Draft 0.1
This is a draft update to CPPSIS4035 Apply GIS software to solve spatial data problems: https://training.gov.au/Training/Details/CPPSIS4035.

Code changed to CPPSUR4035.
Expanded acronym ‘GIS’ in title to read: ‘geographic information system’.

Changed PCs to active voice.

Changed 'person' to 'candidate' in PE

Reference to: 'two different tasks' in first sentence of PE would appear to be problematic at audit as no specific details provided

Range of Conditions added to Knowledge Evidence.

I’ve added mapping info.
TAG will need to reassess this as unit is redeveloped.

Unit of Competency

CPPSUR4035 Apply geographic information system (GIS) software to solve spatial data problems

Modification history

Release	Comments
~~1~~	~~Replaces superseded equivalent CPPSIS4035A Apply GIS software to problem-solving techniques.~~ ~~This version first released with CPP Property Services Training Package Version 3.~~
	Replaces superseded equivalent CPPSIS4035 Apply GIS software to solve spatial data problems

Application

This unit specifies the skills and knowledge required to use geographic information system (GIS) software applications to integrate data and solve spatial data problems. The unit covers setting up hardware and GIS software applications and using features, such as spatial overlay techniques, to solve problems and test and validate the cartographic integrity of data. The unit also covers producing reports based on analysing basic spatial data and archiving the data. The unit requires the ability to use entity and attribute queries to generate results for presenting spatial data, and using univariate statistics to explore datasets.

The unit supports those who work in support positions in a spatial information services team in areas such as field work coordination, data collection and administration.

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. Query spatial data.	1.1 Clarify task requirements with appropriate persons. 1.2 Set up and check GIS software and equipment to ensure correct operation and functionality. 1.3 Access, interpret and manipulate spatial datasets to ensure they are in acceptable format to meet task requirements. 1.4 Use entities and attributes to display spatial information, and entity and use attribute queries to generate summary results. 1.5 Use query results to present spatial data graphically according to organisational requirements. 1.6 Apply entity and attribute queries when using univariate statistics to explore the dataset. 1.7 Identify and resolve routine spatial data problems or irregularities in consultation with appropriate persons.
2. Solve spatial data problems.	2.1 Adjust existing spatial and aspatial data to integrate with new data according to organisational requirements.

	2.2 Use spatial techniques and tools to combine spatial layers data to solve problems, highlight selected features, and improve visual aspects. 2.3 Use spatial overlay techniques to solve problems and generate results relating to spatial task in consultation with appropriate persons. 2.4 Test and validate cartographic integrity to solve accuracy and quality problems.
3. Produce reports based on basic spatial data analysis.	3.1 Integrate map or plans into reports according to task requirements. 3.2 Incorporate results, summary statistics and graphs from mapping application into reports according to organisational requirements.
4. Archive data.	4.1 Check spatial dataset to be archived for completeness and manipulate where necessary, according to organisational requirements. 4.2 Create metadata according to organisational requirements. 4.3 Store archived spatial data in a secure location, and record details according to organisational requirements.

Foundation Skills

Candidates require:

- learning skills to:
  - conduct research to access spatial updates
- numeracy skills to:
  - apply understanding of height, depth, breadth, dimension and position to actual operational activity and virtual representation
  - check accuracy of cartographic tolerances and measurements
  - interpret statistics
- oral communication skills to:
  - ask questions to clarify task requirements
- reading skills to:
  - interpret graphical information in vectors and rasters
  - interpret technical information from maps and imagery
- writing skills to:
  - use organisational templates to integrate existing and new data.
- technology skills to:
  - enter data into database or document using a computer and software
  - operate a range of GIS software systems
- problem-solving skills to:
  - identify errors by cross-referencing validation results.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS4035 Apply GIS software to solve spatial data problems

Links

Companion Volume Implementation Guide:

https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b

Assessment Requirements for CPPSUR4035 Apply GIS software to solve spatial data problems

Modification history

Release	Comments
~~1~~	~~Replaces superseded equivalent CPPSIS4035A Apply GIS software to problem-solving techniques.~~ ~~This version first released with CPP Property Services Training Package Version 3.~~
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Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by using geographic information system (GIS) software applications to integrate data and solve spatial data problems for two different tasks.

While undertaking the above tasks, the candidate must:

- combine spatial layers data, including:
    - raster, including aerial and terrestrial photography and satellite imagery in digital format
    - vector overlay
- comply with organisational requirements for documentation and reporting relating to:
    - audit trails
    - naming standards
    - templates
    - version control
- comply with organisational requirements to work safely when using the equipment specified in the assessment conditions
- comply with legal and ethical requirements for producing reports based on spatial data analysis
- display spatial information using entities and attributes, including:
    - arcs
    - circles
    - colour
    - hatch
    - layer
    - level
    - lines, including type and width
    - symbology
    - text
- manage and manipulate a range of spatial data, including:
    - digital
    - hard copy
    - image
    - text
    - raster
    - vector
- operate a range of GIS software to perform entity and attribute queries and explore datasets
- use geospatial techniques, including:

    - buffer
    - clip
    - dissolve
    - intersect
    - merge union
    - overlay.

Knowledge Evidence

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

- legal requirements for accessing, manipulating, reporting and archiving digital and hard copy spatial data, including data privacy and information copyright
- methods for using univariate statistics and charting, including:
    - arithmetic mean, median and mode
    - histograms that illustrate the concepts of normal and other distributions
    - maximum and minimum
    - range
    - standard deviation
    - variance
- methods for validating test results to identify systematic distortions in accuracy of information
- printing and image formats for map production
- querying and browsing techniques for obtaining information from databases and solving problems
- spatial data storage technology
- spatial overlay techniques
- key features of spatial reference systems
- appropriate persons:
    - colleague
    - end user
    - supervisor or line manager
    - supplier
- metadata:
    - availability
    - conditions of use
    - coordinate system
    - currency
    - custodian
    - data accuracy
    - data description
    - date of acquisition
    - licence
    - quality
    - source
    - spatial data acquisition methodologies
    - version control.

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:

- equipment:
    - computer with access to GIS software applications
    - printer and other hardware necessary for work tasks
- specifications:
    - organisational policies and procedures relating to:
        - work health and safety
        - data privacy and information copyright
- physical conditions:
    - access to equipped work station
- relationships with team members and supervisor:
    - working in a team.

Links

Companion Volume Implementation Guide:

https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b