



Australian Government

TLIPC0010 Identify rail network infrastructure

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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. It does not provide competence to undertake rail safety work or operate rail systems.

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.

1	Identify rail track infrastructure	1.1	Use basic rail track infrastructure terminology
		1.2	Identify and explain function of rail track components
		1.3	Observe and document how train/tram tracks are laid, joined and fixed into required position
		1.4	Identify the purpose and operation of points and crossings
		1.5	Identify common rail track configurations
		1.6	Identify common rail track defects and their possible causes
		1.7	Identify the roles and responsibilities of persons involved in rail track construction and maintenance
2	Identify rail signalling infrastructure	2.1	Use rail signalling terminology
		2.2	Identify the purpose and key components of a rail signalling system
		2.3	Describe the purpose of signalling in supporting safe rail operations
		2.4	Identify the purpose and application of various types of interlocking systems
		2.5	Identify the roles, responsibilities and training pathways of persons involved in rail signalling systems
3	Identify rail traction power infrastructure	3.1	Use rail traction power terminology
		3.2	Identify the major components of traction power infrastructure
		3.3	Describe how electrical power is supplied to rail vehicles
		3.4	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	Use terminology relating to fixed rail structures and facilities

		4.2	Identify fixed structures and facilities that support rail network operations
		4.3	Identify the purpose of major fixed rail structures and facilities
		4.4	Identify the roles and responsibilities of persons responsible for the construction, operation and maintenance of fixed rail structures and facilities
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 the report and incorporate improvements before final submission

Foundation Skills

Foundation Skills essential to successful completion of this unit are mapped to the Australian Core Skills Framework (ACSF) and the European Digital Competence Framework (DigComp 3.0). Further information is available in the TLI Training Package Foundation Skills Companion Volume.

Assessment Requirements for TLIPC0010 Identify rail network infrastructure fundamentals

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:

- identify the purpose and key features of each of the following rail infrastructure areas:
 - rail track infrastructure
 - rail signalling systems
 - rail traction power infrastructure
 - fixed rail structures and facilities
- identify the major components associated with each infrastructure area
- describe how each infrastructure area contributes to the safe and efficient operation of a rail or light rail network
- identify the roles and responsibilities of at least three (3) persons associated with each infrastructure area
- identify pathways into infrastructure-related rail occupations
- research, organise and document information using appropriate sources
- prepare a report that:
 - accurately describes the major rail infrastructure systems
 - uses appropriate rail industry terminology
 - incorporates feedback or self-review before final 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:

- train and tram track components, configurations, and defects:
 - components include:
 - rail
 - sleeper
 - rail anchor
 - ballast
 - sleeper plate

- dog spike
- configurations include:
 - double lines
 - cross over
 - turnout
 - siding
 - catch points or terminus
- defects include:
 - twists
 - misalignments
 - top errors
 - broken rail
 - head-web separation
 - weld failure
 - piped rail
 - split head
 - shatter cracks
- fundamentals of rail signalling system including:
 - purpose of a signalling system
 - signalling system equipment
 - historical development of rail signalling systems
 - principles and application of interlocking
 - types of interlocking systems including:
 - mechanical interlocking
 - electro-mechanical interlocking
 - relay interlocking
 - computer-based interlocking (CBI)
- components that operate an electrified rail network including power supply and overhead electrical infrastructure including:
 - transmission feeders
 - sub-stations
 - cantilever structure and wires (train)
 - poles and span wires (trams)
 - overhead catenary and trolley wires
 - positive, negative and electrolysis feeder cables
 - rails
- range of fixed structure assets and facilities that support the heavy/light rail networks including:
 - city, metropolitan and regional train stations

- tram stops and terminus facilities
- train stabling facilities
- train and tram storage and maintenance depots
- pedestrian bridges and crossings
- rail bridges and viaducts
- tunnels
- level rail/road crossings
- elevated track structures
- signal equipment control rooms
- roles and responsibilities of rail personnel working in infrastructure areas:
 - rail track laying and maintenance
 - signalling systems installation and maintenance
 - traction power installation and maintenance
 - fixed assets construction and maintenance
- typical components of a report template
- purpose and benefits of a document review process
- types of document review processes such as peer review, self-review, trainer review, spell check
- basic on-line research techniques.

Assessment Conditions

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace 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 and on-site visits
- relevant template to document report information

Unit Mapping Information

Links

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

