Australian Government

TLIPC0010 Identify rail network infrastructure

DRAFT

Release: 1

TLIPC0010 Identify rail network infrastructure

Modification History

Release	Comments
1	This unit of competency was first released in TLI Transport and Logistics Training Package Release 18.0.

Application

This unit describes the skills and knowledge required to identify the major infrastructure systems that support Australian rail networks.

It includes identifying the purpose and key components of rail track, signalling systems, traction power infrastructure, and fixed rail structures and facilities, together with the roles of persons responsible for their construction, operation and maintenance.

The unit applies to individuals preparing for entry-level employment or further education and training in the rail industry. Completion of this unit does not provide competency to undertake any regulated, licensed, accredited, safety-critical or role-specific work activities in the rail industry.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite unit(s)

Not applicable.

Competency field(s)

N/A

Unit sector(s)

Rail Sector.

Elements and Performance Criteria

Elements	**Performance criteria**
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.

DRAFT

© Commonwealth of Australia, 2026 Industry Skills Australia

1	Identify rail track infrastructure	1.1	Identify and explain function of rail track components
		1.2	Observe and document how train/tram tracks are laid, joined and fixed into required position
		1.3	Identify the purpose and operation of points and crossings
		1.4	Identify common rail track configurations
		1.5	Identify common rail track defects and their possible causes
		1.6	Identify the roles and responsibilities of persons involved in rail track construction and maintenance
2	Identify rail signalling infrastructure	2.1	Identify the purpose and key components of a rail signalling system
		2.2	Describe the purpose of signalling in supporting safe rail operations
		2.3	Identify the purpose and application of various types of interlocking systems
		2.4	Identify the roles, responsibilities and training pathways of persons involved in rail signalling systems
3	Identify rail traction power infrastructure	3.1	Identify the major components of traction power infrastructure
		3.2	Describe how electrical power is supplied to rail vehicles
		3.3	Identify the roles, responsibilities and training pathways of persons who install and maintain electrical supply and traction power infrastructure for rail networks
4	Identify fixed rail structures and facilities	4.1	Identify fixed structures and facilities that support rail network operations
		4.2	Identify the purpose of major fixed rail structures and facilities
		4.3	Identify the roles and responsibilities of persons responsible for construction, operation and maintenance of fixed rail structures and facilities

DRAFT

© Commonwealth of Australia, 2026 Industry Skills Australia

5	Report on rail network infrastructure	5.1	Collate information relating to rail network infrastructure
		5.2	Prepare a report using appropriate rail industry terminology
		5.3	Review report and incorporate improvements before final submission

Foundation Skills

For information regarding essential foundation skills and the unit relationship to the ACSF and DigComp (3.0), refer to the TLI Training Package Companion Volume Foundation Skills.

L	R	W	OC	N
2	3	3	2	2

Digital Skills (Ref to DigComp 3.0)
Basic: CS3.4.04: Represent simple sequences symbolically, interpret simple symbolic sequences, and give basic instructions to a computer to perform simple tasks
Basic: CS2.1.01: Identify and use basic features of digital communication tools to interact with individuals and groups. **[AI-I]**
Basic: CS5.1.03: Identify common technical issues and follow instructions to help to solve them.
Int: CS3.2.07: Modify or transform digital textual, numeric or visual representations to effectively and accurately convey the meaning of data and information.

DRAFT

© Commonwealth of Australia, 2026 Industry Skills Australia

Assessment Requirements for TLIPC0010 Identify rail network infrastructure

Performance Evidence

Evidence required to demonstrate competence in this unit must satisfy all of the requirements of the elements and performance criteria on at least one occasion.

Evidence must demonstrate the ability to:

- use correct terminology for track, signalling, traction power and fixed structures
- identify main track components and explain the function of each
- observe, through a site visit, video or simulation, and document how track is laid, joined and fixed in position
- identify purpose and operation of points and crossings and common track configurations
- identify at least three common track defects and their possible causes
- identify purpose and key components of a signalling system and describe how signalling supports safe operations
- identify types of interlocking and the purpose and application of each
- identify major traction power components and describe how power is supplied to trains and trams
- identify fixed structures and facilities that support rail operations and the purpose of each
- identify roles and responsibilities of at least three persons in each infrastructure area (e.g. track, signalling, traction power, fixed structures), and training pathways for signalling and traction power roles
- research and collate information on rail network infrastructure from reputable sources
- prepare report describing the major infrastructure systems using rail industry terminology
- review report through self-review and feedback and incorporate improvements before submission

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- Track terminology:

© Commonwealth of Australia, 2026 Industry Skills Australia

- e.g. gauge (standard, broad, narrow), formation, capping, ballast shoulder, continuous welded rail, cant, track geometry

- Track components and function:
  - rail
  - sleepers (concrete, timber, steel, composite)
  - fastenings (resilient clips, dog spikes, sleeper plates, rail pads)
  - rail anchors
  - ballast
  - formation and drainage
  - tram track (embedded/grooved rail)
- How track is laid, joined and fixed:
  - track laying methods
  - flash-butt and thermite welding
  - fishplate joints
  - fastening and pre-stressing
  - ballast tamping and track alignment
- Points and crossings:
  - purpose and operation of turnouts, crossovers, catch points, switch blades and point machines
- Track configurations:
  - single and double track, crossovers, turnouts, sidings, passing loops, terminus/dead-end (buffer stops)
- Track defects and causes e.g.,
  - twists, misalignment, top errors, broken rail, head-web separation, weld failure, piped rail, split head, shatter cracks, rail corrosion, gauge spread
  - causes such as wear, heat (buckling), fatigue, poor drainage, manufacturing faults
- Signalling terminology, e.g. aspect, block, track circuit, axle counter, interlocking, route, signal box/control centre
- Signalling purpose and components:
  - signals, track circuits and axle counters, point machines, train stops, level crossing controls, interlocking, train control systems
  - how signalling separates trains to support safe operations
  - Interlocking types, principles and application: e.g. mechanical, electro-mechanical, relay, computer-based (CBI)

© Commonwealth of Australia, 2026 Industry Skills Australia

- Current and emerging signalling technology, e.g. communications-based train control (CBTC), ETCS, ARTC ATMS
- Traction power terminology, e.g. catenary, contact wire, substation, feeder, return current, electrolysis, overhead line equipment (OHLE)
- Traction power components:
  - transmission feeders
  - substations
  - overhead catenary and contact wires
  - cantilevers and portal structures (heavy rail)
  - poles and span wires (light rail)
  - positive, negative and electrolysis feeder cables
  - running rails as return path
- How power is supplied:
  - grid to substation, conversion to traction voltage (e.g. 1500 V DC, 25 kV AC, 600/750 V DC light rail), overhead wire to pantograph, return through rails; catenary-free and battery systems; non-electrified networks
- Fixed structures and facilities and their purpose:
  - stations
  - tram stops and terminus facilities
  - stabling yards and maintenance depots
  - pedestrian bridges and underpasses
  - rail bridges and viaducts
  - tunnels
  - level crossings
  - elevated track
  - signalling equipment rooms and control centres
- Infrastructure roles, responsibilities and training pathways:
  - track (e.g. track worker, protection officer, track inspector, welder)
  - signalling (e.g. signal technician, signalling engineer, signaller)
  - traction power (e.g. overhead line worker, HV electrician, power systems engineer)
  - fixed structures (e.g. civil engineer, structures inspector, construction worker, facilities maintainer)
  - pathways such as traineeships, apprenticeships, cadetships, graduate programs
- Online research techniques, including checking source credibility and referencing

© Commonwealth of Australia, 2026 Industry Skills Australia

- Standard components of a report template
- Document review:
  - purpose and benefits
  - review types (self, peer, trainer)
  - review tools (spelling and grammar check)

Assessment Conditions

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the task being performed and the needs of the candidate.

Resources for assessment include:

- suitable learning environment such as a classroom equipped with data projector and screen
- computer hardware/software with access to the internet
- personal protective equipment (PPE) for simulated activities
- relevant template to document report information

Unit Mapping Information

Previous Code and Title	Equivalence	Comments
	Newly created	This unit has been created to address a skill or task required by industry that is not covered by an existing unit of competency

Links

Companion volumes, including implementation guides, are found on the national training register - https://training.gov.au/training/details/TLI.

© Commonwealth of Australia, 2026 Industry Skills Australia