

# Transfer Station 4.0: Circular Hub

Jarvis Webb  
Rawtec



# About Rawtec



- **One of Australia's leading waste management, recycling and resource management consultancies.**
- **Team of waste, recycling, engineering, economic, sustainability, and behavioural specialists.**
- **Specialist understanding of:**
  - **waste and resource recovery service procurement**
  - **businesses sustainability requirements**
  - **waste and recycling industry**
  - **Circular Economy**
  - **existing and new waste and resource recovery infrastructure**
  - **environmental regulatory requirements in Aus.**

# About me



**Jarvis Webb**  
**Senior Consultant, Rawtec**

- **Qualifications in business, environmental management and sustainability.**
- **Previous waste and resource recovery related projects include:**
  - **service procurement**
  - **waste planning for developments (individual buildings to precinct scale)**
  - **strategy development**
  - **data analysis and reporting**
  - **piloting of new services.**
- **WMRR YP Scholarship Winner**

# Transfer Station 4.0: The Circular Hub



# Brief history: Open dumps to transfer stations to resource recovery centers

## 1900-1960

- Waste dumped in ocean, wetlands, or anywhere
- Use of incinerators in cities before making way to landfills
- Informal recycling common.



## 1960s-1970s

- Landfills move further away from metropolitan areas and increasingly regulated
- Waste transfer stations take their place.





# Brief history: Open dumps to transfer stations to resource recovery centers

## 1980s-2000s

- Community attitudes change
- Kerbside collection systems become the norm
- Recycling targets.

## Today

- Transfer stations modernise and shift towards being **resource recovery centres**
- Facilities become safer with better environmental outcomes
- Informal recycling only occurring for hard waste prior to collection.



# Was anything lost along the way?

## What's missing?

- Salvage
- Reuse
- Repair.

## How do we bring these back in a way that:

- Is safer (and insurable)
- Convenient
- Provides better resource recovery outcomes.

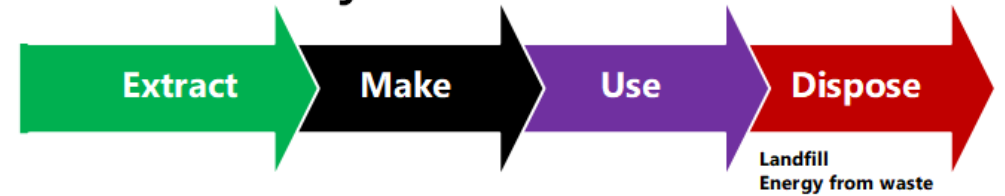


# What is a Circular Hub?

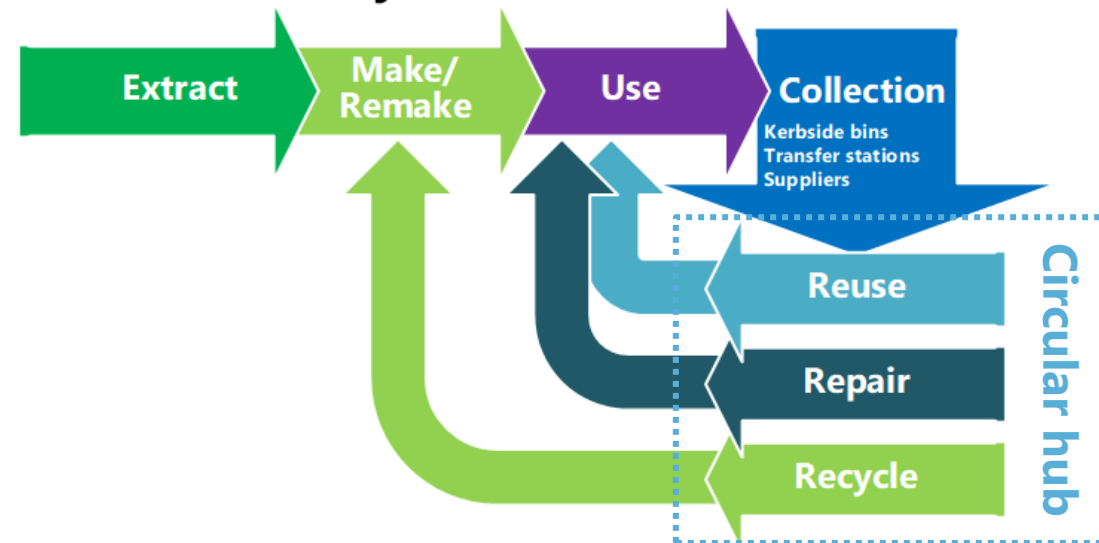
Transfer station or resource recovery centre (TS/RRC) that prioritises avoid/reduce and reuse (as per the Waste Hierarchy) and Circular Economy outcomes.

- Traditional TS/RRC activities and responsibilities
- One-stop-shop material/item donation, resale, reuse, repair, refurbishment, remanufacture
- Spaces for community members to interact and share tools, resources and knowledge
- Purchased of recycled content products at the facility where the original waste material is dropped off (e.g. compost, mulch recycled aggregate).

## Linear Economy



## Circular Economy



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# What's the difference?

## Traditional resource recovery centre, transfer station or landfill

### Priority area for TS/RRC

- Recyclables aggregation and transport for further processing
- Residual/general waste aggregation for disposal into landfill
- Some recovery for recycling of separated streams (e.g. cardboard, scrap metal)
- May include a tip shop/recycling shop.





**Traditional functions of a TS/RRC**



- Sharing of resources**
- Reuse and donation**
- Repair, upcycle, re-manufacture**
- Spaces to let to community**
- Spaces to let to compatible services, organisations or business**
- Sale of recovered materials**

- Tool library
- Charity/Op shop
- Resale shop
- Salvage area
- Makerspace
- Community shed
- Waste & recycling education
- Community garden/native tree nursery
- Cafe
- Pallet timber furniture
- Mower/small engine repair
- Mulch and compost
- Recycled aggregate and clean fill

# Benefits provided by a Circular Hub



Circular Economy



Skills and education



Community and mental health



Employment

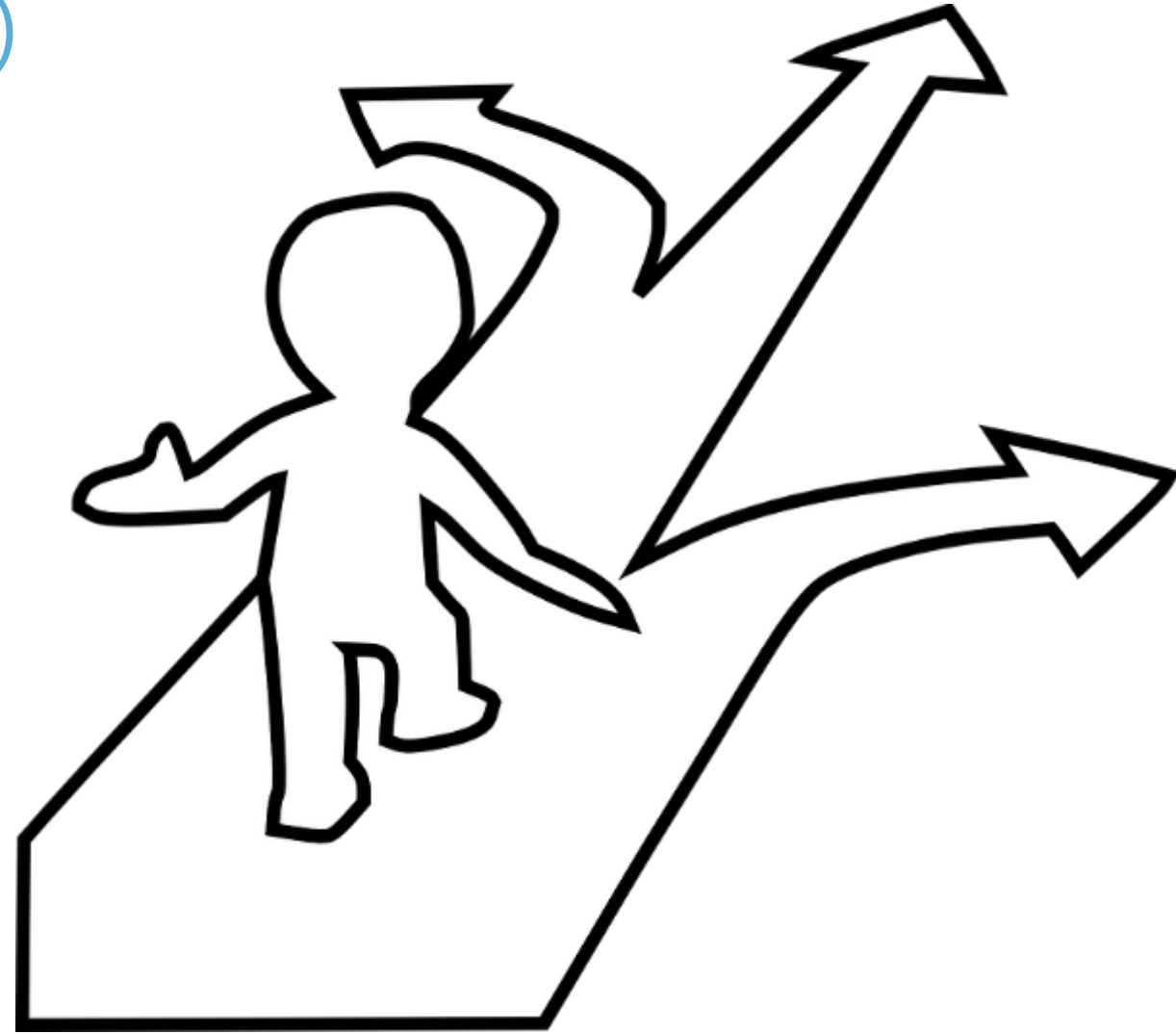


Social Licence



# Challenges (considerations)

- Not all sites suitable
- Layout of current site
- On-going management
- Safety
- Stock management/stockpiling of waste
- Maintaining buy in from stakeholder organisations
- Cost



# From idea to concept

Port Pirie Transfer Station





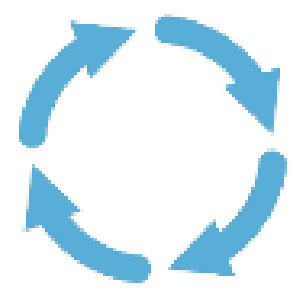


**Office**

Port Pirie South

**Transfer Station**

**Gate House &  
Weighbridge**



## 1. Resale, Repair, Reuse & Community Centre

A flexible space that potentially includes:

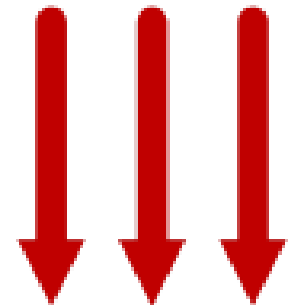
- community shed/makerspace with repair and upcycling/reuse activities
- resale shop, charity shop and salvage yard
- tool lending library
- native tree nursery
- other spaces e.g. waste/recycling education, community gatherings, café, areas/spaces to lease out to related local business.



## 2. Front-End Resource Recovery Area

Designated and well signed and designed drop-off areas for:

- items/materials accepted for free (e.g. cardboard, E-waste)
- items and materials that are accepted for a fee (e.g. mixed C&D, tyres).



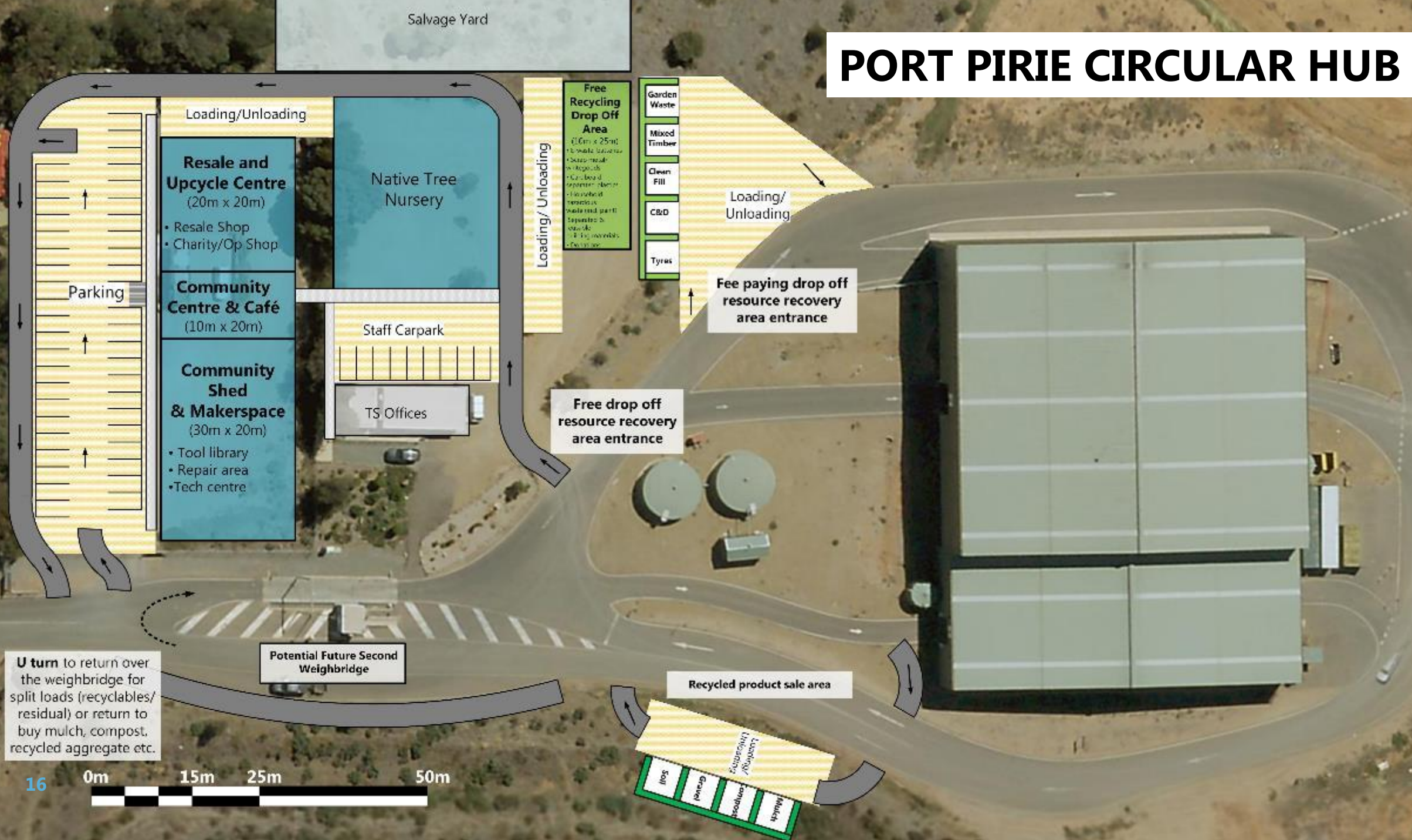
## 3. Transfer Station

Includes:

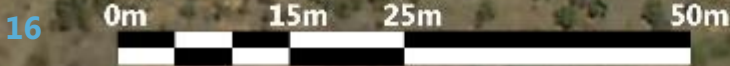
- drop off of general/residual waste
- kerbside drop off and bulk transport activities
- other waste disposal (e.g. asbestos (nominated location)).



# PORT PIRIE CIRCULAR HUB



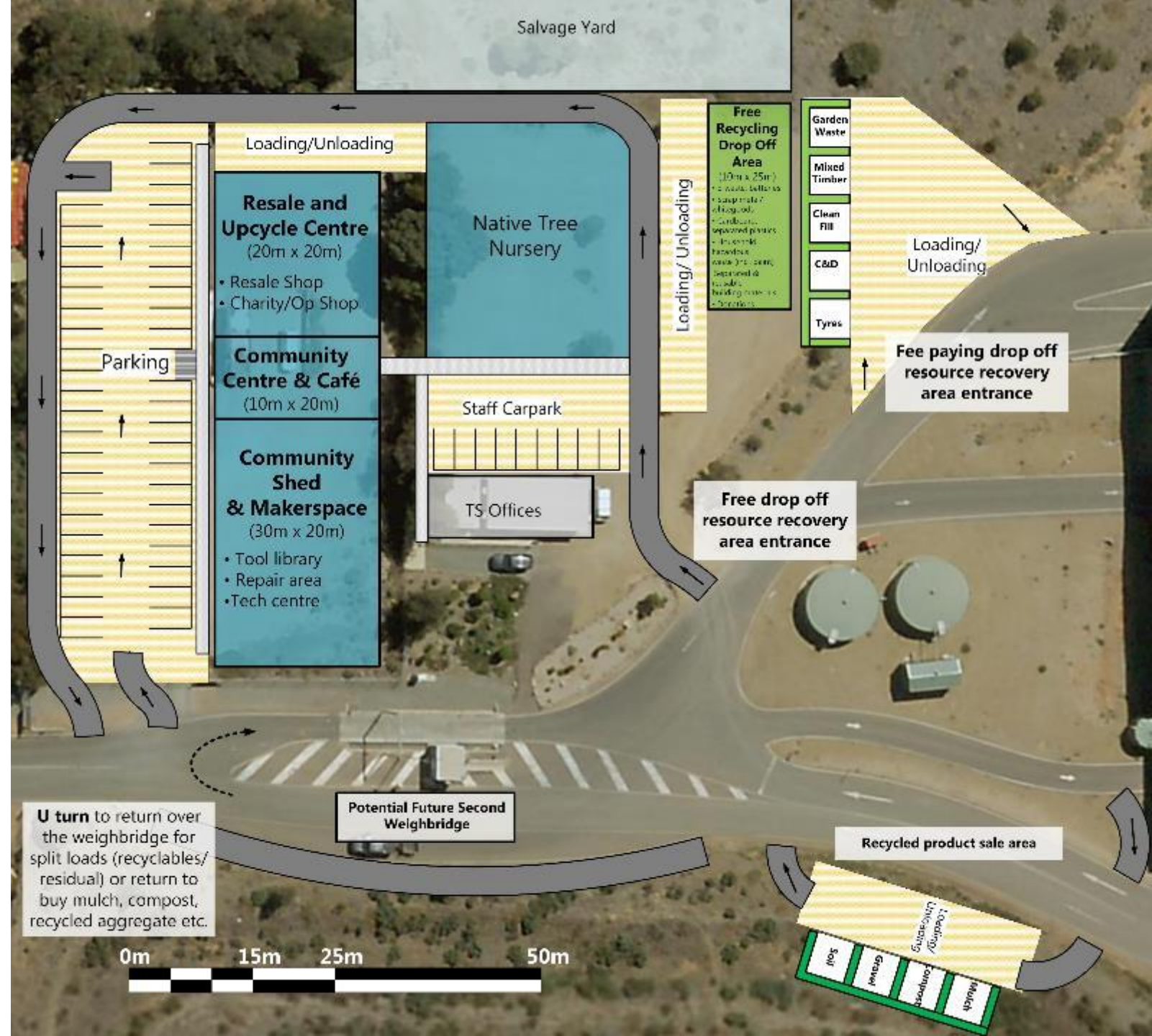
**U turn** to return over the weighbridge for split loads (recyclables/residual) or return to buy mulch, compost, recycled aggregate etc.





# Key design features

- Gate house supervision and control:
  - Inspection of loads and direction to best use disposal location.
- Shopping-like experience, including parking external the main drop-off area for customers, amenities, café?
- Minimises cross overs
- Flexible design:
  - lined shed that can be adapted for use over time
  - room for future additions (e.g. second weighbridge, spaces to lease to related businesses).





# Key takeaways for developing a Circular Hub

## Where can synergies be made?

- Bring related services, land uses, organisations or businesses together
- Are there any council services that are better located at the transfer station, RRC, landfill?

## Enhance the experience:

- Make users and shoppers enjoy the experience
- Provide necessary amenities

## Receive community buy-in from the community:

- Make the community welcome
- Identify and support champions
- Develop a framework so responsibility is shared between multiple community groups



# Thank you

## Special thankyou to:

- Port Pirie Regional Council
- Team at WMRR for putting on the YP Scholarship

