



Shire of
Serpentine
Jarrahdale

Mundijong District Structure Plan

Infrastructure and Servicing Strategy

February 2025



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Introduction

The Mundijong District Structure Plan (DSP) area is shown in Figure 1 below. The DSP area is expected to experience rapid population growth, with a projected population of approximately 58,000 people by 2051. Dwelling projections within the DSP area are projected at approximately 20,000 at full build out. This rapid population growth will therefore result in an increased demand and load requirements for utility infrastructure such as water, gas, and telecommunications. There are currently deficiencies in the provision of these utilities, particularly sewerage and power infrastructure.



Figure 1. Mundijong District Structure Plan area

Water

Urban lots created through future subdivision within the Mundijong District Structure Plan area are required to establish a connection to a reticulated water supply. This connection is to be imposed through a condition of subdivision approval and is to be established at the cost of the developer. Standard Water Corporation headworks fees will apply for new lots created through subdivision.

The Mundijong District Structure Plan area falls within the Water Corporation area for the provision of reticulated water, within the long-term water supply planning for the Mundijong Gravity Water Supply Scheme.

The main water supply to Mundijong is currently supplied off the Serpentine Trunk Main on Summerfield Road to the south of the study area, shown in Figure 2 below. In 2019/2020 the Water Corporation completed the construction of a large (600mm diameter) distribution main along Patterson Rd to augment supply for the growing Whitby subdivision, and for the anticipated growth in other parts of the Mundijong DSP area. There is now an established water connection to many areas of Mundijong, particularly the established residential areas and Whitby Estate, as shown in Figure 3 below. Future subdivisions will be required to extend water reticulation mains of adequate size (likely 250mm diameter) from the distribution main to the subdivision. Future subdivision can be serviced through the establishing of an extension from this existing infrastructure, along road reserves.

It should be noted, however, that upper thresholds of the Mundijong/Whitby urban area will not be able to be serviced above approximately 65m AHD. Consistent with Perth and Peel @ 3.5 Million’s strategic plan, this area of urban development will need Water Corporation to build a hills based reservoir, on land which has been purchased by Water Corporation for this purpose. This will affect between 500-1000 lots (approximately) until delivered. This is discussed further in this document.

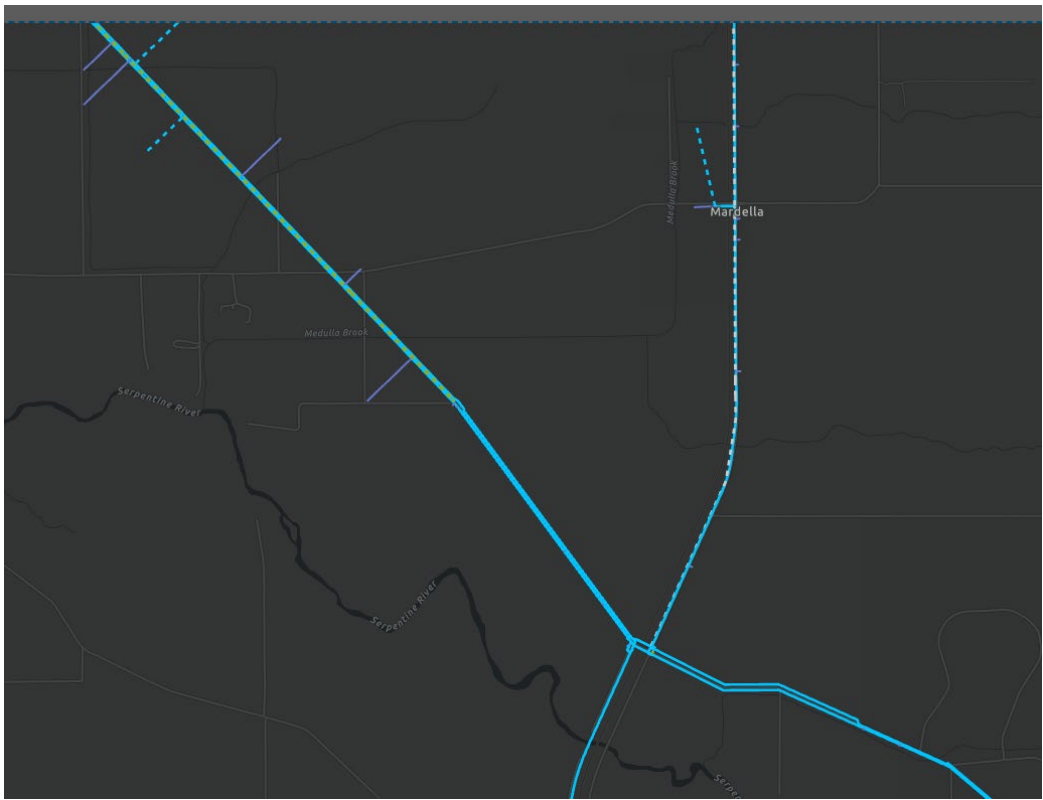


Figure 2. Serpentine Trunk Main

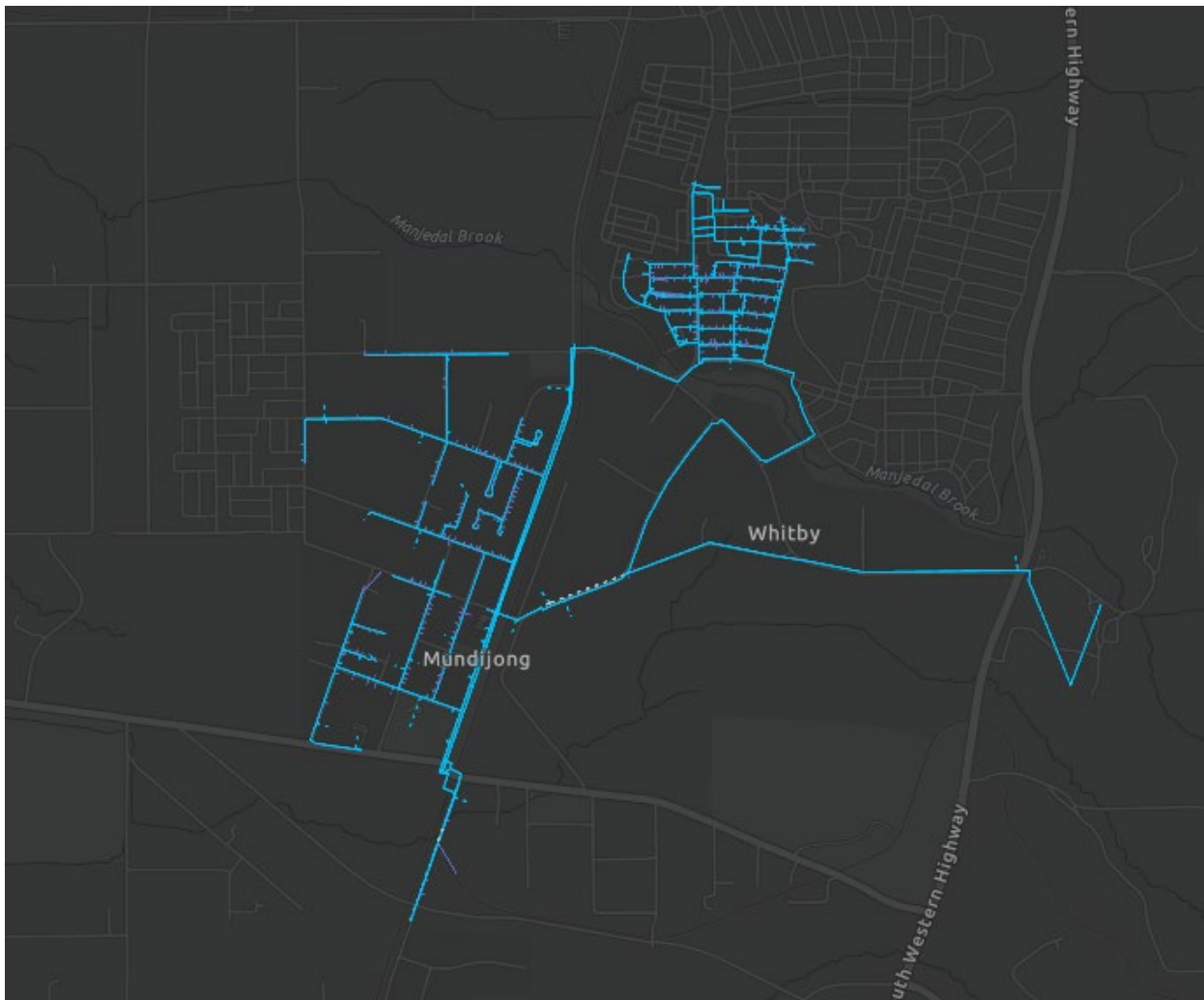


Figure 3. Existing Mundijong Water Corporation Water Mains

Sewer

The Mundijong DSP area identifies future urban areas, which are zoned ‘Urban Development’ under the Shire’s Local Planning Scheme No.3.

The DSP does not identify Rural, Rural Residential, or Rural Smallholdings land uses where effluent disposal may be appropriate. The Government Sewage Policy 2019 does not permit urban-zoned lots of this size to be serviced through on-site effluent disposal.

Urban lots created through the future subdivision of the DSP area are required to establish a connection to a reticulated sewerage service. A connection to reticulated sewerage services is to be imposed through a condition of subdivision approval and is to be established at the cost of the developer. Standard Water Corporation headworks fees will apply for new lots created through subdivision.

A Water Corporation reticulated sewerage connection is currently not available to the Mundijong District Structure Plan area. However, the DSP area is located within the Water Corporation’s area for the future provision of reticulated sewerage, the Byford Sewer District. The proposed land uses and dwelling yields indicated in the structure plan have been conceptually allowed for in the Water Corporation’s wastewater infrastructure planning.

Water Corporation have been working collaboratively with the developer surrounding the sewer pump station on Scott Road, and are in the process of delivering the infrastructure to support the development front on Scott Road.

The nearest connection to a reticulated sewerage is located within Byford, as shown in Figure 4 below. Water Corporation sewerage infrastructure is intended to be extended to establish a connection from Byford to Mundijong.

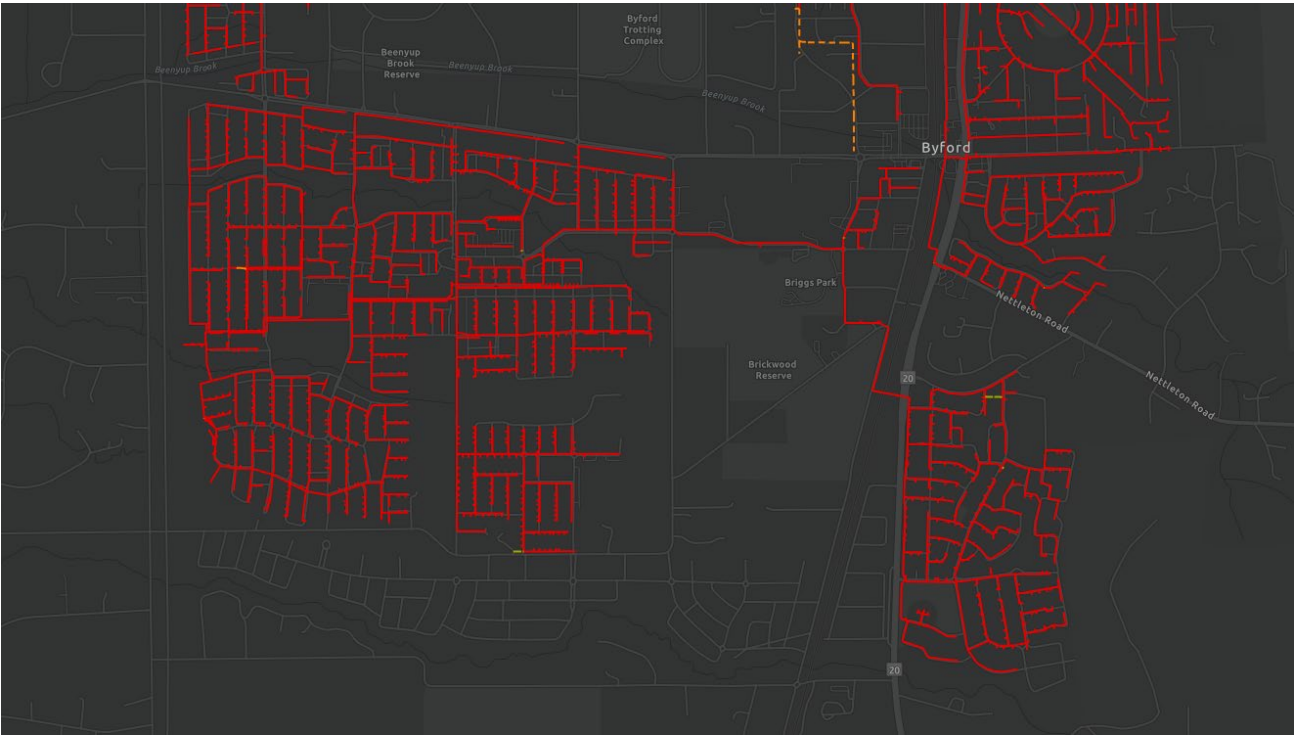


Figure 4. Byford Sewer Scheme

The District Structure Plan and various Local Structure Plans have been approved by the Western Australian Planning Commission. As such, the planning framework is in place for much of Mundijong to begin residential subdivision and development. The sewer pressure main and pump station infrastructure is essential to cater for the expected population of 58,000 people within the DSP area. This is now being designed and prepared for delivery. This is consistent with the Sub-Regional Planning Framework, which identifies the future sewer pump station, and major trunk water and sewerage pressure mains to be constructed adjacent east of the future Tonkin Highway reserve, to service the Mundijong DSP area and the West Mundijong Industrial Area.

Water Corporation own a 60m wide corridor of land adjacent east of the future Tonkin Highway (figure 6 below), for a long-term trunk main corridor, accommodating water and sewerage mains.

As mentioned previously regarding potable reticulated water, areas of Mundijong at or above 65m AHD are required to be serviced through a reservoir. The Sub-Regional Planning Framework identifies a current reservoir southeast of Mundijong, and a future reservoir to the northeast.

Infill sewer is also essential to occur for the historic Mundijong townsite, to create foundations for expansion and development within this identified future mixed use district centre. This is to be integrated with housing to be created through urban infill once infill sewer has been delivered.

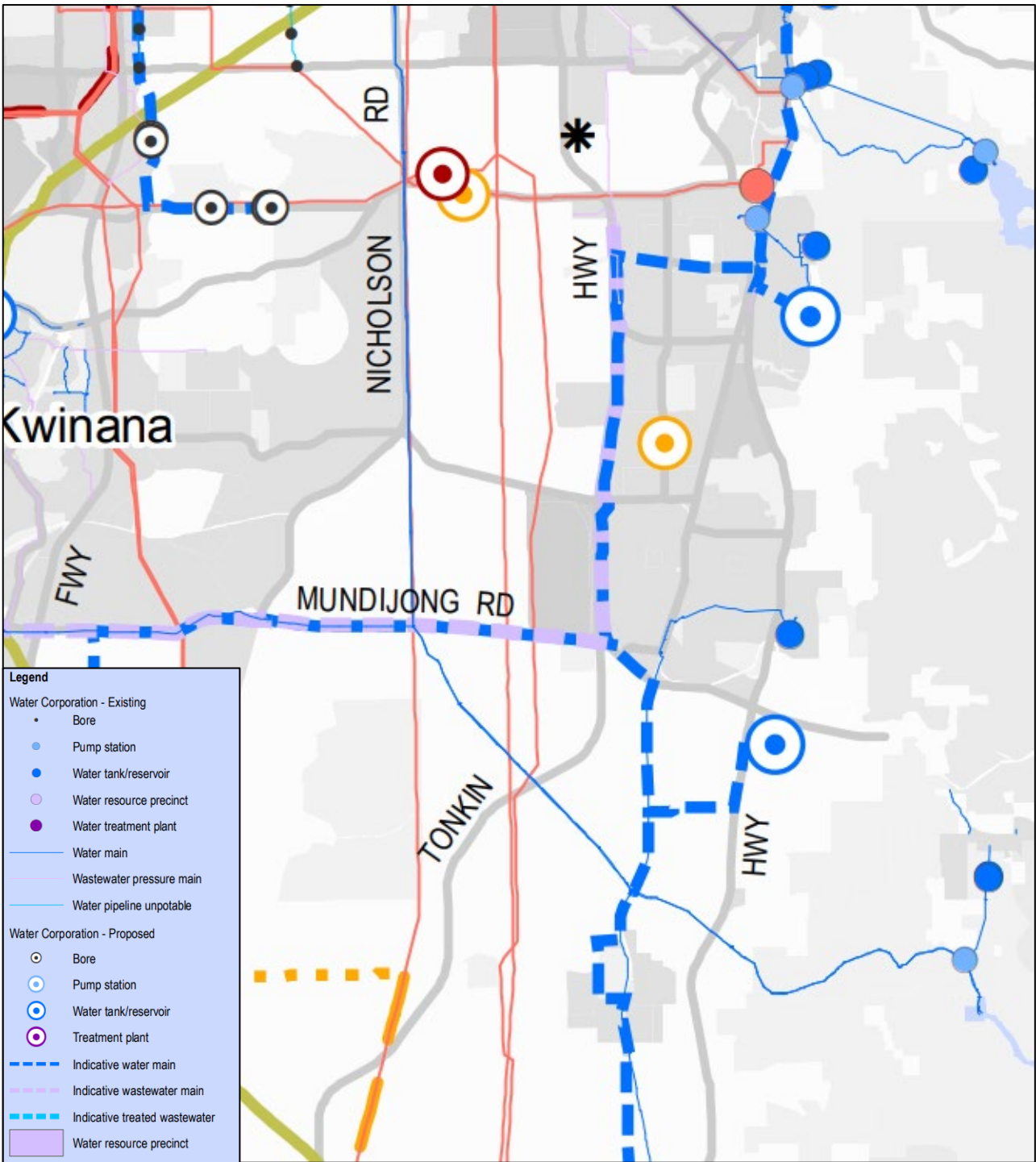


Figure 5. Sub-Regional Planning Framework Infrastructure Planning

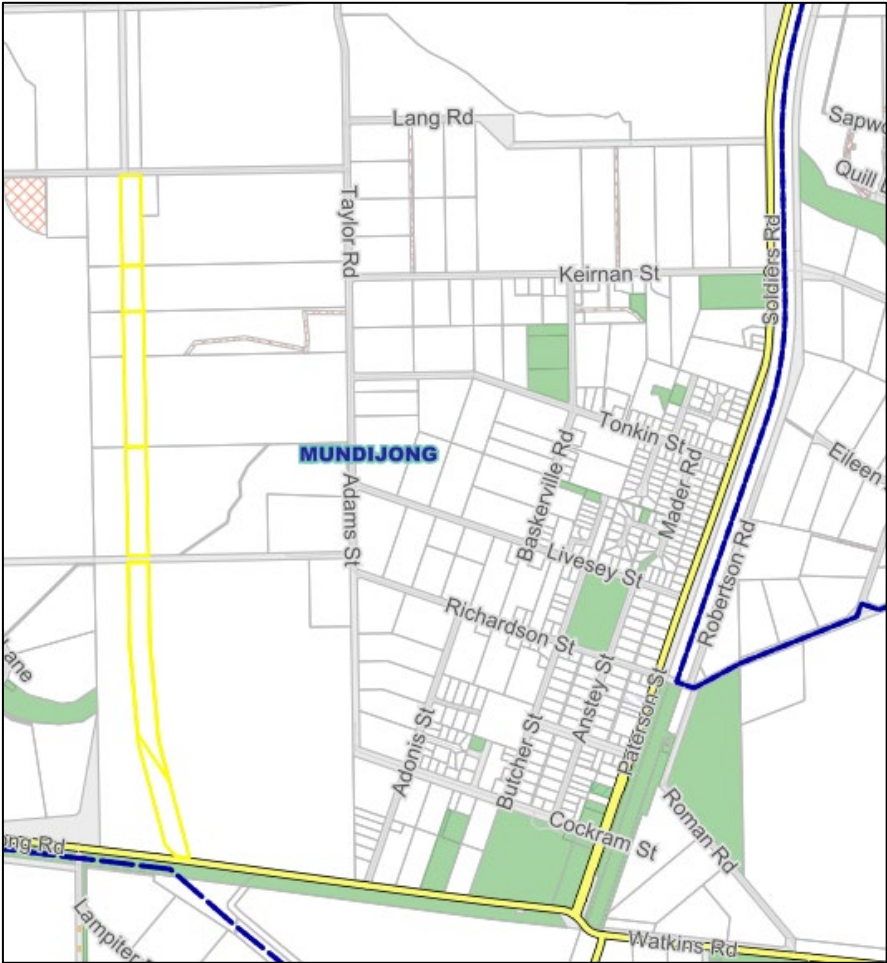
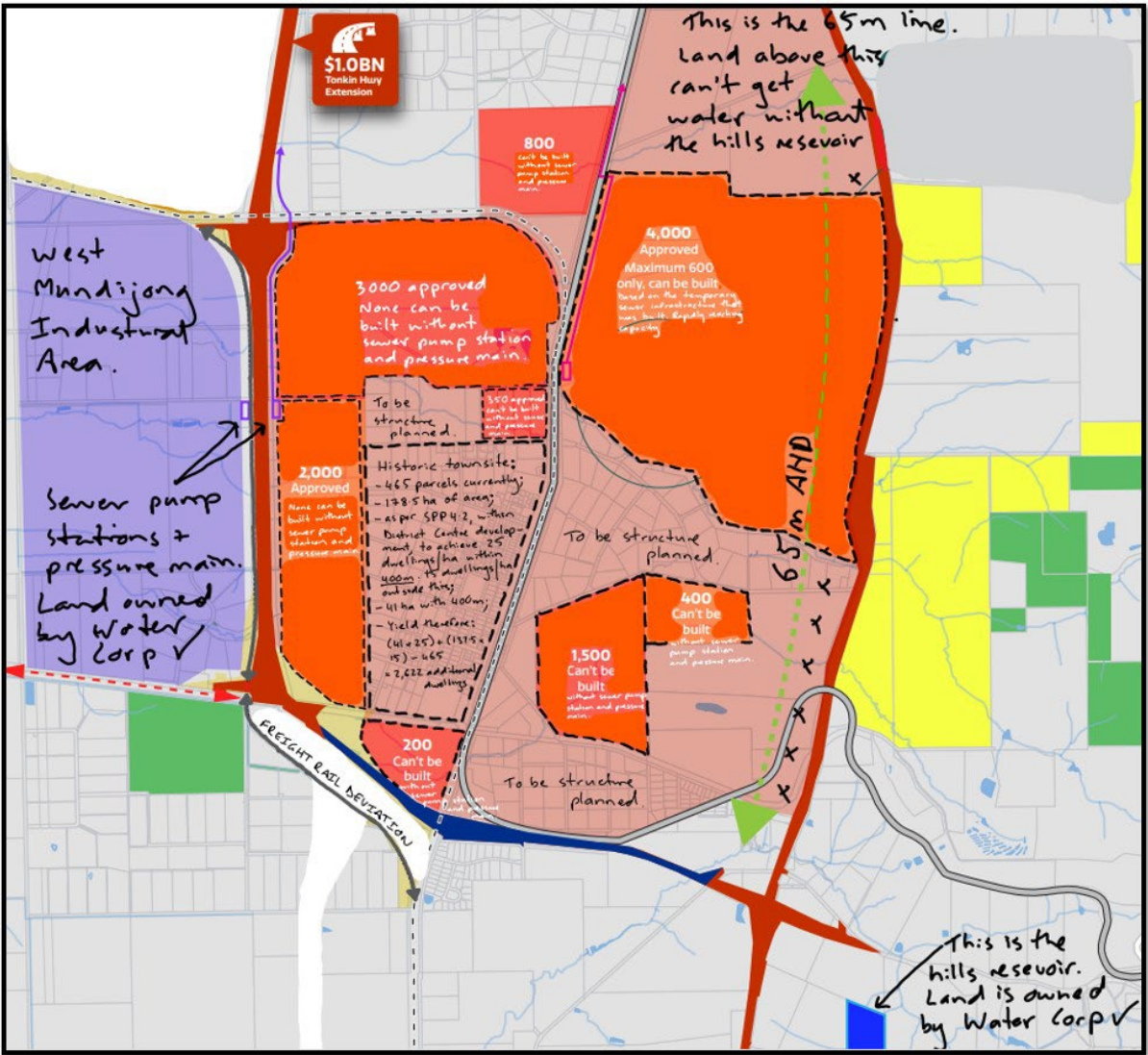


Figure 6. Water Corporation Corridor

In summary the coordinated tranche of works that are critical to the development of Mundijong are those related to the Water Corporation’s portfolio. These being:

1. The sewer pump station and pressure main to service the whole of the Mundijong City and West Mundijong development areas; (approximately \$20m)
2. The hills based reservoir for Mundijong City, in order to be able to service development at and above 65m AHD; (approximately \$20m)
3. Infill sewer for the historic Mundijong townsite (which will evolve to be part of the whole City). This infill sewer is critical in order to create the foundations for the mixed use district centre anchoring the historic townsite, which is destined to expand based on mixed primary and secondary uses, integrated with housing to be created through urban infill once infill sewer has been delivered. (approximately \$30m)

The map below illustrates how these three Water Corporation dedicated projects, would be essential to the realisation of Mundijong growing from the current 1,060 dwellings to 20,000 dwellings over the coming three decades.



Power

The DSP area falls within Western Power’s Byford Substation catchment. Adjacent east of the Mundijong DSP area are two existing high voltage overhead transmission lines, (132KV transmission line east of Kargotich Road, and a 330KV line west of Kargotich Road). Overhead powerlines currently exist across much of Mundijong’s established residential areas.

The further development of the Mundijong DSP and the adjacent West Mundijong Industrial Area will require the existing Western Power infrastructure to be expanded, and new infrastructure installed. The State and Federal Government have funded upgrades to the Western Power supply capacity, which is currently constraining development within the Mundijong DSP area, the Byford DSP area, and the West Mundijong Industrial Area.

In December 2024, Western Power announced upgrade works within Byford and Mundijong to support the creation of future housing developments. The first tranche of projects includes supporting new housing developments within the Shire. Western Power’s feeder upgrade works in Byford/Mundijong are in progress with design contracts recently awarded and construction completion anticipated by the end of 2026. These feeder upgrade works will support housing projects in the Byford area with an estimated load demand of 8MVA within Mundijong.

In addition to supporting growth in the Shire of Serpentine-Jarrahdale, Western Power has initiated a \$4 million package of works to enhance network resilience that commenced in September 2024. The upgrading of assets will strengthen network infrastructure against severe inclement weather events and maintain a high-level of network safety. The resilience works which includes replacing more than 288 poles, over 35 kilometres of overhead line, insulators and cross arms, and other essential maintenance. Residents in the Shire’s district will see long-term improvements to the reliability of power supply from these network upgrades. The work is expected to be completed by July 2025.

Precise analysis of spare capacity within the power network is to be investigated at the Local Structure Plan and subdivision stages. Structure plans and subdivisions must ensure that all newly created urban lots are connected to power. Future forecasted loads will increase significantly with a forecasted total dwelling projection of 20,367 within the DSP area.

Structure Plan Precinct	2024	2029	2034	2049	Full Buildout
Whitby	395	906	2,107	3,647	3,750
Keirnan Street	58	66	76	1,582	1,695
Watkins Road North	81	94	108	2,961	3,172
Watkins Road South	58	66	76	1,576	1,689
Mundijong West	131	746	1,378	1,794	1,835
Mundijong Town Centre	276	317	611	2,689	2,831
Mundijong North	53	61	1,588	3,175	3,175
Cardup South	193	222	1,110	2,220	2,220
Total	1,246	2,479	7,054	19,645	20,367

Figure 7. Mundijong DSP Precincts - Dwelling Projections

Gas

An existing ATCO gas connection is available to lots within Whitby through a high pressure main (1900kPa) along Soldiers Road, connecting Byford to Mundijong. These services currently terminate at Paterson Road, and therefore require future extensions to service much of the DSP area, should developers desire to enable natural gas to their estate. It is noted that at the time of writing that some estates in WA are pursuing pure electrical energy as part of the transition to net zero by 2050. Such electrification being able to be sourced via green energy.

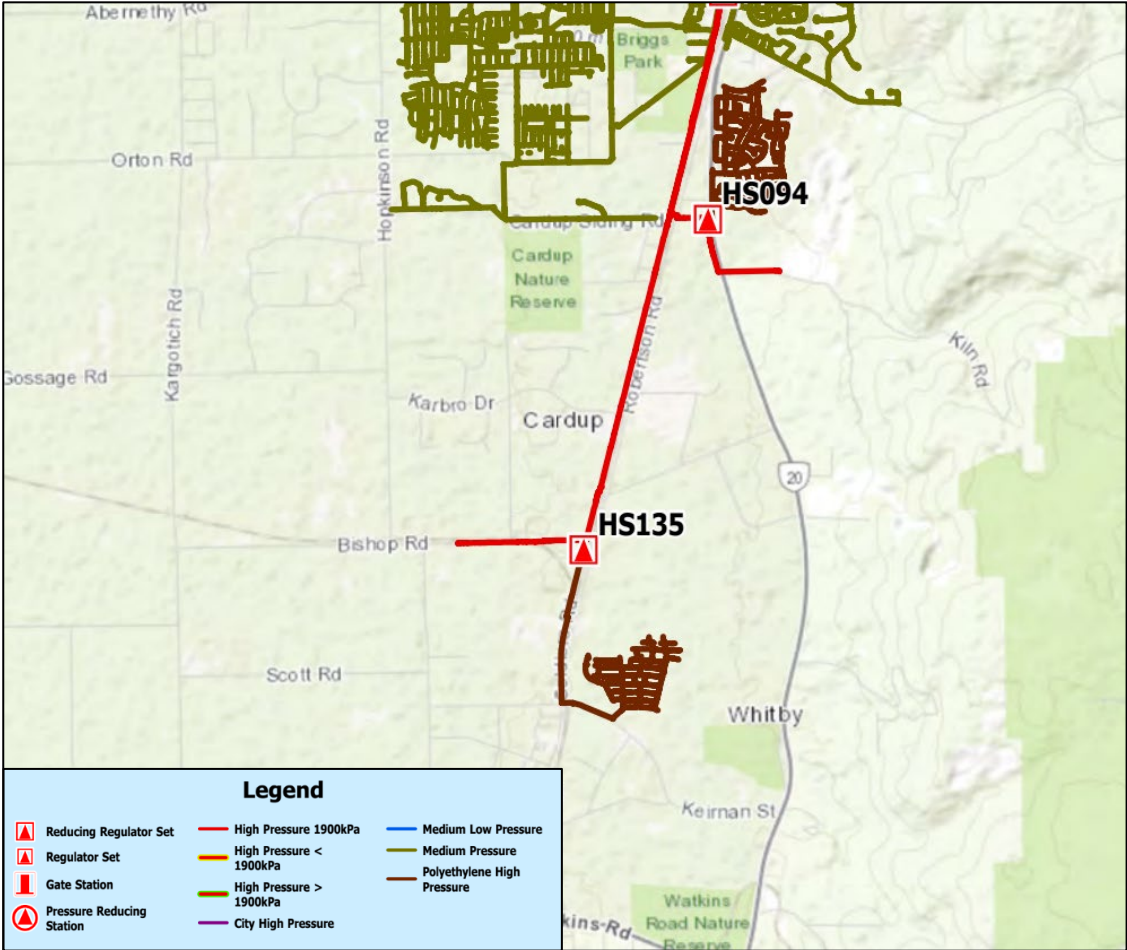


Figure 8. ATCO Gas Distribution Network

Telecommunications

The *Telecommunications Act 1997* typically requires developers to provide fibre-ready facilities to lots created through subdivision. There are current telecommunication network deficiencies within the Shire. Figure 9 below demonstrates current network coverage issues from absent telecommunication infrastructure. As shown below, the majority of the Mundijong DSP area is lacking in telecommunication infrastructure coverage.

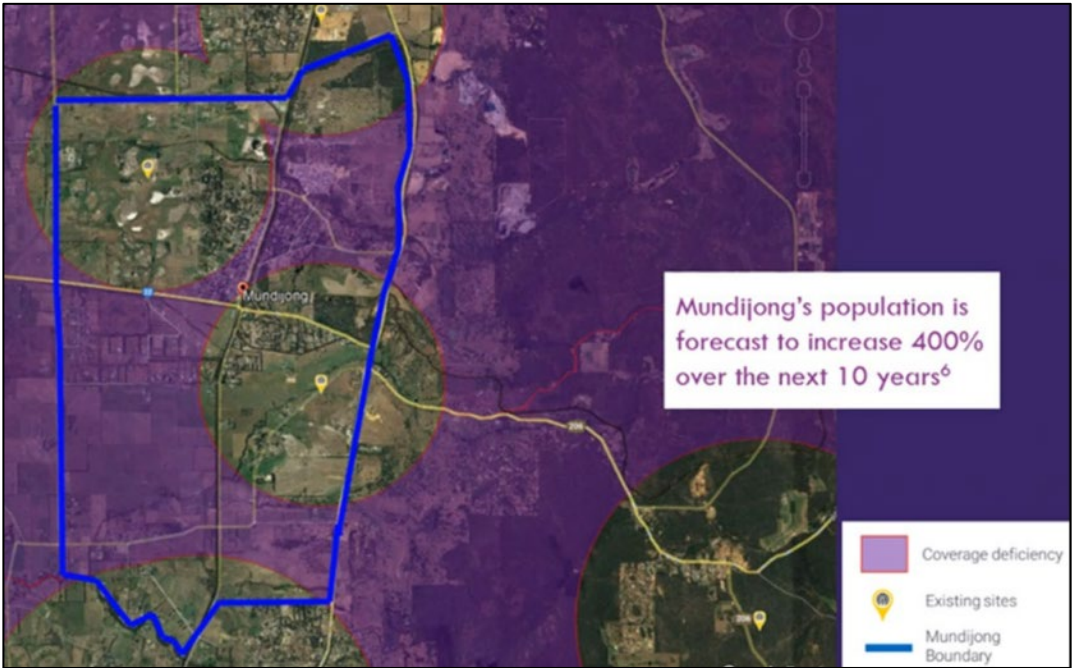


Figure 9. Coverage Deficiency Mundijong (Waveconn 2023)

The Mundijong townsite area around Paterson Street, and Whitby are currently located within the National Broadband Company's (NBN) Fixed Wireless footprint area. However, the majority of the Mundijong DSP area does not fall within this area identified for NBN Coverage, as shown within Figure 10 below. Development will need to extend this infrastructure.

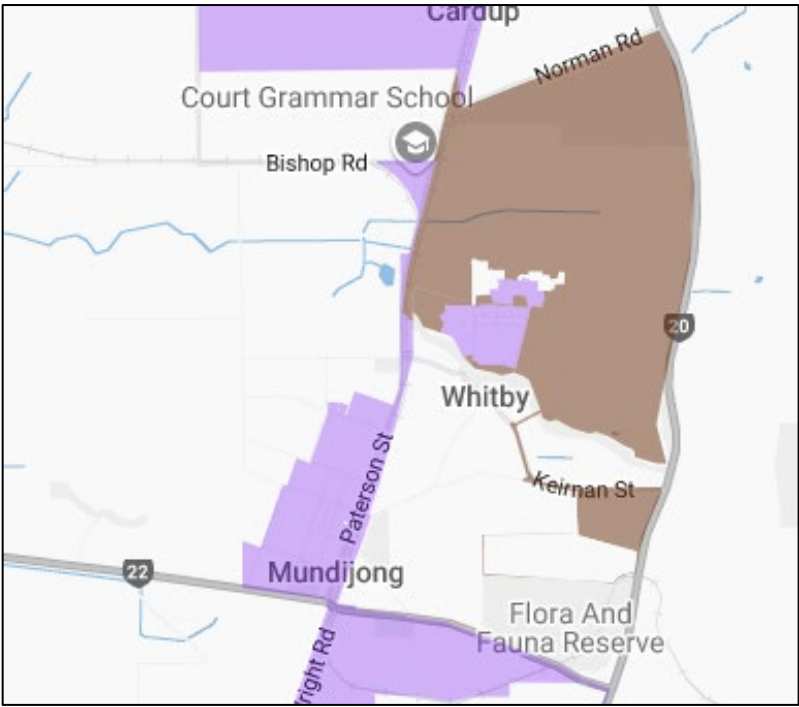


Figure 10. NBN Coverage Map

The capacity of available telecommunication networks should be investigated further through local structure planning and subdivision stages. The expected population growth within the Mundijong area will result in a high demand for digital infrastructure, and a high-quality telecommunications network. As such, improvements to the current telecommunications network are required to address these deficiencies.

Siteworks

Earthworks may be required to ensure that lots created through subdivisions are suitable to accommodate development. These works may include filling, stabilising, grading, or clearing. Earthworks requirements are to be guided through a geotechnical report and an Urban Water Management Plan (UWMP) or Local Water Management Strategy (LWMS) where required.

Additionally, community infrastructure works may be required through subdivision approvals in accordance with the planning framework and any other relevant legislation and requirements, such as the construction of footpaths or public open space.

Upgrades or construction of road networks may be required through subdivision. Roadworks should be in alignment with Transport Impact Assessments (TIA) associated with structure plans, as well as any requirements imposed through the subdivision process as appropriate.

Appropriate sitework requirements are to be imposed through conditions of subdivision or development approval.