



Australian Government

ICTTEN4242A Conduct site surveys to identify carrier installation requirements

Release 1

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Modification History

Release	Comments
Release 1	This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 3.0</i> .

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to survey a site to identify and document installation requirements for telecommunications infrastructure projects.

Application of the Unit

Technical staff who identify requirements for carrier telecommunications installations apply the skills and knowledge in this unit.

This unit applies to access, building and core installation projects within a carrier access network. It may be applied to carrier, commercial or industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN) and multimedia.

This unit is one in a sequence of units that cover network design activities, including:

- design drawings and specifications
- designing a dense wavelength division multiplexing (DWDM) system
- designing infrastructure
- estimating and quoting
- site surveys.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</i>

Elements and Performance Criteria

1. Obtain access to work site	1.1 Notify parties if necessary to arrange access to site to discuss installation requirements and identify carrier network systems 1.2 Assess site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures 1.3 Use network information systems to obtain planning data
2. Identify existing infrastructure	2.1 Confirm details of the installation with stakeholders 2.2 Verify site conditions and building construction 2.3 Locate and record existing facilities and systems 2.4 Confirm installation locations and identify barriers to planned network extension 2.5 Integrate existing network and floor plans into documentation where available
3. Integrate existing infrastructure into design brief	3.1 Review existing plans, drawings and databases against the design brief 3.2 Calculate capacity of existing facilities against proposed usage to ensure appropriate design decisions for new installation 3.3 Incorporate all data into new installation design 3.4 Mark up plans and prepare report on new installation design 3.5 Develop contingency plans for anticipated constraints
4. Review design for compliance with standards and legislation	4.1 Examine standards, practices and requirements for locating telecommunications infrastructure in the access network 4.2 Review installation design to ensure compliance with requirements of federal, state and local regulations, relevant legislation, codes and standards 4.3 Initiate any special studies or investigations necessary for the completion of the project
5. Complete required reports and documentation	5.1 Complete required documents promptly and accurately according to planning parameters 5.2 Obtain carrier confirmation of documented requirements 5.3 Distribute design documentation to stakeholders promptly 5.4 Obtain project plan sign-off from carrier

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify details relating to the project from approved network plan
- communication skills to discuss project brief with the customer
- learning skills to:
 - develop and study planning options, considering present and future needs
 - identify barriers to plan realisation
- literacy skills to write project briefs
- numeracy skills to:
 - analyse site survey data
 - develop cost estimates and operating budgets according to enterprise policy
 - undertake cost-benefit studies to inform the decision-making process
- planning skills to review current and new technology, facilities and features when developing options
- problem-solving skills to:
 - address and analyse specific customer requirements
 - assess current access network conditions
- research skills to:
 - analyse impact on planning processes
 - establish cabling requirements
 - evaluate requirements of relevant legislation and associated operational codes
 - inspect installed equipment
 - obtain and evaluate information relating to new technology or technology features
 - obtain geographical information
- technical skills to apply the three phases of project management to the project brief.
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Required knowledge

- detailed knowledge of:
 - content and format of project briefs, reports and charters
 - procedures for developing cost estimates and operating budgets according to enterprise policy
 - project management software systems
 - telecommunications carrier infrastructure
 - theory of project management
- overview knowledge of:
 - current and emerging challenges facing technology
 - influence of local and international economic conditions and financial authorities on the telecommunications industry
 - legislation, codes of practice and other formal agreements that impact on the work activity

- manufacturer requirements for safe operation of equipment
- procedures for responding to typical issues and challenges that occur on site, including:
 - barricading
 - damage to site
 - obtaining access
 - problematic weather
 - safety management
 - vegetation and mud
 - waste management.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • evaluate existing infrastructure on an installation site • integrate existing infrastructure into an installation design • develop design specifications for an installation project • engage stakeholders and carriers in design approval process.
Context of and specific resources for assessment	Assessment must ensure: • a network planning area, systems and deployment rules and standards • relevant databases, licensing requirements and other site-related procedures.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate undertaking an assessment of an access network • review of documents prepared by the candidate, capturing the network design requirements for a range of project types • review of solutions developed by the candidate that address network shortfalls • oral or written questioning to assess knowledge of planning the access network.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICTNPL4108A Plan the deployment of access network architectures • ICTNPL4109A Evaluate the capability of access networks.

	Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.
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Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Carrier network systems may refer to:	• broadband: • wireless fidelity (WiFi) • world interoperability for microwave access (WiMAX) • copper: • coaxial • hybrid fibre coaxial (HFC) • twisted-pair • digital services: • asymmetrical digital subscriber lines (ADSL) • digital subscriber lines (DSL) • internet protocol (IP) network: • computer • IP private branch exchange (IP PBX) • internet protocol TV (IPTV) • voice over internet protocol (VoIP) • optical: • fibre to the x (FTTx) • fibre to the node (FTTN) • fibre to the premises (FTTP) • HFC • point-to-point network • point-to-multipoint network • wireless networks: • cellular • microwave • radio • satellite.
Network information systems may include:	• network management databases for: • capacity assessment data • network performance data • traffic dimensioning data • network management tools.

Planning data may relate to:	• current and proposed network growth • demographic growth • traffic quantity and flow.
Barriers to planned network extensions may include:	• building availability • environmental considerations • financial constraints • government policy • heritage legislation restrictions • land acquisition constraints • material availability • planning approvals • technology availability.
Existing network may include:	• access network technology and exchange switching and transmission systems • boundaries between access and inter-exchange networks.
Relevant legislation may include:	• Australian Communications and Media Authority (ACMA) standard TS 14 • Australian standards applying to radiation hazards • heritage legislation • industrial awards and conditions • International Standards ISO 9001:2008 • International Telecommunications Union (ITU) recommendations • National Parks Act • Privacy Act • state, territory and federal Environment Acts • Telecommunications Act and relevant codes • WHS.
Planning parameters may relate to:	• network criteria cover: • network change • network growth • network reduction • sites, buildings and structures • organisational policies, procedures and guidelines • planning priorities driven by: • customer demand • enterprise policy • legislative requirements • marketing initiatives • network conditions • revenue projections

	• planning processes, documented within enterprise process manuals.
<i>Project plan</i> may include:	• activities • finance • labour • materials.

Unit Sector(s)

Telecommunications - Telecommunications networks engineering