



# New Mexico State Personnel Office

2600 Cerrillos Road  
Santa Fe, New Mexico 87505-0127

## Classification Description

### CARTOGRAPHERS AND PHOTOGRAMMETRISTS

<u>Class Title</u>	<u>Class Code</u>	<u>Pay Band</u>	<u>Alt Pay Band*</u>
Cartographers and Photogrammetrists-B	E1021B	45	
Cartographers and Photogrammetrists-O	E1021O	50	
Cartographers and Photogrammetrists-A	E1021A	55	

*\*In accordance with SPB Rule 1.7.4.10 NMAC, the assignment to alternative pay bands shall be reviewed annually to determine their appropriateness.*

#### Occupation Description

Collect, analyze and interpret geographic information provided by geodetic surveys, aerial photographs and satellite data. Research, study and prepare maps and other spatial data in digital or graphic form for legal, social, political, educational and design purposes. May work with Geographic Information Systems (GIS). May design and evaluate algorithms, data structures and user interfaces for GIS and mapping systems.

#### Nature of Work

Cartographers and photogrammetrists collect, analyze, interpret, and map geographic information using data from surveys and photographs. Photogrammetrists and cartographers, measure, map, and chart the Earth's surface. Their work involves everything from performing geographical research and compiling data to producing maps. They collect, analyze, and interpret both spatial data such as latitude, longitude, elevation, and distance and nonspatial data such as population density, land-use patterns, annual precipitation levels, and demographic characteristics. Their maps may give both physical and social characteristics of the land. They prepare maps in either digital or graphic form, using information provided by geodetic surveys and remote sensing systems including aerial cameras, satellites, light-imaging detection and ranging (LIDAR), or other technologies.

#### Distinguishing Characteristics of Levels

*Note: Examples of Work are intended to be cumulative for each progressively higher level of work. The omission of specific statements does not preclude management from assigning other duties which are reasonably within the scope of the duties.*

#### Basic

- Employees in this Role draw maps to scale.
- Employees apply quantitative and qualitative reasoning; create reports of on-site visits; prepare surveying equipment; perform water resource data collection; draft maps using manual methods and electronic software; prepare digital ortho-photographic and other computer aided drafts; calculate acreage and categorize procedures, restoration, and preservation techniques; design the mapping for planimetric and/or topography engineering, property and monument plans; and determine drainage locations, channel sections/capacities, slopes, and structure sections positioning.

## CARTOGRAPHERS AND PHOTOGRAMMETRISTS

### **Recommended Education and Experience for Full Performance**

Associates Degree in Cartography, Photogrammetry, Geography, Surveying, Civil Engineering, Forestry, Computer Science, Physical Science or other closely related field. Any experience in surveying, photogrammetry, environmental science, physical science, engineering, aerial photography, drafting, cartography, and/or GIS.

### **Minimum Qualifications**

High School diploma or Equivalency and six (6) months experience in the above areas.

### **Operational**

- Employees in this Role conduct geographical research and data compilation for map production.
- Employees design roadway detours and identify cost-effective highway project designs; develop databases including hydrologic data and data required to characterize water use and rights; perform abstracts of water rights files; research reports for hydrologic information and water availability; prepare maps and drawings from aerial photographs; select aerial photo negatives for use in stereo plotting, check contour maps and cross section plots; and use data satellites, and geographic information systems (GIS) of computerized data banks of spatial data.

### **Recommended Education and Experience for Full Performance\***

Associates Degree in Cartography, Photogrammetry, Geography, Surveying, Civil Engineering, Forestry, Computer Science, Physical Science or other closely related field and two (2) years of experience in surveying, photogrammetry, environmental science, physical science, engineering, aerial photography, drafting, cartography and/or GIS.

### **Minimum Qualifications**

High School diploma or Equivalency and one (1) year experience working in the above areas.

### **Advanced**

- Employees in this Role research, develop, plan, and administer programs.
- Employees conduct field inspections; act as expert witness in data collections, field surveys, administrative rules and regulations, policy and procedures in administrative hearings and court proceedings; may verify existing highway material and structure conditions and monitor county mapping units; ensure traffic design plans, specifications, and estimates are prepared for pre-construction and post-construction planning; oversee design of construction plans for highway projects; review plans for design accuracy, and compliance; revise maps and standard drawings.

### **Recommended Education and Experience for Full Performance**

Associates Degree in Cartography, Photogrammetry, Geography, Surveying, Civil Engineering, Forestry, Computer Science, Physical Science or other closely related field and four (4) years of experience in surveying, photogrammetry, environmental science, physical science, engineering, aerial photography, drafting, cartography and/or GIS.

### **Minimum Qualifications**

High School diploma or Equivalency and two (2) years experience working in the above areas.

## CARTOGRAPHERS AND PHOTOGRAMMETRISTS

### Knowledge and Skills

*Note: This information has been produced by compiling information and documentation provided by O\*NET. O\*NET™ is a trademark of the U.S. Department of Labor, Employment and Training Administration.*

### Knowledge

**Geography** — Knowledge of principles and methods for describing the features of land, sea, and air masses, including their physical characteristics, locations, interrelationships, and distribution of plant, animal, and human life.

**Computers and Electronics** — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.

**English Language** — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

**Design** — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.

**Mathematics** — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

**Customer and Personal Service** — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

### Skills

**Reading Comprehension** — Understanding written sentences and paragraphs in work related documents.

**Active Listening** — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

**Critical Thinking** — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

**Writing** — Communicating effectively in writing as appropriate for the needs of the audience.

**Active Learning** — Understanding the implications of new information for both current and future problem-solving and decision-making.

**Time Management** — Managing one's own time and the time of others.

**Complex Problem Solving** — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

**Coordination** — Adjusting actions in relation to others' actions.

**Judgment and Decision Making** — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

**Monitoring** — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

## CARTOGRAPHERS AND PHOTOGRAMMETRISTS

**Statutory Requirements:** N/A

**Conditions of Employment:** Working Conditions for individual positions in this classification will vary based on each *agency's utilization, essential functions,* and the *recruitment needs* at the time a vacancy is posted. All requirements are subject to possible modification to reasonably accommodate individuals with disabilities.

**Default FLSA Status:** Non-Exempt. FLSA status may be determined to be different at the agency level based on the agency's utilization of the position.

**Bargaining Unit:** This position may be covered by a collective bargaining agreement and all terms/conditions of that agreement apply and must be adhered to.

**Established:** 07/07/2001                      **Revised:** 9/20/2011, 12/14/2015 (Min Quals)

*\*Adapted from the United States Bureau of Labor Statistics and are intended to illustrate the typical education and experience required for this occupation.*

*Note: Classification description subject to change. Please refer to the SPO website [www.spo.state.nm.us](http://www.spo.state.nm.us) to ensure this represents the most current copy of the description.*