

## Regional summaries

This section provides more detail on the waste generation and infrastructure needs of each region in Western Australia. Each summary includes a snapshot of the region's industries, demographics and economy, painting a picture of how the region's activities have influenced waste generation in 2020. The 2020 waste generation and demographic data is then used to estimate 2030 waste generation.

The 2020 resource recovery infrastructure capacity is based on licensed capacity which was obtained through the *State Waste Infrastructure Register*. Gaps in existing infrastructure capacity are identified when comparing 2020 infrastructure capacity and 2030 waste generation data. Projections of needed waste infrastructure are developed using the methodology described in previous sections. Existing and planned infrastructure by region is compared to projected waste volumes to determine need, based on the concept of critical mass presented in this plan and the need for expansion of existing or development of new facilities.

Each regional summary includes waste generation by source, including MSW, C&D and C&I, to provide more insight and guide decision-making at the regional level. Each regional summary includes:

- an assessment of the social, economic and environmental indicators of the region
- a summary of waste generation, treatment and movements in 2020
- a summary of waste generation and treatment in 2030
- infrastructure capacity needs in 2030, including assessment of opportunities to provide or access capacity in neighbouring regions
- breakdown of the waste by facility type and source (MSW, C&I or C&D) in 2030
- breakdown of the material generation and recovery in 2030
- analysis of landfills by type and identified capacity risk
- an assessment of the principles and priorities for the region.

A desktop assessment of facilities' licences has been employed to understand infrastructure capacity and, as such, may not accurately reflect the specific activities conducted on site. This is one of the key limitations of with the *State Waste Infrastructure Needs Analysis* methodology for assessment, particularly in relation to FOGO recovery facility capacity needs and organics recovery facility capacity needs.

The infrastructure plan focuses on identifying infrastructure needs in alignment with meeting the waste strategy targets. Targets specifically relating to FOGO are currently limited to the Perth and Peel regions. In regions outside of Perth and Peel, FOGO waste is collectively categorised as 'organics'. Stakeholder feedback highlighted this gap in the 2030 needs assessment as several major regional centre municipalities, such as the South West and Great Southern, are considering or implementing FOGO recovery as a means to achieve their MSW recovery targets.

While there appears to be sufficient licensed capacity for organics recovery to meet regional demands until 2030, the specific availability of FOGO recovery capacity remains uncertain. In addition, there is potential for barriers to arise in regions outside of Perth and Peel depending on regional approaches on kerbside FOGO recovery. Some facilities, despite being licensed for FOGO waste, either do not accept it or handle quantities below their licensed capacity. This is discussed in more detail in the Considerations and limitations section.

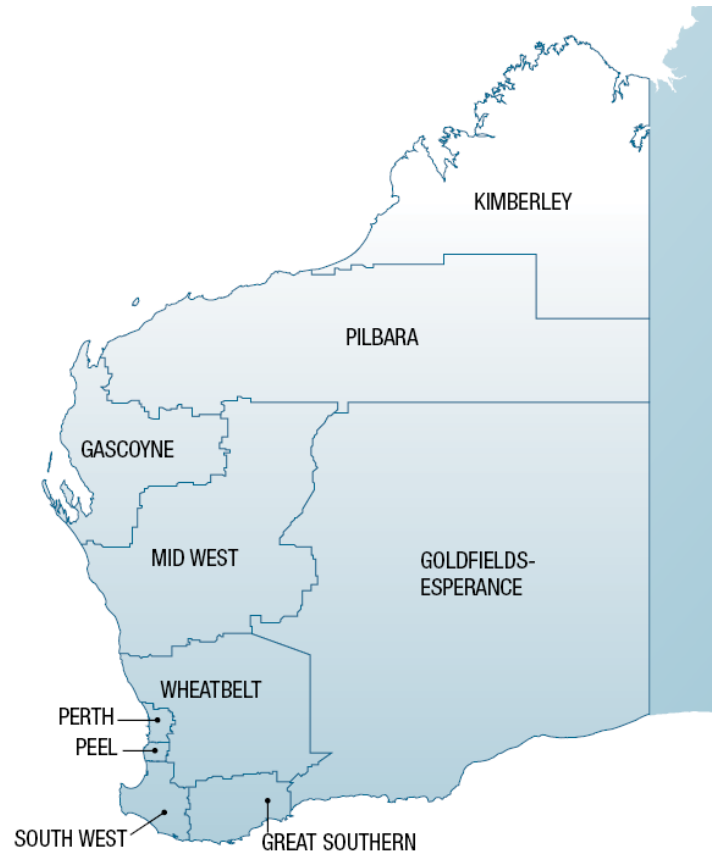
Further, more detailed exploration of FOGO capacity needs outside Perth and Peel is required as an area of future work.

The infrastructure plan includes a summary for each region outlined in Figure 22:

- Perth
- Peel
- Pilbara
- Kimberley
- South West
- Great Southern
- Mid West
- Gascoyne
- Wheatbelt
- Goldfields-Esperance.

Major regional centres as defined by the waste strategy are also included in assessments:

- Albany (Great Southern region)
- Bunbury (South West region)
- Busselton (South West region)
- Greater Geraldton (Mid West region)
- Kalgoorlie-Boulder (Goldfields-Esperance region).



**Figure 22 Regions used for the infrastructure plan**

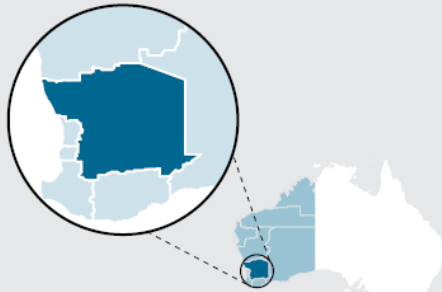
## Wheatbelt region

### Waste profile in 2020

The Wheatbelt is one of the largest waste processors in Western Australia, despite only generating 2.8 per cent of the state's waste. The region generated 140,000 tonnes of waste in 2020, made up of MSW (46 per cent), C&I (38 per cent) and C&D (16 per cent). The region treated 635,000 tonnes in 2020, with 114,000 tonnes (18 per cent) being recovered and 521,000 tonnes (82 per cent) being landfilled. In the Wheatbelt region, 140,000 tonnes of waste was generated, compared to the 516,000 that was received from other regions. The region has a relatively low recovery rate of 18 per cent. Key waste profile data for the Wheatbelt waste and resource recovery in 2020 is presented below.

<b>Residents in the Wheatbelt</b>	2.8 per cent of Western Australia's population resides in the Wheatbelt region.
	Population density of 0.5 people per km <sup>2</sup> .
	Residents are widely dispersed across the region, with the largest concentration in the Merredin local government.
<b>Local governments in the region</b>	Shire of Beverley, Shire of Brookton, Shire of Bruce Rock, Shire of Chittering, Shire of Corrigin, Shire of Cuballing, Shire of Cunderdin, Shire of Dalwallinu, Shire of Dandaragan, Shire of Dowerin, Shire of Dumbleyung, Shire of Gingin, Shire of Goomalling, Shire of Kellerberrin, Shire of Kondinin, Shire of Koorda, Shire of Kulin, Shire of Lake Grace, Shire of Merredin, Shire of Moora, Shire of Mount Marshall, Shire of Mukinbudin, Shire of Narembeen, Shire of Narrogin, Shire of Northam, Shire of Nungarin, Shire of Pingelly, Shire of Quairading, Shire of Tammin, Shire of Toodyay, Shire of Trayning, Shire of Victoria Plains, Shire of Wagin, Shire of Wandering, Shire of West Arthur, Shire of Westonia, Shire of Wickepin, Shire of Williams, Shire of Wongan–Ballidu, Shire of Wyalkatchem, Shire of Yilgarn, and Shire of York.
<b>Generating waste</b>	The Wheatbelt generates 2.8 per cent of the waste generated in Western Australia.
<b>Transporting waste</b>	The region is well serviced with logistics routes and as such has good access to major roads and railways with strong connections to Perth, Peel and other adjoining regions.
<b>Treating waste</b>	The Wheatbelt treats 11 per cent of the waste treated in Western Australia.
	The Wheatbelt recovers 3 per cent of the waste recovered in Western Australia.
	The Wheatbelt landfills 20 per cent of the waste landfilled in Western Australia.
	Plays a critical role in accepting waste received from Perth.

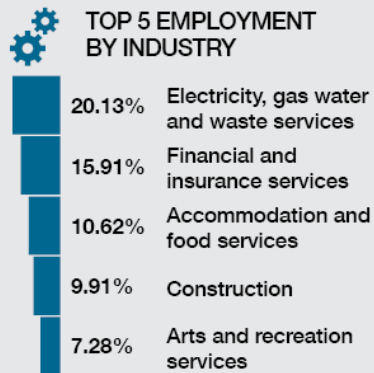
# WHEATBELT REGIONAL SUMMARY



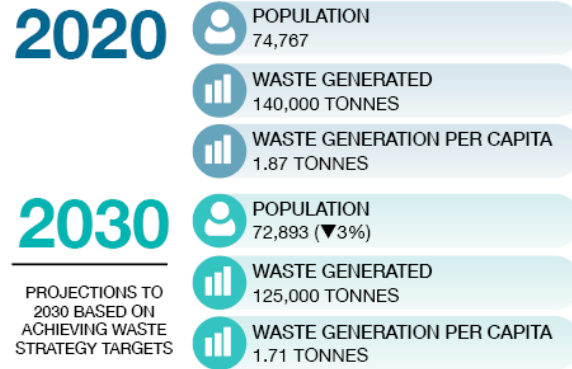
**AREA**  
156,766 km<sup>2</sup>

**GROSS REGIONAL PRODUCT (2019–20)**  
\$6.70B/CAP

**NUMBER OF BUSINESSES (2019–20)**  
9,146



The mining industry sector makes the greatest contribution to economic output in the region, which at \$3.4B accounts for 24.34% of total output. With 2,092 jobs representing 6.81% of total employment, it is the retail trade industry sector that is the region's largest employer.



**2030 INFRASTRUCTURE CAPACITY NEED**

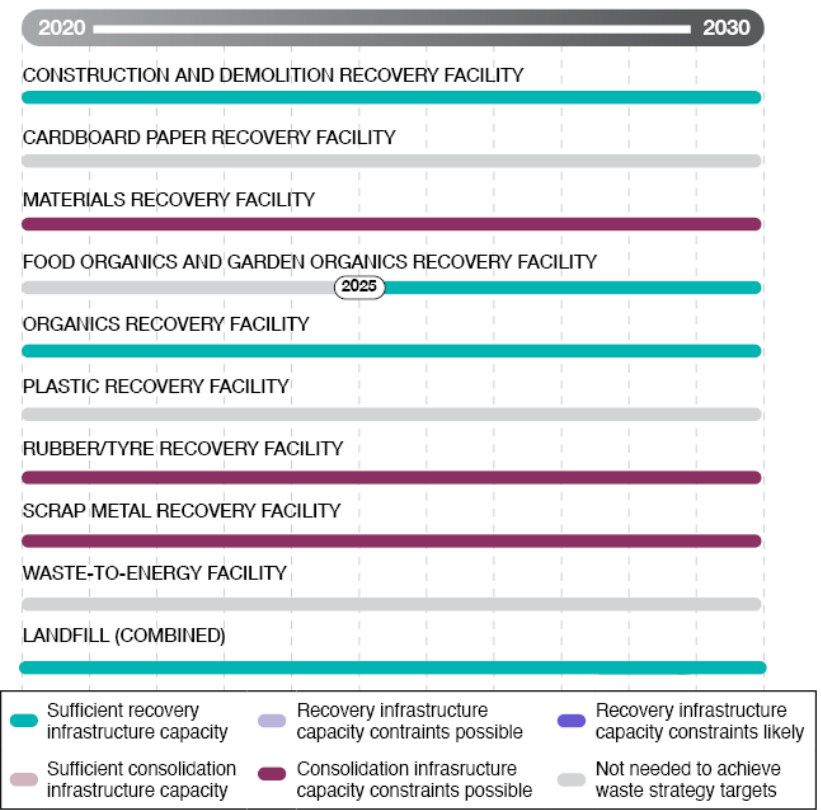
1. Material recovery facility | 17,000 tonnes
2. Scrap metal | 5,000 tonnes

**TOP PRIORITIES**

1. Assess sub-regional gap and needs of material recovery consolidation near transportation networks.
2. Monitor progress for implementation of capacity expected from the Food Waste for Healthy Soils program.
3. Assess whether existing 67A licensed facilities can be increasingly utilised to alleviate food organics and garden organics recovery capacity need in neighbouring regions.

## INFRASTRUCTURE NEED BETWEEN 2020 AND 2030

Projections for capacity constraints compare current, approved and planned capacity against the infrastructure needs by 2030 to meet the waste strategy targets.



## WASTE IN WHEATBELT 2020 AND 2030

Waste projections to 2030 based on meeting the waste strategy targets

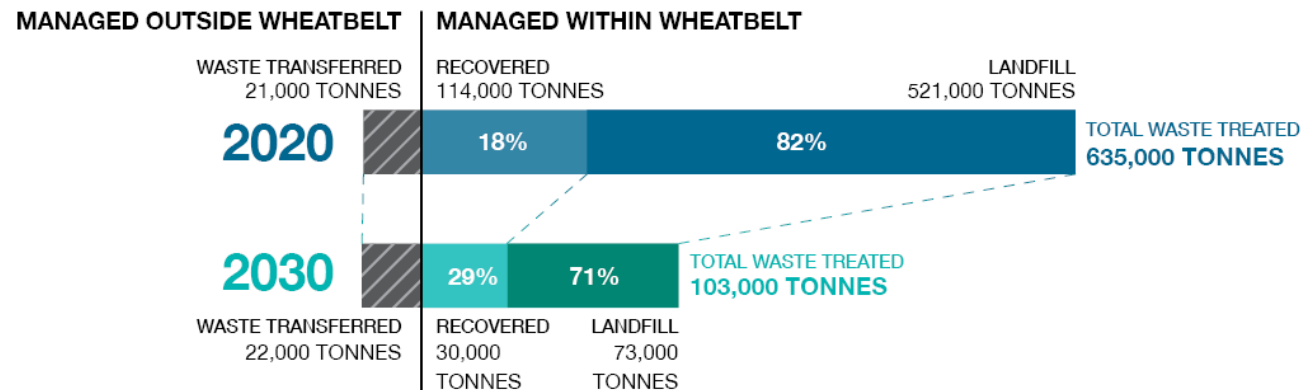


Figure 82 Waste in the Wheatbelt: statistics and projections

## Waste and resource recovery in 2020

The Wheatbelt acts as a major receiver of mixed putrescible waste and organic material from Perth and relies on 73 putrescible landfills to treat 74 per cent of the waste generated in, and received by, the region. An additional five new putrescible landfills are currently planned for the region. The top five materials processed in the region in 2020 include:

1. mixed putrescible waste – domestic (household)
2. metals – ferrous steel – non-packaging
3. mixed C&D
4. commingled recycling
5. mixed inert waste.

Other waste facilities in the Wheatbelt include six inert landfills, five organics recovery facilities, and two C&D recovery facilities. A further two organics recovery facilities are being developed near road and rail transport networks, to receive material from Perth.

The strong agricultural sector in the Wheatbelt creates offtake markets for recovered organic products.

Major waste imports include mixed putrescible waste and a variety of other organic waste (including garden organics, food organics, FOGO and fats). The region transferred out 21,000 tonnes of waste material, primarily to Perth, which is comparatively low compared to the materials received from other regions. Major transfers out of the region include scrap ferrous metal, commingled recycling and mixed C&D waste. The high rates of waste transportation to and from the region are supported by a strong network of roads and railways, along with geographic proximity to the state's major population centres.

The region lacks MRFs and scrap steel processing and consolidation infrastructure, with material transported to other regions for recovery. The region's large size and relatively small and widely distributed population acts as a barrier to establishing widespread recycling services.

Aspects of waste and resource recovery in the Wheatbelt region in 2020 that considered when working towards the waste strategy targets include:

- Most waste treated in the Wheatbelt was received from other regions (81 per cent), with the majority (99 per cent) being generated in Perth.
- MSW formed the largest waste material generated in the Wheatbelt region, consisting of about 64,000 tonnes, of which 6 per cent was recovered.
- Ferrous steel was the second largest material category generated in the region, all of which was transferred out of the region.
- There are no commingled recycling collection services in the Wheatbelt, and no local processing capacity.
- Changes to waste received from Perth will significantly change waste treatment in the Wheatbelt.

The location of current and planned recovery infrastructure in the Wheatbelt in 2030 is shown in Figure 85 (see Facility lists in the Appendix for a full list of facilities). Facilities granted work approvals since 2020 by the department in the Wheatbelt region are listed below in Table 37. These facilities have not been included in the modelling for the infrastructure plan and may alleviate some of the region's capacity needs.

**Table 37 Facilities granted licences or works approvals since 2020 in the Wheatbelt**

Facility type	Facility name	Location
Consolidation centre	Swan Waste Solutions	Wheatbelt
Landfill (Category 64)	Badgingarra Waste Facility	Wheatbelt
Landfill (Category 89)	Popanyinning Waste Management Facility	Wheatbelt
Landfill (Category 89)	Shire of Koorda Landfill	Wheatbelt
Landfill (Category 64)	Fernview Landfill	Wheatbelt
Consolidation centre	Drainflow	Wheatbelt
Organics recovery facility	Wannamal Rd Organics Pty Ltd	Wheatbelt

WASTE FLOWS 2020

# WHEATBELT

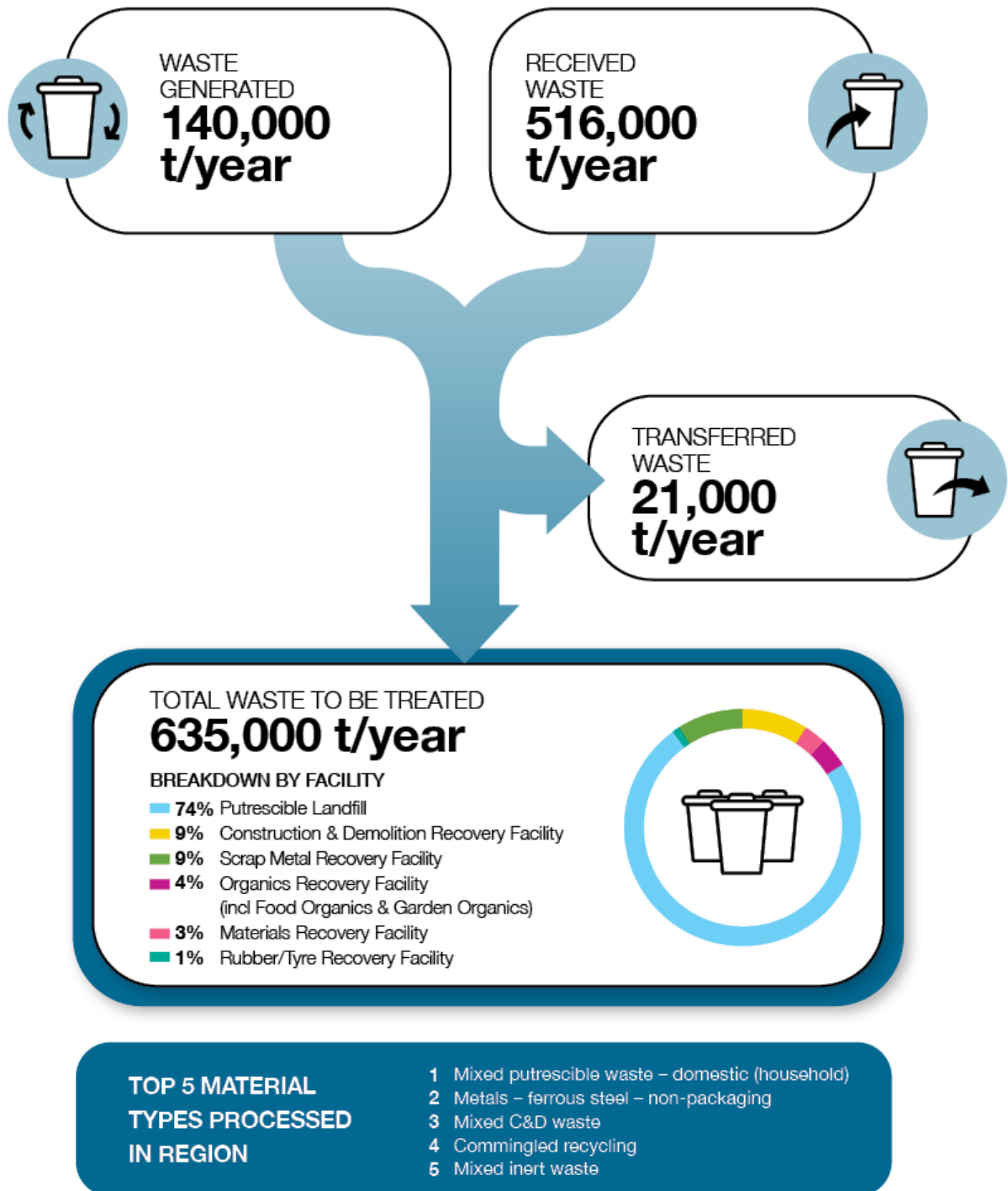


Figure 83 Waste generated, received, transferred and treated in the Wheatbelt in 2020

WASTE FLOWS 2020

# WHEATBELT

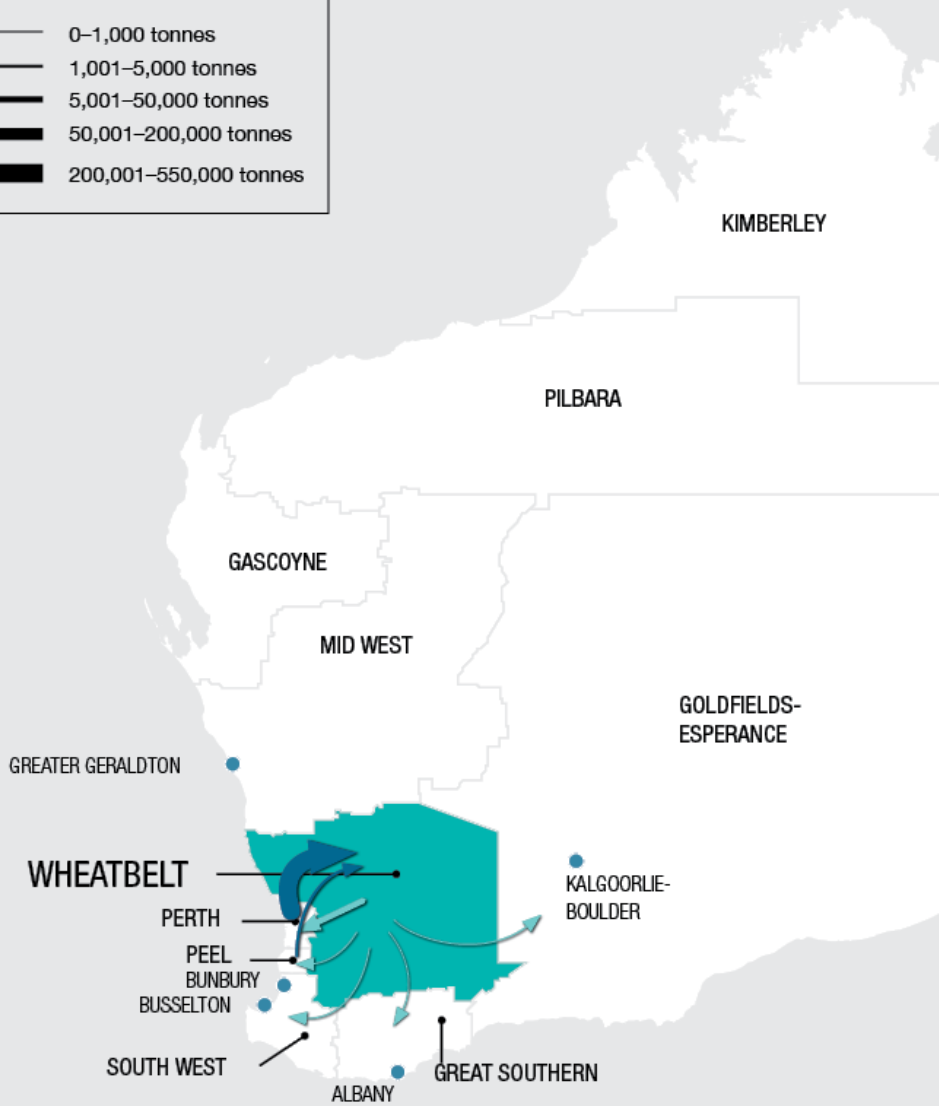
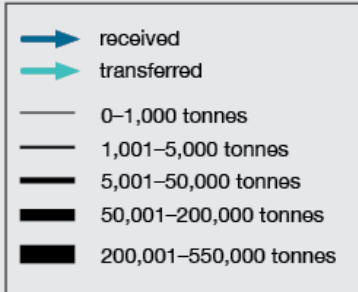


Figure 84 Waste flows in the Wheatbelt in 2020



# CURRENT AND PLANNED INFRASTRUCTRE BY REGION WHEATBELT

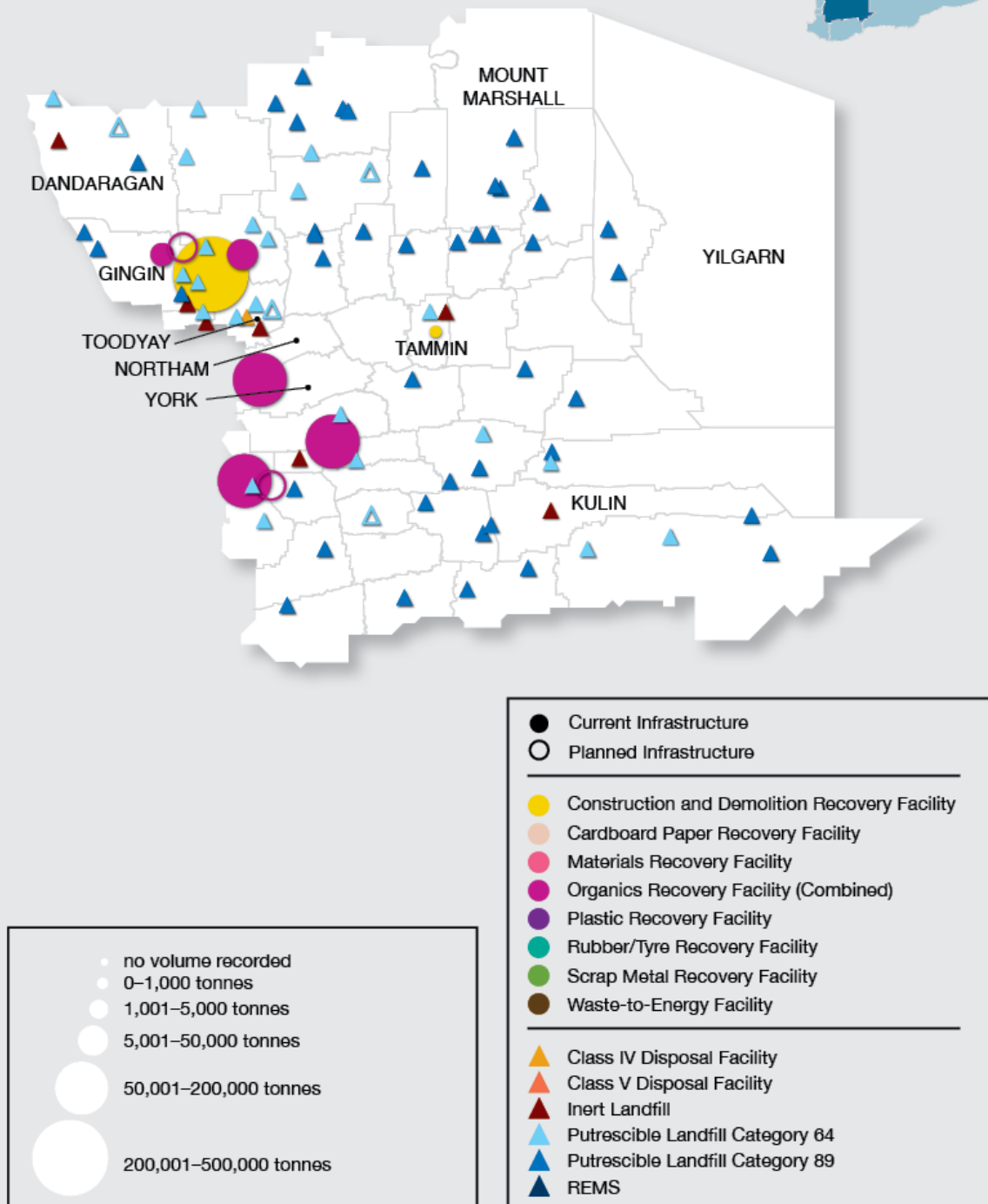
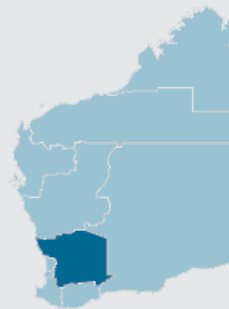


Figure 85 Current and planned infrastructure locations in the Wheatbelt in 2020

### Waste and resource recovery in 2030

Modelling to achieve all waste strategy targets in 2030 found the Wheatbelt region would generate 125,000 tonnes and transfer 22,000 tonnes out of the region, both similar to 2020 quantities.

Changes to the waste received from Perth will significantly decrease the total quantity of waste treated in the Wheatbelt, resulting in a net decrease of 84 per cent compared with 2020. These changes and improvements to local recovery capacity will increase the Wheatbelt materials recovery rate from 18 per cent to 29 per cent.

Figure 86 shows the distribution of feedstock materials used by each facility type, indicating which waste streams are most significant and where the resource recovery efforts should be concentrated. This is also reflected in the Wheatbelt region Principles and priorities section.

## WHEATBELT

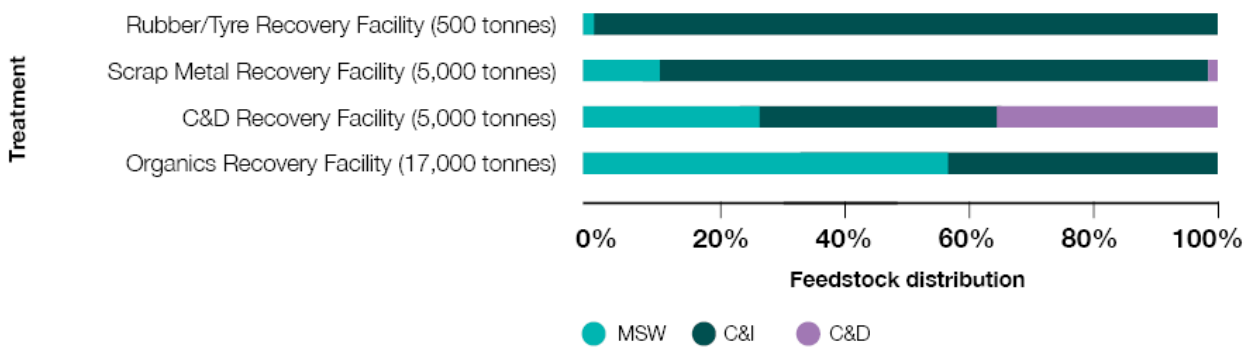


Figure 86 Feedstock distribution of treatments in the Wheatbelt in 2030

The Wheatbelt region is expected to provide 75,000 tonnes of FOGO recovery capacity to Perth, with an additional 75,000 tonnes of recovery capacity expected through upgrades of an existing organics recovery facility to accept FOGO.

The model uses licensed capacity for facilities and can result in an overestimation of actual capacity. Stakeholder feedback indicates that only a fraction of the region’s licensed capacity of 420,000 tonnes of Category 67A capacity is actually available for the processing of FOGO. The Infrastructure priorities section describes the need to investigate further to confirm actual FOGO processing capacity.

### Infrastructure capacity needs in 2030

Based on current, planned and approved infrastructure in 2020, the Wheatbelt requires the following additional capacities to meet the waste strategy targets in 2030:

- 17,000 tonnes of additional consolidation capacity is needed in for material recovery
- 5,000 tonnes of additional consolidation capacity is needed for scrap steel recovery.

### CAPACITY REMAINING BY LANDFILL TYPE

## WHEATBELT

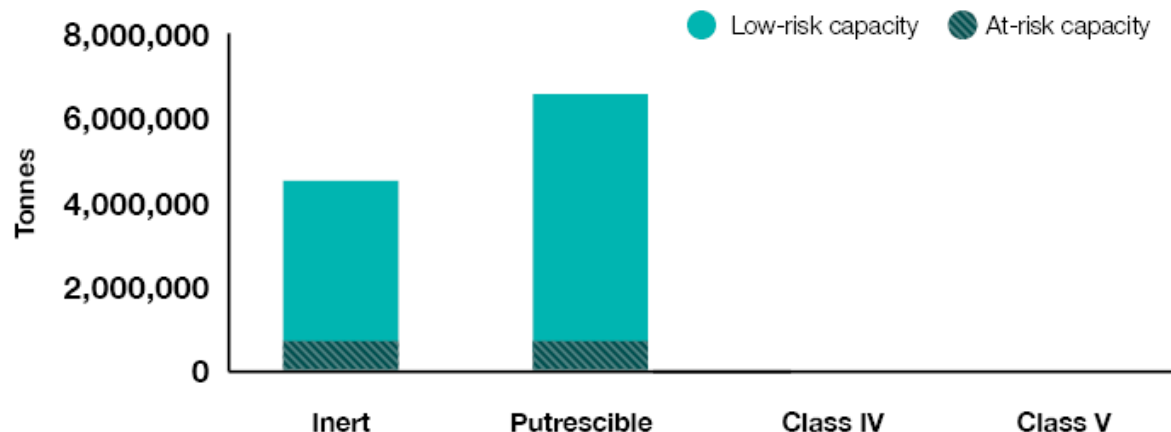


Figure 87 Capacity remaining by landfill type in the Wheatbelt, including an assessment of low-risk and at-risk capacity

Total remaining capacity by landfill types is presented in . This figure also indicates the proportion of that capacity that is at risk (see section on Landfill capacity lifetime assessment to 2030 and 2050).

Under the low-risk scenario, a total of 1.5 million tonnes of capacity was identified as potentially at risk, of which inert landfills make up 50 per cent and putrescible landfills 50 per cent. *State Waste Infrastructure Needs Analysis* modelling predicts 27,000 tonnes of residual waste will be disposed of in landfill each year. Feedstock lifetime remaining for landfills is shown in Figure 19 .

Details of the infrastructure needed to achieve waste strategy targets are outlined Figure 88, including the expected facilities, capacities and capacity needs in 2030.

CURRENT RECOVERY INFRASTRUCTURE PIPELINE

# WHEATBELT

This overview includes a comparison of projected generation and capacities to determine the infrastructure need in 2030. It includes planned and approved facilities, as well as closures between 2020 and 2030.

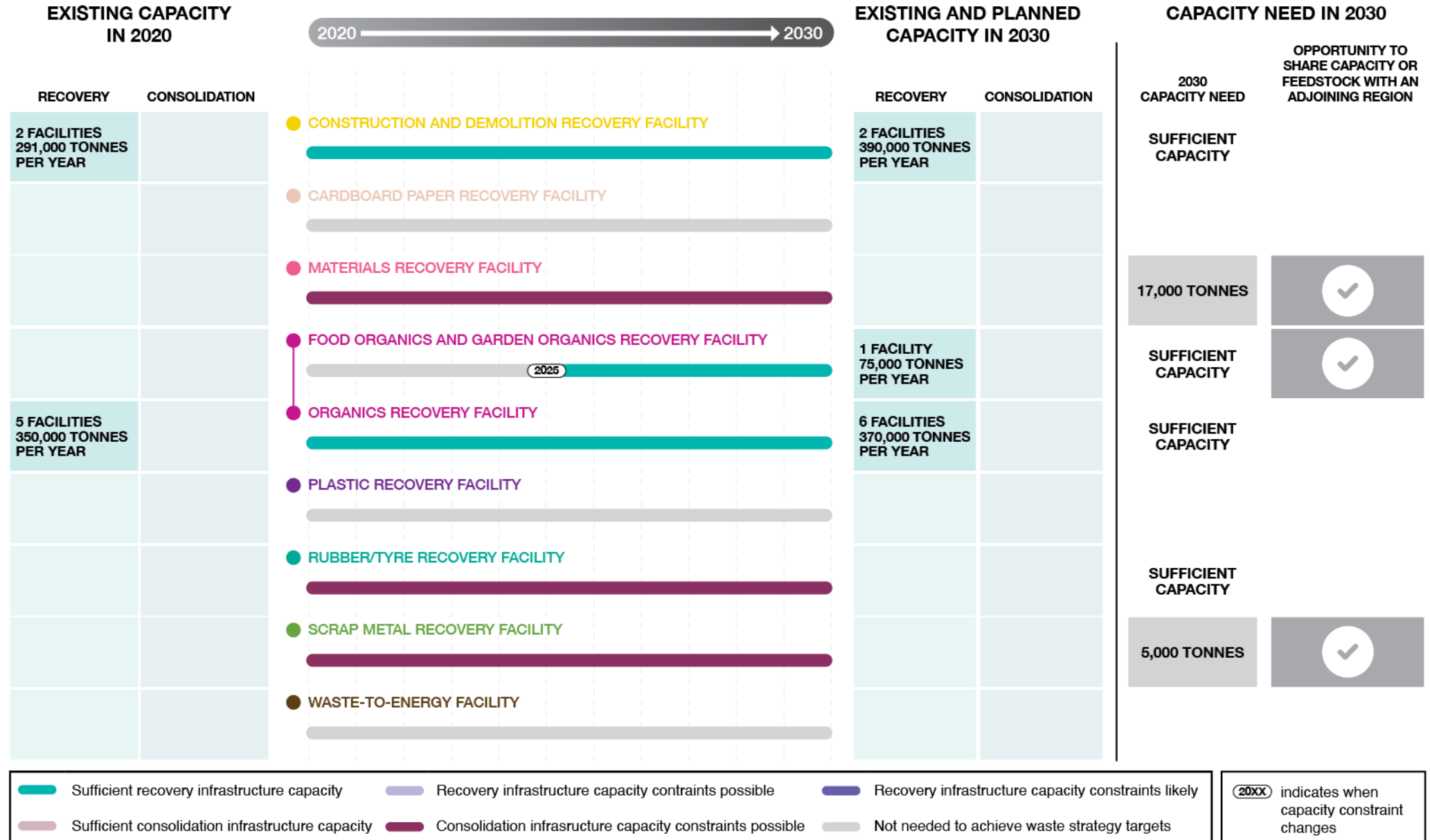


Figure 88 Wheatbelt recovery infrastructure pipeline and capacity needs in 2030

## Principles and priorities

The principles outlined in this plan have been used to identify priorities.

Priority areas that are projected to go beyond capacity need, based on the completed modelling for the region, arise when applying the principles.

Based on the analysis, the top priorities for the Wheatbelt region are:

- Assess the sub-regional gap and needs of material recovery consolidation near transportation networks.
- Monitor progress for the implementation of capacity expected from the Food Waste for Healthy Soils program.
- Assess whether existing 67A licensed facilities can be increasingly utilised to alleviate FOGO capacity need in neighbouring regions.

These are discussed in detail in Table 38 below. The principles are outlined once more in Figure 2 for reference.

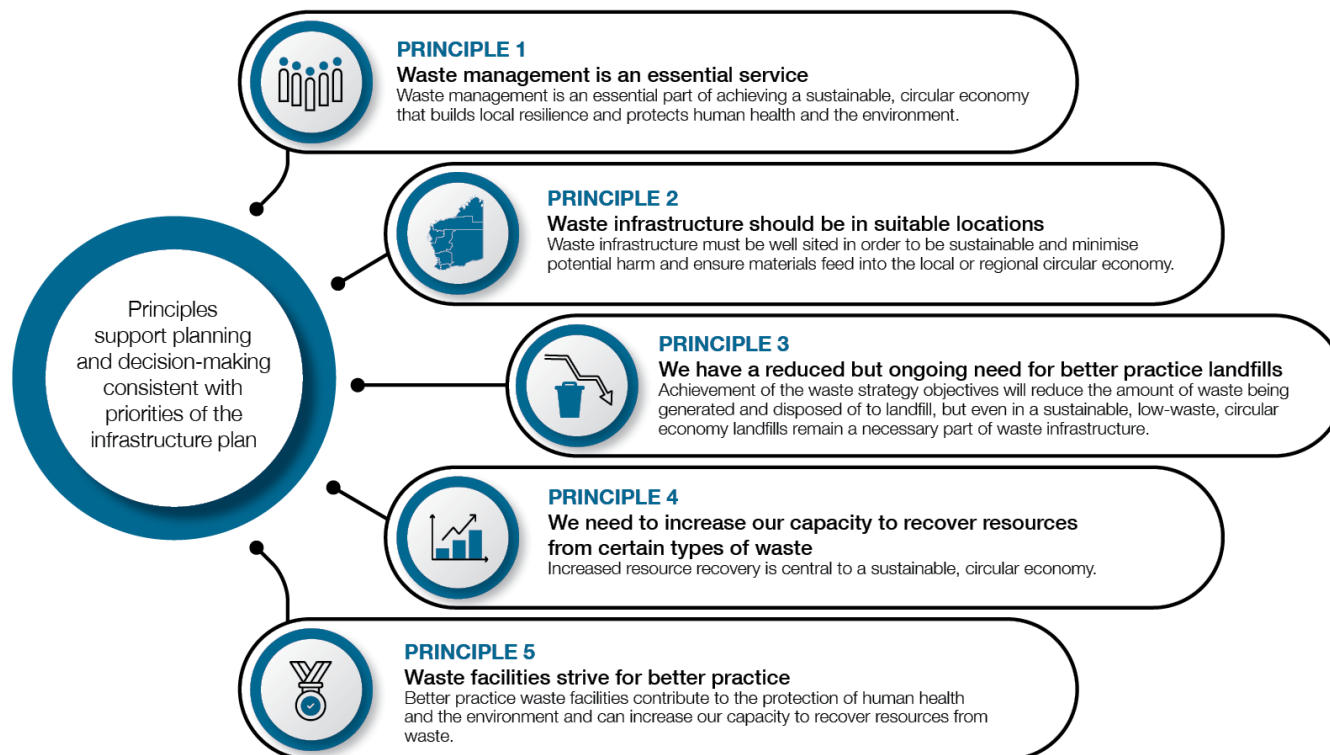


Figure 2 Principles of the State waste infrastructure plan

Table 38 Consideration of infrastructure plan principles and priorities in the Wheatbelt

Capacity needs to achieve waste strategy targets 2030	Consideration of infrastructure plan principles	Findings in response to meeting the waste strategy 2030 target (with assigned priority ranking)
17,000 tonnes of additional capacity for MRFs	<p><b>Principle 1: Waste management is an essential service</b> According to modelling, the Wheatbelt will increase generation of commingled recyclable material to achieve the waste strategy Recover targets, with an additional 17,000 tonnes capacity required to support regional centres implementing new collection services. There is a lack of consolidation infrastructure within the region, creating high risks and a lack of contingency. Additional consolidation capacity will need to be developed to efficiently transport and process material in Perth.</p> <p><b>Principle 2: Waste infrastructure should be in suitable locations</b> The large geography and rural nature of major Wheatbelt population centres means there is need to develop multiple consolidation points across the region. Analysis shows that the areas around Northam, Narrogin and Merredin have low constraints for new development. Proximity to Perth de-risks the offtake of recovered recyclables.</p> <p><b>Principle 4: We need to increase our capacity to recover resources from certain types of waste</b> Consideration of principle 4 supports the development of material recovery infrastructure in the Wheatbelt as an important approach to increasing the regional recovery rate.</p>	<p><b>Medium</b> Better understanding of sub-regional gaps for material recovery consolidation near transportation networks will improve infrastructure coverage in the Wheatbelt region.</p>
5,000 tonnes of additional capacity for scrap steel recovery	<p><b>Principle 1: Waste management is an essential service</b> Scrap metal is projected to be the second largest material type treated in the Wheatbelt in 2030, all of which will be consolidated and transferred out of region. This indicates a strong demand for scrap metal material and surplus capacity for recovering this material in Perth. Expansion of the region's consolidation network is low risk and will be required to achieve material recovery waste strategy Recover targets.</p> <p><b>Principle 2: Waste infrastructure should be in suitable locations</b> Like material recovery capacity, there is a lack of scrap steel consolidation infrastructure in the Wheatbelt. New consolidation facilities could be co-located alleviate planning requirements and leverage transportation efficiencies.</p>	<p><b>Low</b> Better understanding of sub-regional gaps for scrap metal consolidation near transportation networks will improve infrastructure coverage in the Wheatbelt region.</p>

Capacity needs to achieve waste strategy targets 2030	Consideration of infrastructure plan principles	Findings in response to meeting the waste strategy 2030 target (with assigned priority ranking)
<p>Large volume of organics allows for development of other processes</p>	<p><b>Principle 2: Waste infrastructure should be in suitable locations</b>  Development of bioenergy infrastructure could be located where organics are being processed as an additional option to treat suitable organics, to expand capacity or to diversify outputs (expanding from compost to energy production). This may present an opportunity for the Wheatbelt to treat organic waste or FOGO waste that exceeds the treatment capacity of the region.</p> <p><b>Principle 4: We need to increase our capacity to recover resources from certain types of waste</b>  To achieve waste strategy targets, Western Australia needs to recover and process a large volume of organics. Expanding infrastructure to develop facilities that produce bioenergy expands capacity, diversifies options, and reduces risk of failure to meet waste strategy targets.</p> <p><b>Principle 5: Waste facilities strive for better practice</b>  As volumes of organics are captured by large facilities in the region, there is potential to develop other processes. Better practice guidelines or regulatory requirements may change market activities and present an opportunity to utilise bioenergy more in the Wheatbelt.</p>	<p><b>Medium</b>  Six facilities are listed in the region with capacities exceeding 40,000 tonnes, with two of them at 100,000 tonnes. These larger existing facilities may consider options to implement other processes or technologies.</p>
<p>Used tyre storage</p>	<p><b>Principle 1: Waste management is an essential service</b>  About 400 tonnes of rubber/tyre material is generated in the Wheatbelt and this will continue to be generated. Waste management of tyres in remote locations poses challenges. Tyres from mining operations pose their own particular challenges. Consolidation of this material for processing in other regions is necessary whilst it remains unviable to process within the region.</p> <p><b>Principle 2: Waste infrastructure should be in suitable locations</b>  Although tyre material processing may be close to end markets that can take crumbed tyres or use recovered materials in manufacturing or construction, consolidation centres will be needed in remote or regional locations. Existing landfills are being used for collection and consolidation of tyres and present a suitable centralised location for waste management in remote regions. Most landfills in the Wheatbelt are acting as tyre storage facilities for consolidation.</p> <p><b>Principle 4: We need to increase our capacity to recover resources from certain types of waste</b></p>	<p><b>Medium</b>  Five facilities are listed in the region for Category 57 with total capacity exceeding 4,000 tyres. Some of these may be sending tyres to Perth. There is an opportunity to consolidate volumes and transport these tyres for reprocessing outside the region.</p>

Capacity needs to achieve waste strategy targets 2030	Consideration of infrastructure plan principles	Findings in response to meeting the waste strategy 2030 target (with assigned priority ranking)
	<p>Tyres can be processed, but infrastructure may only be available in Perth so the recovery of rubber/tyre materials in the Wheatbelt region is dependent on consolidation and transport to enable recovery. Consolidation and transport will remain the likely fate given the insufficient quantity to support regional processing.</p> <p><b>Principle 5: Waste facilities strive for better practice</b></p> <p>Two class 64 putrescible landfills in the Wheatbelt are also licensed to store tyres. See the landfill capacity risk assessment below to further understand how the loss of these facilities may occur, noting that this may reduce the ability to consolidate rubber/tyre arising in the Wheatbelt.</p>	
Landfill capacity risk assessment	<p><b>Principle 3: We have a reduced but ongoing need for better practice landfills</b></p> <p>Decreasing waste received from Perth will create surplus capacity for Wheatbelt landfills. The Wheatbelt could provide contingency capacity to surrounding regions during periods of elevated generation (e.g. resulting from disaster events) or if alternative processing infrastructure (such as waste-to-energy) becomes constrained. There will also be a need for putrescible landfills to treat small quantities of inert material generated in the Wheatbelt region, as the quantities and distribution of inert waste generated (200 tonnes per year in 2030) would likely not justify the development of new inert landfills.</p> <p><b>Principle 5: Waste facilities strive for better practice</b></p> <p>Improvement of better practice landfill management in the Wheatbelt will require 72 per cent of facilities to develop or update post-closure plans, and potentially three facilities (totalling 1,736,500 tonnes of capacity) to implement actions to de-risk their operations.</p>	<p><b>Low</b></p> <p>Options for more efficient inter-regional waste transfer infrastructure and contingency arrangement could alleviate short-term capacity constraints between the South West, Great Southern and Wheatbelt regions.</p>