

**Draft 0.2**

This is a draft update to CPPSIS6040 Develop 2-D and 3-D terrain visualisations:  
<https://training.gov.au/Training/Details/CPPSIS6040>.

Code changed to CPPSSIR6040.

Changed PCs to active voice.

PC 1.1 inserted from Performance Evidence

PC 1.4 on selecting computing platform removed.

Changed 'person' to 'candidate' in PE.

Range of Conditions added to Knowledge Evidence.

## Unit of Competency

### CPPSI6040 Develop 2-D and 3-D terrain visualisations

#### Modification history

Release	Comments
1	<del>Replaces superseded equivalent CPPSI6040A Develop 2-D and 3-D terrain visualisations.</del> <del>This version first released with CPP Property Services Training Package Version 3.</del>
	Replaces superseded equivalent CPPSI6040 Develop 2-D and 3-D terrain visualisations

#### Application

This unit specifies the skills and knowledge required to develop two-dimensional (2-D) and three-dimensional (3-D) visualisations in a geographic information system (GIS) or computer-aided design (CAD) context. It includes the application of specialised technical and conceptual skills and a broad knowledge of spatial datasets. The unit includes the development of technical documentation incorporating mapping and scientific techniques.

This unit is suitable for surveyors operating at this level who will use broad theoretical and technical knowledge to analyse information as well as interpret and transmit solutions to unpredictable and sometimes complex surveying/spatial information problems. The unit supports those who work in a technical management role in a spatial information services team in areas such as cartography, town planning, mapping and GIS.

All work must be carried out to comply with workplace procedures, in accordance with relevant State/Territory regulations that govern surveying work as well as work health and safety, regulations and legislation that apply to the workplace.

Cadastral surveying must be undertaken under the supervision of a registered surveyor. Users must check with the relevant regulatory state/territory authority before delivery.

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

#### Prerequisite Unit

None

#### Unit Sector

Surveying and Spatial Information Services

#### Elements and Performance Criteria

1. Prepare 2-D or 3-D digital elevation model (DEM).	1.1 Analyse job specifications, constraints and main work activities. 1.2 Prepare the CAD environment by setting up the hardware and software system and drawing defaults and customising menus. 1.3 Design GIS or CAD environment or surface elevation according to project specifications and enterprise requirements. 1.4 Establish views and layouts according to job specifications. 1.5 Investigate current remote sensing technologies for capturing raw elevation data.
--	---

	1.6 Conduct searches to identify available spatial data, evaluate and obtain suitable data to meet drawing specifications. 1.7 Apply enterprise requirements relating to working safely when using screen-based equipment.
2. Create 2-D drawings.	2.1 Create detailed views and layouts using various scales according to job specifications. 2.2 Finalise 2-D drawings and modify existing 2-D model as necessary to meet job specifications.
3. Create 3-D model or DEM.	3.1 Model surface elevation by mathematically defined surfaces and by point or line data according to job specifications. 3.2 Determine products that can be derived from a DEM according to job specifications. 3.3 Create and manipulate entities in 3-D space according to job specifications. 3.4 Develop DEM with a range of thematic data and generate and drape profiles over model according to project specifications. 3.5 Create contour map of area by employing procedures appropriate to data format and software according to job specifications. 3.6 Create slope map of area from gradient and aspect components according to job specifications. 3.7 Create shaded relief map of area from gradient and relief map representations according to job specifications. 3.8 Finalise 3-D model and modify existing 3-D model as necessary to meet job specifications.
4. Produce output.	4.1 Apply quality and accuracy measures on modelled 2-D and 3-D outputs. 4.1 Document 2-D and 3-D outputs according to project specifications and enterprise requirements. 4.2 Save drawing files and elevation data outputs in appropriate format according to job specifications and enterprise requirements. 4.3 Extract physical properties to job specifications and use slope map of area for analytical purposes.

### Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

### Unit Mapping Information

Supersedes and is equivalent to CPPSIS6040 Develop 2-D and 3-D terrain visualisations

### Links

The Companion Volume Implementation Guide for the CPP Property Services Training Package is available at <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

## Assessment Requirements for CPPSSI6040 Develop 2-D and 3-D terrain visualisations

### Modification history

Release	Comments
1	<del>Replaces superseded equivalent CPPSI6040A Develop 2-D and 3-D terrain visualisations.</del> <del>This version first released with CPP Property Services Training Package Version 3.</del>
	Replaces superseded equivalent CPPSI6040 Develop 2-D and 3-D terrain visualisations

### Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by using a geographic information system (GIS) or computer-aided design (CAD) environment to develop two-dimensional (2-D) and three-dimensional (3-D) terrain visualisations that meet specifications for two different projects.

For each project the candidate must prepare drawings and models that:

- meet specifications for accuracy, completeness, coverage, density and logical consistency.

For the 3-D terrain visualisations the candidate must:

- develop contour, slope and shaded relief maps of an area by creating and manipulating entities in 3-D space
- create a digital elevation model in 3-D using mathematically defined surfaces and point or line data.

### Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- interpretation of:
  - engineering and environmental plans
  - graphical information, including rasters
  - technical drawing standards
  - height, depth, breadth, dimension and position to actual operational activity and virtual representation
- interpolation techniques to convert from point to raster data
- computer platforms and software for GIS, CAD and digital elevation models (DEM)
- legal requirements for data copyright and ownership and licensing
- data formats and precision and accuracy requirements for preparing terrain visualisations in 2-D drawings and 3-D models
- techniques for processing and displaying digital images
- sources for existing spatial datasets
- methods for capture of raw elevation data
- GIS and CAD principles, capabilities and uses in relation to creating terrain visualisations
- methods for validating spatial data sources
- types of data set constraints
- key features of spatial referencing systems
- techniques for modifying existing 2-D and 3-D models
- types of products that can be derived from a DEM.

## Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment must be conducted in the workplace or a simulated workplace using realistic conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Candidates must have access to:

- personal computer, including GIS or CAD applications and software appropriate for developing 2-D and 3-D terrain visualisations
- printer, scanner, plotter and multimedia devices and peripherals.

## Links

The Companion Volume Implementation Guide for the CPP Property Services Training Package is available at <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>