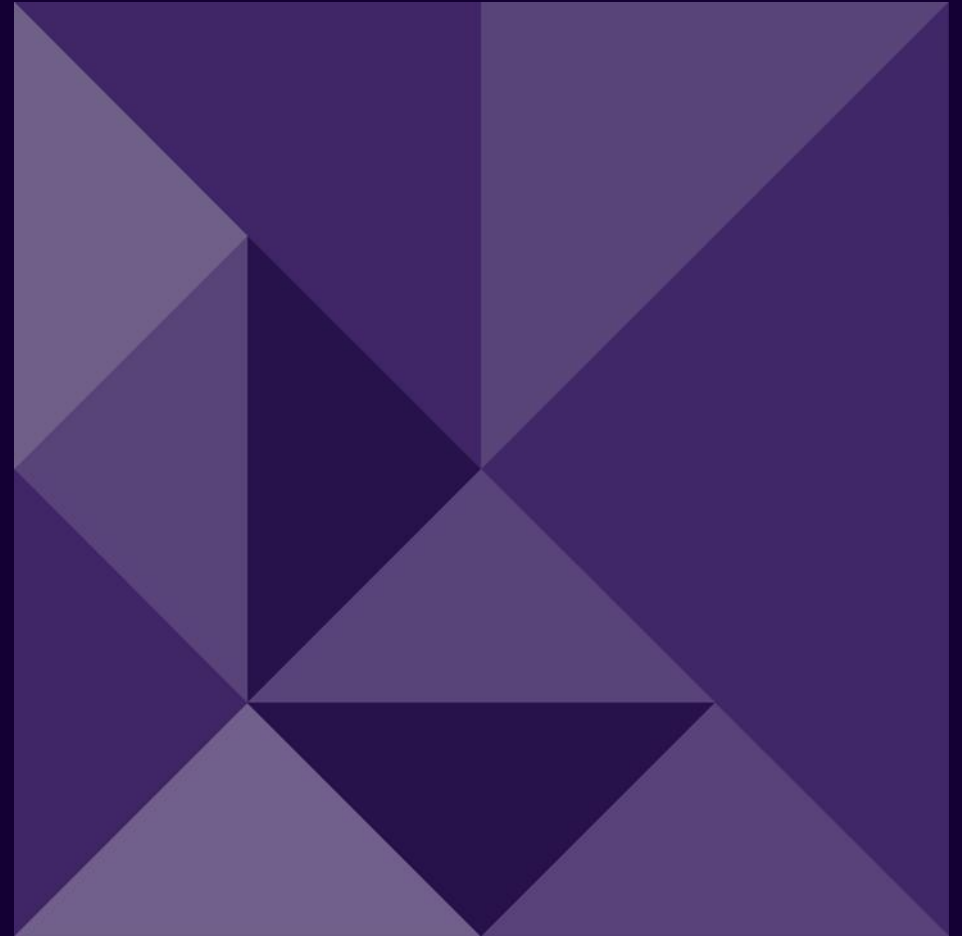


ACIL ALLEN

Biosecurity Truck Wash Facilities for SA Livestock Transshipping Hubs

Preliminary Business Case

31 July 2024



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Report to:

Livestock SA and PIRSA

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Goomup, by Jarni McGuire

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Glossary

Abbreviations	Definitions
A double	Road train equal or less than 36.5 metres in length
Base design	Minimum requirements for a new livestock truck wash facility
B-triple	Road train equal or less than 36.5 metres in length
Biosecurity	Biosecurity is the management of risks to the economy, the environment, and the community, of pests and diseases entering, emerging, establishing or spreading
Capital recovery	Income required to recoup capital expenditure over 20 year
Containment phase	Biosecurity management to contain the spread of an exotic pest or disease
Cost recovery	Income required to recoup operation and/or capital expenditure over 20 year
Effluent dump	Facility to empty livestock truck effluent tanks
Effluent tank	Tank to contain effluent on livestock truck
EADR	Emergency Animal Disease Response
Endemic animal pest and disease	Pest or disease present at a location
Exotic animal pest and disease	Pest or disease not or rarely present at a location
General Biosecurity Obligation	Shared responsibility of all stakeholders to manage biosecurity risk
Modular design	Combination of base design, options, and additional bay for a livestock truck wash facility
Optional design	Additions to base livestock truck wash facility
Prevention phase	Biosecurity management to contain the spread of an endemic pest or disease
Primary objective	To remove livestock waste and effluent from livestock trucks to be clean prior to loading
Reasonable access	Wash facility provides reasonable access for livestock trucks in a zone and aligns with cross zone movements
Secondary objective	Other truck wash objectives such as vehicle maintenance, environmental outcomes, and co-location with other services
Transport objectives	Livestock movements for backgrounding, feedlotting, sale, slaughter, and other purposes

Summary Report

Background

Biosecurity is a key issue for Australian livestock producers. Australia has a range of endemic livestock pests and diseases that need to be managed and a need to minimise risk and prepare to prevent new and emerging incursions to protect the livestock industry and its value chain.¹

Truck wash facilities are one option for livestock transporters to minimise biosecurity risks under general biosecurity obligations.

Livestock SA Inc. and the Department of Primary Industries and Regions, South Australia (PIRSA) commissioned ACIL Allen (with GHD) to develop a business case for biosecurity truck wash facilities for livestock transshipping hubs in South Australia (SA).

The aim of this project was to scope the industry and state needs from a biosecurity perspective, develop a rationale for and identify potential new locations for three new facilities, provide financial analysis to for options using a modular design and consider possible investment and funding arrangements and develop a business case.

This was done over several stages in conjunction with a stakeholder reference group. Key stages included: desktop review, technical specification and modular design, stakeholder consultation, analysis and financial modelling).

¹ Emergency biosecurity outbreaks and controls are outside the scope of this project.

Major considerations

The number and location of truck washes are primarily to manage biosecurity risks during the prevention phase for the cattle, sheep and goat livestock industries at livestock transshipping hubs.

Facilities are required to meet the following principles:

- Remove and dispose waste/effluent from trucks between different livestock loads
- Empty livestock effluent tanks while loaded
- Meet pre-incursion livestock biosecurity, environmental, OH&S, welfare regulations
- Owner capable of (partly) financing and operating a facility to these standards
- Reasonable access and/or additional services are to sustain sufficient revenue

Results & analysis

Three priority locations were identified (Adelaide-Fleurieu Peninsula/Kangaroo Is.; Northern Pastoral (Port Augusta); Murray-Mallee (Murray Bridge/Tailem Bend)). There is a rationale and local support to establish a truck wash facility around Port Augusta and on the Fleurieu Peninsula to achieve (livestock) biosecurity and secondary objectives. Further investigation is needed to assess a facility in the Murray-Mallee.

The preliminary construction estimates range from \$0.90 million for a basic single bay facility to \$3.1 million for a 3-bay roofed facility with water use, excluding land, utilities and permits.

A break-even analysis estimated the number of required trucks washes per day to cover costs. Four options and three financial scenarios were modelled to analyse commercial viability.

Findings

1. A new biosecurity truck wash facility is not a commercially viable proposition relative to existing facilities with a lower cost basis
2. A truck wash needs sufficient use, higher charges and financial support to be viable
3. Operators need to cover operational costs
4. Capital costs will require public and private investment to establish suitable facilities.

Recommendations

- Assess existing truck wash facilities
- Publish a costed design to inform the market
- Co-finance a pilot facility (existing or new site)
- In conjunction with an education program.

Main Report

1 Introduction

ACIL Allen (with GHD) was commissioned to develop a preliminary business case for biosecurity truck wash facilities for livestock transshipping hubs in South Australia (SA) by Livestock SA Inc. and the Department of Primary Industries and Regions, South Australia (PIRSA).

Context

Livestock movement is necessary part of the value chain but creates a biosecurity risk. Biosecurity is a shared responsibility and transporters (like everyone else) have an obligation to reduce the spread of livestock diseases.

Biosecurity is a key and growing concern for Australian livestock producers. Australia has a range of endemic livestock pests and diseases that need to be managed and a need to minimise risk and prepare to prevent new and emerging incursions to protect the livestock industry and its value chain.²

Truck wash facilities provide transporters with the opportunity to clean their trucks and minimise biosecurity risks.

To incentivise use, without specific regulatory requirements, these facilities need to be fit for purpose, cost effective and strategically located (near places where livestock are loaded and unloaded and on roads that are suitable for trucks).

Objectives

The objectives of this project are to:

- Scope the needs and provide a rationale for truck wash facilities at SA livestock transshipping hubs
- Understand livestock movements, transport task and drivers for locating new and updating existing facilities
- Identify potential locations for new facilities
- Develop a modular, costed design for a Greenfields site
- Consider an investment rationale and funding arrangements
- Provide a financial analysis of options for Livestock SA and PIRSA and develop a full business case.

Approach

The business case was developed in 3 stages. The first stage involved desktop review and sourcing relevant livestock data to identify the primary

(biosecurity) and secondary (economic and environmental) objectives and the truck wash facility and network functions.

The second stage involved GHD designing a truck wash facility to deliver on the biosecurity objective and associated industry and regulatory requirements based on technical specifications, available costs and stakeholder inputs.

The findings and approach were reviewed and updated with a stakeholder reference group after stages 1 and 2.

The final stage involved stakeholder consultation, financial modelling and multi-criteria analysis of biosecurity risk and financial viability to develop recommendations to develop a full business case.

Following feedback from PIRSA and Livestock SA this report will be updated and finalised.

Business case structure

This report outlines and assesses the rationale for a new livestock truck wash facility and recommendations to develop full business case.

The accompanying technical appendix provides the design specifications for a livestock truck wash facility.

² Emergency biosecurity outbreaks and controls are outside the scope of this project.

2 Truck wash objectives

Truck washes are an important piece of infrastructure across regional SA and for multiple industries including agriculture, mining and any other industry that relies on regional transport. For the purposes of this project the number and location of truck washes have been considered primarily to manage biosecurity risks during the prevention phase for the cattle, sheep and goat livestock industries at livestock transshipping hubs.

Primary objective – to minimise livestock biosecurity risk

State government departments set the legislative requirements for biosecurity within Australia's national borders. In SA, PIRSA manages the risks posed to South Australia by pests and diseases to maintain the productivity of primary industries, to protect the natural environment and the health and wellbeing of SA communities. In 2023, a Biosecurity Bill (refer Box 2.1) was tabled to bring SA legislation in line with national frameworks which focus on the

concept of shared responsibility of biosecurity (the general biosecurity obligation (GBO)) between government, industry and society. The GBO means that transporters, producers, processors and government need to work together to minimise and prevent the spread of existing pests and diseases and prepare for new and emerging incursions.

Box 2.1 The Draft SA Biosecurity Bill

The Biosecurity Bill aims to:

- ensure protection from pests and diseases that threaten our economy, terrestrial and aquatic environments or may affect public amenities, communities and infrastructure
- provide South Australia with a modern, flexible and responsive biosecurity framework
- bring consistency to the management of biosecurity across industries, by incorporating a number of biosecurity related Acts
- promote shared responsibility for biosecurity amongst government, industry and community.

Source: [PIRSA](#).

Truck wash facilities have the ability to assist in managing biosecurity risk as one component of biosecurity control for the livestock industry through providing the opportunity for trucks to **remove**

animal and other **wastes** and dump stored effluent to be **clean prior to loading** livestock.

Truck washes contribute to the **prevention phase** in the biosecurity continuum by reducing the risk of spreading disease in waste to complement other biosecurity policies to ensure disease free livestock.

Truck washes may be used in the eradication and control phases provided suitable containment infrastructure and arrangements are in place.

Secondary objectives

Other reasons for having access to truck wash facilities beyond the direct benefits of biosecurity control for the livestock industry, government and society include:

- Best practice **transport business operations** (i.e. a clean truck for a high quality of service to customers)
- Best practice **vehicle maintenance** (i.e. trucks last longer when they are kept clean)
- **Co-location** with other truck and or livestock related services (e.g. truck stops, refuelling services, weigh stations, and other amenities and/or saleyards, feedlots, processors, etc).
- Improving **environmental** outcomes by providing waste/effluent collection which minimise pollutants in the environment and limit contamination and the transfer of plant and/or animal material and/or other residues.

3 Biosecurity assessment

Truck washes need to align livestock biosecurity and transport objectives with facility operator and user (transporter) needs and associated standards/regulations.

Biosecurity threats

SA Livestock biosecurity threats are categorised as exotic (very rarely or does not occur) in or endemic (localised or more widespread occurrence) to South Australia and Australia.

All exotic (e.g. Foot and Mouth Disease and Lumpy Skin Disease) and significant endemic (Johne's disease sheep lice, Footrot, Pestivirus, Theileria) diseases are notifiable to monitor spread and inform biosecurity response programs ([PIRSA](#)).

South Australia has 10 biosecurity zones based on primary industries, transport network, biosecurity threat and administrative boundary considerations. Access to a facility will contribute to reducing biosecurity risks in and between zones.

Wash facilities contribute to biosecurity by removing potentially infectious waste that would spill into the environment or infect new livestock loads.

Requirement: reasonable access to remove waste from trucks

Transshipping hubs

There are three major transshipping tasks

- **(Un)load:** livestock unloaded, and new livestock loaded at existing or new location
- **Re-load:** Unload, rest, reload livestock at one location for driver and animal welfare
- **Cross-load:** Swap livestock between trucks at one location to meet operational requirements.

Truck washing between different loads ((un)load)) makes the greatest contribution to the primary objective: reducing the risk of biosecurity threats.

Wash facilities need to be located close where livestock transshipping occurs. At present public facilities are primarily located at saleyards. Transshipping also increasingly occurs at and between depots, feedlots, livestock producer properties and direct to processors.

Feedlots, depots and saleyards operate regularly or occasionally and using either permanent or temporary infrastructure.

Welfare and operational requirements are increasing demand for reloading and cross-loading.

While demand for (un)loading is influenced by seasonal conditions and livestock market trends.

Requirement: reasonable access remove waste between loads and augment existing wash facility network

Wash facility

There are four common requirements for a facility

- To remove effluent and other waste from a livestock truck a wash/disinfectant bay, effluent tank dump and disinfectant applicator is needed to meet biosecurity requirements.
- Waste and wastewater need to be contained and treated to meet environmental regulations.
- 24 hours a day access with amenities to meet transporter requirements.
- Design to meet OH&S requirements.

Additional (not in scope) requirements include

- Site location
- Local road network
- Water and electricity
- Stockyard to (un)load livestock
- Emergency biosecurity facilities and treatment

Requirement: widely accessible facility to remove and contain waste from livestock trucks

Reasonable access

Reasonable access is defined as the degree to which wash facilities support livestock movements in a zone and aligns with cross zone movements.

There are 8 widely accessible wash facilities located in 60% South Australia’s biosecurity zones. All the facilities are located at saleyards.

Five are clustered in the South East, reflecting the need to service washing for the higher livestock concentration and associated truck movements in the Lower, Mid and Upper SE zones and SW Victoria between properties, feedlots and processors.

Bordertown and Keith service washing for truck movements between the rest of SA and Victoria.

The remaining facilities are located in zones with lower livestock concentration and service washing for both in zone and cross zone movements.

In zone access

Widely accessible facilities are available at transshipping hubs for transporters to wash between livestock loads in 6 of 10 zones.

The constraint on additional facilities is the presence of a viable in-zone transshipping hub.

At present 4 zones do not have a widely accessible wash facility due to lower livestock concentration or

suitable permanent transshipping hub based on in-zone movements alone.

Wash facilities in further two zones (Mount Compass and Jamestown) are constrained by their location in the livestock transport network.

Cross zone access

Livestock is moved across SA for breeding, backgrounding and slaughter purposes. There are four major livestock transport routes

- Northern pastoral to SA agricultural zones
- Eyre Peninsula + WA to rest of SA, Vic + NSW
- All remaining SA zones to South East SA
- South East SA to all zones and Victoria.

Biosecurity risk reduces when trucks empty effluent tanks and wash as soon as possible between loads. Diverting to an appropriate accessible facility creates cost and timing delays reducing truck hygiene and maintenance.

At the same time, it is not feasible to provide facilities that cater for all truck wash requirements. Transporters and livestock facilities also need to make their own arrangements.

More importantly any new truck wash facility needs to be located to address cross-zone livestock movement needs and biosecurity risks at a hub where livestock transshipping occurs.

Based on these considerations there are 3 priority locations where a new truck wash facility is required

based on addressing gaps and servicing multiple zones and transport routes are:

- **Adelaide-Fleurieu Peninsula/Kangaroo Is.**
- **Northern Pastoral (Port Augusta)**
- **Murray-Mallee (Murray Bridge/Tailem Bend)**

Table 3.1 Wash facility design elements

Zone	In zone facilities	Next closest SA facilities	Interstate facilities
Lower South East	Mount Gambier Millicent	Naracoorte	Casterton VIC Hamilton VIC
Mid South East	Naracoorte Bordertown Keith	Mount Gambier	Casterton VIC Ouyen VIC Balranald NSW
Upper South East	-	Bordertown Keith	Ouyen VIC Balranald NSW
Murray Mallee	Murray Bridge	Bordertown Keith Dublin Jamestown	Ouyen VIC Balranald NSW Trangie NSW
Adelaide Fleurieu	Mount Compass	Keith Dublin	Not applicable
Kangaroo Island	-	Mount Compass	Not applicable
Barossa Lower North	Dublin		Not applicable
Yorke - Mid North	Jamestown	Dublin	Cloncurry Qld Trangie NSW Esperance WA
Northern Pastoral	-	Jamestown	Cloncurry Qld Trangie NSW
Eyre Peninsula	-	Jamestown	Balranald NSW Esperance WA

Source: ACIL Allen

Wash facility design

Modular design

All wash facilities must be widely accessible and able to remove animal and plant waste from livestock trucks to meet the biosecurity objective.

Wash facilities need to be fit for purpose, considering future market, operational and local conditions/requirements across (South) Australia.

At present wash facility design is constrained by:

- Absence of a nationally agreed standard
- Unpredictable facility demand
- Site requirements requiring individual design.

These considerations can be addressed through a modular approach that identifies the key functional design elements for which technical specifications are available and possible.

The technically specified elements are used to propose a minimum viable design for one truck wash bay that can be augmented and scaled with additional elements required.

Design elements

17 key design elements were chosen through consultation and desktop review (Table 3.2) and are

fully specified in a separate technical appendix. Site specific elements were not specified because they vary considerably and require individual design.

Table 3.2 Wash facility design elements

Element	Minimum	Optional
Operations		
Access	24h DIY all year round	-
Biosecurity state	Prevention	-
Truck wash bay		
Number	1 segregated bay	Additional bays
Length	B-triple trailer	B-triple truck
Lighting	Each side of bay	-
Access	B-triple drive through	-
Platforms	Each side and rear	-
Drainage/safety	As per standards	-
Roof	-	1 per bay
Wash down		
Water supply	Water supply and tank	Re-use system
Water pressure	100l/min	
Chemicals	Detergent/Disinfectant	-
Hoses	Wash from side + back	-
Truck effluent tank disposal		
Dump point	Separate drive through	-
Facilities		
Payment	Self-serve kiosk	
Amenities	Shower and toilet (1)	Additional as required
Facility effluent/waste disposal		
Solids collection	Drive in sump	
Oil/water sep.	Yes	
Waste water	Effluent pond	+ water re-use plant
Site requirements		
Road network	Not considered or included in project brief.	
Utilities	Requirements are site specific and require individual investigation and design.	
Livestock Yards		
Site constraints		

Minimum viable design

The proposed minimum viable design is a

- **self-service drive through facility capable of washing a B-triple truck trailer and separately emptying truck effluent tanks**
- **meeting OHS and health requirements**
- **providing shower and toilet amenities**
- **disposing waste and waste under non-emergency biosecurity conditions.**

A single wash bay, dump site, toilet and shower, is proposed to allow for modular scaling to meet specific scaling to suit specific site requirements.

The rationale for self-service is to maximise access to the facility and reduce need for staffing.

The facility wash and waste disposal is designed for non-emergency animal disease conditions, the dominant operational setting expected during the facilities life cycle.

Options

A bay roof and water re-use system can be added to a facility to meet site requirements.

Additional bays and amenities may be required to provide sufficient access during periods of high demand.

4 Viability assessment

Biosecurity truck wash facilities at livestock transshipping hubs need to be used by sufficient trucks to attract finance, operators and be commercially viable.

Current business models

Most widely accessible livestock truck wash facilities in SA and Australia are based at privately or Council owned saleyards. Private ownership is by individual stock agents or a jointly owned company. Facilities are run by the saleyard under an owner-operator or appointed agent arrangement.

The commercial model is to charge an access fee and time-based costs to cover operational expenses and some allowance for depreciation. Seven of the eight SA livestock truck wash facilities are accessible through the AV Data network.

There are other less accessible livestock business models. Some livestock transporters, producers, feedlot and processors have self-financed wash facilities for their own use and selected customers. The SA export pork processors own and operate closed wash facilities for trucks transporting pigs.

Requirement: Local owner and operator

Network location

Secondary objectives are key drivers of truck wash facility use in addition to livestock biosecurity.

Livestock and driver welfare are becoming more important and increasing demand for livestock facilities on transit routes.

Livestock transporters use the facilities as part of vehicle maintenance and to offer clean trucks to meet customer market requirements or provide a point of difference to competitors.

Well-positioned facilities may attract trucks needing washing from mining, non-livestock agricultural and other industries to meet their own requirements.

It is for these reasons wash facilities are located at livestock transshipping hubs and both existing and potential new facilities are seeking co-benefits in order attract “passing trade” to their location on core livestock movement routes.

Requirement: presence of secondary objectives

Facility costs

The capital cost of a biosecurity livestock truck facility is substantial (Table 4.1) having risen in line with increased biosecurity, environmental and OH&S standards and regulations.

To be commercially viable a facility needs to be able recover capital and operational costs.

Requirement: Ability to recover costs

Table 4.1 1-bay wash facility cost estimate

Base	Cost (AUD)
Wash bay + effluent dump	920,000
Waste treatment system	
Shower + toilet	
Options	Cost estimate (AUD)
Roof	75,000
Bay extension (per bay)	270,000
Water re-use system	400,000

Source: GHD from various sources

Facility finance

The commercial viability of truck wash facilities is challenging given the cost and dynamic nature of livestock movements. A new biosecurity truck wash facility located at a transshipping hub will compete against existing facilities and must be able to attract finance to be viable from one or more sources

- Private equity to achieve financial returns from truck wash and related commercial interests
- Public finance to achieve biosecurity, environmental economic and social objectives

A new facility is unlikely to be fully commercially financed if the costs and risks involved are not commensurate with expected financial returns.

Requirement: ability to attract finance

Wash facility finance

Options and scenarios

Break even analysis is used to estimate the number of required **trucks washes per day at a one bay facility** to cover costs. **Four options** are modelled: **Base** and options with a **roof** and **water re-use**. An **extended bay** length option to cater for a full B Triple was included at the request of livestock transporters.

Three financial scenarios were modelled to analyse commercial viability under full (100%), partial (50%) and no (0%) capital recovery.

Inputs and assumptions

Table 4.2 Inputs and Assumptions	
Inputs and assumptions	
Discount rate	7%
Inflation rate	2%
Opex:Capex ratio (including maintenance)	20%
Modelling period (years)	20
Wash time (minutes)	90
Wash price per minute	\$1.00
Maximum trucks washed per bay a day	10
Facility utilization (percentage days/year)	50%
Excludes land, utility, permit costs etc.	-

Source: ACIL Allen and GHD from various sources

Results

Options A and B breakeven if the facility operates for 7.5 hours a day (10 trucks every second day). They require increased charges and financial support to do so. Options C and D require higher utilisation and are not feasible at lower charges.

Table 4.3 Average trucks per day to recover costs (ex. land, utilities etc.)		Capital recovery		
Option		0%	50%	100%
A: Base	\$0.80/min	14	17	20
	\$1.00/min	11	13	16
	\$1,20/min	9	11	13
	\$1,40/min	8	10	11
B: Base + roof	\$0.80/min	15	18	21
	\$1.00/min	12	15	17
	\$1,20/min	10	12	14
	\$1,40/min	9	10	12
C: Base + roof + reuse	\$0.80/min	21	25	30
	\$1.00/min	17	20	24
	\$1,20/min	14	17	20
	\$1,40/min	12	15	17
D: Base + roof + reuse + extension	\$0.80/min	25	30	35
	\$1.00/min	20	24	28
	\$1,20/min	17	20	24
	\$1,40/min	14	17	20

Source: ACIL Allen. Refer Appendix C

Implications

A new biosecurity truck wash facility is not a commercially viable proposition given required use and do not include land, utility and permit costs. Reducing capital requirements improves but does not make a facility fully commercially viable.

This is to be expected given **existing truck wash facilities have a lower cost basis** from mature assets based on different design standards and charges that may not include renewal costs.

To be **viable** a truck wash **needs sufficient use** and either **increased charge** or **financial support**.

Increasing charges is a network challenge given competition between facilities and high charges may disincentive truck washing. Current livestock wash facilities charge between \$0.74 (Jamestown) and \$1.08 (Naracoorte) per minute by comparison.

Strengthening obligations and education will assist increasing willingness to pay and facility use.

Financial support will require a combination of approaches. Capital has the greatest risk and price impact. If we assume **equal industry and public benefits capital costs can be shared evenly**. Public financing options include **concessional loans** and **direct grants** based on performance. Private finance can be by individuals or consortia.

Facility operators need to cover operational costs.

Potential models

A new biosecurity truck wash facility needs

- to achieve biosecurity & secondary objectives
- a suitable livestock transport network position
- have a suitable owner capable of financing and operating a facility.

The 3 priority zones identified are assessed against these criteria to inform potential business models.

Northern Pastoral

The Northern Pastoral biosecurity zone does not have a truck wash facility and the nearest one at Jamestown is not on the major livestock route.

Port Augusta is a major transport intersection for livestock transport from the pastoral region and WA as well as to and from the Eyre Peninsula. Livestock transshipping occurs to cross load at Yorkeys Crossing near Port Augusta.

Empty livestock trucks in transit through Port Augusta between loads (rather than cross loading) would meet the biosecurity objective.

Port Augusta is also the gateway for other heavy vehicle movement and the mining industry to the north. These movements do not directly pass through Yorkeys Crossing where the livestock industry transshipping is currently concentrated.

There is public and commercial interest in having a truck wash as part of **multi-use facility** providing

stockyards, fuel, food, rest and other services to livestock, freight and mining transporters.

There is **no consensus on the location**. Yorkeys Crossing involves diverting to the north of Port Augusta away from main east-west highway which passes through the town. Locating a facility close to the Port Augusta introduces a constraint to the township boundary and potential landuse conflicts.

Other locations in the Northern Pastoral zone do not have a key network node like Port Augusta with sufficient truck movements for a facility providing truck wash and other services.

Adelaide Fleurieu Peninsula and Kangaroo Island

The Adelaide-Fleurieu Peninsula has multiple saleyards, processors and one truck wash. The road network is complex due to the topography.

Livestock to and from the Kangaroo Island (KI) biosecurity zone needs to be transported through the Adelaide-Fleurieu Peninsula zone.

Truck washing is important for Kangaroo Island to maintain biosecurity and provide environmental protection, which underpins the integrity and assurances associated with agricultural produce. The island and mainland departure point at Cape Jervis are on the southern edge of the Fleurieu Peninsula, limiting the ability of these locations to attract other trucks to a wash facility.

On the south-western side of the Fleurieu Peninsula there is interest in a truck wash facility at the old **Normanville** meatworks to make use of the site and encourage commerce. Normanville's location, like Cape Jervis is a constraint in attracting sufficient trucks to a wash facility.

At the top of the Fleurieu Peninsula the **Mount Compass truck wash** facility is located at a small saleyard. Stakeholders interviewed report the truck wash facility is basic, limiting its utility.

In the Adelaide Hills there are **saleyards at Mount Pleasant and Strathalbyn** that have smaller livestock trade volumes compared to the Dublin, Naracoorte and Mount Gambier saleyards, which have well used truck wash facilities. There is a large **processor based at Lobethal** which attracts livestock from across the zone and state.

Publicly available options for trucks to wash in between loads in zone are to utilise Mt Compass in the south. Other options are outside the zone at Dublin to the north or facilities in the South East.

There is public and commercial interest in having a truck wash on the **Fleurieu Peninsula** to achieve **biosecurity and environmental objectives for both Adelaide-Fleurieu and KI zones**. The facility is seen as an **economic development** opportunity and to augment the existing Mt Compass facility.

The road and saleyard network structure are such that there is **no optimal location** for a biosecurity livestock truck wash facility on its own.

Commercial commitment to require washing of trucks moving on to KI would increase demand for a new truck washing facility.

The facility needs to align with **livestock transport to Lobethal** processor and **all heavy transport to and from KI** to attract sufficient trade.

Murray Mallee

Murray Mallee is a major livestock transit route and processor-feedlot destination. There is one small truck wash facility at the Murray Bridge processor that is not suitable for extensive public use.

The biosecurity rationale for a facility in the zone is to fill a gap in the network and reduce the amount of empty unwashed trucks transiting across zones.

No investigations have been done on interest or the location wash facility in the zone. There is no single point where livestock truck movements concentrate in the zone’s road network. The Murray Bridge-Tailem Bend may be a potential location.

Ownership and operations

Establishing a new livestock truck wash at a new location will require an owner who operates the facility or engages an agent to do so.

Eight of South Australia’s truck washes are located at saleyards that are operated by local government or agent who can undertake facility maintenance.

This is less frequent where saleyards conduct sales occasionally and staff are not readily available.

This review did not investigate existing livestock truck wash facilities, but stakeholders consulted noted upgrades will be required in the future to meet biosecurity, OH&S and in some cases environmental standards. Usage and environmental standards are affecting the on-going viability of the Millicent saleyard and truck wash.

The livestock industry differs to the pork industry which has built biosecurity truck wash facilities at the two export processors. This reflect the supply chain of the pork industry which is more self-contained, and movements concentrate at these two locations, providing a “natural” owner to operate a truck wash facility to meet biosecurity standards and requirements associated with public funding.

Adding biosecurity truck washes to livestock processors is not the optimal solution for the livestock industry. The major processors have truck washes in proximity, other than Lobethal which has local site constraints. There is one livestock truck wash at the new Murray Bridge processor facility. This truck wash was not built for widespread use and is not directly on the main transit route.

Secondary objectives are central to establishing a new (and upgrading existing) truck wash facility and relates to services required by heavy vehicle transport and livestock industries. The commercial opportunities are localised and the actual site, which require further investigation.

Implications

There is a rationale and local support to establish a truck wash facility around Port Augusta and on the Fleurieu Peninsula to achieve (livestock) biosecurity and secondary objectives. Further investigation is needed to assess a facility in the Murray-Mallee.

New facilities in all zones require public investment and location specific secondary objectives to attract private investment to be viable. At this stage there are interested parties rather than a potential owner-operator (group) that can secure private funding and receiving public financial assistance.

Table 4.4 Priority Zone Multi Criteria Analysis

Criteria	NP	FP/KI	MM
Biosecurity	●●	●●●●	●●
Secondary	●●●	●●	?
Network	●●●	●●	●●
Owner	●?	●?	?

Source: ACIL Allen

5 Conclusion

Findings

There are **five fundamental principles** to developing a new viable biosecurity truck wash facilities for livestock transshipping hubs.

Box 5.1 Truck wash facility principles

1. Remove and dispose waste/effluent from trucks between different livestock loads
2. Empty livestock effluent tanks while loaded
3. Meet pre-incursion livestock biosecurity, environmental, OH&S, welfare regulations
4. Owner capable of (partly) financing and operating a facility to these standards
5. Reasonable access and/or additional services are to sustain sufficient revenue

Source: ACIL Allen

At present there is interest in establishing a new truck wash facility in livestock network gaps at **Port Augusta** and on the **Fleurieu Peninsula**. There is also a potential gap in the Murray-Mallee.

While not in-scope some stakeholders consulted reported existing truck wash facilities may not be meeting all the requirements. Due to changing

market dynamics, aging infrastructure and increased regulatory costs.

The preliminary **construction cost estimates** are **\$0.9 to \$1.4 million for a one bay facility** meeting these requirements, excluding land, utilities and permits range. A new facility would need to **increase charges and receive assistance** to be financially viable.

Recommendations

The livestock industry must continually improve its biosecurity. Livestock truck wash facilities are part of an interdependent suite of preventions. They also have an emergency animal disease response role.

While there is interest in new facilities, for biosecurity and secondary objectives, upgrading existing facilities is also a priority. Cost and lack of a nationally agreed standard constrain both, at individual locations and in aggregate. The following recommendations are made to progress the development of livestock truck washes in SA.

Assess existing washes

The existing truck wash facilities contribute to biosecurity. Further investigation is needed to identify where the priority upgrades are in the existing truck wash network alongside new locations to develop appropriate statewide and individual business cases.

Publish a costed design

Cost and (perceived) design complexity is limiting stakeholder support and both public and private financing. Publishing a cost design will provide more information to overcome both. The technical appendix provides a reasonable basis for further design and improved cost estimates.

Co-finance a pilot facility

Demonstration is a proven way to improve standards. Given facilities require public and private funding co-financing a pilot facility is cost-effective way to demonstrate what is involved and promote best practice biosecurity. One way to achieve this is for **government** to seek competitive **tenders for 50% of capital costs** for a pilot facility that meets the truck wash facility **principles** and an additional principle that it can be converted for emergency animal disease response.

And an education program

The education program is needed to promote, inform and reinforce the need for trucking washing and best biosecurity practices across the livestock and transport industry. There needs to be a local (facility network) and statewide campaigns. Funding can be sought from government (biosecurity and economic development), national and state levy bodies and industry sponsors.

Appendices

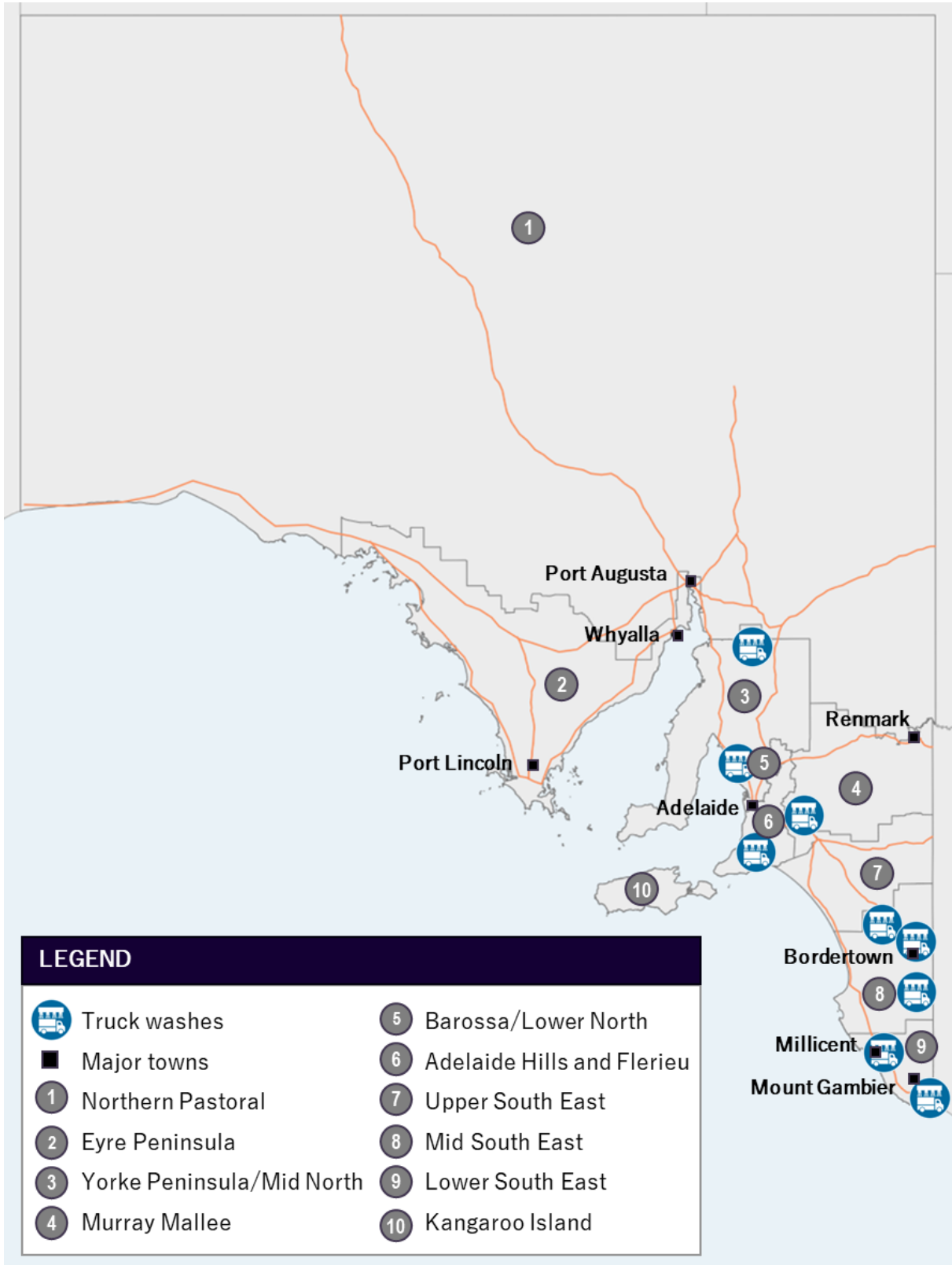
A South Australian Livestock Industry Profile

Table 0.1 Livestock infrastructure and wash facility locations

Biosecurity Zone	Livestock ('000)		Feedlots	Saleyards	Processors	Truck wash facilities			
	Cattle	Sheep				Location	Owned by	Charge	Used for
Lower South East			Meningie	Mount Gambier Millicent		Mount Gambier (Saleyard) Millicent (Saleyard)	Council Council	\$0.78/min \$0.91/min	Livestock
Mid South East	4,180	3,584	Tungali	Naracoorte Bordertown Keith	Naracoorte Bordertown	Naracoorte (Saleyard) Bordertown (Saleyard) Keith (Saleyard)	Council Council? Council?	\$1.00/min \$0.74/min \$0.74/min	Livestock + others Livestock
Upper South East			Tintnara	-					
Murray-Mallee	1,652	1,289	Burra Sedan Thornby	Murray Bridge Pinnaroo	Murray Bridge	Murray Bridge (Processor)	TFI	?	Livestock
Adelaide Fleurieu	927	847		Mount Compass Mount Pleasant Strathalbyn	Lobethal Strathalbyn	Mount Compass (Saleyard)	Private	?	Livestock + others?
Kangaroo Island				-	-	-		-	
Barossa Lower North	764	553	Dublin Clare	Dublin	Two Wells	Dublin (Saleyard)	Livestock Markets	?	Livestock
Yorke – Mid North	329	268		Jamestown Crystal Brook		Jamestown (Saleyard)	Private	\$0.82/min	Livestock
Northern Pastoral	1,359	1,348	-	-	-	-	-	-	-
Eyre Peninsula	1,805	1,698	-	-	-	-	-	-	-

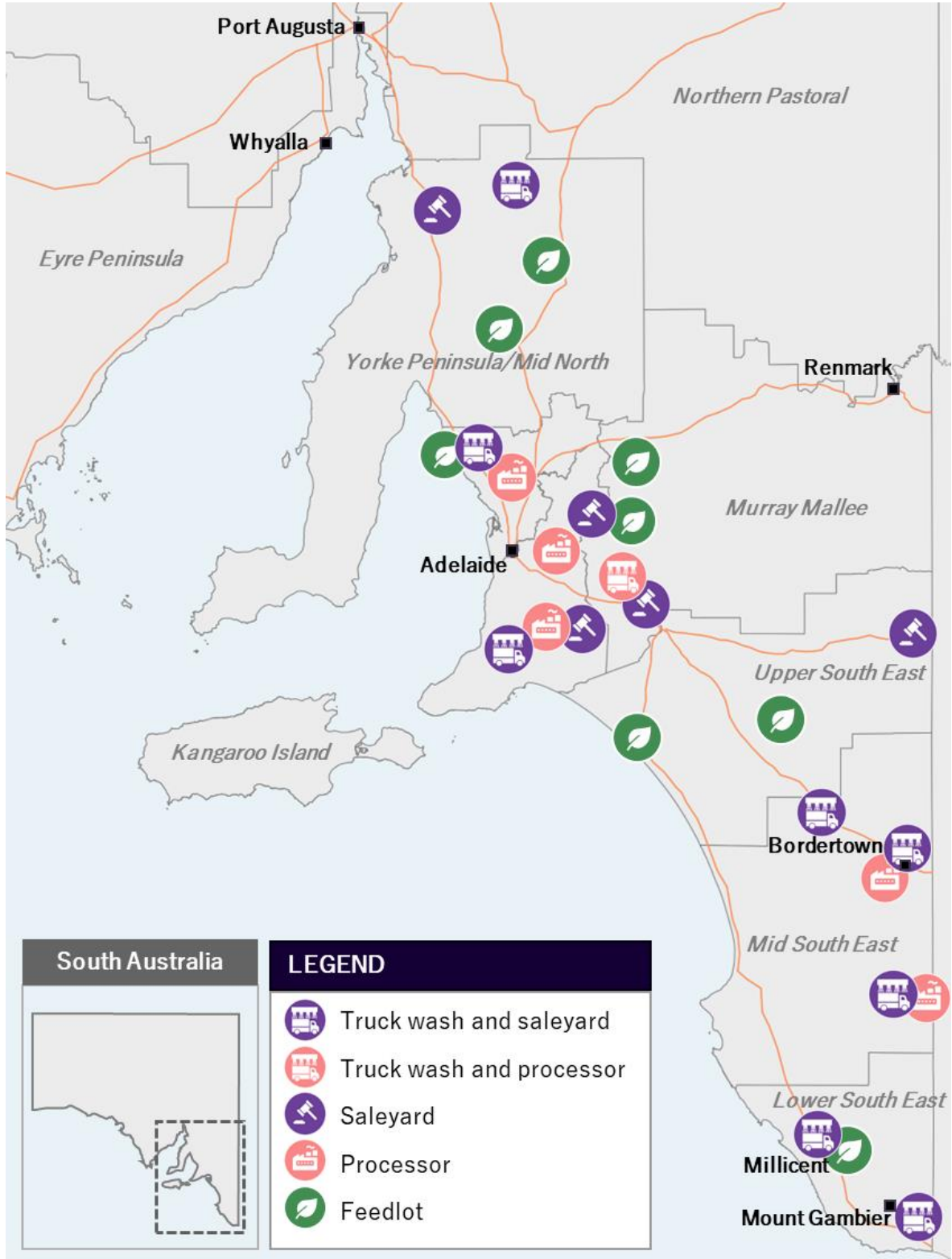
Source: ACIL Allen from PIRSA, MLA, AV Data and other sources

Figure 0.1 Livestock truck wash facilities in South Australia



Source: ACIL Allen from PIRSA, MLA, AV Data and other sources

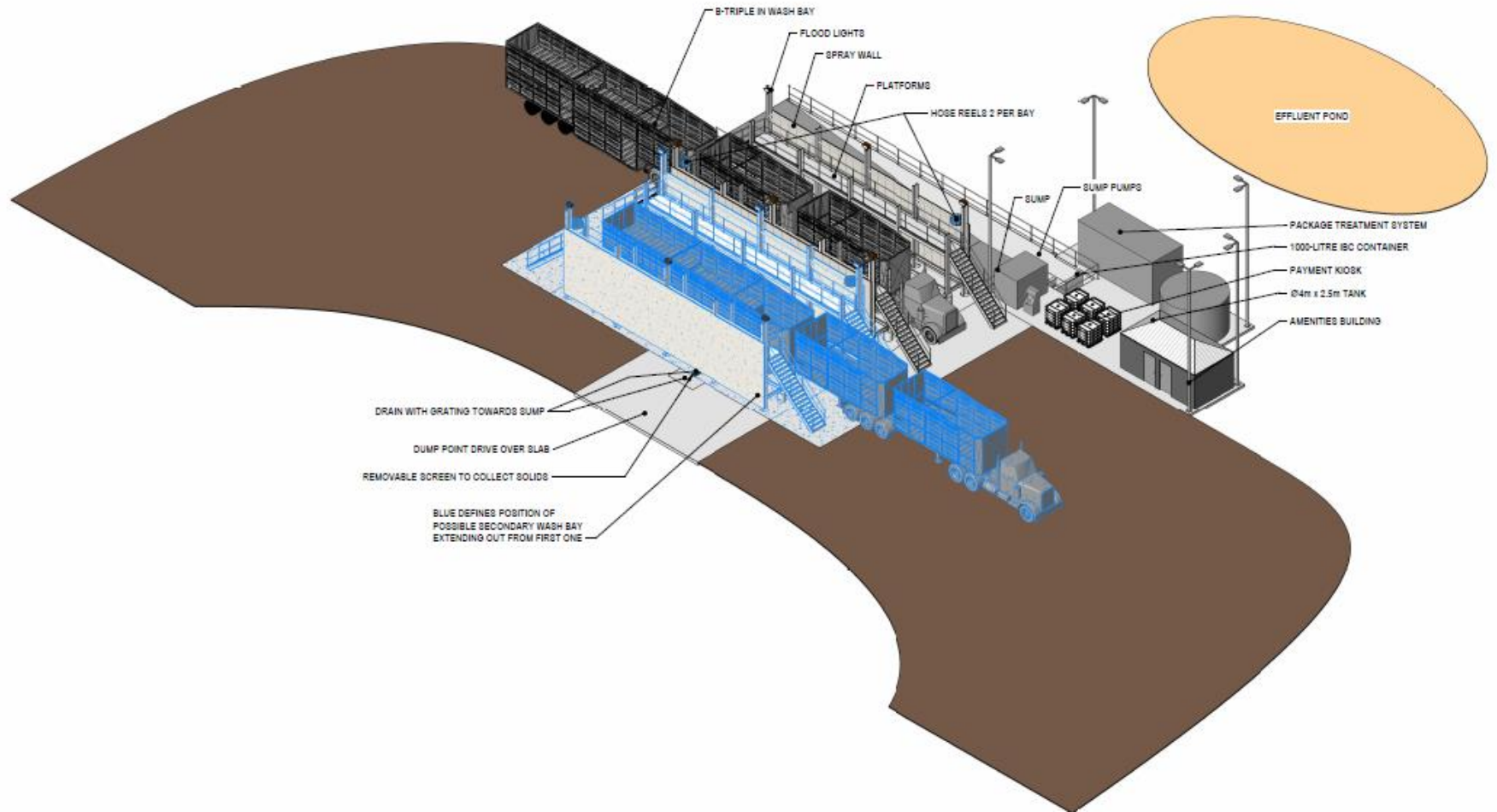
Figure 0.2 Key livestock facilities in South Australia



Source: ACIL Allen from PIRSA, MLA, AV Data and other sources

B Biosecurity truck wash bay design

Figure 0.1 Biosecurity truck wash bay pictorial view



Source: GHD

C Modelling inputs and Assumptions

General assumptions

Table 0.1 presents the general modelling parameters used in the analysis.

Table 0.1 Modelling parameters

Item	Assumption	Source/ rationale
Discount rate	7.0%	ACIL Allen. Consistent with Infrastructure SA Impact Analysis Guide 2022
Inflation rate	2.0%	ACIL Allen
Modelling period	20 years	ACIL Allen. A conservative expected lifetime of the truck wash facility

Source: ACIL Allen

Table 0.2 presents the capital cost estimates for the basic wash bay design, the reuse of water design, and optional extra elements within the wash bay.

Table 0.2 Wash bay and optional extras capital cost estimates, \$AUD

Item	Number of wash bays	Assumption	Source/ rationale
Basic design (waste to effluent pond)	1	\$900,000	GHD
	2	\$1,650,000	GHD
	3	\$2,350,000	GHD
Reuse of Water Design – Water treatment system for water reuse	1	\$1,300,000	GHD
	2	\$2,200,000	GHD
	3	\$3,000,000	GHD
Addition of two showers to existing amenities		\$20,000	GHD
Roof (per bay)		\$75,000	GHD
Extension of truck wash (per bay)		\$270,000	GHD
Amenities (Two toilet stalls)		\$50,000	GHD

Source: GHD

Table 0.3 presents the estimated capital cost of each development option. Option A reflects the basic wash bay design, with each subsequent option reflecting additional costs to the basic design.

Table 0.3 Capital expenditure by development option, \$AUD

	Bays	Option A: Base	Option B: Base + roof	Option C: Base + roof + reuse	Option D: Base + roof + reuse + extension
Capital cost	1	\$920,000	\$995,000	\$1,395,000	\$1,665,000
Capital cost	2	\$1,670,000	\$1,745,000	\$2,295,000	\$2,835,000
Capital cost	3	\$2,370,000	\$2,445,000	\$3,095,000	\$3,905,000

Source: ACIL Allen; GHD

Table 0.4 presents the assumptions used to inform the operational cash flows associated with the wash facility under each development option.

Table 0.4 Operational assumptions

Item	Assumption	Source/ rationale
Facility operations (% of year)	50.0%	Informed by industry consultation
OpEx to CapEx ratio	20.0%	Informed by industry consultation. Includes capital maintenance expenditure
Duration of a truck wash	90 minutes	Informed by industry consultation

Source: ACIL Allen

Modelling results

In this section, we present the results of the analysis results for each development option. In undertaking this analysis, three financial scenarios were developed to understand the results under different levels of capital recovery. The scenarios are listed below.

- **Scenario 1** presents results no capital cost recovery (0%)
- **Scenario 2** presents results with partial capital cost recovery (50%)
- **Scenario 3** presents results with full capital recovery (100%).

Results in this section are presented in terms of a **breakeven truck throughput rate** to understand the required number of facility uses per day in order for the facility to cover its costs. These results are presented for a range of facility use charges, from a low of \$0.80 per minute to a high of \$1.40 per minute. A consistent average wash time of 90 minutes per use is assumed under each scenario.

Where the breakeven rate of truck washes per bay a day falls below the base case assumption of 10 truck washes per bay a day, results have been highlighted. In these instances, it means that the facility generates a breakeven return on investment (i.e. ROI = 1.0) meaning that the facility’s net present value of benefits (i.e. revenue) at least covers the net present value of operational and capital costs.

Results: Scenario 1

Table 0.1 presents the breakeven number of truck washes results for Scenario 1 for one, two and three truck wash bays. The results show:

Table 0.1 Scenario 1 CapEx 0% results: Breakeven number of trucks washed per day (ROI = 1.0) across all bays

	Number of bays	Option A: Base	Option B: Base + roof	Option C: Base + roof + extension	Option D: Base + roof + reuse + extension
<i>Number of trucks washed across all bays</i>					
\$0.80/ minute	1	14.00	15.14	21.23	25.34
\$1.00/ minute	1	11.20	12.12	16.99	20.27
\$1.20/ minute	1	9.34	10.10	14.16	16.89
\$1.40/ minute	1	8.00	8.65	12.13	14.48
\$0.80/ minute	2	25.42	26.56	34.93	43.15
\$1.00/ minute	2	20.33	21.25	27.95	34.52
\$1.20/ minute	2	16.95	17.71	23.29	28.77
\$1.40/ minute	2	14.52	15.18	19.96	24.66
\$0.80/ minute	3	36.07	37.21	47.11	59.44
\$1.00/ minute	3	28.86	29.77	37.69	47.55
\$1.20/ minute	3	24.05	24.81	31.41	39.62
\$1.40/ minute	3	20.61	21.27	26.92	33.96

KEY: below 10 washes per day, per bay

Source: ACIL Allen

Results: Scenario 2

Table 0.1 presents the breakeven number of truck washes results for Scenario 2 for one, two and three truck wash bays.

Table 0.1 Scenario 2 CapEx 50% results: Breakeven number of trucks washed per day (ROI = 1.0) across all bays

	Number of bays	Option A: Base	Option B: Base + roof	Option C: Base + roof + extension	Option D: Base + roof + reuse + extension
<i>Number of trucks washed across all bays</i>					
\$0.80/ minute	1	16.79	18.16	25.46	30.38
\$1.00/ minute	1	13.43	14.53	20.37	24.31
\$1.20/ minute	1	11.19	12.10	16.97	20.26
\$1.40/ minute	1	9.59	10.38	14.55	17.36
\$0.80/ minute	2	30.48	31.84	41.88	51.74
\$1.00/ minute	2	24.38	25.48	33.50	41.39
\$1.20/ minute	2	20.32	21.23	27.92	34.49
\$1.40/ minute	2	17.41	18.20	23.93	29.56
\$0.80/ minute	3	43.25	44.62	56.48	71.26
\$1.00/ minute	3	34.60	35.69	45.18	57.01
\$1.20/ minute	3	28.83	29.75	37.65	47.51
\$1.40/ minute	3	24.71	25.50	32.27	40.72

KEY: below 10 washes per day, per bay

Source: ACIL Allen

Results: Scenario 3

Table 0.2 presents the breakeven number of truck washes results for Scenario 3 for one, two and three truck wash bays.

Table 0.2 Scenario 3 CapEx 100% results: Breakeven number of trucks washed per day (ROI = 1.0) across all bays

	Number of bays	Option A: Base	Option B: Base + roof	Option C: Base + roof + extension	Option D: Base + roof + reuse + extension
<i>Number of trucks washed across all bays</i>					
\$0.80/ minute	1	19.57	21.17	29.68	35.43
\$1.00/ minute	1	15.66	16.94	23.74	28.34
\$1.20/ minute	1	13.05	14.11	19.79	23.62
\$1.40/ minute	1	11.19	12.10	16.96	20.24
\$0.80/ minute	2	35.53	37.13	48.83	60.32
\$1.00/ minute	2	28.43	29.70	39.06	48.26
\$1.20/ minute	2	23.69	24.75	32.55	40.21
\$1.40/ minute	2	20.30	21.22	27.90	34.47
\$0.80/ minute	3	50.43	52.02	65.85	83.09
\$1.00/ minute	3	40.34	41.62	52.68	66.47
\$1.20/ minute	3	33.62	34.68	43.90	55.39
\$1.40/ minute	3	28.81	29.73	37.63	47.48

KEY: below 10 washes per day, per bay

Source: ACIL Allen

D Stakeholder consultation

Table 0.1 Stakeholders consulted

Amy Williams	District Council of Yankalilla	Olivia Pineau*	PIRSA
Andrew Triggs	PIRSA	Pene Keynes*	Livestock SA
Andy Pointon	Pork SA	Peter Edmonds*	LRTA of SA
Asif Iqbal*	Department of Industry and Transport	Rebecca Knol	SACOME
Bianca Jones	PIRSA	Scott McKay	RDA Far North
Clare Wiseman	RDA Far North	Sue Davies	ALRTA
David Wallis	Mount Gambier Saleyard	Travis Tobin	Livestock SA
Emma Rooke*	PIRSA	Olivia Pineau*	PIRSA

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