

DRAFT TENNANT CREEK LAND USE PLAN



June 2018

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1. *INTRODUCTION*

1. INTRODUCTION

The draft *Tennant Creek Land Use Plan 2018* seeks to identify a structure which recognises the characteristics of the various components of Tennant Creek.

The documented vision and goals will inform more detailed future planning for particular localities which will include the means, sequence and specific responsibilities for implementation.

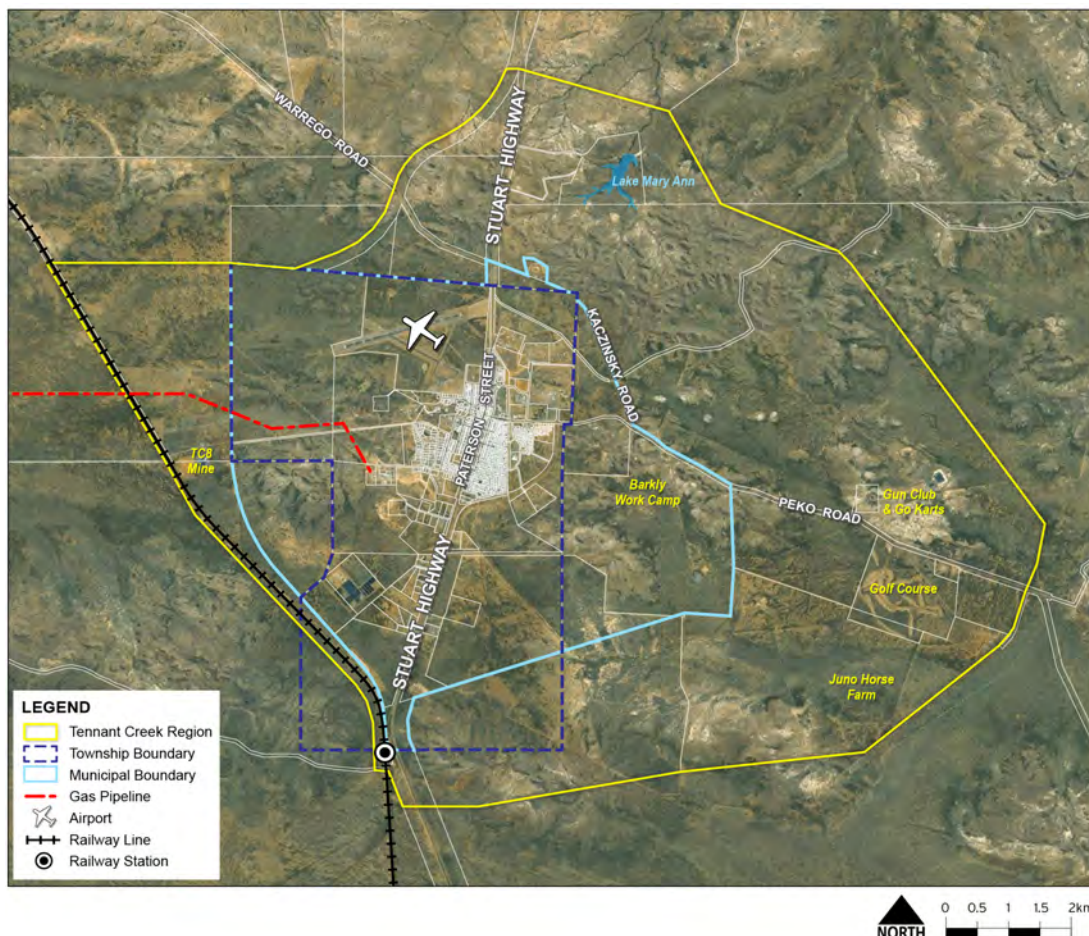
1.1 Plan Boundaries

For the purpose of this Plan, Tennant Creek is defined as the whole of the Tennant Creek Municipality, together with additional adjacent land, generally extending to:

- ▲ The Adelaide to Darwin railway line to the west.
- ▲ The future by-pass alignment/Lake Mary Ann area to the north.
- ▲ The Gun Club/Go Karts and Golf Course precinct to the east.
- ▲ Tennant Creek Railway Station to the south.

Such is identified by Map 1.

Map 1: Tennant Creek Region



The Tennant Creek township is situated on the Stuart Highway in the centre of the Northern Territory, approximately 500km north of Alice Springs. Its traditional land owners are the Patta Warumungu people.

The wider region is subject to a range of environmental, agricultural and cultural influences. It is the major centre for the cattle producing Barkly Region, also known as the Barkly Tableland.

1.2 Plan Purpose and Evolution

The draft *Tennant Creek Land Use Plan 2018* will shape the future development of Tennant Creek. It draws on the aspirations of the community to establish a strategic direction for long term growth.

The objective of the Plan is to develop an overarching framework for future population thresholds of 5,000 and 8,000 persons, noting the current Estimated Resident Population is 3,662 persons (as at 2016).

It presents and summarises the findings that result from a broad range of investigations, including:

- ▲ Previous land use planning documents for Tennant Creek and the studies that informed them.
- ▲ Current supply and likely future demand for residential land (both urban and rural) to accommodate anticipated population growth.
- ▲ Commercial and industrial land needs, with options to accommodate these needs.
- ▲ Community facilities and services including health and, where necessary, identified site options for additional facilities.
- ▲ Existing major transport routes, local traffic issues and options to address current issues and accommodate future growth.
- ▲ Infrastructure including major infrastructure and headworks required to service existing and future growth.

Incorporation of the *Tennant Creek Land Use Plan 2018* in Schedule 2 of the NT Planning Scheme will establish a policy framework for the future development of Tennant Creek.

Given that timeliness and currency is imperative to the relevance of land use planning, it is envisaged that the *Tennant Creek Land Use Plan 2018* will be subject to review in response to future growth or other changing circumstances.

1.3 Format of the Plan

The sections of this Plan can be summarised as follows:

- ▲ **Introduction:** identifying the Plan's boundaries, the context within which it has been prepared, its evolution from previous work, and its purpose and role in guiding future development.
- ▲ **Land Use Structure:** describing the overall structure of existing and future land use and development, discussing factors of influence in each land use category and highlighting constraints and opportunities.
- ▲ **Context and Background:** summarising how Tennant Creek has evolved to date, the key factors that influenced and will continue to influence development.







2. *LAND USE STRUCTURE*

2. LAND USE STRUCTURE

The land use structure responds to key opportunities and constraints within the Tennant Creek Region. A broad scale land use plan will provide a framework for orderly and efficient growth. This land use structure is intended to establish the 'what', 'where' and 'why' to inform more detailed planning and investigations that will establish the 'how' and 'when' of implementation.

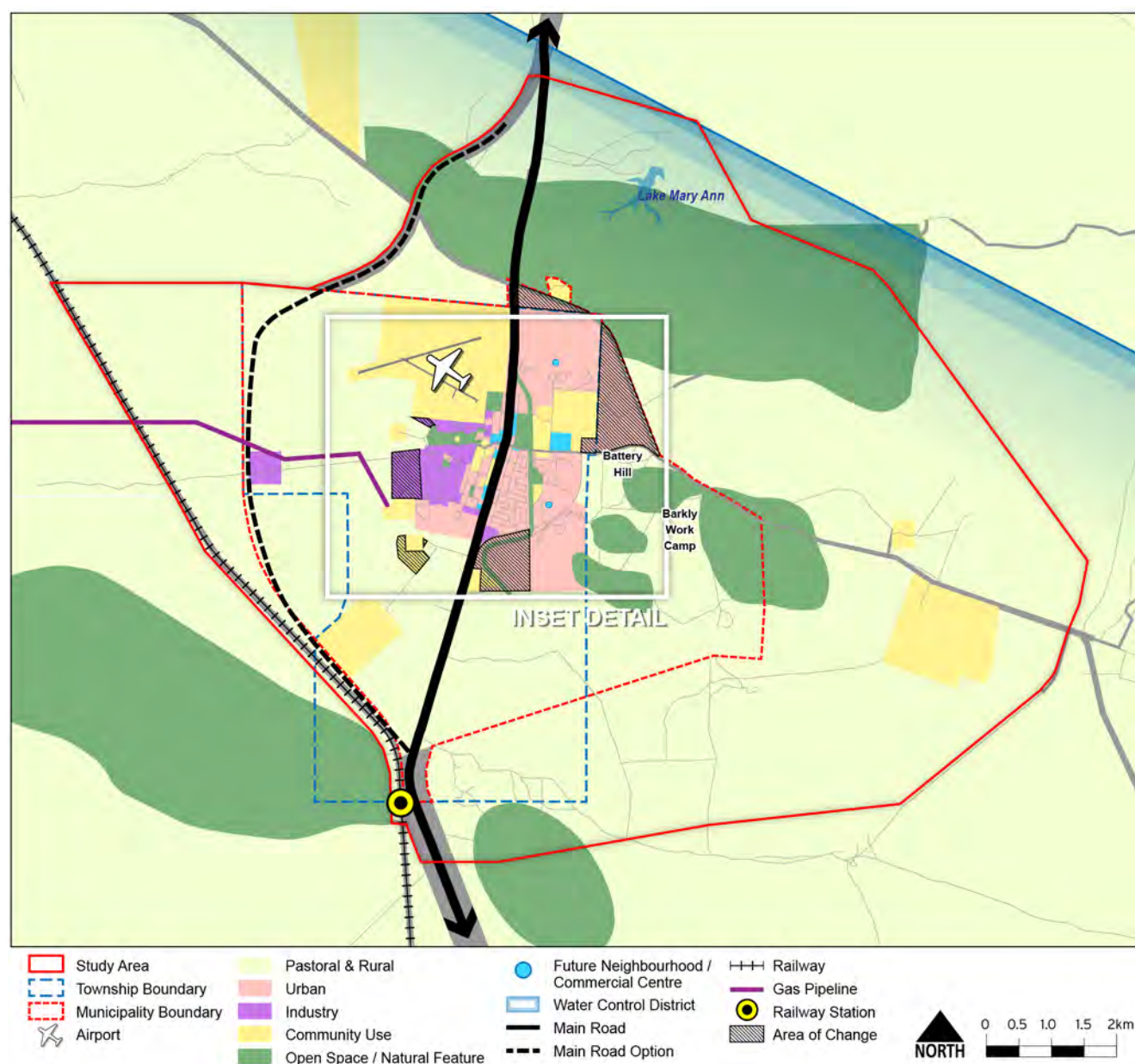
The town of Tennant Creek is already structured in a manner that will guide future development and particularly the location of residential and non-residential uses.

Key residential areas exist predominantly east of the Stuart Highway, with industrial areas predominantly established to the west.

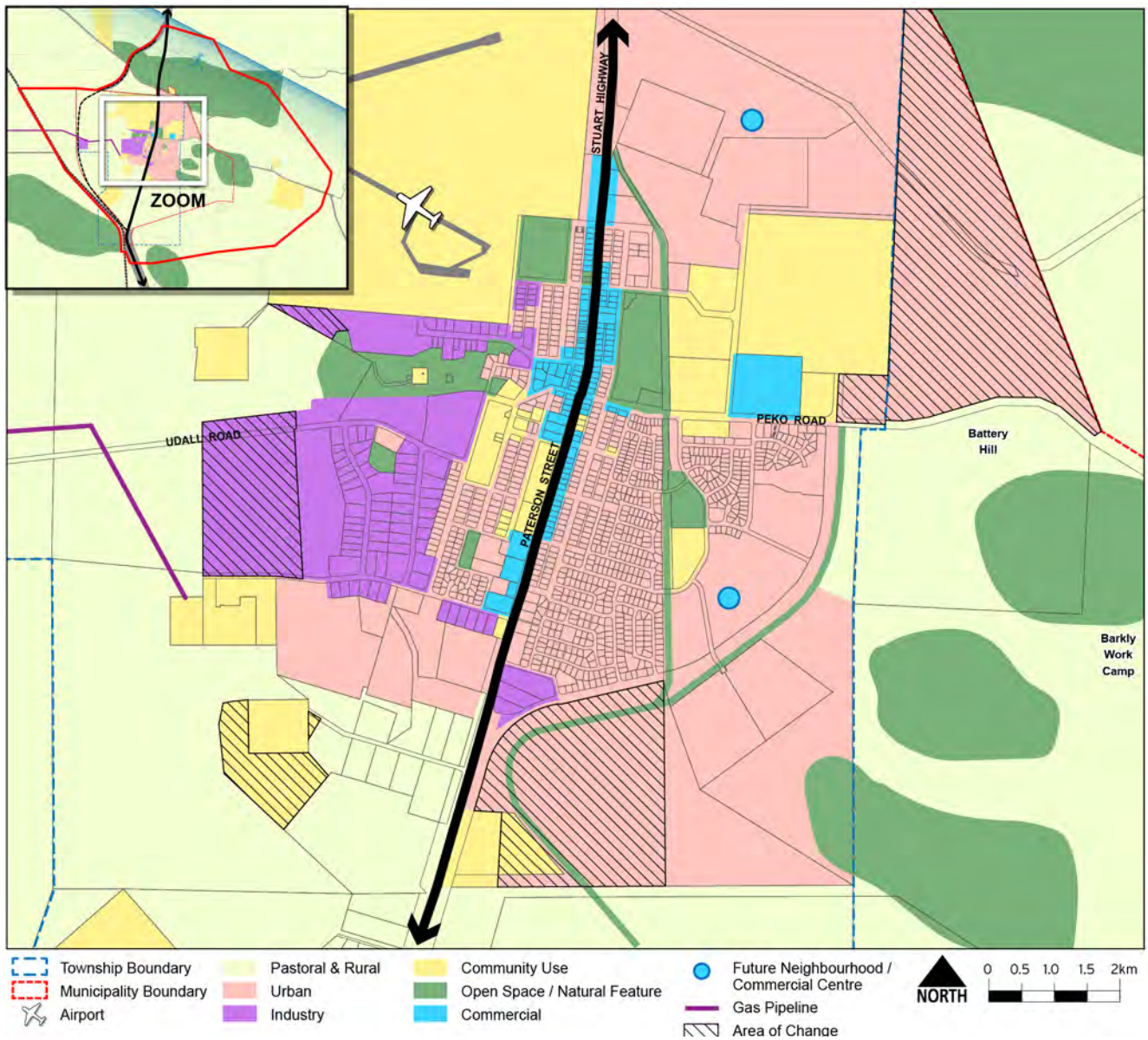
While the appropriate location for many activities is influenced by unique and specific parameters relating to the characteristics of the land, the location of future residential and non-residential development should follow the existing configuration of land uses.

The key influences, opportunities and constraints are outlined in the Context and Policies section of the Land Use Plan. Evaluation of these factors has led to the adoption of the land use structure shown on maps 2 and 3 as the most appropriate distribution of land uses to accommodate future development.

Map 2: Land Use Structure



Map 3: Land Use Structure (inset)



2.1 Residential

Key Residential Objectives

- ▲ Provide for growth, facilitates infill development, and identify suitable land for greenfield development.
- ▲ Ensure a diverse range of dwelling types and sizes is available to accommodate the needs of all household profiles.
- ▲ Create opportunities for higher residential densities close to services and community facilities.
- ▲ Protect and enhance natural and cultural areas integrating them where possible into areas of open space supporting residential development
- ▲ Encourage the efficient, economic and viable use of existing and future infrastructure.

The Plan seeks to ensure that suitable land is identified for efficient residential development long into the future. Analysis has identified land requirements to accommodate a short term population of 5,000 and a longer term population of 8,000 persons.

The Plan adopts basic philosophies for future residential development that include:

- ▲ Meeting the demand for traditional low density houses on individual lots.
- ▲ Increasing the choices in housing types and sizes in order to respond to changing needs, including smaller household sizes requiring more compact housing forms.
- ▲ Continuing the orderly expansion of the existing urban form, also making an efficient use of existing infrastructure.

2.2 Urban Residential

Key Urban Residential Objectives

- ▲ Encourage infill residential development, including the provision of higher densities in the most central portion of the township.
- ▲ Encourage greenfield residential development east of Paterson Street, in order to continue the existing urban residential footprint.
- ▲ Increase housing choice by providing a wider range of housing types and sizes to cater for all households, including smaller sized households, dependent and/or temporary residents and retirement living.

- ▲ Plan residential development in order to ensure the viability of necessary infrastructure.

- ▲ Respond to climate change and ensure fireproof designs.

2.3 Infill Development

It is anticipated that infill opportunities in Tennant Creek should be identified to increase housing diversity and promote higher residential densities consistent with the principles and objectives of the Northern Territory Compact Urban Growth Policy. Highest residential densities are found in the most central location of the township, east of Paterson Street and South of Peko Road. Future smaller allotments and housing forms should continue to be located toward the centre of town or in proximity to neighbourhood retail and community facilities.

All existing zone CL areas also offer opportunities for further housing development.

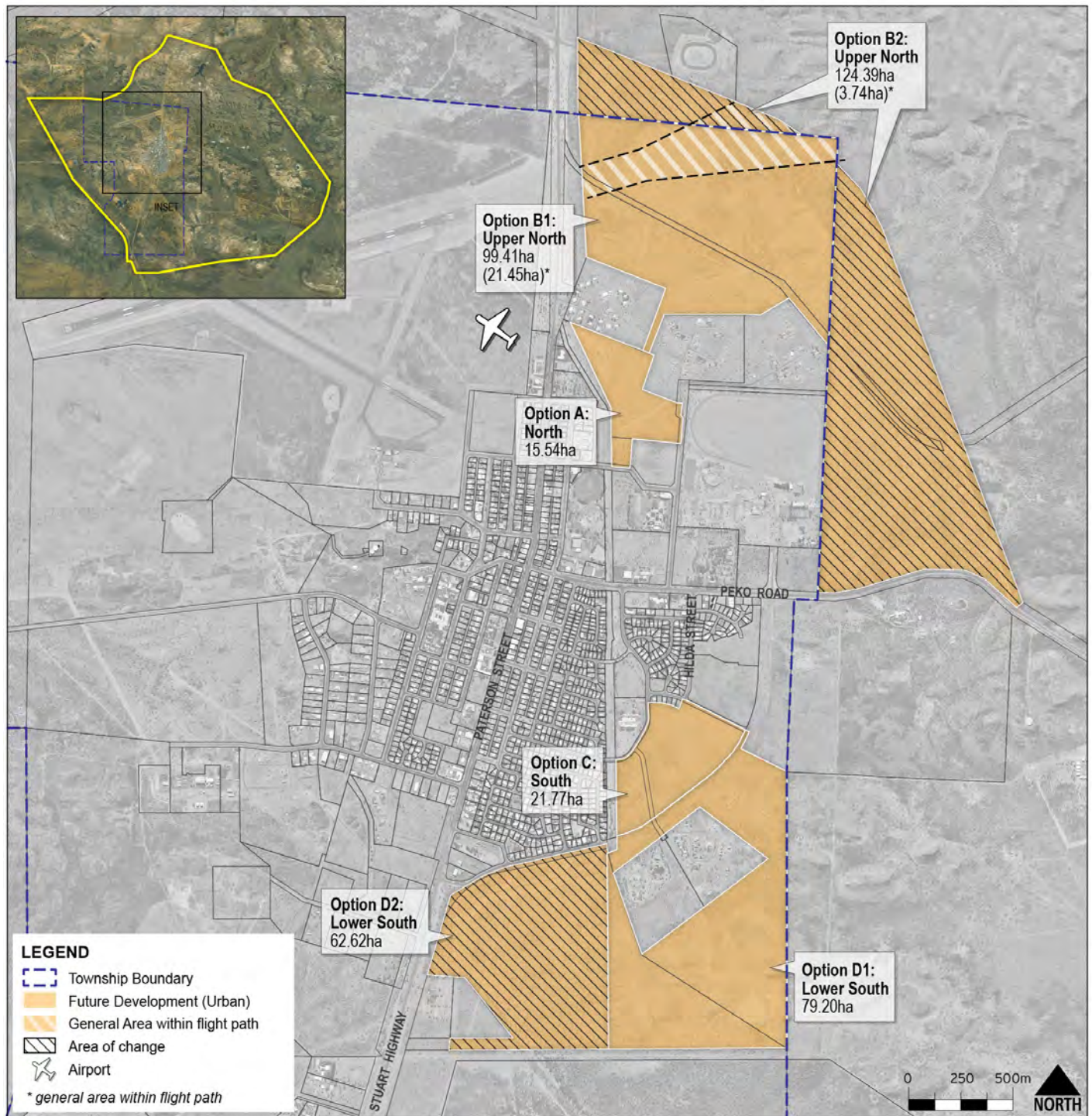
2.4 Greenfield Development

As the population of the region grows, the need to expand the footprint of the township will become more evident. Future development areas exist to the north-east and south-east of Paterson Street, both of which would represent an orderly expansion of existing urban residential development. The Plan recognises the role of greenfield development in providing the majority of future housing supply.

One area located immediately to the south of Peko Road and Hilda Street is already zoned for single dwelling residential use (Stage 2 of the Peko Road development), and comprises approximately 12.3 ha of land. A total of 22 allotments are to be released shortly on the northern portion of this site. The remainder of the site has a potential yield of up to 130 lots (based on a lot size ranging between 500 and 1,000 square metres). This could provide housing opportunities for up to approximately 400 persons, based on an average household size of 2.7 persons. It is envisaged that short to medium term residential growth will be accommodated in this area.

In terms of sufficient land to accommodate a population of 8,000 persons, it is considered that nearly all urban residential demand could be accommodated in zone FD areas and limited zone R/OR areas, located to the east of Paterson Street. Based on a conservative breakdown of land requirements for single dwellings and higher housing densities, these areas are shown on the Potential Future Residential Areas Map (Map 4).

Map 4: Potential Future Residential Areas



Option A North

This area is located between existing community living areas to the north, community and open spaces to the east and south, and residential uses to the west.

The area is approximately 15 ha located within Zone FD (Future Development).

This represents a logical and orderly expansion of the township on presently vacant land located in the vicinity of key community facilities, including the high school.

If developed, a detailed Area Plan will be required to guide the future development of the land.

Option B1 Upper North

This land benefits from two primary road frontages being the Stuart Highway and Kaczinsky Road.

The size of the parcel represents a significant residential expansion opportunity. Its location at the northern boundary of the township suggests that convenience retail may be warranted, of a scale which will not directly compete with Paterson Street.

Any potential interface issues with the airport, noting the absence of ANEF contours and, to a lesser degree, the speedway, will need to be further investigated.

A detailed Area Plan will be required to guide the future development of the land.

Option B2 Upper North and East

This comprises Zone R (Rural) and Zone FD (Future Development) land located within the Study Area, however external to the current town Municipal boundary.

As for Option B1, potential interface issues with the airport and speedway will need to be further investigated.

The land has access to both Kaczinsky Road and Peko Road and is in excess of 120 ha in area. This represents a significant long term urban expansion opportunity. Potentially the land could be developed for residential or rural residential uses.

A detailed Area Plan will be required to guide the future development of the land.

Option C South

The area forms a logical and orderly residential expansion of the existing urban form, particularly upon completion of Stage 2 Peko Road. The site is located within Crown land, is served by existing access roads, and would benefit from relatively convenient access to community facilities.

This option could potentially be one of the earlier parcels to be investigated for urban development and land release.

A detailed Area Plan will be required to guide the future development of the land.

Option D1 Lower South

The size of the parcel (approximately 79 ha) represents a significant residential expansion opportunity, and convenience retail may be required, of a small scale that will not directly compete with Paterson Street. It is also located within Crown land.

It is considered that this option should be progressed following the completion of Option C.

A detailed Area Plan will be required to guide the future development of the land.

Option D2 Lower South

The land is approximately 62 ha in area and is presently zoned OR (Organised Recreation). It is relatively contiguous to existing residential areas, however is located at the southern periphery of the existing urban area. In terms of sequencing it would potentially follow the development of Areas A and C.

A detailed Area Plan will be required to guide the future development of the land.

2.5 Rural Areas

Key Objectives for Rural Lifestyle Areas

- ▲ Ensure an adequate supply of land for rural living and rural development to meet market demand, whilst recognising the higher costs of servicing for these types of allotments.
- ▲ Preserve and enhance the region's environmental values, natural resources and agricultural/pastoral uses.

Zone R (Rural) comprises approximately half of the municipal area and extends beyond the township boundaries. Zone R (Rural) is within the Native Title Recognition Area.

Zone RL (Rural Living) contains large parcels that are underutilised or unutilised.

There has been low demand for rural allotments in the last 10 years, and it is therefore considered unlikely that there will need to be additional land required to accommodate such uses.

There may be potential to develop existing underutilised areas, however this should be further investigated in order to ascertain full development potential, including feasibility of local road networks and necessary infrastructure.

2.6 Commercial and Retail

Key Activity Centre Objectives

- ▲ Reinforce the primacy of Paterson Street as a regional retail and commercial centre.
- ▲ Encourage the redevelopment of underutilised or vacant parcels on Paterson Street for commercial and retail purposes.

- ▲ Identify opportunities for small scale retail development within or adjacent to future residential growth areas.

Paterson Street is the primary commercial and retail centre in the township and the wider Tennant Creek Region.

There is general development and redevelopment capacity in the commercial zones fronting Paterson Street to accommodate future commercial and retail uses.

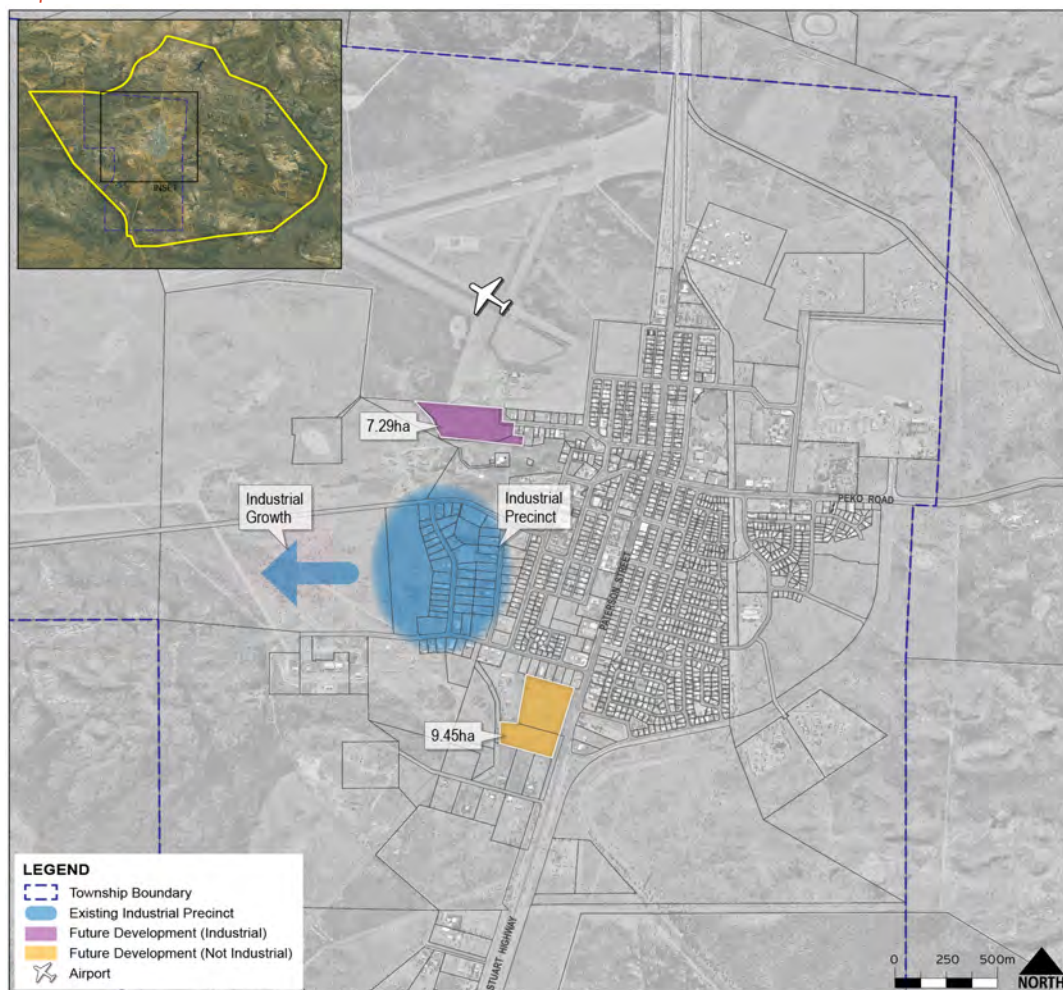
Future population growth may require residential development to expand further from Paterson Street, increasing the distance of residents from key retail and community services. There may therefore be an opportunity to accommodate small scale retail (such as a small convenience store) within or adjacent to future residential growth areas, that does not undermine the primacy of Paterson Street.

2.7 Industrial

Key Industrial Objectives

- ▲ Encourage industrial development to occur west of Paterson Street, as an expansion of the existing industrial precinct.
- ▲ Provide appropriately serviced industrial land in a timely, efficient and equitable manner.

Map 5: Future Industrial Areas



- ▲ Encourage a range of lot sizes to accommodate the different needs of the transport, logistics, storage and mining services sectors, together with industries serving the needs of local residents.

- ▲ Consider transport networks and connections to those, and identify an appropriate site for future investment as a Multimodal Facility and a common user mineral processing facility.

- ▲ Consider impacts on natural resources especially water supply.

- ▲ Consider impacts on power supply.

- ▲ Ensure adequate separation distances in relation to the Amadeus Gas Pipeline.

It has been identified that additional industrial land will be required in the future. The westerly expansion of the existing industrial precinct is considered to be the most orderly and logical industrial growth location due to a variety of factors, including land capability, servicing, interface considerations and prevailing winds from the east/south-east.

Available Crown land exists west of the existing industrial precinct, as well as south of the Tennant Creek Airport, as shown on Map 5.

This area also provides an opportunity for a range of general industrial and service related land uses which would benefit from being located within reasonable proximity of the railway, the airport and options for future by-pass routes.

Feasibility studies are being undertaken for a Multimodal Transport Freight Facility in association with a possible Tennant Creek to Mount Isa rail link. Several site options may be available including the existing railway freight handling area south of town and locations further afield outside the study area.

The NT Government is also investigating the feasibility of a common user mineral processing facility in Tennant Creek. A location near the railway station and /or the future Multimodal Transport Freight Facility may be the most appropriate location for such a facility.

2.8 Primary Industry

Key Primary Industry Objectives

- ▲ Protect land resources of potential importance to future economic development and self-sufficiency in the region by:
 - › identifying and protecting areas with potential for agriculture and in particular pastoralism; and
 - › protecting rural land from conflicting uses.

While the Barkly region in which Tennant Creek is located is considered to be the most productive area for pastoral production in the NT, the Tennant Creek District is also seen as a less productive area than the overall region, partly due to less rainfall. It has however been identified that Lot 1918 Juno Road was generally capable of agricultural development.

While the Tennant Creek Region has the potential to grow horticultural crops, water availability is likely to be a limiting factor for viable commercial horticulture.

No land capability data is available in relation to the Study Area. Investigations should be undertaken to identify potential land opportunities for agricultural activities.

2.9 Natural and Conservation Areas

Key Natural and Conservation Areas Objectives

- ▲ Retain the region's natural assets and ensure that future development is compatible with existing landscapes, vegetation and habitats.
- ▲ Minimise the impact of development on the natural environment during the construction phase and ongoing use.

- ▲ Recognise the role of vegetation corridors and watercourses, in providing interconnectivity of open space and protecting amenity, with due consideration given to firebreak requirements.
- ▲ Recognise the role of green space in reducing urban heat impacts and providing community amenity.
- ▲ Recognise the role of Lake Mary Ann as a significant recreational feature for the town.

Open spaces and conservation areas throughout the Tennant Creek Region have roles in protecting land and water resources, promoting the conservation of significant vegetation communities and wildlife habitats, and enhancing green infrastructure within the urban environment.

The Plan recognises the continued contribution of these areas to improving community well-being in arid settings.

Of relevance to the Study Area, the Conservation Zone incorporates some of the township's water tanks, and includes a network of tracks. While the conservation value of this parcel is unclear, more appropriate alternate uses are unlikely and it does not seem necessary to reallocate this parcel to other uses.

Whilst growth cannot be provided for without some impact on existing natural habitat, the plan encourages new development to maintain or provide urban green space in public and private areas including parks, street trees, landscaping and vegetation corridors, with due consideration given to necessary firebreaks as directed by the *NT Bushfires Management Act*.

2.10 Community Facilities and Services

Key Community Facilities Objectives

- ▲ Provide appropriate levels of community services and facilities, to cater for future population growth.
- ▲ Recognise the role of Tennant Creek as a regional centre and continue to support remote communities with adequate provisions of services and facilities, especially in the health sector.
- ▲ Maintain a high quality standard of community service provision through:
 - › appropriate provision and management of recreation facilities to encourage the involvement of residents in sport and recreational activity; and
 - › encouraging the co-location of recreation facilities with other community uses particularly schools to maximise potential for multi-use.

The provision of a range of facilities and services to meet the needs of local communities will assist in the creation of local character and identity that contribute to the creation of strong and healthy communities.

Education Facilities

It has been suggested that the existing primary school site is at capacity and that any future increased demands would require expansion of the school grounds.

Based on existing capacity of the school it is anticipated that it could meet projected enrolments for a population of 5,000 persons. Specific concerns were raised regarding the suitability of the current site for expansion in terms of its interaction with Paterson Street/Stuart Highway due to traffic, safety and amenity issues.

Beyond a population of 5,000 persons, an additional school would be warranted based on recognised standards. Potential exists to consider a new primary school and/or the relocation of the existing primary school in the future as part of any detailed area planning for new land release areas. In this context, it is also noted that there is available public land located adjacent to the existing high school. Further specific site investigations and consultations would be required in either case.

In respect to the Tennant Creek High School, the existing capacity is well beyond that projected for a population of 8,000 people. The land available on its current site can also accommodate additional buildings, should there be demand to support such expansion.

Child Care

There is an identified need to expand the existing child care service however this can be achieved within the existing site. Further services/facilities may be required as the town population grows. In addition to options for facilities on vacant Zone C land off Paterson/Ambrose Streets, future area planning and land release of growth areas may need to make provision for suitable land for such facilities.

Health Services

The Tennant Creek Hospital provides a range of services including accident and emergency services, general hospital services, specialist clinics and allied health services. The Anyinginyi Health Aboriginal Corporation (AHAC) is the second main health facility servicing Tennant Creek.

It is a community controlled multidisciplinary aboriginal health service. Services include general health, dental, women's health, diabetes clinic, rehabilitation services and other community support and social services.

Both the Tennant Creek Hospital and AHAC will retain a regional role in providing health services to remote aboriginal communities in the Barkly Region.

The location and size of the hospital is adequate to meet existing demand and is not envisaged to be expanded in the near future. Any future expansion is also likely to be accommodated within the existing site.

Aged Care

It has been identified that there is a shortage of residential aged care beds and generally of services and care for aged people. The existing Pulkapulkka Kari Nursing Home could be expanded, or land could be identified for an additional residential aged care facility. In a spatial sense, given the nature of residential aged care, this would ideally occur adjacent to the hospital site, where a range of allied health services exist.

Active Recreation

There are two key recreation and sporting reserves in Tennant Creek. These are identified on Map 6 and include:

- ▲ Jubilee Park, which includes the showgrounds, racetrack and horse club; and
- ▲ Purkiss Reserve, which includes:
 - › the Tennant Creek Swimming Pool;
 - › 3 sporting fields/diamonds (1 AFL, 1 baseball, 1 softball);
 - › 2 tennis courts and 2 basketball courts;
 - › Lawn bowls;
 - › Gymnasium and fitness centre; and
 - › A skate park.

The Purkiss Reserve underwent a master planning exercise (completed in 2016) which seeks to rationalise the 9.6 ha facility. The Master Plan will fully utilise the existing space with no additional land to expand.

The primary school site also shares its sporting facilities with the community after school hours. This is a well-established use and should continue.

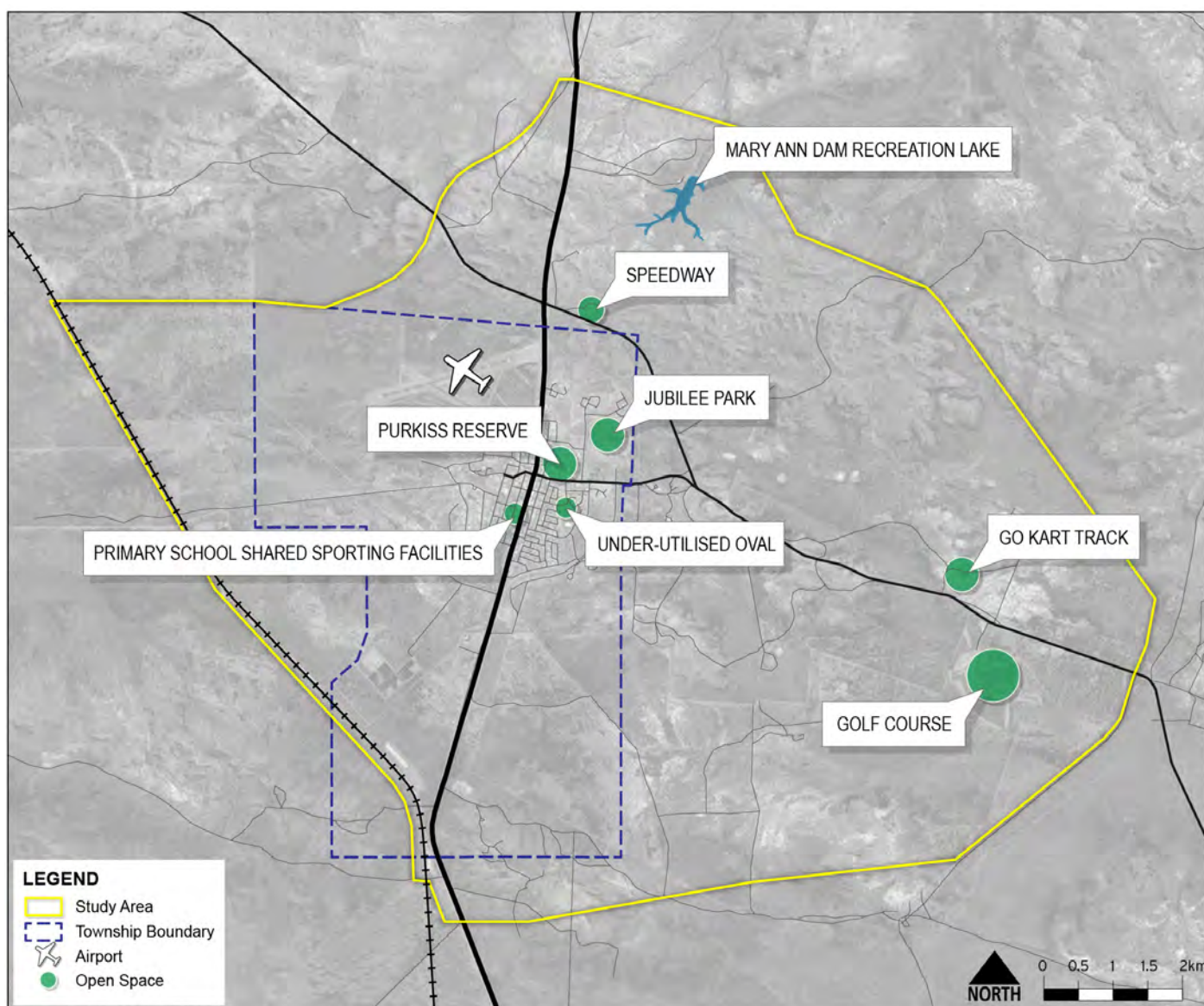
A speedway, golf course and go kart track also exist within the Study Area, noting that the golf course is within unzoned land.

The Mary Ann Dam Recreation Lake is located approximately 5 km north of the town, and is a recreational feature that is popular for both residents and visitors. It is a man-made dam and provides various amenities including shelters, barbecue and picnic facilities.

It is proposed to repurpose Zone OR adjacent to Weaber Road to Zone FD. This will provide more flexible use of the land, noting:

- ▲ the existing range of recreational and open space facilities provide sufficient capacity to service an 8000 population;
- ▲ it is anticipated that future detailed planning for land release will include open space integrated with other neighbourhood facilities.

Map 6: Recreational Areas



As the population continues to grow, there will be an increased demand for additional facilities. It is anticipated that over time there will be a need for a new soccer field as well additional play spaces, based on theoretical population triggers, and based on an 8,000 person population. Their location will depend on the location of future population growth areas, however an underutilised oval north of the Barkly Regional Arts Centre on Staunton Street could be used for a range of sports including soccer. This oval is shown on Map 5.

Detailed planning for future residential growth areas will focus on opportunities to collocate local sporting facilities with other community facilities, particularly schools. This approach encourages multi-use and increased activation of local areas.

2.11 Infrastructure

Key Infrastructure Objectives

- ▲ Protect potable groundwater sources, including the Kelly Well and Cabbage Gum aquifers.
- ▲ Plan future residential growth areas with due consideration to infrastructure requirements, in relation to water, sewer and power.
- ▲ Identify and protect separation distances in relation to the Amadeus gas pipeline, servicing the power station.
- ▲ Monitor the existing landfill facility and plan for its future expansion.
- ▲ Address the dual role of Paterson Street as a national highway and as a main street.

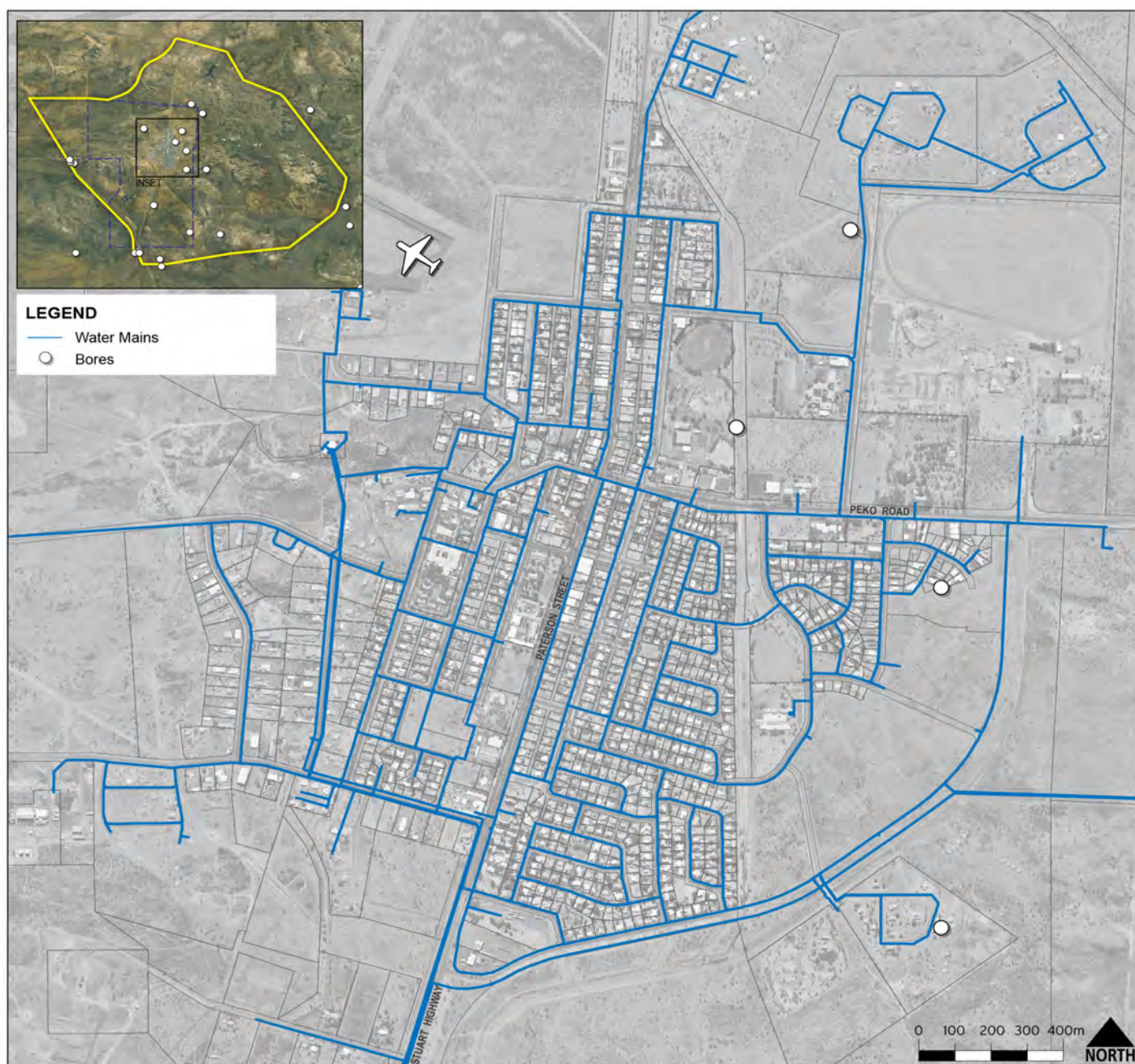
2.12 Essential Services Infrastructure

Water Supply

The Kelly Well and Cabbage Gum aquifers are the source of the town's potable water supply. These aquifers are sufficient for a population of up to 5,000 persons. New bores are planned in the coming years to replace infrastructure in the existing borefields to ensure a more efficient supply.

Further investigations are required to ensure an adequate supply of potable water and reliable reticulation service for a population up to 8,000 persons. It is anticipated that future infrastructure requirements would include the provision of additional bores, a transfer pump and a 500 kL storage tank. The Water Reticulation Map (Map 7) shows the reticulated water network in Tennant Creek.

Map 7: Water Reticulation



Map 8: Sewer Reticulation



Sewerage

The existing sewerage system is likely to service an 8,000 person population. It is anticipated that a slight overload may be generated to the design capacity of the system, but without significant risk to the operational efficiency of the system.

Additional treatment and evaporation ponds will be required to service population growth, which can be accommodated within the existing Utilities Zone boundaries.

The Sewer Reticulation Map (Map 8) shows the reticulated network in Tennant Creek. The available capacity across the network and further development in future residential greenfield areas will depend upon specific and detailed investigations.

Electricity

In 2017, the Tennant Creek substation was upgraded to 22kV. Further upgrades will be required to service a population of 5,000 and 8,000 persons, and these physical works are likely to be accommodated within the existing facility with the incremental addition of further generation units subject to demand. The potential also exists for a substantial solar farm within portion or adjacent to the existing power station site.

Population growth is not the only consideration in respect to system capacity requirements. The existing system is small, and any major non-residential development would have significant impacts and should therefore be planned in consultation with Power and Water Corporation.

Gas

The Amadeus gas pipeline is located west of the township and transports natural gas to Darwin, Alice Springs and regional centres, principally to fuel power generation. It is owned and operated by APA.

The pipeline currently traverses rural land before it reaches the power station. Should the township expand further to the west, separation distances should be ascertained in relation to the pipeline, in order to ensure that risk to people, property and the environment is within acceptable levels.

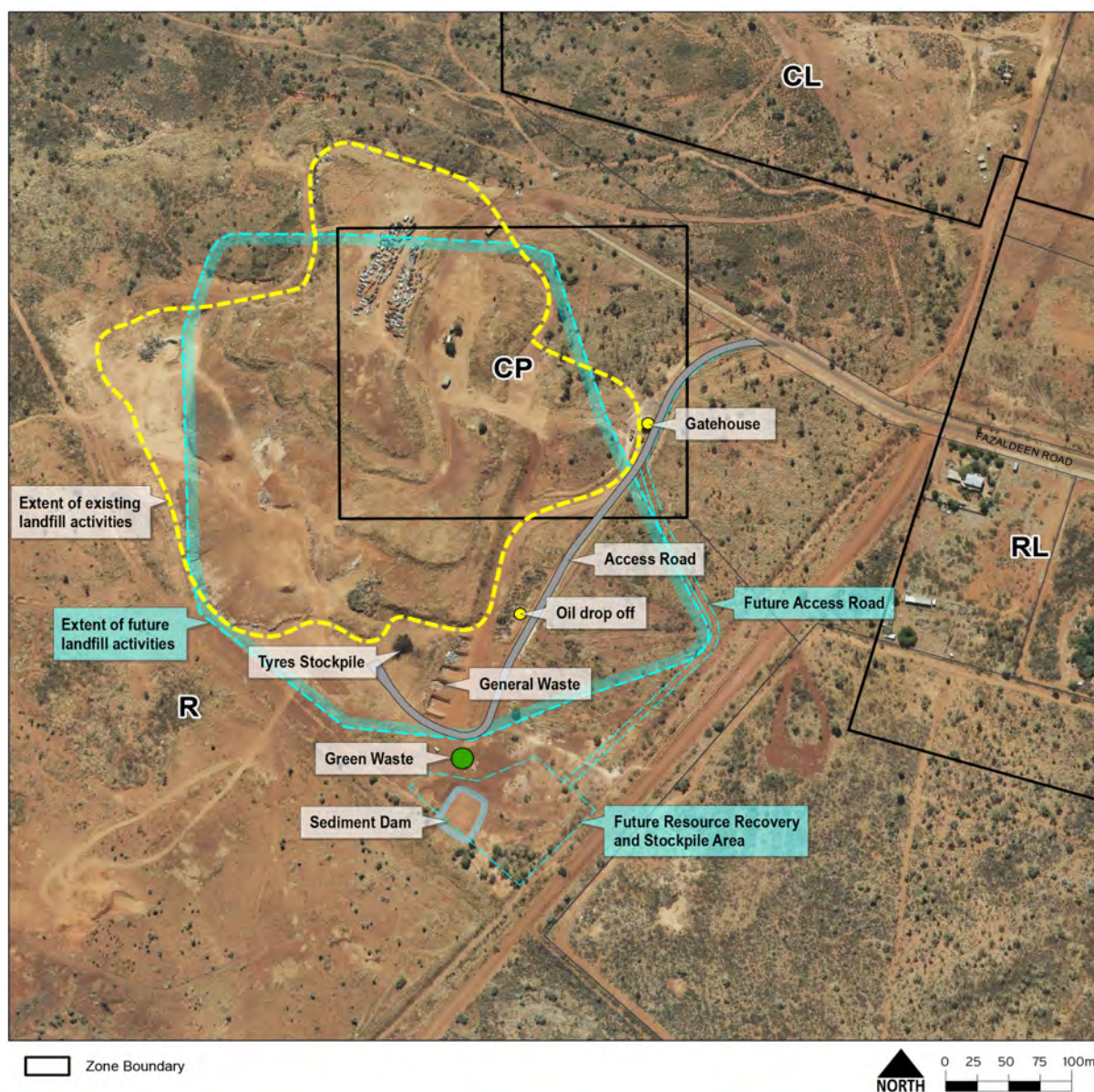
A separation distance of 100 metres has been indicated by the APA as a preference for all urban development, including residential, industrial, community infrastructure and facilities.

The creation of roads over pipeline easements should also be avoided, where possible.

Waste

The existing Tennant Creek Landfill facility is owned and operated by Barkly Regional Council and is located on Fazaldeen Road south-west of the Tennant Creek Township (Lot 1006). The existing landfill facility currently operates outside of the Community Purpose Zone. A Master Plan has been prepared, with a concept future landfill form spreading beyond the boundaries of the Zone, as shown on the Future Landfill Extent Map (Map 9). It is likely that the boundary of the existing Community Purpose Zone will need to be amended to reflect the spatial extent of the existing landfill.

Map 9: Future Landfill Extent



2.13 Transport Infrastructure

Road

As shown on the Transport Map (Map 10), Tennant Creek is bisected by the Stuart Highway (Paterson Street). It has capacity to accommodate very large vehicles, including triple road trains.

The primary planning issue in relation to road networks relates to the conflict between general activities within the town centre, particularly adjacent the main street area, and the large commercial vehicles which travel through Tennant Creek, which was also identified during consultation.

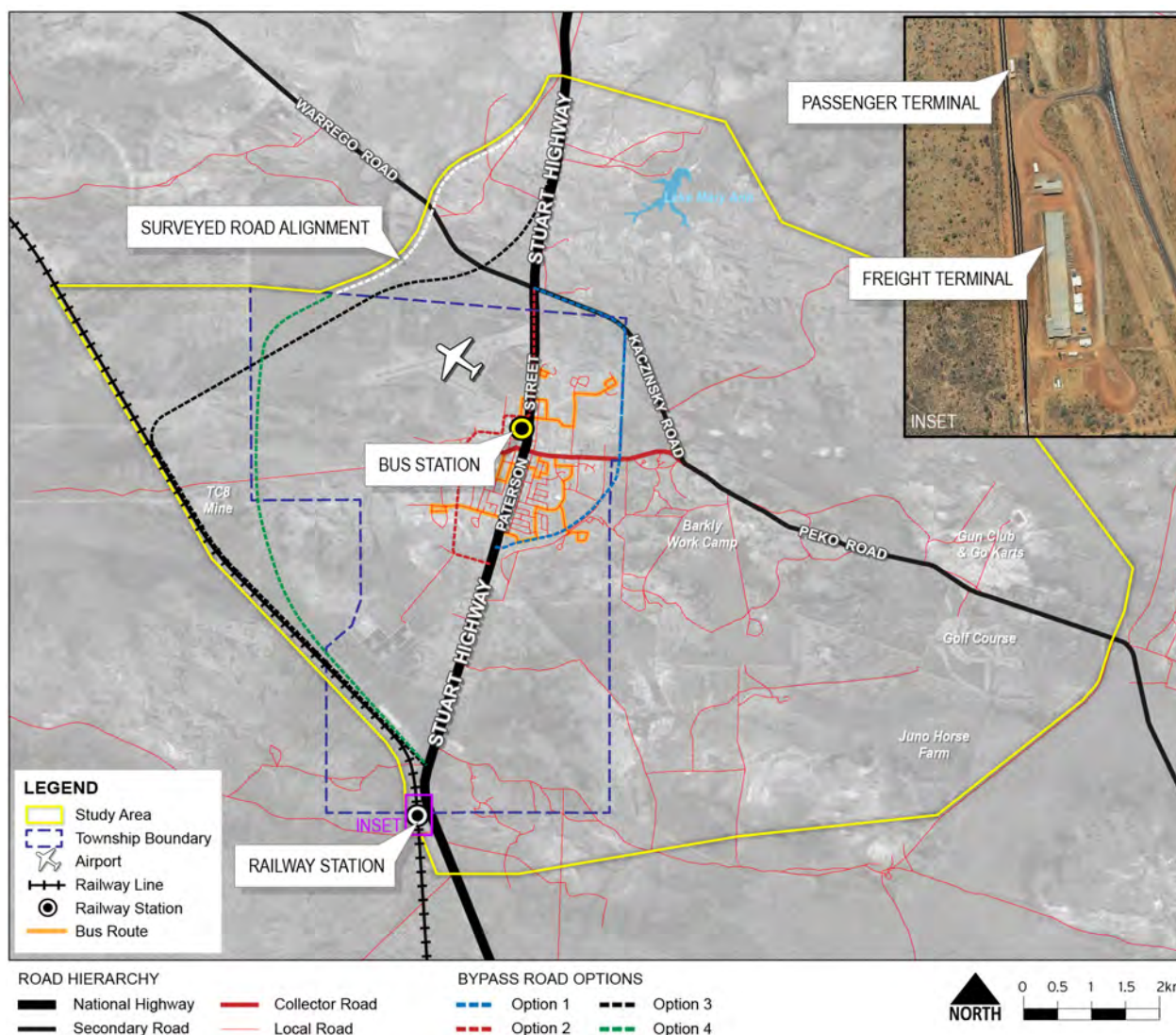
The establishment of a heavy vehicle bypass has been previously identified as beneficial from a road safety perspective. Map 10 shows a number of options although these would require further detailed investigation. While a preferred alignment has not been agreed to the draft plan identifies Option 4 which aligns with an existing survey route through the hills to the north of town.

The establishment of a bypass has been perceived by DIPL as beneficial from a road safety perspective, although the provision of such will need to be balanced with other considerations such as including potential economic impact on the township arising from the diversion of traffic.

Other issues exist which affect the local traffic within the township, and could potentially be managed in the following manners:

- ▲ Upgrade of the Peko Road/Paterson Street intersection to include a treatment which provides for greater traffic and pedestrian safety;
- ▲ Modification of the access for the weighbridge (the current access is not visible to drivers which results in drivers using a residential street);
- ▲ Development of a pedestrian network between key facilities; and
- ▲ Modification of the parking in Paterson Street to comply with Australian Standards.

Map 10: Transport



Public Transport

The Tennant Creek Community Transport system provides a fixed bus route service five days a week.

A new door-to-door service has been implemented, in addition to the fixed route. This service is open to the general public but is also used to carry NDIS participants as an approved NDIS provider. Services are also provided for clients of the Commonwealth Home Support Program (for frail older people). The Taxi Subsidy Scheme also provides discounted services to members, and is funded by the NT Government.

Rail

Tennant Creek is served by the Adelaide to Darwin railway line, located adjacent the Stuart Highway. The location is located approximately 3.5 kilometres south of the township, and includes a passenger terminal and a freight terminal .

Three factors might impact on the operations of the railway station:

- ▲ Mount Isa to Tennant Creek Railway project;
- ▲ Common user mine processing facility;
- ▲ Multimodal Transport Freight Facility.

Careful planning should be undertaken in order to understand the impact on the existing station, and potential requirements for a reconfiguration and/or relocation of the facility.

Connectivity between the passenger terminal and the township should also be considered, should visitor numbers significantly increase. This could include a form of bus service which transports travellers arriving at the railway station to Patterson Street or key places of accommodation.



Air

Tennant Creek is serviced by the Tennant Creek Airport. The land within the airport is largely undeveloped and has recently been zoned "Specific Use T1" to allow for both aviation and non-aviation uses. The airport is not subject to Commonwealth Planning controls.

Land use planning decisions should take into account both noise contours and the location of flight paths. Whilst noise contours are not available for the Tennant Creek Airport, it is known that the flight path extends over existing FD (Future Development zoned) land, east of the Stuart Highway, which has been identified as potentially suitable for future residential development.

For airports servicing light aircraft, a typical 'corridor' of influence would be approximately 150 metres wide extending up to 300 metres in length from the end of the threshold, before splaying out by 10 degrees for another 500 metres. Such a template has been adopted to consider implications on FD zoned land, noting that such is indicative and would need to be reviewed through more detailed investigations.





3. *CONTEXT AND BACKGROUND*

3. CONTEXT AND BACKGROUND

Tennant Creek is the principal service centre for the Barkly Region, which covers an area in excess of 300,000 square kilometres. It is located approximately 1,000 kilometres south of Darwin, 675 kilometres south of Katherine and 500 kilometres north of Alice Springs.

Tennant Creek plays a key role in the Barkly Region and the Northern Territory, particularly in relation to transport and logistics as well as the provision of administrative, government, social and health services. The Barkly, and Tennant Creek, are also a cultural centre for many Aboriginal people from various language groups.

A number of factors affect the options available to accommodate future growth. These include the natural environment, cultural influences and the efficient provision of infrastructure to support future growth.

This section of the plan summarises elements that affect the planned land use structure and outlines policies that will guide more detailed planning and land use decisions.

3.1 The Past

Aboriginal people have lived in the Barkly region for over 40,000 years. Around nine Aboriginal groups reside in the Barkly region, including the Warumungu, Warlpiri, Kaytetye and Alyawarra peoples.

In 1860, Tennant Creek was named after John Tennant, a pastoralist from Port Lincoln (South Australia) who provided financial help for John Mc-Douall Stuart's exploration expeditions across Australia. The Overland Telegraph was constructed in the 1870s, and a temporary telegraph station was established near Tennant Creek in 1872. The telegraph station was reinforced in a solid stone building in 1874.

Tennant Creek was the town of Australia's last gold rush during the 1930s and the gold industry became the primary economic driver at that time.

Tennant Creek was declared a town in 1934.

3.2 The Present

Tennant Creek is characterised by a transient population with relatively high levels of migration into and out of the township. Population growth levels tend to fluctuate between Census periods, with the Estimated Resident Population estimated at 3,662 as at 30 June 2016.

Just over half of the Tennant Creek population is of Aboriginal background. Aboriginal culture has traditionally shaped Tennant Creek and the Barkly Region in general. In 2008, the Town

of Tennant Creek Indigenous Land Use Agreement (ILUA) was agreed between the Central Land Council, the Northern Territory of Australia and the Patta Aboriginal Corporation, thereby recognising the Patta Warumungu as native title holders of approximately 27 square kilometres of land. The purpose of the agreement was not only to recognise rights under the traditional laws and customs of the Patta Warumungu people, but also to allow for the future development of the Tennant Creek township. Native title was therefore surrendered in parts of the town to provide for future development opportunities.

Strategic and technical investigations that supported previous long term planning of Tennant Creek have been reviewed as part of the Background Investigations Report which has informed this land use plan.

3.3 The Future

Threshold populations of 5,000 and 8,000 persons have been adopted to guide the identification of land required to accommodate growth in the short and longer term.

The fundamental growth factors to be considered in planning for the future are population and economic growth potential. Population growth drives residential land development, and has a strong influence on retail floor space expansion and light industrial land development. Economic growth contributes to these same areas, as well as general and strategic industrial land development and commercial floor space growth.

Planning targets based on projected population is a flexible approach which enables responses to needs which may emerge in order to facilitate investment in infrastructure and land development for housing, industry, commerce and community facilities.

Based on previous Census data, in excess of 50% of the population is of Aboriginal background. This significant contribution has implications in terms of future housing demand including affordable housing, as well as employment, education, health and social services.

Residential Development

Additional population will increase the demand for housing. An additional 1,338 persons (for a total of 5,000 persons), will generate a gross demand for 495 dwellings, based on the current occupancy rate of 2.7 persons per household. A further 3,000 population (for a total of 8,000 persons) will generate a gross demand for 1,111 additional dwellings. Given the historically stable characteristics in respect to the age profile and household formation, the predominance of single dwellings is expected to continue and be reflected in the demand for residential land.

Single dwellings on large allotments do not represent the most efficient use of land, resulting in a lower yield per hectare as compared to other housing forms, such as medium density housing in the form of flats and apartments. Further, given the relatively compact urban form, infill opportunities for urban residential development are limited in Tennant Creek. This has implications in respect to the urban footprint and form of the future residential areas going forward.

It is anticipated that most multiple dwelling development will be provided in locations appropriate to the orderly expansion of residential areas, taking into account the proximity of public open space, community services and neighbourhood retail.

On the assumption that future housing will be established generally in accordance with the existing housing mix, Table 3.1 identifies the additional dwellings by type, anticipated to accommodate the future population growth in Tennant Creek.

Table 3.1 Projected Dwelling Demand by Type

Demand for additional dwellings	Population threshold of 5,000	Population threshold of 8,000
SD	396	890
MD	83	187
Rural	15	33
Total additional dwellings	495	1,111

* numbers have been rounded and therefore may not add up

Associated land requirements are identified by Table 3.2. This includes land requirements for infrastructure.

Table 3.2 Residential Land Requirements for Additional 1,338 population

Zone	Land for dwellings	Total land required	Total residential zoned land available	Supply gap
SD	47.9 ha	59.8 ha	16.4 ha	-43.4 ha
MD	13.8 ha	17.25 ha	6.4 ha	-10.85 ha
Rural Living	2.8 ha	3.5 ha	551 ha	+547.5 ha

A future population of 5,000 persons will theoretically trigger additional demand for approximately 54.2 ha of SD (Single Dwelling) and MD (Multiple Dwelling) zoned land, as presented in Table 3.2. It is evident that there is sufficient supply of rural living land to accommodate projected future demand.

Further to the land requirements to accommodate an additional 1,338 persons, as identified in Table 3.2, a population increase of 3,000 persons (to reach 8,000) will trigger the land requirements identified in Table 3.3. It is evident that a future population of 3,000 persons will theoretically trigger additional demand for approximately 173 ha of SD (Single Dwelling) and MD (Multiple Dwelling) land.

Table 3.3 Additional Residential Land Requirements for Additional 3,000

Zone	Land for dwellings	Total land required	Total zoned land available	Supply gap
SD	107.7 ha	134.6 ha	0	-134.6
MD	30.9 ha	38.6 ha	0	-38.6 ha
Rural Living	6.6 ha	8.25 ha	547.5	+539.25 ha

Land requirements for a total population of 8,000 persons are identified in Table 3.4. It is evident that approximately 227 ha of additional land is required.

Table 3.4 Total Residential Land Requirements for 8,000 Population

Zone	Total land required	Total zoned land available	Supply gap
SD	194.4 ha	16.4ha	178 ha
MD	55.8 ha	6.4 ha	49.4 ha
Total	250.2 ha	22.8 ha	227.4 ha

The Plan identifies a number of locations to potentially accommodate future residential development. These are shown on Map 3 on page 11. Urban areas identified by the land use plan include infill options in the township and ongoing development at Peko Road. Future growth areas include land to the east of Paterson Street, north and south of existing urban areas.

Table 3.5 provides a summary of these future potential suitable greenfield residential areas. These areas include current FD (Future Development), R (Rural) and OR (Organised Recreation) Zone land. The calculated area within the Future Development Zone excludes land generally identified within the flight path of the airport.

Table 3.5 Summary of Future Potential Residential Areas

Area	Size (ha)
FD land	
Option A North	15.54
Option B1 Upper North	77.96
Option C South	21.77
Option D1 Lower South	79.20
Total FD land	194.47
Rural Land	
Option B1 Upper North	120.65
Total Rural land	120.65
Organised Recreation Zoned Land	
Option D2 Lower South	62.62
Total OR Zoned land	62.62
Existing vacant zoned SD/MD land	16.3
Vacant Community Zone parcel	4.04
Total	398.08

The whole of the existing land zoned residential and land zoned FD, located east of Paterson Street will therefore likely be required to accommodate future residential growth. Vacant land also exists within Community Living Areas which may represent an additional residential supply.

The existing 210 ha of land that are zoned SD, MD or FD will almost service the land requirements for an 8,000 person population, noting a projected need for 250 ha. A further 66 ha of land (vacant CP and OR parcels) could also support future residential development.

Similarly, approximately 120 ha of rural land is located external to the township boundary, although such is not likely to be required for residential uses at this stage.

The timing of development of residential land within the land use structure established by this plan will be influenced by future infrastructure investigations and the preparation of Area Plans for individual localities.

Commercial Development

The Tennant Creek Land Use Framework that was introduced in the NT Planning Scheme in 2013 included the following principle:

Affirm the primacy of the existing business hub on Paterson Street with convenience shopping needs being supported by future neighbourhood facilities of limited floor space as required

Paterson Street is the major commercial area of the town and should undoubtedly remain the primary focus for retail and commercial uses.

Based on existing floor space provision and using the Shopping Centre of Australia's standard ratios, it is considered that theoretically, the existing retail floor space should suffice to cater for a population of 8,000 persons and beyond.

Notwithstanding, the existing retail offering provides a limited range of goods. An increased population will generate further demand for more variety and quality retailing in all sectors (food, non-food, speciality retail, bulky goods).

Additional retail floor space could therefore be required.

Approximately 1.97 ha of the existing Commercial and Service Commercial Zoned land contains unoccupied tenancies or vacant land that could be redeveloped for retail purposes.

It is also noted that only approximately 25% of the combined Commercial and Service Commercial Zones are presently used for retail purposes. Capacity therefore exists for non-conforming uses to be displaced should demands warrant.

While the primacy of Paterson Street should be retained and reinforced, it has been identified that future population growth may occur in areas identified for future development located further to the north-east and south-east. Land may therefore also be required in future residential growth areas to accommodate small scale convenience retail, or connections to Paterson Street may need to be optimised.

Social Infrastructure

Background investigations have identified that additional land may be required for the following uses:

- ▲ Primary school (relocation/expansion of the existing facility);
- ▲ Retirement living/residential aged care; and
- ▲ Passive and active open space.

The location of these, and particularly open space, will depend on the location of future population growth areas.

As previously noted, the Tennant Creek Land Use Plan seeks to ensure that the primacy of Paterson Street be retained and reinforced. However, future population growth may occur in FD (Future Development) areas located further to the north-east and south-east. Land may therefore also be required in future residential growth areas to accommodate public open space or other social infrastructure considered desirable. Future area planning and zoning will help to confirm final yields, open space and other social/community infrastructure requirements.

The 67.66 ha OR (Organised Recreation) zoned parcel located south of the township (Option D2 on Map 10) could be used for multiple purposes. The future expansion of the cemetery is anticipated and designated Community Purpose (CP). The balance is proposed to be designated as Future Development (FD) and could be considered as part of future residential land supply.

Industrial Development

Ongoing and future projects of regional and national importance, particularly in the mining or transports/logistics sectors may have repercussions on growth in general and on strategic industrial development in Tennant Creek.

Population growth will have the strongest influence on the growth of building, construction, light and service industries, such as hardware, building supplies and auto repairs.

The existing proportion of blue collar workers in Tennant Creek is approximately 27.8%. A population of 5,000 persons would theoretically represent an additional blue collar workforce of 142 persons, and a population of 8,000 persons would represent an additional blue collar workforce of 320 persons.

Based on a general rate of 15.7 industrial jobs per hectare, Table 3.6 identifies the following industrial land demand for each population threshold. It is evident that 29 hectares is anticipated to be required to service a 8,000 person population

Table 3.6 Estimated Industrial Land Demands

Future industrial employment	Population threshold of 5,000	Population threshold of 8,000
Workforce (number of jobs)	142	320
Land equivalent (ha)	9	20

An industrial precinct currently exists west of Paterson Street. Existing vacant industrial land in the order of 13 ha is available.

An additional 16 ha of land should theoretically be sourced to address future industrial demand. The existing two FD parcels located west of Paterson Street (refer Existing and Future Industrial Areas - Map 4) provide a combined area of approximately 16.7 ha of industrial land development opportunities. This could be assigned for industrial purposes and therefore address the estimated demand (16 hectares).

However the preferred location for industry is influenced by a variety of factors, including land capability, servicing and interface considerations.

Light industries typically require localities adjacent the township. General industries are more likely to be attracted to localities which are either close to major transport networks or, key infrastructure and are removed from potentially conflicting uses. In the case of Tennant Creek, Paterson Street acts both as the major transport network and town centre for residents.

Consequently, it is considered that the 9.45ha parcel of FD (Future Development) zoned land located in the southern portion of the township would be better suited to urban uses, as compared to industrial, for the following reasons:

- ▲ This parcel directly adjoins a community living area;
- ▲ This parcel forms a primary entrance to the township, with industrial uses likely to create a less appealing visual appearance; and
- ▲ Future industrial uses would form a natural expansion of the existing, larger, industrial precinct to the west of Brown Street.

A second parcel located adjacent the airport (7.29 ha) is considered to represent a valid opportunity for industrial uses. Based on the above, additional land would need to be sourced to accommodate at least 8.71 ha (16 ha - 7.29 ha=8.71 ha).

Additional demand for industrial land can be accommodated on land located to the west of the existing industrial precinct.

Such future westerly expansion will be able to accommodate at least 8.7 hectares and beyond, should demand warrant.



3.4 Development Structure Opportunities and Constraints

The Service Infrastructure Map (Map 11) identifies the extent of current reticulated services to give indication of where initial investigations for future development should be focused. Normal land use and infrastructure planning is the appropriate mechanism for site-specific evaluation to minimise adverse physical or environmental constraints.

Gas Pipeline

There is a level of risk that exists when considering land use and development of land in the vicinity of pipelines, and planning needs to ensure that risk to people, property and the environment is within acceptable levels. A failure can impact an area several hundreds of metres from a pipeline.

A separation distance, referred to as 'Measurement Length' in relevant standards, represents the heat radiation zone associated with a full-bore pipeline rupture. APA is mandated to consider community safety in the ML due to the high consequences of pipeline rupture to life, property and the economy. The APA Group has advised that a separation distance of 100 metres was preferred for all urban development, including residential, industrial, community infrastructure and facilities.

The land currently within the Measurement Length area is zoned Rural and also comprises rural residential uses, and is therefore classified "rural residential" for APA purposes. Should this classification change, a Safety Management Study will be required to identify all risks associated with the change in land use and set out mitigation measures.

The APA has also advised that it is their preference that roads being constructed over pipeline easements be avoided wherever possible. The creation of roads over pipeline easements could result in the following issues:

- ▲ Loss of control over easement area which has been secured through a legally enforceable easement agreement.
- ▲ Increased potential for external interference with the pipeline due other parties utilising the road reservation for infrastructure (water, sewer etc.) over or around the pipeline.
- ▲ Increased difficulty accessing the pipeline due to the need for access approval from Council or other roads authorities.
- ▲ Increased cost in accessing the pipeline due to the need to make good a road reserve.
- ▲ Loss of ability to duplicate or loop the pipeline in the future.

Heritage

Three sites in the township of Tennant Creek are listed on the NT Heritage register:

- ▲ Tennant Creek Hospital Outpatients Department;
- ▲ Tennant Creek Catholic Church (Christ the King); and
- ▲ Old Postmaster's Residence (behind the Post Office across Thompson Street).

Battery Hill Mining Centre

The Battery Hill Mining Centre represents a considerable portion of zoned land in the township. It is the one of the key tourism attractions in Tennant Creek and contains the Barkly Visitor Information Centre. Opportunities exist to expand tourism and commercial uses within the Tourist Commercial Zone where the site is located.

Tennant Creek Airport

The airport represents a large portion of land to the north-west of the township.

In 1998, Airport Development Group (ADG) acquired a 50-year lease, with a further 49-year option for the three FAC controlled Northern Territory airports. ADG owns 100% of Northern Territory Airports Pty Ltd (NTAPL) and Tennant Creek Airport PL.

The Tennant Creek Airport is a largely undeveloped site, currently zoned "Specific Use T1" and is therefore subject to specific planning scheme controls. The Zone delineates aviation related uses as permitted and a range of non-aviation uses as discretionary. The *Airports Act 1996* does not require that a Master Plan be prepared for the Tennant Creek Airport.

The Australian Noise Exposure Forecast (ANEF) system uses contours to show where cumulative aircraft noise may adversely affect land uses. In association with Australian Standard 2021-2000 (AS 2021), it provides guidance for the siting and construction of buildings to minimise aircraft noise intrusion. The ANEF contours indicate those areas affected to varying degrees by aircraft noise.

Tennant Creek Airport has advised that it does not have an ANEF. With a maximum of six flights, all operated on the same three days of the week, Tennant Creek receives a low level of regular passenger activity, with aircraft generally under 50 seat capacity.

In addition to the above, the *Airports Act 1996* and the Airport (Protection of Airspace) Regulations declare prescribed airspace and give statutory protection from intrusion into this airspace.

Land use planning decisions should take into account both noise contours and the location of flight paths. Whilst noise contours are not available, it is known that the flight path extends over existing FD land, east of the Stuart Highway, which has been identified as potentially suitable for future residential development.

For airports servicing light aircraft, it is typical for a 'corridor' of influence approximately 150 metres in width and extending up to 300 metres in length from the end of the threshold, before splaying out by 10 degrees for another 500 metres. Such a template has been adopted to consider implications on the FD (Future Development) zone land, noting that such is indicative and would need to be reviewed through more detailed investigations.

Transport and Infrastructure

Tennant Creek is bisected by the Stuart Highway (Paterson Street) which has an annual average daily traffic volume of 4,000 vehicles with a commercial vehicle percentage of approximately 3%. This national highway is the primary connection between Adelaide and Darwin and has capacity to accommodate very large vehicles, including triple road trains.

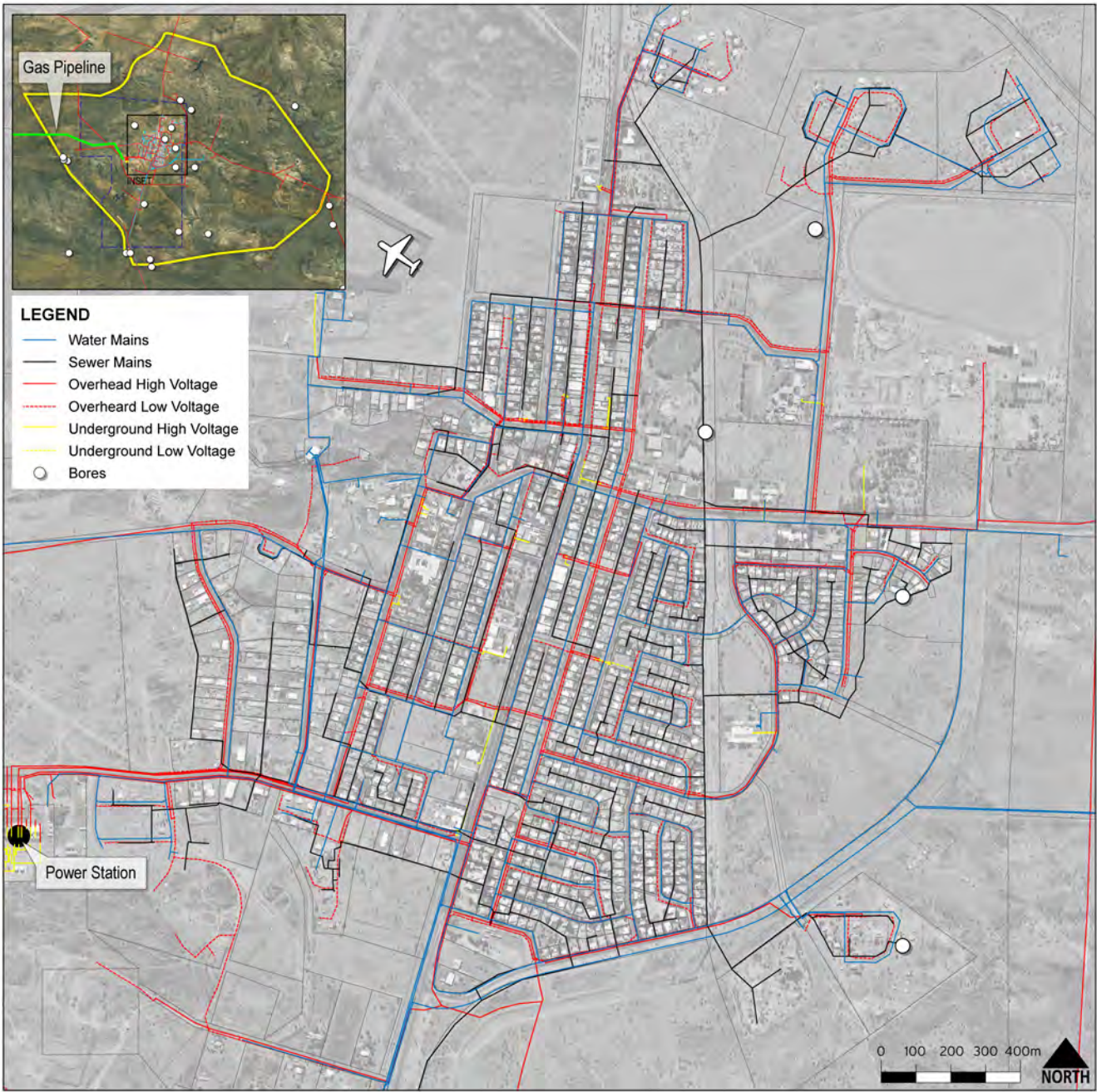
Peko Road is a collector road which travels east from Paterson Street. It carries approximately 2,550 vpd (vehicles per day).

Traffic volumes are generally low within the Tennant Creek Township although a traffic study prepared by Cardno in 2016 identified a number of capacity and safety issues which are perceived by the community. The issues identified are localised, relating to pedestrian safety and intersection treatments, and do not impact the broader transport planning principles for the township.

The primary issue in respect to transport planning relates to the perceived conflict between general activities within the town centre, particularly adjacent the main street area, and the large commercial vehicles which travel through Tennant Creek.

Feasibility studies are being undertaken for a Multimodal Transport Freight Facility in association with a possible Tennant Creek to Mount Isa rail link. Several site options may be available including the existing railway freight handling area south of town and locations further afield outside the study area.

Map 11: Service Infrastructure





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