

**GENERAL DESCRIPTION OF CLASS**

The CARTOGRAPHER 3 provides fully proficient mapping expertise in preparing a broad range of complex maps such as cadastral maps of entire counties, timber-type maps such as planimetric or orthophoto maps, geologic maps, base control maps, and specialized maps such as soil classification maps, harbor and estuary ownership maps, using existing records, deeds, surveys, plats, highway and railroad right-of-way maps, aerial photographs, powerline drawings, and other map sources to construct original maps from start to finalization with minimal supervision.

**DISTINGUISHING FEATURES**

This is the fourth level of a five-level series. It is distinguished from the lower levels by having responsibility for cartography of entire counties and map projects, maps which require a greater degree of detail and technical information, and greater responsibility for the finished product. It is distinguished from the higher level Cartographic Program Specialist by the absence of program responsibility.

**DUTIES AND RESPONSIBILITIES**

**1.Mapping.** Typical tasks: using various methods, interprets and plots descriptions and details from existing records, deeds, surveys, plats, highway and railroad right-of-way maps, aerial photographs, powerline drawings and other map sources to construct complex maps such as base control maps, cadastral maps, timber-type maps, fire protection maps, geologic maps and specialized maps from beginning to finalization; plots detail such as section, subdivision, and survey corners, railroads, roads and highways, highway and railroad right-of-ways, intersections, government and private surveys, section line grids including patented mining claims and donation land claims, unsurveyed waterways, bodies of water, and roads; uses photogrammetric methods, power transmission line drawings, metes and bounds descriptions, boundaries such as city limits, rural fire protection districts, taxing districts, school districts, townships, riparian, property, and geographic features such as mountains, coastlines, rivers, creeks, and lakes to construct maps; converts maps to different scales; assigns parcel numbers and property description numbers; computes control and grid systems necessary for establishing the base control system on a map; computes perimeters such as timber type and other forested areas or patented mining claims; computes acreages using standard geometric calculations or by using either the double Meridian Distance Method commonly employed by surveyors or multiplication of two sides of a rectangular-shaped parcel with right angles and divided by the square footage of one acre, or determines acreages for irregular shaped or unsurveyed parcels with the use of a planimeter; may prepare charts, graphs, and other graphics as required.

**2.Administrative Functions.** Typical tasks: reviews files containing maps and related records and prioritizes workload; installs completed and current/updated maps and records in county offices; computes map budgets or yearly map maintenance budgets for counties including personnel costs, material costs, time usage, and printing costs; computes budgets for special mapping projects; reviews and approves billings of contract work performed by the agency for counties and courts; coordinates phases of mapping projects; coordinates flight plans and areas to be photographed; may write contracts for aerial photo projects; may trace and print photo negatives into finished prints; write progress reports and technical reports on special mapping projects and solutions to common mapping problems for use by agency management, county assessors, county courts, title companies,

attorneys, and taxpayers.

- 3.Records Maintenance.** Typical tasks: transfers map information, lines, and text onto a Computer Assisted Mapping System via a CRT keyboard and other special input devices to create computer files so maps can be quickly reproduced in an inked form by a plotting machine; stores files on tape; corrects and edits files; establishes new manual files for property description records, tax lot records, mobile fire mapping records, aerial photographs, and for maps such as USGS maps, county assessor maps and right-of-way maps.
- 4.Research Activities.** Typical tasks: conducts in-house and field research on mapping and survey problems and ownership problems of real estate, land, estuaries, harbors and rivers for assessors, county courts, county surveyors and taxpayers; researches the application of tax laws, real estate laws, and riparian laws to mapping.
- 5.Training.** Typical tasks: instructs less experienced state and county cartographers in mapping procedures, mapping standards, new mapping methods, riparian laws, interpretation of photogrammetry, real estate laws including deeds, contracts, and court orders; edits and reviews maps and records of less experienced cartographers for accuracy, quality, and conformance to State mapping standards.

## RELATIONSHIPS WITH OTHERS

Employees in this class are in regular contact by telephone or in-person with other agency or county personnel to exchange information about deeds, surveys, roads, zones, boundaries, maps, and mapping standards. Employees are in contact monthly by telephone or in person with other State and Federal agencies such as the State Highway Department, United States Forest Service, Bureau of Land Management, to obtain information such as ownership of lands, status of road construction, and official fire boundaries.

Employees are in contact monthly by telephone and in person with title companies to obtain or clarify information pertaining to problems, ownership, or transfer of property titles, and with surveyors to obtain or clarify information pertaining to surveys they have done. Employees are in contact weekly by telephone with other agencies, private companies and the public to provide information concerning availability and cost of maps and aerial photography. Employees may be in contact with the public to provide information such as availability and cost of maps, location of property boundaries and how to locate these boundaries, types of deeds needed to convey property and who should prepare these documents, the options that are available to resolve boundary disputes, procedures needed to research chains of title, road dedications, and vacation ordinances.

## SUPERVISION RECEIVED

Employees in this class receive general supervision, usually by a project manager or administrative superior. Completed work is reviewed for accuracy, quality, soundness of judgment, and compliance with established mapping standards. Production and project schedules are reviewed monthly to track project deadlines and project phases.

**KNOWLEDGE, SKILLS, AND ABILITIES (KSA)**

Extensive knowledge of cartographic procedures, concepts and standards.  
 Extensive knowledge of drafting and survey terms and techniques.  
 Extensive knowledge of mathematics such as plane geometry and algebra.  
 General knowledge of State Plane coordinate systems.  
 General knowledge of land recording systems, ownership abstracts, deed conveyance, instruments involving transfers of interests, surveying and real property laws, and statutes for research and mapping purposes.

Skill in extracting information for research purposes.  
 Skill in translating raw data into a graphic product.  
 Skill in researching information needed for specific mapping projects.  
 Skill in performing photogrammetric work using stereoscopic and reflective overhead projection equipment used to plot planimetric detail such as highways and roads, township, boundaries and drainage systems from aerial photographs.  
 Skill in maintaining manual and computerized records of maps and property documents.  
 Skill in reading, interpreting, and applying field survey notes to mapping detail.  
 Skill in reading and interpreting property documents such as deeds, surveys and legal descriptions and identifying discrepancies.  
 Skill in computing acreages, coordinates, perimeters, traverses, control, and grid systems using a calculator and planimeter.  
 Skill in reading a map.  
 Skill in understanding and interpreting ambiguous property documents.  
 Skill in the use of drafting tools such as pens, straightedges, scales, Leroy type lettering set.

Ability to read, understand and apply State laws pertaining to mapping and land ownership.  
 Ability to determine cost estimates for mapping projects and aerial photo projects.  
 Ability to train less skilled cartographers in mapping techniques, methods, and standards.  
 Ability to write technical reports on mapping issues.  
 Ability to coordinate phases of mapping projects.  
 Ability to prepare charts, graphs, and other graphics as required.

Some positions in this class may require one or more of the following:

General knowledge of riparian rights and laws.

**NOTE:** The KNOWLEDGE and SKILLS are required for initial consideration. ABILITIES may be required for initial consideration, at any time during the selection process, or during a trial service period as a final stage of the selection process. Some duties performed by positions in this class may require different KSA's. No attempt is made to describe every KSA required for **all** positions in this class. Additional KSA requirements will be explained on the recruiting announcement.

Adopted 1/90

Revised

Examples of work are typical of duties assigned to this class. No attempt is made to describe every duty performed by all positions in this class.