GOVERNMENT OF WESTERN AUSTRALIA

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Newman Revitalisation Plan Volume 2
Town Site Growth Plan

SHIRE OF EAST PILBARA

LANDCORP

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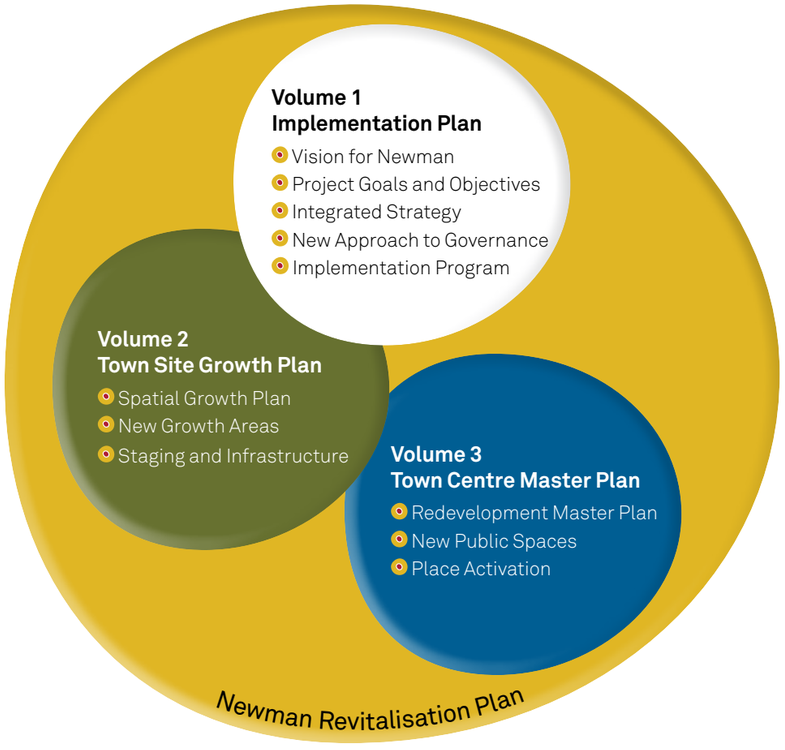
Components of the Newman Revitalisation Plan

The Newman Revitalisation Plan (NRP) has been prepared in partnership by the Western Australian State Government and the Shire of East Pilbara (SoEP). It was prepared through a consultative and multi-disciplinary approach, in response to their shared vision for Newman. As an adaptive management plan and project management tool, it will help guide the action required to deliver this vision. The NRP is made up of three volumes:

Implementation Plan (Volume 1) - provides the overarching vision and the integrated strategy to evolve Newman into a subregional service centre. This includes an implementation program that sets out the actions required to drive economic, community and infrastructure development and population growth, including a new approach to regional and local governance.

Town Site Growth Plan (Volume 2) - includes urban growth strategies and actions required to accommodate a permanent population of 15,000. This includes a spatial plan that proposes new industrial, commercial and residential growth areas for Newman, and sets out the hard and soft infrastructure requirements to enable growth to occur.

Town Centre Master Plan (Volume 3) - sets out how the town centre will be modernised and transformed into a vibrant and attractive heart for Newman. This includes a redevelopment master plan, and proposals for activating new public spaces.



Components of the Newman Revitalisation Plan

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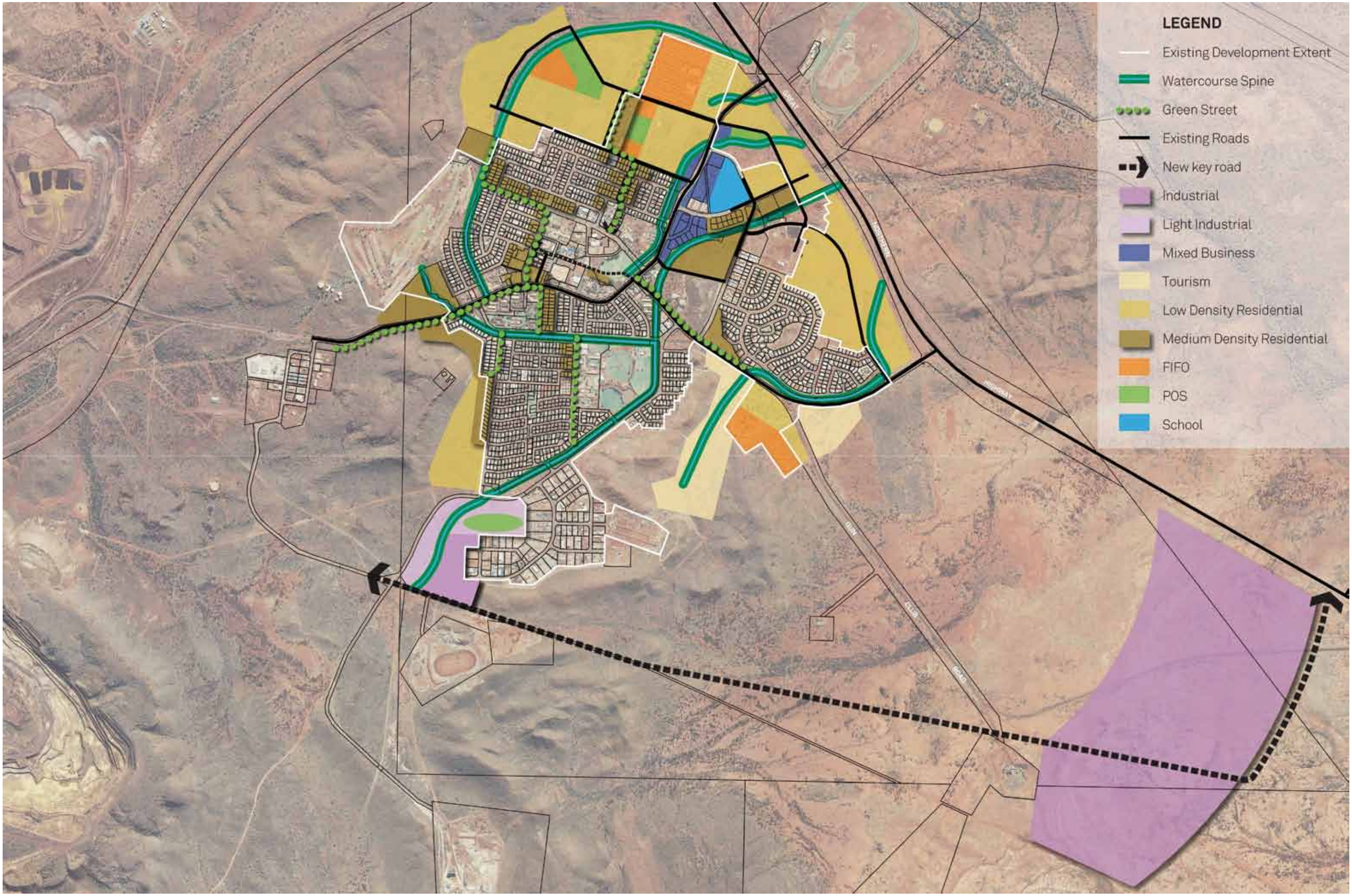


Town Site Growth Plan

Executive Summary

Long Term Role and Function

At the heart of Newman is the town centre. Revitalisation of the town centre is a priority as it currently falls short of the community's expectations. The Town Centre Master Plan (Volume 3 of the NRP) responds to the long term role of Newman and the need to provide a vibrant, attractive and functional town centre. This includes physical redevelopment as well as the social and economic activation required to fulfil the town centre's potential. The allocation of $20m through Royalties for Regions provides the opportunity to deliver the Master Plan.

The Town Site Growth Plan confirms the town centre will remain the primary retail and office location for Newman, and key focal point for the community. It will need to accommodate additional retail, office and community activities as Newman grows to a permanent population of 15,000.

Approach to activating the town centre

A place management approach is proposed to activate the town centre. This would be coordinated through a steering committee and an economic development officer or place manager appointed by the SoEP. Activity would also be directed by a local economic development strategy which aims to encourage new enterprise and business growth in the town centre. Key principles to be pursued to activate the town centre include:

- Maximise investment and economic return, which will help business flourish and fund additional town centre functions and activities
- Well managed and maintained community assets, supported by strong commitment from stakeholders to retain a high standard
- Integrated town centre activities and spaces, which provide venues for activities that invite people of all ages, genders and cultures to use the town centre
- Foster community identity, by reflecting the character and aspirations of the community, and celebrating Indigenous heritage and more recent resources sector based heritage
- A partnership approach, that involves stakeholders across all sectors to achieve a common vision for the town centre.
- Access and legibility through an improved movement network
- A safe and secure environment, which reflects designing out crime principles and street activation
- Governance and management to allow for the effective management and marketing of the town centre
- Marketing and branding, which should be proactive and create awareness of the town centre's transformation and what it has to offer
- Activation to ensure the town centre is a diverse, active, vibrant and lively place that exudes vitality and atmosphere
- Business development which stimulates grass-roots business and enterprise development

The Town Centre Master Plan reflects these principles across the four layers required to achieve a successful town centre[1]:

Examples of residential developments

Key elements of the Town Centre Master Plan

An improved movement network

The town centre will feature an enhanced movement network with improved pedestrian, cycle and vehicle permeability into and through the town centre. The network will better link residents and visitors with the core activity areas of the town centre, and channel traffic past shop fronts to improve their profile. This improved movement network will include:

- Extension of Iron Ore Parade past Boomerang Oval to a new intersection with Newman and Kalgan Drive. This new entry statement will provide a strong sense of arrival, and make it much easier for visitors to find their way into the town centre.
- A new main street will be created by shifting Market Place further west which will free up opportunities to redevelop the BHP Billiton Mess Hall site and provide smaller retail tenancies long the new main street (refer to '1' of the Town Centre Master Plan). It also provides room for a new town square, which will link the new main street with the Boulevard Shopping Centre (refer to '2' of the Town Centre Master Plan).
- Creation of new pedestrian linkages and shaded walkways will make it easier and more comfortable to move around the town centre.

A new retail focus and heart for the town centre

Establishing a new retail focus is a priority and can be achieved once the movement network is put in place. The smaller retail tenancies located along the new main street will form part of this retail focus. These tenancies could include restaurants and cafes currently lacking in the town centre, and can take advantage of the pedestrian friendly main street to provide attractive street frontages and alfresco dining. The new town square will also be fronted by retail tenancies (refer to '3' of the Town Centre Master Plan) and provide a focal point for meeting people and community activities such as weekend markets and music events.

The town square will provide a new heart for Newman as it becomes a gathering and activity space for the whole community. It will be well shaded pedestrian place, with creative lighting and attractive street furniture, and contain public artwork to add interest. It will also contain facilitates that will support community activities. The perimeter will be activated with shop fronts, and be kept busy by people moving between the shops. It will also feature water elements such as water bubblers and play features. These water elements will also continue through the Hilditch pedestrian arcade, and potentially elsewhere in the town centre, continuing an 'oasis' theme.

Growing the town centre

The town centre is proposed to grow to meet the needs of the community. There will be new commercial and office opportunities opened up adjacent to the new intersection of Iron Ore Drive, Kalgan Drive and Newman Drive, and opposite the hospital (refer to'10' of the Town Centre Master Plan). There are opportunities for new community facilities including a multi-use civic centre (refer to '6' of the Town Centre Master Plan) and outdoor amphitheatre/cinema (refer to '7' of the Town Centre Master Plan). A new mixed business estate is also proposed along Newman Drive to take advantage of the high profile location, and will accommodate bulky goods and showroom development.

Examples of town centre residential development

A mixed use centre

To help boost vibrancy in the town centre, mixed use development including residential development is proposed. The creation of a vertical mix of uses, including office and residential uses above retail will ensure the town centre is activated through longer periods of the day and night. Providing more residential development in and around the town centre will increase the level of activity, making it a safer place, and providing more opportunities for businesses. It will also provide a new lifestyle opportunity for Newman. Residential typologies, such as two storey townhouses, low rise walk up apartments and shoptop apartments will be will be well suited in the town centre.

1 Four Layers Concept developed by Creating Communities Australia Pty Ltd

Precinct Plan

Overflow car parking

The dominance of car parking in the town centre will be reduced, as the retail focus is established and the heart becomes more of a people place. Car parking will be relocated to new areas and on-street parking will also be provided. This includes overflow car parking provided to cope with peak periods of activity. The enhanced movement network will ensure comfortable and convenient access to car parking. Parking for larger vehicles such as caravans and camper vans will also be provided.

Long term development opportunities

The Master Plan accommodates the long term growth requirements of the town centre, and provides flexibility as existing uses relocate elsewhere in the town. It provides opportunities for a new supermarket (refer to '4' of the Town Centre Master Plan) and discount department store (refer to '5' of the Town Centre Master Plan), and residential and community opportunities.

Town centre precincts

The Master Plan allows for the creation of precincts, where uses with synergies would benefit from clustering together. Four precincts have been identified:

- Retail Precinct – this precinct sits at the core of the town centre and will include the new main street, town square and retail opportunities, the Boulevard Shopping Centre and other existing retail activities. Shop top apartments are also supported.
- Community/Civic Precinct – this precinct will be focused around Newman House and the new town park, and include the multi-use civic centre, outdoor amphitheatre/cinema and a range of community uses. This precinct will retain a strong connection to Boomerang Oval which will continue to accommodate sport and serve as a community events space (refer to '8' of the Town Centre Master Plan) and provide clubrooms (refer to '11' of the Town Centre Master Plan).
- Health Precinct – this precinct take advantage of the location of the hospital, and will provide much needed opportunities for consulting rooms and accommodation for visiting, consulting and locum doctors, nurses and other medical professionals.
- Office Precinct – this precinct will provide opportunities to meet the demand for new offices as the town grows. This precinct takes advantage of the profile provided by the new intersection created between Iron Ore Parade and Newman and Kalgan Drives. It also creates the potential for land mark buildings at the new entry statement for the town centre.

Precinct Plan

01. INTRODUCTION

1 Introduction

1.1 Future Town Site – Overview

The State Government has a vision to revitalise Pilbara towns. With its Pilbara Cities Vision, it aims to 'normalise' land and housing supply and community facilities, working towards the creation of future cities and sustainable regional towns. Newman would become a subregional Centre under the State Government's ground breaking Pilbara Cities Initiative to encourage more people to live and settle in the Pilbara.

Similarly, the Shire of East Pilbara (SoEP), through *Newman Tomorrow* Resourcing a Home for Future Generations (2008), has articulated the desire for Newman to continue to grow sustainably and support local economic activity.

Concern has been expressed in a large number of studies with input from resource industries, and all levels of government that the current town site growth and development practices are not sustainable because they are not leading to the development of sustainable local communities. The dominance of major industries, difficulties in attracting labour, high costs of living, inadequate infrastructure, and poor quality of amenity has led to a vicious cycle that needs to be broken.

A robust planning framework is required and one that will elevate Newman, capable of delivering key outcomes through a collaborative partnership arrangement between public and private sectors. Together the SoEP and State Government have embarked on the Newman Revitalisation Project and the preparation of the Newman Revitalisation Plan (NRP) for future development.

The SoEP is responsible for the delivery of local services, infrastructure and facilities to meet the needs and aspirations of the local community. State Government is responsible to provide infrastructure and services to meet the regional community needs and aspirations. Private enterprise, local businesses and resource companies represent the third arm of the development partnership. The concerted involvement of the private and public sectors is essential to achieving a holistic approach to deliver the Pilbara Cities vision of establishing Newman as a subregional centre.

The Pilbara region accounts for 35% of the nation's mineral and petroleum production and 23% of its merchandise exports. The Pilbara is the economic powerhouse of Australia and is on the verge of another period of accelerated economic growth with approximately $150b planned projects in the region. The State Government believes the strategic importance of the area warrants significant investment to create vibrant regional cities that can support and deliver a skilled workforce, while offering a high standard of living to local communities.

The key aims of the Pilbara Cities Vision are to:

- Build vibrant cities and centres that offer economic and social sustainability
- Create places to live on a permanent and intergenerational basis
- Diversify the economy
- Facilitate local job creation
- Encourage Indigenous enterprise, training and employment opportunities
- Set aside land and corridors for major industries
- Support infrastructure development
- Improve connectivity between communities, towns and cities

The Town Site Growth Plan provides a framework for future growth and expansion of the Newman town site. The Town Site Growth Plan is one component of the overarching NRP and is underpinned by an Implementation Plan. The document defines appropriate locations for future land use based on a total population for Newman of 15,000 residents and 3,000 'Fly-in Fly-out' (FIFO) workers.

The NRP provides a strategic basis for the future growth of the town site, which will be used by decision makers in assessing rezoning, subdivision and development applications and with respect to the provision of infrastructure, services and community facilities.

The Newman Town Site Growth Plan takes into account:

- land capability and environmental factors
- buffer requirements to sensitive land uses
- drinking water source protection area
- land tenure and mining tenement constraints
- Native Title and Aboriginal heritage implications
- a community desire to see a mix of dwelling sizes and types, with apartments and townhouses being located around the town centre and larger single residential lots on the periphery of the town site
- new FIFO accommodation integrated within the town site
- commercial, retail, community, industrial and residential needs
- two future school site locations, if required

The Town Site Growth Plan has been through an iterative Sustainability Framework assessment, to ensure that the plan provides an appropriate and sustainable response to the current and future needs and requirements of the town and its residents and visitors.

1.1.1 Project Approach

Newman Tomorrow which was produced by the SoEP, has provided the foundation for the NRP.

This plan embraces the principles articulated in *Newman Tomorrow* which are:

- Securing improved social outcomes for the people of Newman in every age demographic, now and into the future.
- Ensuring Newman is a place that people are proud to call home, no matter how long they reside.
- Recognising Indigenous culture and establishing a foundation for greater Indigenous participation in the local economy.
- Developing the town centre so that it reflects Newman's status as a major regional centre and provides a focal point for the community.
- Balancing the strengths of the resource sector with promoting small business, tourism and the attractions of regional lifestyles.

The NRP was prepared in partnership by the SoEP and State Governments, working with local communities to secure lasting improvements to Pilbara towns. It takes a holistic and long term approach to simultaneously facilitating economic prosperity whilst creating vibrant, liveable and affordable sustainable towns and local communities.

1.1.2 Project Methodology

The NRP provides an overall framework for the future development of Newman. It aims to co-ordinate the work of SoEP, State Government and other key stakeholders in a coherent plan to improve the quality of life for all the people living in the town. Preparation of the NRP has taken into account the existing social, economic and environmental conditions, challenges and the implications these have for revitalisation and growth. The adopted methodology recognises that Newman cannot be considered in isolation and so considers economic and social development for the Pilbara region as a whole. The approach sets out a framework for how land should be used, what infrastructure and services are needed, how community wellbeing can flourish and how the environment should be protected.

This is a 'project plan' for delivering the *Newman Tomorrow* vision. It is not a plan just for the SoEP or a singular State Government department. Rather, it describes an integrated approach for local, state and federal agencies, the private sector and the community to transcend conventional sectoral boundaries to think and act holistically. It is an implementation-oriented plan, which is specific in terms of responsibilities, time and costs to ensure delivery can be coordinated and monitored. The plan goes well beyond a list of projects.

The NRP calls for a whole for government response involving partnerships with private sector and other key stakeholders to deliver a sustainable community – a place where people choose to settle on a permanent basis, a place to bring up families with access to education, health and diverse employment and career opportunities.

The NRP has been developed as an adaptive management plan and is to be continually reviewed in the light of progress, and updated accordingly.

1.1.3 Sustainability Framework

Sustainability is defined in Western Australia as meeting the needs of current and future generations though an integration of environmental projection, social advancement and economic prosperity.

1 Introduction

In applying this definition to development it is useful to consider human settlements as complex, adaptive systems. Managing settlements is about managing a "place" as a socio-ecological system. The system has sub-domains that are purely social (e.g. inclusion, equity, affordability), purely environmental (e.g. unmodified natural habitat), and most importantly, the intersection between them where human activity is intimately connected to ecosystems (e.g. physical footprint of settlements, abstraction of water from the environment). This thinking has informed the methodology used in developing the NRP.

This analysis of Newman and the development of the Growth Strategy was undertaken using the Driving force-Pressure-State-Impact-Response (DPSIR) Framework. The DPSIR Framework is viewed as a means of providing a systems-analysis view of a socio-ecological system, in this case the human settlement of Newman. Social and economic development (driving forces) exerts pressure on all the domains of interest, and as a consequence, their state changes. This change has implications (impacts) for humans and ecosystems. To be effective the Response must feedback on all the other elements (Figure 1).

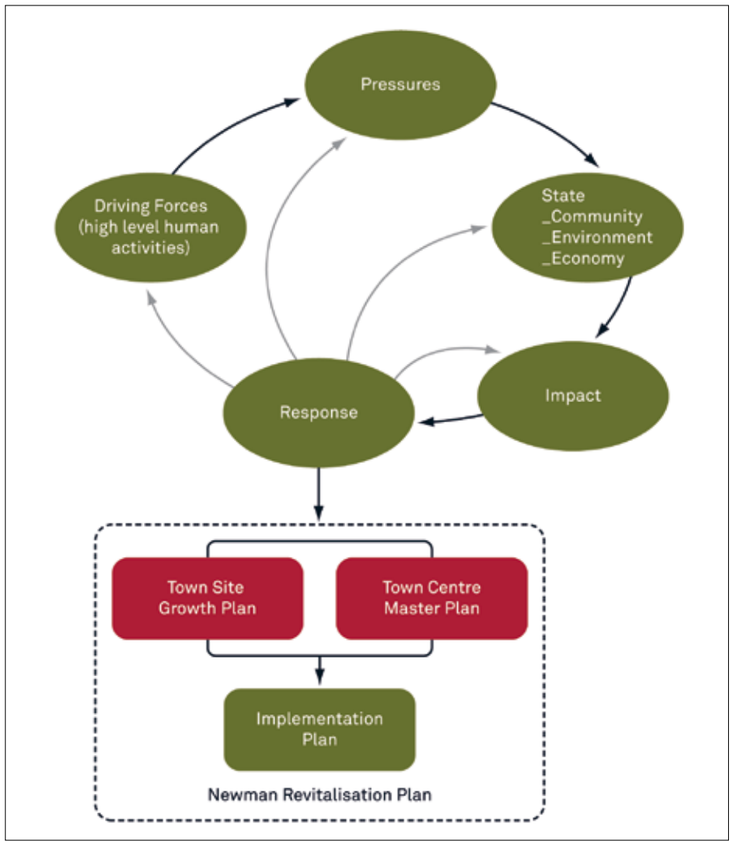


Figure 1: Sustainability Framework Approach

The following approach was taken in applying this framework to the project.

1. Firstly Aspirational Goals were developed which describe the long term desired characteristics of a sustainable Newman.

Domain	Aspirational Goal
Economy	A robust, diversified local economy that effectively services the needs of local and regional industry and population.
Community	Communities that are safe, healthy, and enjoyable places to live and work; offer cultural, educational, recreational opportunities; provide appropriate housing, services and amenities; foster active local citizenship.
Environment	Local, regional and global eco-systems in which landform, habitat and biodiversity are retained and that provide natural provisioning, regulating and cultural services.
Infrastructure and Resources	Economically efficient infrastructure for industry and households designed for efficient use of energy, water, materials and transport.
Built Environment	An urban form that reflects the intrinsic qualities of the site context, characteristics and relationships and complements the natural environment; with centres that are vibrant, dynamic, diverse and functional.

2. Each domain (i.e. economy, etc) was then analysed using the DPSIR approach. The existing "state" or condition of each was determined in respect of the aspirational goals and population targets for Newman. The drivers and pressures giving rise to the existing conditions were identified, together with the implications (impacts) for supporting or constraining progress towards the aspirational goals.
3. Based on this analysis, project objectives were developed which (if met) will transition Newman from its present state towards achievement of the aspirational goals.
4. Broad strategies were then developed which when taken together will represent an intervention that will meet the project objectives and guide Newman forward. These strategies represent the Response element of the DPSIR framework.
5. The objectives were also used to evaluate the various alternative solutions that were considered. This was done by evaluating how effectively each solution would meet the Objectives at the Town Site Growth Plan and Town Centre Master Plan levels, and to select the chosen strategies.
6. The Implementation Plan aims to articulate the steps needed to implement the chosen strategies (projects, initiatives and actions) both within and beyond the present project. This includes actions, key and contributing responsibilities and a framework to undertake monitoring and evaluation.

Accordingly the Framework has actively guided the development of the NRP towards the effective implementation of solutions that will contribute to optimising immediate and longer term social, economic and environmental outcomes.

The structure of this report is based on the methodology described above.

1.1.4 Applying Best Practice

In developing the NRP, significant research was undertaken to recognise the local contextual factors as well as identifying the experiences of town developments elsewhere.

A review of best practice suggests that to be successful, revitalisation projects need the following characteristics.

1. Clear and shared agreements need to be in place for the management, resourcing and implementation of the project
2. A strategy for implementation is required.
3. It is important to work closely with the private sector to establish what these market conditions might be with plans and actions that are practical and achievable.
4. Interventions need to be targeted to tackle identified deficiencies, gaps or inefficiencies in the place.
5. Physical development alone will not be enough, it will require a sustainable approach (economic health, community development and environmental health hand-in-hand) with an action plan for implementation.
6. A visioning process with cross cultural involvement is essential.
7. A community engagement and communication strategy is an essential part of any revitalisation project based on community capacity building.
8. The establishment of partnerships (across government, between the public and private sector, and with the voluntary sector) is required to deliver the desired outcomes for a particular place.
9. Plans for the town centre, town site and the role of the town within the region need to be robust and aligned
10. The necessary skills and expertise need to be assembled, with criteria in place to evaluate plans and measure success.

The scope of the NRP therefore encompasses the following:

- Respond to the vision of local communities and meet state needs;
- Enhance the quality of life for existing and future residents;
- Respond to the environment and achieve a sense of place;
- Facilitate sustainable growth and development over the long term ;
- Support economic activity and promote diversification;
- Deliver a vibrant and activated town centre; and
- Identify and establish a partnership approach to deliver the project.

1.1.5 Project Approach

The approach to the revitalisation of Newman and other Pilbara towns as part of the Pilbara Cities initiative is not unique. It is widely recognised around the world that some places require interventions, without they are unlikely to reach their potential. The more important these places are, the more urgent the need will be to identify exactly what is required to be most effective.

Newman is an inland hub and is part of the Pilbara resource driven boom and will be under increasing pressure to respond to not only the needs of the private sector but also to elevate the level of service for the existing community.

Further, places like Newman have over the years made serious attempts to develop partnerships, facilitate redevelopment and to develop strategies and policies that will cause or seek to cause change where required or needed.

Accordingly this process was commenced on a principle of building upon past work. This was also important from the community's perspective, as there is anecdotal evidence that the community was feeling over consulted. Similarly the project delivery timeframe, of which was mostly over the Christmas 2009/10 period was condensed to enable the outcomes of this project to be utilised to seek appropriate funding, at the state, federal and private sector levels.

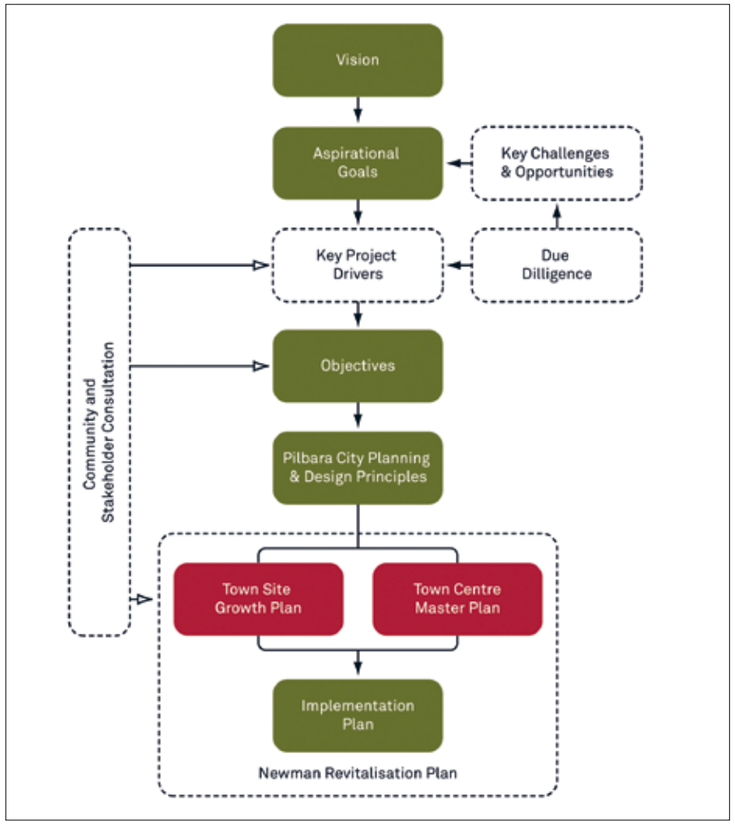
The development of the Town Site Growth Plan is a key element of the overall NRP Plan that represents a holistic and cohesive approach to community and economic development based on a shared vision for how we can create a vibrant and liveable Pilbara regional centre.

Our approach is based on the creation of a shared future vision fostered through community engagement and empowerment and the building of partnerships with key stakeholders. This approach will be implemented through strategically targeted interventions that address current concerns and issues, while also realising untapped opportunities.

With specific reference to the process used to develop the NRP, the following are the key steps were taken to achieve this plan:

1. Drawing from past work to develop the project Vision and Goals;
2. Aligning with a Sustainability Framework;
3. Understanding context (particularly testing the validity of the role of the Newman in relation to the region and the relationship between the broader town-site and the existing town centre);
4. Undertaking analysis of the centre in relation to structure, land use, public realm etc;
5. Developing key town planning and urban design principles to guide scenario development;
6. Developing various town growth scenarios for consideration by stakeholders;
7. Testing town growth scenarios with key stakeholders, including landowners to inform town growth/development plans;
8. Conducting design sessions with key stakeholders, focus groups and the broader community to inform and refine the Town Site Growth Plan;
9. Further refining the Town Site Growth Plan to reflect consultative feedback received;
10. Advertising the plan to seek broad community comment.

Figure 2 Newman Revitalisation Project Process



1.1.6 Project Management and Decision Making

Teams of substance with clear purpose and well-defined relationships are a prerequisite for the success of any major development or revitalisation project. The SoEP and LandCorp established a partnership to prepare the Town Site Growth Plan as part of the NRP.

The SoEP and LandCorp assembled a multidisciplinary team to prepare of the Town Site Growth Plan. The team comprised consultants in the disciplines of Town Planning; Urban design; Civil infrastructure engineering; Transport engineering; Landscape architecture / irrigation design; Environmental advice; Property development; Community development/engagement and Economic analysis/ development.

A project decision-making structure was put in place, to oversee the project as it evolved - refer to Volume 1, for the details on the structure, roles and functions.

1.2 Consultation and Community Engagement

There has been a considerable amount of consultation with stakeholders and the Newman community over the past five years regarding the development of the town, which has informed many aspects of the current revitalisation planning. A comprehensive consultation process has also been undertaken throughout the development of the NRP with the original concept plans and newly proposed town centre and town site plans being extensively tested with stakeholders and local community members.

The objectives for the community and stakeholder engagement processes undertaken during the development of the NRP were to:

- Identify actions that will enable inclusive and effective stakeholder engagement, as well as clear communication with the project team.
- Determine stakeholder opinions and areas of interest in order to provide accurate feedback to inform the planning process.
- Discover synergies and potential for networks between participants.
- Build stakeholder ownership.

In summary the key elements of the consultation process were:-

Interactive Design Forum	involving a range of invited stakeholders from across government, business, community and industry. This forum included the review of initial town site and town centre spatial planning concepts. Concepts plans were reviewed in reference to sustainability objectives.
Project Design Forum	A presentation of the proposed town site and town centre designs (with associated background information on the social, economic and environmental issues), were presented by the consultant team to an expert panel.
Council Briefings	Ongoing town site briefings were conducted to inform Councillors of progress being made in the development of town site growth plans and town centre plans.
Youth Consultation and Visioning	Sessions held with classes from two schools to discuss the development of the town centre and what could be provided to make it a more attractive and vibrant place for young people.
Community Dialogue Café	A large workshop was held with community members and stakeholders to seek input and feedback on the revised draft town site and town centre plans.
Focus Group Meetings	Group meetings were held with stakeholders to discuss and inform the project planning process. The groups were Community and Social Development ; (Community Groups; Arts and Cultural; Affordable Housing and Living; Indigenous Community and Business and Economic Development.
Director Generals and Senior Government Executives Briefing	Senior Government agency representatives attended a briefing workshop on the proposed plans for Newman. The briefing was established for the purpose of identifying implications for each agency of the proposed town growth and to seek input and commitment to taking collaborative action in addressing the current and future needs.
Advertising of Draft Plans to the Community	The SoEP released the draft Newman Revitalisation Town Site Growth and Town Centre Plans on 11 March 2010 for public comment.

1 Introduction

A detailed description of the overall process and findings is contained within Appendix A.

A comprehensive list of stakeholders was developed with over 150 members from local residents, community organizations, Aboriginal groups, business and industry organizations, and government agencies (local and central), which are detailed within Appendix A.

1.7 Structure of this Document

The Town Site Growth Plan, the Town Centre Master Plan and Implementation Plan, together form the NRP for the revitalisation of Newman.

Together, these plans collectively will guide the development of future housing, open spaces, commercial activities, tourist accommodation, entertainment and retail areas, as well as service infrastructure, transport, education and community facilities.

This document contains the Town Site Growth Plan and has been structured to follow the sustainability framework methodology and is broadly structures as follows:

Section	Overview
01. Introduction	An overview of the project is presented including the process and methodology for developing the Newman Town Site Growth Plan, the development of the sustainability framework and project Aspirational Goals, the approach to consultation, and project management.
02. Context Analysis	This section reviews background documents and current planning as well as identify the existing state of Newman across each of the five sustainability areas. Gaps between the existing situation and the desired state expressed in the Aspirational Goals are identified as well as the implications these have on the future growth of Newman.
03. Project Goals and Objectives	Key objectives for each of the project goals are presented based on the outcomes of the context analysis. The objectives were used to frame and guide development of the strategy. Additionally key principles of good city design are presented which were used to guide the preparation of the spatial plan.
04. An Integrated Strategy for Newman	This section presents what needs to be done to realise the project objectives, identifying both spatial and non-spatial responses goals for each of the five sustainability areas.
05. A New Approach to Governance	This section identifies governance arrangements required to support implementation including public-private partnerships.
06. Making It Happen - Implementing the Strategy	This section details the key implementation steps for the strategies, and identifies the actions and projects, key stakeholders, and timing for implementation of the NRP.

Community urban designer forum held to assess town site and town centre development scenarios

02. CONTEXT AND ANALYSIS

2 Context and Analysis

2.1 Background

There are a number of key plans and policies that have had a role in defining the strategic development of the Newman town site. The direction and aspirations for the future growth of Newman have been articulated in an array of strategic documents prepared over the last decade by both the SoEP and State Government, such as the SoEP's *Newman Tomorrow* (2008).

These documents identify a range of visions, strategies and actions which together seek to modernise and transform Newman to support long term economic activity in the region, improve the quality of life for existing residents and attract and retain new residents. The control of land use and development is governed by the SoEP Town Planning Scheme No. 4 (the 'Scheme').

This section reviews existing documents and current planning in order to describe the current situation, key drivers, pressures and implications facing the future growth of Newman as a subregional centre of 15,000 people for each of the Sustainability Framework elements of Economy; Community; Environment Infrastructure & Resources; and Built Environment and Public Realm.

Figure 3 identifies the relationship of the various agencies responsible for the preparation of the various plans and strategies:

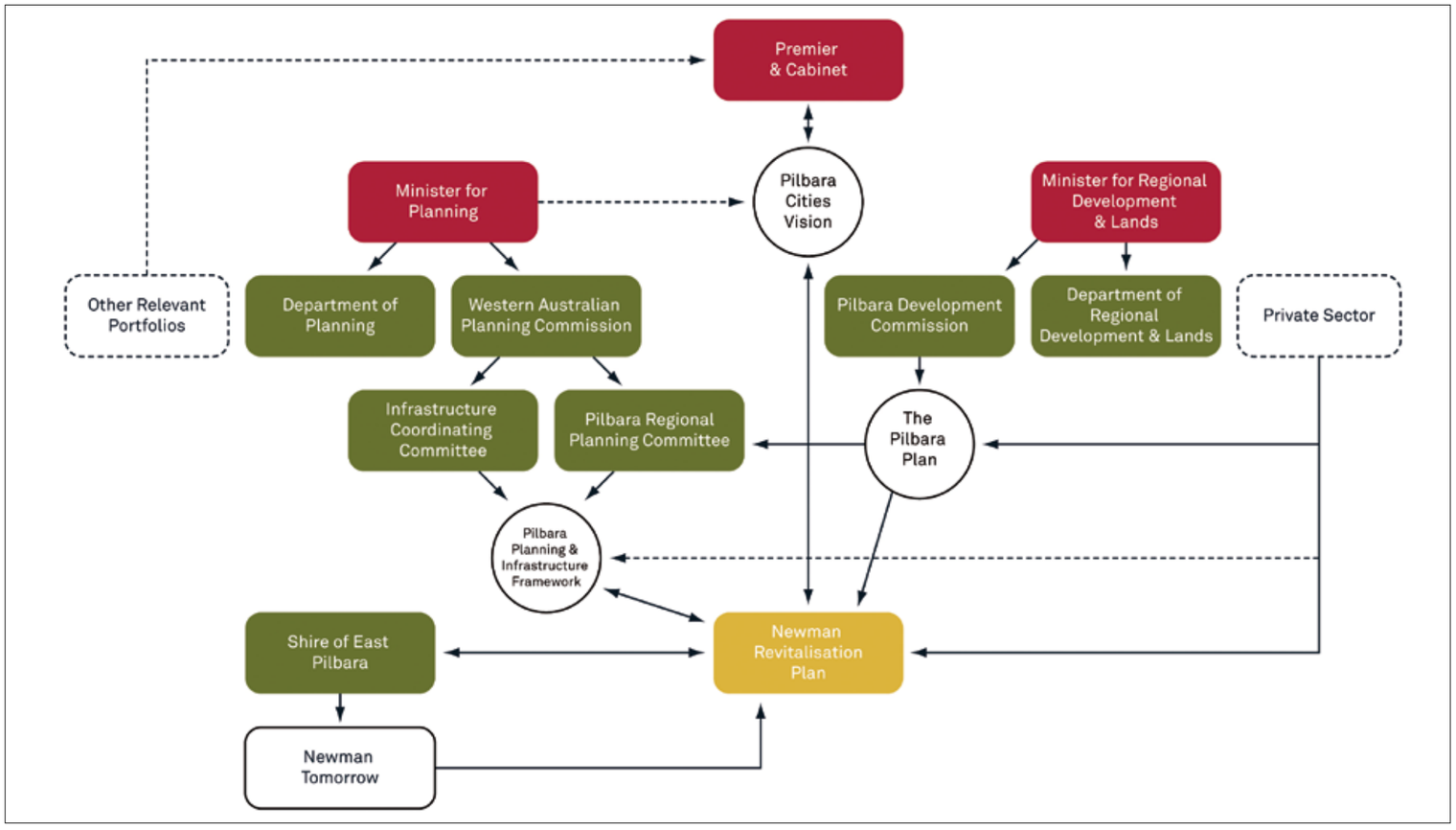


Figure 3: Existing strategic planning framework

2.1.1 Pilbara Strategic Regional Plan

The Pilbara Strategic Regional Plan 2007-2010 was prepared by the Pilbara Area Consultative Committee (PACC)

The documents vision is:

"Create and encourage regional economic, social and environmental enterprise in partnership with the community, business and government".

The five priority areas targeted by the Strategic Plan and PACC are:

1. Leverage funding potential and stakeholder networks to facilitate initiatives that enhance the employment outcomes of the region.
2. Create partnerships to develop sustainable social capital in the region.
3. Continue to identify the emerging trends and issues in the region.
4. Facilitate sustainability of the region via a clear and articulate Marketing of the Pilbara ACC to the community, business and the Government.
5. Ensure the long term relevance of Pilbara ACC to the community, business and government.

The NRP seeks to build upon these priority areas, and likewise, successful implementation of the Revitalisation Plan will depend on the ability to leverage funding, creation of successful partnerships between key players and the ability for the plan to respond to emerging trends, which will facilitate and sustain long term growth of the region.

The Town Site Growth Plan seeks to build upon this work and incorporate the recommendations within this document

2.1.2 Pilbara Planning and Infrastructure Framework: Regional Profile

The Pilbara Planning and Infrastructure Framework: Regional Profile provides a spatial planning profile for the Pilbara. It is being used by the WAPC to inform a future spatial planning framework for the Pilbara. The document attempts to encapsulate the essence of the region - its values, character, motivators, challenges and drivers for change.

A key element of the Pilbara Planning and Infrastructure Framework is that it identifies a settlement hierarchy and structure for the Pilbara. Newman is currently classified as a Category 3 town, which have a population of between 1000-5000 people. The framework characterises these towns as:

- Small town based around industry cluster of mining and education
- The regions in which they are located have a high diversity of industries, low unemployment and a high relative index of socio-economic advantage
- In comparison to other socio-regions, the region of these towns has a higher than average population and a lower than average proportion of Indigenous people

2 Context and Analysis

In addition to the above, the Pilbara Planning and Infrastructure Framework identifies the following other key issues relative to the future planning of Newman:

- Identify the need to plan for long term heavy industrial requirements to attract new investment to the region
- Recognise additional potential industrial areas have been identified to the west of the original Newman industrial area, and a significantly larger site to the south-west of the town site.

In preparing the Pilbara Planning and Infrastructure Framework document, regard should be given to the NRP, in order to ensure that it is an up to date and integrated strategy.

2.1.3 Pilbara Regional Water Plan

The Pilbara Regional Water Plan provides a vision for Pilbara water up until the year 2030. This Vision is:

"Our precious water resources are managed and developed in a sustainable manner to maintain and enhance our natural environment, cultural and spiritual values, our quality of life and the economic development of the Pilbara".

The Pilbara Regional Water Plan identifies seven objectives to support this vision.

1. Ensure security of water supply for the current and future needs of all water users.
2. Ensure that water use is balanced to meet environmental, social, cultural and economic values.
3. Ensure that impacts, including cumulative impacts, are managed to protect the long-term health of waterway, aquifers, wetlands, springs, floodplains and estuaries.
4. Integrate land-use, infrastructure and natural resource management planning with water planning.
5. Recognise and protect Aboriginal and other heritage values associated with water.
6. Ensure the quantity and quality of water used is appropriate for the purpose for which the water is being used.
7. Support high-value use by industry and agriculture with the least adverse impact.

These high level objectives will be used by the Department of Water to make decisions regarding the use of water within the Pilbara region. The document is supported by a 5 year action plan. These actions are not specific to Newman but are relevant across the whole Pilbara region.

The Town Site Growth Plan seeks to ensure the continued supply of quality water to the town site by containing growth within the existing defined town site growth boundary so that it has limited impact on the defined underground pollution control area (UWPCA). Some development (i.e. a portion of the heavy industry) may extend within the UWPCA but this is limited and development will be staged so that any land within the UWPCA will only be developed as a final stage, if required.

2.1.4 2008 Newman Regional Hotspots Perspective

The Newman Regional Hotspots Land Supply Update was released by the WAPC in 2008. This document provides an update of major projects, population statistics, key issues facing the town and lot activity. The document notes the following key issues for meeting demand in land release for Newman:

- There is sufficient Crown land available to meet current demand, with identified sites potentially yielding more than 600 dwelling units. Development of these sites is scheduled, and can be brought forward subject to demand.
- The Newman town site is clear of native title (through state agreement lease).
- LandCorp's East Newman project (NEWM02) has conditional approval for more than 380 lots, and will be developed subject to demand.
- There are a number of sites, where local planning scheme amendments have recently been finalised, which will result in the development of additional workforce accommodation units.
- Infill development is continuing, with BHP Billiton amalgamating a number of lots in existing areas to facilitate the development of group housing.
- Demand for industrial land remains strong with the majority of lots sold in LandCorp's recent release of 15 lots. Planning is under way for development of additional industrial lots adjacent to this area (NEWM07).

The Town Site Growth Plan seeks to build on these existing projects and identifies additional future growth potential to ensure the continued sustainable development of the town.

2.1.5 Newman Tomorrow

In 2008 the SoEP released a vision and strategic planning framework for Newman. Entitled '*Newman Tomorrow*: Resourcing a Home for Generations', which guides the development of Newman over two decades with a focus on:

- Securing improved social outcomes for the broad range of demographics;
- Building pride in the town of Newman and the Shire;
- Recognising Indigenous culture and establishing a foundation for greater Indigenous participation in the local economy;
- Developing the town centre in Newman; and
- Balancing the strengths of the resource sector with the needs of small business and tourism.

The plan provides a strategic direction for the SoEP's development of Newman and has been the catalyst for a revised approach to funding by BHP Billiton to projects with the SoEP and in the provision of Royalties for Regions funding for Town Centre Revitalisation Cultural Hub projects.

Newman Tomorrow is underpinned by extensive consultation with the community and has been an integral to informing this growth strategy.

2.1.6 Shire of East Pilbara Strategic Plan

The SoEP's Plan for the Future of the District 2009-2011 provides strategic direction for the Shire Council. The following strategies identified by the document are relevant to the Town Site Growth Plan:

1. Develop land use strategies for all three towns – July 2011
2. Work with State Government Agencies and potential developers to ensure availability, diversity and affordability of land
3. Work with State Government Agencies and potential developers to ensure diversity and affordability in built product
4. Undertake a feasibility analysis to develop Newman tourist and short term accommodation facility
5. Develop and implement a plan to utilise 90% of the reuse water in Newman
6. Develop and implement a road and footpath network plan to maximise connectivity and which supports a range of transport options

The Town Site Growth Plan represents a substantial way forward in the SoEP meeting its obligations identified under its Strategic Plan

2.1.7 Shire of East Pilbara Local Planning Strategy

The SoEP Local Planning Strategy was endorsed by the WAPC on the 1 June 2004. This document identified key development strategies for the future planning of the Newman town site. These key strategies are:

1. Potential to round-off the existing urban structure in the north-west of the Newman town site adjacent to Leete Place, subject to detailed planning and investigations.
2. Maintain, expand and improve the existing town centre as the predominant commercial area of Newman.
3. Promote the servicing and planned development of residential lots at the northern end of Nicholls Ave.
4. Encourage a high quality specialised development of the strategically located Drive-in site and its surrounds.
5. Investigate the potential for planned residential expansion of the town site at the western edge of Forrest Ave.
6. Subject to detailed planning and investigation the Light Industrial Area could potentially expand westward.
7. The southern corner of Kalgan Drive and Welsh Drive is strategically suited to a well planned commercial development or for public purposes (possibly police station and courthouse).
8. Possibility to further examine detailed land requirements for the existing TAFE site, with a view to planning for alternative uses on portion of the land, such as residential and other special accommodation (e.g. student accommodation).
9. Continue with the comprehensive approach to planning the East Newman town site expansion area, with particular regard to community focused design and provision of associated services and amenities.

The recommendations were made in 2004 and a number of the items have since been progressed or are no longer relevant. The sites identified at 1, 3, 5 are still vacant and will be considered for development as part of the NRP.

2.1.8 Shire of East Pilbara Town Planning Scheme No. 4

The SoEP Town Planning Scheme No. 4 (the Scheme) was originally gazetted on the 13th December 2005 and was updated in June 2008. Since its gazettal, there have been few amendments to the Scheme.

The aims of this Scheme are:

- To assist the effective implementation of the State Planning Strategy and any regional plans and policies which are relevant to the Shire
- To foster efficient, hospitable and aesthetic town centres to serve as residential, civic, cultural, recreational and commercial focal points for the surrounding region
- To assist commercial, industrial and business development in order to maximise business and employment opportunities and to sustain and broaden the economic base
- To accommodate infrastructure an town site development for the beneficial exploration and mining of minerals within the Shire
- To assist the sustainable and economic operation of the pastoral industry in the region
- To support housing choice in town sites and neighbourhoods with community identity and high levels of amenity
- To support the conservation and wise use of natural resources including land, wetlands, flora, fauna and minerals
- To conserve objects and places of natural, historic and cultural significance; and
- To protect routes and corridors for the effective transportation of people and goods within the region

A majority of the land zoned for residential, commercial, industrial or other purposes within the Newman town site has previously been developed. The remaining undeveloped zoned land includes:

Table 1: Remaining undeveloped zoned land

Site Details	Zoning	Area	Yield
Residential Zoned Land			
East Newman Residential Estate (remaining undeveloped land)	Residential (R15/40)	34.4ha (includes a nominal buffer to the Great Northern Highway)	295 dwellings
Kurra Street Vacant Residential Lot	Residential (R15)	8.4ha	84 dwellings
Vacant residential land on north western corner of Forrest Avenue and Welsh Drive	Residential (R15/R40*). **Assume R15 given proximity to industrial estate*	7.5ha	75 dwellings
Special Use 15 site adjacent golf course	Special Use 15*. *Assume R40	2.2ha	60 dwellings
Remaining portion of undeveloped residential land at end of Nichols Place	Residential R15	1.5ha	15 dwellings
Total Residential		**54 ha**	**529 dwellings**
Industrial Zoned Land			
Vacant Industrial land on north eastern corner of Welsh Drive and McBride Drive	Industrial	25 ha	N/A

With respect to the above figures, a total residential yield of 529 dwellings will only cater for an additional 1428 residents, based on an average of 2.7 persons per dwelling. This falls significantly short of the additional 10,000 residents required to be accommodated over time.

While there is 25ha of industrial land available, this will not cater for strategic long term growth accounting for a population of up to 15,000 combined with significant growth in the resource sector. An additional 200ha of strategic industrial land is identified as part of the growth strategy for the town site.

Commercial and retail land is largely contained within the town centre to date and growth of the centre has been constrained due to lack of a master plan that provides a coordinated development approach and identifies future development opportunities. This plan does identify a new Mixed Business area located outside the town centre.

The Scheme will need to be reviewed in light of the recommendations of the Town Site Growth Plan and overarching NRP.

2 Context and Analysis

2.2 Role and Function of Newman and Adjoining Towns

Newman is the archetypal company mining town and an exemplar of the way towns developed in the Pilbara. The town's 40 year existence is due to the original and ongoing investment by the mining sector that provides much of (but not exclusively) the economic and social foundations of the town. Newman's fortunes over the years have fluctuated depending on the macroeconomic environment and the state of commodity market cycles and it worth noting that its current demographic, economic and social profile is a function of those exogenous influences. The NRP proposes a plan for Newman which will result in the town having the capacity to cater for permanent resident population of up to 15,000 which is about a 250% increase in the population of the town. It should be noted that a Newman of that size would equate to the current profile of the major Pilbara population centres in Karratha and Port Hedland.

The Draft Pilbara Planning and Infrastructure Framework: Regional Profile recently produced by the Department of Planning described Newman's proposed function as:

> In addition to its role as the mining 'hub' for the East Pilbara, Newman's future lies in its role as a subregional tourism and service centre. There are Opportunities to develop a tourism industry based on its location as a gateway to the Pilbara, the Karijini National park, the Rudall River National Park and the Canning Stock Route. There are also opportunities to develop the town as a subregional distribution centre, located at a strategic point on the Great Northern Highway, serving the needs of the Indigenous settlements in the East Pilbara.

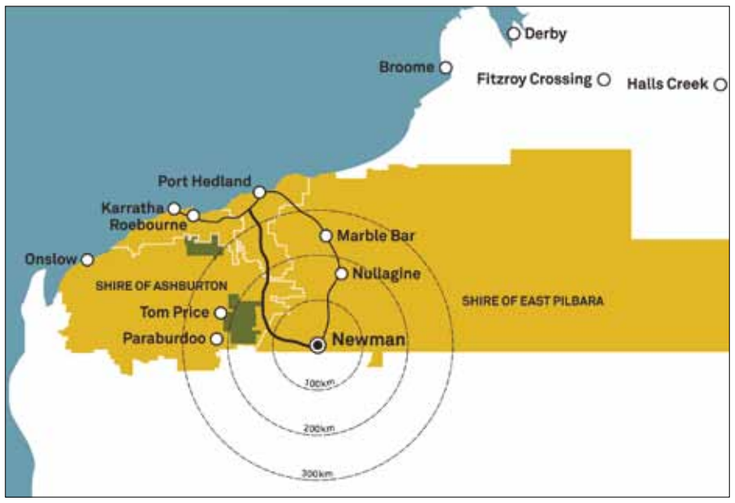


Figure 4: Newman Regional Location Plan

While it has been suggested that Newman has a role as a subregional centre, and indeed that appears to form part of its aspirational objectives, such a development trajectory will require a coordinated intervention strategy to generate the economic activity and investment to realise these ambitions. The question of what a subregional service centre actually is requires some exploration. A sub regional centre suggests an administrative and commercial hub for the delivery of private and public sector services that cannot be efficiently or effectively delivered out of a major regional population centre (such as the intended Pilbara Cities) or indeed out of Perth. In this respect subregional centres service both strategic projects and the requirements of population driven service demands.

A formalised subregional centre status for Newman (that is, where Newman is recognised as such in a widely acknowledged hierarchy of centres) is only likely to occur if there is a reliable growth trajectory in the subregional population to justify such a service delivery model. Furthermore, Newman as a subregional centre for resource sector projects servicing would require a commitment by the resource companies to source some services out of Newman as opposed to elsewhere in the state. Such services might potentially include: shut down crews, heavy equipment maintenance and laundry as examples. This is only likely to occur in circumstances where it is economically and financially viable to the sector and where there is some high level inducement or obligation placed on the sector by the State Government.

On a positive note, Newman appears likely to continue as a required centre to service the needs of BHP Billiton's current and emerging East Pilbara operations and that company's ongoing commitment to the town may serve to stimulate discussion on how that presence can be leveraged to the advancement of Newman over the medium to longer term. `

The NRP considers the future of Newman as a community entity in its own right and not simply as an operational base for BHP Billiton. For the town to grow and prosper requires the forging of new and extended relationships with the resources sector networks and with public sector stakeholders to ensure the longer term viability of the town.

2.3 Economy

2.3.1 Current Situation

The town of Newman is located 1186km north of Perth or 458km south of Port Hedland in the East Pilbara region of Australia's North West. Originally built by the Mount Newman Mining Company Ltd during the 1960's to house the workforce for the iron ore minesite, today Newman is a modern mining town and the largest town in the East Pilbara Region. It serves the two mines at Mount Whaleback and Orebody 29 and acts as a service centre for a number of other minesites and mining settlements in the area such as Tom Price and Paraburdoo as well as servicing the local cattle stations.

2.3.1.1 Demographic Profile

The Australian Bureau of Statistics (ABS) 2006 Census recorded 4,247 people with Newman as their place of residence. There is currently estimated to be 5,000 permanent residents in Newman. The town also supports a large number of temporary workers employed on a FIFO basis, currently estimated at 3,000 workers. Figure 5 illustrates the population of Newman based on place of usual residence and place of enumeration recorded by the ABS 2006 Census.

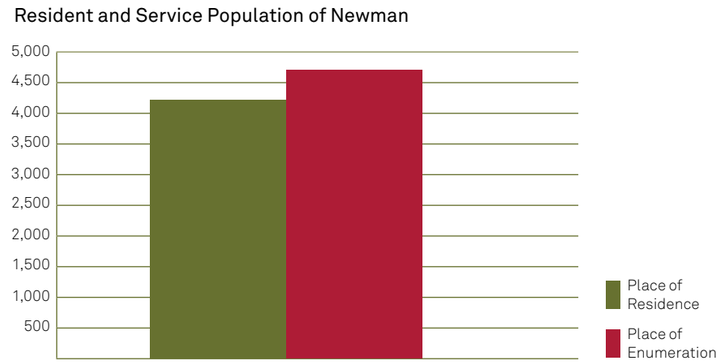


Figure 5: Resident and Service Population of Newman
Source: ABS Census of Population and Housing (2006)

The gap between the number of people based on place of usual residence and the number of people based on the place of enumeration is the service population. This 'service population' includes FIFO, tourists, short term or seasonal workers, or daytime visitors (e.g. commuters and shoppers) who do not regard themselves as usual residents of the area. The high level of service population in Newman is largely due to the FIFO workforce associated with the mining operations.

There is a significantly high proportion of males to females from ages 20 through to 60 years of age. This is indicative of the male dominated mining and construction industries which are the major attractions for working and living in the region. The population of Newman is relatively young with an average age of 31 years compared with 37 years for persons in Australia.

The labour force participation rate is very high at 85% compared with 65% in Australia. Similarly, unemployment in the town is very low at 1.2% compared with a national unemployment rate of 5.2% and the median weekly household income is $2,271, more the double the national median weekly household income of $1,027.

Since responsibility for the town was handed over to the SoEP in 1981, a number of tourist facilities have been developed, which have diversified the town's economic profile and positioned it as a destination for tourists. However, the mining industry remains the primary economic driver for the town with metal ore mining and other mining support services industries accounting for over 40% of total employment in the town.

Table 2. Top five most common industries of employment – Newman (Urban Centre Localities)

Industry	Employment	% of total Employment
Metal Ore Mining	811	37.2%
School Education	122	5.6%
Other Mining Support Services	107	4.9%
Cafes, restaurants and Takeaway Food Services	74	3.4%
Supermarket and Grocery Stores	70	3.2%

Population growth, particularly in isolated, harsh regional environments does not occur without reason. Newman came into being to accommodate the workforce related to iron ore projects in the East Pilbara. The town's evolution over the past 40 years or so reflects the largely pragmatic approach to town planning and design adopted by the resource sector. It is worth noting that it has taken four decades for Karratha to reach its present size and profile; a profile which, in fact, reflects the efficiencies of the operational models of the resource companies.

2.3.1.2 Fly-In Fly-Out

Like many resource based towns, Newman has a significant FIFO population. Estimates of the FIFO population in Newman vary, however current anecdotal estimates suggest the population is approximately 3,000 workers. Under FIFO employment arrangements, employees are flown to a remote work site on a rotational basis from an established urban centre (such as the Perth Metropolitan Area) and are housed in a camp or motel style accommodation on site for the length of their rotation. Traditionally, FIFO employment arrangements were confined to the offshore oil and gas industry; however, since the 1980's, a combination of social, political and economic factors has resulted in FIFO being introduced to land based mining in Western Australia. These factors include:

- Increased costs associated with the development of, and the ongoing provision of services in, a remote mining town
- The short term nature of many mining projects demanding a flexible and mobile labour force
- Improvements in the cost, reliability and safety of transport systems
- Workforce preference for a metropolitan lifestyle over a remote rural one
- Increased prevalence of duel income families

In recent years FIFO employment arrangements have become the norm in the Western Australian resource sector. A survey by CME of over 100 mining operations in Western Australia found that 47% of all mining employees are employed on a FIFO basis[1]. The increasing prevalence of FIFO arrangements in mining operations has had significant implications for regional communities as these practices minimise worker engagement, economically, with the regions in which the mines are located resulting in a loss of opportunity to the regional communities[2]. These opportunities include;

- Capture of Population-Driven Expenditure - It is estimated that the per head spend of FIFO worker is approximately $70-100 per week in the local community depending on the level of retail and commercial offering available and the proximity of the accommodation to the town. This represents a fraction of the average total spend per household. Furthermore FIFO workforce levels fluctuate dramatically depending on the stage of projects i.e. FIFO workforce levels will peak during the project construction phase. While it is possible to have stable FIFO based associated with long tern mining operations which acts as a quasi permanent population, the limited local expenditure made by this workforce limits the flow on benefit to the regional community.
- Extension of the local capability - By importing labour from major urban centres the opportunity to extend the local capability and equip the local population with the human capital to fill local employment opportunities, and improve productivity, is lost.
- Provision of support services – Efficient management of mining projects tends to lead to the sub-contracting on non-core activities. While the infrastructure is in place to facilitate the labour force supply chains, other supply chains can leverage the same infrastructure decreasing the ability of the local business to capture business to business expenditure.
- While it's understood there are negative implications associated with the FIFO employment model, these implications would not predicate the complete reversal of the FIFO trend. FIFO employment arrangements are generally adopted where they are deemed to be the most efficient operating model for the resource company involved. Preference for the FIFO operating model is based upon current transport and infrastructure costs and future changes to either (increase cost of fuel or government subsidised community infrastructure) could see a changes in the operating model adopted by many companies.

2.3.1.3 Dwellings

In Newman urban centre, 76% of all dwellings are separate houses, 12% are flats, units or apartments, 5% are semi-detached/row/terrace houses and 7% are other dwellings. In comparison to the Pilbara and Perth Metropolitan Area, Newman urban centre has a:

- Similar percentage of separate houses to Perth, but a higher percentage than the Pilbara
- Lower percentage of semi-detached/row/terrace houses to Perth and the Pilbara
- Similar percentage of flats, units or apartments to Perth and the Pilbara

2.3.1.4 Housing Market

In Newman there are a high proportion of rental properties. This is very similar to other Pilbara towns, however, very different from regional WA and the Perth metropolitan area, where the majority of properties are owner occupied. The high proportion of rental properties in Newman is probably due to the provision of housing for resource sector and government services workers by their employers. However due to a lack of supply of housing and the high demand, rents are and purchase prices are high.

A snap shot of the housing market reveals:-

- The average cost of renting a 3 bedroom property was $1,267 in September quarter of 2009. This is a rise of $67 per week in just one quarter.
- The average cost of a 4 Bedroom house in September 2009 was $617,000.
- Since 2004 the number of house sales has more than halved, while costs have of purchase have risen significantly by nearly 600%, indicating a lack of supply in the market.

1 Fly-In/Fly-Out: A sustainability perspective. A discussion of the triple bottom line impact of fly in/fly out operations in Western Australia's resource sector. January 2005, Chamber of Minerals and Energy Western Australia

2 Pritchard, B. (2003) Beyond the Resource enclave: Regional development challenges in resource economies of northern remote Australia Australasian Journal of Regional Studies, Vol. 9, No. 2

2 Context and Analysis

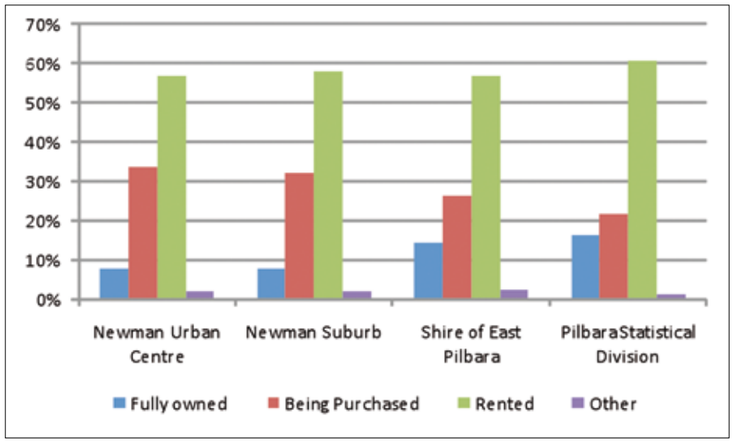


Figure 6 Ownership rental properties in Newman 2009 (Source: Pilbara Development Commission, Housing and Land Snapshot Newman, Quarter ending September 2009)

Figure 7, below, shows the trend of average house settlement price and sales in Newman. As the number of sales has decreased the price has increased. Source: Pilbara Development Commission, Housing and Land Snapshot Newman, Quarter ending September 2009

2.4.1.5 Income

The weekly household earnings in Newman are more than double that of the state average. However with the high cost of living, this level of income is required. The opportunity in Newman's development is to obtain a greater proportion of discretionary spending with local businesses.

Figure 8, top right, compares weekly household earnings between those living in the town centre and outlying areas against the WA norm

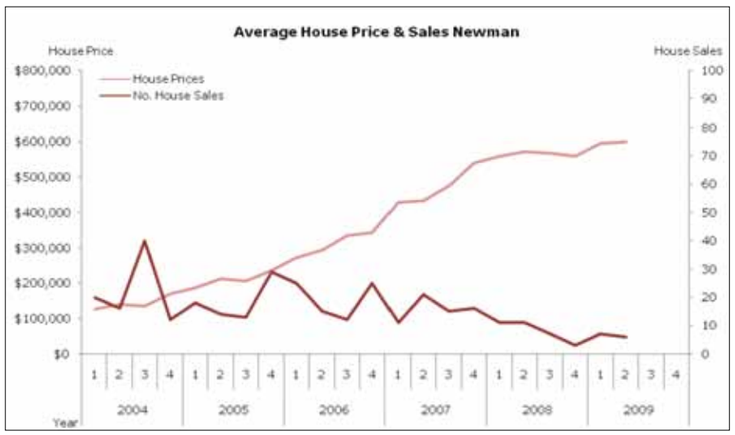


Figure 7 Average House Prices and Sales in Newman

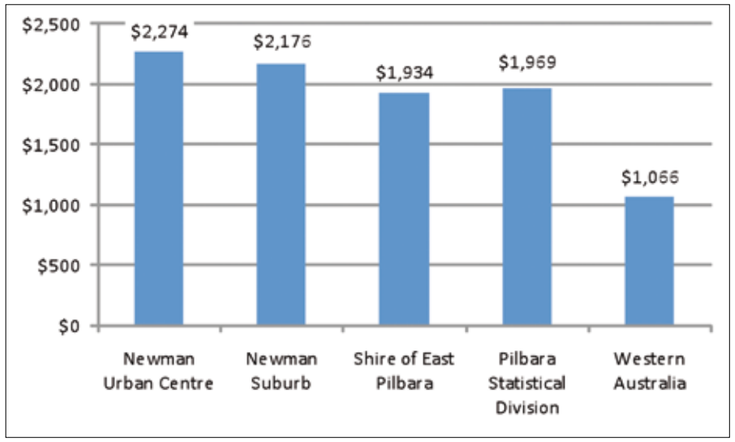


Figure 8 Median Weekly Household Income, 2006 (Source: ABS, Census 2006)

2.3.2 Current Planning

The planning environment currently influencing the economic development of Newman does not appear to recognise the significance of economic development as the primary driver that will determine Newman's potential future role as a sub-regional centre.

Much of the planning concerning Newman's future posits an extension of the historical population growth based largely on resource sector activity as evidenced by research by undertaken Pilbara Industry's Community Council (PICC)[3]. The newly instituted Pilbara Regional Planning Committee is an important step in planning for the Pilbara however this appears to consider economic development as one aspect of the planning mix and potentially focuses on land and infrastructure requirements rather than addressing the economic development factors that will drive employment and population growth.

It is important to note that Newman as a subregional centre represents something of a departure from conventional estimates of population centre growth up to this point. Assuming that this statement of intent for Newman is widely adopted, then the planning framework needs to consider how this growth trajectory might be achieved. This is essentially the difference between planning for a subregional centre of 15,000 and planning to get to a centre of 15,000.

[3] *Planning for Resources Growth in the Pilbara – Employment and Population Projections to 2020.' Heuris Partners Ltd ,August 2008*

2.3.2.1 Residential

A number of residential grouped style developments are proposed to be undertaken in the town site in the short term. A summary of these is as follows:

Kurra Street, West Newman

As of June 2010, SoEP approval has not been obtained for this proposed development.

This proposal is for a 217 unit group (strata) type development. Stage 1 comprising 68 lots along Kurra St and the existing side access road, is still anticipated to be released late April 2010 with subdivision and property construction anticipated to commence in June 2010.

The developers of this property are still working with the SoEP to rezone the site, and are proposing built strata to improve residential amenity.

Proposed features of the developed estate include:

- Use of Councils treated wastewater for all common areas and individual lots
- All homes will be fully landscaped with lawns and mature trees
- Common area landscaping to also have lawns and mature trees
- Strata company has the right to manage verges if they fall below estate standards

East Newman Residential

At East Newman a residential subdivision project is managed by LandCorp (refer to Figures 10 and 11). This estate has a total project area of 50 Hectares. A significant portion of the estate is set aside for public open space.

To date LandCorp has released and sold 60 single residential lots. The entire development is expected to release in excess of 374 single residential lots and a variety of group housing lots. Stage 1B of the estate will be made up of 48 lots and is expected to be released to the market in the second half of 2010 At April 2010 LandCorp has received over 100 expressions of interest for their lots.

As part of the sale conditions for the land sold, purchasers are required to develop within 30 months of settlement. Building conditions are also applied, which include requiring development to meet design guidelines.

Grandtown Development East Newman

As of June 2010, SoEP approval has not been obtained for the 10 hectare proposed development. The proposal is for a 163 dwelling development, with 104 single storey dwellings and 59 Townhouse dwellings. It will also include a restaurant and gym.

2.3.2.2 Retail

No new developments have occurred or known to be planned.

2.3.2.3 Newman Light Industrial Estate

LandCorp sold 14 blocks in the estate in mid 2007. There lots ranged in size from 2,973m^2 – 4627m^2.

Stage 2 will comprise of 10 lots and is set for release in November 2010 (refer to Figure 9).

Figure 9: Newman Light Industrial land release

2.3.2.4 East Newman Residential

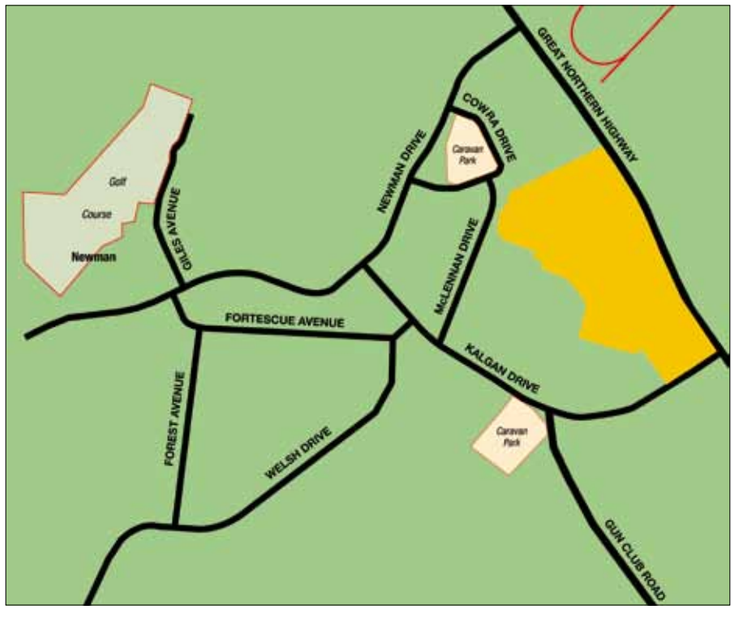


Figure 10: East Newman estate location

2.3.3 Key Drivers and Pressures

While this project is about the revitalisation of Newman and is focused on the redevelopment of the town site as a whole and the master planning of the town centre in particular, the State Government announcements about Pilbara Cities and the subsequent framing of the economic analysis along these lines quickly reveals a number of key issues and contextual factors that must be considered in the review of the entire project.

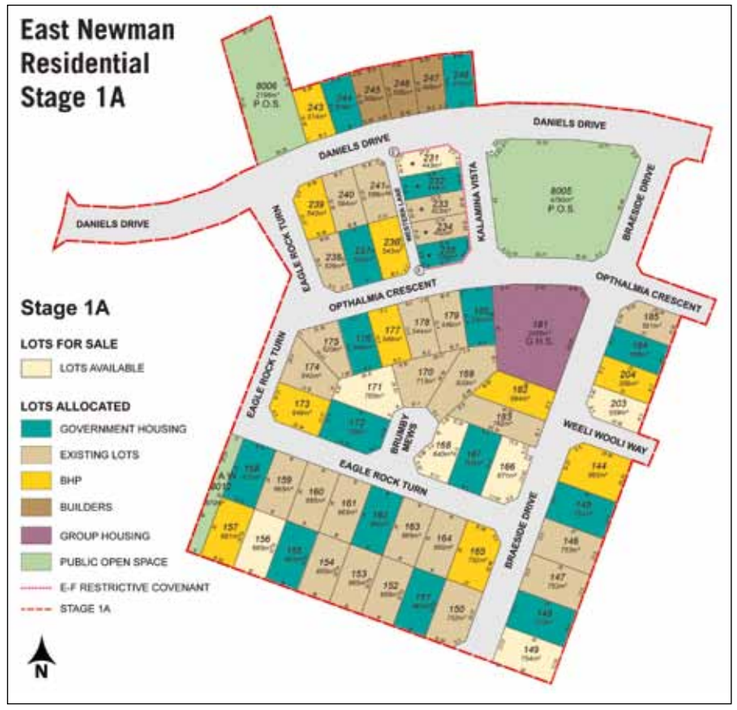


Figure 11: East Newman subdivision

These issues include (but are not limited to):

- Newman as a subregional centre notionally of 15,000 permanent residents is a concept that represents a way point rather than an end destination. Assuming that Newman reaches a permanent resident population of that size, it should be viewed as a marker in the long term development and life of the town and the Pilbara as a whole.
- The revitalisation of Newman along with the planning for Pilbara Cities has Pilbara and state-wide significance. The revitalisation of Newman cannot be effectively looked at in isolation of its role as an activity centre in a regional hierarchy of centres.

2 Context and Analysis

- The development of Newman, and the Pilbara as a whole, will be driven in the main by economic considerations. It can be argued that economic development requires the mobilisation of the four factors of production, namely:
  - The availability and affordability of an adequate supply of development ready land;
  - The mobilisation of capital investment in the region;
  - The creation, attraction and redistribution of local employment opportunities in the region; and
  - The attraction of localised and regional entrepreneurial capability
- The mobilisation of capital investment and the creation / attraction of regional employment, particularly strategic regional employment, to create a sub-regional centre is of a scale that demands the direct buy-in and endorsement of agreed development targets by whole of government and the private sector, particularly the resource sector. The resource sector in general, and BHP Billiton in particular, views Newman as an important support centre in the Pilbara for its regional operations but the generation of localised employment opportunities in Newman, as opposed to anywhere else, has the potential to impact significantly on the business models of the major resource companies and their key contractors and suppliers.
- High cost of living - the cost of living in Newman precludes many people from residing in the town. This high cost is caused be a range of factors including a lack of housing and high transport costs. A result of the high cost of living is that young adults either have to leave town or live with their parents in order to be able to maintain their residencies. Small businesses and Non Government organisations in particular struggle as they have limited access to housing, which is so essential to obtaining staff. The population within Newman continues to have increasing numbers of FIFO workers with people staying for short to medium term. This is heavily influenced by the industry's need to access and accommodate large numbers of workers within a short time period, but is also impacted upon by the high cost of living that is burdened by the prohibitively high costs of purchasing or renting accommodation within the town. By addressing the lack of community infrastructure, increasing housing options and reducing the cost of living, Newman will be able to better attract and retain a skilled workforce required to diversify and grow the local economy.
- FIFO workforce integration - there is a negative attitude towards FIFO workers from some sectors of the community in the Pilbara with resentment evident in some quarters that they do not contribute to local communities. With companies such as BHP Billiton looking at a range of strategies for better integrating FIFO staff as part of the community, there is the potential to break down the divide between permanent residents and FIFOs to create a more harmonious community and for the community to see tangible benefits from FIFO workers being part of the town.

The NRP and the planning and development of the Pilbara in general requires an overarching policy framework which considers and is informed by, amongst other things, the broader issues of economic and industry development as the primary drivers of regional development. Moreover, the delivering of Pilbara Cities and indeed the broader Pilbara Planning and Infrastructure Framework requires a multi-level governance structure which incorporates and coordinates the representation and inputs of both the private and public sectors. The governance model must operate at both regional strategic levels and at the SoEP level and provide guidance.

Other issues and drivers for Newman include:

- Housing availability and affordability
- Cost of setting up and operating service sector businesses
- The need to develop a 'balanced' regional workforce
- The need for a balanced, sustainable economy beyond the construction stages of projects
- The need to extend the local industrial and commercial capability to drive long term population retention and growth
- The need to extend the local economy from predominantly a production based economy to a more balanced production / consumption / knowledge intensive economy
- The need to provide significantly higher levels of service and lifestyle amenity to attract and retain a substantial regional population

2.3.3.1 Housing

There is an important relationship between employment generation at every point and the availability of suitable, developable land and the provision of a range of housing product and pricing options. Housing availability and affordability is central to the provision of a level of amenity that is deemed necessary to stimulate the growth and retention of a residential workforce in Newman. Housing and accommodation in a sense can be viewed as enabling infrastructure. The Housing Study for Pilbara Town[4] found that:

> *The lack of affordable housing in particular has excluded all but the highest income groups and those who benefit from subsidised housing options from living permanently in the region. As a consequence, people who would otherwise move to the area for key worker employment are discouraged, whilst others – perhaps people born in the area – are often unable to stay...*
>
> *A principle impact is the challenge presented to service providers and businesses in the non-government, health, education, social services, retail, food and hospitality industries and the small business sector generally. Employers who find it difficult to attract key workers to the Pilbara have faced an unenviable choice, between reducing the level of service, diverting resources from core activities to housing provision for their workers, or else passing-on the costs of housing subsidies to their clients and customers.*

The availability and affordability of accommodation is arguably the single biggest constraint facing the town's development.

Housing affordability is about the capacity of prospective home owners or renters to enter the local market at a price point that does not cause unsustainable stress on household incomes.

Housing affordability in the Pilbara is a function of a number of elements including:

- The availability of development ready, affordable land
- The current and planned supply of accommodation stock across all accommodation categories
- The stock of general housing available relative to the amount of company owned and government housing
- The cost of housing construction in the region
- The entry level price of housing relative to median household income
- The cost of finance relative to household income

Affordability is closely linked to the availability of a range of accommodation types that may appeal to different sectors of the market; typically in Pilbara communities the housing on offer is dominated by separate houses which in the Newman Urban Centre Locality account for around 83% of the total accommodation stock.

Currently, housing prices in Newman approximate the following:

1 bedroom, 1 bathroom units/ apartments	$320,000 approximately
2 bedroom, 1 bathroom villas	From $400,000 approximately
Houses	$500,000 to $900,000 approximately

Advice from local real estate agents suggests that an average 3 bedroom, 2 bathroom relatively modern colourbond / weatherboard house may sell for around $600,000, with newer 4 bedroom, 2 bathroom properties ranging from approximately $700,000 up to around $900,000 . Property turnover is not high with one agent reporting around 10 sales in the previous six months. Many of the properties that come on the market are bought by investors from outside Newman and can typically achieve rental rates of up to approximately $1,700 per week.

The availability of dwelling units for purchase and the attendant prices of those available for purchase, along with rental rates suggest significant barriers to market entry for prospective buyers. The median household income in Newman is approximately $131,000 per annum. Assuming this level of income, a buyer contemplating a house purchase of around $700,000 would need to limit the mortgage component to approximately 65% of the value of the property[5] to ensure the debt servicing requirements stay below 30% of household income. It is generally regarded that debt servicing above approximately 30% of household income starts to generate unsustainable mortgage stress for households.

The issue of rental rates appears to be significantly more constraining than the purchase price of properties. A median income household seeking to rent a Newman house at $1,500 per week would see around 59% of household income dedicated to rental payments. Clearly, without some form of subsidy such as an employer contribution, such rental rates render the prospect non-viable for all but the very highest income levels.

2.3.3.2 Housing Construction Costs

Compounding the issue of limited housing stock, and high purchase prices and rental rates is the issue of high construction costs. Advice from a Pilbara based builder suggest that the cost of building a standard 4 bedroom, 2 bathroom house to Pilbara standard is approximately $500,000 (including land scaping and fencing). Construction costs are generally considered to be equivalent to Perth plus approximately 75% depending on the type of house required. It should be noted that the cost of construction excludes the lot purchase price.

One of the primary reasons for the high regional construction costs is the lack of a local construction capability of any significance which is a consequence of two main factors. In the first instance, much of the local producer services capability (typically, but not exclusively, areas such as construction, maintenance and manufacturing) is taken up with servicing resource and infrastructure related projects. That is, local businesses may have most of their capacity taken up with servicing such projects at the expense of civil infrastructure and housing projects that would take place in a functional local economy.

[4] *SGS Economics and Planning for the Dept of Housing and the Pilbara Development Commission (2010)*

[5] *Assumes a 25 year mortgage at current standard variable rate of 6.76%*

While it is understood that the SoEP has sought to establish a (non-resources) construction and service sector workers camp as a needed intervention in the local economy, to date these efforts have not yielded planning approval from the State Government.

Secondly, as demonstrated above, the high purchase price and high rental rates for existing housing and accommodation means that it tends to be cost prohibitive for a general resident workforce to have a significant presence in Newman without some form of subsidy from employers or some other form of subsidised housing. In addition, the workers camps which are operated by BHP Billiton are reserved primarily for their own FIFO workforce and have limited (if any) capacity to accommodate other workers.

Building and construction companies such as McGraths and Fleetwood specialise in prefabricated houses which are mostly constructed in Perth, transported to the Pilbara and finished off on site by a FIFO workforce with little or no overlap with any local construction or servicing capability. The lack of a local construction industry of any note means that materials, technical expertise and general workforce have to be sourced from outside Newman. Companies do this because it is the most efficient business model for them but this does little to extend local industry capability as such a practice results in what is effectively a footloose, transient skilled workforce.

2.3.4 Key Implications

The economic analysis suggests that for Newman to grow towards an aspirational population target of 15,000 it will require a sustained coordinated intervention strategy designed to generate local employment. Strategic employment (typically export /driver project related and producer services categories) require greater investment in local capability by the private sector which in this case is typically resource related.

Regional communities exist because there are fundamental reasons for populations to be located in particular places. In the case of Newman (as with virtually all the Pilbara), the reason is the presence of mineral resources. The delivery of retail and consumer services and some government services is usually in response to population driven effects; that is, private and public sector service provision increases in response to population increase. Population increase occurs in response to the generation of residential employment which provides the reason for people to be there in the first instance.

Newman strategic residential employment needs to increase by approximately 350%. As this begins to occur, a greater number of households will be attracted to the area with a subsequent cascading effect in the provision of population driven services which in turn compounds the population growth.

For this to occur, it will require the development and implementation of a multi-level regional economic development policy and governance mechanism that (amongst a broad range of other activities) can engage with the resource sector and the associated supply chains to determine a way to attract and generate employment in Newman.

2.3.4.1 Retail and office floor space projections

The following table details Newman retail and office floor space requirements based on the total population increasing to 13,000 (resident population of 10,000) and 18,000 (resident population of 15,000) people respectively.

Table 3: Retail and Office floorspace projections

Newman Retail and Office Floor space Projections			
	Existing (2010)	Projected 1	Projected 2
Resident Population	4850	10000	15000
FIFO population	1750	3000	3000
Population total	**6600**	**13000**	**18000**
	Existing (2010)	Projected 1	Projected 2
Retail Floorspace	7275	16000	27000
Retail Floorspace Shortfall	**0**	**8725**	**19725**
Office floor space	3625	10000	18000
Office floor space shortfall	**0**	**6375**	**14375**

Retail and Office Space Analysis

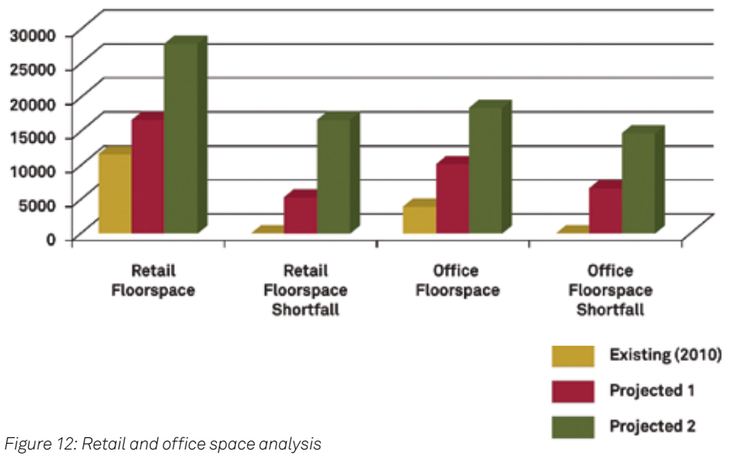


Figure 12: Retail and office space analysis

If all retail and office space shortfall requirements were to be met via development in the town centre as part of the NRP, the following scenario demonstrates the approximate amount of development land needed to meet demand:

Assumptions:

- 50% of site coverage for buildings
- 3 storey heights.

The total land required to meet all retail and office space projections for 13,000 and 18,000 populations respectively, would be as follows:

- 13,000 - 7,650 m^2 of development land needed
- 18,000 – 20,317 m^2 of development land needed

2.3.5 Project Goals and Objectives

The key implications listed above have lead to the formulation of the specific project objectives set out below.

Table 4: Economic goals and objectives

Aspirational Goal	Project Objectives
Economy A robust, diversified local economy that effectively services the needs of local and regional industry and population.	• Improved local business capability to service established industry sectors
	• Optimised local employment distribution to meet the requirements of industry and population
	• Increased local business and industry diversity
	• Enhanced local business investment and entrepreneurial activity
	• Activated and accessible retail and commercial destinations

2 Context and Analysis

2.4 Community

2.4.1 Current Situation

2.4.1.1 History

Like the SoEP itself – which came into being when the former shires of Marble Bar and Nullagine merged in 1972 – Newman is relatively young. Established in 1968 by the Mt Newman Mining Company as an accommodation centre for employees at the nearby iron ore mine, it remained a company-run town until 1981, when a handover of company responsibility to local government began.

Staged development characterised Newman's early years, and its status as a 'dormitory town' accommodating short-term residents and FIFO workers did not encourage long-term vision, which resulted in a lack of planning – particularly in the area of community development. Initially, the town comprised a cluster of residences and facilities to the north of the main road, Newman Drive. The construction of a second residential cluster commenced during 1971-72 and became known as South Newman. In 1980, houses were built along the western side of another major thoroughfare, Forrest Avenue, and a further town extension occurred east of the Capricorn Oval recreation area in 1981.

Newman's town centre, commercial area and other significant community facilities are today located in the oldest part of the town, North Newman. The problems facing Newman in the 21st Century have their roots in the pre-1981 period, and basic infrastructure built in the 1960s and 1970s is today in need of restoration or replacement.

Across four decades, iron ore mining has been Newman's lifeblood. The town has ridden a boom-bust cycle, and was shackled in its formative years by a lack of local government leadership. In the 21st Century, however, Newman has been propelled into a new era. Its future has been secured, not only by long-term export contracts in the resources sector but by a growing recognition that Newman occupies a pivotal place in a region blessed with a pleasant climate and abundant business and tourism opportunities.

2.4.1.2 Social Context

Newman is the second largest inland town in Western Australia and is a place that has been home to as many as three generations of non-Indigenous working families. The current range of education, recreation and commercial and community facilities have supported a growing community over the past two decades – but many of these facilities have now passed their 'use by' date and are an impediment to attracting individuals and families to the town. Community desire has been expressed for a more identifiable and attractive main street, more attractive and functional public spaces in the town centre and for other improvements that render it more 'people friendly', enhance local character and foster social connections.

2.4.1.3 Population and Age Structure

The Newman population has steadily grown in recent years. When planning for the provision of housing, community facilities and services it is important to consider the relatively high proportion of young families that reside within the town.

Anticipated population growth and the town's high proportion of young families have combined to exert increasing pressure on ageing community infrastructure and amenities. This pressure is likely to mount over the next decade, highlighting the need to plan facilities and community development initiatives appropriate to the evolving demographic profile.

A snapshot of current population data reveals:-

- The Newman urban centre's current population is estimated at currently being approximately 5,100 permanent residents
- The population grew by 20% between 2001 and 2006, averaging 140 new residents per year.
- The PICC population projections (2008) to 2020 (adopted by WAPC) show the Newman urban centre's population growing to 6,000 by 2015. The PICC population projections released inApril 2010 now show it growing to 8286 by 2015.
- Newman has a higher proportion of people aged under 20 compared to both the SoEP and Pilbara statistical division.
- Newman a lower proportion of people aged 40 plus compared to both the SoEP and Pilbara statistical division.

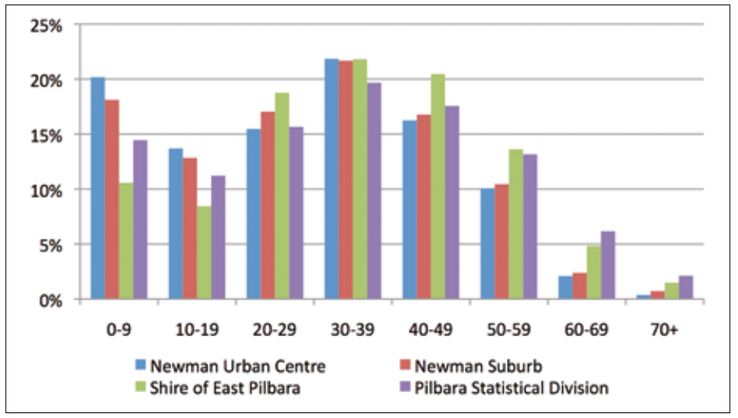


Figure 13: Age Structure Comparison, 2006

The majority of households in Newman are couples with children, further reinforcing that Newman is a population with a large number of younger children.

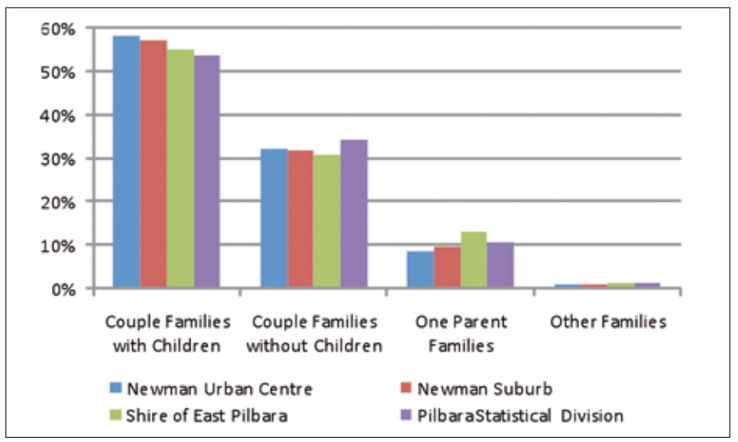


Figure 14: Family Characteristics 2006

2.4.1.4 Ethnicity and Birthplace

Community development planning needs to consider the ethnicity and cultural background of the community and take steps to seek positive community integration of people from various cultures. While data reveals a comparatively low number of Aboriginal residents within the Newman town site, it is important to recognise that there are a number of surrounding communities with high Aboriginal populations that access the services provided in Newman.

A snapshot of the ethnic data reveals:-

- The Newman urban centre (town site), has a much lower proportion of Indigenous residents (6.7%) than the rest of the SoEP (21.8%), however there is almost double the amount of Aboriginal people in Newman Suburb, (12.4 %) which takes in the whole town boundary area, not just the town site of Newman.
- The vast majority of Newman residents were born in Australia (80% plus).

2.4.1.5 Heritage

Aboriginal Heritage and Native Title

Aboriginal people have lived in the Pilbara for thousands of years. Their way of life and system of beliefs are integrally linked to the landscape on which their survival traditionally depended. There are a large number of heritage sites beyond the Newman town site boundary and one site adjacent to the existing town centre.

Native Title describes the rights that the Aboriginal and Torres Strait Islander people hold in the land and water by virtue of the occupation of Australia prior to arrival of Europeans. The Nyriyaparli people are the registered claimants over the Newman town site.

Non-Aboriginal Heritage

The Western Australian Heritage Council's Heritage places database identifies numerous heritage places within Newman including the BHP Iron Ore Silver Jubilee Museum Gallery and Newman Tourist Information Centre, Boomerang Grandstand, Mecure Inn, Mosque, Newman Fire Station, Hospital and Police Station, Newman Primary School, Newman Recreation Club, Newman War Memorial, SoEP Administration Centre and St Joseph's Catholic Church.

2.4.1.6 Community Facilities (Current)

Many of Newman's facilities fall short of current community needs and are in need of refurbishment expansion or replacement. The *Newman Tomorrow* document noted that many of Newman's buildings adhere to a 'here today, gone tomorrow' aesthetic. This was attributed to the town's beginnings as a purpose-built worker's colony, and also to the legacy of boom-bust cycles. A lack of visual amenity is evident in the built environment of the town centre itself as well as the town's current lack of entry statements, public art and so on.

Consultation undertaken by the SoEP, BHP Billiton and other stakeholders reveal that there is an urgent need to upgrade existing facilities and develop new community facilities that currently are not provided in the arts, culture, youth and civic areas.

2.4.1.7 Community Groups and Services (Current)

There are a range of service providers in Newman. However main offices for Government agencies are generally located in Port Hedland or Newman, with satellite services offered in Newman.

Newman acts as a hub for service provision to outlying remote communities.

Some community services are under pressure in Newman to meet current demands. The provision of community services is significantly impacted on by a number of factors including:-

- Most government agencies do not have a presence in Newman
- Many of the services located in Newman has to service the needs of a very large district encompassing a number of remote communities
- High cost of living – difficulty in attracting and retaining staff, particularly Non Government Organisations without housing
- Lack of differential resourcing within agencies that recognise the complexities of living in the Pilbara
- Turnover of staff – impacting on continuity of services
- Shift work and rosters that impact on civic or community engagement

The key service agency in the town is the SoEP. It provides services in four key areas:-

- Corporate services
- Technical services
- Development & regulatory services
- Community engagement

The government agencies with service provision and office space in Newman are:-

- Department of Child Protection
- Department of Corrective Services
- WA Country Health Service
- Pilbara Development Commission
- Disabilities Services Commission
- Pilbara TAFE (Newman site)
- Newman Police

Other agencies and organisations that provide services in Newman include:-

- Home and Community Care
- Newman Women's Shelter
- Community Health Service
- Commonwealth Respite and Carelink Services
- Baptist Church
- Martu Christian Fellowship
- Muslim Congregation Mosque
- St Josephs Catholic Church
- St Stephens Anglican Church
- Uniting Church
- Newman Congregation of Jehovah's Witnesses
- Alcohol Anonymous Pilbara Community Legal Service
- Newman Art Council
- Martu Milli Artists
- Newman Main Street Program
- Kids Matter – Family Day-Care Program
- Newman Women's Shelter
- Pilbara Community and Aged Care Services
- St John Ambulance
- Aboriginal Legal Service
- Newman Lions Club

2.4.1.8 Community Events

Newman has some key events that are conducted throughout the year. These include:-

- Bloody Slow Cup
- Annual Christmas light competition
- Fortescue Festival which includes the Newman Outback Drags and Fortescue Festival Ball (August)
- Newman Clean-up Day (May)
- Newman Lions Club Festival Ball (August)
- Newman Outback Drags
- Newman Horse Races

2.4.2 Current Planning

The SoEP's *Newman Tomorrow* document has identified a range of community facilities, projects and initiatives to be implemented over the next 20 years. A key focus in the work being undertaken is in regards to the development of the town centre. Progress that has been made from *Newman Tomorrow* includes:-

- Royalties for Regions $20 million received for Town Centre Revitalisation and land release
- Completion of the Community collocation centre (Newman House)
- Public Art program in town park near completion
- A public toilet installed in the Town Centre
- Adoption of a footpath upgrade replacement plan
- Initial concept plans developed by BHP Billiton for the conversion of their mess.
- Community safety and crime prevention strategy adopted by Council May 2009 purchase on monitoring equipment
- Airport Upgrade completed
- Concept Design initiated/ for upgrade of information and directional signage –
- Town entry statements completed
- Survey undertaken/civil engineer design being developed to upgrade town's information bay
- Capricorn Master Plan completed
- Tender let for netball/tennis court upgrade
- Upgrade existing recreation centre completed January 2010. Opening held April 2010.
- Upgrade standard of turf management completed in November 2009
- Outdoor lighting upgrade - solar lighting installed Capricorn Oval late 2009
- Aquatic playground completed and operational December 2009
- Park improvement program/schedule and implementation – ongoing development continuing
- New play equipment installed in Forrest/Ethel Ck/Wilara playgrounds
- Federal funding applied for and allocation for refurbishment of centre in March 2010.
- Ongoing/new building for Martu Mill completed Feb 2010
- Planning commenced Dec 09 for the Fortesque Arts Awards
- Landscaping completed in Newman Drive and Kalgan Drive BHP Billiton completed Community Garden on the corner of Newman and Fortesque Drives

2.4.3 Key Drivers and Pressures

The revitalisation of Newman is long overdue and has been discussed for more than a decade, with few positive outcomes being evident. There is therefore a strong sense within the community that they have been over consulted and under delivered. The planning started in earnest with the SoEP's 'Town Planning Scheme 3" (TPS3) that encompassed the Newman town site and was gazetted in 1983. Since that time there have been 25 amendments covering re-zoning to higher density land use, rationalisation of town centre boundaries, permissible uses in the town centre and rationalisation of various Crown reserves.

In 2003, SoEP launched the Newman Town Centre Revitalisation Project (NTCRP) with the aim of identifying high priority projects for the town centre and allocating funds toward these works over a nominal period of ten years. In conjunction with NTCRP planning, the council finalised 'Town Planning Scheme No. 4' (TPS4). This outlined a 'Newman Town Site Development Strategy' (NTDS), based on indicators that consistently showed Newman to be the service centre for the surrounding hinterland and the place of residence for approximately 60 per cent of the SoEP's population.

Underpinning the NTDS was the SoEP's desire to 'maintain and improve the character and amenity of the built form and natural environment, and more specifically, promote choice, variety and quality of housing in residential neighbourhoods in a manner that increases the amenity and community identity'. Since the development of the NTDS, a number of planning consultants have been engaged by the SoEP to develop plans for the revitalisation of the town centre. In March 2009, the SoEP adopted as local planning policy a concept design developed by Urban and Rural Perspectives Pty Ltd (URP).

The SoEP is seeking to develop an attractive, distinctive and commercially vibrant town centre in Newman that increases opportunities for community interaction, connection and engagement. To this end the SoEP established the Newman Town Centre Revitalisation Project (NTCRP) and incorporated a Newman Town Site Development Strategy (NTDS) into Town Planning Scheme 4 (TPS4). Together with the strategic document *Newman Tomorrow* these have articulated the community's desire for a more identifiable and attractive main street, more attractive and functional public spaces in the centre of town, and other improvements enhancing local character and making it more 'people friendly'.

Throughout all the consultation and various plans, one consistent driver has been evident – the need to develop a vibrant town centre. The town centre is seen as an unattractive and dysfunctional space that is uninviting to members of the community. It is really only accessed for essential services and shopping and not seen as a positive social place, unless people meet in the shopping centre.

2 Context and Analysis

It has also been recognised for some time that the most significant impediment to economic and social growth in Newman is the high cost of living, which impacts on the attraction and retention of workers and their families. More affordable housing, improved community facilities, enhanced community services in health and education and a higher standard of living are all crucial to attracting and retaining skilled workers and their families.

However recently there has been a new wave of enthusiasm in the Newman community and a desire for positive change. Buoyed by an initial $20 million in funding, from the State Government's Royalties for Regions program and significant investment from BHP Billiton in Response to *Newman Tomorrow*, the Newman community can see that key stakeholders are committed to what they have been calling for – a sense of surety and a long term future for the town.

Some of the key drivers and pressures impacting on the town's development include:-

1. A need for greater Indigenous development and integration
   There has been limited planning and policy development around Indigenous integration in the Newman community and this has proven to be problematic to the social fabric of the town. The opportunity exists to celebrate and embrace one of the world's oldest cultures and to better engage with the Aboriginal community through targeted approaches that foster interaction, pride and respect.
2. Revitalising the Town Centre
   The Newman community has been waiting for a long time to see action taking place in regards to providing a functional town centre. There is an urgent need to revitalise the town centre, including providing a "main street", better road and pedestrian connections, more retail opportunities, better community facilities, more meeting places and improvements to the streetscapes. These long overdue changes will result attracting more people to the town centre and creating a dynamic social and retail mix.
3. Catering for children and youth
   Newman has a high proportion of children aged less than 10 years. However there is a sizeable decrease in the proportion of young people aged 10-19 years. This movement of families away from Newman when children reach this age is resultant from concerns parents have about opportunities for young people in the community including educational choice and a lack of youth services, activities and facilities in the town. Young adults also find it difficult to afford housing costs and often have to leave town unless they can stay with parents or relatives or have a house provided by their employer.
4. Catering for senior citizens
   There are a low proportion of senior citizens or retirees in Newman, with the town not seen as a viable location to retire. This is mostly due to the lack of senior's services, accommodation and amenities. There is a need to diversify the provision of community facilities, programs and activities to meet the needs of older members of the community.
5. Quality of life
   The ability to attract and retain staff and town residents is often based on more than financial earnings. Quality of life is a key aspect to people's decisions to stay or leave the community. Central to engendering a high quality of life is access to community facilities, amenities and services. Current community facilities are mostly tired or some do not even exist. With the forecast population growth, a strategic improvement program that includes the provision of additional facilities is required.
6. Social divide
   There is an evident social divide in Newman based mostly on income disparity that exists between those employed within the resource sector and those not employed within this industry sector. Indigenous community members, many of whom live in outlying communities and those not employed within the resource companies are somewhat marginalised and have generally not benefitted at all from the growth experienced in recent years. The challenge is how to better integrate all sectors of society into the community. The opportunity exists to better reflect the significant Aboriginal culture in the region in the development of Newman and to better engage with the Aboriginal community through targeted approaches that foster interaction, pride and respect.
7. Population – critical mass
   Current population numbers in Newman do not provide the "critical mass" that is a precursor to agencies and organisations providing high level service models or the provision of regional scale facilities. Ongoing growth of the population base will result in more diverse services and facilities being offered locally.
8. Health service provision
   Community concerns relate to limited access to medical services including dentists, general practitioners, specialists, optometrists etc. Other concerns exist in relation to the lack of opportunities for private providers to enter the market. There is also a lack of accommodation to cater for patients that need to access services from outlying communities. Ongoing planning by the Department of Health in its review of services across the region will consider these needs.
9. Perception of the community being "over consulted and under delivered"
   The Newman community has been through a range of consultation processes in the past years, all of which have led to the same conclusion – the Newman town centre needs urgent upgrade and revitalisation. This consultation needs to shift from what needs to be done to what actions have to be taken to make it happen. There is cynicism that this revitalisation will just be another document that will not result in "on the ground" development. Action needs to be taken to ensure that this is not the case.
10. Lack of tourism
    Tourism does not flourish within Newman despite its many attractions. This, like most concerns in the community, is underpinned by a lack of accommodation for tourists. Much of the existing caravan parks are full of temporary workers' accommodation units. Further accommodation for tourists is required, as are places for caravans to be parked and effluent to be dumped.
11. Addressing social disadvantage of remote communities that access Newman for services
    There are large numbers of people from outlying communities that access Newman for medical services, shopping and other purposes. There is a lack of temporary accommodation and very high costs for the disadvantaged people who need to access these services on a regular basis. This combined with people from outlying "dry communities" coming to Newman to access alcohol, results in episodes of anti-social behaviour in the town centre. Some of these community members then stay at the Parnpajinya community which is located on the outskirts of town. Unfortunately Parnpajinya Aboriginal Community is run down, lacks sound governance and formal management, and has squalid living conditions. Support is provided by BHP Billiton to supporting the management of Parnpajinya, but greater responsibility needs to be taken up by the State in this regard.
12. Sporting facilities and amenities - to cater for growth
    While there are good sporting facilities in Newman there is a current lack of permanent bases for some clubs including senior cricket, junior cricket, junior football, touch and tee-ball. The Hockey fields have prickles making them unattractive and not suitable for children. Only Capricorn Oval has small lighting appropriate for small ball sports meaning it is the only venue suitable for night tee-ball and cricket. Storage facilities are not available for touch rugby or senior cricket, while the storage facilities on the hockey fields are unused.
13. Need for more cultural, arts and entertainment facilities
    There are few cultural, arts or entertainment facilities in the town. Also with limited social meeting places in the town centre, most social activation happens around sporting clubs.
14. Lack of original planning of the town
    The early view of Newman being a "temporary" mining town led to a lack of structured planning in the early development of the town. This now provides challenges for the town's development and difficulties in the integrated planning of community facilities.

2.4.4 Key Implications

The existing drivers and pressures have implications and challenges for the ongoing planning for the redevelopment of Newman. There are a number of significant opportunities that can be seized upon to develop Newman into a more vibrant, well serviced and attractive town. These include:-

1. Establishment an appropriate body or partnership to drive the revitalisation strategy
   This group can take carriage of the NRP and its implementation in the longer term. Representatives should be invited from government, industry, business and non government organisations.
2. The development of a new community/ civic/ arts/cultural precinct
3. There is a great opportunity to provide a community "hub" or precinct that reengages people with their town centre. This could be located in a shared community space at the junction of the new entry road at Boomerang Oval.

   The facilities that can be developed within the town centre precinct could include:

   - Outdoor performance spaces/outdoor theatre.
   - Provision of more permanent arts spaces for renowned local artists groups (e.g. Martumilli) on their current site.
   - Multi-use community centre.
   - Iconic landmark such as a Clock tower.
   - Amphitheatre.
   - Youth Centre and outdoor play areas.

4. **Improvement to hospital services, as per the Department of Health's Pilbara review.**

   Potential developments to address health needs in the community could include the following:-
   - Improvements to the hospital buildings that were built in the 1970s by developing an integrated/upgraded site of public/private service provision.
   - Expansion of serviced suites to accommodated allied health services.
   - Provision of private medical rooms (NB: Gemini Medical already have three doctors in town and are looking to provide three more if housing and rooms for consulting can be identified. This will reduce the ratio from one doctor per 2,833 people to one doctor per 1,416 people).
   - Provision of improved population health facilities.

5. **Better integration of the Indigenous community in the town centre**

   The integration of the local Indigenous communities could include ongoing consultative approaches, better design of open spaces, culturally sensitive landscaping, engagement in town centre development projects and reflection of cultural heritage through interpretive trails and other culturally respectful strategies.

6. **Engagement of community in town centre projects**

   The community have been involved in the consultation processes for the design of the town and town centre. Their engagement could be harnessed in a practical sense in the design and delivery of streetscapes, public/community art and public open space developments.

7. **Activation of town centre spaces**

   Activating the town centre is crucial to establishing a vibrant and attractive destination. Activation strategies could include development of community events utilising town centre amenities, and the development of an annual calendar of activities and events that utilise and promote newly developed public spaces.

8. **Better integration of FIFO workers**

   To address the negative perceptions of FIFO workers a defined strategy is required that involves all key stakeholders. This strategy would involve a partnership approach with the resource industry and their contractors to better "normalise" FIFO engagement in the community. This could involve the provision of residential quarters in different areas across the town rather than just camps, in areas such as the town centre, as they will be more likely to utilise shops and other services in these areas. Other strategies could include the provision of food tickets to restaurants, social activation programs and contributions to, and use of, community facilities.

9. **Cross sector partnerships**

   Partnerships between local government, state government, business and industry will provide the foundation for significant change in Newman. These partnerships need to look at a collaborative approach to addressing key social, economic and environmental issues and require commitment and input from all parties.

10. **Actively promote private sector and retail employment across WA and interstate**

    Newman remains relatively unknown on the national landscape other than for its mining operations. There is the opportunity to proactively promote the business opportunities that exist within the revitalised town and in particular the town centre.

11. **Respond to Newman's attributes as tourist location:**

    Newman has many attractive features including its proximity to the Karijini National Park; it is located on the Great Northern Highway, which receives significant amount of tourist traffic; it has the attraction of one of the world's largest iron ore mines, and is in the heart of one of the world's oldest cultures. A tourism strategy is required that is underpinned by the allocation of more short term accommodation as well as the provision of spaces for caravans and larger vehicles.

12. **Incentives for business owners to improve their facilities and surrounds**

    To achieve a more attractive town centre, there is a need for business owners to support the revitalisation initiatives to foster a proactive and cohesive approach there could be a structured approach to providing incentives for business owners to invest in the development of their facilities and surrounds as part of the revitalisation project.

2 Context and Analysis

Community Facilities Assessment - Future Growth Summary

A facilities standards assessment has been undertaken in reference to the current community facilities available in Newman. This assessment and the identification of corresponding requirements for Newman were based on specific population levels, using accepted facility provision standards used by many local governments for planning community facilities. The summary of requirements is detailed below.

The figures should be used as a guide only, as specific local needs and issues (e.g. youth needs in Newman) need to be fully considered in decisions made regarding facility developments.

Table 5 Future requirements for community facilities

Community Facility	Accepted Standard of Provision for Rural Town	Requirements for Newman Current Pop. – 5,000						Gap Analysis and Preferred Provision Strategy
		Population						
		Current Provision	5,000	7,500	10,000	15,000	20,000	
Halls/ Local Community Centres	1 per 5,000	1	1	1-2	2	3	4	• Facility standards requirement are currently being met. • Future population growth will create an expectation for additional facilities. • Future facility provision could be collocated as part of school facilities catering to shared use.
Local Sporting Reserve (1 – 2 senior playing fields)	1 per 2,000	2	2.5	3-4	5	7-8	10	• Current provision of ovals will meet current community requirements. • Additional grounds will be required to accommodate population growth. • Additional sporting facilities would need to consider providing 2 senior playing areas.
Sports Pavilion/ Change rooms	1 per 2,000	5	2	3-4	5	7-8	10	• Current provision exceeds requirements of the standards approach. • Basic multi-use facility located on a sporting reserve. Includes change rooms for 2 teams.
Multi-marked Sports Courts (Tennis/ Netball/Basketball)	1 per 1,000	6	5	7-8	10	15	20	• Meets current standards requirements. • Can be supplemented through Community use of school facilities.
Cricket Wickets	1 per 2.000	2	2	3-4	5	7-8	10	• Meet current standards requirements. • Can be supplemented through Community use of school facilities.
Public Open Space	1.7ha per 1,000	NA	21.25ha	34ha	59.5ha	85ha	170ha	• Combination of active and passive parks, wetland areas and civic spaces.
Local Neighbourhood Park	1 per 1,000	5	5	7-8	10	15	20	• Current level of provision meets requirements of standards approach. • Residential growth areas to accommodate increased population numbers will need to consider provision of additional neighbourhood parks. • Include amenity for family BBQ's, dog walking, and kick about spaces. Link to other key activity nodes using walking and cycle paths
Playgrounds (local)	1 per 1,000	5	5	7-8	10	15	20	• Current level of provision meets requirements of standards approach. • Residential growth areas to accommodate increased population numbers will need to consider provision of additional playgrounds as part of active and passive areas of open space.
Youth Services Centre	1 per 500 (aged 13 – 19 years)	1	0	1	1	2	3	• Currently exceed requirements of the standards approach. • Current level of provision will cater to the anticipated short term population growth.

Community Facility	Accepted Standard of Provision for Rural Town	Requirements for Newman Current Pop. – 5,000						Gap Analysis and Preferred Provision Strategy
		Population						
		Current Provision	5,000	7,500	10,000	15,000	20,000	
Aged and Disability Day Care	1 per 2,000 (aged 70+ years)	1	0	0	0	0	0	• Currently exceeds short medium and long term population growth.
Childcare Centre	1 per 4,000	2	1	2	2-3	3-4	5	• Current provision will meet the requirements of the population up to 7,500. • Co-locate primary schools and local community centres
Infant Health Clinic	1 per 3,000	1	1	2-3	3	5	6-7	• Existing provision is in line with current standards requirements. • District/regional facility.
Health and Medical Centre (for private health professionals)	1 per 3,000 – 5,000	3	1	1-2	2-3	3-4	5	• Current provision exceeds requirements as outlined by the facility standards. • Will accommodate for future increases in population numbers. • Located in village centre and/or local hubs.
Library	1 per 5,000	1	1	1-2	2	3	4	• Adequate provision for foreseeable future.
Public Primary School	1 per 4,000	2	1	1-2	2-3	3-4	5	• Level of school provision is sufficient to meet significant community growth.
Private Primary School	1 per 12,000	0	0	0	0	1	1-2	• Insufficient population to sustain a private primary school given the existing public primary school provision. • Long term growth may well see future requirement.
Public High School	1 per 16,000	1	0	0	0-1	1	1	• Exceeds provision standard. • Geographical location justifies provision.
Private High School	1 per 30,000	0	0	0	0	0	0	• Regional facility. • Standards approach would not support.
Out of School Care Service	1 per 2 primary schools	0	0	1	1	2	2	• Facility standards approach would suggest that a facility could be supported based on two primary schools.
Playgroup	1 per 5,000	1	1	1	2	3	4	• Meets community requirements.
Church	1 per 10,000-12,500	5	0	0	1	1	2	• No additional facilities would be required within the expected future population growth.
Employment Service/ Job Network	1 per 15,000	5	0	0	0	1	1	• No additional facilities would be required within the expected future population growth.

Comment

Assessment of the facility provision strategy table clearly suggests that the Newman community is well catered for with regard to most facilities. The facilities standards measure applied to the current facilities provided indicate that in most cases the town either meets or exceeds the level of provision required.

However it is important to note that this standards approach only looks at the number of facilities, not the quality of existing facilities and does not consider the specific requirement of communities. There is a need for consideration to be made of the following points when considering facility planning for a town like Newman.

- Sporting seasons are compressed to accommodate for climatic conditions (creating high level demand for facilities at peak times).
- A number of clubs using the same facility and creating a high level of usage.
- The demand for floodlit playing and training areas.
- Shorter periods of daylight during the peak playing season.
- The "young" profile of the community,

2.4.5 Project Goals and Objectives

The key implications listed above have lead to the formulation of the specific project objectives set out below.

Table 6: Community goals and objectives

Aspirational Goal	Project Objectives
Community Communities that are safe, healthy, and enjoyable places to live and work; offer cultural, educational, recreational opportunities; provide appropriate housing, services and amenities; foster active local citizenship.	• Provision of a full range of community services and facilities
	• Affordable accommodation and living
	• Community cohesion, vitality and involvement
	• Strong cross cultural relationships
	• Acknowledgement of cultural heritage through built form, public art, community art and community activities
	• Good access to work, services and amenities
	• Community participation in goal setting and decision-making processes
	• Integration of workforce with local community

2 Context and Analysis

2.5 Environment

2.5.1 Current Situation

2.5.1.1 Physical Environment

Climate

Newman is located nine kilometres north of the Tropic of Capricorn. The weather is generally warm and dry, with hot summers and warm winters. The mean annual maximum temperature is 31.9ºC and the mean annual minimum temperature is 16ºC. The highest maximum temperatures are observed in January (39.3ºC) and the lowest in June (22.9ºC). Newman averages 218.2 days above 30ºC, 137.3 days above 35ºC and 50.1 days above 40ºC.

Clear days are the norm from July to November, and there are very few days of rain between April and November. Newman has an annual mean rainfall of 313.1mm, the majority of this falling between December and July. The highest rainfall occurs in February (80mm is the mean from an average of 5 days of rain), followed by January 51mm, 4.5 days).

The impact of wind in the region is seasonally distinct. Summer and winter is dominated by winds from the east and the north with the intermediate seasons experiencing westerly winds during spring and winds coming from all quadrants in autumn. Summer and spring experience the strongest winds of the seasons with autumn being the calmest.

The Pilbara coast has one of the highest frequencies of cyclones in Australia. Newman is also subject to occasional tropical cyclones, usually between January and April. Resulting from these dramatic climatic events, a number of rivers see major flows almost every year between December and April.

Topography and Geology

The Newman town site is relatively flat with a gentle south eastern incline of elevation from 540 m AHD to 560 m AHD. A hill line occurs north east of the town centre reaching a maximum elevation of 620 m AHD. Isolated hills also occur south of the town centre, reaching elevations of 590 m AHD

Newman lies within the Hamersley basin which is formed largely of Archaean to Palaeoproterozoic sequence of clastic sediments, dolomite and banded iron formation and mafic and felsic volcanics. The geology of the Newman region is comprised predominately of alluvium (unconsolidated silts, sand and gravel). The hills to the north west of Newman consist of predominantly compromised of Brockman Iron Formation which consisted of differing layers of shale, chert and banded iron formation.

Acid Sulphate Soils

Acid Sulphate Soils are soils containing naturally-occurring, fine-grained metal sulfides typically pyrite (FeS2), formed under saturated, anoxic/reducing conditions. They generally occur in Quaternary (1.8 Ma – Present) marine or estuarine sediments, predominantly confined to coastal lowlands (elevations generally below 5 m AHD). Within these sediments, the majority of soils that present an environmental risk are generally confined to Holocene aged material (<10 000 years). Where these materials have oxidised, they commonly have a mottled appearance (orange and yellow discolouration) due to the presence of oxidised iron minerals. Although soils described represent typical conditions where Acid Sulphate Soils occurs, in Western Australia these materials have been identified in other soil types such as leached sands and silts.

Acid Sulphate Soil mapping compiled by the Department of Environment and Conservation indicates that the Newman area has not been mapped for Acid Sulphate Soils, therefore it is uncertain if Acid Sulphate Soils are present or have the potential to be present within the Newman town site.

Contaminated Land

There are five parcels of land on two sites in Newman that have been registered on the Department of Environment and Conservation's Contaminated Sites Register. The nature and extent of the contamination relates to heavy metals, petroleum and diesel hydrocarbon plumes which has caused groundwater and soil contamination.

2.5.1.2 Surface Waters and Groundwater

Newman falls within the Upper Fortescue Basin which covers an area of approximately 30,000 km^2. The Fortescue River flows north-east into the Ophthalmia Dam and then down through Ethel Gorge. Further downstream, water from the Fortescue River rarely discharges into the ocean as surface flows are destined to the Fortescue Marsh in which the water evaporates.

A number of ephemeral creeks flow into the Fortescue River to the north of Newman: the major ones being Whaleback and Homestead creeks. Flows in these watercourses generally coincide with periods of heavy rainfall from cyclonic activity and tropical storms.

Newman is located within the Pilbara Groundwater Area, which is proclaimed under the Rights in Water and Irrigation Act 1914 (WA). The following text, extracted from the Newman Drinking Water Source Protection Plan (2009) describes the existing groundwater regime in the Newman area:

Recharge occurs mostly by leakage from stream beds during runoff and to a lesser extent by direct infiltration of rain over the surface. The potable water supply bores are drawing from a superficial aquifer system – so water quality and quantity is heavily influenced by the quality and quantity of surface water. Groundwater flow direction generally mimics the direction of surface-water flows.

An aquifer recharge system has been constructed below Ophthalmia Dam and comprises four excavated recharge ponds, two river basins and an open-earth canal, which can be flooded as required from Ophthalmia Dam. If monitoring data indicates that groundwater abstraction from the Ophthalmia borefield is approaching or is projected to exceed the sustainable yield of the aquifer, then the aquifer recharge scheme can be brought into action.

Water levels in the Ophthalmia borefield show no long-term reduction in groundwater storage in the aquifer. Before 1981 groundwater levels had been falling as a result of unsustainable draw from the aquifer. The construction of Ophthalmia Dam in 1981 has seen groundwater levels stabilise. Leakage through the floor of the dam has been sufficient to maintain high aquifer levels in recent years. Because of this leakage, the aquifer recharge system has yet to be used.

Water Use

Currently the ovals in Newman are irrigated using treated wastewater. The treated water is tested monthly for bacteria levels and the Newman Drinking Water Source Protection Plan recommends that a nutrient and irrigation management plan should be developed for all public open spaces and recreational facilities with turf or vegetation but does not recommend that treated effluent irrigation should cease.

Drainage

Most of the drainage lines or creeks through Newman follow natural flow paths. The majority of these remain unlined with variable degrees and conditions of native vegetation cover. These creeks are seasonal and for most of the year remain dry.

No Department of Water flood modelling or mapping has been undertaken for the upper Fortescue River, Whaleback or Homestead Creeks and so the impact that flooding from these rivers may have on the town has not been evaluated at this time, although it is known that there are areas within Newman that are prone to inundation and flooding.

As Newman is subject to extreme weather events, drainage is of primary concern and the provision of sufficient systems to deal with the major weather events has had to be employed. Unfortunately the existing systems have low visual quality and bisect communities as the channels carve their way through the town.

The dominant surface flow of water in the Newman area results from severe periods of heavy precipitation rates in the form of cyclonic activity and tropical storms. The water courses within the town are typically ephemeral and only show flow activity from December to April. The flow of water during these times from the town of Newman generally follows constructed drainage swales that traverse the town and head from west to east in the direction of the Fortescue River. Most of these drainage lines are constructed parallel to roads until they flow out of the town limits. Once outside Newman, these waters primarily follow the Whaleback and Homestead Creek courses and merge in the Fortescue River to the north east. Both of these creeks support riparian vegetation as does the Fortescue River into which they flow.

The occurrence of these drainage corridors in their current state dissects the town and separates development enclaves.

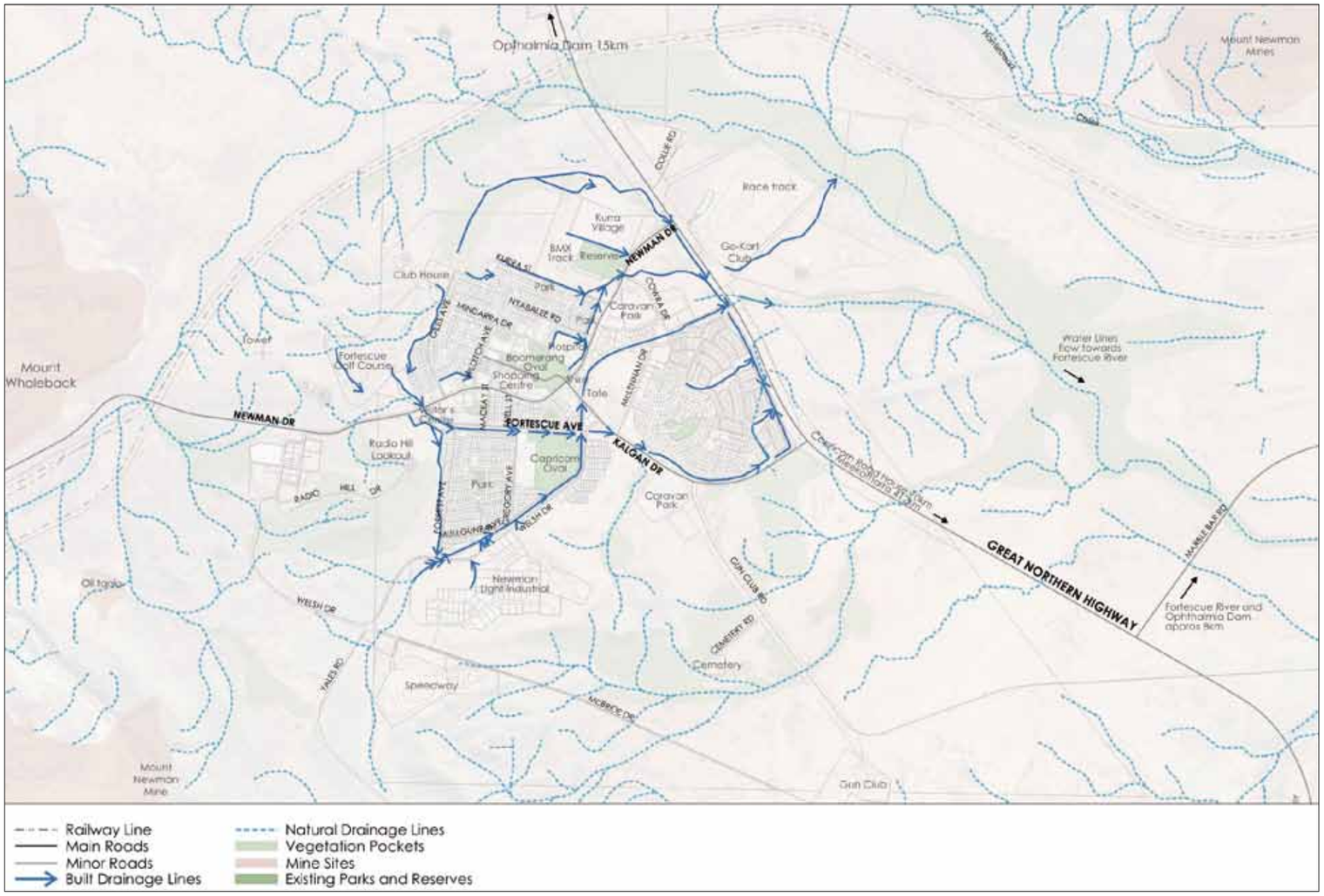


Figure 15: Existing town site drainage

Existing Drainage Swale adjacent golf course

Existing channelised drainage Swale

2 Context and Analysis

Ecological Terrestrial Environment

Newman is situated in the Pilbara bioregion of Western Australia, specifically within the Pilbara 3 – Hamersley subregion, which is described as:

Mulga low woodland over bunch grasses on fine textured soils in valley floors, and Eucalyptus leucophloia over Triodia brizoides on skeletal soils of the ranges.

Whilst the native low woodland mulga, hummock grasslands and snappy gums are well represented beyond the Newman town site boundary, there is little representation within the town itself.

According to the Department of Environment and Conservation's Rare Flora Database, one Priority One species occurs outside of the town site boundary, towards the Mt Whaleback Mine operations. The Department's Threatened Ecological communities database indicates that there are no Threatened or Priority Ecological Communities within or adjacent to Newman.

A number of protected bird and mammal species have been identified as potentially occurring within the Newman area, including the Great Egret, Cattle Egret, Australian Bustard, Fork-tailed Swift, Rainbow Bee-eater, Northern Quoll, Pilbara Leaf-nosed bat and the Western Pebble-mound Mouse.

Climate Change Impacts

Along the Pilbara coast increased cyclonic activity, extreme storm surge events and sea level rise may cause significant impacts to coastal settlements and infrastructure. Inland settlements are likely to be affected by increased cyclonic activity of increasing intensity.

The potential impact of climate change on Newman of inundation from local flooding due to increased cyclonic activity is significant.

Natural Heritage

According to the Heritage Council of Western Australia, three natural sites exist that are heritage listed in the Newman area. The closest of these is Kalgans Pool located approx. 75 km north of Newman. This natural attraction is significant due to its year round water supply and the large, deep pool at the base of a tall cliff face. The Weeli Wolli Creek Pools are located 75 km to the North West and are a series of permanent pools and small waterfalls in the Weeli Wolli Creek watercourse. Flora and fauna in this area are spectacular with paperbarks and 30m tall river gums lining the watercourse. Large date palms are also scattered throughout the paperbarks as a remnant of the cameleer days.

Finally, Lake Disappointment, 300km to the east of Newman, is significant as an ephemeral salt lake that is home to many species of waterbirds. Further from Newman are a number of National Parks that are not heritage listed, but are significant in their own way. Collier Range National Park at 150 km south of Newman, although very remote, is known for its spectacular hills and mountains. The Karijini National Park, 160 km to the north east, is one of the better known parks in this region and hosts the magnificent Hamersley Range, with gorges, lookouts, and walking trails. The Rudall River National Park, at 12,837 sq. Km, is the largest national park in Western Australia and one of the largest in the world. The park is known for geological formations, majestic watercourses and pools, ranges and gorges, and the occasional wild camel.

Existing Street Trees along Newman Drive

2.5.2 Key Drivers and Pressures

Population increase, industrial and commercial growth, and associated increases in transport, energy and water use are the key driving forces affecting the natural environment in the Pilbara generally and Newman specifically.

These drivers exert direct pressures on the environment, which can be divided into three main types: (i) excessive use of environmental resources, (ii) changes in land use, and (iii) emissions (of chemicals, waste, radiation, noise) to air, water and soil.

The effects of climate change are particularly relevant to the Pilbara, given the potential for sea level rise in coastal locations and increased frequency of intense cyclonic activity.

2.5.3 Key Implications

The key environmental challenges for Newman in accommodating an increased population include:

- Exposure of unknown potential or actual acid generating soils resulting from ground-disturbing activities associated with land development.
- The management, use and efficiency of water resources, in particular groundwater, to sustain future demands.
- Drainage and flooding associated with waterways and natural drainage paths that run either adjacent to or through Newman such as the upper Fortescue River, Whaleback and Homestead Creeks and associated tributaries.

2.5.4 Project Goals and Objectives

The key implications listed above have lead to the formulation of the specific project objectives set out below.

Table 7: Environmental goals and objectives

Aspirational Goal	Project Objectives
Environment Local, regional and global eco-systems in which landform, habitat and biodiversity are retained and that provide natural provisioning, regulating and cultural services.	• Protection of significant natural landform
	• Protection of significant native vegetation and habitat
	• Prevention of pollution and erosion from stormwater
	• Retention of predevelopment water balance
	• Reduced net per capita carbon emissions
	• Minimal waste to landfill
	• Best practice recovery and reuse of materials
	• High levels of air quality
	• Acceptable noise levels

Figure 16 Aerial of town site

2.6 Built Environment and Public Realm

2.6.1 Current Situation

2.6.1.1 Background

Newman was established in 1968 by the Mt Newman Mining Company as an accommodation centre for employees at the nearby Whaleback iron ore mine, it remained a company-run town until 1981 when the handover of company responsibility to local government began.

Staged development characterized Newman's early years, and its status as a 'dormitory town' accommodating short-term residents and fly-in, fly-out (FIFO) workers did not encourage long-term vision, which resulted in a lack of strategic planning. Initially, the town comprised a cluster of residences and facilities to the north of the main road, Newman Drive. The construction of a second residential cluster commenced during 1971-72 and became known as South Newman. In 1980, houses were built along the western side of another major thoroughfare, Forrest Avenue, and a further town extension occurred east of the Capricorn Oval recreation area in 1981.

Newman's town centre, commercial area and other significant community facilities are today located in the oldest part of the town, North Newman. The problems facing Newman in the 21st Century have their roots in the pre-1981 period, and basic infrastructure built in the 1960s and 1970s is today in need of restoration or replacement. Perhaps the most problematic urban form evident in Newman is the separation from the town of the worker's quarters to the north and indigenous community to the east.

The current urban form of Newman reflects a 'big box' (Town Centre) surrounded by asphalt and surrounded again by a ring of residential development encompassing the entire town site. The development patterns from the centre of town clearly show distinct development staging in enclave construction. The existing community spaces and the enclaves themselves are disconnected from the Town Centre and often from pedestrian/cycle access.

Kurra Street and Cowra Drive have become the northern most limits of the town's expansion in this northern area with the worker's quarters existing on the northern fringe of this division. Creation of a physical division in a town of this small population is likely to create the same social difficulties that have existed in our current urban composition with regard to cultural and physical inclusion.

Figure 17 Fly In and Fly Out Worker's Quarters – directly north of Newman Township

2 Context and Analysis

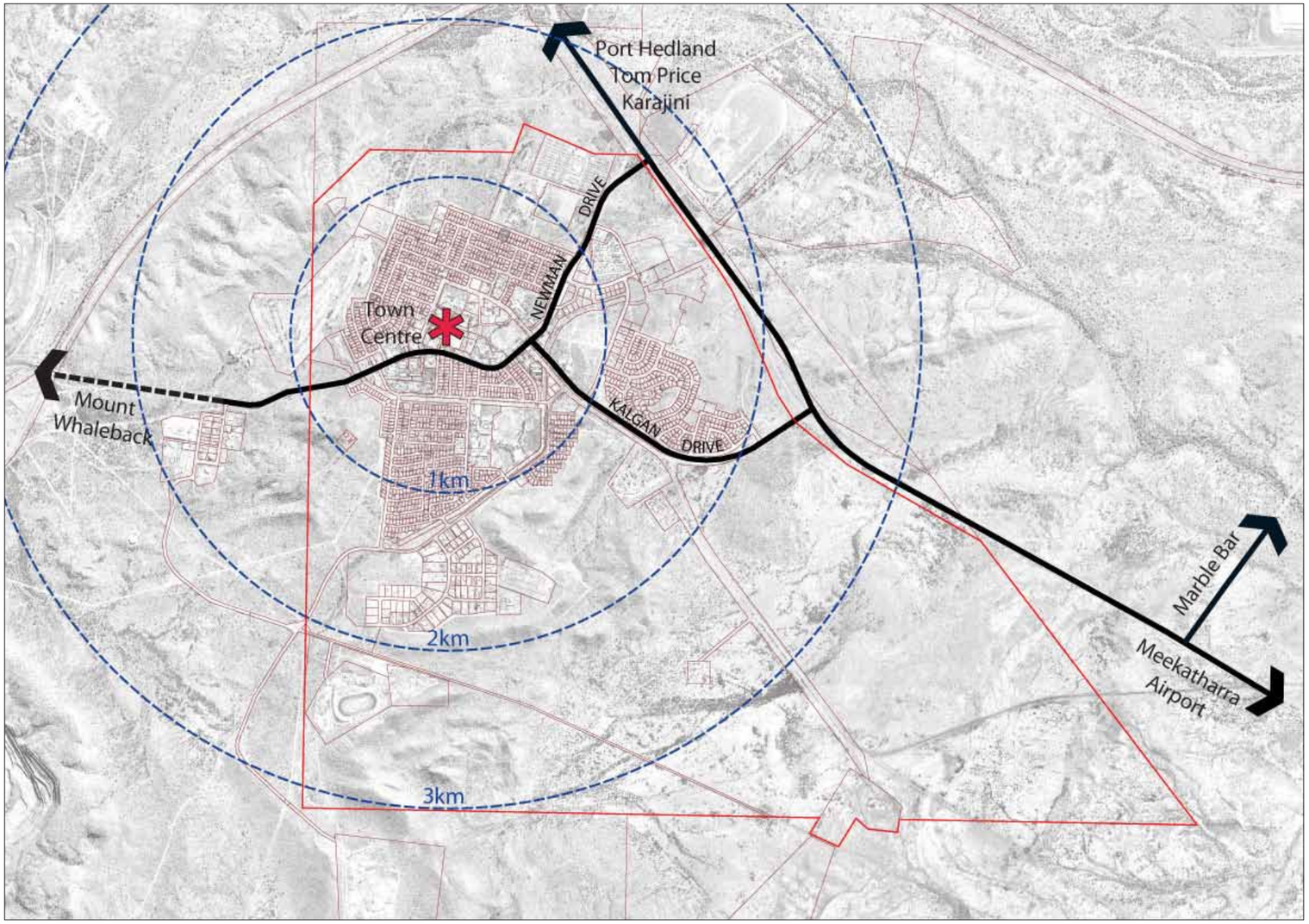


Figure 18: The town site and main entry roads

2.6.1.2 Urban Form and Structure

The Town Site

The town site layout has evolved as a product of its history as outlined above, and is not legible and difficult to orientate your location and direction due to a lack of signage and visual indicators. The main orientation elements are the 'natural' orientation markers such as the surrounding hills and drainage corridors (creek lines) which mildly assist with legibility within the town. The potential of these vistas and views have not been considered in the design and orientation of streets.

Housing

Housing within Newman consists primarily of low density single detached dwellings. There is very little diversity in the original size of the dwelling lots. All of the single residential lots are approximately 700m^2, with similar housing stock. The lack of diversity creates problems with providing appropriate and affordable housing for residents and employees. The suburb of East Newman is a more recent extension of the town site and deviates from the previous grid layout with a spaghetti road pattern. The East Newman suburb is generally less permeable than the original Newman settlement due to the spaghetti road pattern.

The older suburbs to the south including the Industrial Estate were built with little pedestrian movement potential and no connection to the existing urban structure. Currently, drainage swales physically "separate" residential enclaves as they are installed as purely utilitarian elements. In this current form with steeply graded edges and lack of pedestrian/cycle friendly edge treatment, they provide little opportunity for recreational amenity.

The town site and surrounding topography

Housing in Newman

2 Context and Analysis

The Parnpajinya Aboriginal community is situated on the northern outskirts of the town. The WAPC has produced a community layout plan for Parnpajinya. This community consists of approximately 13 dwellings, combined with a community building.

Whaleback Mine

Mount Whaleback mine, established in 1968, is the biggest single-pit open-cut iron ore mine in the world being more than five kilometres long and nearly 1.5 kilometres wide. Mount Whaleback mine is located approximately 2km west of the Newman town site. Mount Whaleback mine is run by BHP Billiton and is the biggest employer in the region.

Industrial land

There are two key industrial areas within the Newman town site. The first is located east of the town centre in close proximity to the Whaleback mine site. This area was the first industrial estate to be established within the town site and there is not any undeveloped industrial land remaining within this estate. The second industrial estate is located south of the town centre. There is approximately 25ha of undeveloped zoned industrial land remaining in this industrial estate.

2.6.1.3 Movement and Connectivity

Road Network

There are two road links from Great Northern Highway into the Newman town site, Newman Drive and Kalgan Drive. Both are classified as local distributor roads in the Main Roads WA functional road hierarchy. Both are constructed as single carriageway, two-lane roads and have a posted speed limit of 60km/h.

Newman Drive provides the main route through the middle of Newman town site from Great Northern Highway on the northeast side to the Mt Whaleback mine site west of the town. It also passes along the southern side of the town centre and the main access intersection for the town centre is located on Newman Drive. The appropriateness of the 60km/h speed limit on Newman Drive within the town site has previously been questioned, particularly in relation to the safety of pedestrians crossing the road to the town centre and schools.

Kalgan Drive provides an important road link from Newman Drive (east of the town centre) to Great Northern Highway at the southeast corner of the town site. Kalgan Drive also connects to Welsh Drive, which is another 60km/h, two-lane, local distributor road. Welsh Drive provides access to the light industrial area on the southern side of the town site and, with Kalgan Drive, also provides a heavy vehicle route from the highway to the industrial area, rail hub and mine site on the western side of town.

Public Transport

Newman currently does not have a public transport system apart from the private buses that transport employees to and from the mine, airport, etc.

Pedestrian and Cycle Networks

There is a framework of pedestrian paths already in place in Newman including dual use path networks across the town site, however many are discontinuous and the quality of paths is predominantly poor. There is a need to improve the current pathway connections, particularly in the outer town links and older suburbs to create an integrated network.

Existing Streetscape adjacent to Hilditch Avenue

Existing footpath in front of the Town Pool

2.6.1.4 Public Realm and Landscape

Newman town site suffers a significant lack of high quality public realm, in part as a result of the mining past and a rather utilitarian approach to what public amenity the town requires. The experience when entering the town site via the airport or the Great Northern Road is currently underwhelming. The notion of a 'sense of arrival' into Newman can be created through bold street tree planting, highlighting local vegetation and materials, artwork features, lighting, and individual paving designs to announce the entry as a statement.

Newman has a range of open space recreational places available to the community; but despite the residence' predominant love for sports and the outdoor lifestyle many of the existing parks and facilities are underutilised.

2.6.2 Current Planning

2.6.2.1 Strategic Planning

The SoEP's Local Planning Strategy is the key strategic land use plan for the Shire while the SoEP Town Planning Scheme No. 4 is the primary statutory framework that guides land use and development within Newman. These documents have previously been examined in detail above at section 2.1 of this report. Both documents require review as a result of the NRP and in particular, it is noted that the Local Planning Strategy is out of date and does not now provide long term strategic direction for the growth of the Newman. The result is that planning and development within Newman is occurring on an ad-hoc basis without a clear strategic planning framework.

2.6.2.2 Current Development Projects

Current development projects occurring within the town site include:

- Kurra Village – approximately 220 residential lots
- Grandtown – approximately 150 residential lots
- East Newman subdivision – 370 residential lots

LandCorp is also progressing the release of some light industrial lots south of the town centre. The NRP will go a long way to providing the planning certainties a town needs to move forward and encourage sustained development for future growth.

2.6.2.3 Native Title

There is one registered Native Title Claimant over the Newman town site and beyond. This application is pending a decision. The registered claimant is Nyiyaparli (WC05/6).

The Native Title Claim is applicable to Crown and Unallocated Crown Land (UCL). Due process will need to be observed if Crown land or UCL is identified for future growth of the town site.

One avenue for negotiating native title is through an Indigenous Land Use Agreement (or ILUA). An ILUA is an agreement between a native title group and others.

ILUAs can cover a wide variety of subjects and may be used as part of the negotiations leading to a consent determination of native title. Alternatively, they may be entirely separate from the determination process. The parties to the agreement apply to the Registrar of the Tribunal to have the agreement registered. If an ILUA is entered onto the Register of Indigenous Land Use Agreements, it binds all native title holders to the terms of the agreement, even those who are not a party to the agreement, so long as it remains on the Register.

Current negotiations are being undertaken with the claimant and this will be an ongoing activity that will require monitoring and action.

2.6.2.4 Aboriginal Heritage

There are a number of registered Aboriginal heritage sites in proximity to the Newman town site. Most of these sites are outside of the study area, however there are two sites of relevance to the NRP.

The Mt Whaleback Aboriginal heritage site is a permanent site on the register and extends immediately west of the golf course.

Of particular relevance to the redevelopment of the town centre, is the location of the Kiripirna Aboriginal Heritage site over land on Calcott Crescent, east of the public swimming pool. This site is also a permanent entry on the Aboriginal Heritage register.

Any site disturbance within any of these registered sites will trigger the requirement for a Section 18 application to the Department of Indigenous Affairs.

2.6.2.5 Mining Tenements

The major tenement holder in the Newman area is BHP Billiton. The primary tenement (ML244SA) is managed under the Iron Ore (Mount Newman) Agreement Act 1964 (the Act). There are numerous other live and pending tenements in existence around the Newman town site, which will also need to be regarded when identifying future development and expansion of the town site.

The mining tenements are generally over crown land or vacant crown land. These tenements will have implications if Crown land affected by a tenement has been identified as a future development site to accommodate growth of the town. Section 16(3) of the Mining Act 1978 states:

"No Crown land that is in a mineral field shall be leased, transferred in fee simple, or otherwise disposed of under the provisions of the Land Administration Act 1997, without the approval of the Minister".

Any crown land identified for future development which is affected by the Ministerial Reserve or Mining Tenements will require referral to the Minister for Mines under s16(3) of the Mining Act 1978. As part of this process, Crown land identified for town site expansion will require referral to the geological survey dept of the Department for Mines and Petroleum (DMP) to determine if land identified has mineral deposits worth protecting.

If no significant mineral deposits exist within the crown land site identified for future development, the Minister for Mines may consent to the transfer of Crown land for development purposes.

A Ministerial Reserve (Minister for Mines) (TR 70/7484) also exists over the Newman town site and has been gazetted to achieve normalisation of the town site through recognising a growth boundary for the town, which is protected from further mining tenement applications. Any crown land or UCL within the Minesterial Reserve will be subject to the same referral process as defined above.

2.6.3 Key Drivers and Pressures

The legacy of Newman's single tiered economy, employment and social structure being driven by iron ore mining has lead to a number of pressures on the town, including:

- High cost of living
- Housing shortage
- Low public amenity
- Lack of investment in infrastructure
- Lack of strategic planning

These high order drivers and pressures have also contributed to further pressures on the ground. These include:

- Outdated Scheme and Policies as a result of an under resourced local government. The current scheme and policies do not promote density infill development to address housing pressures, current parking standards are excessive and inappropriate.
- Lack of a strategic planning approach to address issues associated with long term future growth of the town site.
- A low rate base for the Shire, which further constraints local government capacity to respond to current challenges facing the town.

2.6.4 Key Implications

There are implications as a result of the specific drivers and pressures that have resulted in Newman's current state, as outlined in the following sections:

Figure 19: Topography is a significant challenge to future growth of the town site

2.6.4.1 Ability to accommodate growth

Land availability

Perhaps the biggest misperception about Newman is that there is an endless supply of available land for development. Newman already borders on topographical landforms and industrial activity that will limit further expansion in several directions. Currently, Newman is bordered by the Mt Whaleback mine to the west and the Whaleback Creek which runs along the southern margin of the mine. Only 5km to the north-east of the town lies the Ophthalmia Range; from here the Homestead Creek flows south-east down to the Ophthalmia Dam and the Fortescue River. Growth to the south of Newman is restricted by the Orebody 29 Mine and the new light industrial area which is already situated amongst the rolling hills. Further south of town, the Fortescue River and its floodplain meanders westwards limiting potential town growth.

2 Context and Analysis

Connected to land availability is soil type. In the region there are difficulties with regard to building on hill slopes. The two dominant soil types, Sodosols and Tenosols, are relatively unstable. Sodosols are high in clay content and dispersive subsoil structure and are subject to tunnel and gully erosion. Typically, they produce a clay hardpan, but when that is removed through excavation and building activities, groundplane instability is likely to occur. Tenosols are typically used for grazing as they have difficulty in retaining water and are therefore very porous and unstable.

Removal of the stabilising layer of vegetation and the upper crust of the soil strata will also produce instability during storm events and overland surface flow of water.

Given the issue related to land availability the future urban form of Newman is heavily dependent on the natural environment. Analysis of the landforms, water flows, infrastructure and associated buffers combine to allow an understanding of the land areas available for the future growth.

It is acknowledged that topographical challenges (i.e. small hillocks) may exist within specific throughout the town site and these will need to be addressed at the detailed site planning level, either through retention in larger freehold lots, within public open space or even removal of hillocks through earthworks, if deemed appropriate by the relevant approval authorities.

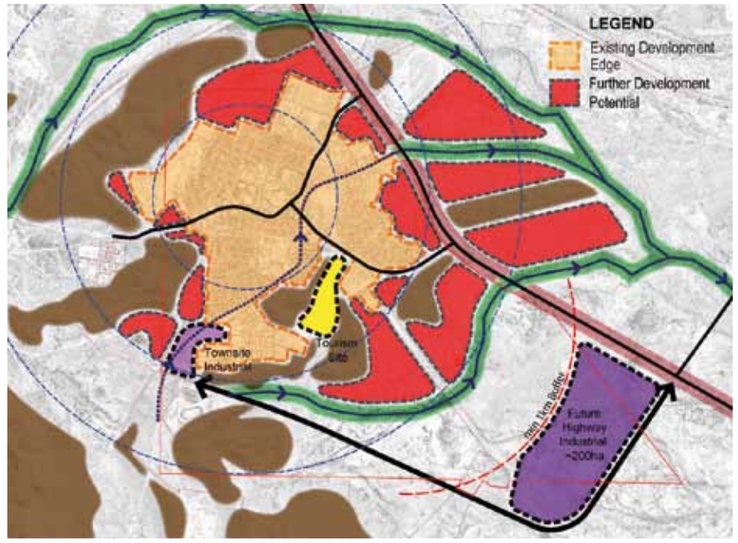


Figure 20: Topography is a significant challenge to future growth opportunities for the town site

Housing

The need to create opportunities for housing choice to increase density, affordability and diversity is key implication to address the current drivers and pressures facing Newman. Housing affordability and diversity of dwelling types will have a direct influence over built form outcomes for future development. Previously, single residential houses on large lots was the predominant residential type, however future residential development will need to be diversified to include duplex development, grouped dwellings, walk up apartment buildings and 'shop top' apartments, in order to address a range of issues relating to housing, including the need to provide appropriate accommodation for shift workers and to provide affordable accommodation, including accommodation for small business owners/ operators.

Industrial Land

Industrial land has been identified as a significant future requirement for the region and the WAPC document Pilbara Planning and Infrastructure Framework: Regional Perspective specifically identifies the need to provide additional industrial land. Heavy industry has a number of requirements which will influence the built form of Newman. These requirements include:

- the need to set aside a large tract of land to accommodate the requirement to provide large lots
- the need to provide a significant buffer (1km) between sensitive uses accommodated in the town site and the industrial estate
- the need to cater for access for heavy haulage vehicles, drainage infrastructure and other key infrastructure

2.6.4.2 Public Realm

There is a strategic need to implement a program to deliver much needed public realm and amenity at both the town site and town centre level, including:

- Landscaping to enhance the sense of arrival
- Entry to the town centre, including Main Street and Town Square
- Movement network of the pedestrian/cycle systems

There is a need to provide a broader range of recreational spaces, of different scales linked into the overall system and to upgrade existing park spaces with improved facilities, basic amenity and connectivity and, address social issues such as graffiti and anti-social behaviour.

The introduction of new public realm within the town centre and greater pedestrian amenity of the existing and proposed pedestrian network could be integrated throughout the town and include: green infrastructure/shade tree avenues; recreational opportunities such as playgrounds; lighting to allow for night usage; rest stops; passive surveillance from surrounding development, and interpretive elements. By incorporating the drainage reserves as part of the overall path and open space network it will provide the matrix of permeable and accessible linear corridors required for Newman's future town growth and long-term sustainability.

Drainage Corridors - A Structuring Element

Where infrastructure is concerned, the retention of existing natural watercourses for primary drainage is highly preferential to the channelising and realigning activity that has occurred previously in the town. This trench-like treatment is already showing signs of design weakness as certain areas of Newman become inundated with rainfall during the volatile storm events that occur in this region. There is opportunity to revitalise these channels into more purposeful and aesthetic, multifunctional amenities. It is essential that the location of existing surface run-off patterns and natural watercourses in and around Newman are considered when planning for future development. Adequate space must be reserved for additional multiuse drainage corridors and it is crucial that the proposed are integrated with the natural systems to ensure the long term sustainability of the development and a durable connection to the unique surrounding environment.

Soft Infrastructure

The Newman climatic conditions make it essential that vegetation becomes a major ingredient of the Newman growth plan for the specific comfort of residents. From a visual aesthetic, the native plants showcase the distinctive local landscape and aide in creating a 'sense of place' and fostering community pride. Local plants requiring minimal ongoing maintenance provide habitat and food for local fauna and continue to support local ecosystems.

2.6.5 Project Goals and Objectives

The key implications listed above have lead to the formulation of the specific project objectives set out below.

Table 8: Built environment and public realm goals and objectives

Aspirational Goal	Project Objectives
Built Environment and Public Realm An urban form that reflects the intrinsic qualities of the site context, characteristics and relationships and complements the natural environment; with centres that are vibrant, dynamic, diverse and functional.	• Increased net development density
	• A place based response that reflects the climate, context and site
	• Management strategies for climate change and natural disasters
	• An integration of uses that achieves functionality, efficiency and compatibility
	• Connectivity at local, district and regional scale
	• A network and hierarchy of streets and public spaces that provides permeability and legibility
	• An integrated movement network that ensures the safe movement of pedestrians, cyclists and vehicles
	• A diverse mix of uses, buildings and housing types
	• High quality well designed buildings that reflect the site context
	• A variety of well defined open spaces
	• An accessible and legible city centre destination

2.7 Infrastructure

2.7.1 Current Situation

2.7.1.1 Earthworks

The ground conditions in Newman typically are extensive sheets of gravelly clays with increasing clay mineral constituents in closer proximity to the Whaleback Creek and Fortescue River tributaries. The site development of the existing Town has been based on minimal earthworking of lots and the formation of roads above ground levels. Lot levels are typically lower than adjacent road levels.

An existing gravel pit exist approximately 2kms north of the town. The quarry is on a BHP Billiton lease and is under their control. Currently the SoEP and BHP Billiton utilise the quarry for the own purposes. The quarry is not open for public or other commercial uses.

2.7.1.3 Water

The supply of feed water and its treatment to potable quality is undertaken by BHP Billiton with Water Corporation having responsibility for its distribution throughout the town site.

Water is sourced from a dedicated borefield with three operational bores. Water is delivered to the existing treatment plant via the “H Line” pipeline. Raw water is also piped for process purposes via K & E Lines. This water is suitable for treatment but has higher suspended solids, etc so is generally not used. On occasion (e.g. during maintenance to H Line or the borefield) water from E Line is used to top up the potable supply.

The existing water treatment plant is an iron reduction and chlorine dosing plant constructed in 1981. Chlorine dosing is monitored by both BHP Billiton and Water Corporation. The existing water treatment facility functional life expectancy is unknown.

Town water supply is via 3 mains from the tank site located west of Newman. The capacity of the treatment plant is 7Ml per day and this volume of water has been fully utilised for the current town site. Water tanks have an allowance of approximately 36 hours of storage if supply is interrupted.

The town site is reticulated from road reserves with water mains approximately on the standard Water Corporation alignments. Water distribution and reticulation mains are predominantly asbestos cement.

The town centre is currently serviced. Existing water alignments are currently on non standard alignments. Information based on informal discussions has indicated water supply pressures are sub standard in a number of areas such as the Light Industrial Area.

Refer to figure 21 which details the existing waste water assets.

Figure 21: Existing Wastewater Assets

2.7.1.2 Sewer

Water Corporation owns and maintains the sewerage reticulation system in Newman which discharges to the Waste Water Treatment Plant owned and maintained by the SoEP. Recycled water is piped back to the town for watering recreational areas via a 5.5km pipeline owned by BHP Billiton and operated by the SoEP.

Water Corporations sewer license area currently includes the existing town site but does not cover all of the expected growth areas.

Newman town site residential areas are serviced by a gravity sewerage network system and a series of pump stations. Three of the pump stations are Water Corporation Assets. Six other pumps stations are owned privately for domestic / commercial purposes e.g. Parnpajinya Aboriginal Community and Newman Caravan Park Site. All effluent is pumped to the Waste Water Treatment Plant north of the town through a DN300 below ground ductile iron pipe.

The existing industrial premises in Newman are generally not on mains sewer and are currently serviced by separate systems such as septic tanks.

The majority of lots served in Newman are served from the rear of lots. Property connections take offs are from existing reticulation sewer alignments located along rear boundaries. These sewer alignments are located in Water Corporation easements.

The below table summarises known information on the existing Water Corporation pump stations:

Table 9: Pump station specifications

Pump Station	Asset Ownership	Gravity Sewer Design Flow (GSDF)	Max Design Pump Rate
PS No1	Water Corporation	10.4 L/s	13.9 L/s
PS No 4	Water Corporation	53.6 L/s	101.2 L/s
PS No 5	Water Corporation	15.5 L/s	20.6 L/s

Based on informal discussions and local knowledge, pumping stations 1 and 4 are over capacity. This suggests either there is a larger actual Gravity Sewer Design Flow (GSDF) entering the pump stations, or the actual pumping rate is not pumping to the design rate above.

The Town centre is currently serviced by gravity sewer. Existing sewer assets are currently on non standard alignments within the town centre area.

Refer to figure 22 showing the existing wastewater assets .

Stormwater drain

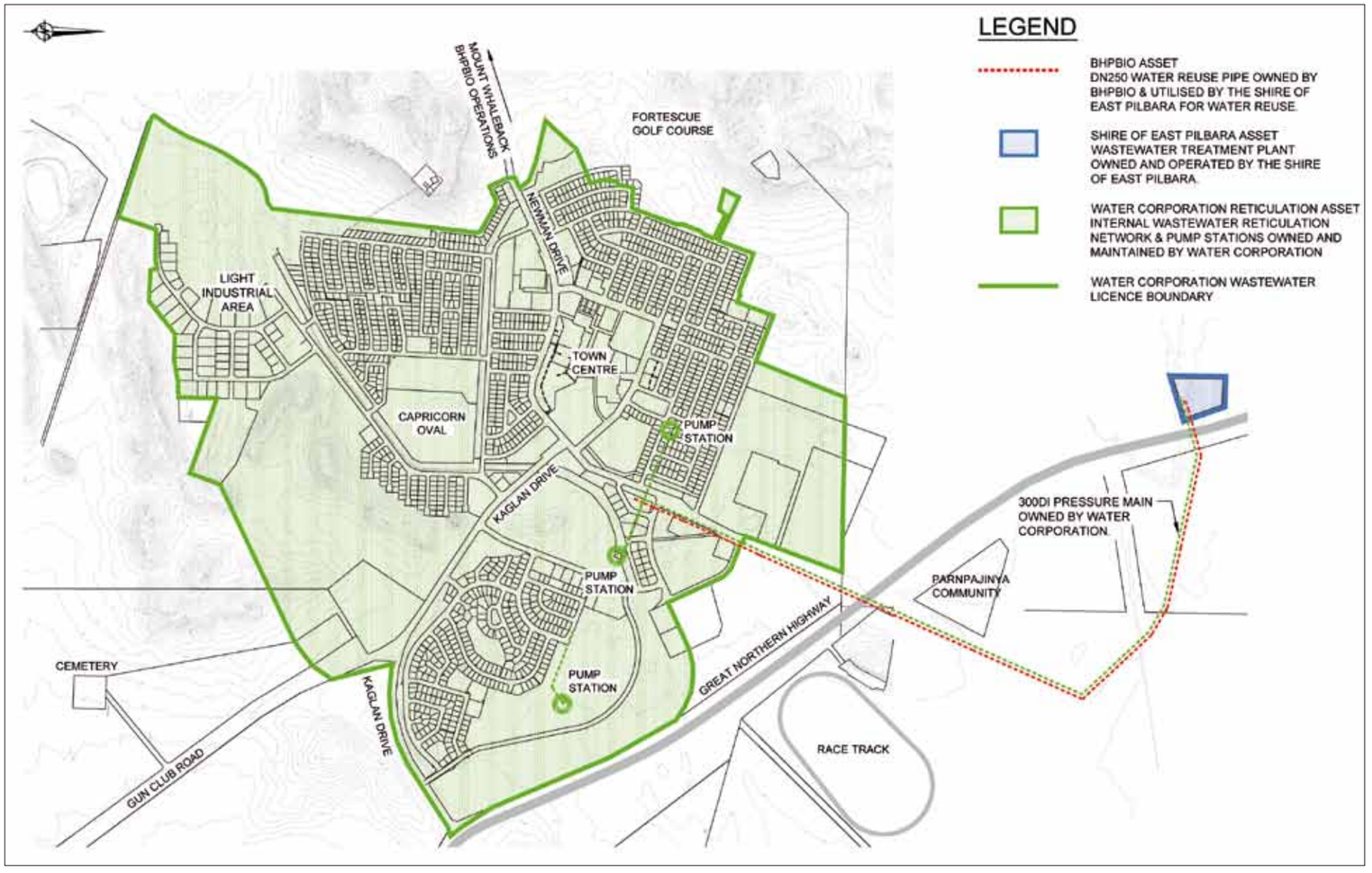


Figure 22: Existing Water Assets

2 Context and Analysis

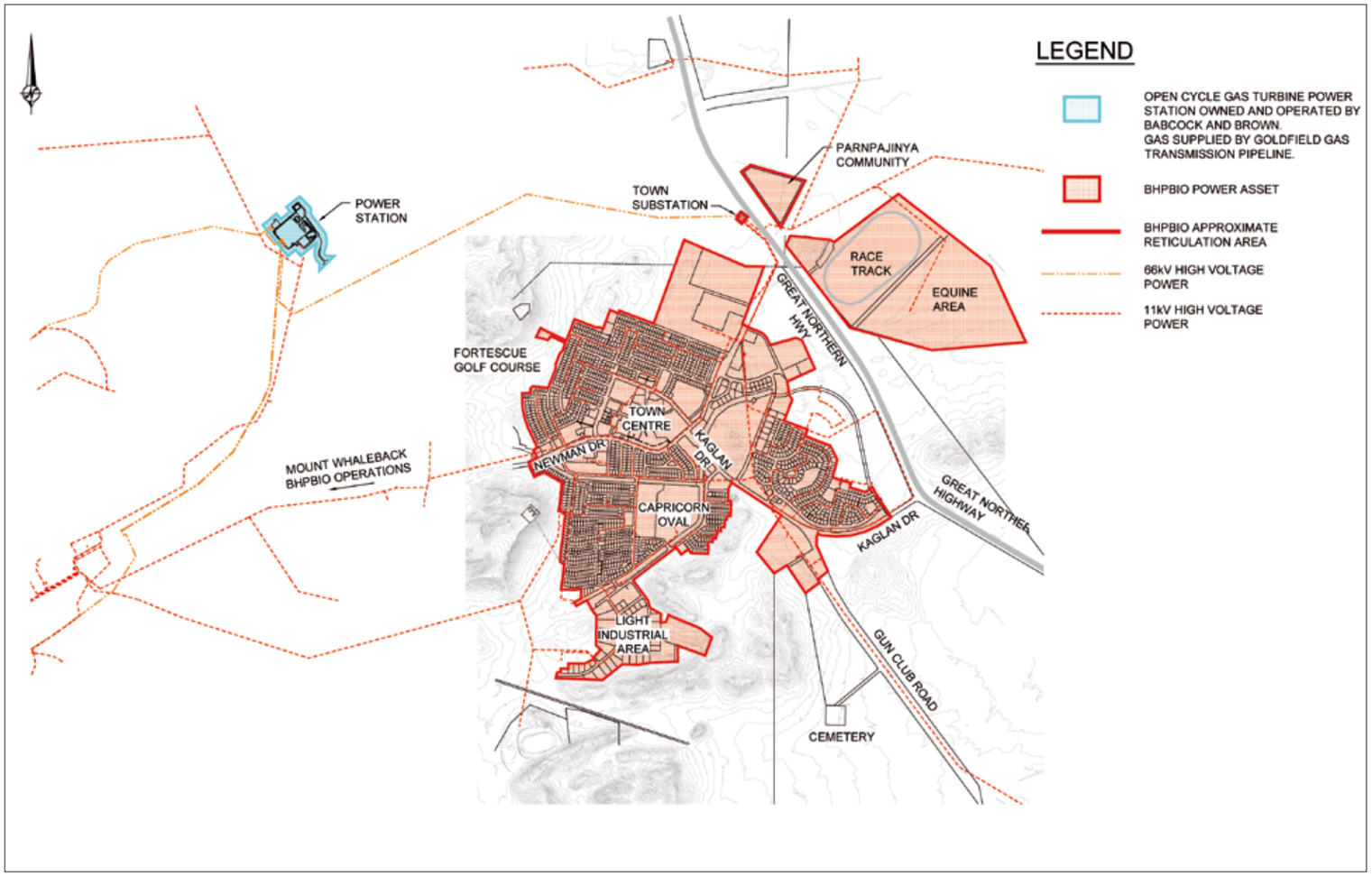


Figure 23: Existing Power Assets

2.7.1.4 Power Supply

Power is generated from a 105 MW Open Cycle Gas Turbine power station, owned and operated by Alinta Energy Limited (name changed from Babcock & Brown Power in 2009), situated approximately 3km west of the town site. The facility provides power both to BHP Billiton mines and domestic supply to Newman. Electrical infrastructure within Newman is owned and operated by BHP Billiton.

Due to the recent installation of an additional 36MVA turbine commissioned in late 2009, the power station has sufficient capacity to meet existing demand.

Newman is supplied via a 66kV high voltage (HV) transmission line from the power station to a substation located near the intersection of Newman Drive and Great Northern Highway. A secondary supply point exists via a minor distribution line from Mt Whaleback mine to the town.

Refer to figure 23 detailing the existing power assets.

2.7.1.5 Telecommunications

Newman is primarily serviced by fibre optic cable in the Great Northern Highway road reservation and mobile service. The town site is reticulated with both fibre optic and cable.

Telstra have an exchange building in Giles Avenue which services the entire town.

A large amount of the towns' communications assets have been inherited from the original owners BHP Billiton.

2.7.1.6 Drainage

The town is drained through a combination of pipe network and open drains. These connect to major open drains which were originally natural creek lines that discharge into Whaleback Creek to the north and east of Great Northern Highway. Some sections of these creek lines have been retained in their original condition although the majority have been modified through realignment and widening/ deepening to suit development and increase capacity.

Rainfall in Newman typically only occurs during summer months as the climate is influenced by the Northern Australian Wet and Dry Seasons. This rainfall varies from low intensity events through to very heavy rainfall resulting from deep depressions caused by cyclones moving inland from the Pilbara Coast. While rainfall is infrequent, as it occurs typically with storm events, the rainfall intensity and runoff flow can be high. Whaleback Creek has a catchment of over 100 square kilometres and a rainfall event not affecting the town can cause flooding to areas to the north of Great Northern Highway.

The town centre can be separated into four catchments. These catchments are not obvious and are divided by existing structures and minor level changes. The Town Centre falls east to west at an approximate grade of 1 in 100. Stormwater is directed into an existing sub standard piped drainage network and overland flood routes. The stormwater flows generated from these catchments ultimately discharge into an existing open drain at the northern corner of the Newman Drive and Mindarra Drive intersection.

Isolated flooding occurs in the town centre at the south side of the Rogers Place shopping centre and the swimming pool site.

Stormwater Flows generated upstream to the west of the town centre are currently directed down Hilditch Avenue, Mindarra Drive and Burrows Street.

2.7.1.7 Road Network

The existing Great Northern Highway is part of the Perth-Darwin National Highway route and provides the key regional access to Newman. Great Northern Highway is classified as a primary distributor in the Main Roads WA functional road hierarchy. Responsibility for Great Northern Highway rests with Main Roads WA, whereas all other roads in the Newman town site are local government responsibilities.

Newman Drive provides the main route through the middle of Newman town site from Great Northern Highway on the northeast side to the Mt Whaleback mine site west of the town. It also passes along the southern side of the town centre and the main access intersection for the town centre is located on Newman Drive. The appropriateness of the 60km/h speed limit on Newman Drive within the town site has previously been questioned, particularly in relation to the safety of pedestrians crossing the road to the town centre and schools.

Kalgan Drive provides an important road link from Newman Drive (east of the town centre) to Great Northern Highway at the southeast corner of the town site. Kalgan Drive also connects to Welsh Drive, which is another 60km/h, two-lane, local distributor road. Welsh Drive provides access to the light industrial area on the southern side of the town site and, with Kalgan Drive, also provides a heavy vehicle route from the highway to the industrial area, rail hub and mine site on the western side of town.

Almost all roads in Newman are constructed as 7 to 7.4m wide, single carriageway, kerbed and drained streets. However, the newest residential areas under construction in East Newman are designed in accordance with the principles of the Western Australian Planning Commission's Liveable Neighbourhoods guidelines, which include a range of road widths appropriate to the various functions of different types of roads.

Apart from the local distributors noted above the default built up area speed limit of 50km/h generally applies throughout the town site, although there are 40km/h school zones (7.30 to 9am and 2 to 3.30pm on school days) on all road sections abutting the three school sites in Newman.

There does not appear to be any significant traffic congestion in Newman at present. There does appear to be a significant amount of spare capacity to accommodate traffic growth on the road network but as there is no existing traffic volume information (apart from Great Northern Highway) it is not possible to quantify the amount of spare capacity available.

2.7.1.8 Pedestrian and Cyclist Networks

Newman is currently well served by a comprehensive footpath network and wider paths strategically located beside the busier roads so that they that can be shared by pedestrians and cyclists. On quieter streets, like most of the streets in Newman, it is appropriate for cyclists to ride on the road. There are only a few minor gaps in this existing path network that should be filled. This pattern of footpath provision should be continued in all future growth areas.

2.7.1.9 Public Transport

Newman currently does not have a public transport system apart from the private buses that transport employees to and from the mine, airport, etc.

2.7.2 Current Planning

2.7.2.1 Earthworks

The SoEP is in the early planning stages of creating a new quarry suitable for supplying road pavement and general fill materials. The proposed quarry site is approximately 3.5kms north of Newman. It is proposed that this new quarry would be sized to meet the requirements of the Newman town site expansion in the short term.

2.7.2.2 Power Supply

BHP Billiton have modelled the future power demand based on projected industrial growth and a nominal allowance for population growth in the town site. BHP Billiton have included in their 5 year plan to forecast for a future South Newman Town Substation to be built.

2.7.2.3 Telecommunications

As part of the investigation processes for the construction of the SoEP's Collocation Building and the NRP, Telstra have been made aware of the future growth plans for the town site and Town centre.

Telstra has completed a desktop network planning study based on future requirements. Results from this study may differ from actual field data but is the best information available for Telstra's network upgrades.

2.7.2.4 Drainage

There is no current planning for new drainage networks or upgrades except for works generated by the NRP.

2.7.2.5 Roads

Section 2.4.2 above provides a list of projects and initiatives in the SoEP's *Newman Tomorrow* Plan, which includes several transport-related items.

2.7.3 Key Drivers and Pressures

Newman currently has adequate infrastructure service provisions for power, water, wastewater, telecommunications and stormwater drainage. Although the delivery of services is more variable in comparison to Perth and other major regional areas, they have been generally tolerated as a part of life when living in Newman.

Population increase, industrial growth and associated increases in transport, energy and water use are the key driver forces affecting the existing infrastructure capacities in Newman.

These drivers exert direct pressures onto these utilities and ultimately produce a number of challenges which are described below.

2.7.4 Key Implications

2.7.4.1 Existing Asset Ownership

Service providers include BHP Billiton, SoEP, Water Corporation and Telstra. Unlike other towns in the North West, Newman's service utilities are not the typical statutory providers. The ability and want for some of these providers to maintain services and improve delivery is secondary to their core business priorities and as such delivery suffers.

2.7.4.2 Existing Asset Life

Newman's major infrastructure assets are 30 to 40 years old i.e. town substation, water treatment plant and waste water treatment plant. The functional life expectancy of these assets is unknown. Maintenance and upgrades required for predicted growth scenarios of these assets is likely to be difficult and expensive.

2.7.4.3 Existing As-Constructed and Design Capacity Records

Infrastructure and servicing requirements for the town were generally constructed on an as needs basis and without the benefit of current town planning and service infrastructure guidelines. As a result documentation and technical information of existing infrastructure is scarce. In depth planning and analysis is required by the relevant service authorities for accurate predictions of service upgrades based on growth scenarios.

2.7.4.4 Drainage

A lack of flood mapping information around Newman makes it difficult to assess growth expansion sites. A detailed drainage study needs to be commissioned to determine flood level limits and development site levels. The existing flood routes across private property are becoming increasingly difficult to maintain.

2.7.4.5 Water Corporation License Areas

Growth areas extend outside the current water and wastewater license boundaries and these will require an amendment. This amendment needs to be approved by the Economic Regulation Authority under section 31 of the Water Services Licensing Act 1995 (Act).

With the implementation of the NRP there now exists a golden opportunity to rectify and improve the standard of infrastructure service provision and service delivery in Newman.

A number of key implications exist for Newman and are described below.

2.7.4.6 Power

BHP Billiton is currently the service authority for electrical power within Newman. BHP Billiton has at certain levels shown interest to relinquish the Town's distribution system to a recognized provider such as Horizon Power. BHP Billiton would still own and operate mining operation distribution systems. This process should be encouraged.

There is no current planning for the transferring or sale of assets in Newman. BHP Billiton are continuing to operate and expand operations as required.

As demand increases the generation capacity will need to be increased. Land area exists for future growth of the power station, however further investigation is required into the limitation of the gas pipe infrastructure fuelling the power station.

In general the growth of Newman to 15,000 people would require an extra 72 MW of generation capacity to meet the peak demand which occurs during December / January.

The peak is due primarily to air conditioning loading which increases power demand by up to 30%. Due to the capital cost of an additional turbine which is only required for short durations, it is the intention of BHP Billiton to investigate more efficient options to either reduce this peak loading or provide alternate power sources at mines during peak times.

As with many of the utility services in Newman, much of the electrical distribution infrastructure is typically between 30 and 40 years old and nearing the end of its functional life. The existing Town Substation is at capacity and any significant increase in power demand will necessitate an additional substation. Similarly other infrastructure including transmission and distribution lines are near capacity and upgrading or replacement is necessary.

The town centre is currently serviced. Existing electrical assets are currently on non standard alignments. As staged works progress in the town centre electrical cable alignments and service points can be normalised. Planning for this work can only proceed once land uses and land planning has been completed.

While generation of power is generally not constrained, further investigation is required into infrastructure upgrading.

2.7.4.7 Water Supply Provider

The Water Corporation has advised that they will not be able to provide any advice in relation to the planning for the town site expansion until land use planning is defined. The Water Corporation has limited information on levels and capacities in Newman.

The current Water License area covers the existing town site but not all identified growth areas.

BHP Billiton is currently owner and controller of the water source, water treatment and potable water storage assets in Newman. BHP Billiton has at certain levels shown interest to relinquish water treatment and potable water storage assets to a recognized provider such as Water Corporation.

The transfer of water source licenses and assets would be difficult to achieve due to the intrinsic relationship between the dewatering and recharge process and mining operations.

2.7.4.8 Sewer

There is no current planning for the transferring or sale of assets in Newman. The Water Corporation and the SoEP are continuing to operate and expand operations as required.

The Water Corporation has advised that they will not be able to provide any advice in relation to the planning for the town site expansion. The Water Corporation has limited information on levels and capacities in Newman.

SoEP is currently incorporated the addition of a final clarifier into the 5 Year Plan for the waste water treatment plant.

2.7.4.9 Drainage

In the town site growth areas surface flood routes should be created on public land.

2.7.4.10 Highway Industrial Site

The Highway Industrial Site is remote from the town site and extension of services will be expensive. Opportunity exists for independent water and sewer treatment facilities at a local level catering for the site or by individual owners installing their own systems.

2.7.5 Project Goals and Objectives

Table 10: Infrastructure and resources goals and objectives

Goal	Objectives
Infrastructure and Resources Economically efficient infrastructure for industry and households designed for efficient use of energy, water, materials and transport	• Best practice per capita water consumption
	• Energy efficient built form
	• Energy efficient lighting, equipment and appliances
	• Best practice materials efficiency
	• Effective and well utilised public transport

03. PROJECT GOALS AND OBJECTIVES

3.1 Future Newman – Goals and Objectives

As noted in Section 1.3.1, Aspirational Goals were developed that describe the desired characteristics of a sustainable Newman. These Goals represent a higher-order aim to which the project is intended to contribute – they are statements of longer-term intent. More specific Project Objectives have been devised to guide the development of effective strategies for the evolution of Newman into a resilient town, ultimately with the characteristics described in the Goals. The objectives derive from the context analysis outlined in the previous section, and aim to be a description of an overall desired achievement involving a process of change from the present to the desired. While mainly reflecting each of the Goal domains of Economy, Community, Environment, Built Environment and Public Realm and Infrastructure, many of the objectives apply to more than one domain.

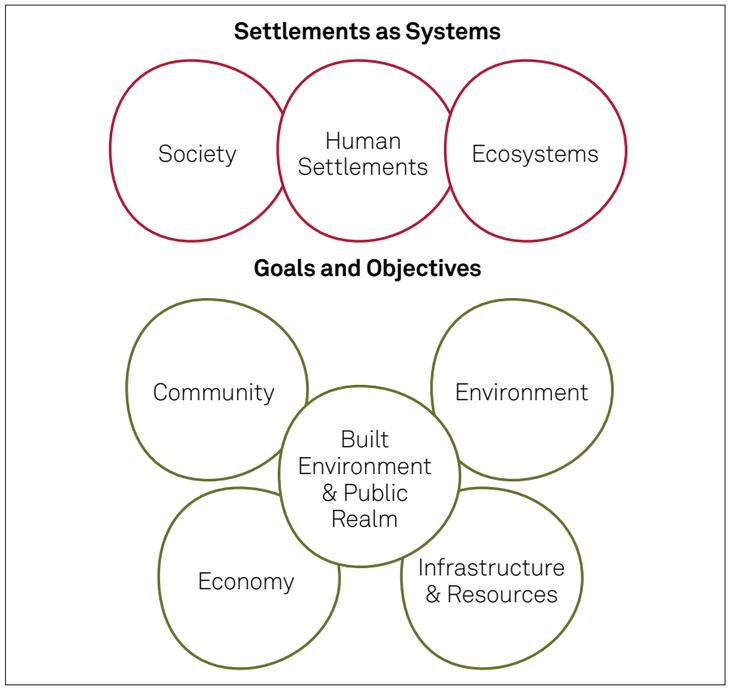


Table 11: Goals and objectives

Aspirational Goal	Project Objectives
Economy A robust, diversified local economy that effectively services the needs of local and regional industry and population	• Improved local business capability to service established industry sectors
	• Optimised local employment distribution to meet the requirements of industry and population
	• Increased local business, industry and employment diversity
	• Enhanced local business investment and entrepreneurial activity
	• Activated and accessible retail and commercial destinations
Community Communities that are safe, healthy, and enjoyable places to live and work; offer cultural, educational, recreational opportunities; provide appropriate housing, services and amenities; foster active local citizenship.	• Provision of a full range of community services and facilities
	• Affordable accommodation and living
	• Community cohesion, vitality and involvement
	• Strong cross cultural relationships
	• Acknowledgement of cultural heritage through built form, public art, community art and community activities
	• Good access to work, services and amenities
	• Community participation in goal setting and decision-making processes
	• Integration of workforce with local community
Environment Local, regional and global eco-systems in which landform, habitat and biodiversity are retained and that provide natural provisioning, regulating and cultural services.	• Protection of significant natural landform
	• Protection of significant native vegetation and habitat
	• Prevention of pollution and erosion from stormwater
	• Retention of predevelopment water balance
	• Reduced net per capita carbon emissions
	• Minimal waste to landfill
	• Best practice recovery and reuse of materials
	• High levels of air quality
	• Acceptable noise levels
Infrastructure and Resources Economically efficient infrastructure for industry and households designed for efficient use of energy, water, materials and transport	• Best practice per capita water consumption
	• Energy efficient built form
	• Energy efficient lighting, equipment and appliances
	• Best practice materials efficiency
	• Effective and well utilised public transport
Built Environment and Public Realm An urban form that reflects the intrinsic qualities of the site context, characteristics and relationships and complements the natural environment; with centres that are vibrant, dynamic, diverse and functional	• Increased net development density
	• A place based response that reflects the climate, context and site
	• Management strategies for climate change and natural disasters
	• An integration of uses that achieves functionality, efficiency and compatibility
	• Connectivity at local, district and regional scale
	• A network and hierarchy of streets and public spaces that provides permeability and legibility
	• An integrated movement network that ensures the safe movement of pedestrians, cyclists and vehicles
	• A diverse mix of uses, buildings and housing types
	• High quality well designed buildings that reflect the site context
	• A variety of well defined open spaces
	• An accessible and legible town centre destination

3 Project Goals and objectives

3.2 Planning Principles for Newman

3.2.1 Spatial Objectives

In order to respond to the key challenges facing Newman, a number of spatial objectives have been developed through the process for the Town Site Growth Plan. The key spatial objectives that have underpinned the development of the Newman Town Site Growth Plan Plan are:

- To provide sufficient land to accommodate residential, commercial, retail industrial, community and cultural land uses to support growth of the town site to 15,000 residents
- To accommodate improved medical and health facilities
- To identify future school sites required to accommodate growth
- To provide an integrated network of roads, cycling and pedestrian connections
- To identify key worker and FIFO accommodation and integration of this accommodation with the local community
- To protection of the natural landform, particularly the natural hills surrounding the town site
- To enhance native vegetation and habitats through green corridors
- To integrate water sensitive design principles
- To provide a place based response to the environment and natural topographical features
- To integrate land uses, where appropriate, to improve accessibility
- To provide a diverse mix of land uses

3.2.2 Spatial Development Principles

The spatial development principles for the Town Site Growth Plan have been developed having regard to the above overarching objectives and they provide a basis for the implementation of the plan. The Town Site Growth Plan is based on the following understandings and principles:

- current planned developments at 'Grandtown' and Kurra Village have been acknowledged and incorporated into the Growth Plan
- existing undeveloped zoned land will be developed as a priority prior to entertaining development outside of the existing town site boundary
- both medium density and single density should be developed at the same time in order to achieve diversity in housing type
- the green corridors will be established adjacent to new development sites as these are constructed
- existing single residential dwellings adjacent to the green corridors will be developed for medium density houses (grouped dwellings, townhouses, low rise apartments)
- optimise the range of industrial opportunities by providing a range of industrial lot sizes and types (light and heavy), with the portion of proposed highway industrial closest to the highway being developed immediately and the new heavy freight diversion road being constructed at a later stage when demand dictates

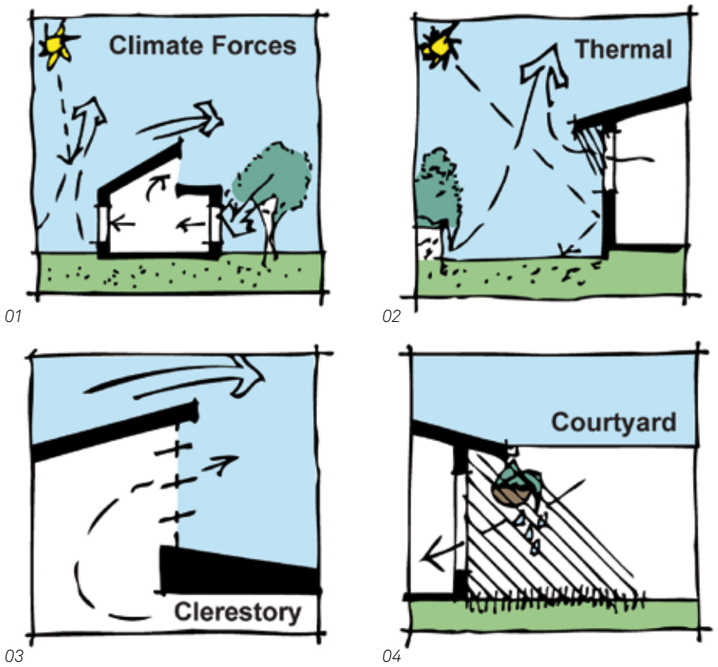
3.2.3 Designing for Climate

The Town Site Growth Plan has been developed having regard to the arid climate of the Pilbara. Specific responses to the climate include:

- Bringing water into the town through vegetated watercourses and drainage corridors to provide some cooling and humidification of the prevailing winds
- Boulevard planting along key pedestrian linkages to provide shade
- Incorporation of taller buildings adjacent key public spaces to provide shade and shelter from the elements to contribute towards the creation of cooler microclimates
- Orientation of new lots to make the most of natural light, prevailing breezes and minimise exposure of habitable areas to the afternoon sun
- Accommodation and mitigation of floodway's through the town site

Houses and buildings within Newman need to respond to a hot arid climate. The Town Site Growth Plan actively promotes houses and buildings within Newman to respond to their hot arid climate and would encourage Design Guidelines to embrace the following design principles:

- Orientation of future development to achieve optimal solar orientation, being generally on an east-west access with the length of the building facing north. This will allow buildings to provide shade structures along the northern building length, minimise windows on the western and eastern facades and maximise cooling breezes from the south
- Buildings being provided with eaves and/or pergolas and verandas to screen the internal building from the afternoon sun
- Incorporation of breezeways and clerestory's in building design to capture cooling breezes on the south side of the building having regard to the need to minimise dust exposure within buildings
- Provide adequate ventilation in the roof/ceiling space
- Incorporate appropriate insulation in the roof/wall cavities
- Incorporate (where appropriate) cooling courtyards on the shade side of buildings to cool and humidify breezes around the building
- Provide Pergolas as a shading device on the northern side of buildings to reduce heat load
- Provide planting around buildings to create microclimates in and around buildings by providing shade and the ability to cool and humidify breezes
- Identification of sustainable building materials that provide good insulation and have appropriate thermal mass properties
- Provide appropriate outdoor living areas that seek to benefit from the amenable climate for 9 months of the year, while also providing respite from extreme heat



01 02 03 04

01 Building design to make use of climate forces

02 Positioning of buildings and design to prevent heat loading

03 Incorporation of clerestoreys in building design will facilitate natural ventilation and cooling

04 Use of courtyards to provide shaded and vegetated areas to create a cool microclimate

In addition to the above, the medium density development proposed within Newman (townhouses and apartments) will have the unique opportunity to demonstrate climate responsive design elements, including:

- Communal shaded courtyards within the development, providing a cooler microclimate that can be enjoyed by residents
- Creation of laneways through low rise apartment developments that can take advantage of the shade from buildings and prevailing breezes to provide pedestrians with comfortable walkways through development

01

02

03

04

05

01 Use of horizontal louvers to screen buildings from afternoon sun

02 Capitalise on fine weather available for 9 months of the year

03 Boulevard planting to provide shade along key pedestrian routes

04 Taller buildings (up to 4-5 storeys) providing courtyard housing to provide shaded and vegetated courtyard areas with cooler microclimates

05 Louvered awnings and pergolas will provide shade to areas of the built form exposed to the sun

04. AN INTEGRATED STRATEGY FOR NEWMAN

4.1 Diversifying the Economy

Any plan for the development of Newman as a subregional centre with an aspirational permanent residential population of 15,000 needs to be considered in the context of the realities of remote regional economic development.

These realities include:

- Regional population growth and development will only occur if there is a fundamental reason for significant populations to be located in a regional location in the first place. The fundamental reason is usually associated with some appreciation of the natural comparative advantage of the location, which in the case of the Pilbara is the presence of vast natural resources. The otherwise harsh environment of the Pilbara is disincentive for large number of people to take up residency there unless there is a very good reason to do so. This reason is usually employment related.
- While governments may negotiate access to Pilbara resources by the private sector, and consider the funding and development of some enabling infrastructure, it is the corporate sector that drives the investment in the development to realise commercial gain. These companies will find the most efficient operating model open to them to realise the commercial opportunities. The establishment of resource towns and communities such as Newman (and indeed most of the population centres in the Pilbara) is a result of the corporate sector establishing the necessary local infrastructure to support their regional operations. These towns and communities exist in the first instance because they are necessary to the resource companies operations in that they provide a localised residential and industry support base to service regional resource projects.
  A key point is the establishment and maintenance of towns and communities in themselves is not the core business of resource companies; they are, in a strictly commercial sense, simply a necessary mechanism for the realising of commercial opportunities. Moreover, resource companies, driven as they are by commercial imperatives, will only be inclined to invest in towns and communities infrastructure to the extent that it meets their operational requirements and the requirements of any enforceable agreement between the companies and State and Federal Governments. Without the fundamental driver of Pilbara resources, it is doubtful that many of the Pilbara towns would exist in any significant shape or form, or indeed in their current locations. It is well worth noting that Newman has taken approximately 40 years since its inception to arrive at its current position – a resource town of approximately 5,000 permanent residents and a significant FIFO construction and operations workforce. Newman's size and industry and employment base largely reflects the consequences of resource company corporate decisions about production output, workforce management and supply chain management.
- The towns of the Pilbara feature an employment distribution profile that is somewhat different to many of the other coastal and regional communities around Australia. Pilbara towns feature a very strong representation in the areas of export / driver and producer services employment (i.e. strategic employment). That is, the towns are primarily geared to supporting the resource sector and the employment distribution bears this out.
- The generation of population driven retail, consumer, government and institutional services, and hence population driven employment, arises in response to the growth in population which occurs as a result of the generation of strategic employment. Without the strategic employment generated by major resource and infrastructure projects in the regions, the demand for population driven services would be a fraction of that evidenced by current service provision levels. The relationship between strategic project development and employment generation, population driven employment and service provision, and population growth is presented in Figure 24.

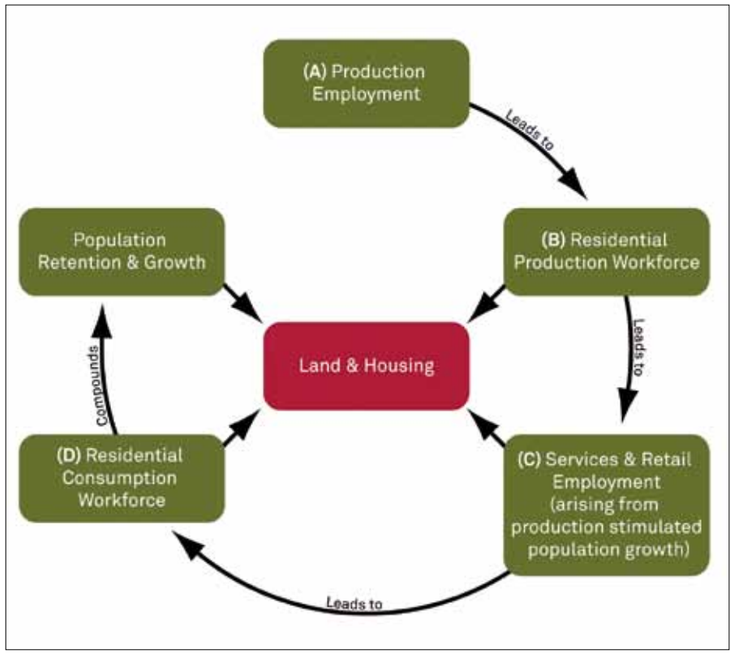


Figure 24 – Employment Generation and Population Growth Continuum
Source: Pracsys

Briefly, regional projects such as iron ore and oil & gas extraction, processing and shipping feature both construction stages and operations stages. The construction stages generate most employment but this is a transitory effect. The predominance of FIFO workforce management and the sourcing of essential production inputs from areas outside of Newman means that the local industry servicing capability (also known as producer services), while it dominates the local economy, is paradoxically not particularly well developed. Moreover, the underdeveloped consumption based economy means that there is a significant shortfall in the range and quality of retail and consumer oriented services and hard and soft infrastructure to generate the amenity levels deemed necessary to the attraction and retention of a regional population.

Economic growth begins with the export oriented driver projects (resources and strategic infrastructure). This in turn leads to the presence of a residentially based production workforce and an element of FIFO workforce. This in turn provides the initial; stimulus for population growth which in turn is followed by demand for population driven goods and services (i.e. retail, commercial, government services such as health, etc), which in turn generates services and retail employment which drives the residential consumption economy. This ultimately triggers further population growth to the point where the local economy becomes more balanced and sustainable over the long term.

For Newman to graduate to a subregional centre of 15,000 residents will require a coordinated intervention designed to reconfigure the local economy in such a way as to stimulate growth in local employment, which in turn will underpin the town's residential population growth over the next two the three decades.

Figure 2 details 25 regional towns around Australia and contrasts the resident population with the resident working population. On average, the resident working population is about 45% of the resident population. The highlighted figures present towns that have a ratio above the average. Newman's ratio is 50%. These figures are indicative of towns that are essentially working communities and suggest a less even spread of population demographics than would be expected of a 'normalised' community.

On the assumption that Newman reaches a population of 15,000, and assuming a continuation of the resident working population to resident population of 50% implies that a Newman of that size will feature a resident working population base of approximately 7,500 or an increase in local employment of approximately 5,350 or 250%.

The distribution of employment in Newman is heavily skewed towards export/driver projects and the associated producer services which account for approximately 62% of all employment. Relative to the average employment distribution of 23 other Australian regional towns and centres (see Figure 1), Newman is noticeably lacking in retail and consumer services employment (26% of total employment as opposed to the average 37%). Based on a comparison with the average of the towns and communities in the survey, Newman is over represented in export / driver and producer services employment and under-represented in retail / consumer services. Knowledge based employment is on a par with the average but this does not necessarily suggest that it is well catered for, rather it reflects the nature of regional economies in Australia. In major Australian regional centres such as Darwin, Newcastle and Rockhampton knowledge intensive consumer services employment typically accounts for 14 to 17% of the total residential workforce, significantly more than the 9% in Newman.

4 An Integrated Strategy for Newman

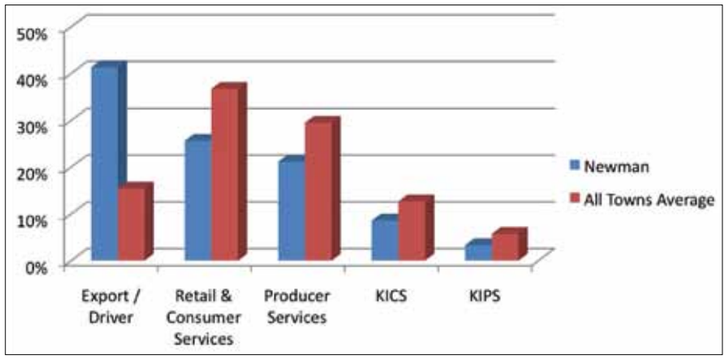


Figure 25: Distribution of Employment Comparison (Source: Pracsys)

Newman Future Employment Requirements

Estimating the future employment requirements for Newman according to the employment categories assumes two main points:

- That the quantum of residential employment required for a population of 15,000 is in the order of 7,500 residential workforce; and
- The optimal distribution of employment approximates the average referred to in Figure 26.

Figure 25 compares the current Newman employment levels by category (in blue) and contrasts them with the required levels at a future population of 15,000 based on an average distribution across the 23 centres profiled The key points from this analysis are that the employment categories will need to increase by the approximate amounts detailed as follows:

- Export/Driver related employment 30%
- Retail/Consumer employment 401%
- Producer Services employment 388%
- KICS employment 417%
- KIPS employment 502%

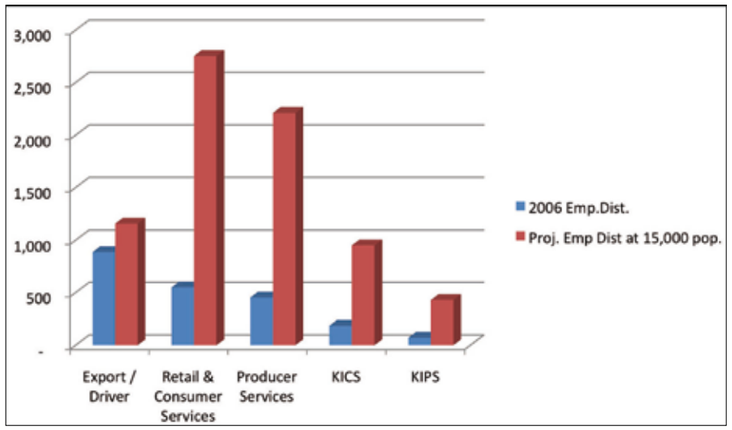


Figure 26: Current and Projected Employment Levels by Employment Category

Table 12 presents a snapshot of a selection of Australian regional towns and the current provision of retail and commercial floorspace and industrial land. This table is in effect a coarse measure of the indicative demand for such space relative to population size. The provision of industrial land varies considerably and is not directly linked to population. Demand for industrial land, particularly strategic industrial development areas, is more a function of industry and economic development policy and strategy whereby specific regions may have a comparative advantage in a particular area and which drives the demand for industrial land to accommodate operations associated with that advantage. Currently Newman has around 52 hectares of industrial land, whereas Karratha at present has approximately 496 hectares. Port Hedland, a similar size to Karratha has approximately 3,150 hectares.

	Resident Population (2006 Census)	Retail Floorspace (GLA)	Commercial Floorspace (GLA)	Industrial Land (ha)
Newcastle	288,736	155,000	244,167	2,784
Mackay	66,876	193,785	111,500	750
Darwin	66,290	169,000	214,750	Unavailable
Rockhampton	60,831	80,782	173,423	900
Bunbury	54,483	94,018	55,074	15,000
Port Macquarie	39,222	66,000	Unavailable	334
Gladstone	28,800	49,194	15,932	28,000
Kalgoorlie-Boulder	28,241	101,456	178,609	Unavailable
Karratha	11,728	34,330	26,581	496
Newman	4,250	7,275	2,650	52
Port Hedland	11,557	21,169	12,831	3,150

Table 12: Comparative Provision of Retail and Commercial Floor space and Industrial Land in Regional Population Centres

Determining the optimal provision and configuration of industrial land for Newman is a function of :

- Historical market demand
- Current and projected industry activity for established industry sectors
- Projected requirements for new industry development opportunities
- Industry policy
- Regional economic development strategy
- Availability, size and profile of surrounding industrial estates

In the absence of an overarching regional economic development strategy which articulates the industry and economic development trajectory for the Pilbara and individual centres (which hopefully will emerge within the next three years), it is difficult to say what the provision of industrial land in Newman should be.

Newman at 15,000 population will be larger than Karratha or Port Hedland currently and on that basis of that comparison planning for industrial land in Newman may need to consider the provision of 200 to 1,000 hectares. This is of course contingent on industry specific requirements that may be addressed in a high order strategy.

4.2 Developing Newman's Community

4.2.1 Social Response

The Western Australian State Government and SoEP recognise the importance of delivering sustainable solutions to Newman – solutions which not only mitigate current issues but cater for future population growth.

The challenge is to go beyond the delivery of physical infrastructure to provide the residents of Newman with the community infrastructure they need, leading to opportunities for a quality of life that is commensurate with expectations of a major regional centre.

By responding to the direction set in *Newman Tomorrow* and by reflecting the principles outlined in this document the NRP will support the development of a healthy, safe and vibrant community.

The significance of the Pilbara to the national economy is indisputable. The indications are, however, that unless major intervention occurs speedily – through investment in Pilbara communities – growing pains will be both numerous and severe. For Newman to realise its potential, significant resources need to be allocated to support the attraction and retention of new residents, and to bind them together in strong social networks with a meaningful sense of community.

4.2.2 Community Development Approach

The community development approach in this Town Site Growth Plan looks at both the physical structures and the social dynamics of the town as it evolves. The approach is specific to the local context and provides the social planning response to the challenges, opportunities and needs that were identified during community and stakeholder engagement and throughout the project planning process.

The core focus of this approach and in the development of the town site growth strategies is to ensure the development of a sustainable town. Sustainable communities are safe, healthy and enjoyable places to live and work, offering expanded and improved educational and employment opportunities for their residents and which have access to affordable and appropriate housing, services and foster active local citizenship.

There is both social and economic value in improving quality of life and introducing community wellness initiatives. This revitalisation project seeks to:

- Enable community planning and connectedness;
- Encourage the creation of place identity;
- Facilitate cohesive communities;
- Nurture and promote safe and healthy communities; and
- Create affordable communities.

A sociological breakdown of the elements of healthy communities (Figure 27, above) provides a practical guide to the development of sustainable community strategies.

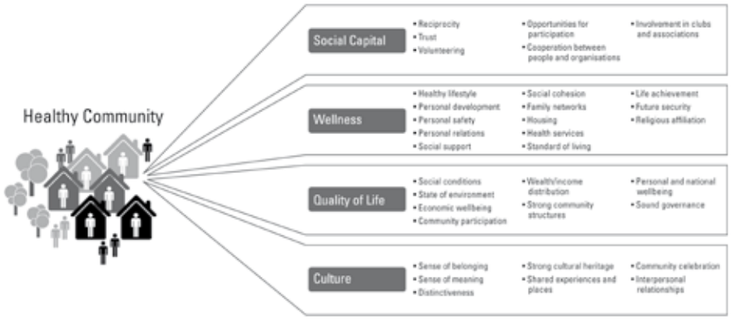


Figure 27: Sociology of Community

©Creating Communities 2006

With vision, leadership and clear values and goals, this revitalisation project can enhance the quality of life and wellness of residents as economic activity in the region expands. Community development initiatives contributing to this outcome will have as their focus:

- Strong local economies;
- Affordability;
- Access to education;
- Social cohesion, social capital and community support networks;
- Community health and safety;
- Community participation;
- Family ties and intergenerational activity;
- Environmental quality;
- Community celebration; and
- Recognition of cultural heritage

Spatial and non-spatial Response

The aforementioned discussion highlights future directions in relation to enhancing community within Newman. These have been reflected either as a spatial response within the NRP or have been identified as a recommended strategy and/or action in Section 6.

4.3 Responding to Environment

4.3.1 Environmental Investigations

A number of environment related issues have been identified that will require further investigation prior to the delivery phase of the Town Site Growth Plan.

Recommendations for further assessments, and licence and approvals required to meet legislative requirements are also provided.

a. Undertake a climate change risk assessment for the Newman region that includes the potential impacts from increased cyclonic activity, a qualitative risk assessment of the likelihood and consequences of cyclones at various intensity levels, and the identification of adaptation and mitigation strategies for development.
b. In accordance with Better Urban Water Management a District Water Management Strategy (DWMS) should be developed for Newman presenting drainage concepts, management strategies for surface water and groundwater and addressing water source planning, water use and efficiency and wastewater planning. Design criteria to guide subsequent stages of planning and engineering design and a monitoring and implementation plan should be included. It is recommended that the DWMS be developed as early as possible in the planning phase of the NRP to maximise the opportunities for delivering long-term sustainable integrated water outcomes.
c. Undertake flood modelling of the Fortescue River system including Homestead and Whaleback Creeks.
d. Prepare a Waste Management Strategy which addresses all aspects of waste management associated with an increasing population. Waste management actions are discussed in more detail in Section 4.7.

4.3.2 Additional Assessments

It is recommended that the following additional assessments be undertaken prior to commencing any construction or ground disturbing activities associated with delivery of the Town Site Growth Plan to ensure minimal impact on the immediate and surrounding area:

- Undertake preliminary Acid Sulfate Soils investigations of proposed growth areas to assess for the presence of acid generating soils.
- Undertake an assessment of contaminated land.
- Undertake a Flora and Vegetation survey for any areas within the Town Site Growth Plan that require the clearing of native vegetation and to determine if the clearing is at variance to the Ten Clearing Principles.
- Undertake a fauna survey for any areas within the Town Site Growth Plan that require the clearing of native vegetation to assess the potential presence of any native fauna and to assess the fauna habitat.

4.3.3 Management Actions

The following section provides recommended management actions required to mitigate or minimise any impacts associated with the delivery of the Town Site Growth Plan.

- Specific Management Plans may need to be prepared and submitted for approval by relevant authorities for the following issues:
- Topsoil management and rehabilitation of disturbed areas.
- Vegetation and flora.
- Weed invasion and control management.
- Fauna habitat and habitat linkages.
- Acid Sulphate Soils.
- Erosion.
- Dust suppression and management.
- A Noise Management Plan will need to be prepared for any proposed construction works and submit for approval by relevant authorities.
- A Nutrient and Irrigation Management Plan should be developed for all public opens spaces and recreational facilities with turf or vegetation, in particular where treated effluent is used or proposed for irrigation.

4.3.4 Licence and Approval Requirements

The following Commonwealth and State Government licences and/or approvals may be required in order to deliver certain aspects of the Town Site Growth Plan. It must be noted that the timeframes for obtaining a licence or approval can often be lengthy and as such prior planning and more detailed assessments should be sought as early as practicable.

- Subject to the findings of any environmental assessment required for the delivery of the Revitalisation Plan may need to be referred to the Department of Environment, Water, Heritage and Art under the Environmental Protection Biodiversity and Conservation Act 1999.
- In the event that the project requires the clearing of native vegetation the Department of Environment and Conservation will need to be consulted in order to obtain a clearing permit under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, if the project is not assessed by the Environmental Protection Authority.
- Under the Rights in Water and Irrigation Act 1914 a Bed and Banks licence will be required from the Department of Water should construction activities disturb the bed and banks of any river, creek or drainage channel within Newman.
- Under the Rights in Water and Irrigation Act 1914 a dewatering licence will be required from the Department of Water if dewatering activities are required during construction activities within Newman.
- A 26D licence for the construction of bores and a 5C licence to abstract groundwater will be required from the Department of Water should groundwater be required for construction purposes.
- Under the Environmental Protection Authority Act 1986 a works approval and operational licence(s) will be required from the Department of Environment for the expansion of the landfill and the expansion/upgrade of the existing waste water treatment facilities.
- In the event that a new waste water treatment facility is to be constructed a works approval licence under the Environmental Protection Act 1986 from the Department of Environment will be required.

4.4 A Spatial Growth Plan for Newman

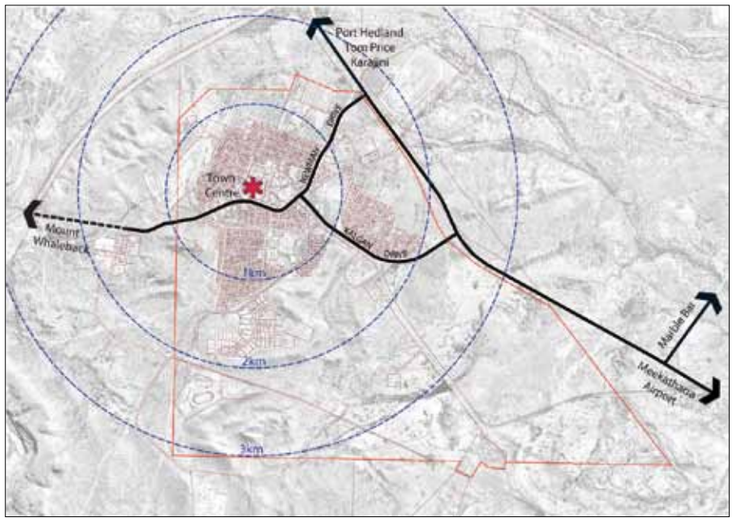
4.4.1 The Process - Development Scenarios

Development scenario planning was an integral part of the process for exploring the challenges and opportunities facing Newman in its ability to accommodate a target population of 15,000 people. Key to arriving at the development scenarios, was understanding the opportunities and challenges to future growth. This section provides an overview of this context in order to provide a better understanding of the development scenarios to follow in the next section.

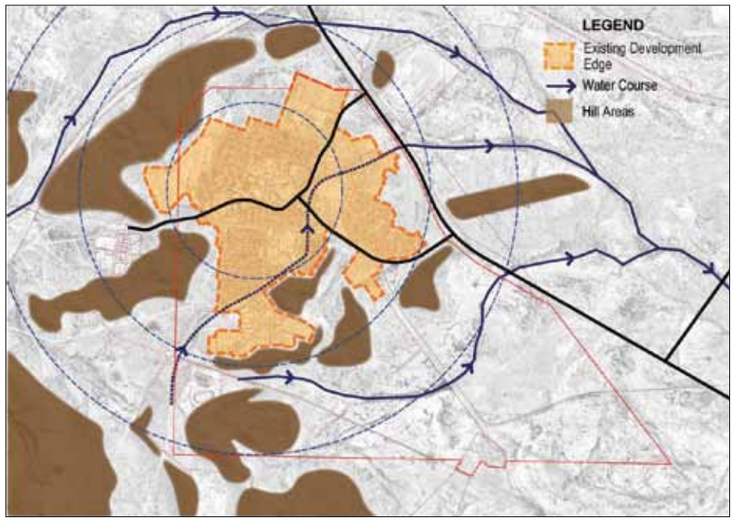
Two development scenarios for the town site were explored as part of the community urban design forum process. Each scenario takes into account specific challenges facing Newman. The challenges relevant to the future growth of the Newman town site include:

- Topography
- Underground water pollution control area
- Native Title and Mining Lease implications
- Limited remaining zoned land available for development
- Buffers to industrial land use
- The need to provide alternative heavy vehicle/freight access that bypasses the town site (currently trucks travel through the town site)
- The desire to have growth restricted to west of the Great Northern Highway

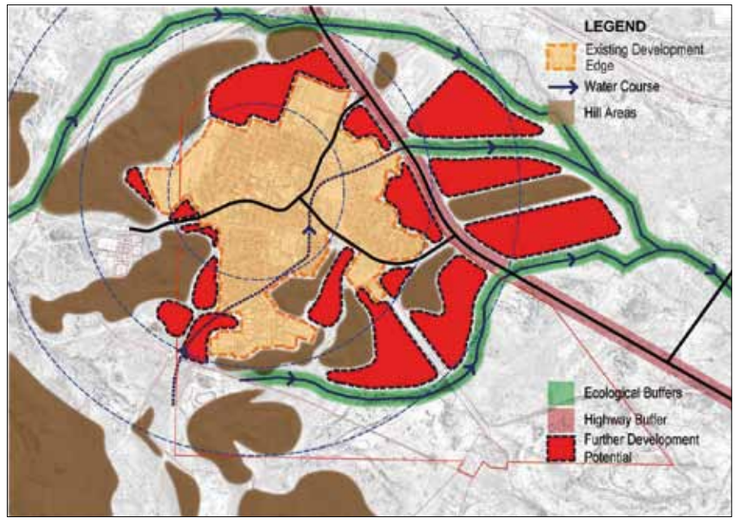
Community urban designers forum held to assess town site and town centre development scenarios



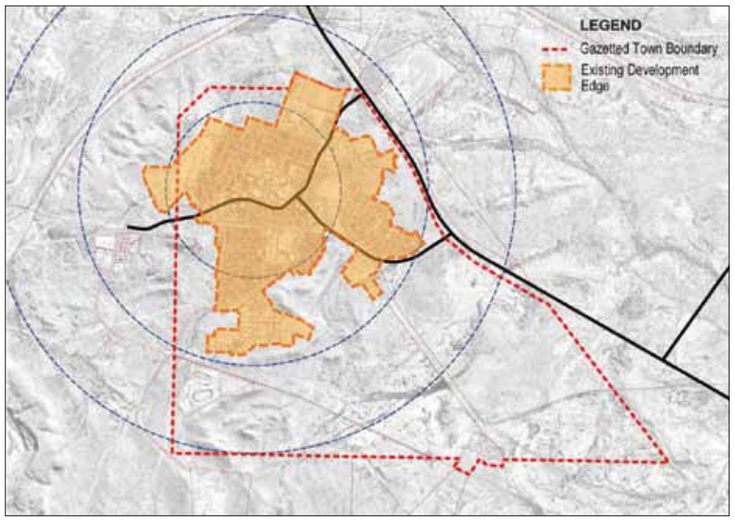
The existing settlement pattern and road network will inform future growth



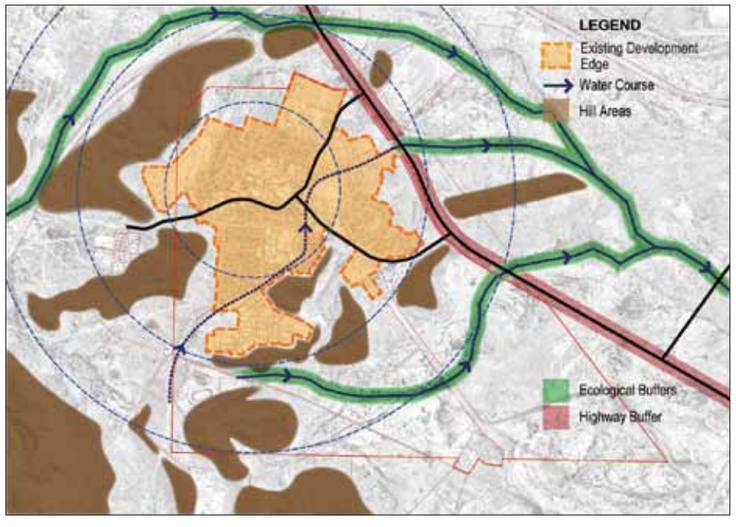
The natural hill formations were a key element that has shaped the formation of the growth strategy



Through the analysis of existing opportunities and challenges, future development sites were realised



The need to protect groundwater, Native Title and Mining Leases have defined a growth boundary for the town site



The existing watercourses provide an opportunity for greening of the town site

4 An Integrated Strategy for Newman



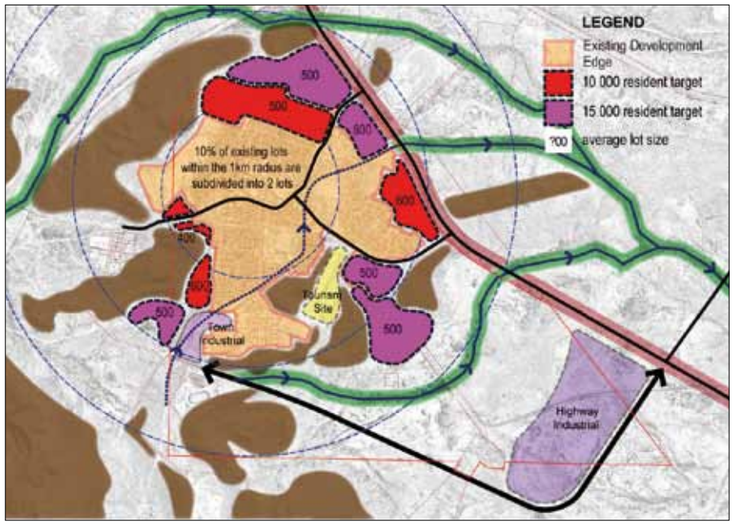



Figure 28: Business as Usual Scenario

The scenarios are explained in further detail below.

Business as Usual Scenario (Scenario 1)

Scenario 1 assumes a business as usual approach where the growth of the town site will occur as it has in the past, with no intervention or strategy to coordinate growth. This approach assumes that the town site will expand outwards to accommodate future large single lots. The following points outline key elements of this scenario:

- Growth will be topographically informed; meaning that future growth will have regard to the surrounding topography and will generally not occur on the slopes and hills surrounding the town site
- Growth will occur incrementally, extending outwards from the existing developed areas of the town site
- Growth will not be constrained by a growth boundary. However, it is noted that a population of 15,000 residents can be accommodated within a 2km radius of the town centre
- Revitalisation and some increased density of existing developed sites; as is currently occurring. It is assumed that 10% of lots within a 1km radius of the town centre be subdivided into 2 lots
- Generally, new single residential lots will be created of around 500-600m^2 in area

The Business as Usual Scenario is represented in figure 28.

Compact and Diverse Scenario (Scenario 2)

Scenario 2 describes a Compact and Diverse Scenario, which assumes that a range of dwelling types and sizes will be created throughout the town site, facilitating a more compact and diverse land use scenario when compared to Scenario 1.

Key elements of the Compact and Diverse Scenario are outlined below:

- Growth of the town site will be topographically constrained, meaning that development will occur on flat land and not on the hills and slopes surrounding the town site
- Generally, medium density residential infill will occur within existing zoned areas
- 20% of existing lots within a 1km radius of the town centre will be subdivided into 2 lots
- Development will generally be constrained to within 2km of town centre. An industrial estate will be permitted within 3km of the town centre in order to allow for a 1km buffer to sensitive land uses
- Low rise apartments will occur around the town centre and areas of amenity and/or key community facilities
- Small lot (single residential) –for peripheral infill

The Compact and Diverse Scenario is represented in figure 29.



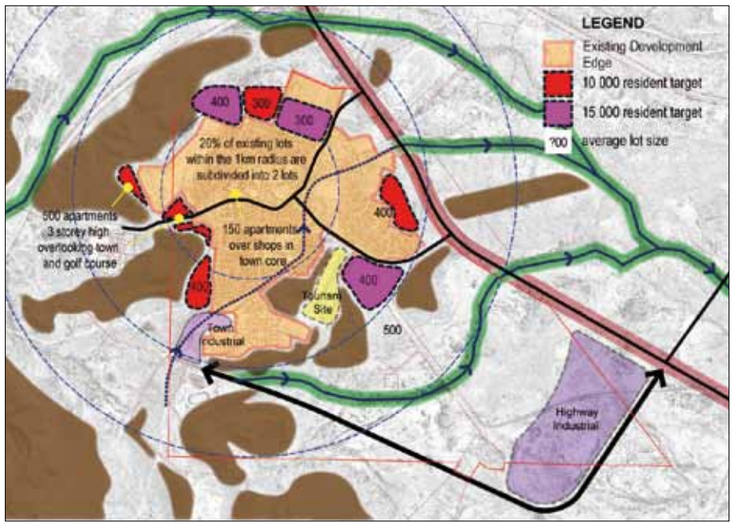



Figure 29: Compact and Diverse Scenario

Outcomes of the Scenario/Consultation Process

The two scenarios describing options for the future growth of Newman were presented to community representatives and stakeholders through a community design workshop held in December 2009. This workshop examined positive and negative elements of each scenario as viewed by the community. Through this process, a preferred scenario was derived.

The key outcomes of this workshop that have shaped the final Town Site Growth Plan are as follows:

- The community preferred a combination of both the Business as Usual (Scenario 1) and Compact and Diverse (Scenario 2). Specifically, the community wanted to see a range of housing types provided, from apartments and townhouses through to larger single residential lots
- The growth of the town site should be informed by the natural landscape, topography and watercourses
- Redevelopment of existing developed sites, particularly within 1km of the town centre including:
  - subdivision of existing large residential lots for smaller single residences
  - multiple dwellings and townhouses should be located where amenity value is high (i.e. town centre, along green pedestrian linkages, adjacent golf course and key parks)
  - apartments were considered appropriate in and around the town centre including above ground floor retail and/or office
- Generally there was a preference for single residential lots (400-700 m^2) at the periphery of the town site

4.4.2 Preferred Town Site Growth Plan

4.4.2.1 Key Structuring Elements

The process which has been used to develop the Town Site Growth Plan has responded to the place specific issues, challenges and opportunities that are currently facing Newman and which have previously been identified in Chapter 2 of this report. Key components of the plan have been developed in response to these issues and the following elements in particular have played a fundamental role in developing the growth strategy for Newman.

As stated previously, the growth strategy identifies land to accommodate future growth. It is acknowledged that topographical challenges (i.e. small hillocks) may exist within specific sites identified in the growth strategy and these will need to be addressed at the detailed site planning level.

Community urban design forum held to assess town site and town centre development scenarios

4 An Integrated Strategy for Newman

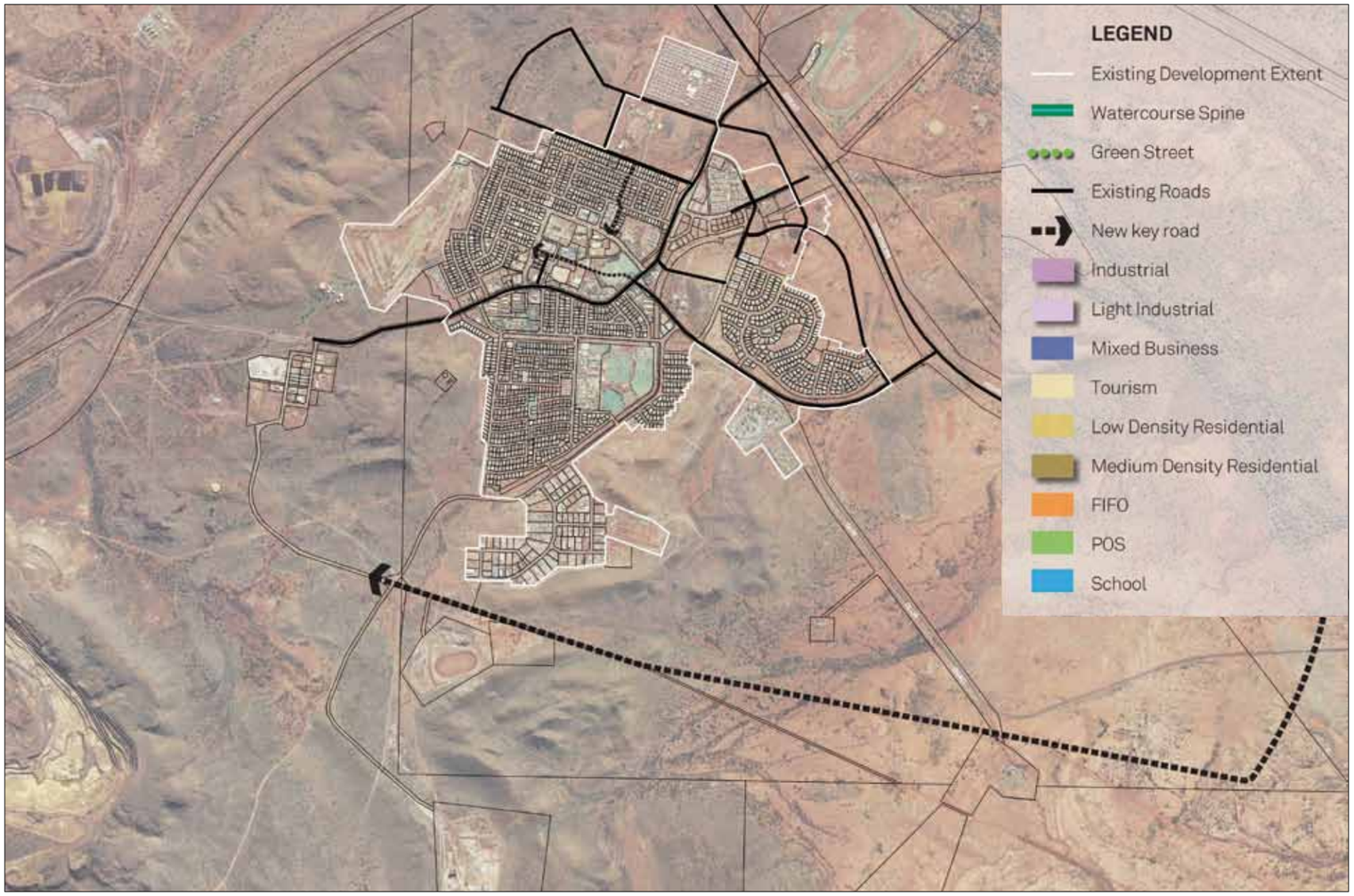


Figure 30: The road network and existing settlement pattern is a key structuring element of the plan. New linkages will improve connectivity through the town site

Improved Movement Network

The movement network has been structured so that there is a clear hierarchy to assist with way finding and general access throughout the town site.

The existing Great Northern Highway is part of the Perth-Darwin National Highway route and provides the key regional access to Newman. Great Northern Highway is classified as a primary distributor in the Main Roads WA functional road hierarchy.

There are two road links from the highway into the Newman town site, Newman Drive and Kalgan Drive. Both are classified as local distributor roads in the Main Roads WA functional road hierarchy.

Newman Drive provides the main route through the middle of Newman town site from Great Northern Highway on the northeast side to the Mt Whaleback mine site west of the town. It also passes along the southern side of the town centre and the main access intersection for the town centre is located on Newman Drive.

Kalgan Drive provides an important road link from Newman Drive (east of the town centre) to Great Northern Highway at the southeast corner of the town site. Kalgan Drive also connects to Welsh Drive, which is another 60km/h, two-lane, local distributor road. Welsh Drive provides access to the light industrial area on the southern side of the town site and, with Kalgan Drive, also provides a heavy vehicle route from the highway to the industrial area, rail hub and mine site on the western side of town.

Connectivity of the existing road network within the town centre will be significantly improved through the construction of a new east-west road (Iron Ore Parade). Additional links, particularly to Newman Drive, may be appropriate to feed traffic into the town centre, particularly if that is the main direction of approach from new residential areas in the Town Site Growth Plan.

4 An Integrated Strategy for Newman

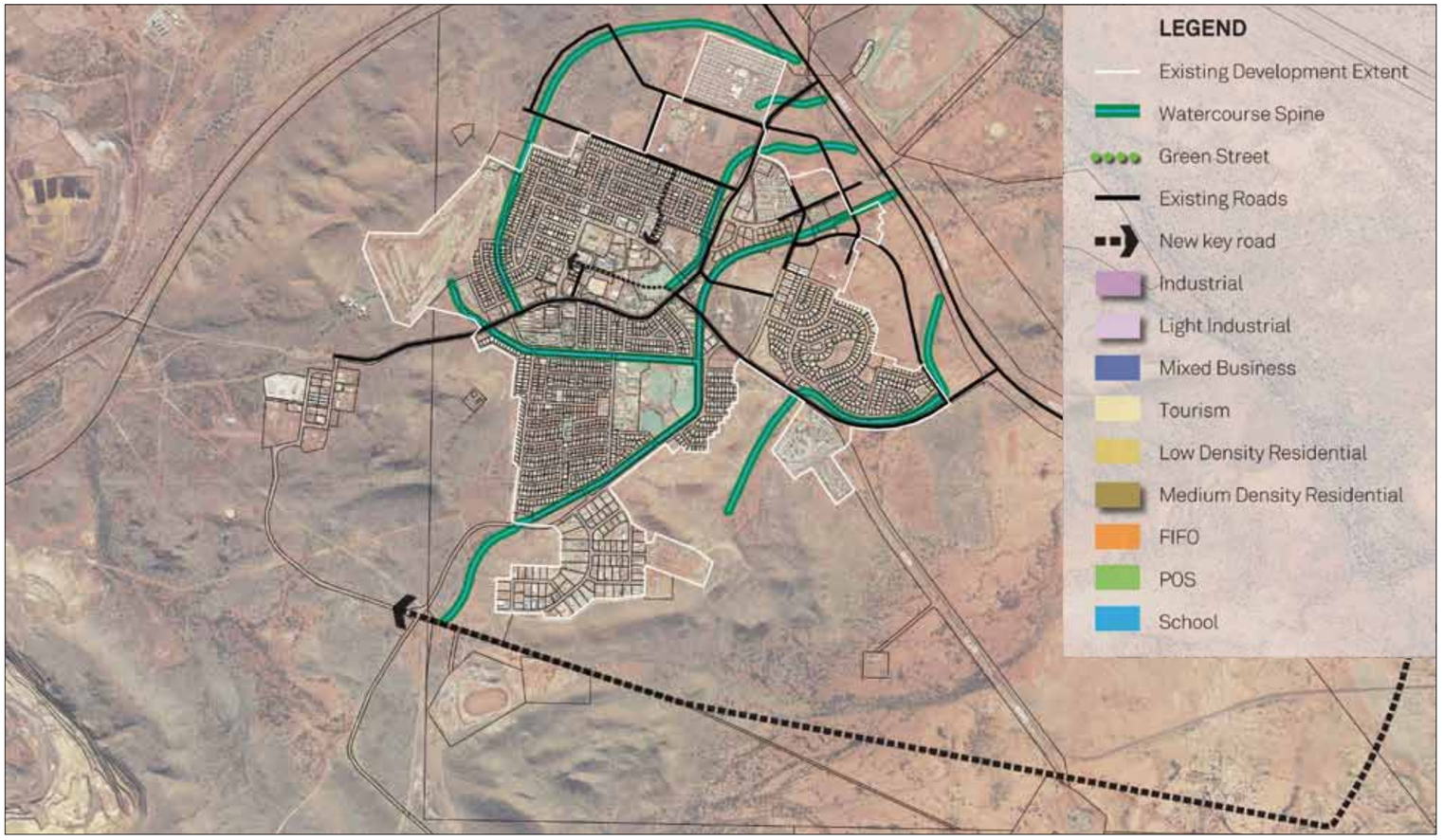


Figure 31: Green Spines are a key structuring element of the plan

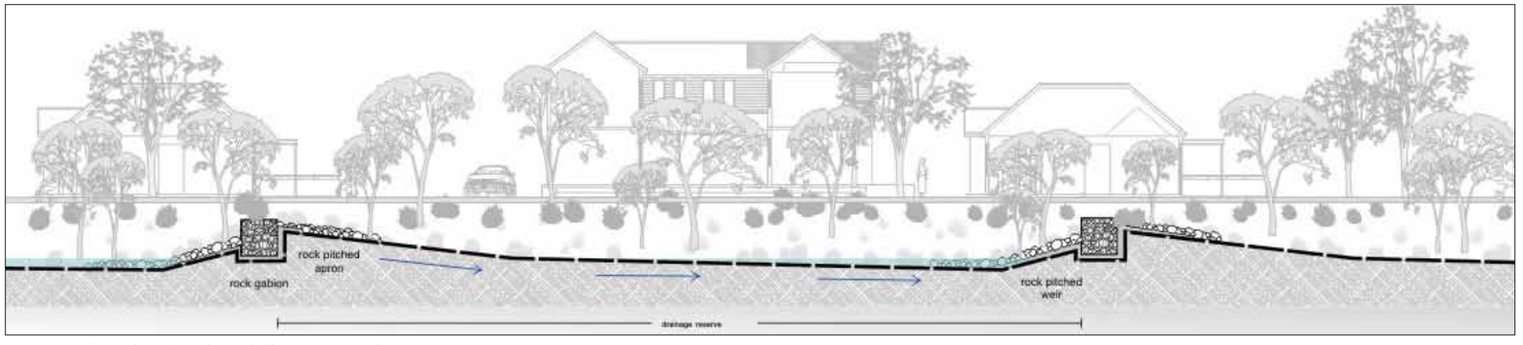


Figure 33: Typical section through drainage corridor

Green Spines

The Town Site Growth Plan seeks to enhance water courses that traverse through the town site by 'greening' the existing watercourses in order to create areas of amenity which will also assist with way finding and will provide a further structuring element to the town to build on the towns identity. These corridors will have the potential to bring in a much needed water element and a green aspect to the town site. The green corridors will create opportunities for medium density infill development, which will benefit from the amenity provided by the green corridors.

The water courses will be planted with riparian species from the local region to illustrate their position in the urban matrix. This plant selection will also visually tie these water courses in to the natural riparian corridors that exist on the outer reaches of town along the Whaleback and Homestead Creek corridors. This deliberate design direction is with the intent of connecting the inner core of the town to the surrounding environmental and ecological context.

Figure 32: Existing watercourses will be vegetated to provide amenity and a sense of place through the town site

4 An Integrated Strategy for Newman

Figure 34: Green spines and tree lined pedestrian routes (above and right)

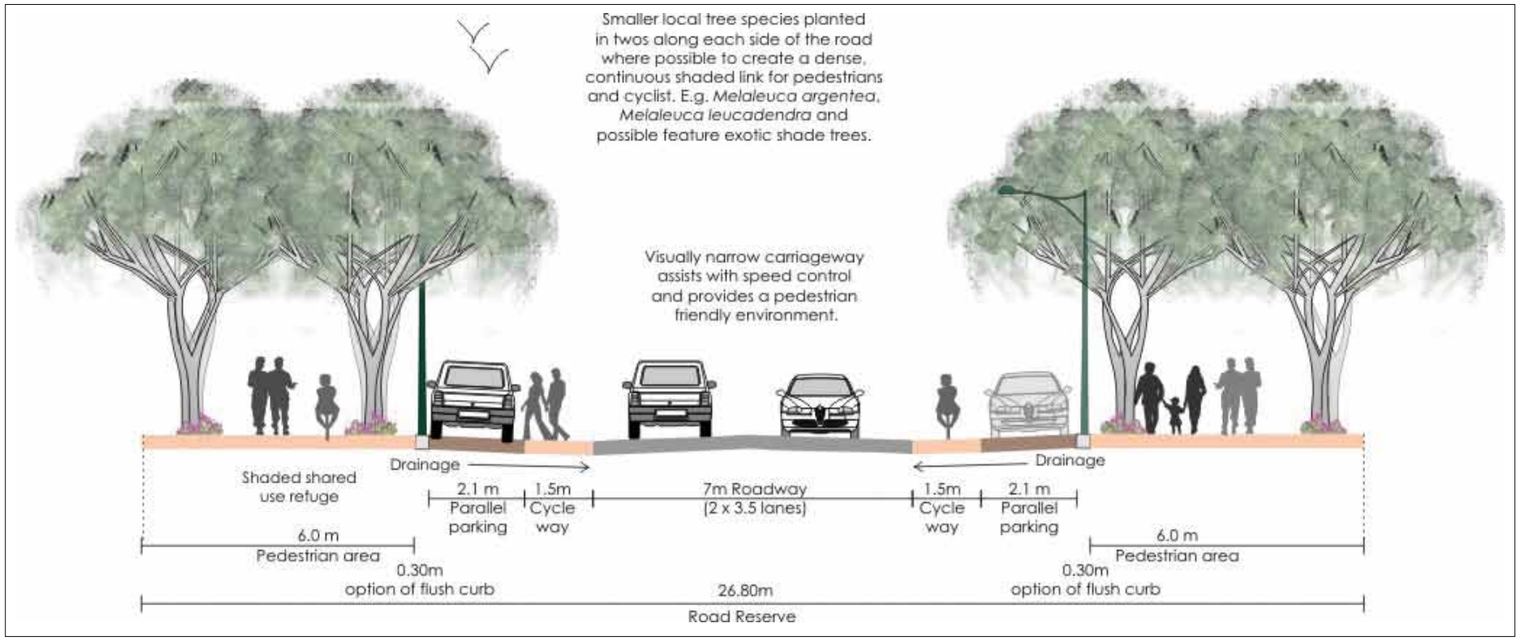


Figure 35: Proposed typical cross section

Tree lined pedestrian connections

The existing pedestrian and cycle network will be extended to improve connectivity throughout the town site. Generally, streets will be well populated with trees to provide amenity and shade and will incorporate footpaths to achieve a good degree of connectivity. Boulevard planting will be a feature along key pedestrian routes and will provide much needed shade and contribute to a cooler micro climate in places

The main design direction is the inclusion of all networks in the open space system. This includes drainage swale corridors, actual open space, and street corridors. All three of these elements have the ability to provide pedestrian connections, shaded amenities, vegetated corridors, interpretive opportunities, and recreation (both passive and active).

The NRP will create a new approach to the use of vehicular corridors by including them in the overall green network of the town. This will enhance physical and social opportunities for all residents and make Newman a more appealing location for visitors to the community.

Greening of key pedestrian streets is a fundamental aspect of the plan.

Compact Growth Strategy

The Town Site Growth Plan seeks to build on and improve the existing structure of the Newman town site. The growth of the town site will be compact and future peripheral growth of the town site will be limited to a radius of 2km from the town centre. The town site will have good connectivity to the town centre and as well as throughout the town site.

Lower Density Housing

Through the community consultation process, it was evident that there is a requirement to provide additional single lot low density housing in order to cater for families and those who want to retain the current lifestyle within Newman. A range of single residential lots have been allowed for, ranging from 400m^2 through to 700m^2 and potentially greater.

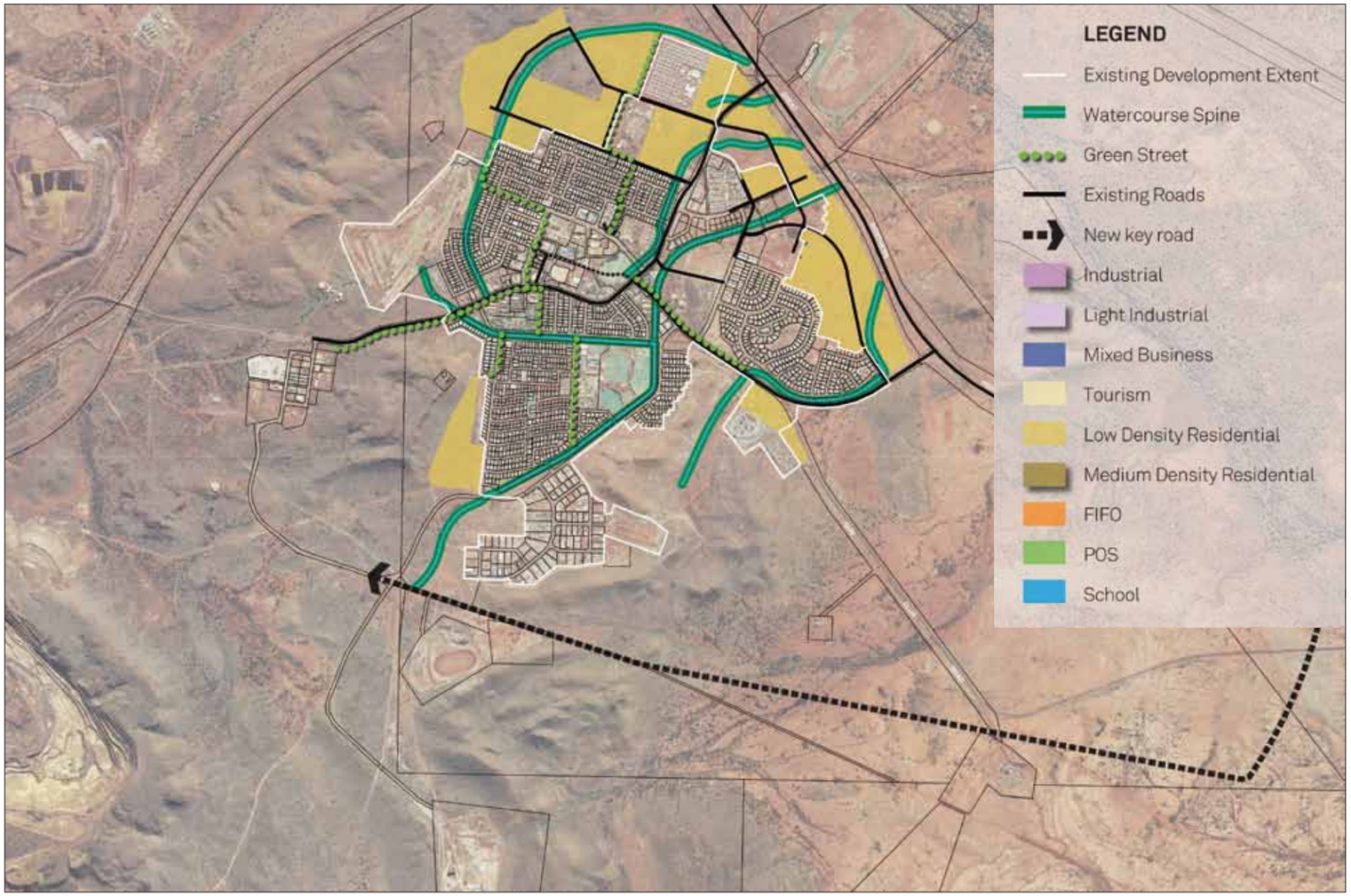


Figure 36: New low density residential opportunities (light brown)

New residential housing below 'look out'

4 An Integrated Strategy for Newman

Medium density Residential Development

A vertical mix of uses is proposed around the periphery of the town centre, in particular in the area west of Hilditch Avenue and in areas close to high amenity such as the 'green water spines', see image below.

This will provide an intensification of uses which will assist in activation of the centre as well as achieve better integration and connectivity between the town centre and town site.

Medium density residential development is a key component of the plan and is required in order to accommodate a target population of 15,000 people within a 2km growth boundary around the town site. A range of dwelling typologies are envisaged, and may include:

- Duplex development/subdivision of existing lots (infill development)
- Two storey townhouses
- Grouped Dwellings for key worker and FIFO accommodation
- Low rise walk up apartments (3 storeys) in and around the town centre
- Courtyard
- Shop top apartments within the town centre to provide affordable accommodation for small business owners

Figure 37: Sketch of proposed green/drainage corridor

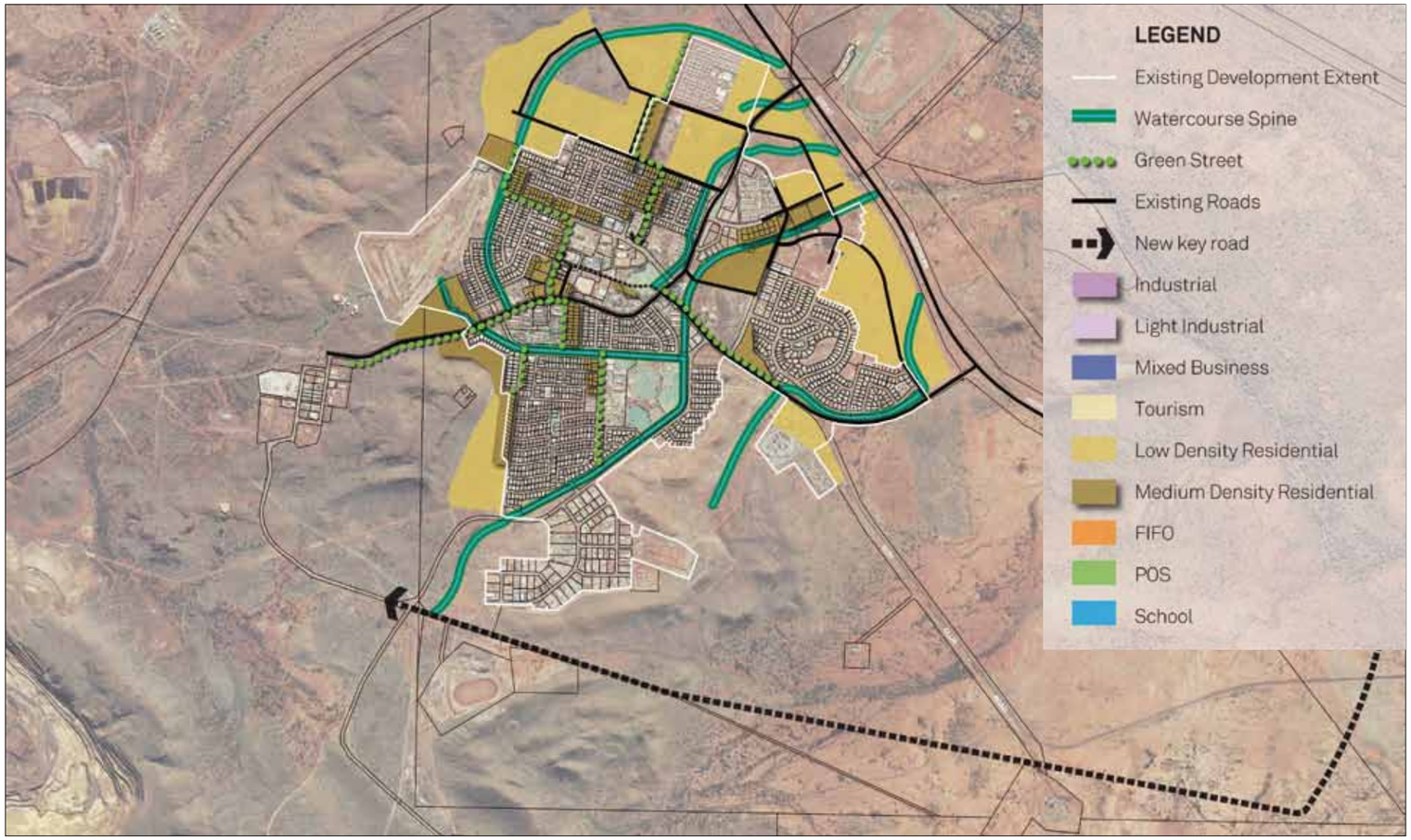


Figure 38: New medium density residential opportunities (dark brown)

Above: Examples of medium density residential typologies

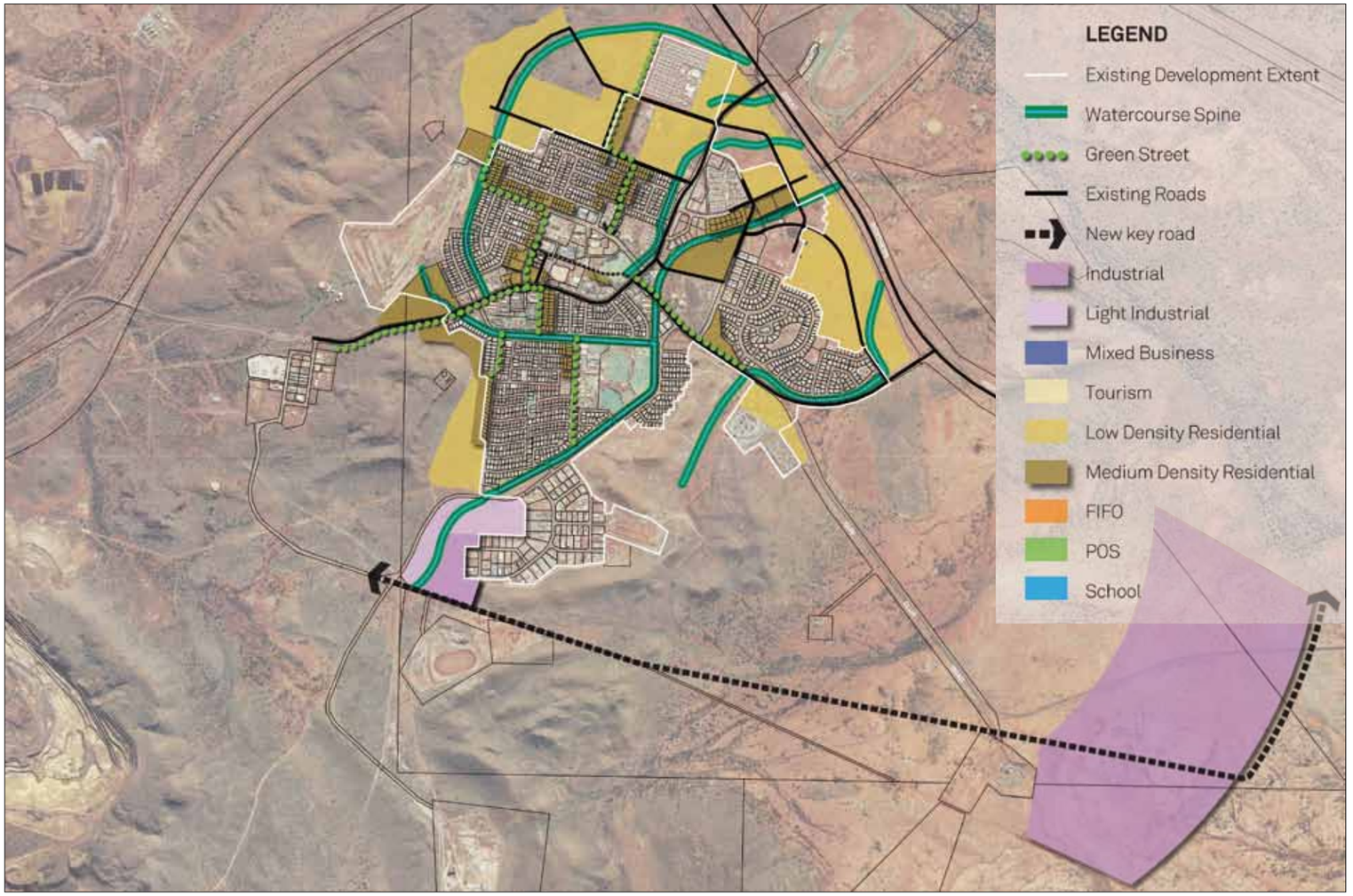
Industrial Land

The requirement to provide industrial land is a key driver for the Pilbara region. Heavy industrial land is required to support the resource industry, as well as to provide opportunities to diversify the local economy, thereby moving towards a more resilient future for Newman.

Currently, remaining undeveloped zoned industrial land totals 25ha within the town site. This area of land is located in close proximity to residential lots and as such the Town Site Growth Plan document recommends that these lots be developed for light industrial purposes. This land should be brought to the market in the short to medium term.

In order to accommodate a future industrial hub and higher order industrial and heavy industrial uses, a new industrial estate has been identified approximately 3km east of the town centre. This future industrial estate is approximately 200ha in area and is located on the Great Northern Highway at the intersection of Marble Bar Road, in order to provide the estate with maximum exposure to passing traffic.

The estate will be provided with a new road which will bypass the town site and link in with the existing industrial areas located south and south west of the town site. This will ensure freight traffic is removed from the town site and will provide good linkages between the industrial uses.



4 An Integrated Strategy for Newman

Mixed Business

A Mixed Business Precinct is proposed along Newman Drive, which will have good exposure to passing traffic. Land for a range of bulky goods, showroom and warehouse uses has been identified as a current and future requirement for Newman. Existing bulky goods land uses, such as the hardware store and electrical goods store, are located within the town centre, but in time have grown in size and now require more land to expand their operations.

It is anticipated that as the population of Newman increases, new demand for other bulky goods, showroom and warehouse space will be generated.

The provision of a mixed business precinct, will also assist in providing new opportunities for small business, which will further contribute to diversification of the Newman economy.

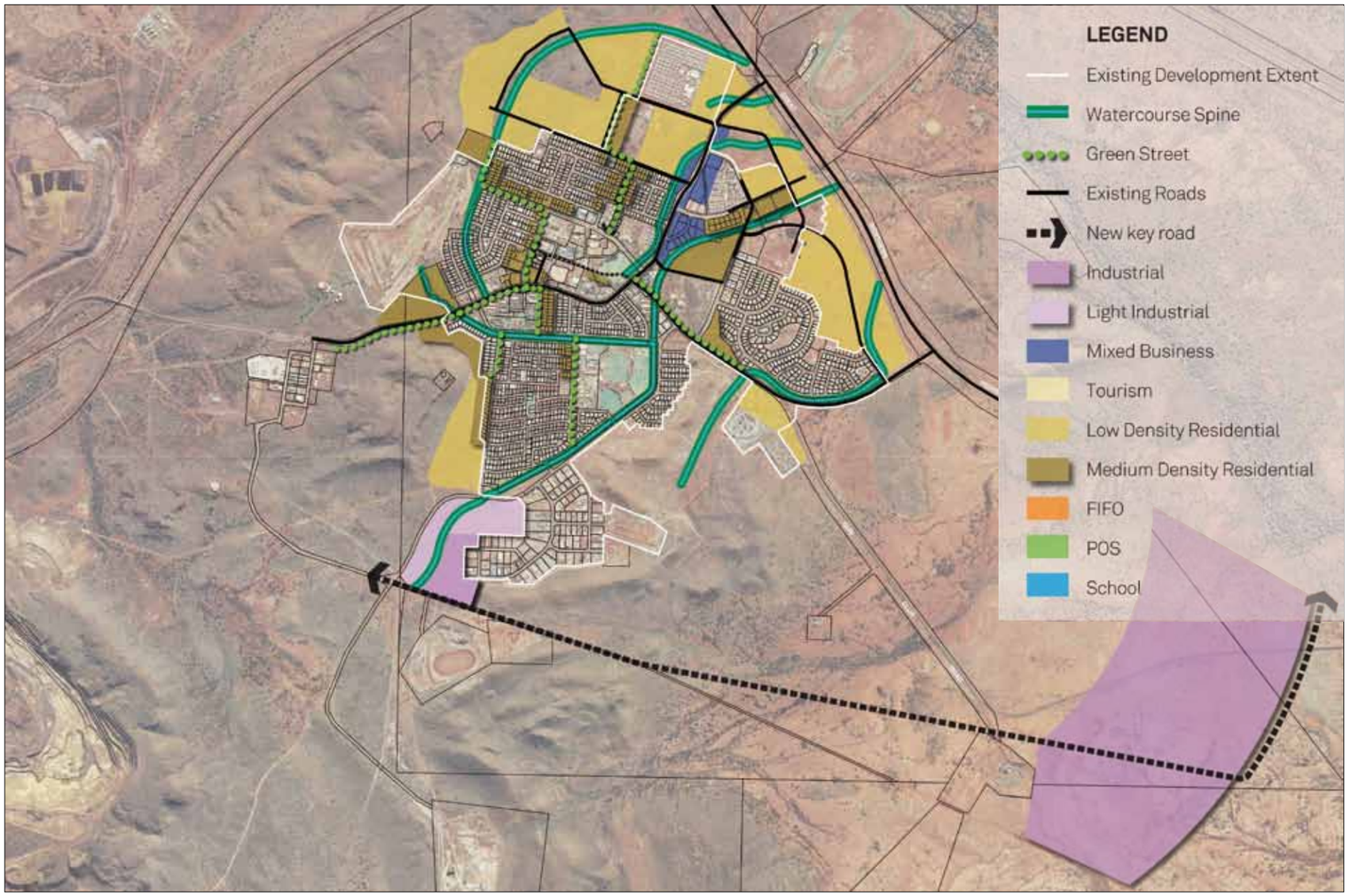


Figure 40: Identification of new mixed business opportunities (blue)

FIFO Accommodation

The plan proposes to integrate FIFO accommodation into the town site. A number of opportunities have been identified north of the town centre and one east of the town centre.

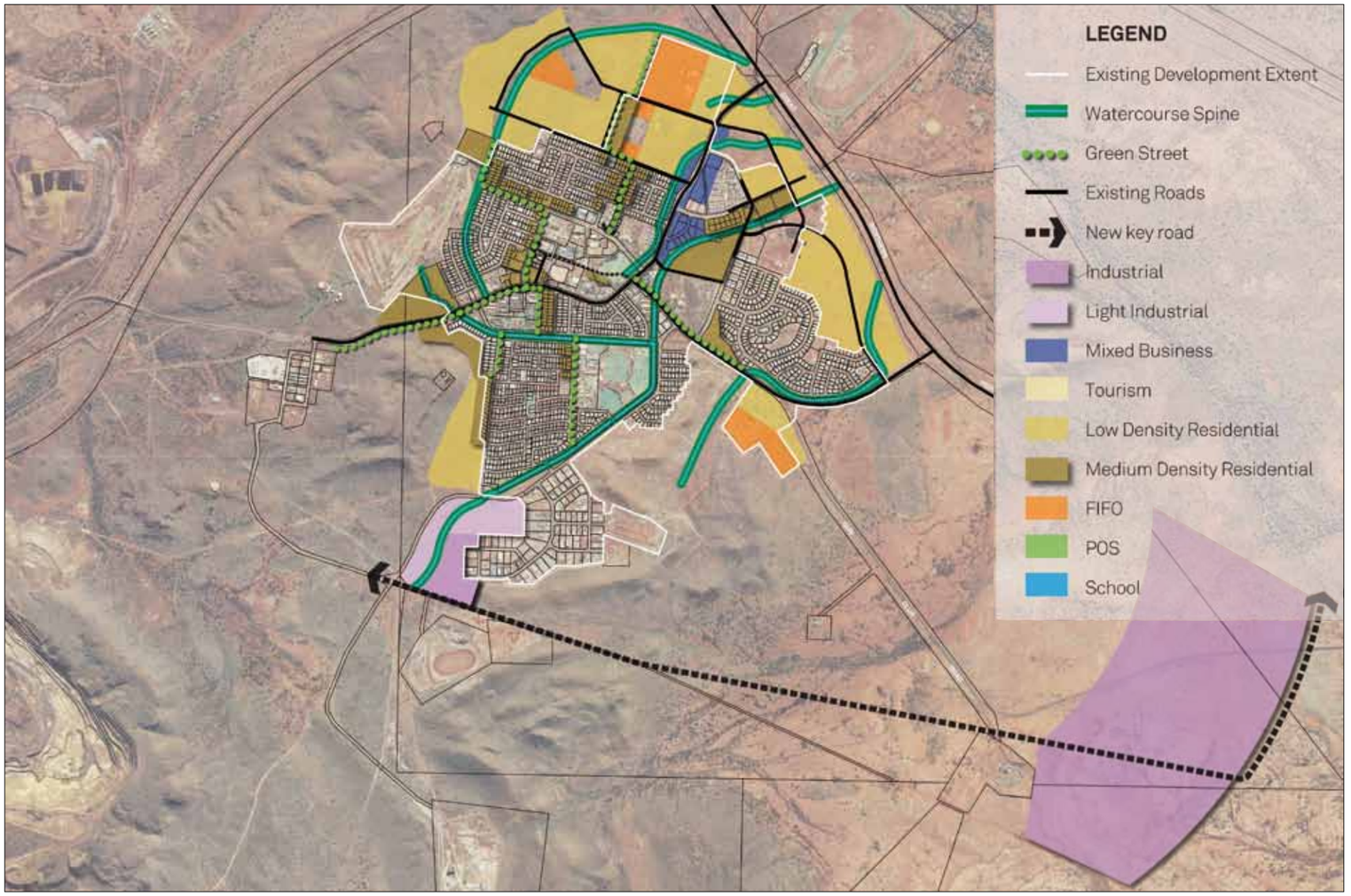


Figure 41: Identification of new FIFO accommodation (orange)

Modern FIFO accommodation

4 An Integrated Strategy for Newman

School Site and Public Open Space

Based on a target population of 15,000 people, an additional primary school site will be required. These have been identified within the plan. Additional POS opportunities have also been identified.

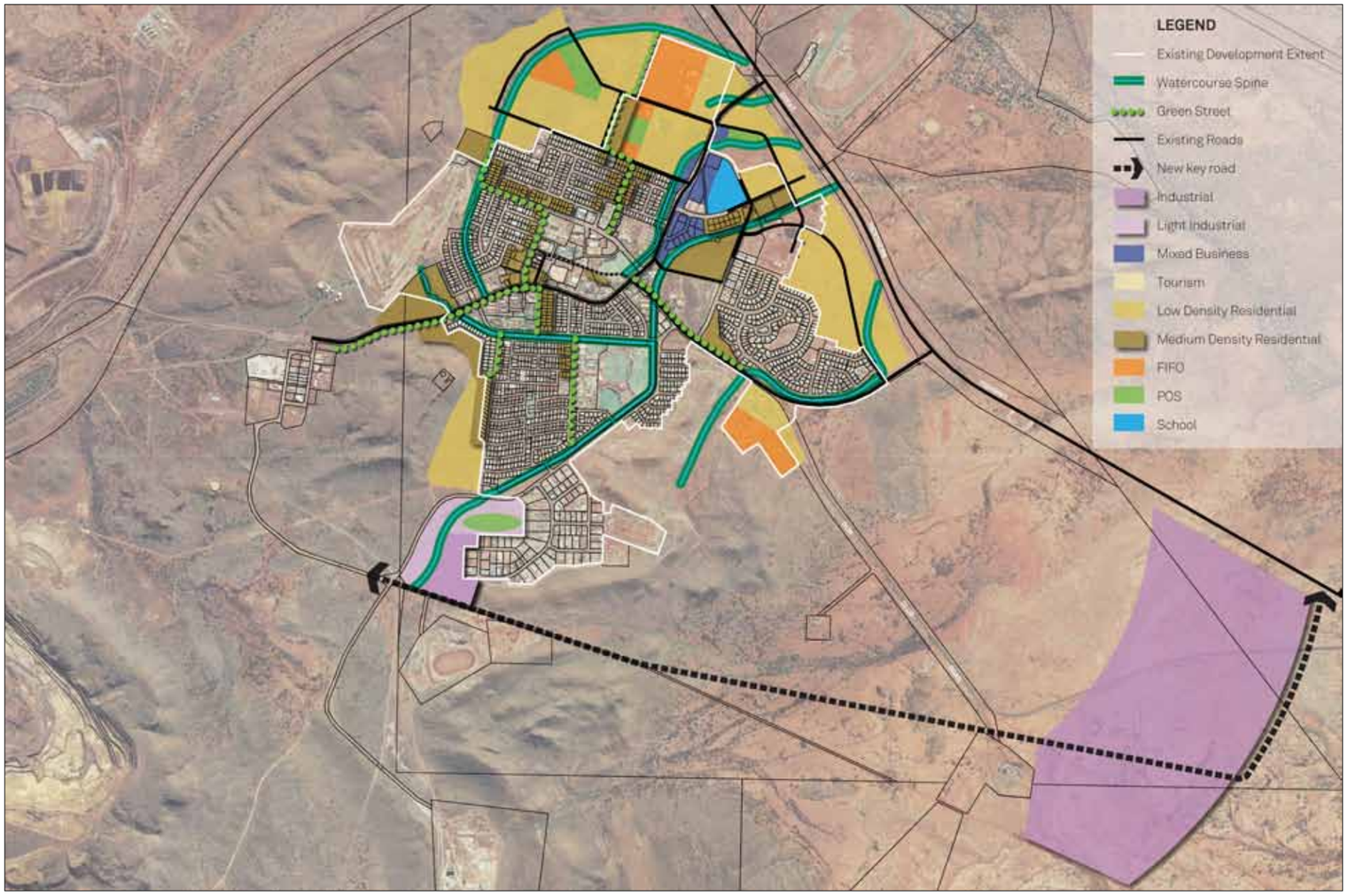


Figure 42: Potential school sites are shown in light blue and POS in green above

School Children in Newman

Tourism Accommodation

Currently, Newman provides limited tourism facilities to capitalise on the potential tourism market generated through the mine activities (mine tours), combined with the natural and cultural assets, including proximity to Karijini National Park and the artwork generated through the Martu people, for instance.

The resource industry has generated substantial employment for the region and as a result there is insufficient housing to accommodate workers which has resulted in increasing rent and housing costs, which also has seen the two key hotel sites being used primarily for business, with nightly rates being exorbitant for most tourists. In addition to this, there are no caravan or camping facilities in town, with past caravan sites being now used for FIFO accommodation.

There is some caravan parking facility attached to the Tourist Centre in town, however the number of embayments is obviously limited.

Due to the lack of accommodation facilities, tourists generally only stay one day within Newman, choosing to travel on to other destinations seeking overnight or longer term accommodation. An opportunity exists to provide dedicated tourist accommodation and facilities to attract tourists to Newman and encourage them to stay in town longer, thus boosting the local economy and vibrancy of the town.

Two separate tourist accommodation sites have been identified along Kalgan Drive, which will accommodate much needed affordable holiday accommodation, including a caravan park, camping sites and chalets.

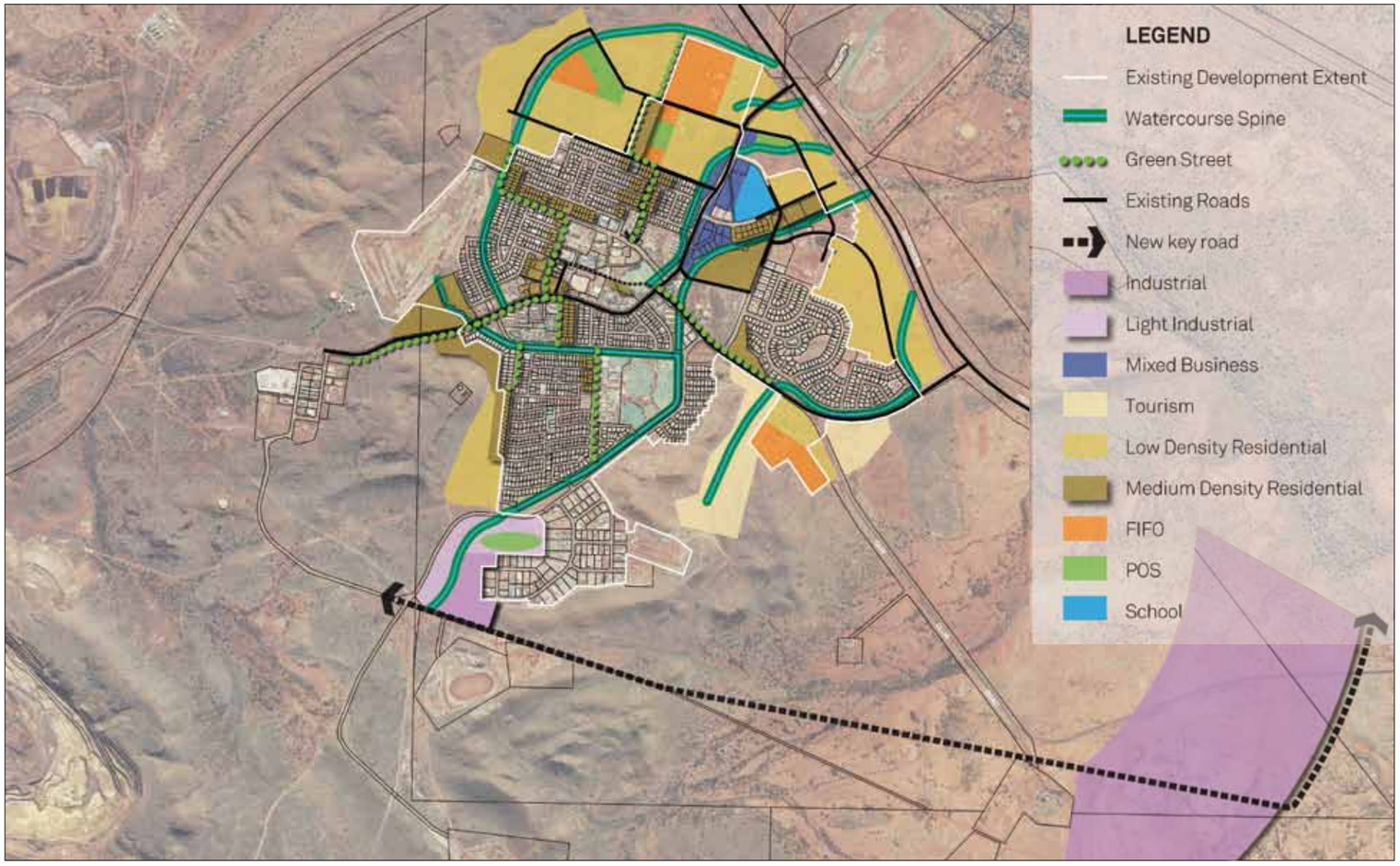


Figure 43: New tourism accommodation sites

Natural attractions near Newman

4 An Integrated Strategy for Newman

4.4.3 Town Site Growth Plan – Yields

To create a town for a population of 15,000 the following indicative yields have been derived from the town site plan. The projected yield based on 2.7 people per dwelling gives an additional population of 12,690.

4.4.4 A Staged Approach

To facilitate residential and business growth and increase land supply the following indicative staging might apply:

- Developments currently proposed such as 'Grandtown' are in the first stage
- Then staged blocks working out from existing development edges, zoned land before areas outside of existing town boundary
- Both medium density and single density should be brought online together
- Undertake water spine/green streets landscape works as and with each of the staged blocks
- Concentrated redevelopment of existing single residential to medium density along areas of greater amenity such as the water spines and green streets will require rezoning and appropriate design guidelines. It is envisaged that market forces will determine the pace of redevelopment for these parcels
- Optimise the range of industrial opportunities available at any given time (light and heavy and range of lot sizes for heavy industry), with the portion of proposed highway industrial closest to the highway coming on stream first with the new heavy freight diversion road constructed with later portions

Figure 44: Proposed development yields

Newman Town Site Indicative Staging Associated Projected Yields

Area Code	Area (Ha)	Dwelling Type	Projected Dwelling Yield
Group 1 Residential Committed			
East Newman LandCorp Subdivision		single res	370
		single res and	
E1	10	med density	150
N4	8.4	single	220
Subtotal	18.4		740
Group 1 Industrial			
I1	8.6		
I2	16.3		
Subtotal	**24.9**		
Group 2 Residential New			
E4	3.8	med density	225
E5	4.3	single res	65
E6	2.4	med density	140
E7	4.5	single res	55
E8	5	single res	60
E9	1	single res	20
W1	2.2	med density	140
W3	4.3	med density	280
Subtotal	**27.5**		**985**
Group 2 Mixed Business			
B1	2.4		
B2	3.4		
B3	0.7		
B4	1.1		
B5	0.8		
Subtotal	**8.4**		
Group 3 Residential Redevelopment			
X1	4	med density	160
X2	4.8	med density	190
X3	0.8	med density	50
X4	1.1	med density	50
X5	0.5	med density	40
X6	1.7	med density	70
X7	1.2	med density	50
X9	1.1	med density	65
Subtotal	**15.2**		**675**
Group 4 Residential New			
E3	2.7	med density	220
E10	3.8	med density	230
E11	2	med density	80
X8	2.4	med density	145
W2	5.9	med density	350
W4	12.8	single res	190
Subtotal	**29.6**		**1215**
Group 5 Residential New			
N1	2.8	med density	160
N2	7.4	single res	90
N5	3.2	single res	65
N7	19.2	single res	230
Subtotal	**32.6**		**545**
Group 6 Residential New			
N3	10.4	single res	155
N6	1.6	med density	130
N8	10.4	single res	155
N9	8.2	single res	100
Subtotal	**30.6**		**540**

4.5 Creating a Vibrant Town Centre to support future Town Site Growth

Alongside the Town Site Growth Plan and a vital component of the NRP, is ensuring the town centre functions well to accommodate the potential population increase and provides an appropriate level of retail choice and amenity for both existing and future residents. As a result a Town Centre Master Plan has been developed.

The plan promotes a range of activities in the town centre that will combine to create a vibrant and enjoyable commercial heart for Newman. For a future population of up to 15,000 people the town centre will be the main focus for the retail, commercial, civic, community and cultural activities, providing a rejuvenated and walkable town centre for people to enjoy. The Town Centre Master Plan (below) is discussed in detail and outlined in a separate report (Volume 3).

As demonstrated by the Town Centre Master Plan, the Newman town centre has capacity to accommodate additional commercial and retail floorspace to service future growth of the town. Additional commercial nodes outside the town centre are not required based on the population targets that have been identified for Newman.

The SoEP's planning scheme and decision making should reflect the need to consolidate commercial and retail uses within the town centre. Establishment of additional commercial and/or retail nodes outside the town centre could undermine the future success and vibrancy of the centre.

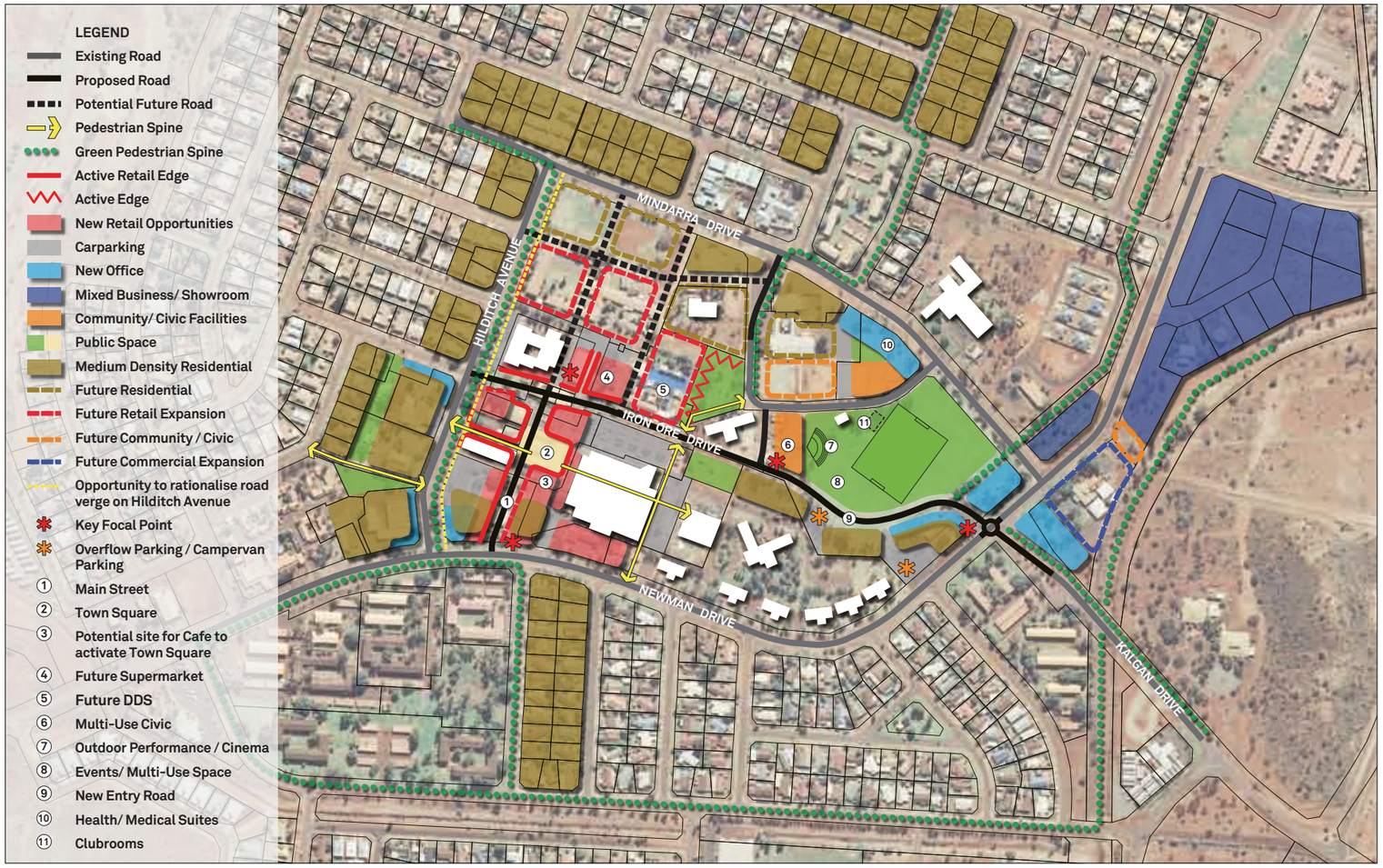


Figure 45: Town Centre Master Plan

4.6 Infrastructure to Support Growth

4.6.1 Earthworks

Earthworks for future development will be driven by balancing major design requirements which include:

- Lot elevations and road levels being sufficient to allow for major storm event flood routing.
- Quantity of imported fill material being minimized
- Depth of services excavation in rock being minimized

Typically the expansion of the town site will require the need to import fill materials. Fill material for bulk earthworks and pavements will need to be sourced.

4.6.2 An Integrated Water Management Strategy for Newman

A complete servicing strategy is required for Newman that integrates water supply and wastewater treatment and reuse.

The findings of the water/wastewater servicing strategy would be incorporated with the findings of drainage modelling to prepare a District Water Management Strategy compliant with the Department of Planning's Better Urban Water Management guidelines.

4.6.3 Sewer

This section on waste water will focus on three distinct areas of the waste water process: - General Servicing Requirements via Existing Network, Sewer Waste Water Treatment Plant and Treated Waste Water Reuse.

4.6.3.1 General Servicing Requirements

The Water Corporation is currently in the process of undertaking a planning study for Newman and the following is based on investigations completed by the Newman Revitalisation Project Consultant team. Confirmation of these findings will follow from the Water Corporation study.

The Water Corporations sewer license area currently includes the existing town site but does not cover the all of the expected growth areas. Any expansion of the town site will require an amendment to the license area.

Table 18 summarises the characteristics of each of the proposed growth areas.

Table 18: Indicative staging

Stage	No. Lots or Area (Ha)	Gravity Sewer Design Flow (GSDF)
1 Residential	740 Lots	10.342 L/s
2 Industrial	58 Lots	6.474 L/s
2 Residential	1485 Lots	18.76 L/s
2 Mixed Business	8.4 Ha	1.76 L/s
3 Residential	675 Lots	9.43 L/s
4 Residential	1215 Lots	22.32 L/s
5 Residential	745 Lots	12.01 L/s
6 Residential	540 Lots	13.54 L/s

4 An Integrated Strategy for Newman

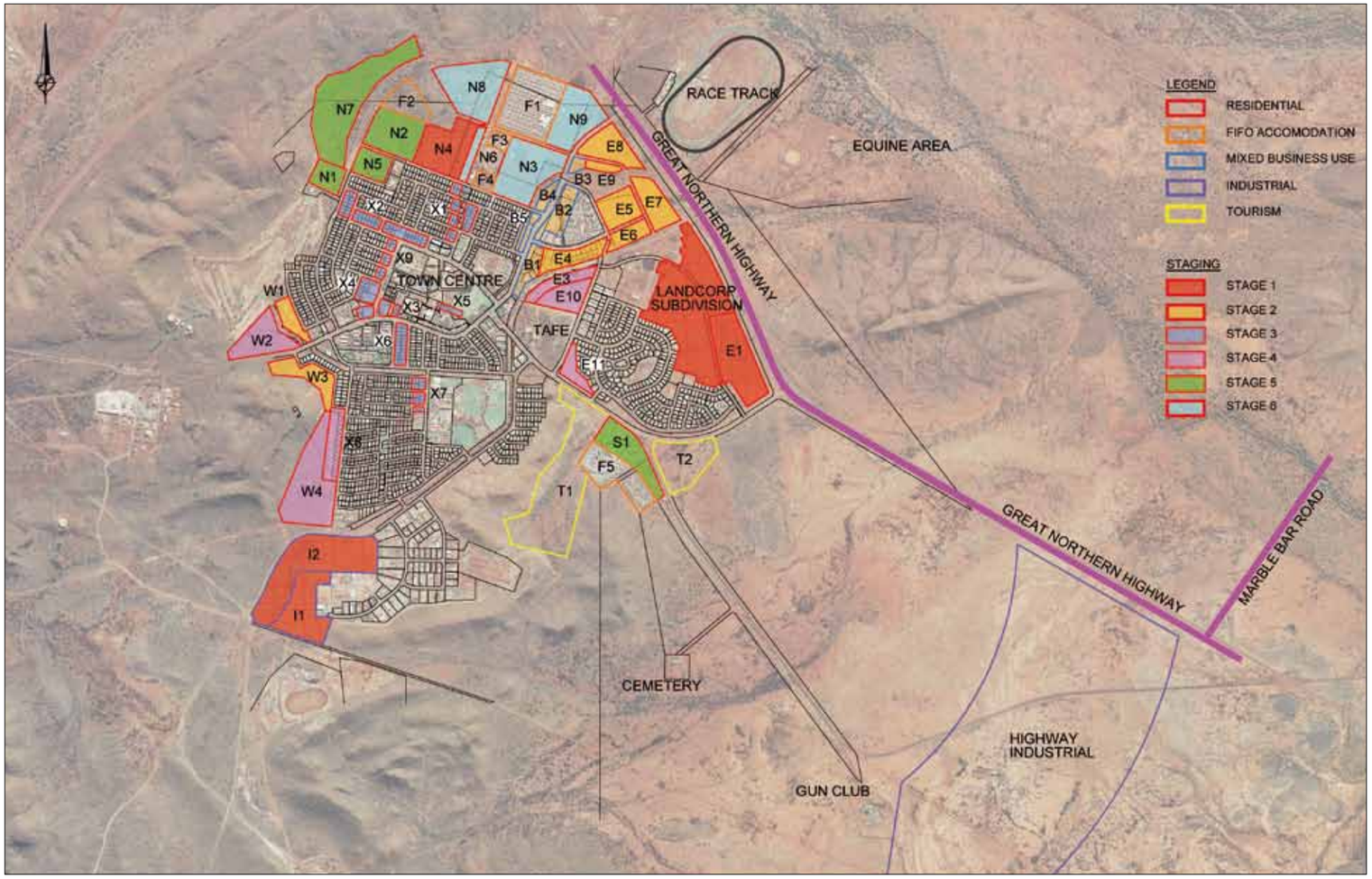


Figure 46: Town Site Staging Plan and Stage Areas

Stage 1 Residential

It has been assumed 100 percent of the LandCorp East Newman subdivision and E1 Grandtown is contained and accounted for within the existing Water Corporation catchment boundary. Based on available information, development of the LandCorp East Newman subdivision and E1 Grandtown is possible without the requirement for upgrading the existing infrastructure. This portion of Stage 1 will flow to the existing Pump Station No 5.

The N4 Kurra area has been assumed to not be included in the current Water Corporation gravity sewer design flows. This area will require a pump station located approximately in the north east corner. Existing Water Corporation catchment data indicates the existing pipe network will have capacity to cater for the additional flow. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released.

Based on informal information suggesting pumping station No 1 is over capacity, it will require assessment and upgrade. Extent of the upgrade cannot be commented on until further information is released by the Water Corporation.

Stage 1 Industrial

The I1 and I2 industrial areas have been assumed to not be included in the current Water Corporation gravity sewer design flows. Existing Water Corporation level information indicates areas I1 and I2 will be possible to serve by gravity sewer into the existing network. Based on the above assumption and from existing Water Corporation catchment data, it appears the existing pipe network will not have capacity to cater for this additional flow. The DN150 main line will require upgrade to a DN225 main. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released. Extent of the upgrade cannot be commented on until further information is released by the Water Corporation.

Currently existing industrial premises in Newman are generally not on mains sewer. If servicing of the designated industrial areas by mains sewer is adopted this will have a bearing on the predictions and may require earlier recourse to a new wastewater treatment plant.

Stage 2 Mixed Business

Although the Mixed Business Precinct is located inside the Water Corporation catchment boundary it has been assumed they are not included in the current Water Corporation gravity sewer design flows.

Existing level information indicates it will be possible to serve area B1 by gravity sewer into the existing network and to Pumping Station No 4.

The B2 and B3 areas, if developed prior to Stage 2 Residential will require a pump station located approximately in the north area of B3. Should the Residential area be developed fist then it may be possible to combine with a single pumping station to the North East that will pump direction back to Pumping Station No 4 or No 5.

Based on existing catchment boundaries Areas B4 and B5 may be served by gravity sewer into the existing network and to Pumping Station No 4 or No 1. It appears the existing pipe network may have capacity to cater for the additional flow. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released.

Extent of the upgrade on all pumping stations cannot be determined until further information is released by the Water Corporation.

4 An Integrated Strategy for Newman

Stage 2 Residential

Existing level information indicates it will be possible to serve area E4 by gravity sewer into Pumping Station No 4. It appears the existing pipe network may have capacity to cater for the additional flow. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released.

Areas E5 to E9 will require a pumping station located to the North East. This will pump back to either pumping station No 4 or to pumping station No 5. Should pumping station No 5 be the preferred location, then provision should be made during the LandCorp East Newman subdivision under Stage 1 for the pressure main network.

Areas W1 and W3 may be served by gravity sewer into the existing network and to Pumping Station No 4. It appears the existing pipe network may have capacity to cater for the additional flow. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released.

Area T1 may be served by gravity sewer into the existing network and to Pumping Station No 5. It appears the existing pipe network will not have capacity to cater for the additional flow and will require upgrade to DN225. Provision should be made during the construction of the LandCorp East Newman subdivision and E1 Grandtown development for the additional flows from this area.

Extent of the upgrade on all pumping stations cannot be determined until further information is released by the Water Corporation.

Stage 3 Residential

These areas may be served by gravity sewer into the existing network and to Pumping Station No 4 and No 1. It appears the existing pipe network may have capacity to cater for the additional flow. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released. It has been assumed the increases in sewer design flows are not currently included in the current Water Corporation data.

Stage 4 Residential

Although the E3, E10 and E11 areas are located inside the Water Corporation catchment boundary it has been assumed they are not included in the current Water Corporation gravity sewer design flows.

It appears the existing pipe network may have capacity to cater for the additional flow. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released.

Areas W2, W4 and X8 are outside the Water Corporation catchment boundary and are not included in the current Water Corporation gravity sewer design flows. It appears the existing pipe network may not have capacity to cater for the additional flow and will require upgrade to DN225. However this will need to be confirmed when detailed information on actual flows and network infrastructure is released.

Areas F5 and S1 may be served by gravity sewer into the existing network and to Pumping Station No 5. In conjunction with Stage 2 area T1 it appears the existing pipe network will not have capacity to cater for the additional flow and will require upgrade to DN225. Provision should be made during the construction of the Landcorp Subdivision and E1 Grandtown development for the additional flows from this area.

Stage 5 Residential

Area T2 may be served by gravity sewer into the existing network and to Pumping Station No 5. In conjunction with Stage 2 area T1, and Stage 4 area F5 & S1, the existing pipe network will not have capacity to cater for the additional flow and will require upgrade to DN225. Provision should be made during the construction of the Landcorp Subdivision and E1 Grandtown development for the additional flows from this area.

A portion of areas N1, N2, N5, N7 and F2 will be able to be dragged back by gravity sewer into the existing network, and a pumping station will be required to be located to the north of area N7 and F2.

The existing gravity sewer network surrounding Pumping Station No.1 will require upgrade to accommodation the additional flows from Stage 5. Extent of the upgrade cannot be commented on until further information is released by the Water Corporation.

Stage 6 Residential

A portion of Stage 6 will be able to be served by gravity sewer into the existing network.

A pumping station will be required to the north east of area N3 and one in Area N9.

Depending on timing of works for Stage 2 Residential and Stage 2 Mixed Business, pumping stations in these areas may be designed cater for the Stage 6 flow. This will remove the need for additional pumping stations in Areas N3 and N9.

Highway Industrial Site

The Highway Industrial Site is separate and isolated from the Newman town site. Serving this area into the existing network would be difficult and expensive requiring a pumping station and approximately 2 to 3km's of pressure main.

Currently existing industrial premises in Newman are generally not on mains sewer. If servicing of the designated industrial areas by mains sewer is adopted this will have a bearing on the predictions and may require earlier recourse to a new wastewater treatment plant.

Due to the challenges highlighted it is proposed to serve the Highway Industrial site by Alternative Treatment Units (ATU's) also known as Aerobic Treatment Units. This would be a developer borne cost.

Customers who install ATU type wastewater systems are to comply with all State Government connection requirements. These include the Department of Health, SoEP and the Water Corporation.

Waste Water Treatment Plant

The existing Newman Sewer Treatment Plant is not to Water Corporation Standards. It is 25 years old and has an estimated replacement value of $5,000,000.

The existing waste water treatment plant is operating at 60% to 70% of its design capacity at present (current flow 1,400 KL/day). An increase in town population to 10,000 can be accommodated with the existing plant (design capacity flow 2,000 KL/day). Further increases in population to a maximum of 13,000 can be accommodated with the introduction of another final clarifier (design capacity flow 2,500 KL/day).

Any further increases in population will require major works such as constructing a new plant or by substantial upgrade of the existing facility. It is only at that point that the existing plant would reach maximum design capacity. After an additional 5,000 persons a decision would need to be made as to whether the capacity of the existing plant is increased by major works. This can be accommodated by building a new plant or by increasing the aeration and augmenting the clarification using a membrane bio reactor and remaining with the existing facility.

A new plant could be accommodated at the present plant location if further land is resumed or it could be located elsewhere.

The existing industrial premises in Newman are generally not on mains sewer. If servicing of the designated industrial areas by mains sewer is adopted this will have a bearing on the predictions above and may require earlier recourse to a new plant.

Treated Waste Water Reuse

A 5.5 kilometre pipeline to town returns treated water from the sewage treatment plant for public open space irrigation (primarily Boomerang and Capricorn Ovals) which under Department of Health regulations watering can only occur be between 9pm and 4am.

This pipeline is not utilised during the day so future irrigation schemes could be accommodated without change if storage was established within the town.

This storage would be supplied by the existing pipeline during the off peak period during the day obviating the need for a new or upgraded pipeline which would be difficult and expensive to build.

The current operations generate a flow of 600 KL/day. The ultimate flow from the waste water treatment plant at full utilisation is estimated at 1,400 KL/day.

Refer to Figure 47 detailing the strategy for wastewater below.

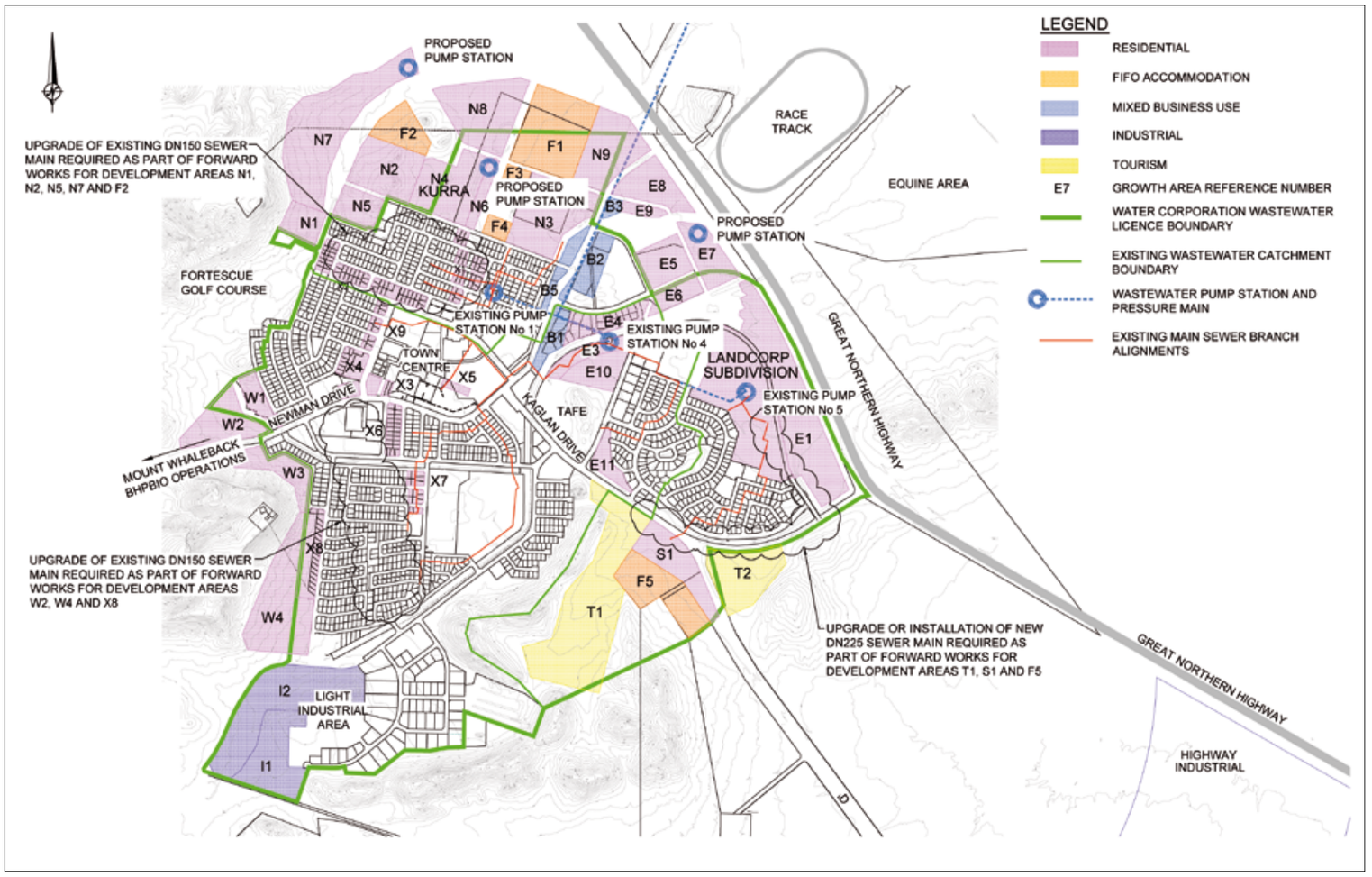


Figure 47 Town Site Wastewater Strategy Plan

4.6.48 Water Supply

This section on water supply will focus on two distinct areas of the water supply process: - Water Treatment Plant and General Servicing Requirements via Existing Network.

4.6.4.1 Water Treatment Plant

BHP Billiton had previously commissioned GHD to investigate the viability and cost of replacing the existing plant with a modern Reverse Osmosis treatment plant.

BHP Billiton are planning for a new Reverse Osmosis plant to increase capacity to 10Ml per day which would provide a buffer over current demand. An increase in Town population to 11,500 persons would be accommodated with the new Reverse Osmosis treatment plant.

Population growth to 15,000 persons would require further capacity increases by additional modules to be added to the treatment plant to increase capacity accordingly. H Line is considered adequate to convey higher volumes of feed water without upgrading or replacement.

4.6.4.2 General Servicing Requirements

As Water Corporation is currently in the process of undertaking a planning study for Newman the following is based on investigations completed by the Newman Revitalisation Project Consultant teams. Confirmation of these findings will be by Water Corporation.

Approximately 30ha of growth area to the north of the town and the proposed Great Northern Highway industrial site are outside the current water license boundary and will require an amendment to the license area.

Further analysis of the existing network is expected to confirm the need for upgrade of existing distribution mains or additional distribution mains throughout the town to cater for increased demand.

The provision of water services is an iterative process and pipe sizing will be confirmed with the Water Corporation, and further dialogue is expected. All lots in future developments will be provided with connections in accordance with Water Corporation requirements via the installation of water reticulation within common trenches, along with other essential services.

The Highway Industrial Site is separate and isolated from the Newman town site. Serving this area from the existing network would be difficult and expensive, possibly requiring transfer pumping stations, tanks and approximately 2 to 3km's of distribution main.

Due to the challenges highlighted it is proposed to serve the Highway Industrial site by its own dedicated Reverse Osmosis treatment plant. The proposed lots could be served by their own individual RO treatment plants, which would be a developer borne cost or by a larger RO treatment plant operated by the Water Corporation. Customers who install RO treatment plant systems would need to comply with all State Government connection requirements. These include the Department of Health, SoEP and the Water Corporation.

Water supply is possible from the BHP Billiton owned "K Line" and a non standard connection agreement would be required for the Water Corporation to act as the service supplier to this site.

4.6.5 Drainage

Expansion of the town can generally utilise the existing major drains for stormwater discharge. As the soil types range from gravels to clayey gravels which have limited soakage potential, the existing runoff is high and development should not significantly increase outflows.

Internal drainage will continue the existing approach where the roadways are used to convey flows to the major drains. Land generally slopes to the east so some earthworking of north-south orientated roads will be necessary to provide grades to direct flow to drainage outlets.

While soil types do not generally allow soakage, opportunity exists to address water quality and quantity through vegetation of main drains and controlled outflows.

Future development plans will require appropriate space for integration of storm water conveyance channels/swales to cater for large storm event flows. The landscape treatment of the drainage facilities to suit the proposed urban form provides opportunity to provide a higher amenity locality.

It is recommended that detailed two dimensional drainage modeling be undertaken to accurately determine the extent of drainage systems and establish appropriate development lot levels.

4.4.6 An Energy and Greenhouse Management Strategy

4.6.6.1 Electricity Supply

Due to its dependence on the North West Interconnected System (NWIS), sustainable energy solutions for Newman should encompass a wider regional planning approach that would enable planning for energy efficiency and alternative energy technologies. The abundance of tapped natural gas reserves in the region provides an excellent opportunity for capturing the greenhouse benefits of natural gas generation and efficient large scale natural gas technologies. In addition, Newman lies in a region that has some of the highest levels of solar radiation in the world and there is enormous potential to utilise low greenhouse gas emission generation technologies.

Horizon Power and Western Power report that the reliability of the NWIS, system security and quality of supply would be substantially improved with the completion of transmission system upgrades and the implementation of a governance framework.

Anecdotal evidence suggests that some industries operating close to NWIS transmission infrastructure have opted to use their own stand-alone power supply rather than connect to the NWIS. It is suggested that this is due to the way that the physical properties and associated supply risks of electricity are controlled on the network. These are aspects that arise from lack of central governance of the grid (Energy Supply Association of Australia, November 2009).

Solving energy supply and reliability issues on the NWIS could also encourage further economic activity in the region. Availability of low cost and reliable electricity supply is a key factor in the viability of many projects in the resources and manufacturing industries.

Ensuring that a reliable electricity supply is available to the Pilbara townships such as Newman is essential to ensuring these communities are seen as comfortable and vibrant places to live. Both industry and government have an important interest in ensuring the township supplies are fully reliable.

Horizon Power and Western Power report that large natural gas savings could be made by having an efficient interconnected electricity grid with large scale generation, as opposed to many gas pipelines with local isolated generation (Horizon Power and Western Power, June 2009):

> *"An integrated transmission system with large-scale efficient generation would reduce daily gas consumption in the Pilbara by 186-573 TJ (for medium- to high-case scenarios, respectively) as of 2019. This equates to annual greenhouse gas emissions reductions of 1.3-3.1 million tonnes and a net economic benefit of $675 million to $2.2 billion."*

It is also expected that the overall generation efficiency of the system would be significantly improved by:

- Co-ordinated planning of local and regional generation and transmission infrastructure; and
- Co-ordinated operational control including generation scheduling.

Central scheduling of the appropriate interconnected generators for the time of day and load would enable generators to operate closer to their optimal efficiency, which would improve the overall efficiency of the system. Co-ordinated planning of infrastructure would mean that larger generators could be established to meet a wider section of the load, such as combined cycle gas turbines that have a far higher efficiency (up to around 60%) than the existing open cycle gas turbines (up to around 40%).

4.6.6.2 Gas Turbines and Heat Recovery Steam Generation

The power plants operating in the region are diesel generators and open cycle gas turbines fuelled by either diesel or natural gas. The 105 MW power plant in Newman consists of open cycle gas turbines. Investigation is required to determine whether these turbines are 'combined cycle ready', so that heat recovery steam generation could be fitted.

Combined cycle plants can reach an efficiency of 55 - 60% which is significantly greater than the efficiency of an open cycle plant (35 - 40%). Both are more efficient than diesel gensets which are around 25 - 30% efficient and steam generation which is typically around 25 – 30% efficient. Open cycle gas turbines are typically used to meet peak power demand on a network (although they can equally be used for base load), because they are able to start up rapidly (around 1 minute) when required and are able to follow the fluctuations in load. Combined cycle plants use an additional heat recovery steam generator to capture the energy in the waste gas stream of the gas turbine. This enables further power generation via a steam driven generator. The waste heat can equally be captured and used for co-generation.

The requirements for the upgrade of the power station should be fully established, including required noise and air quality boundaries. It is recommended that Alinta plan for the upgrades to the power plant progress towards achieving full combined cycle status.

4.6.6.3 Grid Scale Solar Thermal Energy

A review of renewable energy technologies undertaken for the project identifies solar as a major future potential source of energy in the Pilbara, a region having some of the highest solar insulation in the world.

The establishment of the Pilbara as a low emission energy hub could be a significant factor in attracting downstream processing of petroleum and minerals. The combination of LNG and solar energy offer low carbon energy opportunities in a world that is certain to factor carbon into the price of energy in the coming years and decades.

ERM has announced its intention to build a hybrid gas / solar thermal power station either in north-west Western Australia, Queensland, NSW or South Australia.

Solar energy projects proposed to operate on the NWIS are not currently eligible to apply for funding under the Federal Government's Solar Flagships program. While the first round of funding applications closed in February 2010, the case should be made for inclusion of the NWIS in the second round, which will open when the first round has been assessed.

4.6.6.4 Lot Scale Solar Photovoltaic Energy

The utilisation of Solar Photovoltaic (PV) systems at household level is a proven and reliable renewable energy technology, however relatively high capital costs for individual systems remains a barrier to widespread implementation. The Australian PV market has increased considerably in recent years, largely as a result of federal government rebates available for homeowners installing PV and public awareness of climate change issues.

Analysis of the opportunities for PV at the lot scale indicates potential for this to be part of the energy solution for future Newman, supported by the Federal Government's Solar Credits program (Ref) and the State Government's proposed residential net feed-in tariff scheme, which is scheduled to be introduced in Western Australia from 1 July 2010. The net tariff will be paid on all excess electricity exported to the grid from small-scale household renewable energy systems. The State Government has also committed to investigating the feasibility of providing a renewable energy feed-in tariff scheme to small business and commercial premises as a separate scheme, however no implementation date has been scheduled.

PV systems are sized in terms of their total rated power output, with sizes generally ranging from 600W to 3,000W (3kW) for household applications. A 2kW system will produce a daily average of approximately 4.5 units (kWh/day) of electricity, equivalent to 44% - 54% of the average household electricity consumption for homes with electric hot water systems and average energy efficiency for Newman. The percentage energy offset is far larger for homes that have been designed and constructed to be energy efficient.

A preliminary financial analysis indicates the net costs to the householder on a 20 year NPV basis would be roughly comparable to the conventional purchase of electricity at present costs, taking into account the Solar Credits scheme (noting that this is due to phase out in 2015). Likely increases in electricity prices, the proposed feed-in tariff, financial incentives and discounts from bulk purchase would further improve the financial viability of solar PV for householders.

Should grid connected solar PV become widespread in Newman there are also benefits to the availability of capacity on the grid as the peak solar generation is coincident with high levels of demand for air-conditioning, a significant component of non-industrial demand in the Pilbara.

It is recommended that the full feasibility and institutional arrangements for mandating or incentivising the take up of solar PV in future residential and commercial premises is established in consultation with Horizon Power. Possible mechanisms include conditions of sale, design guidelines and developer incentives. The establishment of standard PV configurations would facilitate the bulk purchase of solar PV equipment with ensuing discounts.

4.6.6.5 Hot Water Heating

Household water heating comprises approximately 31% of the average household energy use in Western Australia. Existing hot water systems in Newman are usually electric hot water systems, as natural gas is not reticulated to homes. Some homes use bottled LPG, but this is usually for cooking and not for hot water systems. Natural gas is not reticulated to homes in Newman.

Solar water heaters are a proven, reliable and cost effective method of reducing household energy demand, with lower ongoing running costs and greenhouse gas emissions than solely gas or electric water heaters. Flat panel collector solar water heaters are the most common type of system installed, however evacuated tube systems are becoming more widely available and offer a slightly better efficiency.

Gas boosted solar water heaters typically have lower greenhouse gas emissions than electric boosted systems supplied with conventional grid connected electricity (that is generally sourced from fossil fuels.) It should also be noted that a solar water heater in Western Australia that is sized, orientated and used correctly has the potential to meet at least 85% of the energy needs for household water heating.

A $500 subsidy is available through the Sustainable Energy Development Office (SEDO) for natural gas boosted solar hot water systems installed in Western Australia. The subsidy is $700 for LPG boosted systems operating in remote areas where reticulated natural gas is not available. The systems will also be eligible to generate renewable energy credits (RECS), worth up to $900 per unit. The Federal Department for Water Environment Heritage and the Arts (DEWHA) also provides rebates of $1000 for the installation of approved solar hot water systems. Further reductions in system cost may be possible through bulk/preferred supplier arrangements with solar hot water system manufacturers .

Evacuated tube solar hot water systems have recently become available on the Western Australian market and offer a greater efficiency than conventional flat plate collector solar hot water systems. However these systems generally have higher capital costs.

Heat Pumps have potential benefits over a solar hot water heater as they can be installed in a more discrete location than a rooftop and have the ability to work at night and provide a more continuous recovery. In instances where hot water use is high, a heat pump may use a similar amount of electricity to an electric boosted solar hot water heater over the course of a year. The upfront capital costs of electric heat pump water heaters are generally greater than that of solar water heaters, and the presence of a mechanical compressor and circulating pump may result in increased maintenance requirements.

At a development wide level, the use of heat pumps may provide a load leveling factor if compared to electric solar hot water systems, which may have common boosting periods (eg winter mornings), whereas heat pump systems may spread their load more consistently over a 24 hour period and have a lower peak power draw.

It is recommended that low emission hot water systems in the form of solar or heat pumps are mandated in future Newman development.

4.6.6.6 Smart Grid

Smart meters are electricity meters capable of measuring and recording electricity consumption in short intervals, and allow two-way communication to energy providers, enabling them to read and control features of the meter remotely. Combined with the provision of time-of-use tariffs, where the electricity provider process power according to the different costs incurred in providing that power at different times of the day, the user can minimise their own electricity bill. The Smart Meter also provides a customer interaction interface via an in-home display that provides real time feedback on electricity and gas consumption, enabling the user to understand their patterns of use. Used in conjunction with a rooftop photovoltaic system, the user can schedule their power consumption to coincide with the provision of renewable energy by their rooftop system.

The use of Smart Meters (in a Smart Grid) also benefits the energy provider by enabling demand management either by remote switching, programmed set points, or modified user behaviour. Trials conducted by Western Power have shown that there is a significant potential for both demand management and deferred infrastructure spending. Western Power will be engaged in a more extensive trial of the Smart Grid during 2010. Smart Meters also have the potential to assist power companies with maintaining system reliability and enabling further uptake of distributed generation. The Smart Grid is also expected to be safer.

Smart meters would provide a pathway to demand management, both by user behaviour modification and also by remote local switching. It would enable both the homeowner and Horizon Power to monitor the performance of a distributed power system.

It is recommended that the progress of the Western Power Smart Grid trial during 2010 be monitored, and other existing trials be researched. The inclusion of Smart Meters in the specification for new housing in Newman should be evaluated against expected benefits to the householder and benefits to the energy service provider, Horizon Power. It is recommended that Smart Meters be evaluated for inclusion in the specification for new housing in Newman.

4.6.6.7 Servicing

Stage 1

Stage 1 consisting of 370 green title lots subdivision (4.5MVA), 150 units strata subdivision (1.35MVA), a 220 units strata subdivision (1.9MVA) and two industrial lot subdivision (6.25MVA) will require an estimated total load of 14MVA. This is based upon an After Diversity Maximum Demand (ADMD) load allowance of 8kVA/lot for residential green title developments, ADMD load calculated according to the AS3000 for strata subdivisions, minimum of 100A/lot (as per BHP Billiton minimum requirements) for industrial developments and a limitation of 66% maximum loading on transformers to achieve n-1 redundancy (as per BHPB's design policy). With the town substation at full capacity and 4.2MVA remaining capacity from the mine substation for South Newman, it is highly unlikely that the existing aerial and underground HV distribution feeders have the capacity to service stage 1 unless the development is further broken into numerous phases. A new town substation is necessary to service the entire stage 1 development. Existing 11kV HV overhead distribution feeders currently run through industrial lots of Stage 1. It is highly likely that these aerial lines will cut through lot boundaries and therefore will require conversion to underground cables.

Stage 2

BHPB has advised that there is zero remaining capacity on the existing substations in the vicinity of E4-E9 developments of Stage 2. The construction of the new south town substation is necessary to service the entire Stage 2 development. It is calculated that the estimated load for Stage 2 is approximately 14MVA based upon an ADMD load allowance of 8kVA/lot for residential dwellings E4-E9, W1 and W3, a load allowance of 100A/lot for commercial lots B1-B5 and BHPB's n-1 redundancy requirement. An assumption of 2 lots per hectare has been made for commercial lots B1-B5. With the new development areas of W1 and W3 in the vicinity of the mine substation distribution feeder and dependent of the timing, remaining capacity may exist to service these two new developments.

Stage 3

The redevelopment areas of X1-X7 and X9 in Stage 3 will demand an additional load of at least 4MVA to the network. Given the significant increase of dwellings, it is likely that existing power infrastructure will not have the capacity to cope this growth. The conversion of existing pole top transformers to larger padmount substations will be required to service Stage 3. Further investigation and assistance is required from BHP Billiton to determine if Stage 3 may be serviced without the introduction of a new south town substation. As a result of this redevelopment, an opportunity arises for BHP Billiton to consider the under grounding of existing aerial networks.

Stage 4

Stage 4 consisting of a total of 1215 dwellings will demand a load of approximately 14.75MVA based upon an ADMD load allowance of 8kVA/lot and BHPB's redundancy factor. Existing 11kV HV overhead distribution feeders lie within areas of E3 and E10 which are to be underground and realigned. Due to timing, it is most probable that any spare capacity remaining on BHPB's network would have been utilised prior to the commencement of Stage 4. The introduction of a new town substation with the first few stages of development is required to provide BHP Billiton the capability to reallocate existing loads and reconfigure their network to bring power to sites of Stage 4.

Stage 5

Due to the locality of N1, N2, N5 and N7 and with the existing town substation at its limit, it is highly unlikely that there is spare capacity within the existing distribution aerial and underground feeders to service Stage 5. Based upon an ADMD load allowance of 8kVA/lot and BHP Billiton's redundancy factor, Stage 5 will have an approximate load of 7.9MVA including 1.2MVA for residential site S1 (96 lots).

Stage 6

With a dwelling yield of 540, stage 6 will draw an estimated load of 6.7MVA based upon an ADMD load allowance of 8kVA/lot and redundancy factor. The existing FIFO site currently supplied via 4 transformers and 1 backup generator lies within Stage 6. The existing infrastructure may be reutilised to service the new developments however additional substation installation will also be necessary. Realignment and undergrounding of existing 11kV HV distribution feeders is required allow for Stage 6 works. It is anticipated that the new south town substation would have been constructed prior to the commencement of Stage 6.

4 An Integrated Strategy for Newman

FIFO and Tourism Sites

In accordance of the AS3000, loads of the FIFO sites F1 (1200 man camp), F2 (500 man camp), F3 (150 man camp), F4 (150 man camp) and F5 (1000 man camp) are estimated to be approximately 5MVA, 2.4MVA, 950kVA, 950kVA and 4.6MVA respectively. Without the operation of a new south town substation, there is no capacity in the existing network to service any FIFO sites. Estimated loads for Tourism sites T1 (500 units) and T2 (200 units) are approximately 2.95MVA and 1.3MVA respectively.

With the above estimated demand loads, the number of new substations required are set out below):

Table 19 New Substations Required

Stage	Development Reference	Number of New Substations
1	Landcorp Subdivision E1 N4 I1 I2	6 x 750kVA Tx 3 x 500kVA Tx 3 x750kVA Tx 3 x 1MVA Tx 5 x 750kVA Tx
2	E4-E9 W1 W3 B1-B5	12 x 630kVA Tx 3 x 630kVA Tx 5 x 750kVA Tx 4 x 630kVA Tx
3	X1-X7 & X9	Upgrade of existing Tx's
4	E3 & E10 E11 W2 X8 & W4	8 x 750kVA Tx 2 x 500kVA Tx 6 x 750kVA Tx 7 x 630kVA Tx
5	N1 & N7 N2 N5 S1	8 x 630kVA Tx 2 x 630kVA Tx 2 x 500kVA Tx 3 x 500 kVA Tx
6	N3 N6 N8 N9	4 x 500kVA Tx 3 x 630kVA Tx 4 x 500kVA Tx 3 x 500kVA Tx
T1	T1	5 x 630kVA Tx
T2	T2	3 x 500 kVA Tx

HV distribution feeder extension works is necessary for all stages of the development. Monitoring of the capacity of distribution HV feeders and upstream infrastructure is essential as development progresses. BHP Billiton is to review each development on a per case basis to determine the timing of new town substations. A new town substation is necessary to service the entire proposed development. The new south town substation will be supplied from the mine via an upgrade of the existing 11kV HV distribution feeder to a 66kV HV transmission line.

As stages of development are completed, a 3rd town substation or expansion of the new and existing town substation may need to be considered subject to BHP Billiton's leniency of their redundancy factor. Introduction of the Highway Industrial site (estimated load 29MVA dependent on leniency of redundancy factor) may result in a 4th town substation. Further investigation is required on the limitation of the gas pipe infrastructure fuelling the Newman Power station which will determine the levels of upgrades possible. Other alternatives of power generation may need to be considered.

Refer to Figure 48 detailing the strategy for provision of power throughout the town site.

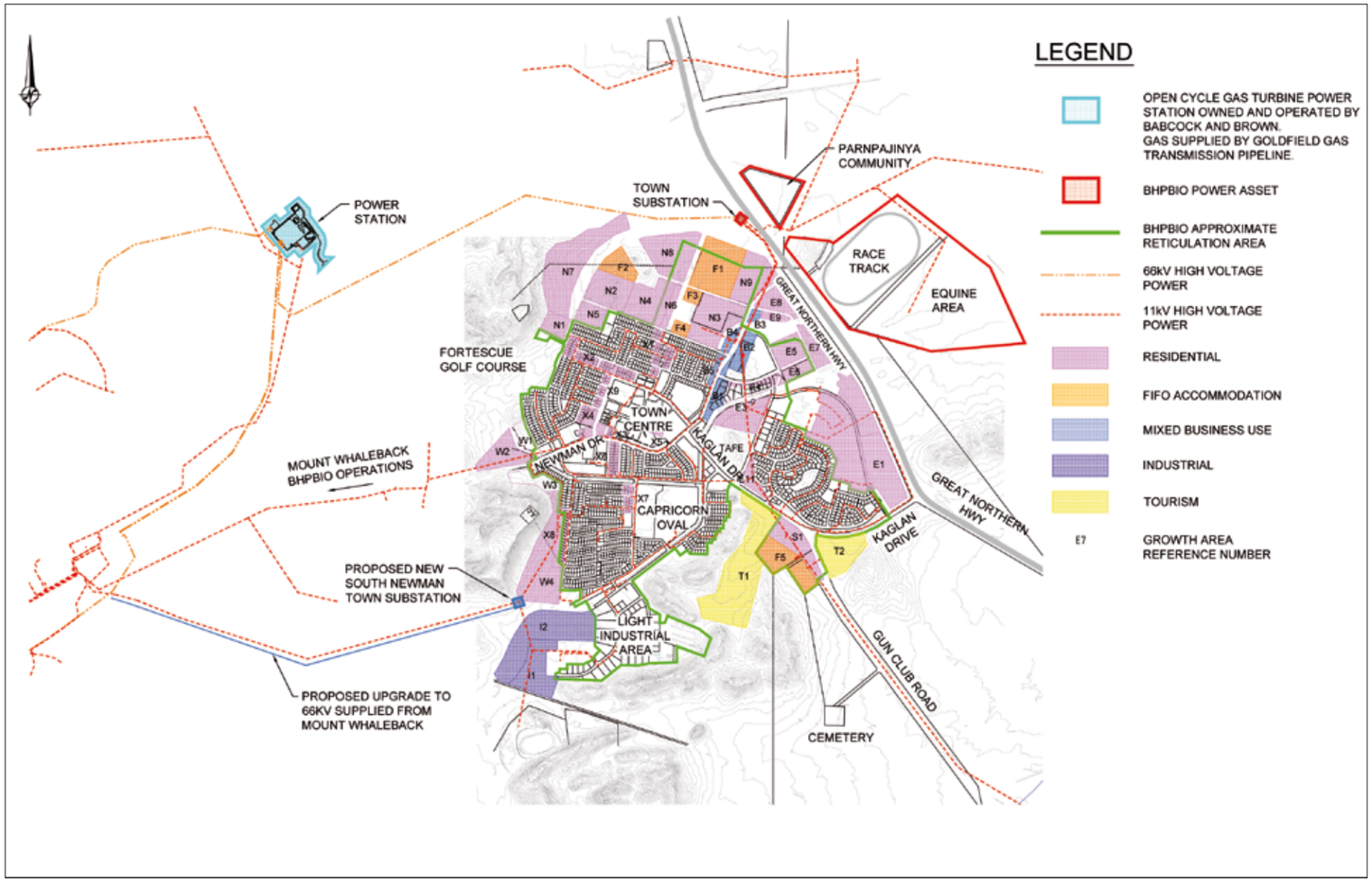


Figure 48 Town Site Power Strategy Plan

4.6.7 Telecommunications

The main telecommunication link for Newman is fibre optic cable in Great Northern Highway. With progressive transmission upgrades, this cable will be sufficient for growth of the town.

The existing Exchange facility is nearing capacity and expansion will likely be required following completion of the remaining development of the LandCorp East Newman subdivision. The Exchange is limited by floor space for additional equipment however land exists for expansion of the building to service population growth. The location of the Exchange will be suitable to service the proposed Town expansion area within a 3km radius. Telstra have advised that the proposed Town expansion areas can be served by an extension of the existing communications infrastructure.

Development of existing infill sites in Newman are difficult and expensive due to the problems that Telstra have inherited from the original owners of the town's communications assets.

National Broadband Network (NBN) legislation is expected to be passed in June 2010 which will require developers to install infrastructure resulting in fibre connection to all new properties. The details of costs attributable to developers and/or Telstra are still being determined however an increase requirement for developers is highly likely.

4.6.8 An Integrated Transport Strategy

4.6.8.1 Roads and Paths

In new areas the road network and paths for pedestrians and cyclists will need to be planned in accordance with the principles of the Western Australian Planning Commission's Liveable Neighbourhoods policy. Roads will need to be constructed in accordance with the IPWEA Subdivision Guidelines and in conjunction with the SoEP "Guidelines and Standards". Road widths will be derived in accordance with the planning layout and traffic requirements. Footpaths may also be required in accordance with the guidelines from the Department of Planning.

Road network capacity should not present a significant constraint for future expansion of Newman town site as long as traffic from the future development can distribute across more than one approach road to the town centre. Therefore a growth plan that includes outward growth of the town site in several different directions will help to disperse the additional traffic over several different approach roads and minimise any potential for future traffic problems.

In planning for future growth of the town it will be necessary to take into account the increased traffic flows on the existing distributor roads within the town site (Newman Drive in particular) and the access roads into the town centre. Some of the intersections along these key road links are likely to require upgrading (eg. widening to accommodate turn lanes or installation of roundabouts) as traffic volumes increase.

The existing road network south of the town centre does not provide a logical and legible route from the town centre to the residential area accessed from Gregory Avenue, which also provides access to two schools and the recreation centre. This results in traffic filtering through existing residential streets between Fortescue Drive and Newman Drive. A similar situation may arise in future to the north of the town centre as there are no direct and legible routes from the town centre to future residential areas on the northern side of town, so a new access route through the northern residential areas will be required if a significant amount of additional residential development is proposed on the northern side of the town site.

If a new industrial area is developed southeast of Newman there would be an opportunity to build a new road link from Great Northern Highway around the southern side of Newman to provide a direct link between this new industrial area and existing industrial areas on the south and west sides of Newman. This would have the added benefit of removing a significant proportion of heavy vehicle traffic from Kalgan Drive and Welsh Drive within the town.

4.6.8.2 Public Transport

Walking is generally only an attractive option for relatively short trips. A five-minute walk (400 metres) is generally considered acceptable for neighbourhood centres and a ten-minute walk (800 metres) for a town centre. Newman has already reached this size so further growth will place new residential areas outside of reasonable walking distance of the town centre and existing schools.

If Newman town site expands significantly it may be appropriate for the SoEP to introduce a community shuttle bus service between outer areas and key locations such as the town centre, hospital, recreation centre and high school.

This would be particularly important for those without access to car travel, which are mainly the very young, the elderly and those with disabilities.

4.6.8.3 Transport Infrastructure

Primary recommendations on the transport and movement network of the Newman town site are as follows:

- Plan for a new road route through existing residential areas north of the town centre to carry additional traffic movements to the town centre from new residential development on the edge of town.
- If a new industrial area is developed southeast of Newman then construct a new road link from Great Northern Highway around the southern side of Newman to Welsh Drive to provide a direct link between new and existing industrial areas and reduce heavy vehicle movements through the town site.
- Review the potential to reduce the speed limit on Newman Drive from 60km/h to 50km/h between Mindarra Drive and Fortescue Drive to enhance safety for all road users.
- Plan for future intersection upgrades at key intersections that will carry additional traffic in future, such as the intersections of Kalgan Drive, Market Place and Fortescue Drive along Newman Drive.
- Adopt the WAPC Liveable Neighbourhoods guidelines for planning of new residential development areas in Newman.
- Continue to provide a comprehensive network of pedestrian and cyclist routes in new areas in accordance with Liveable Neighbourhoods and complete the few missing links within the existing town site network.
- Plan for future provision of a community bus service as the size and population of Newman town site grows. The Public Transport Authority has advised that a town of 15,000 people would require a fleet of seven buses and a 4ha bus depot site.

4 An Integrated Strategy for Newman

4.7 An Integrated Strategic Response

The following strategies have been identified to bring about revitalisation in Newman:

Strategy Name	Strategy Description
1. Diversifying the Economy – Regional Level	Develop and implement an economic development strategy for the Pilbara. This strategy will focus on a range of initiatives to diversify the Pilbara economy, including supply chain completion and value chain augmentation for existing resource industries in the Pilbara; reducing cost pressures for local industry establishment, operation and expansion; improving the capability of local industry to service the resource sector, establishing a local construction industry, supporting viable new / embryonic non resource sector economic activity including tourism; and ensuring key infrastructure is capable of supporting economic development and identifying key enabling infrastructure for specific industries. In the medium and longer term, there is an opportunity to establishment the Pilbara as a low carbon emission energy hub based on LNG, solar and other technologies. Further economic development could involve the focussed promotion of downstream processing industries associated with LNG, minerals and energy; facilitating the establishment of industry hubs and cluster development; and new industry, non resource sector, industry opportunities
2. Diversifying the Economy – SoEP Level	Develop and implement an economic development strategy for the SoEP and Newman. An economic development unit for the SoEP is proposed, establishing local government entrepreneurial business activity to promote the expansion of local industry capability and to activate the town site / town centre. A high quality city with the range and standard of living conditions, amenities and services is necessary to attract and retain a diverse, stable employment base.
3. A New Governance Structure - Regional Level	Develop multi-level governance model with stratified approach to economic development, and partnerships for coordination and implementation. For Newman to graduate to regional centre of 15,000 or more residents will require a coordinated and facilitated, cross agency and multi stakeholder intervention designed to reconfigure the local economy in such a way as to stimulate growth in local employment, which in turn will underpin the town's residential population growth over the next thirty years or so. This requires both a governance mechanism and an investment vehicle with the authority, expertise and resourcing capability to make it happen.
4. A New Governance Structure - Local Level	Local Government / Regional Council representation on the Pilbara Partnership Board is essential as Local Government represents the on ground interests of the Pilbara communities. Furthermore, at a localised implementation level, local government has a substantial role to play in the implementation of localised development programs and strategies that reflect the higher order, objectives and strategies of the PPB.
5. Housing Strategy	This includes the increased provision and diversification of land lot sizes housing types to address affordability and create more vibrant and active neighbourhoods and town centre.
6. Tourism Strategy	Develop a regional tourism strategy to identify opportunities to attract visitors, identify attractions and events, and accommodation strategies.
7. Cooperative Research Centre	Investigate the potential to position the town as a location for a Cooperative Research Centre into Regional Cities Development. Potential areas of investigation might include, as examples, water conservation and reuse in arid climates, regional economic sustainability and food production in remote areas. This approach requires aligning the town to a university or higher education institution in order to attract Federal Government funding.
8. Newman Community Pride and Engagement and Pride Strategy	The development of this strategy will build upon existing foundations of community connections. There is a strong connection for many people with their town in Newman. This includes a love of the outdoor lifestyle, beautiful natural environment and the small country town feel. With the population growing there is concern that elements of this "feel" might be lost in the future.
9. Education, Training and Personal Development Strategy	This strategy will establish an integrated pathway to providing access to a wide range of educational services at all education levels.
10. Health Services Strategy	The provision of health and emergency services is a very high priority for people in Newman and can result in people having to leave town to access a range of services. This strategy will establish an integrated pathway to providing access to a wide range of health services.

Strategy Name	Strategy Description
11. Children and Youth Leadership and Development Strategy	The Youth Development Strategy will describe actions required for improved youth engagement, services and facilities in Newman.
12. FIFO / Transient Worker Integration Strategy	This plan will provide the research, strategies and actions required to better integrate temporary/fly in – fly out workers into the Newman community in order to generate benefits for all stakeholders.
13. Indigenous Engagement Strategy	The Nyiyaparli, are the traditional owners of the land, holding native title over the land. The Nyiyaparli now reside in Port Hedland. The Martu are the custodians of the land and are connected to the land on a regional level, with close family ties existing between Indigenous communities throughout the Pilbara. The Martu people are comprised of approximately a dozen language groups that extend across the Gibson and Great Sandy Deserts. The Martu homelands extend into the Western Desert. Culture is still a very important aspect for the Martu who live in and around Newman. Martu and Nyiyaparli represent one of the oldest living cultures in the world and were the last group within Australia to move from their tradition way of life. This strategy aims to integrate the Indigenous communities into Newman resulting in a more inclusive and welcoming town for all.
14. Newman is Home Strategy	The Newman is Home Strategy will foster a greater connection with the town through the establishment of processes to welcome and induct new residents into town. The Strategy will build upon some work already being undertaken to take a cohesive approach across government agencies; community organisations; businesses, Industry and local government to attracting and retaining residents to the town.
15. Natural Resource Management Strategy	A Natural Resource Management Strategy specific to Newman and its surrounds, addressing the sustainable management of land, flora and fauna, fresh water and coastal marine environment.
16. Waste Management Strategy	SoEP Waste Management Strategy customised to specific conditions and requirements of the Newman town site and town centre.
17. A Compact and Diverse Town	An urban growth strategy that provides an urban form that is climate responsive, activity centres with diversity and mixed use, and efficient by minimising the need to rely on the car, based around walkable neighbourhoods through precinct planning.
18. An Integrated Movement Network	A Strategy to develop an integrated movement network for Newman to link to surrounding towns, accommodate freight, that is responsive to the quality of the urban environment, and incorporates a street hierarchy, parking, public transport, walking and cycling.
19. A Built Form and Public Realm Strategy	The strategy includes the development and implementation of a Public Realm Strategy for the Growth Strategy for Newman.
20. Vibrant and Attractive Town Centre	A city centre master plan to create a vibrant, attractive and pedestrian friendly focal point for Newman.
21. Integrated Servicing Strategy	Formulate a water and wastewater strategy for Newman, staged from present to 15,000 population target.
22. District Water Management Strategy (DWMS)	A District Water Management Strategy which addresses long term infrastructure needs in respect of water, wastewater and stormwater, and sets the planning framework for future development.
23. Energy and Greenhouse Gas Management Strategy	An Energy and GHG Management Strategy which establishes an energy efficient, low carbon approach as the basis for Newman's long term energy infrastructure needs.
24. An Integrated Transport Strategy	An Integrated Transport Strategy for Newman incorporating street hierarchy, parking, public transport, walking and cycling.
Ecologically Sustainable Development	The strategies outlined in this section incorporate a number of initiatives that when taken together represent the ecologically sustainable development of Newman.

05. A NEW APPROACH TO GOVERNANCE

5 A New Approach to Governance

5.1 Governance – An Option

To realise the Pilbara Cities Vision of the State Government to establish Newman as a subregional centre will require a different approach to governance to ensure the timely implementation of infrastructure, associated amenity and creation of economic employment opportunities. The existing delivery format by the State Government agencies is a silo approach by the various State Departments and Government Trading Enterprises (GTE) with little integration of its plans, programs or projects. The individual departments and GTE's programs and projects, and associated capital and operational budgets do not align the delivery of hard and soft infrastructure to meet the needs of local government, the community and private sector. This has impacted on liveability and amenity in Newman. The existing governance and program structures are inadequate for the purposes of advancing NRP and the Pilbara Cities concept and needs to be addressed to firstly meet the Governments vision and secondly, to ensure effective and efficient service delivery. The approach to governance on a Pilbara Regional level to deliver the NRP and the Pilbara Cities Vision is discussed in detail in Volume 1, Section 5.

The strategic regional level reflected in Figure 49 is concerned with major projects and initiatives that advance the capability of the Pilbara as a whole in which the major population centres such as Newman will have a role. Typically, the strategic level concerns itself with areas including (but not limited to):

- New industry development;
- Regional economic diversification;
- Strategic employment generation;
- Major projects (including industry specific and civic infrastructure); and
- The development of a functional, relational hierarchy of cities and towns.

The resourcing, funding and implementation for these areas is drawn from the Regional level mechanism, the Pilbara Cities Office, and the Resources and Industry Mechanism (see Volume 1 for more detail).

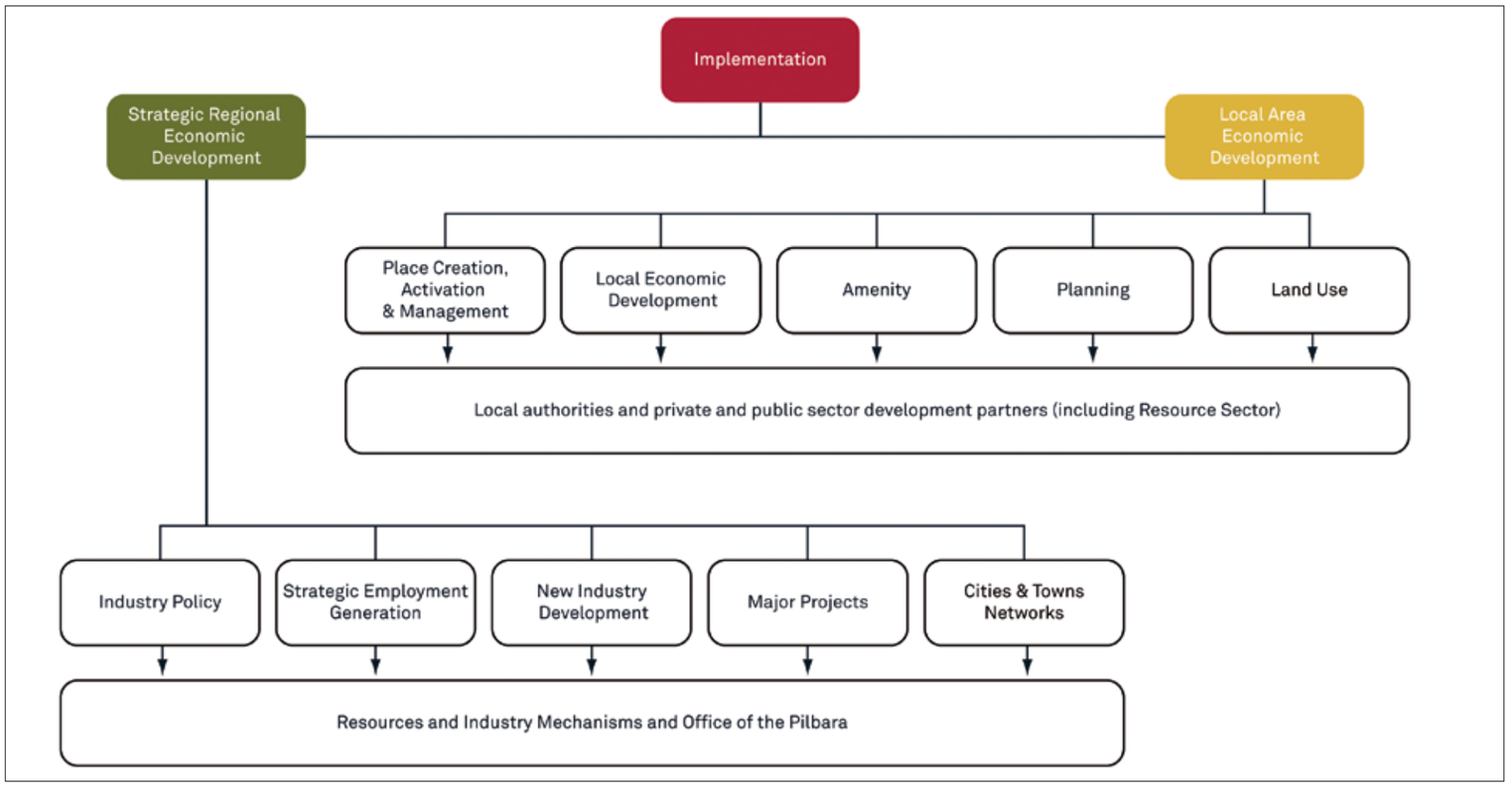


Figure 49: Conceptual Pilbara Development Implementation Model (Source: Pracsys)

At a local level, local authorities in partnership with private and public sector stakeholders would be focused on projects that deal primarily with local town centre development. These would include activities such as:

- Place creation, activation and management;
- Local economic development including business incubation and local industry capability and expansion;
- Amenity planning; and
- Local land use.

Local area activities and development priorities should reflect broader regional plans and policies at the same time as allowing local areas a degree of autonomy and self determination.

5.2 Regional Development Commissions, Local Government and Economic Development

5.2.1 Pilbara Development Commission

The Pilbara Development Commission (PDC) has six major objectives and functions:

1. Maximise job creation and improve career opportunities in the region;
2. Develop and broaden the economic base of the region;
3. Identify infrastructure services to promote economic and social development within the region;
4. Provide information and advice to promote business development within the region;
5. Seek to ensure that the general standard of government services and access to those services in the region is comparable to that which applies in the metropolitan area; and
6. Generally take steps to encourage, promote, facilitate and monitor the economic development in the region.

The Regional Development Commissions attempt to engage a range of stakeholders through a governance model that includes one third of community representatives of the region, one third of members nominated by local governments, and one third nominated at the Minster of Regional Development's discretion.

Budgets vary between Development Commissions depending upon projects undertaken through the Commission on any given year. An example of the scale of budget is the Pilbara Development Commission's Income from the State Government which was $10.3 Million in 2008 and $6.76 million to 30 June 2009. Budgets are typically dependent on state funding although additional federal funding for specific projects may be attained.

5.2.2 Local Government

Local governments are increasingly taking on a role in economic development as understanding of the importance of local employment and economic activity increases. The form that such economic development intervention takes varies from council to council, ranging from an officer-level position sitting within the CEO's office or Planning Directorate, to designated units devoted specifically to the area. Areas of focus include small business public relations, land-use allocation, and big picture internationally oriented investment attraction.

Strengths

- A defined spatial area of focus with the ability to gather significant information on urban activity through existing sources (e.g. business licensing, health inspections, development approvals)
- The ability to raise revenue directly through initiatives such as developer employment contributions (e.g. The City of Wanneroo Employment Policy)
- An accessible point of government contact for businesses and industry at a local level

Weaknesses

- Limited capacity to recognise and recruit the essential high level skilled personnel needed to advance strategic economic development
- Negligible capacity to negotiate with and influence the processes and operations of major corporations including resource companies in regards to their workforce management plans and supply chain operations
- Influence by elected officials may compromise officer's points of focus, requiring them to attend to activities that are unlikely to generate significant economic development, limiting their ability to focus on big picture, strategic initiatives
- Economic activity does not stop at municipal boundaries. Local government economic development is heavily influenced by activity in adjacent LGAs. This requires a coordinated approach that can be compromised by differences in priorities, lack of resources, or historical conflicts between municipalities
- Limitations in public sector salaries and conditions can compromise the attraction and retention of talent with the varied skills and background required to successfully drive economic development in the area
- Governance of economic development is by its nature, based on a public sector perspective. Initiatives are likely to be therefore driven by public sector decision making considerations
- Limited avenues for revenue generation, and limited option for intervention due to statutory requirements[6]

The SoEP has three broad responses open to it in respect of development activity. There are elements it can control such as planning schemes, zoning, development approvals and master planning. It can also conceivably influence development through lobbying, partnerships and memberships of larger development entities such as the Pilbara Regional Planning Committee. Thirdly there are thing it may only monitor and not the potential for their impact on the development trajectory of Newman. Elements such as broad macroeconomic factors, strategic decisions by large corporate players and State and Federal governments.

5.2.3 Problems with Traditional Approaches to Economic Development Governance

The domination of a centralised governance model within economic development structures has resulted in existing models experiencing five major issues (in no order of preference or importance);

- Public sector dominance
- Expertise of human resources
- Ability to allocate resources
- Jurisdictional crossover
- Aversion to 'picking winners'

These factors have limited the effectiveness of these initiatives, reinforcing centralised governance structure's influence as key decision makers for regional economic development.

Centralised Public Sector Dominance

Like many countries including France[7] and the United Kingdom[8], Australia's economic development governance systems are largely controlled by federal (and to a lesser extent state) government agencies. Though varied in form these agencies typical closely control the allocation of resources. The major means of engagement with other actors within innovation networks is through 'advisory bodies' and grant application processes. Such interactions are rarely on equal terms and provide limited opportunities for actors to provide feedback to governance bodies as to where resources might be best allocated.

Feedback is increasingly crucial in a fast moving globalised knowledge economy. To remain competitive innovation networks are required to be nimble and responsive to change. A top-down governance model decreases the ability of agencies to access and act upon quality information in a timely proactive (rather than reactive) manner.

A centralised public sector approach is also often regulatory rather than facilitatory in nature. This necessitates a distance between governance structures and other actors (seen clearly within grant application processes). Such distance ignores the reality that successful innovation governance structures within modern economies are immersed within the innovation networks that exist within that economy. The role that they play moves beyond one of simple resource allocation to facilitation, acting as a conduit of information, leads and introductions between various actors.

Aversion to "Picking Winners"

A direct result of public sector dominance within economic development governance structures is the aversion of these structures to 'pick winners'. Political imperatives including an aversion to risky venture, a fear of corruption and compromise, and an egalitarian notion of equal access to all result in government-run initiatives often lacking a targeted focus where inputs would make a difference to an enterprise, and as a consequence the economy as a whole.

Expertise of Human Resources

A major challenge of economic development governance initiatives is the attraction of personnel to the board and executive with sufficient expertise and experience to achieve the outcomes sought. Such expertise needs to begin with an understanding of the diverse, multi-actor nature of innovation, and the various actors' relevance within the specific regional context.

In addition the board and management need to have a strong understanding of the globalised economy, and the challenges and opportunities this reality presents to their region. A board that focuses on turf wars with adjacent regions is likely to be unsuccessful in identifying and taking advantage of international knowledge intensive, export oriented opportunities that present themselves.

Board and management also need to comprise of individuals from a variety of backgrounds. An understanding of public sector administration and funding mechanisms is crucial, as is an understanding of international business and entrepreneurship, workforce education, and capital rising. Such expertise is likely to require significant efforts in identification, attraction and retention across a broad range of sectors. It also requires investment in attracting appropriate employees.

Regional governance agencies should be wary of appointment of interest groups for public relations or political purposes only. Compromising a board and agency with such appointments may make it harder to attract appropriate personnel and may distract the agency from the big picture as special-interests are pushed.

Ability to Allocate Resources

The centralisation of micro-economic decision making has resulted in regional governance structures having limited ability to directly allocate resources to regionally significant initiatives. It is estimated within Australia that local governments control only 5.1% of total government expenditure[9,10]. This is very low in comparison to England (25%), Germany (35%), and the USA (42%)[11]. Whilst much of the difference in local government expenditure can be attributed to differences in responsibilities (e.g. County police services in the USA) such control does limit local government options in regards to strategic decision making, with federal and state decision makers having a far greater capacity for such activity.

This has made regional innovation funding dependent on the success of lobbying and grant applications. Political considerations therefore can be highly influential in attaining funding rather than merit of projects.

Jurisdiction Crossover

Within Australia most distinctive economic regions (including cities) are made up of a number of local government areas, but do not constitute states or territories in their own right (with the possible exception of the ACT). Governance of such regions therefore typically sits between the tiers of government, requiring cooperation between jurisdictions that often have disparate and conflicting interests. Sustained future economic development within a globalised economy is unlikely to be driven through regional conflict and economic cannibalisation (e.g. duplication of infrastructure and focus across different local governments). It instead will result from strategic, internationally-oriented decision making with an understanding that supply chains and business considerations do not stop at municipal boundaries.

[6] *Local Government Act 1995, Division 5 – Financing local government activities*
[7] *France: Innovation System and Innovation Policy, Muller, Zenker and Heraud (2008)*
[8] *The State of English Cities, Simmie, Carpenter, Chadwick, Martin and Wood, Department of Communities and Local Government, London, 2006*
[9] *Government Finance Statistics, Australia, (June 2004), www.abs.gov.au*
[10] *Financing Facts – Financing Local Governments, Australian Local Governments Association (2004), www.abs.gov.au*
[11] *The Endless City, London School of Economics and the Alfred Herrhausen Society, 2006, p.103*

5.3 What Can the SoEP Do?

The SoEP should look to:

- Extend its economic development capability perhaps in association with the Pilbara Development Commission or the proposed regional governance mechanism as it emerges over time. This activity should be focused on extending the town's capability, not just on small business development or incubation
- Develop an opportunity identification, scoping, rating and ranking program which would enable the SoEP to determine where it might best allocate resources for development opportunities as they arise
- Explore new partnering arrangements and governance models
- Explore select project feasibilities (e.g. tourism)
- Understand the extent of enabling infrastructure and mechanisms required for economic development and business attraction and retention
- Source funding

At a local level, local authorities in partnership with private and public sector stakeholders would also be focused on activities that include place creation, local economic development, amenity planning; and local land use.

5.4 Local Level Partnership Governance Arrangements

Local Government represents the on ground interests of the Pilbara and Newman communities in particular. Therefore local government has a substantial role to play in the implementation of localised development programs and strategies that reflect the higher order, objectives and strategies of the Pilbara Regional scale that may affect the development of Newman at a local level.

Newman Tomorrow, prepared by the SoEP in partnership with the State Government and industry, assesses Newman's infrastructure and service needs in response to anticipated future population growth. The Town Site Growth Plan will need a collaborative partnership between the Newman, state agencies, industry and private sector to deliver on the actions in the implementation plan, it recommended that a NRP Steering Group be established. The SoEP should consider the following type of membership:

- SoEP
- Industry
- Chamber of Commerce
- Key State delivery Agencies, e.g. LandCorp, Watercorp, Department of Health

The NRP Steering Committee main responsibilities will be to prioritise projects, and seek or contribute to the funding of these projects.

An appropriate governance mechanism for the advancement of Newman needs to function effectively at a local level, reflect the capacities of the SoEP and provide guidance for the delivery of an agreed upon, relevant and practical implementation of the NRP.

5.5 Local Level Implementation

At a local level, the SoEP needs to consider a range of factors and undertake a series of actions that will advance the development of NRP including:

- Develop an economic development strategy for Newman and the SoEP as a whole. This is an essential step. An economic development strategy for the town should reflect a broader regional economic development strategy. In the absence of such a high level strategy however, a well crafted and implemented local economic development strategy should act as model for a broader regional development strategy and provide concrete direction in this area. The primary aim of the development strategy should be to grow strategic employment in the town (in accordance with its sphere of influence) through extending local industry capability. An incisive economic development strategy provides guidance to the SoEP (and its private and public sector partners) in terms of where to focus its development activities. Any economic development activity undertaken by the SoEP should only be undertaken where it is in line with the economic development strategy. This is to ensure the effective and efficient application of limited local and state government resources.
- Understanding that, in addition to focusing on extending local industry capability, the economic development strategy should provide guidance to the SoEP in areas relating to:
  - Improving the local business investment climate
  - Investing in hard strategic and enabling infrastructure (i.e. housing and accommodation)
  - Investing in sites and premises for business
  - Investing in soft infrastructure and services
  - Encouraging local business growth
  - Encouraging new enterprise
  - Promoting inward investment
  - Sector and business cluster development
  - Regeneration/revitalisation strategies
  - Project evaluation guidelines
  - Integrating low income or hard to employ population segments
- Recognising that the economic development strategy requires, and provides direction to the SoEP and its development partners in these areas of resource allocation and funding and investment requirements, the SoEP will almost certainly need to partner with private and public sector agencies and organisations who endorse the economic development strategy and the aspirational town development objectives suggested by the NRP and the Pilbara Cities concept.
- Reconsidering the internal governance and resourcing of an economic development function within the SoEP which may include the appointment of an economic development manager with place management responsibilities.

06. MAKING IT HAPPEN - IMPLEMENTING THE STRATEGY

6 Making it Happen - Implementing the Strategy

Implementation of the strategies set out in Section 4 of this report requires a comprehensive approach to program management. A summary of the necessary projects, studies and actions for each element of the NRP. These tables assume implementation will be governed through the arrangements set out in Section 5.

6.1 Economy

Aspirational Goal	A robust, diversified local economy that effectively services the needs of local and regional industry and population									
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost						
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)	Source
Diversifying the Economy – Shire Level	Newman	Establish Economic Development capability in Shire of EP	SoEP	Yr 1	Ops budget					SoEP
	Newman	Formulate SoEP economic development strategy	SoEP	Yr 2-3	0.1					R4R

6 Making it Happen - Implementing the Strategy

6.2 Community

Aspirational Goal	Communities that are safe, healthy and enjoyable places to live and work, offer cultural, educational, recreational opportunities, provide appropriate housing and services and amenities; and foster active local citizenship									
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost						
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)	Source
Community Development	Newman	Develop Newman Community Pride and Engagement and Pride Strategy: overarching framework under which other specific community development strategies will reside.	SoEP	Yr 1-5	0.06					SoEP
	Newman	Develop Education, Training and Personal Development Strategy	SoEP	Yr 1-5	0.04					SoEP
	Newman	Develop Health Services Strategy	SoEP	Yr 1-5	0.04					SoEP
	Newman	Develop Children and Youth Leadership and Development Strategy	SoEP	Yr 1-5	0.05					SoEP
	Newman	Develop FIFO/Transient Worker Integration Strategy	SoEP	Yr 1-5	0.06					SoEP
	Newman	Develop Indigenous Engagement Strategy	SoEP	Yr 1-5	0.07					SoEP
	Newman	Develop Newman is Home Strategy	SoEP	Yr 1-5	0.025					SoEP

6.3 Built Environment and Public Realm

Aspirational Goal	An urban form that reflects the intrinsic qualities of the site context, characteristics and relationships and complements the natural environment; with centres that are vibrant, dynamic, diverse and functional								
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost					
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)	Source
A Compact and Diverse Town		Prepare and adopt updated LPS	SoEP/WAPC	Yr 1-2	0.15					SoEP/WAPC
		Prepare Scheme Amendment, Adopt and Gazette	SoEP/WAPC	Yr 1-2	0.06					SoEP/WAPC
		(1) Local Housing Strategy	SoEP	Yr 1-2	0.1					SoEP
		(1) Adoption of Town Site Growth Strategy as Local Planning Policy (2) Tourism Policy	SoEP	Yr 1-4	Ops Budget					SoEP/WAPC
		Prepare and lodge Structure Plans and DAPs	Landowners	Yr 1-5	Developer cost	Yr 6-10	Developer cost	Yr 10-20	Developer cost	Landowners
		(1) Consultation with Native Title Claimant (2) Prepare an Indigenous Land Use Agreement	LandCorp / SoEP	Yr 1-5	Ops Budget	Yr 6-10	Ops Budget	Yr 10-20	OPS Budget	LandCorp / SoEP
		(1) Referral of Crown Land sites identified for future development to Minister for Mines under s16(3) of the Mining Act 1978 (2) Assessment of Crown Land for mineral deposits (3) Approval granted for transfer of Crown land to freehold (4) Purchase/ acquisition arrangements agreed to	LandCorp/ SoEP/DMP	Yr 1-5	Ops Budget	Yr 6-10	Ops Budget			LandCorp/ SoEP/DMP
		Request Dept of Water revise Priorty 1 and Priority 3 public drinking water boundaries as they relate to future growth of the town site	SoEP/LandCorp	Yr 1-5	0.04					SoEP/ LandCorp
		Establish a strategy to stage future growth and implement public realm initiatives	SoEP	Yr 1-5	0.1					SoEP
		(1) Adoption of Town Centre Master Plan as Local Planning Policy	SoEP	Yr 1-2	Ops Budget					SoEP
		(1) Consultation with DIA (2) Derive appropriate solution/use for aboriginal heritage site adjacent the public swimming pool (3) Preparation and lodgement of S18 application for any site disturbance	LandCorp/ SoEP	Yr 1-5	0.055					SoEP/ LandCorp

6.4 Infrastructure

Aspirational Goal	Economically efficient infrastructure for industry and households designed for efficient use of energy, water, materials and transport									
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost						
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)	Source
Integrated Water Management Strategy	Newman	Governance- Water: Obtain in principle agreements for change and funding	Water Corporation and BHPB	Yr 1	0.2					Water Corporation and BHPB
	Newman	Formulate water servicing strategy	Water Corporation	Yr 1	0.1					Water Corporation
	Newman	New water treatment plant: planning, design and construction	BHPB/Water Corporation	Yr 2	10					BHPB / Water Corporation
	Newman	First expansion of new water treatment plant: Planning, design and construction	BHPB/Water Corporation			Yr 8 -10	3			BHPB / Water Corporation
	Newman	Second expansion of new water treatment plant: Planning, design and construction	BHPB / Water Corporation					Yr 16 - 20	2	BHPB / Water Corporation
	Newman	Immediate water supply and service provision needs: Immediate needs - Existing asset survey and distribution mains upgrades to serve imminent land release	Water Corporation	Yr 1-2	2					Water Corporation
	Newman	GNH Industrial Site Water Supply: Planning, design and construction	Water Corporation	Yr 1-2	1					Water Corporation
	Newman	Funding and resources for assett maintenance: Obtain funding and resources	Water Corporation	Yr 1-2	Ops Budget					Water Corporation
	Newman	Waste water servicing strategy: Formulate water servicing strategy	Water Corporation	Yr 1	0.1					Water Corporation
	Newman	Immediate water and sewerage needs: Immediate needs - existing asset survey and wastewater upgrades to pump stations and mains	Water Corporation	Yr 2-5	6.6					Water Corporation
	Newman	Upgrade waste water treatment plant: Planning, design and construction	SoEP	Yr 4-5	0.8					SoEP
	Newman	Major upgrade or new waste water treatment plant: Planning, design and construction	SoEP					Yr 10 - 13	2.5	SoEP
	Newman	GNH industrial site waste water: Planning, design and construction	Water Corporation	Yr 1 - 2	1					Water Corporation
	Newman	Funding and resources for asset maintenance: Obtain funding and resources	Water Corporation	Yr 1-2	Ops Budget					Water Corporation
	Newman	Wastewater recycling system: Design and construction	SoEP	Yr 1-5	1					SoEP
	Newman	DWMS: Prepare a District Water Management Strategy for Newman	DoW	Yr 2-3	0.1					DoW
	Newman	Drainage analysis: Development of drainage model for Newman	SoEP	Yr 1	0.25					SoEP

6.4 Infrastructure continued

Aspirational Goal	Economically efficient infrastructure for industry and households designed for efficient use of energy, water, materials and transport								
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost					
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)
Energy and Greenhouse Management Strategy	Pilbara	Governance and regulation of power supply: Obtain in principle agreements for change and funding	BHPB and Horizon Power	Yr 1	0.2				BHPB and Horizon Power
	Pilbara	NWIS governance: Establish governance arrangements for the NWIS	State govt	Yr 1-2	1.0				PCO
	Pilbara	NWIS upgrade projects: Complete upgrade of NWIS	Horizon Power	Yr 2-5	600	Yr 5-10			Horizon Power
	Pilbara	Solar flagship project: Prepare proposal for federal funding under the solar flagships program	Horizon Power	Yr 1-2	0.4				Horizon Power
	Newman	New South Newman Zone sub station: Planning, design and construction	BHPB / Horizon Power	Yr 2	35				BHPB / Horizon Power
	Newman	GNH industrial Site Power Supply Study: Formulate power supply strategy	BHPB / Horizon Power	Yr 1	0.1				BHPB / Horizon Power
	Newman	Newman Power Generation Study: Formulate power generation strategy	Alinta Energy	Yr 1	0.1				Alinta Energy
	Newman	Gas Supply Study: Formulate Gas Supply for power generation strategy	Goldfield Gas Transmission Pipeline company	Yr 1	0.1				Goldfield Gas Transmission Pipeline company
	Newman	Lot scale solar PV: Solar PV feasibility and cost-benefit study	BHPB / Horizon Power	Yr 1	0.15				BHPB / Horizon Power
	Pilbara	Smart Grid: NWIS Smart Grid scoping study	Horizon Power			Yr 6	0.5		Horizon Power
	Newman	Natural Gas reticulation: Feasibility study of natural gas reticulation network in Newman	Alinta			Yr 6-10	0.25		Alinta
	Newman	Built form: Climate responsive, energy / materials efficient demonstration projects	Landcorp	Yr 2-5	10				LandCorp

6.4 Infrastructure continued

Aspirational Goal	Economically efficient infrastructure for industry and households designed for efficient use of energy, water, materials and transport									
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost						
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)	Source
Town Site Expansion	Newman	Town site stage 1 expansion: Planning, design and construction of infrastructure ie water, sewer, power, roads	Landcorp / SoEP	Yr 1-4	74					Landcorp / SoEP
	Newman	Town site stage 2 expansion: Planning, design and construction of infrastructure ie water, sewer, power, roads	Landcorp / SoEP			Yr 4-8	122			Landcorp / SoEP
	Newman	Town site stage 3 expansion: Planning, design and construction of infrastructure ie water, sewer, power, roads	Landcorp / SoEP			Yr 8-11	52.0			Landcorp / SoEP
	Newman	Town site stage 4 expansion: Planning, design and construction of infrastructure ie water, sewer, power, roads	Landcorp / SoEP					Yr 11-16	187.0	Landcorp / SoEP
	Newman	Town site stage 5 expansion: Planning, design and construction of infrastructure ie water, sewer, power, roads	Landcorp / SoEP					Yr 11-16	107.0	Landcorp / SoEP
	Newman	Town site stage 6 expansion: Planning, design and construction of infrastructure ie water, sewer, power, roads	Landcorp / SoEP					Yr 19 +	77.0	Landcorp / SoEP
	Newman	Telstra upgrades: Telstra planning Study	Telstra	Yr 1	0.1					Telstra
	Newman	Telstra fees: Create final report defining development headworks fees	Telstra	Yr 1	Ops Budget					Telstra

6.5 Environment

Aspirational Goal	Local, regional and global eco-systems in which landform, habitat and biodiversity are retained and that provide natural provisioning, regulating and cultural services.									
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost						
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)	Source
Natural Resource Management Strategy	Newman	Terrestrial studies: preliminary acid sulfate soils, flora and vegetation surveys, fauna surveys	Landcorp, other landowners	Yr 2-3	0.25					Landcorp, other landowners
	SoEP	Establish an integrated holistic NRM framework that considers current, planned and additional strategies and activities across the full range of natural resources	SoEP	Yr 4-5	0.2					SoEP
Waste Management Strategy	Newman	Prepare a Waste Management Strategy for Newman	SoEP	Yr 3-4	0.25					SoEP

6.6 Governance

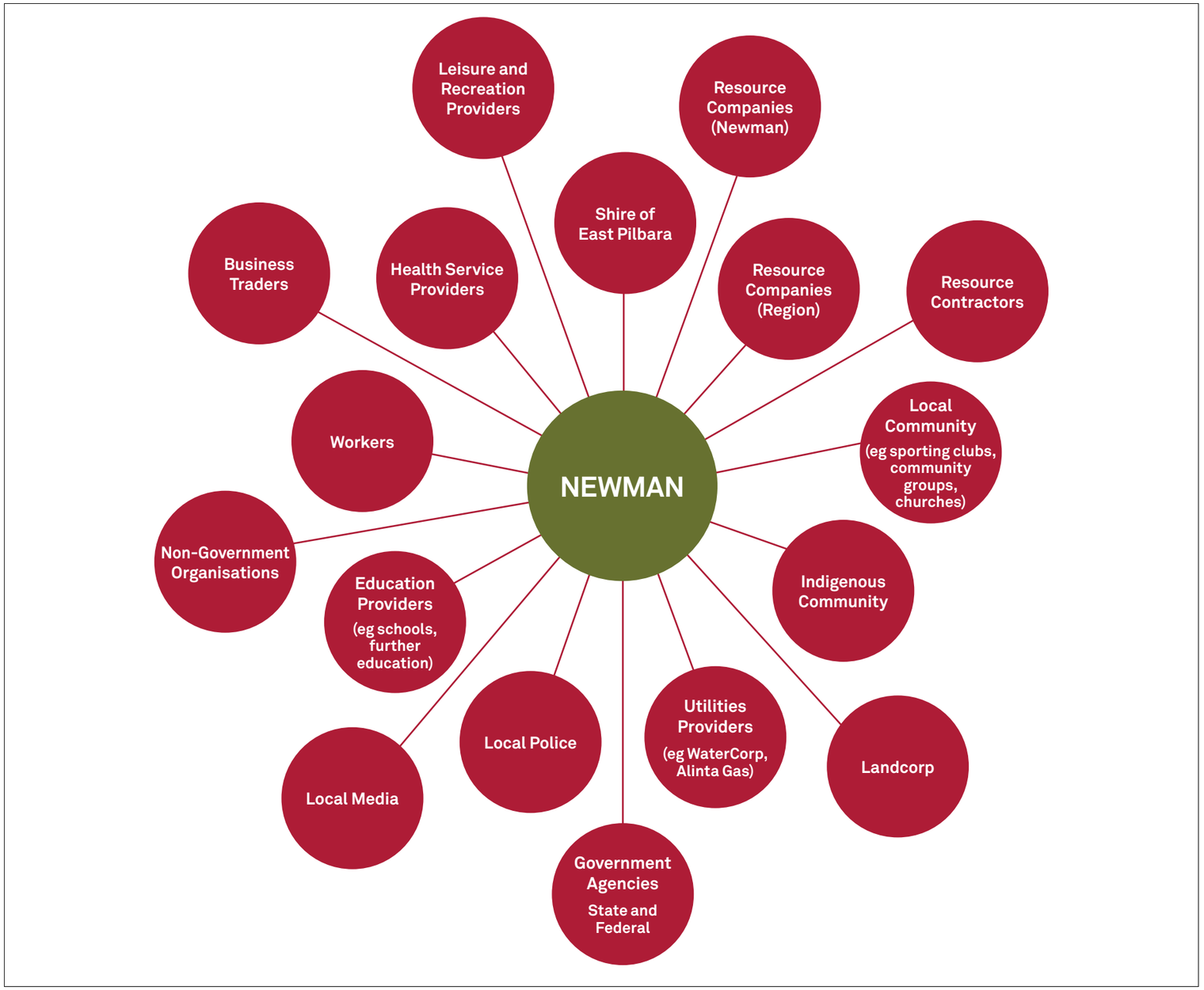
Strategy	Scale	Action/Activity /Project	Main Responsibility	Timeframe for Delivery/Estimated Cost						
				Short (0-5yr)	Cost ($m)	Medium (5-10 yr)	Cost ($m)	Long (10-20 yr)	Cost ($m)	Source
Local Governance	SoEP	Establish a responsibility within SoEP to promote local economic development	SoEP	Yr 3-4	0.25					SoEP
		Identify capability and skills requirements and recruit economic development director	SoEP	Yr 3-4	Ops Budget					SoEP

APPENDIX A

COMMUNITY CONSULTATION

Community Consultation

The following diagram provides an overview of the key stakeholders:-



Community Consultation

1.1 Overview of Consultation Process

Phase	When	Description
Design Forum – Town Site and Town Centre	16 and 17 December 2010	Letters of invitations were sent to a large number of stakeholders to attend a 2.5 hour evening session on 16 December that focused on Town site growth planning and a full-day design forum on 17 December that focused town centre planning. The workshops provided a range of interactive sessions where direct feedback was received included concepts being drawn on the plans by participants. A session involving the assessment of the sustainability of the proposed town site growth plan was also undertaken This purpose of the forums was to: • Focus on the implementation planning and design of Newman to address current issues and to enable sustainable growth to occur. • Investigate the character and style of Newman, and how this can form the foundation for the town's planning and design. • Foster group interaction and information sharing in relation to the planning and will involve the development of scenarios for the town's future design and development. • Provide technical sessions aimed at translating ideas and expertise of forum participants into recommendations for design concepts and implementation planning. • Test growth scenarios for Newman, to enable a preferred growth plan for Newman to be established that can then inform the development of a detailed Town Centre Development Plan
Project Design Review Forum	20 January 2010	A presentation of the proposed town site and town centre designs (with associated background information on the social, economic and environmental issues), were presented by the consultant team to an expert panel. Detailed discussion followed. Specific feedback was provided by the panel in the following areas: • Pilbara Cities Hierarchy • Governance • Economics • Clarity of Concept • Density • Sense of Identity • Road layout and hierarchy • Town centre and urban design impact • Landscape design • Sustainability agenda • Visuals for briefings
Council Briefings	Various Dates	Ongoing town site briefings were conducted to inform Councillors of progress being made in the development of town site growth plans and town centre plans.
Youth Consultation and Visioning	Tuesday 9 February	Sessions held with classes from two schools to discuss the development of the town centre and what could be provided to make it a more attractive and vibrant place for young people. The three schools at which the sessions were held were: • Newman Senior High School • Newman Primary School
Community Dialogue Cafe	Tuesday 9 February	A large workshop was held at Newman Senior High School to seek input and feedback on the revised draft town site and town centre plans. This workshop was open to all community members and advertised widely. • Key elements of the workshop included: • Providing an overview of the project and its aims • Presentation of town centre and town site design scenario • Feedback on the draft town centre and town site designs • Interactive session on how the town centre could be activated. A survey was also provided for individuals to complete, which provided detailed feedback on the town site and town centre designs.

Community Consultation

Phase	When	Description
Focus Group Meetings	Wednesday 10 February	Invitations were sent to a large number of stakeholders to attend Focus Group meetings that would create discussion and inform the project planning process. The focus groups were: • Community and Social Development (Community Groups; Clubs; Government Agencies) • Transport and Infrastructure • Arts and Cultural Development • Affordable Living and Housing • Indigenous Community • Business and Economic Development Areas covered in each workshop included: • Feedback on project, proposed town site and town centre plans • Determine/validate key issues and implications related to the focus area • Discussion of proposed implementation actions for the revitalization of Newman • Identify potential involvement in ongoing project initiatives
Director Generals and Senior Government Executives Briefing	8 March 2010	Invitations were sent to Director Generals of relevant Government agencies to attend a briefing workshop on the proposed plans for Newman. The briefing was established for the purpose of identifying implications for each agency of the proposed town growth and to seek input and commitment to taking collaborative action in addressing the current and future needs.
Advertising of Draft Plans to the Community	11 March - 21 April 2010	The SoEP released the draft Newman Revitalisation Project Town Site Growth Plan and Town Centre Master Plan for public comment.

1.2.1 Summary of Findings

The following information provides a summary of feedback specific to the Town Site Growth planning that was elicited in the consultation undertaken with stakeholders and community members. This feedback informed the drafting of the town site growth designs and the completion of the final town site growth design.

Needs for Town Site

The most common needs identified for improving the town site were:-

- Need to maintain good recreational facilities for sporting activities
- Lot sizes need to be large enough to accommodate cars, boats and children's play equipment.
- Need to provide a range of affordable housing options to suit all needs and income levels
- Need affordable housing for service workers
- Need to develop a specific road hierarchy plan for Newman.
- Include pedestrian and cycle accessibility in the design.
- Need public transport access and connections.

The following key aspects were identified as being essential considerations in creating 'a sense of place' for the town site:

Environmental
- Great weather for majority of the year
- Natural beauty, unique topography

Cultural
- Strong Martu culture, heritage and art.
- Strong mining history
- Multiculturalism

Lifestyle
- Households have 2 cars, boat, children's play equipment

Social
- Diverse mix of communities e.g. FIFO, permanent, families, Indigenous

Community Consultation

1.3 Immediate Concerns

The following key issues were identified as needing to be addressed immediately in town site planning:

- Lack of business diversity
- Lack of outdoor amenities – e.g. playgrounds
- No identified town centre, main street or signage
- Lack of pedestrian and vehicle links
- Poor appearance
- Lack of traffic control – speeding traffic
- Lack of affordable accommodation - Impacts on business development and cost of living
- Attraction and retention of staff
- No connectivity
- Housing is spread out – no density
- Lack of meeting spaces – outdoor and indoor e.g. plaza
- Town lacks focus/identity.
- Health issues – relationship issues, no specialist services, no maternity provision
- Alcohol abuse and associated anti-social behaviour issues.
- Safety and security issues – need improved street lighting, CCTV, good pedestrian crossings, passive surveillance.
- There is a lack of respect for Indigenous people in Newman.

1.4 Current Opportunities

The following key opportunities were identified as needing to be addressed in town site planning:

- Strong Martu culture, heritage and art which can provide a basis for tourism
- Great natural beauty and many popular tourist spots nearby (e.g. Karijini National Park) present ideal opportunity to be a major tourism hub in the Pilbara.
- Newman is also the last major town centre before venturing further west/central and hence a logical stopping point.
- Potential to develop an education and research centre specialising in mining and primary resources.
- International annual arts festival based on Aboriginal art, culture and heritage.
- Create an entry statement into Newman.
- Create a vibrant and attractive town centre
- Reinstate main street through post office site.
- Use car park for outdoor markets/cinema (outside of trading hours)
- Climate responsive planning and development
- Program(s) to involve Indigenous people in the local labour market e.g. training.
- Celebrate and acknowledge the positive aspects of Indigenous people and Indigenous culture, this may create more acceptance of Indigenous people in Newman.
- Hold Indigenous events/ceremonies e.g. corroboree, NAIDOC week.
- Involve Indigenous people in the community.
- Upgrade Newman as a regional hospital.

1.5 Overview of Feedback on Draft Designs

The main points of feedback related to the draft designs presented to stakeholders and the community were:

- Overall, the plan looks good and is well designed.
- Supportive of green streets concept and waterways.
- Supportive of medium/high density development – residential and commercial.
- Would like more entertainment facilities – cinema, ten pin bowling.
- Good pedestrian access is important.
- Need more youth facilities and activities.
- Integration of fly in/fly out (FIFO) workers needs to be planned for – accommodation, facilities.
- There needs to be affordable residential and commercial accommodation.
- Infrastructure and facilities need to be upgraded, such as:
- Airport – international and interstate flights.
- Hospital and health – central hub for the district.
- Services need to be attractive and available as a way to attract and retain residents plus be promoted

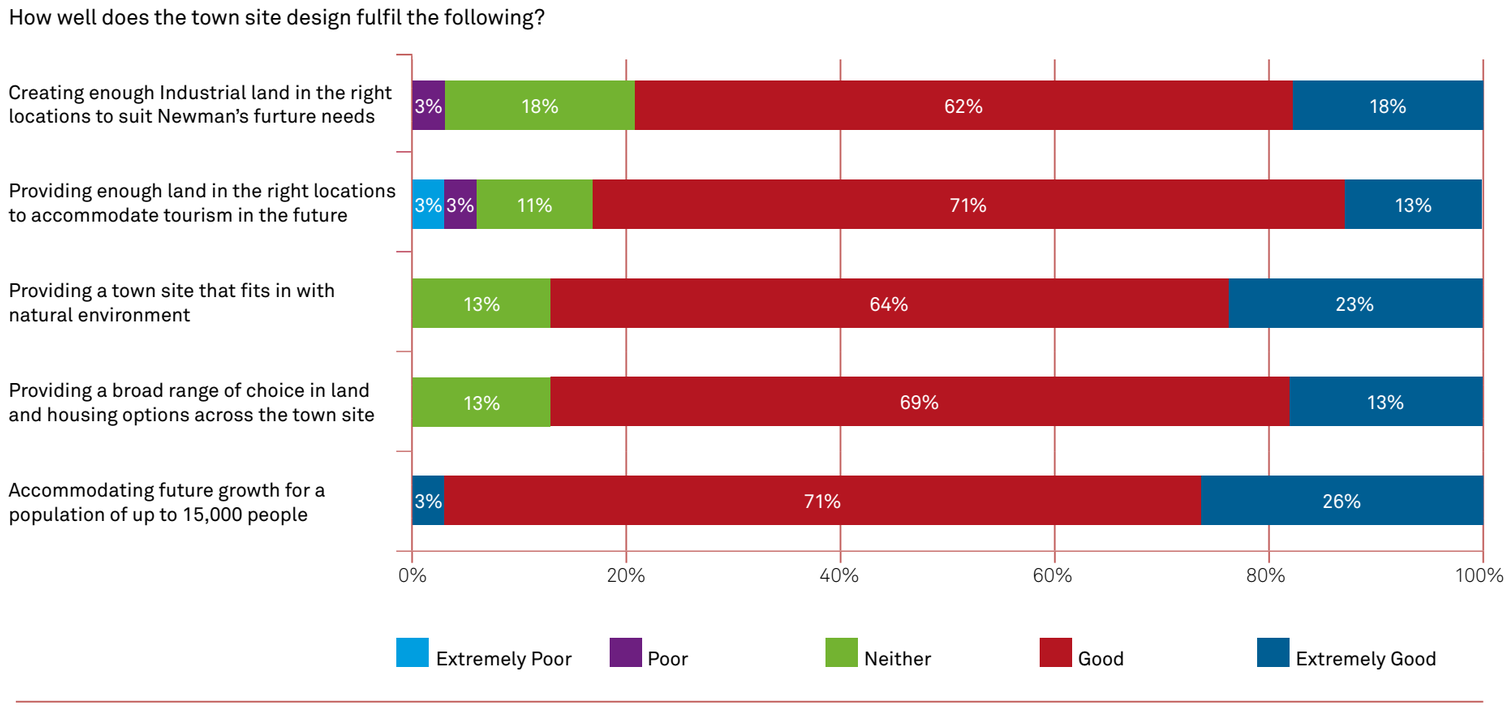


Figure 3: Feedback on town site growth strategy

1.6 Survey Feedback on Draft Designs

Feedback on from surveys on the Final Draft Plans indicated that the majority of respondents strongly support the proposed town site design (73%) and a further 24% slightly support the design. The remaining 3% were slightly opposed.

Overall respondents indicated the town site design fulfils all specified aspects of good town site design (as shown in the Table below), with the vast majority (79% plus) rating the design for each aspect as either good or extremely good.

Highest levels of satisfaction in the design were evident in the following areas:

- Accommodating future growth for a population of up to 15,000 people (97% rated it as good or extremely good);
- Providing a broad range of choice in land and housing options across the town site (87% rated it as good or extremely good); and
- Providing a town site that fits in with the natural environment (87% rated it as good or extremely good).

Community Consultation

The most positive aspects identified about the town site design were:-

- Aesthetics – like the green spaces and recreational spaces
- Land Use:
- Main street, town centre
- Increased opportunities for more retail and entertainment
- Caters for a range of housing types/density
- Lifestyle- more user friendly and people orientated
- Overall Design:
- Central hub area /town centre/focal point
- Meets a variety of needs, e.g. youth, families, FIFO, singles, sporting retail, civic centre;

1.6.1 Aspects of the Design Which Could be Changed

Respondents indicated the following aspects of the town site design they would you like to see changed.

- Road layout:
- Road management- speed needs to be slowed;
- Better access for delivery trucks.
- Facilities/infrastructure:
- Put a culture centre, civic centre, youth skate park, pool all together close to town centre (2 respondents);
- Move Newman club
- Car parking - closer to shops

In essence the design process undertaken for the town site culminated in the great majority of residents responding well to the preferred scenario. The preferred Town Site Growth Plan is discussed in detail at Section 4 of this report.

APPENDIX B

NRP INTEGRATED STRATEGIES

Annexure – Additional details to strategies

The following table summarises the key economic strategies required to meet the overarching objectives for arriving at a sustainable and robust economy for Newman into the future.

Table 12: Economic Development

Element	Economic Development
Aspirational Goal	A robust, diversified local economy that effectively services the needs of local and regional industry and population
Objectives	• Improved local business capability to service established industry sectors • Optimised local employment distribution to meet the requirements of industry and population • Increased local business and industry diversity • Enhanced local business investment and entrepreneurial activity • Activated and accessible retail and commercial destinations
Intervention Strategy	Develop and implement an economic development strategy for the Pilbara and the SoEP focusing on Newman as the SoEP centre • Develop multi-level governance model with stratified approach to economic development • Recruit broad based (whole of government and private sector) buy-in of aspirational population targets and Pilbara Cities development framework • Develop staged employment generation targets by employment category (i.e. strategic and population driven categories) • Identify local supply chain completion and value chain augmentation options for driver industries • Identify key cost pressure points for local industry expansion and identify options for reducing industry and business establishment and operational costs • Develop LGA entrepreneurial business unit with a view to identifying specific economic development opportunities for extending local industry capability • Explore and extend the service workers and construction sector accommodation offerings • Develop industry funding and attraction strategy for non resource sector related industries • Explore opportunities for R&D linkages between tertiary sector, industry and research agencies
Spatial criteria	• Suitable/sufficient sites for industry specific servicing sites • Suitable/sufficient residential and commercial sites • Suitable/sufficient sites industry specific servicing sites • Suitable/sufficient residential and commercial sites • Diverse, intense, connected and well defined activity centres
Key Stakeholders and Implementers (highlighted)	Fed MP, State MP, DSD, WAPC, DoP, DRDL, DPC, PDC, Resource Co's / Contractors, SoEP, PICC, Local CCI
Governance Issues	Investment, Incentives, land supply - combined Fed and State governance structure

NRP Integrated Strategies

The following section provides the details of all strategies requirements related to the community development planning. The tables on the following pages provide a summary of the overarching community strategies proposed for the town centre.

All strategies developed have direct links the *Newman Tomorrow*: Resourcing a Home for Future Generations (2008).

Table 14: Community Strategies

Strategy	Newman Community Pride and Engagement and Pride Strategy
Strategy Description	This strategy will seek to enhance opportunities for community to positively engage in civic activities that will foster a greater sense of connection to each other and their town. The strategy will aim to develop actions that will celebrate diversity, promote distinctiveness, instil community pride, encourage collaboration, enhance productivity and cultivate creativity. This strategy will provide the overarching framework under which other specific community development strategies will reside.
Links to *Newman Tomorrow* Plan	**Planning Area 1 - Town Centre Vibrancy** • Town centre revitalisation. • Public art program. • Public amenities upgrades. • Pedestrian access project. • Town centre management strategy • SoEP civic centre development. **Planning Area 4 - Full Spectrum Health** • Volunteer support services project. Planning Area 5 - Recreation Lifestyle • Parks improvement project. **Planning Area 6 - Community Pride** • Town centre revitalisation. • Community cultural engagement program. • Community pride of place project. • Community capacity building project. • 'Newman is Home' project. • Club development project. • Diverse community project. **Planning Area 7 - Arts and Cultural Hub** • Cultural heritage project. • Cultural vibrancy project. • 'Newman Arts Alive' project. • Indigenous arts and cultural centre. • Newman cultural precinct. **Planning Area 10 - Green Spaces** • Newman Streetscape Master Plan • Streetscape Development Projects • Greening Newman Projects **Planning Area 11 - Shire Stewardship** • SoEP links strategy. • Civic engagement project. • SoEP communications project.

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	Newman Community Pride and Engagement and Pride Strategy
Related Revitalisation Plan Objectives	• Leisure and recreation options for all ages • Broad community involvement/activation • Strong cross cultural relationships • Acknowledgement of cultural heritage in built form, public art, community art and community activities • Participation in arts and cultural activities • Community participation in goal setting and decision-making processes
Background/Issues	There is a strong connection for many people with their town in Newman. This includes a love of the outdoor lifestyle, beautiful natural environment and the small country town feel. With the population growing there is concern that elements of this "feel" might be lost in the future. The development of this strategy will build upon existing foundations of community connections.
Focus Areas	• Community pride and connection to place • Community capacity building • Community consultation and engagement • Integration of community development areas (i.e. cultural development; community service provision; recreation services, youth services etc)
Recommended Initial Actions	• Establish SoEP's own consultative group or link to the existing Community Consultative Group operated by BHP Billiton Iron Ore to determine priority areas and to identify opportunities and strategies related to the Newman Town Growth strategy. • Build on the early establishment of Cash for Trash and clean up initiatives • Develop and launch the Newman's Hero's awards to recognise commitment to the community – include awards for all age groups. • Develop a calendar of events for the town and town centre. This is to include activities for all ages throughout the year (See Town Centre Master Plan for more details) • Market and brand events and activities – e.g. A "Proud to be Newman" event • Promote activities through an improved website; updated newsletter; flyers, posters, local radio etc • Establish a Newman photographic competition – "Why I love Newman". The pictures to include landscapes, people and images that reflect the Newman community. These are then to be published in a book. • Integrate the town's arts and cultural plan as part of the community pride initiatives, including the development of public art as part of streetscape developments • Continue or establish program of events and activities to activate public spaces in the town centre and across the town e.g. The "Artsy Fartsy" festival; outdoor movies; street performers; family fun days • Establish the Community Capacity Building Project to include development of sponsorship with local business groups and industry to support training and development of volunteers in areas such as event management, budgeting, promotions and marketing and management of volunteers. This could be open to any community member, club or not for profit organisation member. • Establish a volunteer development pool, where people new to town (or longer term residents) can suggest which areas they would be willing to assist in. Link to the "Match Giving" project of BHP Billiton who provide financial match giving for time provided to support the local clubs and organisations. • Enhance community involvement in streetscape development such as tree planting days.
Potential Partners	• Businesses • Community organisations • Department for Communities • Local resources companies and contractors – e.g.; BHP Billiton, MacMahons, FMG • Local Clubs and organisations • Newman Chamber of Commerce and Industry • Mainstreet Inc • Newman Visitors Centre • Pilbara Development Commission • SoEP

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	Education, Training and Personal Development Strategy
Strategy Description	This strategy will establish an integrated pathway to providing access to a wide range of educational services at all education levels.
Links to *Newman Tomorrow* Plan	Planning Area 3 - Learning and Personal Development • Interagency stakeholder collaboration strategy • Quality education strategy. • Pilbara Mining Academy program. • Tertiary and further education advocacy project. • Youth citizenship and leadership strategy.
Related Revitalisation Plan Objectives	• Suitable education and training opportunities • Full range of community services • Affordable accommodation and living • Broad community involvement/activation • Opportunities for diverse local/sub-regional employment options • Good access to work, services and amenities • Community participation in goal setting and decision-making processes
Background/Issues	The provision of education in Newman is a priority for the community. The town is serviced by two government primary school, one government Senior High School and a Pilbara TAFE Campus. There are no non-government schools or tertiary education providers. The schools are generally well regarded, though enrolment numbers in the High School can limit the diversity of course offerings, particularly in years 11 and 12. Some young people and families seeking educational opportunities in Perth due to a perceived lack of choice particularly in secondary and tertiary levels. However the high school is well regarded in the community. BHP Billiton Iron Ore has invested significantly in supporting the school through its education partnership with the Department of Education. This has resulted in positive outcomes for the school and its students through improvement to facilities and in the provision of additional programs. **Facilities - Schools** The current facilities are satisfactory to meet current population needs, though South Newman Primary School is close to capacity. Newman Primary School still has room for an additional 150 students. It is only likely that a new Primary School will be required if the town population grows and the town centre is developed. This would result in the potential relocation of Newman Primary School from within the town centre area to avoid traffic and other issues and also to place the school closer to newly developed areas of the town site. Given the rapid growth of students with special needs moving into Newman, there needs to be consideration of establishing an Education Support Centre, attached to either of the primary schools. Population growth numbers indicate only one additional school is required if the population grows to 10,000 plus. The current schools have significant capacity to grow before a new school is needed. The potential relocation of the town pool to the Capricorn Sporting Complex may be of advantage to Newman Senior High School and South Newman Primary School, as it will be close to these schools. (Though it is currently in the town centre close to Newman Primary School). **Facilities – TAFE & Trades** It is reported that TAFE facilities are in need of an upgrade. A review of facilities to meet local training needs is required, especially in meeting the trade training needs of the local community. This might be better co-located at the High School.

Table 14: Community Strategies continued

Strategy	Education, Training and Personal Development Strategy
Background/Issues continued	**Facilities – University** There is no dedicated University facility in Newman and the population base does not make this likely to occur in the future. **Housing for Education Staff** The ability to attract and retain quality staff is largely dependent on the availability of adequate housing. Housing for teaching staff is currently limited. A review of housing is required, particularly if there is to be population growth. **Human Resources** The ability to attract and retain staff in the Pilbara and other remote areas is impacted on by the cost of living, lifestyle opportunities and salary conditions. The current district allowance for teaching staff is minimal in comparison to the real costs of living and working in the area. These allowances are also minor in comparison to the incentives offered to staff working in the resources area. As a result there is a drain of staff from schools and TAFE to the resource sector. **Bus Services** There is a need for improved bus services for students to access facilities in Newman. This will certainly be even more evident as the population grows. **Pilbara Education Plan** Funding has been allocated by the State Government, through the Pilbara Development Commission for the development of a Pilbara Education Plan. Similar to the process being undertaken by the Health Department in regards to health facilities and services, the plan will look at the key issues related to education facilities and services across the Government and Non Government School Sectors and the Tertiary Sectors.
Focus Areas	• Interagency stakeholder collaboration • Education Infrastructure (early childhood/primary/secondary and tertiary) • Integration of educational services and facilities, including recreational facilities • Housing and accommodation provision for education staff • Accommodation for students from outlying areas (i.e. education hostels) • Innovative curriculum and technological advancements • Staffing and Industrial relations – attracting and retaining quality staff
Recommended Initial Actions	• Establish working party to inform the Pilbara Education Plan • SoEP and other Newman based stakeholders to support and engage with the education sector stakeholders in their review of education services and the development of a Pilbara Education Plan. • Consult with community and stakeholders to inform the development of the Pilbara Education Plan. • Seek support for the development of a locally based Pilbara Mining Academy program, linked to hostel accommodation to position Newman as a centre of excellence in this area. • Review the provision of facilities and services for students with special needs, in particular education support students with learning disabilities. • Develop effective partnerships to foster community use of school facilities. • Review current staff incentives schemes at all educational sector levels– consider differential resourcing models. • Seek industry support for possible partnerships for inclusion of school based work as part of service contracts e.g. cleaning, gardening of school site included in overall contracts. • Establish a transitional plan for the relocation of Newman Primary School in the future to cater for larger enrolment numbers. • Review TAFE facilities. • Establish new 'Early Development Centres' attached to primary schools in Newman.

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	Education, Training and Personal Development Strategy
Potential Partners	• Department of Education • Local Schools • Department of Housing (GROH) • Department of Regional Development and Lands • Newman Chamber of Commerce and Industry • Local resources companies and contractors – e.g.; BHP Billiton, MacMahons, FMG • Pilbara Development Commission • Pilbara TAFE • SoEP

Strategy	Health Services Strategy
Strategy Description	This strategy will establish an integrated pathway to providing access to a wide range of health services.
Links to *Newman Tomorrow*	Planning Area 4 - Full Spectrum Health • Newman Health Care Master Plan. • Community health centre extension project. • Medical and allied health services Improvement project. • Medical charter flights project. • Dental health service plan.
Related Revitalisation Plan Objectives	• Suitable health services and facilities • Full range of community services • Adequate emergency services • Good access to work, services and amenities
Background/Issues	The provision of health and emergency services is a very high priority for people in Newman and can result in people having to leave town to access a range of services. The needs of servicing a growing town complex, particularly as the town health services cater for such a diverse area across remote communities. With a large Aboriginal population in the Shire's region, high rates of alcohol abuse and poor nutritional standards (comparative to the rest of WA), the health needs of some community members are acute. In dealing with these urgent health needs, some other services that community members expect are not being prioritised at the same level, leading to dissatisfaction from those members not able to access those services. GP services are currently contracted through a private provider – Gemini, which provides private services, but is under contract to be on call for the hospital. GP rations are current underserviced. (NB: Gemini Medical already has three doctors in town and is looking to provide three more if housing and rooms for consulting can be identified. This will reduce the ratio from one doctor per 2,833 people to one doctor per 1,416 people). There is also an evident lack of allied health services, in particular the need for dentistry, optometrists, physiotherapy, counselling and occupational therapy.

Table 14: Community Strategies continued

Strategy	Health Services Strategy
Strategy Description	This strategy will establish an integrated pathway to providing access to a wide range of health services.
Background/Issues continued	The Newman Hospital site sits just outside the designated town centre area, across the road from the Newman Club on Mindarra Drive. A review is being undertaken to explore health services and facilities in the Pilbara. This might present the opportunity for development of a health precinct to collocate medical services such as GPs, specialist visiting rooms, dentists, physiotherapy and other allied health services. This review also will identify how Newman can develop an improved health campus that can cater for a growing population and the needs of many outlying communities. BHP Billiton has already committed funds to the project, with a likely injection of funds from State Government to bring the development of the hospital and associated health facilities to fruition. Other key issues in relation to health services in Newman include:- • Difficulty attracting and retaining medical staff • Lack of appropriate residential accommodation for medical staff • Lack of specialist medical services • Lack of short term accommodation for people accessing services from outside Newman, particularly remote communities (Note: new housing was recently developed, but it just replaced housing previously loaned by BHP Billiton Iron Ore that had to be taken back) • No provision of private hospital services, so people with private hospital cover are unable to use it • Limited facilities and services in allied health – e.g.; dental, mental health, occupational therapy, physiotherapy etc • Lack of public transport for people from outside of town accessing medical services in Newman
Focus Areas	• Community consultation and engagement on the provision of services and facilities • Integrated facilities development and master planning • Integration services model including complementary health services, allied health and preventative health and health promotion • Allied health services • Transport • Staffing recruitment and retention
Recommended Initial Actions	• Broad consultation with community (via Department of Health /WA Country Health Service) to determine key priorities and needs in order to inform the development of a Pilbara Health Services and Facilities Master Plan. • SoEP and other Newman based stakeholders to support and engage with the Department of Health /WA Country Health Service in their review of health services and development of a Pilbara Health Services and Facilities Master Plan. • Commence work in association with government and industry in the development of a Newman hospital site • Design the provision of private medical suites across the road from the hospital site. • Development of strategies (within the master plan) for integration of mainstream medical services, complementary health services, allied health and preventative health and health promotion. • Development of strategies (within the master plan) to attract and retain skilled staff.
Potential Partners	• Australian Government Department of Health and Ageing • Department of Health/ WA Country Health Service • Department for Regional Development and Lands • Local resources companies and contractors – e.g.; BHP Billiton, Macmahons, FMG • Pilbara Development Commission • SoEP

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	Children and Youth Leadership and Development Strategy
Strategy Description	The Youth Development Strategy will describe actions required for improved youth engagement, services and facilities in Newman.
Link to *Newman Tomorrow* Plan	Planning Area 3 - Learning and Personal Development • Interagency stakeholder collaboration strategy • Quality education strategy. • Youth citizenship and leadership strategy. Planning Area 6- Community Pride • Community service organisations development project. • Youth centre project.
Related Revitalisation Plan Objectives	• Leisure and recreation options for all ages • Suitable education and training opportunities • Full range of community services • Affordable accommodation and living • Broad community involvement/activation • Participation in arts and cultural activities • Opportunities for diverse local/sub-regional employment options • Good access to work, services and amenities • Community participation in goal setting and decision-making processes
Background	• Newman has had services provided by private providers for some years by YMCA and the Newman Youth Services. However this service closed in 2009 due to financial issues. The Youth Centre that is located in Hilditch Avenue is now run-down. • Federal funding has recently been provided to upgrade the facility, but consideration must be made as to whether the current location of the centre is best as it is not closely located to the open spaces or the skate park. • There is potential to locate the youth centre within the community facilities centre precinct at the east end of town. • The Shire has made attempts over time to develop a Youth Council, without success. A more strategic approach is required to this and in addressing other youth related issues. • A strategy to address children and youth issues is required for the following reasons:- • There is a high proportion of children and young people in Newman. • There are limited youth services, activities, facilities and events in Newman. • Large numbers of families are reported as moving away from Newman once their children reach adolescence, and this has a detrimental impact on social capital, the pool of local employees and community cohesion. • With a population increase predicted in Newman there needs to be a cohesive approach to youth development, particularly when the current services for the existing population are inadequate. • Key opportunities to support the development of Newman's youth include:- • Development of a common vision and direction for youth development. • Establish and foster sustainable youth leadership. • Positively engaging youth in community activities and decision making to create a sense of ownership, connection and pride in their community. • A need for improved opportunities for positive social and community engagement. • Planning for more and better amenities that meet the needs of youth in Newman. • Sharing and /or aligning services across agencies • Addressing the current costs associated with accessing facilities, clubs and services that are prohibitive for many disadvantaged children and youth. • An opportunity to improve engagement with the Aboriginal community by supporting their children.

Table 14: Community Strategies continued

Strategy	Health Services Strategy continued
Strategy Description	The Youth Development Strategy will describe actions required for improved youth engagement, services and facilities in Newman.
Focus Areas	• Youth engagement and expression • Youth leadership • Youth facilities and amenities • Youth events and activities • Youth health and well being • Youth education and training • Youth research • Organisational partnerships to support youth • Strengthening youth service organisations • Improving perceptions of Newman as place for young people
Recommended Initial Actions	• Establishment of a Youth Stakeholders Group to collaboratively plan for the needs of youth. Group to have members from local government, government agencies, business and industry, education providers, youth service providers, training and employment agencies, health providers and community groups • Conduct some initial youth consultation (e.g.; a youth survey and youth forum for young people and service agencies) in order to define specific local issues and opportunities for alignment of youth services. • Appointment of youth services staff at the SoEP. • Establish a Youth Leadership Council. • Develop a concept design for a youth centre/precinct in consultation with youth and youth service providers. • Develop a youth activities calendar that includes establishment of an annual youth event and ongoing smaller youth activities. • Establish a transition to high school program.
Potential Partners	• Australian Government, Indigenous Coordination Centre • Department for Child Protection • Department of Education and Local Schools • Department of Health /Pilbara Population Health • Department of Indigenous Affairs • Department of Sport and Recreation • Disability Services Commission • Mainstreet Inc • Local churches • Local resources companies and contractors – e.g. BHP Billiton, MacMahons, FMG • Pilbara Development Commission • Pilbara TAFE - Newman Campus • SoEP • West Australia Police Service • YMCA

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	FIFO / Transient Worker Integration Strategy
Strategy Description	This plan will provide the research, strategies and actions required to better integrate temporary/fly in – fly out workers into the Newman community in order to generate benefits for all stakeholders.
Link to *Newman Tomorrow* Plan	Planning Area 1 - Town Centre Vibrancy • Town centre revitalisation. _Royalties for Regions $20million received for Town Centre Revitalisation and land release • Town centre management strategy _To be considered as part of Town Centre Revitalisation. • Mixed use development, retail and commercial revitalisation strategy. • BHP mess conversion. Planning Area 6 - Community Pride • Town centre revitalisation. • Community cultural engagement program. • Community pride of place project. • 'Newman is Home' project. • Club development project. • Diverse community project.
Related Revitalisation Plan Objectives	• Affordable accommodation and living • Broad community involvement/activation • Opportunities for diverse local/sub-regional employment options • Good access to work, services and amenities • Integration of workforce with local community
Background/Issues	Temporary or fly-in fly-out (FIFO) workforces have been deployed by the resource industry and their associated contractors when costs of permanently housing staff in Newman have proved prohibitive. BHP Billiton houses FIFO workers in camps in and around Newman, with the largest camp being Kurra Village within the town. BHP Billiton is putting in place measures to better integrate the workers into town, including providing bicycles to access the town centre. They are also housing FIFO workers in units close to the town centre, where they can access the town mess facility. However there is more that can be considered. The SoEP receives no rates from FIFO workers/camps as the camps are established under State Agreements, even though many FIFO workers do not utilise Shire services. Access for FIFO workers to the town and community is often difficult due to their work rosters, lack of transport or lack of incentive to move outside of their camp. As a result FIFO workers have a limited positive social and economic impact on the town. Some community members have expressed concern in relation to FIFO camps and their impact on the social fabric of the town. The core challenge is how to better understand the issues surrounding FIFO workers and to determine how to better integrate temporary/FIFO workers into the community in a manner that is beneficial to the workers, their employers and the broader community.

Table 14: Community Strategies continued

Strategy	FIFO / Transient Worker Integration Strategy continued
Strategy Description	This plan will provide the research, strategies and actions required to better integrate temporary/fly in – fly out workers into the Newman community in order to generate benefits for all stakeholders.
Focus Areas	• FIFO Research – local and international • Community engagement and planning process • FIFO integration policy development – cross sector development _ land allocation _contributions _facilities requirements • FIFO residential management planning • Integration strategies and actions • Communications process – across community • Monitoring, review and evaluation processes
Recommended Initial Actions	• Conduct research on local context:- _FIFO economic and social impacts/opportunities _FIFO workers perceptions regarding integration _Community perceptions of FIFO _Facilities and services requirements • Establish a working party of resource companies, state agencies and local government. • Conduct research on best practice in FIFO integration. • Develop policy framework to underpin future planning in integration of FIFO workers and camps into the community. • Develop a schedule of potential benefits and opportunities related to integration for further examination.
Potential Partners	• Camp developers e.g. – Compass, ESS, ISS • Department of Planning • Department of Regional Development and Lands • Local resources companies and contractors – e.g. BHP Billiton, MacMahons, FMG • Pilbara Development Commission • SoEP

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	Indigenous Engagement Strategy
Strategy Description	This strategy aims to integrate the Indigenous communities into Newman resulting in a more inclusive and welcoming town for all.
Link to *Newman Tomorrow* Plan	**Planning Area 1 - Town Centre Vibrancy** • Public art program. • Pedestrian access project. • Town centre management strategy **Planning Area 2 - Full Spectrum Health** • Newman Health Care Master Plan. • Medical and allied health services Improvement project. **Planning Area 6 - Community Pride** • Community service organisations development project. • Town centre revitalisation. • Community cultural engagement program. • Community capacity building project. • Diverse community project. **Planning Area 7 - Arts and Cultural Hub** • Cultural heritage project. • Cultural vibrancy project. • 'Newman Arts Alive' project. • Indigenous arts and cultural centre. • Newman cultural precinct. **Planning Area 8 – Diverse Economy** • Indigenous Market Garden Project • Indigenous Tourism Strategy • Town Centre Revitalisation **Planning Area 10 - Green Spaces** • Newman Streetscape Master Plan • Streetscape Development Projects **Planning Area 11 - Shire Stewardship** • Shire links strategy. • Civic engagement project. • Shire communications project
Related Revitalisation Plan Objectives	• Broad community involvement/activation • Strong cross-cultural relationships • Acknowledgement of cultural heritage in built form, public art, community art and community activities • Participation in arts and cultural activities • Community participation in goal setting and decision-making processes

Table 14: Community Strategies continued

Strategy	Indigenous Engagement Strategy continued
Strategy Description	This strategy aims to integrate the Indigenous communities into Newman resulting in a more inclusive and welcoming town for all.
Background/Issues	**Traditional Owners** The Nyiyaparli, are the traditional owners of the land, holding native title over the land. The Nyiyaparli now reside in Port Hedland. The Martu are the custodians of the land and are connected to the land on a regional level, with close family ties existing between Indigenous communities throughout the Pilbara. The Martu people are comprised of approximately a dozen language groups that extend across the Gibson and Great Sandy Deserts. The Martu homelands extend into the Western Desert. Culture is still a very important aspect for the Martu who live in and around Newman. Martu and Nyiyaparli represent one of the oldest living cultures in the world and were the last group within Australia to move from their tradition way of life. **The Parnpajinya Community Camp** The Parnpajinya community camp is directly opposite the main entry road to Newman town on Great Northern Highway. Some key facts include: • When Newman was opened due to normalisation in the early 1980s, Indigenous people began to camp at the current Parnpajinya, close to the infrastructure of Newman. • The late 1980s and throughout the 1990s witnessed varying Government interventions at Parnpajinya. Numerous consultations relating to housing, alcohol management and employment, education and training have previously been conducted. • The Department of Housing established 13 houses and an administration building at Parnpajinya in 2002. • The Department of Housing recently removed a management position in the community. A BHP Billiton staff member currently performs this role in the absence of others with the skills to do so. • Residents pay rent to the Parnpajinya Corporation, which has its own Board of Management. Governance of the camp is not strong and as a result there are a range of social and health issues evident in the camp, including high rates of alcohol use; the camp being used by people from out of town to stay at and drink; and poor sanitary conditions. **Issues** There are a range of other issues related to Indigenous affairs within Newman. These include:- • There are a high proportion of Indigenous residents within the SoEP, with a lower proportion within Newman. Indigenous community members from outlying towns access Newman as it provides a hub for services not available in those communities. • This can often provide problems when people from “dry” communities come to Newman to access alcohol, with associated antisocial behaviour resulting. • There have not been evident dividends for the Indigenous community from the resources boom, with poor education, health and employment outcomes still prevalent • There is limited recognition and celebration of other cultures within the town, though this has increased significantly through the establishment of Martu Milli artists, who have been actively supported by the SoEP and BHP Billiton and have brought great credit to the community • There is no intentional strategy of multicultural integration. There is an opportunity to act upon a range of opportunities to better engage with the Indigenous community/traditional landowners. These opportunities can acknowledge and celebrate the diversity and special characteristics of indigenous cultures and how their heritage is of significance to Newman.

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	Indigenous Engagement Strategy continued
Strategy Description	This strategy aims to integrate the Indigenous communities into Newman resulting in a more inclusive and welcoming town for all.
Focus Areas	• Consultation and engagement with the various Indigenous stakeholders regarding priorities, needs, opportunities • Research into the local Indigenous heritage and culture • Cultural awareness and celebration • Capacity building of local community and groups • Integration of different groups into the Newman community • Indigenous enterprise development • Indigenous art
Recommended Initial Actions	• Develop a SoEP Reconciliation Action Plan (RAP). • Establish strategy forums involving Aboriginal Organisations and Corporations; Local Government; Industry; and Government Agencies (such as Department of Housing; Department of Indigenous Affairs; Indigenous Coordination Centre) to develop a strategic action plan to address the varied issues facing the integration of outlying communities into Newman and in particular address the urgent needs of the Parnpajinya community. • Establish practices within the shire as part of the Reconciliation Action Plan for ongoing consultation and engagement with the Indigenous community and other cultures, including their involvement in the process of creating the Community Development Plan. • Undertake an Aboriginal archaeological and ethnographic survey for any area within Newman that may disturb Aboriginal sites. • In the event that any Heritage sites are to be disturbed by construction activities, a Section 18 approval under the Western Australian Aboriginal Heritage Act 1972 will be required from the Department of Indigenous Affairs prior to any ground disturbing activities. An Aboriginal Heritage Management Plan will need to be developed for proposed construction activities that disturb or are within close proximity to a known Heritage site. • Develop an Aboriginal heritage trail (see town centre strategies for details) • Establish and conduct Newman Elders project (as per *Newman Tomorrow*) • Establish and conduct NAIDOC and Harmony Festival • Continue to support Martu Milli Artists, including development of purpose built studio, gallery and storage spaces • Support and develop Kaninyinpa Jukurppa • Integration of Aboriginal Culture in the development of an arts and cultural hub • Engage Aboriginal community in positive cultural representation through public art and streetscape development • Progress development with industry and government to act on SoEP's plans for a Indigenous Marketing Garden or Native Plant nursery project including:- _ Feasibility study _ Indigenous traineeship program _ Land allocation • Develop a SoEP tourism strategy incorporating Indigenous Tourism opportunities. (See separate strategy for this) • Establish actions with the Department of Corrective Services for the establishment of a "Fresh Start" project to support the positive redirection and rehabilitation of offenders • Develop Aboriginal initiatives as key aspects of the town's Art and Cultural plan.
Potential Partners	• Australian Government Indigenous Coordination Centre • Bloodwood Tree • Ashburton Aboriginal Corporation • Local resources companies and contractors – e.g. BHP Billiton, MacMahons, FMG • Newman Chamber of Commerce and Industry • Kaninyinpa Jukurppa. • Newman Visitors Centre • Reconciliation Australia • SoEP • State Government Agencies, particularly Department for Indigenous Affairs • Traditional landowners • WA Tourist Bureau

Table 14: Community Strategies continued

Strategy	Newman is Home Strategy
Strategy Description	The Newman is Home Strategy will foster a greater connection with the town through the establishment of processes to welcome and induct new residents into town. The Strategy will build upon some work already being undertaken to take a cohesive approach across government agencies; community organisations; businesses, Industry and local government to attracting and retaining residents to the town.
Link to *Newman Tomorrow* Plan	Planning Area 6 - Community Pride • Community service organisations development project. • Community cultural engagement program. • Community pride of place project. • Community capacity building project. • 'Newman is Home' project. • Diverse community project. Planning Area 7 - Arts and Cultural Hub • Cultural heritage project. • Cultural vibrancy project.
Related Revitalisation Plan Objectives	• Leisure and recreation options for all ages • Full range of community services • Broad community involvement/activation • Strong cross-cultural relationships • Acknowledgement of cultural heritage in built form, public art, community art and community activities • Participation in arts and cultural activities • Community participation in goal setting and decision-making processes
Background/Issues	There is a turnover of residents in Newman which results in a range of impacts on the community. Currently some workplaces offer new employees work orientation, welcome events and support in regards to accommodation matters. One business is also employed to support the induction of families to town for BHP Billiton. Key to retaining residents is to create greater family contentment. Reducing resident turnover will be better for the community and reduce business costs. Several factors may contribute to the turnover of residents: • An unmet need for a community gathering place, events and activities that will enable new residents to connect socially with other residents. • A lack of long term commitment to Newman– with living in the town seen as a short phase in which the focus is to earn money, not as a place to invest relationally or economically, beyond family survival needs. • A dearth of professional and personal development opportunities for partners of employees. • Limited community infrastructure which inhibits social connection. • Research shows that the willingness to connect and bond is at its height during the early stages of arrival in a new situation. A successful welcome program would aim to positively engage new residents at the time of their arrival as well as address a number of factors that have inhibited social connection.
Focus Areas	The strategy would build upon work already been undertaken through individual stakeholders. Key focus areas would include:- • Partnership development – cross sectors • Orientation strategies • Cultural awareness • Welcome materials • Welcome events and activities • Mentoring and support • Communications

NRP Integrated Strategies

Table 14: Community Strategies continued

Strategy	Newman is Home Strategy continued
Strategy Description	The Newman is Home Strategy will foster a greater connection with the town through the establishment of processes to welcome and induct new residents into town. The Strategy will build upon some work already being undertaken to take a cohesive approach across government agencies; community organisations; businesses, Industry and local government to attracting and retaining residents to the town.
Recommended Initial Actions	• Establish a cross sectoral committee consisting of government agencies; community organisations; businesses, Industry and local government to work together to implement actions and source funding for future initiatives. • Research other areas where this is working well and seek advice and support – e.g. Port Hedland. • Research induction processes undertaken in Newman by companies, agencies and other organisations to induct their staff and families. Seek to take a combined approach to this, identify good ideas and establish a synergy across the stakeholder group. • Develop information materials and/or "welcome pack" for new residents. • Develop a regular community newsletter of a high quality, with the content developed by the committee • Establish regular welcome events in local parks and community facilities – make them family friendly • Establish a "buddy program" to link new residents with existing residents.
Potential Partners	• Department of Education and Local Schools • Department of Health/ WA Country Health Service • Department of Housing • Disability Services Commission • Newman Shopping Centre • Newman Visitors Centre • Local churches • Local resources companies and contractors – e.g. BHP Billiton, MacMahons, FMG • Newman Chamber of Commerce and Industry • Pilbara Development Commission • SoEP

Recommended Community Facilities – Initial Projects

The following table provides an overview of the suggested initial community facility developments and their potential location in Newman.

Community Facility	Background	Vision	Location Options	Timing
Town Square	Currently there are no meeting or gathering places in the town centre. A town square is needed to provide a place to socialise and to hold community activities and events. The square will bring people from inside the shops to be outside the shops too, creating some vibrancy and street presence.	Town square with high level of landscaping treatment. Shaded spaces. Seating. Enough open spaces for street markets, stalls, art displays etc.	Within new main street and connected to pedestrian pathway from shopping centre to Hilditch Avenue shops.	1-5 years
Youth Centre	The original youth centre established in Newman in the 1970s was a YMCA building in the old northern part of town in Gunn Place. This centre was condemned due to its poor condition. The current youth centre in Hilditch Avenue was operated by the YMCA for many years and recently reverted to a management group called the "Newman Youth Service". Unfortunately this service recently ceased due to being insolvent. As a result the centre now lays vacant. While there is the skate park and the 'beach' area at the northern area of the town centre along Mindarra Drive, there is a desire by the SoEP to reinstitute the youth service at the Hilditch Avenue centre. However the facility is in need of significant maintenance and redesign and this approach may only be a short term solution. Funding has recently been sought for this. There is considerable appetite for the future development of a purpose built youth centre that is located close to aligned community services and facilities in the town centre, closer to Boomerang Oval, the skate park and other recreation amenity close to town.	• Indoor facilities. Up to 500 - 750m^2.One or two storey building. • Youth drop in lounge, computer technology room, games. • Recreation (e.g. pool tables, table tennis etc.). • Arts amenity (i.e. band/jamming practice room). • Offices for service providers - e.g. career & counselling services. • Outdoor facilities. • Half/full court basketball, skate and other multi wheel activities. • Flat open space close by if possible to 'kick a footy'. Open space shared with other community facilities if possible.	Three potential options include (in order of preference):- 1. Newman Club bowling green site – adjacent to town oval, but provides sufficient space for indoor/outdoor activities. 2. At West end of Boomerang Oval, in same area as other community facilities (though might be better to separate slightly). 3. Collocate with Capricorn Sporting Complex – close to high school, but not close to town centre and detracts from activation of town centre.	1-5 years
Martu Milli and Aboriginal Artists Facilities	Martu Milli Artists have achieved significant recognition for their art works across the nation. The artists come from a variety of communities within the region. The group has been supported by the SoEP and recently moved into temporary facilities in Newman Drive. The group requires proper studio space, gallery space and storage space.	There is the opportunity to provide studio facilities and possibly gallery space on the existing site, which is the preference of the group. Facilities can be developed that include two studios, significant storage space, small front gallery space, kitchen, toilets and administration office. This art facility could be a significant tourist attraction, being close to town and on the main road into town.	Locate on current site on Newman Drive just out of town centre. This location is in the pedestrian pathway of the artists, and is on the main entry road.	1-5 years

NRP Integrated Strategies

Recommended Community Facilities – Initial Projects continued

Community Facility	Background	Vision	Location Options	Timing
Multiuse community spaces/ facilities	Strong community support exists for the provision of community facilities that promote social engagement, arts and cultural development and entertainment.	Key facets could include the provision of outdoor spaces for performing arts area with features such as outdoor theatre, folding seats, live theatre etc. Natural outdoor amphitheatre and landscaped space for community use such as small events, weddings etc. Community centre, which runs north/south, with its east face being glass, opening out onto the redevelopment Boomerang Oval for community use and activities such as art groups, small gallery space and community functions. Integration of the library and future council facilities within this precinct. Provision of iconic structure such as a Clock tower or similar as centre piece to the precinct.	All facilities to be collocated at the West end/ corner of Boomerang oval and interfacing with east end of town centre.	1-5 years
Medical Facilities	The Newman Hospital site sits just outside the designated town centre area, across the road from the Newman Club on Mindarra Drive. A review is being undertaken to explore health services and facilities in the Pilbara. This might present the opportunity for development of a health precinct to collocate medical services such as GPs, specialist visiting rooms, dentists, physiotherapy and other allied health services. This review also will identify how Newman can develop an improved health campus that can cater for a growing population and the needs of many outlying communities. (NB: Gemini Medical already has three doctors in town and is looking to provide three more if housing and rooms for consulting can be identified. This will reduce the ratio from one doctor per 2,833 people to one doctor per 1,416 people).	Potential developments could include: • A revamped medical precinct on the existing hospital site, which is close to the town centre. This development to include:- • Upgrade and remodelling of the existing hospital to make more efficient use of under -utilised floor space for acute care and to provide for the growing needs of the non acute services delivered via population and mental health. • Improved facilities to cater for the needs of staff from Mental Health & Drug Service, visiting Health Department staff; Population Health and Acute Services. • Establishment of commercial facilities collocated with the hospital (or across the road) to support additional private health services to relieve the pressure upon public health services. This could include new consulting offices for private medical and allied health services. • Improved provision and integration of facilities to accommodate the State Dental Health Clinic; Gemini Medical Group (GP Services) and Child Health Clinic. • Residential accommodation for regional people needing to access services located in Newman.	Opposite to the hospital site on Mindarra Road. Close to the Newman Club site.	1-5 years

Recommended Community Facilities – Initial Projects continued

Community Facility	Background	Vision	Location Options	Timing
Country Club/ Newman Club	Currently the Newman club adjoins the perimeter of the Boomerang Oval, bowling greens and tennis courts. With the potential relocation of the greens and courts which are in very poor condition and the reduction in size of the oval, this has implications for the club. The club is situated in a prime location for future residential/commercial development, though it is a town icon and holds a strong place in the hearts of many members of the community. The facility is in need of refurbishment and its outdoor facilities are outdated and run down. The centre is currently underutilised, particularly in regards to its kitchen and function areas. There is the potential to redevelop at the golf club as part of an integrated and high standard "Country Club" development.	Collocation of bowling greens, tennis courts and squash courts with the golf club to provide a high standard "Country Club", with good views. This would include the provision of a function centre. Development of higher density residential around the club would provide the local resident numbers for the club to operate successfully as a commercial entity.	Collocation of bowling greens, tennis courts and squash courts with the golf club to provide a high standard "Country Club", with good views. This would include the provision of a function centre. Development of higher density residential around the club would provide the local resident numbers for the club to operate successfully as a commercial entity.	5 – 10 years
Caravan/RV Visitor/Truck Parking	Currently there are no areas for caravans or other large vehicles to park or dump waste. An area should be provided for this.	Hard stand area for caravans or other large vehicles, close to town centre to enable access by walking. Some level of screening required, particularly if waste dumping points are to be provided.	In East end of town, near corner of Newman and new section of Kalgan Drive.	1-5 years
New Primary School and Education Support Centre –	Newman Primary School occupies a site within the town centre precinct.In the short term this provides opportunities to integrate the school as part of the town centre revitalisation. In the long term, the school will need to be relocated to a green-field site so it is not locked by commercial development or is unable to cater for the increased number of students. The development of a new, larger site will also mitigate future traffic issues that could occur around the school in the heart of the town centre. Population growth numbers indicate only one additional school is required if the population grows to 10,000 plus. The current schools have significant capacity to grow before a new school is needed. Given the rapid growth of students with special needs moving into Newman there needs to be consideration for the development of an Education Support Centre attached to either of the primary schools.	It may be best to develop a new primary school site in the future to accommodate a relocated Newman Primary School, and a dedicated Education Support Centre. This site should be positioned to share public open space, surrounded by streets on all four borders and surrounded by residential (family style) to increase local usage and passive surveillance.	Site identified in North East section of future land development.	10 years +

NRP Integrated Strategies

Recommended Community Facilities – Initial Projects continued

Community Facility	Background	Vision	Location Options	Timing
Newman Town Pool Relocation	The Newman Town Pool is currently located within the heart of the town centre. The Capricorn Sporting Complex Master Plan proposes that in the longer term the pool could be relocated to the Capricorn Sporting Complex to better integrate wet and dry sporting facilities. However, it can also be said that its current location is also advantageous being close to the primary school and in close proximity to the proposed community facilities. It should be noted though that pools do provide barriers to good pedestrian connection as they have to be fenced for safety reasons. The pool was constructed in the 1970s, and while it is not in a poor state, it is ageing. Significant funds were recently used to upgrade the water play elements at the pool; however, it is reported that key town infrastructure run directly under the pool, which provides some complexity for the future development of the area. If the pool does move in the longer term, it is proposed that the current site could be developed into a 'big box' shopping area such as a 'Target Country' or similar. This could also see some provision of "water play" in the surrounding town centre area in replacement of the pool.	Current pool site could be replaced with some retail "big box" shopping as part of the retail precinct development. The site or neighbouring sites could provide some water play areas.	Pool to be redeveloped on Capricorn Sporting Complex site. Should investigate shared use of the pool with the high school.	10+ years
Boomerang Oval Development	The proposed redevelopment and reduction of Boomerang Oval could be a likely product of the Capricorn Sporting Complex Master Plan that was commissioned by the SoEP in December 2008 and reported in July 2009. Key implications for the development of Boomerang Oval include:- • The retention of a soccer/rugby sized pitch. This was influenced by a number of factors, including retaining the highly popular 'Bloodyslow Cup' community event at its original venue, Boomerang Oval. • Redesign the West End of the oval to interrelate with the proposed Civic/Cultural Centre that will adjoin it. This space is to be utilised for events such as fairs, fetes, outdoor movies and other community based activities.	Develop west end of oval for outdoor community events e.g. outdoor movie screen , amphitheatre Link to community/civic centre development.	On existing site.	1-5 years
Additional Caravan Park	The existing caravan parks have few sites for visitors and predominantly cater for temporary workers with mostly fixed / permanent accommodation. There is need for greater choice.	A council run facility is required with onsite vans and sites for travellers with their own vans at a price point that families and most tourists can afford.	On site specified in the Town Site Growth Plan	1-5 years

NRP Integrated Strategies

1.1 Responding to Environment

The following table summarises the key environmental strategies required to meet the overarching objectives for arriving at a sustainable and robust economy for Newman into the future.

Table 15: Natural Resource Management Strategies

Element	Natural Resource Management
Aspirational Goal	Environment Local, regional and global eco-systems in which landform, habitat and biodiversity are retained and that provide natural provisioning, regulating and cultural services.
Objectives	Environment • Protection of significant landform • Protection of significant native vegetation and habitat • Prevention of pollution and erosion from stormwater • High levels of air quality
Intervention Strategy	A Newman Natural Resource Management Strategy that addresses the sustainable management of land, flora and fauna, and fresh water environment. • The key directions of the Newman Natural Resource Management (NRM) Strategy align with the objectives of the SoEP and Rangelands NRM Strategy. • Establishes an integrated holistic framework that considers current, planned and additional strategies and activities across a range of natural resource management areas, such as: _Local terrestrial, aquatic and marine biodiversity and conservation _Feral pests and weeds _Water quality and nutrient management _Drainage and floodplain management _Air quality _Cultural heritage _Education, awareness and further engagement activities _Aboriginal involvement, education and training _Benchmarking, monitoring, evaluation and reporting _Partnerships and funding • Includes the setting of Resource Condition Targets and Management Action Targets against assets and priorities for investment. • Delivered through partnerships with the Rangelands NRM Coordinating Group, SoEP, Australian and State Governments, industry and local community.
Spatial criteria	• Adequate site for administration and management • Suitable site for native plant nursery • Suitable site for community garden
Key Stakeholders and Implementers (highlighted)	SoEP, Rangelands NRM Coordinating Group (Rangelands Pilbara NRM Reference Group), DEC, DoW, DoF, DAFWA, DoP, DIA, State NRM Office, FESA, UWA, Murdoch University, CSIRO, Museum of WA, Pilbara Industries, pastoral and other industries, local community and business
Governance Issues	SoEP, Rangelands NRM Council

NRP Integrated Strategies

1.2 A Spatial Growth Plan for Newman

The following table summarises the key Built form and Public Realm strategies required to meet the overarching objectives for arriving at a sustainable and robust economy for Newman into the future.

Table 16: Built Environment Strategies

Element	Natural Resource Management
Aspirational Goal	An urban form that reflects the intrinsic qualities of the site context, characteristics and relationships and complements the natural environment; with centres that are vibrant, dynamic, diverse and functional
Objectives	• A place based response that reflects the context and site • An integration of uses that achieves functionality, efficiency and compatibility • Connectivity at local, district and regional scale • Increased nett density • A network and hierarchy of streets and public spaces that provides permeability and legibility • A integrated movement network that ensures the safe movement of pedestrians, cyclists and vehicles • A diverse mix of uses, buildings, housing types • High quality well designed buildings that reflect the site context • A variety of well defined open spaces • An accessible and legible town centre destination
Intervention Strategy	**Compact and Diverse Town** • An urban growth strategy that provides an urban form that is climate responsive, activity centres with diversity and mixed use, and efficient by minimising the need to rely on the car, based around walkable neighbourhoods through precinct planning. **An Integrated Movement Network** • A Strategy to develop an integrated movement network for Newman to link to surrounding towns, accommodate freight, that is responsive to the quality of the urban environment, and incorporates a street hierarchy, parking, public transport, walking and cycling. **A Built Form and Public Realm Strategy** • Development and implementation of a Public Realm Strategy for the Newman Town Site Growth Plan.
Spatial criteria	• An urban form that reflects the context and site • Integration of land uses • Connectivity at local, district and regional scale • Nett dwellings per development hectare • Permeability and legibility of streets and public spaces • Integration of movement network - pedestrians, cyclists and vehicles • Diversity of uses, buildings, housing types • Lot size/shape/distribution • Suitable/sufficient open spaces • Town centre accessibility and legibility
Key Stakeholders and Implementers	WAPC, DoP, SoEP, LandCorp

Infrastructure to Support Growth

The following table summarises the key infrastructure strategies required to meet the overarching objectives for arriving at the sustainable growth of Newman into the future.

Table 17: Infrastructure strategies

Element	Infrastructure
Aspirational Goal	Economically efficient infrastructure for industry and households designed for efficient use of energy, water, materials and transport
Objectives	• Best practice per capita water consumption • Energy efficient built form • Energy efficient lighting, equipment and appliances • Best practice materials efficiency • Effective and well utilised public transport
Intervention Strategy	1. Integrated Water Management Strategy Formulate a water, wastewater and drainage servicing strategy for Newman, staged from present to a 15,000 pop target. 2. Energy and Greenhouse Management Strategy An economically efficient strategy to meet the power needs of the growing community while addressing greenhouse gas emissions. 3. An Integrated Transport Strategy An Integrated Transport Strategy for Newman incorporating street hierarchy, parking, public transport, walking and cycling. 4. Waste Management Strategy SoEP Waste Management Strategy customised to specific conditions and requirements of the Newman town site.
Key Stakeholders and Implementers	• SoEP, BHP Billiton, Alinta Energy, Water Corporation, Telstra
Governance Issues	Need to rationalise service provisions for water, sewer and power to statuary providers.

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