tidal inundation and sea level rise.</p> <p>Onslow Salt operations associated with its evaporation and crystalliser ponds, stockpiles, conveyor system and jetty. As part of the State Agreement, sensitive land uses may be impacted by the operations. Technical studies may be required to determine appropriate buffer requirements, or for structural treatments for new development, to minimise potential impacts. Development within the hydrological catchment for Onslow Salt must ensure there are no adverse impacts.</p> <p>Port facilities at Beadon Creek Boat Harbour, as public works, are exempt from development control. Beadon Creek waterbody and floodplain are physical barriers to expansion of industry.</p>	<p>Consider investigations for an eastern expansion of the Onslow General Industry Area towards Beadon Creek Boat Harbour, with potential road extensions made to Cornish Way and Shanks Road.</p> <p>Expansion for future industrial development can be investigated, potentially along McAullay Road, between the existing Onslow General Industry Area and Onslow Airport Mixed Business Precinct.</p> <p>Other land for investigation could be land within the WWTP buffer (between Onslow Road and McAullay Road) for mixed business, light and service industry.</p> <p>Longer-term expansion of the Onslow Airport Mixed Business Precinct over land held in freehold by the Shire of Ashburton may be investigated, if land demand exceeds supply.</p>
Industry – Tom Price	Tom Price's Mixed Business area is constrained by landform, and the railway line to the west. Some expansion has happened within the last 5-6 years.	<p>Expansion of the Tom Price Mixed Business area may be investigated for land fronting Doradeen Road.</p> <p>Rio Tinto subsidises rents within the Tom Price Mixed Business area. Future expansion areas may need to be considered in the context of their capability of having viable industrial businesses.</p>	<p>Consider land capability investigations to confirm whether land fronting Doradeen Road for industry/mixed business. Investigate opportunities for connecting the road network, should land gradients allow.</p> <p>Investigate options for industrial development within Reserve 38467.</p>
Industry – Paraburdoo	Paraburdoo's Industry Area is within Rio Tinto's lease holding, with lots in freehold or leased to operators. Major mining projects in the vicinity have supported local industry in the past	<p>Vacant land is available within the townsite boundary and surrounding the Paraburdoo Industry Area.</p> <p>Rio Tinto subsidises rents within the Paraburdoo Industry Area. Future expansion areas may need to be considered in the context of their capability of having viable industrial businesses.</p>	<p>Investigate land capability and opportunities for expansion of the Paraburdoo Industry Area.</p> <p>Consider future land use direction for the existing Drive-In.</p>

9 RURAL AND RANGELAND AREAS

The Strategy expresses the vision for the rural/pastoral components of the Shire, protecting existing land use opportunities and key natural resources (water, ecosystems, minerals and basic raw materials). The Strategy will also identify other land use opportunities within the rural areas of the local government.

The rural areas of the Shire are characterised by several land uses – pastoralism (i.e. cattle stations), agriculture, tourism (refer **section 10**), mining (refer **section 6.4**), and indigenous activities. Camps for FIFO workers are common within the Pilbara region and several are located within the local government area. These are populated exclusively by non-resident workforce generally close to resource sites, with temporary and limited services (WAPC, 2014).

A significant proportion of the local government area is subject to native title. **Figure 10** identifies registered and notified Indigenous Land Use Agreements (ILUA) with further explanation contained in **section 4.1**.

The vast majority of land within the local government area is identified within a 'Bushfire prone area'. This is reflected in the Environmental Profile in **Appendix A**. Consistent with the SPP 3.7, a Bushfire Hazard Level assessment has been prepared (refer **Appendix C**) to address matters outlined in the *Guidelines for Planning in Bushfire Prone Areas* (WAPC, 2017). However, the Bushfire Hazard Level assessment focuses only on the land identified for future development within 100m of Bushfire Prone Areas within the townsites of Onslow, Paraburdoo and Tom Price. Rural and rangeland areas have not been included in the Bushfire Hazard Level assessment.

9.1 PASTORALISM

The Shire contains a number of pastoral leases. The extent of the Pastoral Leases is depicted in **Figure 38**. All eligible Western Australian pastoral leases were renewed where applicable on 1 July 2015. Lease renewal gave lessees tenure for up to 50 years, affording ongoing security and certainty. Lease renewal allows pastoralists to continue to focus on their pastoral business and contribute to the economic and social fabric of Western Australia.

A Rangeland inventory and condition survey was undertaken for the Ashburton River catchment between 1976 and 1978, and an inventory and condition survey was published in 2004 for the Pilbara Region. There appears to be a correlation between the worst areas of degradation and erosion, and the most valuable pasture lands (refer **Appendix A** – section 2.3.7 of the Environmental Profile). Rangelands pastoral condition has been assessed by DPIRD in order to provide advice on the planning and management of grazing pressure on pastoral leases. Threats to pastoralism includes the decline in vegetation and soil condition (which can be exacerbated by drought), and a reliance on areas with better vegetation coverage for livestock to graze and be supported.

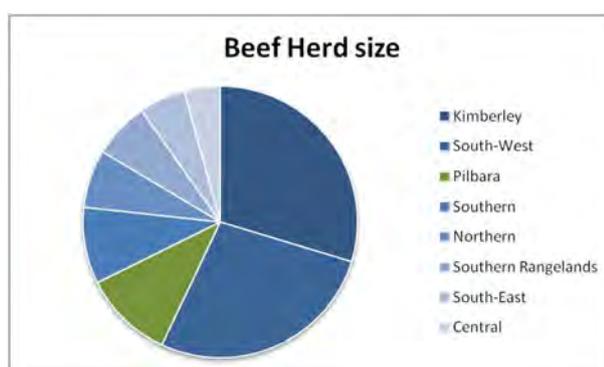
Rangelands Natural Resource Management and the potential delivery of Ecologically Sustainable Rangeland Management (ESRM) plans for land managers would assist in prioritising action/response to issues. Issues to be addressed would be relevant to the sustainable productive potential of pastoral lands, together with acknowledging risks and issues of ongoing or future degradation/erosion. There have been many assessments of 'good' condition in a variety of landscapes which have been used for pastoralism. This would indicate that, at a broad level, appropriate management of pastoralism can be ecologically sustainable (van Vreeswyk, 2004). However, severely degraded and eroded areas should be removed from pastoral use and regeneration works are to be considered where such efforts would improve the chances of successful results for catchments or sub-catchments (van Vreeswyk, 2004).

Rio Tinto¹⁰ holds six pastoral leases, of which five are within the Shire of Ashburton:

- Hamersley Station – between Tom Price and Pannawonica;
- Rocklea Station – between Tom Price and Pannawonica;
- Juna Downs Station – abutting Karijini National Park;
- Yalleen Station – Pannawonica; and
- Yarraloola Station – between Onslow and Pannawonica.

Western Australia’s beef industry provides for exports of beef and veal, and for domestic consumption. Half of the beef herd in Western Australia is distributed between the northern/eastern rangelands and southern agricultural regions. As demonstrated in **Figure 36** the Pilbara has the third largest herd (approximately 243,000), behind the Kimberley and South-West regions. Cattle are grazed on improved pasture, however in some stations there is concern regarding non-native grass being produced for cattle feed.

Figure 36 Distribution of Beef Herd (DPIRD, ABS 2011, PLB 2013)



DPIRD, through the Northern Beef Futures project, which commenced in August 2014, is looking to invest in the transformation of the northern beef industry through market diversity and improved business models, and integrated supply chains (DPIRD, 2017). At the moment, it is understood cattle from Minderoo Station is live exported, and potentially would use Port Hedland. The focus of the Northern Beef Futures project is on Asian markets, such as China, Thailand, Vietnam and other ASEAN countries. The project aims to collaborate with industry groups to value-add to beef, to provide improved access to live export markets, and opportunities for improved supply chains.

9.2 AGRICULTURE

22 countries are identified as ‘high potential target markets’ for new agricultural products that could be produced in northern Western Australia (DPIRD, 2015). These markets have growing populations and incomes, and a larger consumer spend on more food is occurring. Asia and the Middle East import a wide variety of food products, and the North of WA could potentially produce a number of these products in reasonable quantities, at a high quality, and in a profitable manner (DPIRD, 2015). DPIRD’s research identified a number of products showing very strong demand growth in target markets, and which products may be most appropriate for growing in the Pilbara Region. The ‘best products’ identified included cassava, sesame seeds, sorghum, almonds, tobacco and cotton (DPIRD, 2015).

Agriculture opportunities could be leveraged from irrigation, with water sourced from mine dewater surplus and from managed aquifer recharge to minimise evaporation. Irrigated agriculture could potentially focus on the production of grain, horticultural crops, and fodder for the beef industry.

¹⁰ <http://www.riotinto.com/australia/pilbara/operations-9602.aspx>

Planning for the future of irrigated agriculture development is being investigated through the Pilbara Hinterland Agriculture Development Initiative (PHADI). The PHADI is a DPIRD-led demonstration project that assesses and provides a regional overview of the soil capabilities across the Pilbara Region. The project aims to illustrate the potential opportunities for rural and rangeland areas for higher and better agricultural products than what currently can be offered through pastoralism. The PHADI investigates and undertakes research into agronomics, regulatory processes, market opportunities, soil and water resource capabilities, irrigation concepts and economic viability (DPIRD, 2016). Importantly the PHADI discounts land that is subject to constraints and risks, such as flood hazards, land gradients above 2%, and land contained within the conservation areas.

The region's hinterland has the potential to become a source of biofuel (McHugh, 2011). Research and development is occurring in a manner where vegetation can provide for food for cattle/livestock and for biodiesel, contributing towards export opportunities of both products.

The PHADI land and water resource assessment (refer **Figure 37**) notes that there are existing aquifers (Lower Robe, Upper Bungaroo, Callwingina, Weelumurra West) and existing irrigation south of Onslow, north-west and east of Tom Price (i.e. the Marandoo below water table expansion is being used to irrigate areas of Hamersley station). It also identifies higher capability land suitability downstream of the Ashburton River and throughout the pastoral leases.

Rio Tinto is also using some of the water removed from open pit mines (de-watering) for forage and hay production (Infrastructure Australia, 2016). Water from the Marandoo below water table expansion is being used to irrigate areas of Hamersley station and produce hay to feed cattle across six stations (Rio Tinto, 2012). Surplus water from the nearby Nammuldi mine is also being used for irrigated agriculture projects at nearby stations. A recent joint CSIRO and Pilbara Development Commission study found the sustainable yield of the existing aquifers is estimated to be 200-400 gigalitres per year. This information is critical in determining the total sustainable use of water to support more agriculture in the region (Infrastructure Australia, 2016).

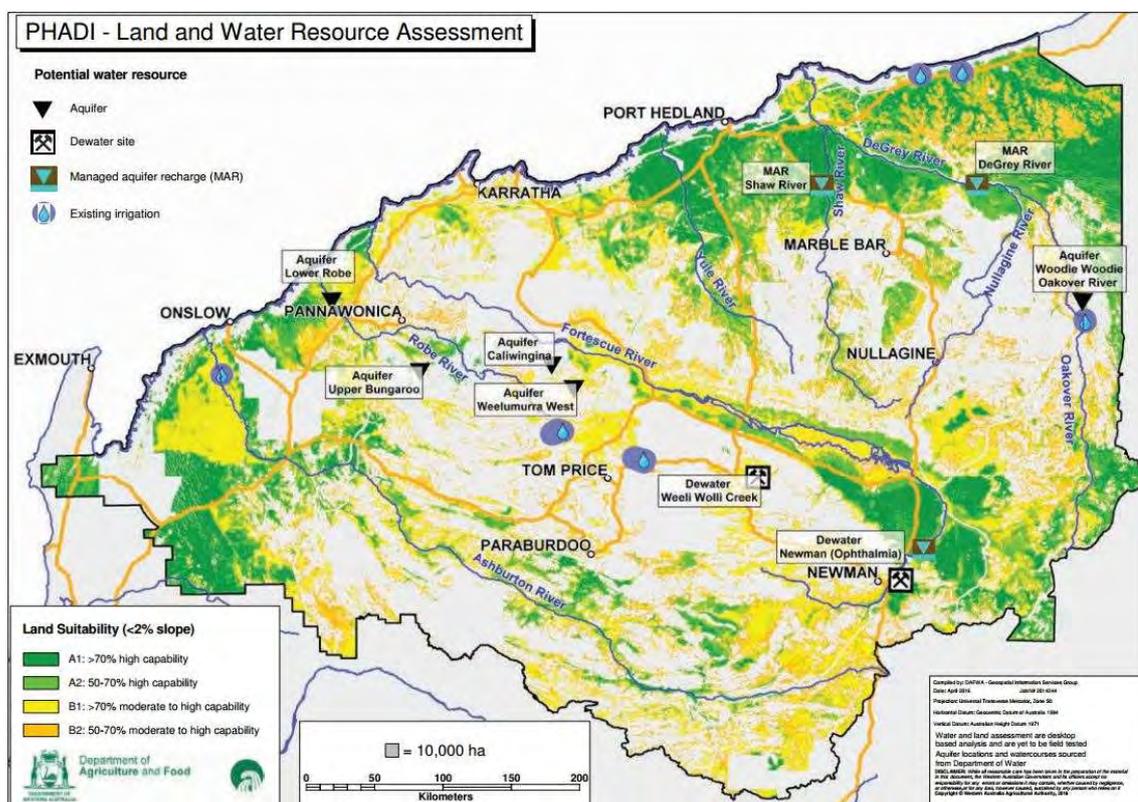


Figure 37 PHADI Land and Water Resource Assessment (DPIRD)

The quality of soils and vegetation (grasslands and shrublands), particularly those in good condition, are generally associated with higher agricultural productivity. The quality of soils and vegetation can be maintained at a local government level, such as through active management of weeds, uncontrolled access, and feral animals (refer **Appendix A**).

9.3 AQUACULTURE

Aquaculture is a fast-growing food production sector and is both a significant opportunity for investment and food security. Currently the Pilbara Region does not host an aquaculture industry of economic significance. The region does have suitable characteristics for aquaculture, including coastal land and abundant sunlight. Aquaculture has also been identified as an economic transformational opportunity (refer **section 6.6**).

Aquaculture is identified to have the potential to generate revenue, employment and provide economic diversification (McHugh, 2011). Aquaculture also has the potential to be high growth and there are private initiatives in pearls, coral, algae, and possibly fish species. Aquaculture can be an intensive industry sector and may be demanding on labour to be viable. The region is potentially suited for oysters, some finfish species, and algae (Department of Fisheries, 2016). Thevenard Island has also been identified as a possible site for offshore/nearshore aquaculture. Onshore areas within 10km of Onslow, near McCann Well, and some land in Tom Price were identified as inland areas of interest.

A Market Analysis conducted for the Pilbara-Gascoyne coast noted that significant investment in marketing would be necessary, for building up demand in domestic/export markets and to establish provenance (AVC, 2016). The Analysis looked at the suitability of the Pilbara-Gascoyne coast for edible oysters, yellowfin tuna, amberjack and mahi mahi. Amberjack was considered the most lucrative product, as its production in aquaculture systems is well demonstrated and there is growth potential and opportunity to attain premium pricing (AVC, 2016). Marketing challenges exist, including a small domestic market, intense global market competition, and the need to begin producing from the region as a place of origin that needs to be known for its quality.

Aquaculture requires managing risks to establishing and managing the facility (and tenure security), addressing the biological requirements of the species, managing the physical environment, and market access. Regulatory controls and addressing other government requirements, such as biosecurity and disease management, access to coastal waters, water use and management of waste, are also necessary to be taken into consideration.

9.4 CONSERVATION AREAS

The Shire is recognised as having significant terrestrial, marine and aquatic biodiversity. The biodiversity of the Shire is outlined further in **Appendix A** – refer section 2.5 of the Environmental Profile.

The Shire contains a number of areas which have been reserved for conservation (refer to **Appendix A** – section 2.5, table 8 of the Environmental Profile). These comprise of 17,295 square kilometres of reserved land. The level of reservation of land for conservation purposes in the Shire of Ashburton is much greater than the rest of the Pilbara and greater than the internationally recognised standard of reservation of between 10% and 15% of each bioregion.

While many conservation reserves are managed by the DBCA, the Shire could consider a more active role in the management of weeds, uncontrolled access, and feral animals to assist with vegetation retention, which in turn would assist in the maintenance of soil health. Soils and vegetation (grasslands and shrublands) in good condition are also associated with higher agricultural productivity.

9.5 PUBLIC DRINKING WATER SOURCE AREAS

Public Drinking Water Source Areas are also identified within the rural area. These are identified on **Plan 1 – Shire Wide Strategy Plan** and would be reflected in the local planning scheme. The priority source protection areas are described in **sections 2.3.4 and 14.3** (also refer **Appendix A** – section 2.4.2 and Table 5 of the Environmental Profile).

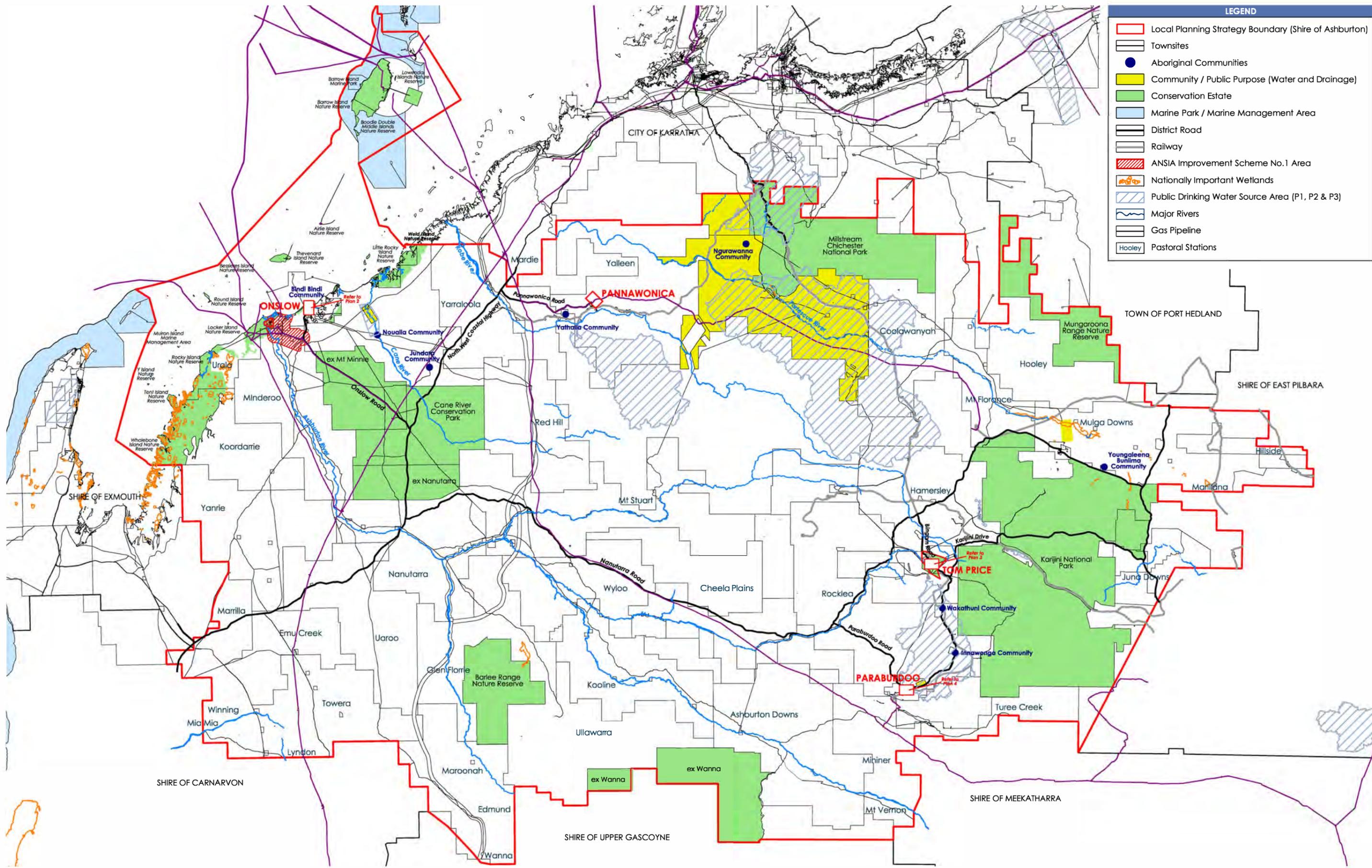
9.6 IMPLICATIONS FOR RURAL AND RANGELAND AREAS

The following **Table 38** considers the implications, issues and opportunities from a rural and rangelands perspective.

Table 38 Implications, Issues and Opportunities – Rural and Rangeland Areas

Rural and Rangeland Areas	Implications	Issues	Opportunities
Pastoralism	<p>Pastoral activities may continue throughout the majority of the Shire.</p> <p>There appears to be a correlation between the worst areas of degradation and erosion, and the most valuable pasture lands.</p>	<p>Pastoral activities have an impact on native vegetation, flora and fauna, erosion and other factors that need to be adequately addressed and managed by pastoral landowners. Pastoralism can be ecologically sustainable with appropriate management in place.</p> <p>Cattle from Minderoo station is live exported, with potential for exports through Port Hedland.</p>	<p>Cattle industry sector has been identified as a transformation economic opportunity.</p> <p>A number of planning considerations can be taken into account for the benefit of encouraging further pastoral and agricultural pursuits within the Shire:</p> <ul style="list-style-type: none"> • Consideration of natural resource management and land management practices to minimise negative impacts and contribute towards sustainable pastoralism. • Ensuring that remnant vegetation and areas with significant values are protected and maintained. • Agricultural pursuits should be directed such that they minimise impacts as a result of clearing, bushfire management, uncontrolled access, weeds, pests and feral animals.
Agriculture	<p>The Pilbara Hinterland Agricultural Development Initiative (PHADI) provides for future of irrigated agricultural development, through Royalties for Regions, supporting public and private sector investment decisions for new irrigated agricultural developments.</p> <p>22 countries are identified as 'high potential' target markets for new agricultural products that could be grown in the Pilbara.</p>	<p>Legislation currently allows for irrigation of a range of crops on a pastoral lease.</p> <p>A number of irrigated agricultural developments could be possible on a medium-to-large scale.</p> <p>There are opportunities for large areas of soils to be investigated for capability and suitability for irrigated agriculture.</p> <p>Mine dewater surplus can be reinjected for reuse for agricultural and other purposes.</p>	<p>Work and collaborate with the partnerships held between DPIRD, PDC, DRD, Aboriginal groups and the pastoral industry for delivering projects and other outcomes, through demonstration and prospective projects.</p> <p>Ensure intensive agricultural proposals, are appropriate to the sustainable capability of the land.</p> <p>Expansion of projects like Rio Tinto's Hamersley Agricultural Project may arise as future opportunities.</p>
Future Growth in Agriculture	<p>Asia and Middle East are attractive markets that demand products that the North of WA can produce.</p> <p>The Pilbara climate is in a similar zone to other countries that produce and export high value products.</p>	<p>Success will depend on products that are robust, mechanically harvested, can thrive in the heat, and can be achieved at scale to be globally competitive.</p> <p>A wide range of agricultural products have been identified, some have proven experience and others will require new skills, new investment, new systems and capital.</p>	<p>Encourage investigations into export market opportunities for crops/food products that could be grown in the Pilbara.</p>
Aquaculture	<p>Aquaculture is an emergent industry sector. It requires development of the sector to a level where it is of a sustainable scale to be economically viable and internationally competitive.</p> <p>Thevenard Island was identified for possible offshore/nearshore aquaculture.</p>	<p>Aquaculture projects (R&D etc) present opportunities that may contribute to investment, employment.</p> <p>Aquaculture requirements appropriate risk management to address biosecurity, water use, wastewater management.</p>	<p>Encourage investigations into market opportunities for aquaculture products that could be grown in the Pilbara.</p> <p>The emergence of new sectors such as aquaculture may require particular consideration of the industry's land requirements, environmental management, and export logistics.</p>

Rural and Rangeland Areas	Implications	Issues	Opportunities
	Onshore areas within 10km of Onslow, near McCann Well, and some land in Tom Price were identified as inland areas of interest.		
Conservation Areas	The level of reservation within the Shire of Ashburton is greater than the rest of the Pilbara region.	<p>Management of conservation reserves under the Department of Biodiversity Conservation and Attractions.</p> <p>A number of new reserves are proposed, including Mulgalands Conservation Park and West Hamersley Range Conservation Park.</p> <p>Management of public access and visitor numbers in a manner that balances tourism, visitation and conservation values.</p>	<p>Shire could consider active management of weeds, uncontrolled access, and feral animals.</p> <p>There are proposals for new additions within the Conservation areas, which can be supported by the Shire of Ashburton.</p>



LEGEND	
[Red outline]	Local Planning Strategy Boundary (Shire of Ashburton)
[Black outline]	Townsites
[Blue dot]	Aboriginal Communities
[Yellow fill]	Community / Public Purpose (Water and Drainage)
[Green fill]	Conservation Estate
[Blue wavy lines]	Marine Park / Marine Management Area
[Black line]	District Road
[Grey line]	Railway
[Red hatched]	ANSIA Improvement Scheme No.1 Area
[Orange wavy lines]	Nationally Important Wetlands
[Blue hatched]	Public Drinking Water Source Area (P1, P2 & P3)
[Blue line]	Major Rivers
[Black line]	Gas Pipeline
[Grey rectangle]	Hooley Pastoral Stations

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10 TOURISM AND VISITORS

Tourism is an important and strategic economic sector. At a state level, Tourism WA has prepared the *Australia's North West Destination Development Strategy 2007-2017* (Tourism WA, 2007). The *Destination Development Strategy* considered that the North West Region (which includes the Shire of Ashburton) was appropriate for its visitor market, with improvements identified for product and infrastructure.

Tourism has been identified as a sector that has the potential to act as an economic stimulus for the Shire, particularly through the generation of significant employment opportunities, particularly to remote Indigenous communities (SoA, 2015). The following information in **Table 39** (TRA, 2016) provides the following key tourism metrics and statistics for the Shire of Ashburton.

Table 39 Local Government Tourism Profile (TRA, 2016)

Metrics	International	Domestic Overnight	Domestic Day	Total
Visitors ('000)	25	227	np	np
Nights ('000)	459	2,061	-	2,519
Average Stay (nights)	18	9	-	10
Spend (\$m)	13	118	np	np
Average spend per trip (\$)	13	118	np	np
Average spend per night (\$)	495	520	np	52
Average spend (commercial accommodation) per night (\$)	40	104	-	82
Tourism Statistics	International	Domestic Overnight	Domestic Day	Total
Reason ('000)				
Holiday	14	24	np	np
Visiting friends or relatives	np	np	np	np
Business	5	193	np	np
Other	6	np	np	np
Travel party type (visitors '000)				
Unaccompanied	17	112	-	128
Couple	5	12	-	17
Family group	np	np	-	Np
Friends/relatives travelling together	2	np	-	Np
Accommodation (nights '000)				
Hotel or similar	24	np	-	np
Home of friend or relative	np	np	-	np
Commercial camping/carvan park	33	np	-	np
Backpacker	np	np	-	np
Other	390	1,899	-	2,289

10.1 ATTRACTIONS AND AMENITIES

The North West is considered to be a location that provides for iconic holiday experiences (Tourism WA, 2007) that are associated with:

- Outback experiences – Karijini National Park; four wheel driving; camping, outback adventuring;
- Scenery experiences – beaches, national parks, organised tours; and
- Indigenous experiences – Indigenous art and crafts; cultural displays; visiting an Aboriginal site or community.

10.1.1 ONSLOW

Onslow provides attractions and amenities including:

- Water activities – diving, snorkelling, fishing charters, turtle/dolphin/whale watching;
- Swimming Pool;
- Old Onslow – tours;
- Minderoo Station – cattle station and camping;
- Ian Blair Memorial Walkway – timber walkway between Beadon Point and Sunset Beach;
- Onslow Rodeo – annual events and competitions;
- Chevron Wheatstone and Onslow Salt – industrial tours;
- Onslow Community Garden / Pizza Oven – community attraction;
- Mackerel and Montebello Islands – access from Beadon Creek Harbour (and proposed marina);
- Ashburton River;
- Termite Mounds; and
- Sunrise, Sunset and Four Mile beaches.

Coastal environment is home to islands, and fishing related tourism. The Mackerel Islands Tourism Company provides amenity for tourism around Thevenard and Direction Islands. There are opportunities to develop the breadth and range of tourism products related to islands and fishing tourism.

10.1.2 TOM PRICE

Tom Price provides attractions and amenities including:

- Mt Nameless – highest accessible mountain by four wheel drive vehicle, in Western Australia;
- Mine site tours;
- Natural scenery of the Hamersley Ranges;
- Unsealed road access to the Chichester Ranges and to Roebourne;
- Access through to Karijini National Park;
- Visitor Centre;
- Wildflower experiences.

10.1.3 PARABURDOO

Paraburdoo is regarded to be on the edge of the Great Sandy Desert and is within the Hamersley Ranges. There are few attractions identified within the townsite, however the surrounding lands are renowned for wildlife, wildflowers (after rains) and scenery. It is understood that Hamersley Iron conducts mine tours.

10.1.4 PANNAWONICA

The Rodeo held in Pannawonica draws visitors from across the State (Rio Tinto, 2015). The Rodeo is held on the first weekend in September, and is well supported by the local community and pastoral properties.

A number of the town facilities can provide food and beverage options for visitors, including the supermarket, deli, tavern and hotel, and service station.

10.1.5 RURAL

Eco and heritage tourism opportunities can be explored, which celebrate the unique natural beauty, biodiversity and cultural of the Shire. This may include accommodation, entertainment and artistic opportunities as well as adventure and recreational activities. This could be extended to educational opportunities associated with practical and on-ground environmental and cultural heritage learning.

Camping is available along the Ashburton River. However, this is on pastoral lease land (Minderoo Station), and access is restricted unless permission is obtained. Better access to camping sites and appropriate management along the coast could provide an opportunity to encourage people to visit coastal areas of the Shire.

10.2 ACCOMMODATION

From a State perspective (Tourism WA, 2007), development should:

- Reflect, reinforce and build upon WA's core brand values: fresh, natural, carefree and alive;
- Fit in with or enhance the existing/natural environment;
- Ensure the quality of the experience is always paramount;
- Have a 'local' feel that retains (or enhances) what is unique about the area; and
- Suit the market (i.e. ensure unique experiences desired by the target market are provided).

10.2.1 DEMAND NEEDS ANALYSIS FOR SHORT-STAY ACCOMMODATION IN THE PILBARA REGION (FEBRUARY 2013)

The *Demand Needs Analysis for Short-Stay Accommodation in the Pilbara Region* (AEC Group, 2013) made several key findings from a regional perspective, outlined below:

- Tourism in the region injected \$250 million into the local economy – retail, accommodation and food service sectors;
- 30% of total regional visitors fall within the leisure drive tourism market;
- New hotel supply has been slow, as there are issues with viability due to construction costs, operational costs, land availability, staff availability and costs; and
- Projected regional demand considers an additional 2,760 hotel rooms and 2,129 caravan park sites/cabins by 2022, the equivalent to 80 ha of land.

The report (AEC Group, 2013) contains recommendations for:

- Encouraging new short-stay accommodation growth; and
- Encouraging growth through investment attraction.

It is considered that the recommendations can be captured into the Strategy.

10.2.2 AVAILABLE TOURISM ACCOMMODATION

Table 40 reflects the tourism accommodation that is available^{11 12 13} across the Shire of Ashburton.

Table 40 Tourism Accommodation, Shire of Ashburton

Accommodation	Location	Accommodation capacity	Star-rating	Facilities
Tom Price Hotel/Motel	Tom Price	87 motel rooms	2 stars	2 bars Bistro Function Room
Windawarri Lodge	Tom Price	Motel rooms subject to availability	3.5 stars	Bistro / Bar
Karijini Eco Retreat	Karijini National Park	87 unpowered campsites 50 eco tents	3 stars	Restaurant / Bar BBQ area / Campers kitchen Shop / kiosk Ablutions
Dales Gorge Campsite	Karijini National Park	140 unpowered sites		Bush toilets Picnic tables & BBQs
Miliyanha and Stargazers Campgrounds	Millstream Chichester National Park	Unpowered sites		BBQs
Emu Creek Station	Barradale	Homestead rooms Camping and Caravan Park		Station Kitchen Laundry
Cheela Plains Station	Paraburdoo	25 rooms Unpowered camping areas		Conference Rooms Shared Kitchen and Ablutions BBQ
Paraburdoo Caravan Park	Paraburdoo	10 caravan sites		
Tom Price Tourist Park	Tom Price	20 rooms 116 powered sites 20 unpowered sites		Swimming Pool Ablutions Kitchen / BBQs
Paraburdoo Inn	Paraburdoo	62 rooms		Pub
Rocklea Palms	Paraburdoo	433 beds (FIFO, may be available to public)		Mess Hall Gym
Mackerel Islands Resort	Thevenard Island	13 cabins (sleep 2-10) 34 room village		Swimming pool / BBQ area
	Direction Island	1 cabin (sleeps 8)		
Onslow Beach Resort	Onslow	86 executive apartment rooms	3.5 stars	Restaurant / Bar Swimming pool / BBQ area Function / Conference room Vehicle hire agent
Onslow Sun Chalets	Onslow	16 units/chalets		Swimming pool / BBQ area Ablutions
Beadon Bay Hotel	Onslow	70 rooms	3 stars	Corporate Conference facilities 2 Restaurant / Bars

¹¹ <http://www.tomprice.org.au/accommodation/hotels-motels/>

¹² AECgroup 2015, *Assessment of Accommodation Needs in Tom Price, Onslow and Paraburdoo*

¹³ AECgroup 2016, *Assessment of Accommodation Need in Onslow*

Accommodation	Location	Accommodation capacity	Star-rating	Facilities
Discovery Holiday Park	Onslow	408 rooms 26 powered sites	2.5 stars	Bottle shop Kitchen / BBQs / Dining Room Ablutions Swimming Pool & recreation Bar Conference facilities
Ocean View Caravan Park	Onslow	9 cabins 84 powered sites 2 unpowered sites		Toilets & showers BBQ area

Accommodation options in Onslow include two caravan parks, self-contained units and motel rooms. As a result of the cost of housing and accommodation in Onslow being at a premium in 2012, there has been significant visitor accommodation development in the community leading to increased availability and affordability (OCCI, 2016). Particularly in the past, this accommodation has often been taken up by major project construction workforces and is regarded as a major impediment to the growth of tourism in the short to medium term. The opening of the airport to commercial flights and regular passenger services may assist with any potential tourism growth (AEC Group, 2015).

10.2.3 ONSLOW

Onslow presents the most opportunities for tourism:

- Attractions in Onslow include access to the Mackerel Islands Resort (Direction Island and Thevenard Island) and Montebello Islands from Beadon Creek Harbour (and proposed marina). Attractions also include the Old Onslow historical townsite, Onslow Salt, the Ashburton River, termite mounds and Sunrise, Sunset and Four Mile beaches
- Accommodation options in Onslow include two caravan parks, self-contained units and motel rooms. As a result of the cost of housing and accommodation in Onslow being at a premium in 2012, there has been significant visitor accommodation development in the community leading to increased availability and affordability
- Opportunities for increased promotion of tourist attractions including increased promotion and marketing of industrial tourism experiences (e.g. visitors to ANSIA and Onslow Salt), conference and training location
- Coastal environment – islands/fishing/tourism. The Mackerel Islands Tourism Company provide amenity for tourism around Thevenard and Direction Islands. However, it is not available/affordable for the general public – there is opportunity here to develop this.

10.2.4 TOM PRICE

Assessment of Accommodation Need in Tom Price, Onslow and Paraburdoo (AEC Group, 2015) identifies no capacity issues at present in the provision of and demand for short stay accommodation in Tom Price. However, the quality of this accommodation is regarded as poor.

10.2.5 PARABURDOO

The existing pub and caravan park provide limited supply for short-stay accommodation. Demand for short-stay accommodation in Paraburdoo is low with any tourism investment likely to occur in Onslow and Tom Price initially (AEC Group, 2015).

10.2.6 PANNAWONICA

Whilst Pannawonica is a closed town, visitors may stay within accommodation available from Rio Tinto village facilities or alternatively at powered, four bay caravan park with grassy camping sites (Rio Tinto, 2015).

10.3 ACCESSIBILITY

10.3.1 TOURISM AND ITS POTENTIAL IMPACT ON ECONOMIC DEVELOPMENT IN THE SHIRE OF ASHBURTON – A PROPOSAL TO SEAL THE MANUWARRA – RED DOG HIGHWAY (FORMERLY KNOWN AS KARRATHA TO TOM PRICE ROAD)

The *HotSpots Update* recommended improving road connectivity to Tom Price from Paraburdoo Airport and main Highways, to improve prospects for developing the town's tourism industry role (WAPC, 2015). In turn, the Shire has also put forward a recommendation for the sealing of the road between Tom Price and Karratha (SoA, 2015). These work in concert for improving the accessibility and destination appeal for road-based visitors and tourists to travel within the Pilbara region and in particular from major highways and cities/towns and Tom Price.

The Shire sought funding support from Royalties for Regions to complete the sealing of the Karratha to Tom Price Road, now known as Manuwarra-Red Dog JHighway, as it is regarded as a major inhibitor to the growth of the tourism sector. However, it is noted in this document that "*wider benefits are not likely to be created by transport investments alone as they rely on other initiatives such as provision of more and improved tourist accommodation*". This is a common theme that has emerged through various tourism studies relevant to the Shire and there are significant challenges that must be overcome in order to realise the benefits of tourism in the region.

10.4 AWARENESS

Tourism within the region is regarded as an under-utilised resource that has the ability to provide many economic benefits, particularly for the major towns of Onslow, Tom Price and Paraburdoo. This can often be attributed to the seasonality of visitation, geographical isolation, the shortage of adequate accommodation and facilities (in some areas) and the significant costs associated with delivering tourism facilities versus the future revenue generated.

The promotion of tourism in the region requires significant investment in the marketing of tourism opportunities, upgrading of infrastructure and consideration of accommodation options. However, the most significant barrier to enhancing tourism opportunities in the region is effectively managing the relationship between tourism and the mining and resource industries, particularly given the recent dominance of these sectors in the region. The demand for informal FIFO accommodation as the major resource projects wind down has underpinned the viability of many short-term accommodation options. The PDC estimates that in 2010-11 mining accounted for 74.6% of activity in the Pilbara, whereas tourism was estimated at only 0.7% (SoA, 2015).

The following opportunities have been identified for the region (PDC, 2015), (SoA, 2017):

- Transformational opportunities in nature based tourism;
- Heritage and Aboriginal tourism development;
- Capitalise on proximity to Asia and its airport infrastructure;
- Arts and cultural programs to attract national and international recognition;
- Upgrade and expand Visitor Centre facilities and services, tourism accommodation, camping grounds and associated facilities;
- Product development, marketing and promotions, and training and support, targeting older couples, backpackers, international couples, nature-based visitors and cruise ship passengers;

10.5 IMPLICATIONS FOR TOURISM AND VISITORS

The following **Table 41** considers the implications, issues and opportunities from a tourism and visitors perspective.

Table 41 Implications, Issues and Opportunities – Tourism and Visitors

Tourism and Visitors	Implications	Issues	Opportunities
<p>Attractions and Amenities</p>	<p>The North West is considered for its outback experiences, scenery experiences and indigenous experiences.</p> <p>In the economic context, tourism is a very small contributor to current economic activity, however its value can be sustainable over time and opportunities are available for its increased contribution.</p> <p>Mackerel Islands Resort (Direction Island and Thevenard Island) and Montebello Islands are accessible from Beadon Creek Boat Harbour (and proposed marina).</p> <p>Attractions around Onslow include the Old Onslow historical townsite, Onslow Salt, the Ashburton River, termite mounds and Sunrise, Sunset and Four Mile beaches.</p> <p>Tom Price is considered to be the gateway to Karijini National Park. The town acts as a service centre for people to purchase necessary supplies in anticipation of staying within the National Park. Tom Price has the potential to capitalise on its proximity to Karijini National Park; however, this requires significant investment in infrastructure and marketing/tourism awareness.</p> <p>Aboriginal culture, heritage and experiences are significant tourism assets.</p>	<p>Onslow is a hub for tourism that has a coastal or island focus.</p> <p>Tom Price and Paraburdoo can provide outback, scenery and indigenous experiences.</p> <p>Some attractions or activities (such as fishing and island-based tourism) are perceived to be expensive for the general public.</p>	<p>Develop the breadth and range of tourism products related to islands, fishing tourism, national parks, and indigenous art and culture.</p> <p>Increased promotion of tourist attractions including increased promotion and marketing, particularly for Karijini National Park and other natural attractions.</p> <p>Opportunities to leverage from nature based tourism and heritage and aboriginal tourism development.</p> <p>Arts and cultural programs to attract national and international recognition.</p>
<p>Accommodation</p>	<p>Accommodation options in Onslow include two caravan parks, free camping facility, self-contained units and motel rooms.</p> <p>Onslow accommodation is becoming more accessible as occupancy rates normalise, due to lower accommodation demand from construction workforce.</p>	<p>Tom Price is acknowledged as a tourism destination for visitors to Karijini National Park and there is an opportunity for in-town mining accommodation to transition to short-stay accommodation if there is demand (i.e. Windawarri Lodge, Marandoo Annex) or additional area to the north of Karijini Lodge to be considered for expansion purposes.</p>	<p>Consider mechanisms such as flexibility between short stay accommodation and permanent residential development, provision of land for iconic tourism use at reduced or no cost and government underwriting of portions of some strategic tourism developments.</p>
<p>Accessibility</p>	<p>Some seats are available on flights from Perth to Onslow and Paraburdoo.</p> <p>Tom Price is accessible by road to Paraburdoo Airport.</p>	<p>Regional airports to expand to cater for increased passenger flights to increase visitation.</p> <p>The improvement and sealing of the Karratha - Tom Price Road is considered an ideal opportunity to generate substantial economic benefits for the Pilbara and the State through both increased tourism and improved freight traffic movements.</p>	<p>Capitalise on proximity to Asia and its airport infrastructure.</p> <p>The RFDS airstrip near Tom Price could be investigated for upgrading to an airport.</p> <p>Shire of Ashburton advocates sealing of the Karratha - Tom Price Road.</p>

Tourism and Visitors	Implications	Issues	Opportunities
<p>Awareness</p>	<p>Tourism within the region is regarded as an under-utilised resource that has the ability to provide many economic benefits, particularly for the major towns of Onslow, Tom Price and Paraburdoo.</p>	<p>Seasonality of visitation, geographical isolation, the shortage of adequate accommodation and facilities.</p> <p>The promotion of tourism in the region requires significant investment in the marketing of tourism opportunities, upgrading of infrastructure and consideration of accommodation options.</p>	<p>Product development, marketing and promotions, and training and support, targeting older couples, backpackers, international couples, nature-based visitors and cruise ship passengers.</p> <p>Opportunities for increased promotion of tourist attractions including increased promotion and marketing of industrial tourism experiences (e.g. visitors to ANSIA and Onslow Salt), conference and training location.</p> <p>Preparation of a Tourism Strategy as identified in the <i>Strategic Community Plan</i>.</p> <p>Upgrade and expand Visitor Centre facilities and services, tourism accommodation, camping grounds and associated facilities.</p>

11 COMMUNITY, RECREATION AND OPEN SPACE

11.1 COMMUNITY FACILITIES

Through State Development Agreements signed by Chevron Australia and BHP Billiton with the Western Australian Government, extensive provisions have been made to improve community infrastructure and critical services within Onslow, providing a sound basis for the future growth of the town. Chevron has committed more than \$250 million to social and critical infrastructure projects that will upgrade health, education and recreation services and facilities, as well as road, power and water infrastructure. Through a Community Infrastructure and Services Partnership between Rio Tinto and the Shire of Ashburton, a number of town infrastructure projects, services and events have been supported¹⁴. These cover education, health, culture, environment, regional sustainability and employee support.

A *Map and Gap Analysis* conducted in 2012 identified a high level of investment. Chevron and BHP Billiton have also introduced funding programs to support a range of community-based projects and activities. Through construction of BHP Billiton's Macedon domestic gas project and the Chevron-operated Wheatstone LNG project, major contributions have been made to the local economy through construction contracts and services, such as transport and marine services, and general supplies.

The Shire of Ashburton has analysed the number of assets across the local government district for ongoing maintenance and management. **Table 42** reflects the community facilities and assets that are identified in the *Strategic Asset Management Plan* (SoA, 2016).

Table 42 Assets covered by Strategic Asset Management Plan

Asset Class	Asset	Asset Description	Quantity
Buildings	Shire / Community Buildings	Halls, Library, Sports Clubs, Public Amenities, Shire offices, Depot workshops and sheds	74
	Residential Housing	Housing for staff, aged care units	42
	Other Accommodation	Caravan Park buildings, Motel accommodation, camp accommodation	14
	Other Structures / Buildings	Caravan Park / camp BBQ's, shade structures, hardstands, fencing, lighting and landscaping	51
Roads	Sealed Roads	Urban & Rural – asphalt or sprayed seal	130 km
	Unsealed Roads	Rural & Limited Urban – unsealed gravel roads, tracks	1,860 km
	Carparks	Sealed and unsealed, 39 sites	59,078 m ²
	Kerbs	Barrier & mountable kerbs	118 km
	Road Infrastructure	Town entry signs, guardrails	13
Drainage	Open Drains	Drainage swales	22 km
	Underground Drains	Drainage pipes	13 km
	Culverts	Culverts	11 km
	Pits	Drainage access pits, junction pits	1,127
Footpaths	Dual Use	Concrete	7.5 km
	Pedestrian Paths	Concrete, brick paving, asphalt	22 km

¹⁴ <http://www.riotinto.com/ironore/operations-9602.aspx>

Asset Class	Asset	Asset Description	Quantity
Parks & Recreation	Parks & Recreation Space	Park, reserves & gardens	199,154 m ²
	Playgrounds	Sites including equipment and softfall	15
	Skate Parks	Sites including infrastructure	3
	Sport Fields	Ovals, rugby fields – 7 sites	99,019 m ²
	Outdoor Courts	Basketball, netball, tennis – 7 sites, includes 2 half courts	10,201 m ²
	Bowling Green	Bowling site and infrastructure	2
	Cricket Pitch	Cricket facilities – indoor/outdoor, nets, surface	7
	Swimming Pools	Facilities, pool structures and infrastructure	2
	Coastal Infrastructure	Boat ramps, jetties, seawall, boardwalk	6
	Memorial Parks	Sites and infrastructure	2
	Signage	Park, playground & oval signage	4
	Park Infrastructure	Park bench, picnic tables, lighting, drink fountains, fencing, reticulation	86
Town Infrastructure	Structures	Carpark shade, awnings, canopies	12
	Artwork	Statues, wall hangings, murals	8
	Fountains	Drinking, water fountains, water features	6
	Street Furniture	Park bench, picnic tables, bin enclosures, notice boards	7
	Signage	Information signage & town centre signage	2
	Concrete surrounds	Mall surrounds, pathways, decking, retaining walls	3,231 m ²
	Landscaping	Reticulation, gardens, turf, trees	7,800 m ²

Whilst Rio Tinto and its contractors are responsible for the facilities in Pannawonica, it is noted that the following are provided for that community:

- The Shire has a partnership agreement with Rio Tinto, and together they have holiday programs and events throughout the year.
- The town facilities include a primary school, day care centre, playgroup, medical centre, post office, library, supermarket, deli, tavern and hotel, sporting club, bank agency, service station, swimming pool, and open-air cinema (Rio Tinto, 2015).
- Recreational facilities include the town sports oval and playground, Yannarie Park sports precinct and skate park, Tony Lyons Park, and The Rocks.

11.1.1 FUTURE PROVISION OF COMMUNITY FACILITIES

The *Strategic Asset Management Plan* (SoA, 2016) makes the following commentary in relation to the future provision of community facilities:

- The same level or slight increase in younger families is expected, which primarily make use of parks, playgrounds and recreation space;
- Advancements in technologies and the useful life of materials can assist in reducing maintenance costs or offset asset replacement to a later date;
- Potential to recycle materials to reduce greenhouse gas emissions and waste generation;
- Delivery of assets will occur along with town centre revitalisation projects;
- Careful consideration of population growth with the supply of services, to minimise over-capitalisation.

The following priorities are identified in *Living Life* Community Strategic Plan for Onslow, Pannawonica, Paraburdoo, Tom Price, and Remote Aboriginal Communities (SoA, 2017), as well as those facilities documented for delivery in the *Strategic Asset Management Plan* (SoA, 2016). The following list reflects the developments and projects that have occurred since the publication of the Strategic Community Plan and the *Strategic Asset Management Plan*:

Onslow Facility Requirements

- Onslow Administration Centre upgrades have been completed and commissioned in October 2016.
- Onslow Caravan Park upgrade – Stage One has been completed.
- Development of a public swimming pool has commenced construction, anticipated to open in January 2017.
- A youth centre – V-Swans in Onslow are upgrading the current building.
- The construction of a new Onslow hospital, which will better meet the town's increasing health service needs.

Paraburdoo Facility Requirements

- Paraburdoo CHUB – approved with construction anticipated to commence in 2017. As part of the CHUB project, upgrades to the main oval including a shared-use club house facility for sporting clubs, and single court indoor recreation centre with two squash courts are proposed to replace existing sports pavilion and squash courts.
- Paraburdoo Child Care – completed with the official opening held on 8 October 2016.
- Upgrades to the Paraburdoo Swimming Pool – change rooms, office, first aid room as part of the CHUB.

Tom Price Facility Requirements

- Upgrades have been completed to the Clem Thompson Memorial Oval.
- Upgrades have been made to the Area W oval to provide an alternative sports venue.
- A new skate park has been completed.

Remote Aboriginal Communities Facilities Requirements

- Upkeep of community infrastructure
- Upgrade basketball courts
- Shade structures
- Skate parks
- Access to playgroups, early learning and schools.

Pannawonica Facilities Requirements

- During 2009-2012, Rio Tinto upgraded community and commercial infrastructure in town.

11.2 SCHOOLS

The Department of Education's Pilbara Education Regional Office¹⁵ is responsible for 31 public schools with over 8,800 students within the Pilbara Region. Within the Shire, this equated to 1,123-1,155 students recorded to attend local schools, including:

- Onslow Primary/Secondary School (100-103 students in 2016);

¹⁵ <http://det.wa.edu.au/regions/pilbara/detcms/portal/>

- Pannawonica Primary School (113 students in 2016);
- Paraburdoo Primary School (195-205 students in 2016);
- North Tom Price Primary School (207-214 students in 2016);
- Tom Price Primary School (222-231 students in 2016); and
- Tom Price Senior High School (286-289 students in 2016).

The Tom Price Primary School, North Tom Price Primary School, Tom Price Senior High School and Paraburdoo Primary School have combined to form the Ashburton School Alliance (ASA). Combined school student activities are also organised through the ASA.

Ngurrawaana is a medium-sized Aboriginal community and is situated within the Yindjibarndi country. The Ngurrawaana Remote Community School may be closed¹⁶.

11.3 PUBLIC OPEN SPACE

The following **Table 43** summarises the Crown Reserves in proximity to the townsites of Onslow, Tom Price and Paraburdoo. Their current purposes are collected from the Landgate Land Enquiry System. The table does not include reserves listed only for drainage purposes. References to the Shire of West Pilbara refer to the historical local government which was renamed during the amalgamation with Tablelands to form the Shire of Ashburton.

Table 43 Register of Crown Reserves for Recreation – Onslow, Tom Price and Paraburdoo (Landgate, 2016)

Townsite	Reserve Name and Address	Purpose of Reserve (Management Order)	Land Area (ha)
Onslow	R49320 Lot 3002 on DP48469 (3002 Second Avenue)	Recreation (Shire of Ashburton) – Onslow War Memorial	0.2249 ha
	R37453 Lot 83 on Plan 184612	Golf, Recreation (Shire of West Pilbara) – location of Onslow Salt Headquarters and Horizon Power power station	58.4366 ha
	R30686 Lot 644 on Plan 214895 & Lot 555 on Plan 66576 (51 Third Avenue)	Recreation (Shire of Ashburton) – Oval, Tennis Courts, Bowling Club	5.0424 ha
	R25799 Lot 643 on Plan 214895 (McRae Place)	Recreation (Shire of Ashburton)	0.3781 ha
	R22611 Lot 302 on Plan 40120 (55 Second Avenue)	Civic Purposes, Recreation (Shire of Ashburton) – Recreation and Community Centre	0.1012 ha
	R42090 Lot 970 on Plan 220088	Recreation (Shire of Ashburton) – Basketball Complex, future Pool	7.0275 ha
	R45561 Lot 500 on Plan 58872 (500 McGrath Avenue)	Civic Purposes, Recreation (Shire of Ashburton) – Community Centre and Recreation	0.3586 ha
	R52027 Lot 8000 on Plan 403451 (corner Eagle Nest Road & Yungu Road)	Drainage, Recreation (Shire of Ashburton) – Barrarda Estate	0.2491 ha
	R52117 Lot 8001 on Plan 403452 (corner Wimbil Street & Juru Road)	Public Recreation (Shire of Ashburton) – Barrarda Estate	0.2752 ha
	R52034 Lot 4003 and 4004 on Plan 403450 (corner Ring Road and Blair Avenue)	Drainage, Public Recreation (Shire of Ashburton) – adjacent to Chevron's Lot 4001	2.3153 ha
	R38264 Lot 71 on Plan 214441, Lot 105 on Plan 46040, Lot 85 on Plan 215492, Lots 884, 886, 887 on Plan 402083 (71, 85, 105 Onslow Road)	Equestrian Purposes (Shire of Ashburton)	20.6132 ha

¹⁶ http://www.det.wa.edu.au/redirect/?oid=com.arsdigita.cms.contenttypes.FileStorageItem-id-16442973&title=Remote+Teaching+Service+Schools&stream_asset=true

Townsite	Reserve Name and Address	Purpose of Reserve (Management Order)	Land Area (ha)
Tom Price (Area W)	R40797 Lot 500 on Plan 406730 (Kanberra Drive)	Recreation (Shire of Ashburton)	4.2943 ha
	R40799 Lot 309 on Plan 188298 (Kanberra Drive)	Drainage, Park (Shire of Ashburton)	0.3812 ha
	R40798 Lot 501 on Plan 406730 (Kanberra Drive)	Clubs (Shire of Ashburton)	0.4341 ha
	R42328 Lot 312 on Plan 15091 & Lot 316 on Plan 15092 (312 & 316 Tanunda Street)	Recreation (Shire of Ashburton) – netball courts and Tom Price Civic Centre	1.8254 ha
	R39907 Lot 277 on Plan 15091, Lot 281 on Plan 15094, Lot 323 on Plan 14565 (323 Jabbarup Place)	Public Recreation (Shire of Ashburton) – North Tom Price oval	12.3256 ha
	R39866 Lot 282 on Plan 15094 (282 Marradong Place)	Public Recreation (Shire of West Pilbara)	0.0655 ha
	R39874 Lots 267, 268, 269 on Plan 15095, Lots 270, 271, 272, 273 on Plan 15093 (fronting Killawarra Drive)	Public Recreation (Shire of West Pilbara)	2.5206 ha
Tom Price	R43617 Lot 330 on Plan 14576 (corner Yaruga Street & Pilkena Street)	Public Recreation (Shire of Ashburton)	0.0778 ha
	R44839 Lots 332 & 334 on Plan 15263 (332 North Road & 334 Acacia Street)	Public Recreation (Shire of Ashburton) – Lions Park	2.5064 ha
	R40059 Lot 288 on Plan 15565 (corner Doradeen Road and North Road)	Public Recreation (Shire of West Pilbara)	0.3918 ha
	R39868 Lot 275 on Plan 15210, Lots 298, 299, 300 on Plan 14830, Lot 301 on Plan 14829 (fronting Central Road)	Public Recreation (Shire of West Pilbara)	0.6383 ha
	R39728 Lot 69 on Plan 15337 (fronting Doradeen Road, Mine Road, West Road)	Public Recreation (Shire of West Pilbara)	8.4749 ha
	R42327 Lot 315 on Diagram 67532 (315 Central Road)	Recreation (Shire of Ashburton) – Tom Price Visitor Centre	0.5500 ha
	R41388 Lot 317 on Diagram 67300 (317 Central Road)	Recreation (Shire of Ashburton)	0.6530 ha
	R39753 Lot 247 on Plan 15338 (corner Mine Road & Court Road)	Public Recreation (Shire of West Pilbara)	0.1514 ha
	R40195 Lot 291 on Plan 14829 (corner Mine Road and Coolibah Street)	Public Recreation (Shire of West Pilbara)	0.7198 ha
	R52223 Lot 339 on Plan 219965 (corner Willow Road and Stadium Road)	Recreation (Shire of Ashburton) – swimming pool and skate park	1.5302 ha
	R45726 Lot 340 on Plan 219965 (Willow Road)	Tennis Courts (Shire of Ashburton)	0.2927 ha
	R40194 Lot 293 on Plan 14720 (293 Willow Road)	Public Recreation (Shire of Ashburton) – Tjiluna baseball field	1.4684 ha
	R40222 Lot 292 on Plan 15207 (Poinsettia Street)	Public Recreation (Shire of West Pilbara)	0.3332 ha
	R39857 Lot 348 on Plan 29716 (348 Willow Road)	Public Recreation (Shire of Ashburton) – Clem Thomson Memorial Oval	3.1215 ha
	R40835 Lots 345 & 347 on Plan 29716 (345 & 347 Jacaranda Drive)	Recreation (Shire of Ashburton) – bowls club	0.8808 ha
	R42659 Lot 346 on Plan 29716	Club and Club Premises (Shire of Ashburton) – squash courts	0.1388 ha
R39986 Lot 287 on Diagram 70283 (287 Bauhinia Street)	Public Recreation (Shire of Ashburton)	0.1974 ha	

Townsite	Reserve Name and Address	Purpose of Reserve (Management Order)	Land Area (ha)
	R39852 Lot 274 on Plan 15209 (Palm Street)	Public Recreation (Shire of West Pilbara)	0.8777 ha
	R40209 Lot 294 on Plan 14722 (Hibiscus Street)	Public Recreation (Shire of West Pilbara)	0.3022 ha
	R41534 Lot 245 on Plan 189344 (245 Tom Price-Paraburdoo Road)	Go Kart Racing (Shire of Ashburton)	6.0001 ha
	R40965 Lot 58 on Plan 216346 (58 East Road)	Recreation (Shire of Ashburton) – golf course	69.4464 ha
Tom Price (outskirts)	R39277 Lot 555 on Plan 75412 (Tom Price-Paraburdoo Road)	Rifle Range (Shire of Ashburton)	27.6261 ha
	R39327 Lot 53 on Plan 186853 (Nameless Valley Drive)	Recreation (Shire of West Pilbara) – Tom Price Speedway	13.3118 ha
	R38328 Lot 60 on Plan 186853 (Nameless Valley Drive)	Recreation (Shire of West Pilbara) – BMX circuit	5.9888 ha
	R42510 Lot 326 on Plan 190955 (Mine Road)	Car Racing (Shire of Ashburton) – Motor Cross Track	13.8649 ha
	R39204 Lot 52 on Plan 186852 (Mine Road)	Recreation (Shire of Ashburton) – archery	6.7999 ha
	R42428 Lot 54 on Plan 216331 & Lot 331 on Plan 192625 (54 Nameless Valley Drive)	Equestrian Purposes (Shire of Ashburton)	121.4198 ha
Paraburdoo	R43567 Lot 144 on Plan 14725 (144 Barrow Avenue)	Public Recreation (Shire of Ashburton)	0.0782 ha
	R43566 Lot 141 on Plan 14725 (141 Camp Road)	Public Recreation (Shire of Ashburton)	5.4257 ha
	R43577 Lot 146 on Plan 14951 (146 Joffre Avenue)	Public Recreation (Shire of Ashburton)	0.2560 ha
	R40065 Lots 66 & 67 on Plan 15080, Lot 377 on Plan 14859 (66 Ashburton Avenue, 67 Rocklea Road, 377 Wyloo Road)	Public Recreation (Shire of Ashburton)	7.4062 ha
	R40405 Lot 52 on Plan 216817 (52 Gregory Way)	Drainage, Park (Shire of Ashburton)	0.0455 ha
	R40406 Lot 59 on Plan 216817 (59 Gregory Way)	Drainage, Park (Shire of Ashburton)	0.0308 ha
	R39572 Lots 37 & 38 on Plan 15365, Lot 566 on Plan 409044 (20, 37, 38 Fortescue Road)	Public Recreation (Shire of Ashburton) – Peter Sutherland Reserve and parkland	9.3356 ha
	R40483 Lot 84 on Plan 15743 (Fortescue Road)	Public Recreation (Shire of West Pilbara)	0.0826 ha
	R42331 Lot 90 on Plan 15743 (90 Ashburton Court)	Recreation (Shire of Ashburton) – Paraburdoo library	0.3450 ha
	R42332 Lot 89 on Plan 15365 & Lot 310 on Plan 402816 (89 Fortescue Road)	Recreation (Shire of Ashburton) – swimming pool and car parking	0.9263 ha
	R42129 Lot 88 on Plan 190513 (88 Fortescue Road)	Sports Ground (Shire of Ashburton) – sports centre, bowling green, tennis courts, basketball courts	1.4314 ha
	R43569 Lot 142 on Plan 14946 (between Ashburton Avenue and Nickol Avenue)	Public Recreation (Shire of Ashburton)	3.1098 ha
	R43565 Lot 143 on Plan 14968 (143 McRae Avenue)	Public Recreation (Shire of Ashburton) – Train Park	2.2816 ha

11.4 IMPLICATIONS FOR COMMUNITY, RECREATION AND OPEN SPACE

The following **Table 44** considers the implications, issues and opportunities from a community, recreation and open space perspective.

Table 44 Implications, Issues and Opportunities - Community, Recreation and Open Space

Community, Recreation and Open Space	Implications	Issues	Opportunities
Community Facilities	<p>The Shire of Ashburton has analysed the number of assets across the local government district for ongoing maintenance and management.</p> <p>Advancements in technology and materials can assist in reducing maintenance costs or offset asset replacement.</p>	<p>A <i>Map and Gap Analysis</i> conducted in 2012 identified a high level of investment. Chevron and BHP Billiton have also introduced funding programs to support a range of community-based projects and activities.</p> <p>Priorities were identified in the <i>Community Strategy Plan</i> for Onslow, Pannawonica, Paraburdoo, Tom Price and remote Aboriginal Communities.</p> <p>Careful consideration of population growth in towns, with the supply of services.</p>	<p>Review the need for new and existing community facilities and analyse the whole-of-lifecycle costs to ensure facilities are capable of being maintained to an acceptable community standard.</p> <p>Maintain the <i>Strategic Asset Management Plan</i> which reflects the community facilities and assets for ongoing maintenance and management.</p> <p>Where practical and reasonable, encourage the development of new community facilities within co-located facilities, or in proximity to town centres.</p>
Schools	<p>Department of Education's Pilbara Education Regional Office is responsible for public schools. 6 public schools are identified in the Shire of Ashburton.</p>	<p>Four schools have combined as the Ashburton School Alliance, which organise combined school student activities.</p> <p>6ha site in Onslow for future school.</p>	<p>Support local government use of facilities and open spaces in relation to school student activities.</p>
Public Open Space	<p>Significant areas within the townsites are within managed Crown reserves for public recreation.</p>	<p>Prediction for the same level or slight increase of younger facilities is expected (which make use of parks, playgrounds and recreation space).</p>	<p>Careful consideration of population growth and demographic changes in towns, with the supply and quality of public open space.</p> <p>Promote landscaping where appropriate to be of low-water use, drought tolerant, and resilient to high winds or cyclonic events.</p>

12 URBAN DESIGN, CHARACTER AND HERITAGE

12.1 URBAN DESIGN

SPP 7 (WAPC, 2016) espouses 10 design principles that can be considered through a local context for the Shire itself, as well for the townsites (Onslow, Tom Price and Paraburadoo):

1. Context and character – good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.
2. Landscape quality – good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.
3. Built form and scale – good design provides development with massing and height that is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.
4. Functionality and build quality – good design meets the needs of users efficiently and effectively, balancing functional requirements to deliver optimum benefit and performing well over the full life-cycle.
5. Sustainability – good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
6. Amenity – good design optimises internal and external amenity for occupants, visitors and neighbours, contributing to living and working environments that are comfortable and productive.
7. Legibility – good design results in buildings and places that are legible, with clear connections and memorable elements to help people find their way around.
8. Safety – good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
9. Community – good design responds to local community needs as well as the wider social context, providing buildings and spaces that support a diverse range of people and facilitate social interaction.
10. Aesthetics – good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.

12.2 TOWNSITE CHARACTER

The purpose of the Townsite Character Statements is to describe the three main townsites as they currently exist. The Statements focus on the towns of Onslow, Tom Price and Paraburadoo, providing general information on their landscape, built form, and facilities. By capturing the town's identities and sense of place in each townsite, criteria are formed for future development and to guide further growth of the towns. The character of the towns will determine parameters, principles and objectives and consider appropriate design strategies.

12.2.1 TOM PRICE

Tom Price is located approximately 1,600 kilometres from Perth, and situated on the edge of the Hamersley Ranges. Established in 1967, the town is described as a picturesque, modern and fully serviced town, designed to blend with the natural environment¹⁷.

The Shire maintains a strong presence within Onslow, with the development of new Council Chambers and offices on Second Avenue. Tom Price is now the administrative centre for the Shire, commensurate with relocation of the administrative offices in 1990. The town centre offers a range of services to support the local community including retail, commercial, business services, and areas for recreation.

Tom Price presents a green and pleasant landscape setting which strongly contrasts with the scenic backdrop of hills with iron-rich colouration. Landscaping around homes and within the town generally incorporates lawn, shrubs and ground covers, with a preference for Pilbara native flora, whilst palm trees are also notable. The extensive landscaping assists with softening the appearance of the town, and provides respite, shade and habitat. The extent of landscaping provides visual relief to the surround aridity of the landscape, as well as providing dust suppression within the town. It also incorporates tree species that have been proven to be suitable for cyclone areas.

The perimeter of the town is generally constrained due to the rocky characteristics of the ground, and the challenges due to topography.

Figure 39 Open Space within Tom Price Town Centre



12.2.2 PARABURDOO

Paraburdoo is located 80 kilometres south of Tom Price. It is a small town that largely accommodates operational workforce for surrounding mines. It is within a flat area and has remarkable views to the nearby Hamersley Ranges. The town is within a 'saddle' between two drainage lines to the north and south, providing for a relatively flat landscape that is easy for residents to walk and cycle throughout town.

The town's climate can be pleasant during winter days, although nights can be cold, whilst summer daytime temperatures on average are above 35 degrees. With good rainfall the area can also experience springtime blooms of seasonal wildflowers, which can transform the landscape with colour.

¹⁷ http://www.riotinto.com/documents/RT_Welcome_File_Tom_Price%202015.pdf

Within the centre of town, a shopping centre contains a supermarket, pharmacy, news agency, cafe and hairdresser. Integrated within this centre is the Shire library, which provides community space for residents. The centre of town contains a number of community facilities including a primary school, swimming pool, bowling club, ovals, and child care centre.

Limited accommodation is available in town for tourists. Rooms are sometimes available within some of the accommodation sites such as at Rocklea Palms, and caravaners may use the Caravan Park on Mine Road (refer **Figure 40**).

Figure 40 Hall Pack, Paraburdoo (L), accommodation in Caravan Park (R)



12.2.3 ONSLOW

The Old Onslow townsite (established 1883), located at the mouth of the Ashburton River, was abandoned following repeated cyclone damage in 1925¹⁸ as well as siltation and flooding issues. The town was relocated to Beadon Creek, where there was deeper water to assist with establishing a fleet of pearl luggers and a small port facility.

Onslow's accessibility has been progressively enhanced through the proximity of the Ashburton North Strategic Industrial Area, the opening of the new ring road (Onslow Road) and construction of Onslow Airport. The town has strongly held on to its identity and history following its relocation, with an emphasis on its organic development and less so about the large mining and petroleum industries that dominate to the south-west at ANSIA.

The town is closely situated to Beadon Point and has proximity to the coastline, bringing with it a connection to the water. It is a small townsite; however, it has an extensive range of community facilities, as well as commercial, industrial and tourism operations. The town has matured with notable tree lined streets, with improvements providing amenity along the coastline and areas of public open space. The coastal relationship of the town is exemplified through the proximity of development, particularly near the sea wall (refer **Figure 41**).

Within the Onslow town site is the Bindi Bindi town-based reserve. The State Government notes that there are 24 houses within Bindi Bindi and an estimated population of 120¹⁹. Whilst accessible from Second Avenue, the reserve is still relatively discrete from the overall townsite.

¹⁸ <http://www.ashburton.wa.gov.au/community/onslow/community-story/691/>

¹⁹ <http://regionalservicesreform.wa.gov.au/p/factsheets>



Figure 41 Sunrise Beach (L); Landscaped land behind the Sea Wall, First Avenue (R)

New residential areas may be developed to offer a variety of housing options, potentially with a mix of detached houses of various sizes, residential buildings to accommodate a mix of residents, and terrace/town house dwellings.

New residential areas should take account of the well-connected movement network, have regard to the landscape and vegetation patterns in the locality, and maximise opportunities for climate-responsive design (i.e. shade, passive cooling, ventilation and access to sea breezes). Wherever possible, new residential areas should aim to integrate and be connective to other areas of the townsite.

12.3 ABORIGINAL, EUROPEAN AND NATURAL HERITAGE

A number of Aboriginal, European and natural heritage sites are identified on various heritage lists (national, state and local) that are identified in the Environmental Profile (refer **Appendix A** – section 2.8 of the Environmental Profile).

Protection of heritage is an ongoing commitment at all levels of government.

12.3.1 CULTURAL HERITAGE

A number of Registered Aboriginal Heritage Sites are located within the Shire (refer **Appendix A** – section 2.8 and of the Environmental Profile).

While heritage is primarily managed through State and Commonwealth legislation, opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements and tourism opportunities with traditional owners, and optimise opportunities for Indigenous training, employment and businesses. This should include effective engagement with the appropriate traditional owners depending on the location of heritage sites and business opportunities, to support protection of cultural values.

There is opportunity for Aboriginal heritage and culture/working with Traditional owners. This can include their involvement in a range of cultural, eco-tourism and environmental management and cultural/eco-tourism. The Pilbara has many opportunities which should be supported and developed.

12.4 IMPLICATIONS FOR URBAN DESIGN, CHARACTER AND HERITAGE

The following **Table 45** considers the implications, issues and opportunities from an urban design, character and heritage perspective.

Table 45 Implications, Issues and Opportunities – Urban Design, Character and Heritage

Urban Design, Character and Heritage	Implications	Issues	Opportunities
<p>Urban Design</p>	<p>Buildings and housing have high construction costs due to the isolated nature of the towns. Development needs to consider a total life-cycle cost to ensure that built form is most appropriate having regard to existing weather patterns and climate, future projected climate change.</p>	<p>Guidance that promotes sustainable design principles, is responsive to the Pilbara climate, address the use of finite resources (such as water) and enhance the liveability and wellbeing of residents.</p> <p>Attractive places and spaces will enhance the liveability and attractiveness of the towns.</p>	<p>Implement Design Guidelines for Onslow.</p> <p>Prepare local planning policy for climate change.</p> <p>Prioritise higher quality landscaping along gateway entrances into the townsites, and along Neighbourhood Roads.</p>
<p>Aboriginal, European and Natural Heritage</p>	<p>A number of Aboriginal, European and natural heritage sites are identified on various heritage lists.</p>	<p>Consider ability to use land for Aboriginal purposes, including Native Title, Aboriginal Heritage, and other pursuits including Aboriginal tourism.</p> <p>Work closely with Traditional Owners in terms of getting their involvement in environmental management and cultural/eco-tourism (running the caravan park, organising tours in places such as Millstream etc.). Focus of this development/industry has been in the Kimberley, and that the Pilbara has many such opportunities which should be supported and developed.</p>	<p>Review and update the Municipal Heritage Inventory to be used as the Heritage list in the Scheme.</p> <p>Require, where appropriate, that heritage matters are addressed in structure plans and design guidelines.</p> <p>Consider opportunities for the protection and enhancement of identified sites as part of any assessment of development and/or subdivision applications.</p> <p>Opportunities exist to protect and promote both Aboriginal and European cultural heritage through joint management arrangements and tourism opportunities with traditional owners, and optimise opportunities for Indigenous training, employment and businesses.</p>

13 TRAFFIC AND TRANSPORT

13.1 TRAFFIC AND TRANSPORT PROFILE FOR THE SHIRE

13.1.1 CURRENT ROAD INFRASTRUCTURE

The major roads that pass through the Shire include North West Coastal Highway and Great Northern Highway. The MRWA functional road hierarchy classification, for this and other significant roads, can be seen in **Figure 42**.

In addition to the sealed road network, the Shire has in the region of 1,800 km of unsealed roads.

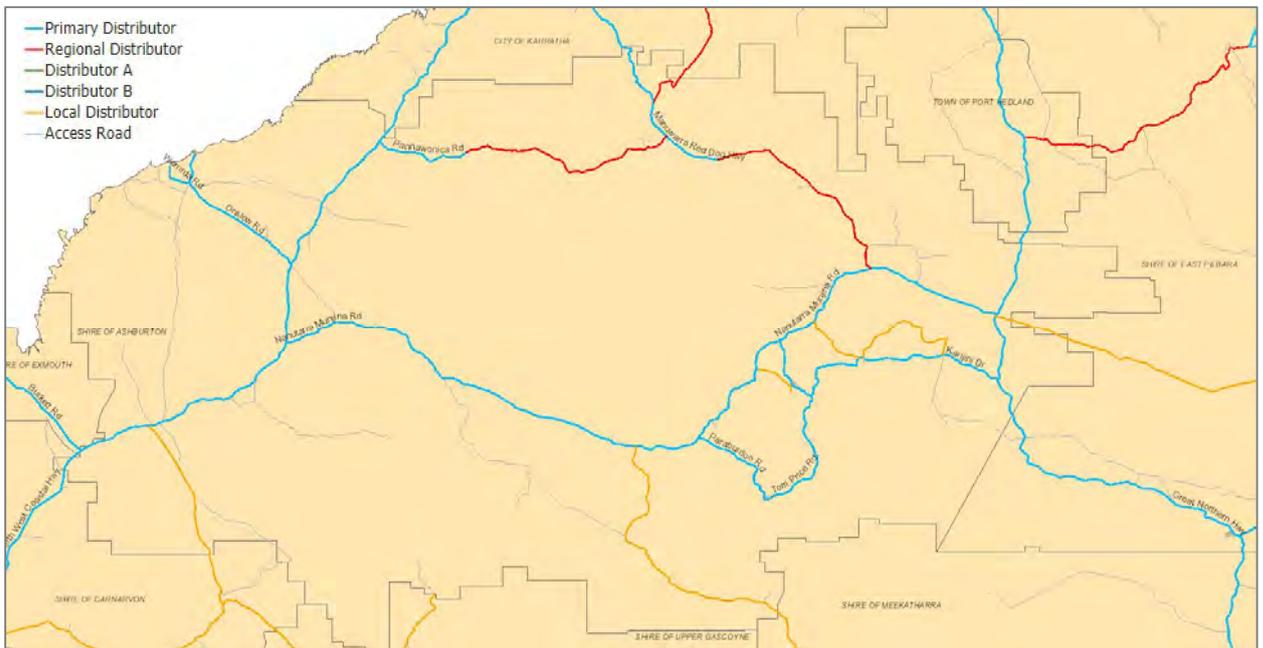


Figure 42 Functional Road Hierarchy (DVC, 2016)

13.1.2 PLANNED ROAD INFRASTRUCTURE

The most significant planned changes to the existing road infrastructure within the Shire have been identified through consultation with the Shire and MRWA. These are covered in the following sections.

13.1.2.1 WIDENING OF NORTH WEST COASTAL HIGHWAY

MRWA widened NWCH between Minilya and Nanutarra, part of which runs through the Shire of Ashburton. This upgrade occurred in 2016 and included the reconstruction of two bridges, one at Cave Creek and one at Goodeman Creek. The widening rendered the road more suitable for the high proportion of road train traffic that uses this route, whilst the bridge reconstruction works reduce the likelihood and length of delays caused by road closures due to flooding.

13.1.2.2 SEALING OF THE KARRATHA – TOM PRICE ROAD (ROEBOURNE – WITTENOOM ROAD)

This ongoing project is seen as a key requirement by the Shire of Ashburton, and is being completed in stages as funds become available. Such funding comes primarily from the Shire's annual Regional Roads Grant.

Any planned upgrades or additions to the more local road infrastructure, whether currently funded or not, are identified within the specific township sections below.

13.2 TRAFFIC COUNTS

Traffic data from the *Ashburton Traffic Digest* (MRWA, 2016) recorded the annual average weekday traffic (AAWT) volumes for major routes within the Shire as shown in **Table 46**. Selected (latest) flows are also shown in **Figure 43** and **Figure 44**.

The data shows that in 2012/13, there appears to have been a peak in traffic counts across the Shire. This may be verified or disputed in future traffic counts. It is notable that the percentage of heavy vehicles in annual average weekday traffic has increased for:

- Paraburdoo – Tom Price Road: west of Rocklea Road, south of Karijini Drive and south of Mine Road;
- Mine Road: west of West Road;
- North West Coastal Highway: south of Onslow Road.

Table 46 Selected Traffic Flows

Location	Annual Average Weekday Traffic (AAWT)						
	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	
Paraburdoo – Tom Price Road	West of Rocklea Road	-	640 <i>(15.8)</i>	-	700 <i>(15.7)</i>	-	600 <i>(17.2)</i>
	South of Karijini Drive	530 <i>(24.0)</i>	570 <i>(25.4)</i>	-	640 <i>(26.9)</i>	-	-
	North of Karijini Drive	930 <i>(29.4)</i>	940 <i>(22.4)</i>	-	1,180 <i>(22.9)</i>	-	910 <i>(21.7)</i>
	South of Mine Road	-	960 <i>(25.2)</i>	-	-	-	1,040 <i>(26.7)</i>
Onslow Road	North of Onslow Airport Road	-	-	-	-	-	1,250 <i>(23.1)</i>
Mine Road	South of Bingarn Road	-	2,430 <i>(21.2)</i>	-	3,420 <i>(20.3)</i>	-	3,090 <i>(18.3)</i>
	West of West Road	-	3,180 <i>(17.1)</i>	-	3,490 <i>(22.7)</i>	-	3,160 <i>(22.6)</i>
North West Coastal Highway	North of Burkett Road	-	400 <i>(35.5)</i>	480 <i>(45.1)</i>	520 <i>(36.8)</i>	620 <i>(29.7)</i>	-
	South of Onslow Road	380 <i>(39.8)</i>	340 <i>(41.2)</i>	380 <i>(43.6)</i>	500 <i>(40.4)</i>	430 <i>(47.1)</i>	410 <i>(45.7)</i>
	North of Pannawonica Road	590 <i>(34.6)</i>	-	570 <i>(46.7)</i>	630 <i>(43.5)</i>	-	790 <i>(30.6)</i>

NOTE: Heavy vehicle percentages of AAWT are shown in italic brackets. The *Ashburton Traffic Digest* includes traffic data for various roads throughout the Shire, and is attached in **Appendix C**.

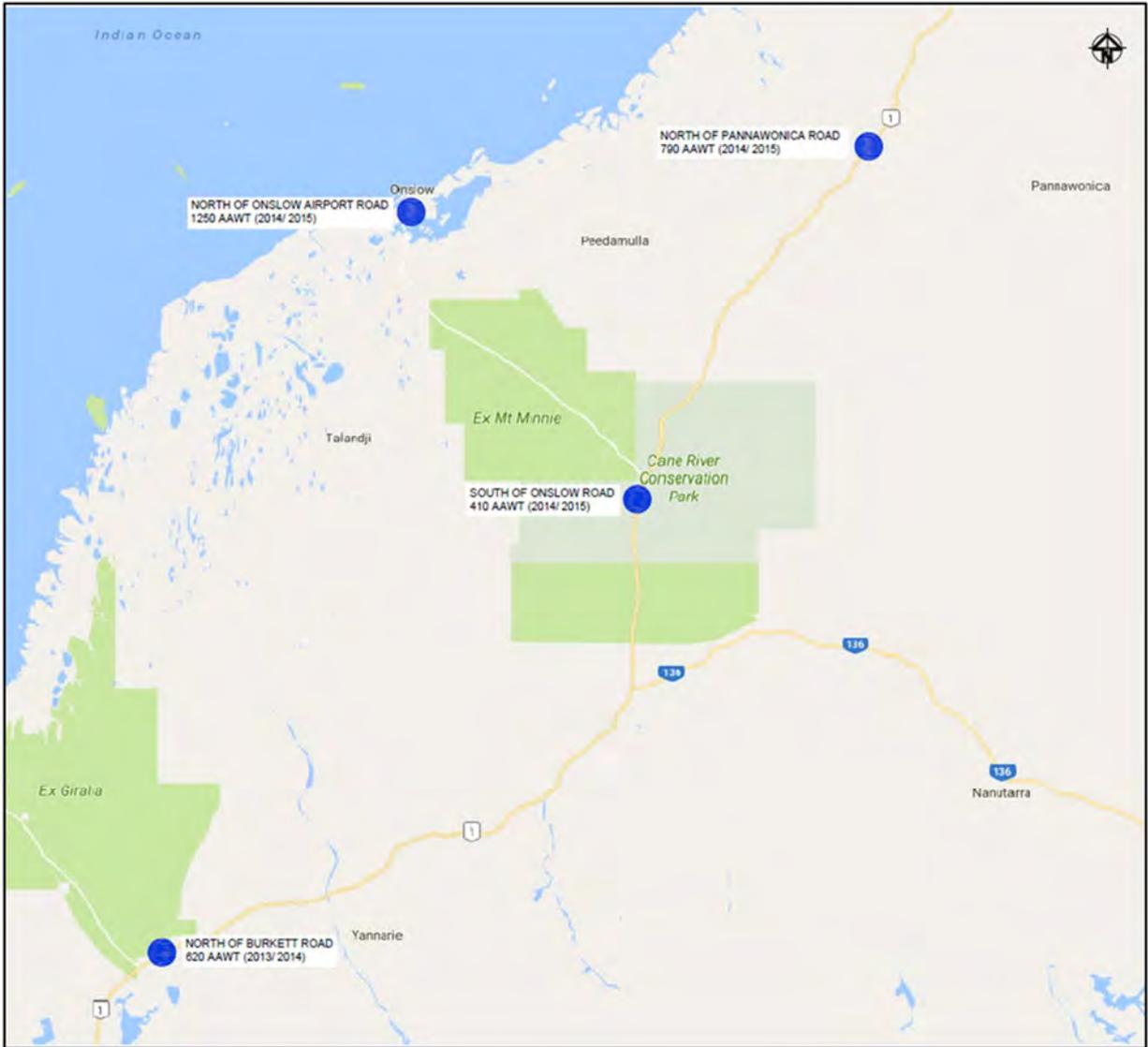


Figure 43 North West Coastal Highway and Onslow Road AAWT (DVC, 2016)

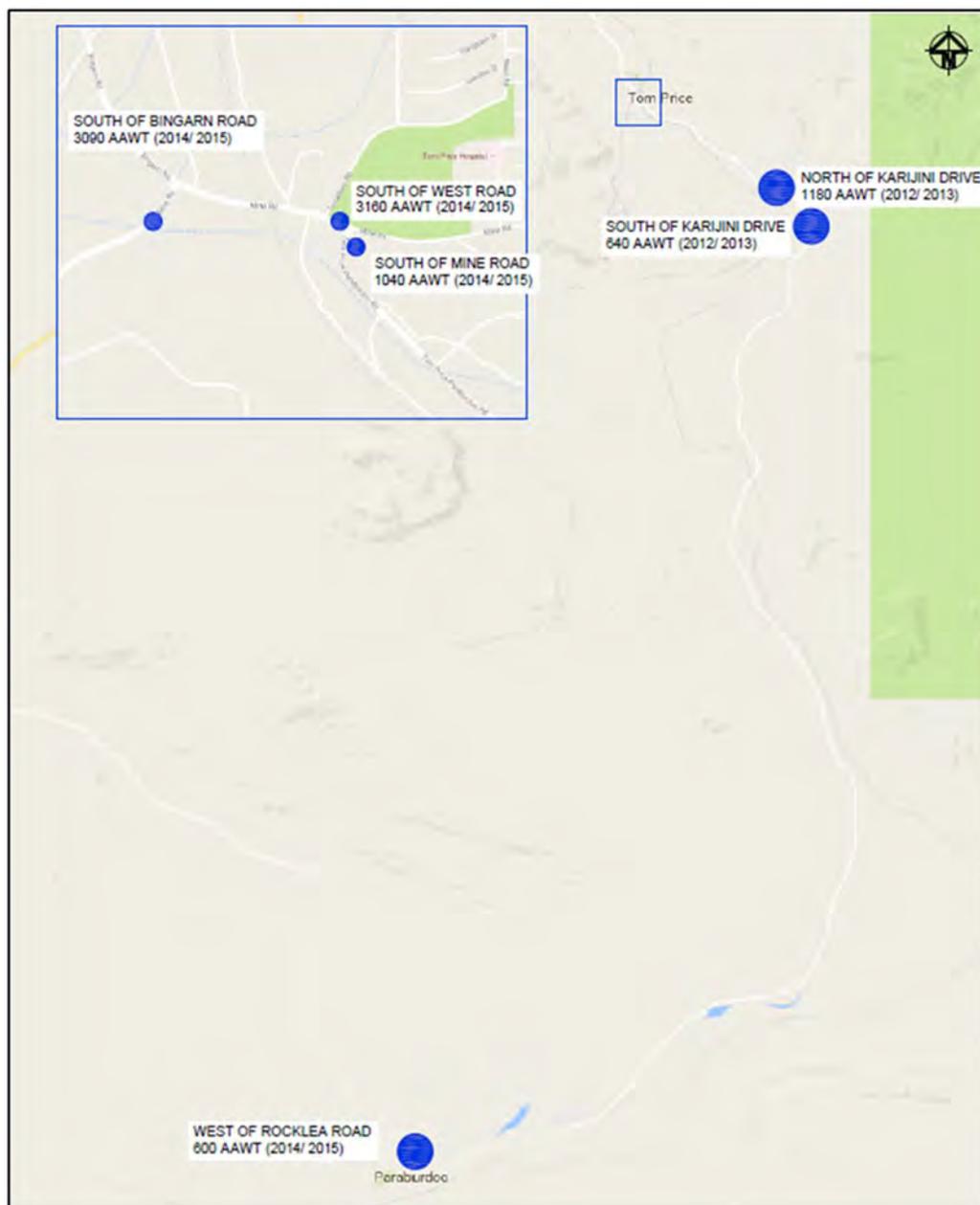


Figure 44 Tom Price Paraburdoo Road and Mine Road AAWT (DVC, 2016)

13.3 OTHER MODES

13.3.1 PUBLIC TRANSPORT

Public Transport is limited in the Pilbara, due to low populations, great distances and low population densities. It is understood that a taxi operates in Onslow.

There are no passenger rail lines available, although a number of private freight lines are run by the various major mining companies. The majority of mineral exports are moved to ports on privately owned railways (WAPC, 2014).

However, most of the larger towns generally have access to reasonably local airports which are often used primarily by mining sector workers employed on a FIFO basis. Mine companies have charter bus services for their workforces.

13.3.2 AIR SERVICES

Onslow Airport is a Category 3 Security Controlled Airport, currently servicing almost 30 F100 flights per week.

Paraburdoo Airport lies some 10 km to the north east of the town. Pannawonica is also provided with a small airport, with airstrips at Barrow Island and Cloudbreak. Of these, Onslow and Paraburdoo airports are public facilities, whilst the airport at Pannawonica and airstrips at Barrow Island and Cloudbreak area privately owned. **A number of additional airports have been created in the mining area**

Main Roads is agreeable to sections of State roads being built or upgraded to act as emergency landing areas for use by the RFDS. The provision of emergency landing areas is subject to meeting the Guideline requirements, the availability of funds, and funding priorities.

The Department of Transport had a management order over Lot 143 on Deposited Plan 92386 (Munjima Airstrip). In early 2016, the DoT commenced closing the airstrip and relinquishing its management order.

13.3.3 MARINE SERVICES

The following **Figure 45** outlines the areas of jurisdiction for the Port of Onslow and the Port of Ashburton.

13.3.3.1 ONSLOW SALT WHARF

Onslow Salt's rights and protections are provided for within the *Onslow Solar Salt State Agreement 1992*. The wharf is neighbouring to the Port of Ashburton and the Port of Onslow.

The wharf near Beadon Point is not constructed to be flexible for other exports other than salt. The wharf is not structurally capable of being used for commodities such as iron ore. It is considered by Onslow Salt that salt is not compatible with other commodities. The Port of Ashburton would be more appropriate for use by other exports.

13.3.3.2 PORT OF ONSLOW

The Port of Onslow is managed and operated by the Department of Transport. It is managed in accordance with the *Shipping and Pilotage Act 1967* and the *Marine and Harbours Act 1981*.

13.3.3.3 PORT OF ASHBURTON

The Pilbara Ports Authority (PPA) was formed on 1 July 2014 as an amalgamation of the Port Hedland Port Authority and the Dampier Port Authority. PPA is the world's largest bulk export port authority, encompassing the ports of Dampier, Port Hedland and Ashburton, as well as the future ports of Anketell, Balla Balla and Cape Preston East. The Port of Ashburton is operated by PPA in accordance with the *Port Authorities Act 1999* and has regard to the *Port of Ashburton Master Plan* (PPA, 2017). The Master Plan documents the foundation stage of the port, and the proposed port layout for 2050.

In 2009, the State Government entered into a State Development Agreement with Chevron Australia for the Wheatstone project in the ANSIA. PPA is responsible for constructing the multi-user port, common user coastal area (CUCA) facilities and Eastern Infrastructure Corridor (EIC)²⁰.

²⁰ <https://www.pilbaraports.com.au/Home/Port-operations/Our-ports,-services-and-facilities>

During 2015-2016, the Port of Ashburton recorded 95.7% its total throughput as general cargo imports, and the remainder as general cargo exports. Once the Port of Ashburton is operational, it is anticipated that this percentage will switch around, as the overall trend of Pilbara Ports is over 99% of throughput as exports (PPA, 2016).

Chevron Australia's Wheatstone project commenced operations in 2017. PPA is responsible for common-user marine assets and port-vested land at the Port of Ashburton. PPA has commenced port monitoring and communications services, facilitated by the PPA's Vessel Traffic Services Centre at the Port of Dampier (PPA, 2016). PPA will establish an administration building and car park, security fencing, power and water infrastructure, gatehouse, and oil spill equipment sheds.

There is a transition towards larger ships and reduced offshore activities which has seen a decreased number of vessel visits to Pilbara Ports. Generally overall, port trade across all ports has exceeded the PPA's 2015-2016 financial year targets (PPA, 2016).

13.3.3.4 BARROW ISLAND

Barrow Island has produced more than 320 million barrels of oil²¹. The Barrow Island port is a Restricted Port due to the vessel activity associated with Gorgon, and permission must first be obtained from the Barrow Island Marine Controller.

13.3.4 PEDESTRIANS AND CYCLISTS

Very little dedicated infrastructure is available for cyclists within the Shire. Whilst the number of workers commuting by bicycle is unlikely to be high, some leisure and recreational cycling may be found in and around most of the towns.

The Shire's *Bike Plan* was scheduled to be revised in 2015. However, the project is currently on hold. Once revised, the new plan is expected to detail a number of recommended actions and additions to the existing bicycle network.

It is likely that pedestrian activity may be restricted primarily to the town centres. The Shire is however currently working on a Footpath Asset Management Plan.

²¹ <https://www.chevronaustralia.com/our-businesses/barrow-island>

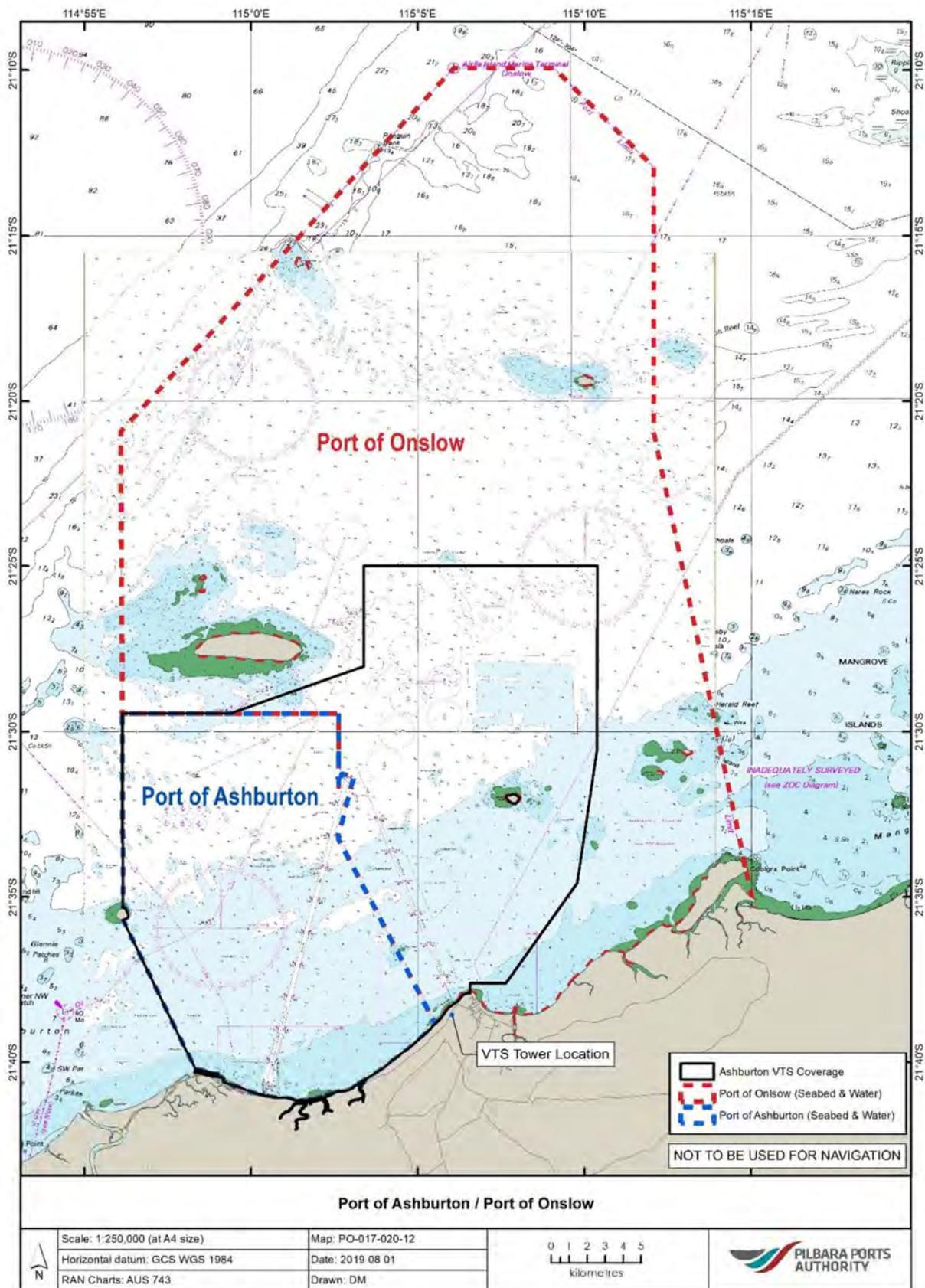


Figure 45 Port of Ashburton and Port of Onslow Reference Map (PPA, 2019)

13.4 MAJOR TOWNSHIPS

13.4.1 ONSLOW

A number of significant upgrades have been carried out to the road network around Onslow, with additional work still ongoing.

Accessibility into Onslow has been improved, with the opening of a new road extension from the Onslow Airport Mixed Business Precinct, northwards through to Simpson Street. This now forms the main entry route into the town centre for residents and tourists, with the old Onslow Road route now being used primarily for freight access to the port area. The Minister for Lands has approved the naming of the new road extension 'Onslow Road', with the old alignment renamed to 'McAullay Road' (refer **Figure 46**).

As can be seen in **Figure 46**, a number of new areas have also been cleared for development to the south and south east of the town, with new roads being provided to service them.

Significant work has also been done in recent years to improve access and parking at the Onslow Airport. Much of the work was originally scheduled to cater for the forecast influx of additional workers to the area for the Wheatstone LNG project.



Figure 46 Recent Changes to the Road Network in Onslow

13.4.2 TOM PRICE

Tom Price is the administrative centre for the Shire of Ashburton. The town is effectively split into two areas by a freight railway, with the main town to the south east and a slightly newer section to the northwest. This northern section houses the North Tom Price Primary school, but lacks any significant retail development.

The main road connection between the two sections is Doradeen Road, which traverses the railway on a two-lane bridge (refer **Figure 47**). The northern section can also be accessed from Bingarn Road, which forms a western bypass before joining Mine Road, the main entry route into the southern town centre.

The most heavily trafficked road in the Shire is the section of Mine Road between Bingarn Road and Paraburdoo – Tom Price Road. This section of road carries in excess of 3,000 vehicles per day (vpd) past the Coles Express service station in the southern part of the township of Tom Price.

Satellite imagery suggests that the intersection of Paraburdoo – Tom Price Road with Mine Road used to form a crossroads, with Doradeen Road supplying the fourth leg. However, the southern approach appears to have been relocated some 70m further east, to provide a staggered T intersection (refer **Figure 47**). This would appear to have been implemented as a road safety measure.



Figure 47 Tom Price

13.4.3 PARABURDOO

The Paraburdoo – Tom Price Road (refer **Figure 48**) lies within Rio Tinto leasehold and is not currently gazetted. However, Main Roads WA (Pilbara Region) has recently completed a high level strategic document, namely: the 'Safety Improvements Strategy for Paraburdoo – Tom Price Road (M051) SLK 0-130' based on treatments to be implemented over a 5 to 10-year period.

There do not appear to be any specific safety or capacity issues with the existing road infrastructure in or around the town.

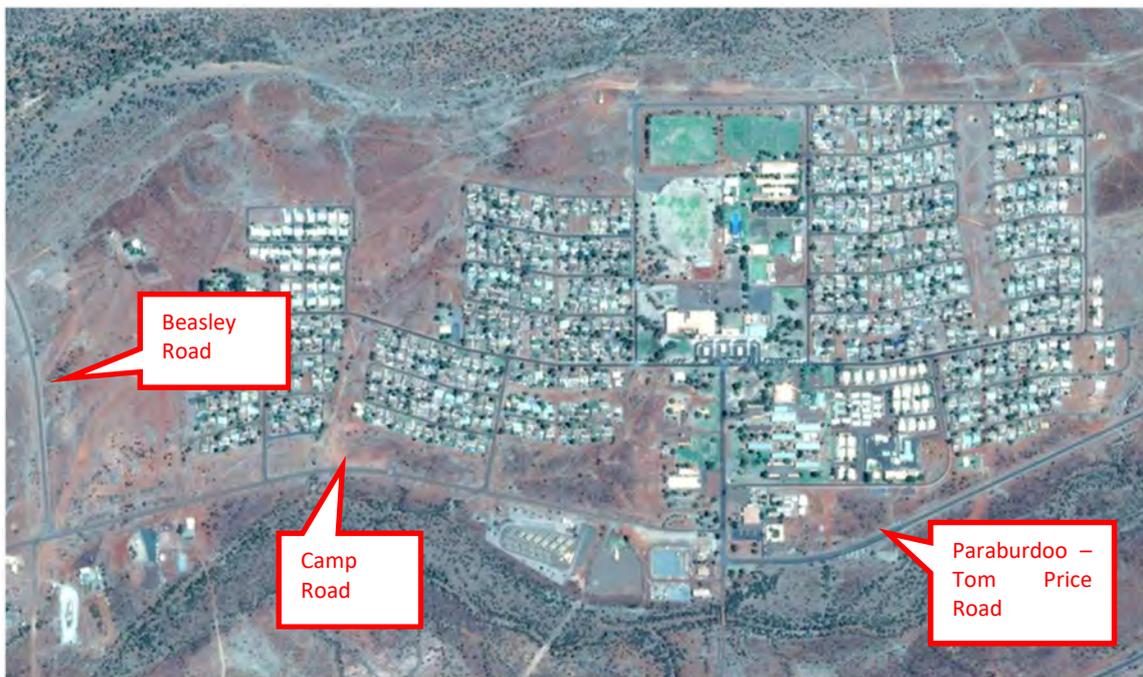


Figure 48 Paraburdoo

13.4.4 PANNAWONICA

Pannawonica is situated at the intersection of Pannawonica Road and Deepdale Drive, refer **Figure 49**. There do not appear to be any capacity issues with the existing road infrastructure at the present time.



Figure 49 Pannawonica

13.5 OPPORTUNITIES AND CONSTRAINTS

13.5.1 ONSLOW

Onslow has a number of partially developed areas in which it is expected expansion and further development will take place as part of Chevron's Wheatstone LNG project. A number of projects have also been funded throughout the town, refer **Figure 50**.



Figure 50 Extract of proposed development around Onslow (DSD, 2014)

However, the level of growth previously expected as a result of this project has not yet materialised. The range of upgrades currently being constructed appear to be well in excess of those required by the likely growth of Onslow within the study planning horizon, and should provide sufficient spare capacity for expected growth in traffic generation for many years to come.

13.5.2 TOM PRICE

Whilst there is a second route between the two parts of Tom Price via Bingarn Road, this is not a convenient route for most purposes (refer **Figure 51**). Should there be an issue that closed the bridge over the railway at Doradeen Road, this would cause significant inconvenience, both for residents of the northern area wishing to access the town centre, and for parents taking their children to the school.



Figure 51 Limited connectivity between northern and southern sections of Tom Price

13.5.3 PARABURDOO

There is little potential for growth in Paraburadoo. Any additional residential demand is likely to be limited and taken up by infill development. It is not expected that the level of growth would generate sufficient additional traffic to result in significant traffic implications, or render any extensive upgrading of the existing infrastructure necessary.

13.5.4 PANNAWONICA

There is little potential for growth in Pannawonica. Any additional residential demand is likely to be limited and taken up by infill development. It is not expected that the level of growth would generate sufficient additional traffic to result in significant traffic implications, or render any extensive upgrading of the existing infrastructure necessary.

13.6 KEY TRAFFIC AND TRANSPORT ISSUES

13.6.1 GENERAL

Given the low population levels throughout the Shire, traffic flows on most roads are well within capacity. The levels of growth expected within the planning horizon of this study are not expected to change this to any great extent.

The largest growth area is likely to be in and around Onslow, and the rate at which this occurs will be dependent upon the economic climate in the mining sector. However, the planned and ongoing upgrades to the road infrastructure in this area should easily cope with the likely increases in traffic and transport generation associated with the most optimistic growth in this sector over the period being considered.

Generally, residential and commercial growth in the other townships is expected to be limited to infill developments and the occasional small green-field site.

Thus, the key traffic and transport issues that need to be addressed within the LPS are more focussed on the limitations of the existing infrastructure rather than the need for additional links or major upgrades, and may relate more to regional traffic than local.

The Shire has a vast road network, catering for a wide range of demands. The roads are essential not only for traffic generated by the mining and pastoral industries, but for local residents and tourism traffic too. The geographic location also leads to widely differing road conditions, with huge variations in seasonal traffic, temperatures and rainfall across the Shire.

13.7 KEY ISSUES

Key issues for inclusion in the LPS would include the following:

Road safety

The vast distances travelled through the Shire, much on unsealed roads, inevitably lead to some road safety issues, whether related to geometric design or maintenance issues, fatigue or other environmental or behavioural aspects.

Road Maintenance

The extent to which road maintenance is carried out is normally predicated on the amount of funding available. With limited funds available, maintenance must be targeted to ensure maximum value for money. A lack of regular maintenance will inevitably lead to degrading of the asset, with corresponding safety issues and a significant replacement cost in the longer term.

The Shire is considering a *Road Management Strategy* that includes a new *Road Management Policy*, Road Hierarchy, Road Asset Management Plan and Levels of Service, Geometric and Maintenance Standards. Adoption and implementation of these would potentially occur late 2016 or early 2017.

Tourist Facilities

The encouragement of tourism is a key factor in creating jobs and attracting money to the Shire. Investment in facilities such as public dump points for camper vans to enhance the tourist experience within the Shire is essential to grow this sector.

The improvement and sealing of the Karratha - Tom Price Road is considered an ideal opportunity to generate substantial economic benefits for the Pilbara and the State through both increased tourism and improved freight traffic movements.

Freight Facilities

A significant proportion of the vehicles using the roads throughout the Shire is freight traffic of one sort or another. Strategically located road train assembly points provide a necessary facility to ensure these vehicles can be safely operated on the appropriately designated roads.

Roadhouses

Strategically located roadhouses provide essential facilities for both tourist and freight traffic, such as fuel, water, food and rest areas. Such facilities assist with preventing fatigue and its associated road safety issues.

Overtaking opportunities

Frustration can be a significant road safety issue, and may be caused by drivers being stuck behind a slower moving vehicle with no safe opportunities to overtake. Many of the road trains using the regional roads in the Shire are doubles or triples, which require a significant length of straight road to ensure visibility is sufficient for overtaking. The provision of additional lanes at regular intervals addresses this issue.

Flood mitigation measures

Certain parts of the Shire are regularly affected by cyclonic weather, and the resulting torrential rainfall can seriously damage or block key roads. Such flooding can result in anything from mild inconvenience to locals to severe safety issues, as well as delays to freight causing significant costs.

13.7.1 MRWA INPUT

Whilst MRWA were unable to provide any detailed input to this report due to time and staffing constraints, a draft list of potential projects was provided for various roads within the area, extracted from the Heavy Vehicle Operations Safety & Productivity Strategy & Program for the Pilbara Region Road Network.

These projects included the following general strategies:

- Construction of overtaking lanes;
- Construction of pullover bays;
- Retrofitting of sealed shoulders;
- Upgrading of stock fencing; and
- Grade separation of existing level crossings.

13.8 IMPLICATIONS FOR TRAFFIC AND TRANSPORT

The consistent factor required to address the key issues identified above is funding.

There are a number of avenues open to local governments for accessing additional funding for various purposes, including *Royalties for Regions*, Federal and State Blackspot programmes etc. In the case of black spot funding, it is not always necessary for a project to be based on a cost benefit analysis, and sites with no significant crash history may be eligible for funding if potential safety issues have been identified within a formal Road Safety Audit report.

The Shire needs to identify all such opportunities, and develop a strategy for maximising the amount of funding that can be accessed. In most cases, this will involve the early identification of projects in order to ensure that a robust case can be presented.

14 INFRASTRUCTURE SERVICES

14.1 POWER

14.1.1 CURRENT TOWN POWER SUPPLIES

Current town power supplies for Onslow are provided by Horizon Power, from a power station that also services the Onslow Salt operations.

Town power supplies for Tom Price, Paraburdoo and Pannawonica are supplied by Rio Tinto. Power generation capacity in the region is unlikely to present a barrier to future urban expansion. **What about cost**

Distribution networks are anticipated to age and in some cases, may require upgrades to enable substantial urban expansion (WAPC, 2015).

14.1.2 FUTURE POWER SUPPLIES

As technological advancements continue, renewable energy solutions and microgrids will become more cost competitive, more reliable and better understood to be alternative approaches to electricity generation, distribution and storage. It has been considered that a suitable use of renewable energy is in a hybrid situation, where renewable sources exist alongside conventional generation to save fuel and lower ongoing costs (Evans & Peck, 2011). Renewable energy sources and microgrids can help to build resilience and reliability in the electricity network, through stabilising energy supply to demand, and also work to offset carbon emissions.

Rio Tinto has a number of off-grid systems in place throughout the Pilbara, including Pannawonica, Paraburdoo and Tom Price (Nu Energy, 2015). Whilst mining activity is energy-intensive and reliant on fossil fuels, mining site energy requirements are increasingly met from renewable power sources.

In 2014, Energy Made Clean constructed an off-grid modular solar photovoltaic system with battery storage and diesel power generation, to supply the Mackerel Island Resort on Thevenard Island. The system runs at 94% offset of diesel, reducing costs to the tourism operator (EMC, N.D.).

Horizon Power made an announcement in September 2016 to deliver more than half of Onslow's electricity needs through a renewable energy microgrid. The microgrid will include a mix of solar generation and battery storage, as well as a scalable gas-fired modular power station (Horizon Power, 2016). The State Government has committed about \$70 million to the project with a contribution from the Chevron Wheatstone project under the terms of its State Development Agreement. Project completion is expected in early 2018.

14.2 GAS PIPELINES

Natural gas is sourced from:

- Woodside operated Karratha Gas Plant;
- Apache operated Varanus Island facilities;
- BHP Billiton operated Macedon Gas Plant (200 terajoules per day);
- Apache operated Devil Creek Gas Plant;
- Empire Oil & Gas operated Red Gully facility; and
- Chevron operated Wheatstone is planned to add up to 200 terajoules per day for domestic supply from 2018.

Dampier Bunbury Pipeline (DBP) is the owner and operator of the Dampier to Bunbury Natural Gas Pipeline (DBNGP). Almost all of the natural gas transported by the Pipeline is produced in the offshore Carnarvon Basin on the North West Shelf. The Dampier to Bunbury Natural Gas Pipeline has part of its alignment within the Shire. The pipeline is recognised in the Local Planning Strategy and there are exemptions for pipeline-related works from requiring local government development approval. The Department administers land use within the Dampier to Bunbury Natural Gas Pipeline. The Department's Infrastructure Corridors team manages the corridor by:

- acquiring additional land;
- managing conferral of rights on pipeline operators; providing advice to the WAPC on development proposals within or in close proximity to the corridor;
- regulating non-pipeline related land uses; and
- engaging with relevant stakeholders.

All the Wheatstone LNG pipelines have been constructed. The last pipeline was completed, being a gas lateral to the future power station site. All gas lines should be located within the ANSIA Multi User Access and Infrastructure Corridor (MUAIC), which is within the 'Infrastructure' zone and do not require development approval pursuant to clause 36(f) of the Improvement Scheme No. 1. BHP Billiton's Macedon DomGas pipeline is within the MUAIC.

The draft DC Policy 4.3 *Planning for High-Pressure Gas Pipelines* applies to development (some exemptions apply such as common infrastructure corridors) that may be proposed within 300 metres to the DBNGP and other pipelines that operate at or above 1.9 megapascals. The DC Policy 4.3 aims to protect both the pipeline and its ongoing operation/maintenance, together with ensuring people and development are not subject to an unacceptable risk from that infrastructure (WAPC, 2016). The Local Planning Strategy will identify the location of all high-pressure gas pipeline licence areas to provide greater ease of the implementation of DC Policy 4.3 within the local government area.

14.3 WATER

Water is vital to the sustainability of the natural environment, ecological processes, Traditional Landowner customs and ways of life, as well as settlements, tourism, pastoral/rural activity and the mining industry. Securing access to quality water resources and employing sustainable water cycle management practices will be ongoing priorities.

Groundwater is available for allocation in many aquifers, however, declining rainfall in coastal areas may result in reduced recharge and consequently availability in these areas in the future, particularly as population and industry expands. Dewatering/overabstraction have also impacted local groundwater levels and thereby potentially affecting groundwater-dependent pool ecosystems and wetlands through drying up and loss of habitat, affecting vegetation and wildlife dependent on them as well as groundwater-dependent cultural and social values. This is especially critical given the presence of proposed Ramsar sites, and nationally important wetlands in the Shire.

14.3.1 PUBLIC DRINKING WATER

Public drinking water is supplied predominately from groundwater. The Public Drinking Water Source Areas (PDWSAs) are outlined in **Table 47** below and discussed in the Environmental Profile (refer **Appendix A**).

Table 47 PDWSAs in the Shire of Ashburton

PDWSA	Source	Priority
Bungaroo Creek Water Reserve	Groundwater	P1
Cane River Water Reserve	Groundwater	P1
Harding Dam Catchment Area	Surface water	P1
Millstream Water Reserve	Groundwater	P1 & P2
Marandoo Water Reserve	Groundwater	P1
Pannawonica Water Reserve	Groundwater	Not Assigned
Paraburdoo Water Reserve	Groundwater	P1 & P3
Southern Fortescue Water Reserve	Groundwater	P1

14.3.1.1 OTHER WATER REQUIREMENTS

Water is a valuable resource for future agriculture and aquaculture. Increased government information on the feasibility, economic viability and sustainability on water resources and water management will allow for better information being available for agriculture, aquaculture (possible), and other public/private projects.

14.3.1.2 WATER SUPPLY INFRASTRUCTURE REQUIREMENTS

For Onslow, current town water supplies come from the Cane River bore field. A desalination plant is proposed within ANSIA, which would provide for potable water supply to Onslow and to ANSIA. Dependent on the long-term viability and management of the Cane River bore field, the desalination plant may be a longer-term infrastructure delivery item.

Rainfall data indicates that average annual rainfall has declined around Onslow yet has increased in inland areas (refer **Appendix A**).

The use of surface water and groundwater resources may be augmented through a reliance on seawater desalination. The use of water from mine run-off and water extraction is a logistically difficult yet potentially viable option (McHugh, 2011).

14.3.2 WATER MANAGEMENT

Flooding occurs semi-regularly in the Shire, particularly during the wet season and extreme tropical cyclones. Adequate management of flood risk, and associated sediment transport in townsites and industrial areas requires consideration consistent with SPP 2.9 (refer **section 2.3.5** and **Appendix A**). The Shire may need to review existing townsite drainage systems and ensure appropriate levels of service will be maintained as development occurs (such as at Onslow Airport) and water quality including sediments in stormwater is addressed.

Better Urban Water Management (WAPC, 2008) has been designed to facilitate better management of urban water resources, by ensuring an appropriate level of consideration is given to the total water cycle at each stage of the planning system. It also provides guidance on the implementation of SPP 2.9 *Water Resources* (refer **section 2.3**).

There are opportunities for expanding irrigation for investigation in the Pilbara hinterland, from using excess water from mine dewatering (WAPC, 2014). Surplus water from below water table mining at Rio Tinto’s Marandoo mine is also to be reinjected to the Southern Fortescue borefield to replenish the aquifer which supplies the Tom Price township. Surplus water from the nearby Nammuldi mine is also being used for irrigated agriculture projects at nearby stations. This is opportune as it is generally not a natural occurrence in the Pilbara for waterways or evaporative basins to have constant base flows of water (Infrastructure Australia, 2016). Agricultural-based water management activities can reduce the environmental impact of surplus mine water discharge and make best use of water resources.

14.3.3 WASTEWATER

The *Pilbara Planning and Infrastructure Framework* identified the need to provide deep **water sewerage** facilities in all Pilbara cities and towns, and provide adequate local absorption systems in other smaller scale settlements and Aboriginal communities (WAPC, 2012).

In late December 2016, the Onslow wastewater treatment plant capacity was doubled to 870,000 litres per day. This was funded by the Wheatstone Project under its State Development Agreement. This plant expansion provides support for the long-term future growth of Onslow, predicted to accommodate a near-doubling of the population in the town.

14.4 SOLID WASTE MANAGEMENT

The *Pilbara Waste Infrastructure Project* (Talis Consultants Pty Ltd, 2014) within the Pilbara indicated the following sources of waste generation:

- 2% from camps;
- 22% from domestic sources;
- 28% from mining;
- 14% from petroleum and natural gas processing; and
- 34% from other/mixed sectors.

Waste Treatment is indicated in **Figure 52** below. Currently, there are low rates of recycling occurring in Onslow and Tom Price, with a significant proportion of waste being sent to landfill.

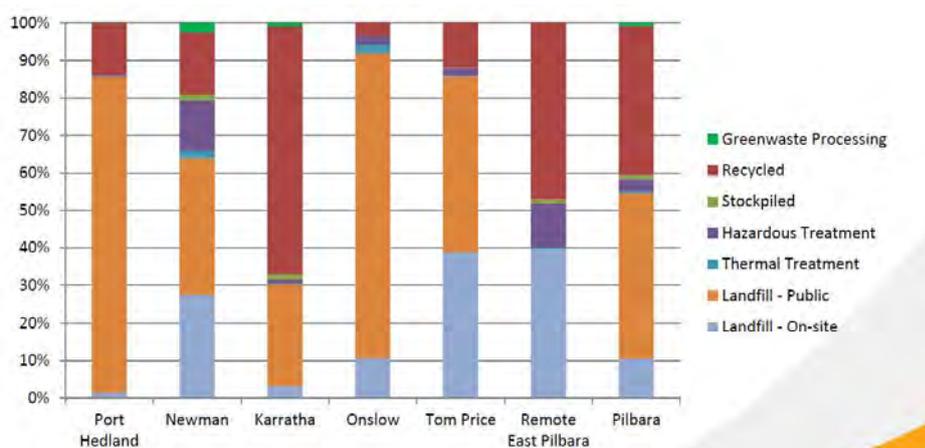


Figure 52 Waste Treatment – Pilbara (Talis Consultants Pty Ltd, 2014)

The priority wastes are outlined in **Table 48** below.

Table 48 Priority Wastes (Talis Consultants Pty Ltd, 2014)

Local Government Priorities	Iron Ore Priorities	Oil and Gas Priorities
<ul style="list-style-type: none"> • Refuse – mixed refuse from kerbside collections, generated by residents and commercial properties. • Greenwaste – generated from clearing or pruning • Tyres – generated when tyres are replaced on vehicles (currently stockpiled, possible fire risk) • Liquid waste 	<ul style="list-style-type: none"> • Old timber railway sleepers – replaced by concrete sleepers, currently stockpiled • Rubbers (conveyors/tyres) – currently being landfilled on-site • Contaminated Soils (hydrocarbon / miscellaneous) – some re-use / remediation, or disposed in Perth • Recyclables – town and mine sites • Construction wastes 	<ul style="list-style-type: none"> • Hazardous Materials – mercury slurry; naturally occurring radioactive materials; contaminated solids; organic waste from offshore operations • Construction waste • Operational wastes – food waste, bulky items, recycling

The *Pilbara Waste Infrastructure Project* outlined a number of infrastructure and market opportunities for waste processing facilities and recycled products. Some are relevant to the Shire, including:

- A joint dirty Material Recovery Facility in Newman and Tom Price;
- Development of local community resource recovery parks, and transfer facilities;
- Adoption of quality standards for local recycled materials; and
- Government support for use of recycled materials.

Waste management facilities are located in proximity to Onslow, Tom Price and Paraburdoo. A new waste management facility has been identified for Onslow (Talis Consultants, 2014). The Feasibility Study confirmed the location of the preferred site was appropriate subject to further studies, confirmation of the approvals process and consultation with the management authority (DBCA). It was recommended the preferred site be developed to include Class 3 and Class 4 standard with the waste cells providing for standard waste, construction and demolition waste, liquid waste, waste oil, and tyre and rubber waste (Talis Consultants, 2014). It is understood such a facility would be used by Chevron Australia. The Class IV facility will cater for both local waste from the Onslow community and a variety of waste from the mining and resources sector of the Pilbara and wider regions." The facility has since been constructed and is soon to be operational.

Pannawonica rubbish tip is located six kilometres from the town site. There is a general rubbish collection system and a once-only verge collection per year as a pre-cyclone pick up during late October (Rio Tinto, 2015).

14.5 TELECOMMUNICATIONS

Broadcast Australia distributes digital television and radio services on behalf of Australia's national public broadcasters and commercial broadcasters. Broadcast Australia operates a number of facilities throughout the Shire of Ashburton:

- Onslow – Triangular Guyed Mast (25.3m height) off Payne Way, off McGrath Avenue (Site ID: 6071);
- Pannawonica – Triangular Guyed Mast (50m height) 1.4 kilometres south of Pannawonica, 55 kilometres off North West Coastal Highway (Site ID: 6072); and Triangular Guyed Mast (62m height) on Earth Road, Location 54 (Site ID: 6073);
- Paraburdoo – Triangular Guyed Mast (37m height) on Locations 34 & 35 of Windell (Site ID: 6075); and
- Tom Price – Triangular Guyed Mast (37m height) off Nameless Valley Drive at Mt Bruce (Site ID: 6088), and Triangular Guyed Mast (43m height) off Mine Road, approximately 900m along Tom Price-Paraburdoo Road (Site ID: 6087).

Mobile phone coverage is not universally available throughout the whole of the Shire. Mobile phone coverage is limited due to the extensive size of the local government area, and the relative confinement of the population to towns and camps. Mobile phone coverage is generally available around the townsites, mines and campsites within the Shire, and along portions of the North West Coastal Highway.

There are mining opportunities that arise from the use of mobile networks at mine sites. As part of Rio Tinto's "Mine of the Future" program, automation of machinery and vehicles is expected to benefit from a mobile broadband network. The program aims to improve employee safety, increase productivity, lower energy consumption and reduce environmental impact (Rio Tinto, 2014). This is reflective of the replacement of some human labour with autonomous systems which is already occurring for example with autonomous drilling systems and autonomous haulage systems (trucks and trains). This has allowed for a Perth-based operations centre to communicate with automated systems.

A telecommunication service is proposed for connecting South East Asian and Western Australian markets, which will provide high quality telecommunications for mining, oil and gas, government and other commercial users. The system comprises of three transmission routes and data centres. A submarine cable from Perth to Onslow and onward to Indonesia and Singapore would be constructed (Trident, 2013). A stage 2 terrestrial link will be constructed from Onslow to Karratha and Port Hedland following the North West Coast Highway. Further expansions could be made using subsea services to platforms, and terrestrially into the east Pilbara.

14.6 IMPLICATIONS FOR INFRASTRUCTURE SERVICES

The following **Table 49** considers the implications, issues and opportunities from an infrastructure services perspective.

Table 49 Implications, Issues and Opportunities – Infrastructure Services

Infrastructure Services	Implications	Issues	Opportunities
Power	<p>Onslow town power supplies are provided by Horizon Power.</p> <p>Town power supplies for Tom Price, Paraburdoo and Pannawonica are supplied by Rio Tinto.</p> <p>There is some presence of renewable energy sources in the local government area including a renewable energy microgrid for Onslow, proposed by Horizon Power.</p>	<p>Intent is to develop a gas fired power plant within the ANSIA Improvement Scheme area. This service is intended primarily for Onslow town usage, with potential for ANSIA users to connect thereafter. The scale of the gas power plant is potentially affected by the proposed renewable energy microgrid by Horizon Power.</p> <p>Underground power has been completed for Onslow.</p> <p>Global microgrid market is experiencing transformational growth, which tend to combine conventional and renewable sources, and battery storage technology.</p>	<p>Growth/expansion of towns will need to consider the capacity of existing power supplies, proposed/future power supplies, and the required transmission infrastructure.</p> <p>Microgrids may assist with delivering reliable and viable energy solutions.</p>
Gas Transmission Pipelines	<p>High pressure gas transmission pipelines do not require development approval.</p>	<p>The Shire may have a role in approving the construction of facilities in the initial stages, i.e. the construction camps, waste water treatment facilities, and road usage.</p>	<p>Apply DC Policy 4.3 <i>Planning for High-Pressure Gas Pipelines</i> policy measures to assess proposals that in the vicinity of any high-pressure gas pipelines in the Shire.</p>
Potable Water	<p>Public Drinking Water Source Areas are predominately groundwater supplies.</p>	<p>Long term utility intent is to develop a water desalination plant in the ANSIA Improvement Scheme area. This service is intended primarily for Onslow town usage, with potential for ANSIA users to connect thereafter. However, abundance of water supplied from the Cane River bore field may lead to a deferral of the water desalination plant being constructed.</p> <p>The use of mine run-off and water extraction may be a difficult yet potentially viable water supply option.</p> <p>There are opportunities for expanding irrigation for investigation in the Pilbara hinterland, from using excess water from mine dewatering.</p>	<p>Support the sustainable abstraction of potable water sources.</p> <p>Support water reuse/recycling associated with mines and townsites.</p> <p>Protect public drinking water supply areas in accordance with relevant water source protection plans, Department of Water and Environmental Regulation's Water Quality Protection Note 25, and SPP 2.7.</p>
Water Management	<p>Rainfall data indicates that average annual rainfall has declined around Onslow yet has increased in inland areas.</p> <p>Adequate management of flood risk, and associated sediment transport in townsites and industrial areas requires consideration.</p>	<p><i>Better Urban Water Management</i> has been designed to facilitate better management of urban water resources, ensuring an appropriate level of consideration to the total water cycle.</p> <p>It is recognised that the Shire is a Waterwise Council, and it should continue to investigate and expand water efficiency opportunities, such as irrigation of public open space and sports ovals where practical.</p>	<p>Review existing townsite drainage systems and ensure appropriate water quality of stormwater and runoff is addressed.</p> <p>The Shire could also investigate partnerships to establish water recycling and reuse schemes to provide fit-for-purpose sources of water where practical, as an alternative to groundwater use to support future development.</p>
Wastewater	<p>Appropriate sewage facilities for all towns and adequate systems in place for smaller scale settlements and Aboriginal communities.</p>	<p>Onslow wastewater treatment plant capacity was doubled, funded by the Wheatstone Project, providing long-term future growth of Onslow. The odour buffer area applies to the upgraded WWTP.</p>	<p>Support ongoing delivery of sewage infrastructure in towns and adequate systems for smaller scale settlements and Aboriginal communities.</p>

Infrastructure Services	Implications	Issues	Opportunities
Solid Waste Management	<p>There are limited opportunities to divert recyclable material from landfills.</p> <p>Infrastructure and market opportunities will arise in relation to recycling and diverting resources from landfills.</p>	<p>There are a number of opportunities for Pilbara regional waste processing facilities and recyclable products.</p> <p>A joint dirty Material Recovery Facility is recognised as an opportunity, for Newman and Tom Price.</p> <p>A feasibility study recommended a new waste management facility for Onslow be capable of accepting Class 3 and Class 4 waste.</p>	<p>Support a State Government comprehensive waste recycling and disposal plan for strategic waste transfer, collection, treatment, recycling and disposal facilities.</p> <p>Support diversion of waste from landfills through reduction, reuse and recycling opportunities.</p> <p>Ensure Aboriginal communities have an effective waste management programme to minimise pollution and risks to human health and water sources.</p>
Telecommunications	<p>Broadcast Australia operates a number of townsite-based telecommunication facilities.</p> <p>Existing mobile phone coverage is generally limited to townsites, mines, camps and segments of the North West Coastal Highway.</p>	<p>Greater mobile phone coverage for all towns, district roads and highways, and areas frequented by the community, workers and visitors will improve convenience and safety.</p> <p>Future mine sites will benefit from telecommunications as companies roll-out automated systems (i.e. Rio Tinto's "Mine of the Future" program and its automated drilling and haulage systems).</p> <p>Proposed telecommunication links to South East Asia will improve bandwidth within the Shire, and its connections to neighbouring markets.</p>	<p>Support the ongoing improvement of availability, coverage, and reliable accessibility to telecommunications services (telephone, mobile network, broadband) and TV/radio broadcasting.</p>

15 TOWNSITE ISSUES AND OPPORTUNITIES

15.1 ONSLOW

The following is a summary of issues and opportunities identified when considering growth scenarios for Onslow (refer **Figure 53**):

- Potential expansion of hospital/medical precinct
- Future Primary and District High Schools site in new expansion area (consideration of staff housing)
- New Entrance Road/Ring Road constructed
- Potential flooding consideration, whether current or modelled flooding as per the MP Rogers study (2011) and the CHRMAP (Cardno 2016) in town with potential to impact existing development
- Opportunity for future housing development beyond existing urban areas (Includes DevelopmentWA's *Onslow Townsite Expansion Structure Plan* area)
- Area to be preserved as Conservation & Natural Landscape
- Ideal drainage patterns to run toward creek and avoid airport
- Expansion and upgrades to Beadon Creek boat harbour
- Potential development areas subject to further investigation (relocation of commercial uses and Bindi Bindi in the future)
- Opportunity for future industrial/business park uses adjacent to Airport
- Potential new road links between proposed Mixed Business Area at Airport and Onslow Road
- Opportunity for future Tourism and Short-Stay accommodation along Second Avenue and Beadon Creek Road
- Onslow Strategic Industrial Buffer may limit southerly development of Onslow
- Onslow WWTP may constrain development
- Airport Future Obstacle Limitation Surfaces and Onslow Airport's flight paths may constrain building height. The current flight paths for Onslow Airport, as shown as a Special Control Area on the face of the Scheme map, do not relate to the new runway and should be amended accordingly.
- Proposed Airport Expansion
- Land use interface issues (Industrial/Residential, Industrial/Tourism)
- Access to Mackerel Islands, Monte Bello Islands

15.2 PARABURDOO

The following is a summary of issues and opportunities identified when considering growth scenarios for Paraburdoon (refer **Figure 54**):

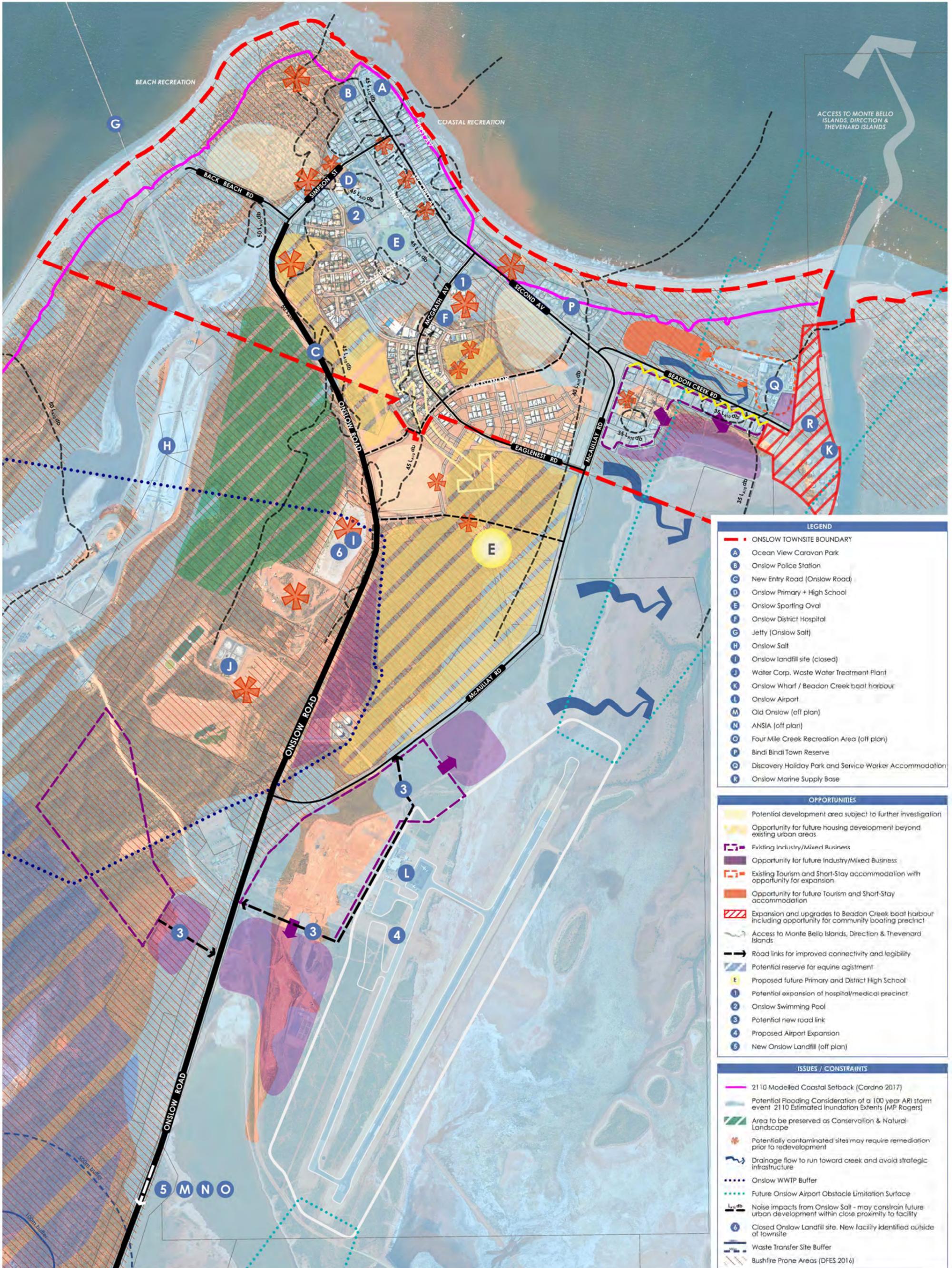
- Opportunity for infill housing within existing urban areas (through coordinated redevelopment of Rio Tinto land and housing when ready for replacement)
- Vacant lots available in town for immediate development to meet demand for new housing
- Opportunity for future housing development beyond existing urban areas (existing areas zoned Residential could be refined and further investigated for suitability. Includes land currently being used as part of the golf course and club rooms)
- Opportunity for infill workforce accommodation and short stay accommodation development within existing urban areas (includes additional capacity at Rocklea Palms, expansion of accommodation at Paraburdoon Inn and additional areas on McRae Avenue, You Yi Lane – former nurser's quarters and former Channar Lodge)

- Potential for expansion of existing industrial area (subject to relocation of community sporting clubs on Camp Road)
- Existing sports and recreation club houses should either be relocated towards the Oval / town centre / CHUB, where co-location advantages could be realised. It is noted some clubs prefer the peripheral locations to minimise impacts on residents in town (i.e. noise).
- Opportunity to relocate Football club within sports and recreation complex
- Opportunity to relocate Scouts clubhouse closer to town centre
- Shooting club to remain on outskirts of town. Potential to explore recognising land use zone on scheme map
- Potential future road alignment for Nickol Avenue extension west to Muchamary Street (gazetted but not constructed)
- Opportunity to maintain and improve streetscapes through landscaping in priority areas within road reserves (entry roads to town – sections of Camp Road, Tom Price Road and Rocklea Road)
- Potential road realignment to align with road reservation (Beasley Road)
- Existing entry road and connection to airport (Tom Price Road) is on Crown Land under General Lease to Rio Tinto (not gazetted road) note improve existing WWT to remove need to discharge into bush.

15.3 TOM PRICE

The following is a summary of issues and opportunities identified when considering growth scenarios for Tom Price (refer **Figure 55**):

- Steep terrain to be considered in future design; may limit future road connection and/or development; may limit future urban expansion
- Key vehicle access to school/community facility is currently a cul-de-sac.
- Opportunity for infill housing within existing urban areas (through coordinated redevelopment of Rio Tinto housing when ready for replacement)
- Existing residential grouped housing with additional development potential (Weelamurra and Mandarry Courts, East Road)
- Opportunity for future housing development beyond existing urban areas (Golf Course land on South Road is a priority, with additional areas on Mine Road, northern extension of Area W and Northern extension of Central Road to be investigated)
- Consider the future desirable mix of infill worker accommodation and short-stay accommodation and opportunity to transition from one use to the other (Karijini Lodge, Marandoo Annex workers camp, Windiwarri)
- Opportunity for additional grouped residential or tourism development on vacant land north of Karijini Lodge
- Possible future road links and road realignments to increase legibility (Doradeen Road and West Road intersections)
- Opportunity to explore improvements to pedestrian connectivity, noting existing disconnected street network (Area W)
- Railway track forms physical barrier and limits contiguous future urban development between Tom Price and Area W



LEGEND	
	ONSLow TOWNSITE BOUNDARY
	Ocean View Caravan Park
	Onslow Police Station
	New Entry Road (Onslow Road)
	Onslow Primary + High School
	Onslow Sporting Oval
	Onslow District Hospital
	Jetty (Onslow Salt)
	Onslow Salt
	Onslow landfill site (closed)
	Water Corp. Waste Water Treatment Plant
	Onslow Wharf / Beadon Creek boat harbour
	Onslow Airport
	Old Onslow (off plan)
	ANSIA (off plan)
	Four Mile Creek Recreation Area (off plan)
	Bindi Bindi Town Reserve
	Discovery Holiday Park and Service Worker Accommodation
	Onslow Marine Supply Base

OPPORTUNITIES	
	Potential development area subject to further investigation
	Opportunity for future housing development beyond existing urban areas
	Existing Industry/Mixed Business
	Opportunity for future Industry/Mixed Business
	Existing Tourism and Short-Stay accommodation with opportunity for expansion
	Opportunity for future Tourism and Short-Stay accommodation
	Expansion and upgrades to Beadon Creek boat harbour including opportunity for community boating precinct
	Access to Monte Bello Islands, Direction & Thevenard Islands
	Road links for improved connectivity and legibility
	Potential reserve for equine agistment
	Proposed future Primary and District High School
	Potential expansion of hospital/medical precinct
	Onslow Swimming Pool
	Potential new road link
	Proposed Airport Expansion
	New Onslow Landfill (off plan)

ISSUES / CONSTRAINTS	
	2110 Modelled Coastal Setback (Coradno 2017)
	Potential Flooding Consideration of a 100 year ARI storm event 2110 Estimated Inundation Extents (MP Rogers)
	Area to be preserved as Conservation & Natural Landscape
	Potentially contaminated sites may require remediation prior to redevelopment
	Drainage flow to run toward creek and avoid strategic infrastructure
	Onslow WWTP Buffer
	Future Onslow Airport Obstacle Limitation Surface
	Noise impacts from Onslow Salt - may constrain future urban development within close proximity to facility
	Closed Onslow Landfill site. New facility identified outside of townsite
	Waste Transfer Site Buffer
	Bushfire Prone Areas (DFES 2016)

LEGEND

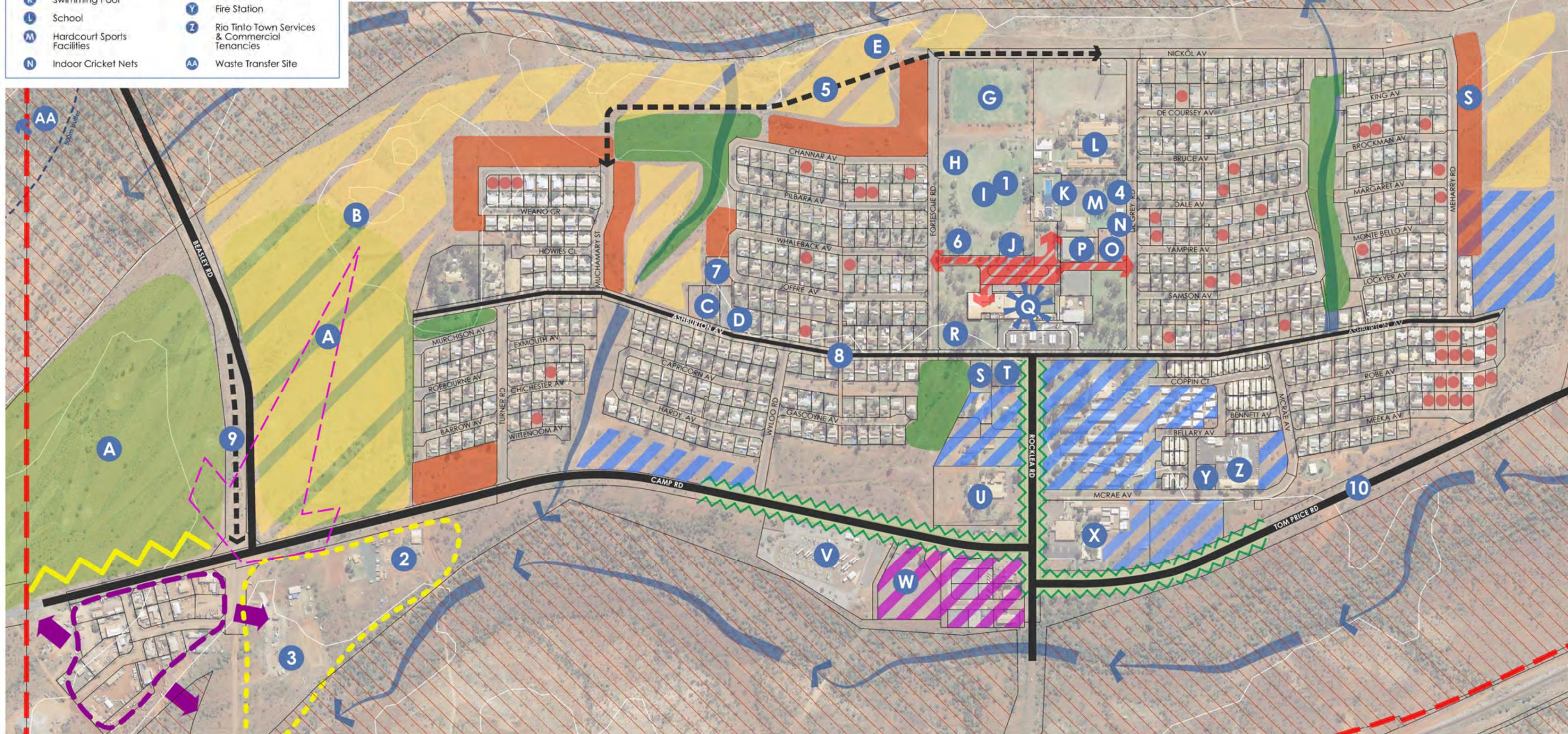
- PARABURDOO TOWN SITE BOUNDARY
- A** Golf Course
- B** Clubhouse facilities
- C** Karingal Hall
- D** Karingal Neighbourhood Centre
- E** Power Sub-Station
- F** Motorcross Site
- G** Judy Woodvine Oval
- H** Sports Pavilion
- I** Peter Sutherland Oval
- J** Childcare Centre
- K** Swimming Pool
- L** School
- M** Hardcourt Sports Facilities
- N** Indoor Cricket Nets
- O** Youth Centre
- P** Bowling Club
- Q** Supermarket & Shopping Centre
- R** Skatepark
- S** Place of Worship
- T** Police Station
- U** Hospital & Medical Centre
- V** Caravan Park
- W** Drive-In Cinema
- X** Paraburadoo Inn
- Y** Fire Station
- Z** Rio Tinto Town Services & Commercial Tenancies
- AA** Waste Transfer Site

OPPORTUNITIES

- Vacant lots available for development
- New housing served by existing infrastructure
- New housing beyond existing urban areas
- Infill transient worker (TWA) or other short-stay accommodation
- Infill mixed business/light industrial development
- Potential expansion of existing industrial area
- Create 'focal POS' through landscape and infrastructure improvements
- Improve key streetscapes / entry roads through landscape enhancements
- ➔ Redesigned link road and car park to improve legibility and attractiveness
- ➔ Key Vista
- 1** Consolidate sporting clubs within community (CHUBB) Precinct
- 2** Football Club opportunity to relocate to CHUBB Precinct
- 3** Shooting Club - opportunity to formalise use on scheme map
- 4** Redundant Skate Park - opportunity to reinstate or resurface as greater bike park
- 5** Potential link road (gazetted but constructed)
- 6** Federation Park & Playground - opportunity to provide public amenities
- 7** Town Park - opportunity to formalise existing BMX Park use
- 8** Need to improve town bicycle and footpath network

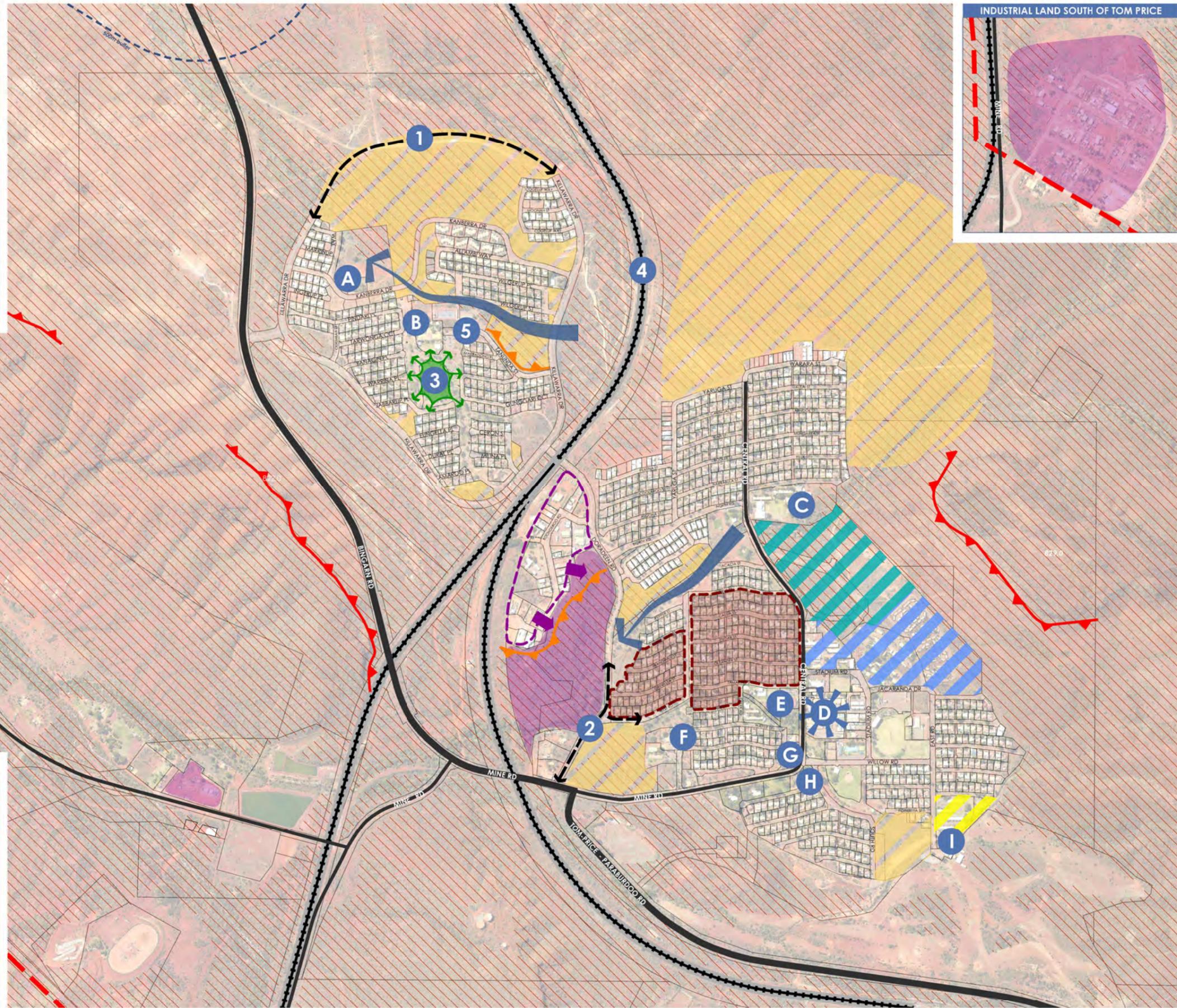
ISSUES / CONSTRAINTS

- Potential land use interface issues
- Existing recreation facilities and uses not recognised on scheme map
- ➔ Drainage lines to north and south of town
- 9** Existing road not aligned with road reservation
- 10** Existing road within Rio Tinto Special Lease (not gazetted road)
- Paraburadoo Landfill Buffer
- Bushfire Prone Areas (DFES 2016)



LEGEND	
	TOM PRICE TOWNSITE BOUNDARY
	Sporting club
	North Tom Price Primary School
	Tom Price Senior High School
	Shopping Centre/Supermarket
	Tom Price Medical Centre
	Tom Price Hospital
	Police Station
	Shire of Ashburton
	Sporting Club

ISSUES / CONSTRAINTS	
	Steep terrain to be considered in future design
	Steep terrain provides constraint to future townsite expansion
	Drainage path
	Railway track forms physical barrier and limits contiguous future urban development
	Cul de sac as key vehicle access to school/community facility constrains access opportunities
	Tom Price Landfill Buffer
	Bushfire Prone Areas (DFES 2016)



OPPORTUNITIES	
	Aging Housing Stock suitable for investigating as infill
	Opportunity for future housing development beyond existing urban areas
	Existing residential grouped housing with additional development potential
	Existing TWA. Consider future desirable mix and/or transition of use.
	Existing Industrial with opportunity for expansion
	Opportunity for future Industrial uses
	Potential future short stay accommodation or residential expansion area
	Possible future road link
	Potential road realignment to increase legibility
	Opportunity to explore improvements to pedestrian connectivity, noting existing disconnected street network

TOM PRICE ISSUES AND OPPORTUNITIES

Local Planning Strategy

A Shire of Ashburton Project

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