

GS-1371 Cartographic Technician

U.S. Department of the Interior

Office of Human Capital

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Cartographic Technician Competency Model

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Cartographic Technician Competency Model Study Summary

The DOI Office of Human Capital (OHC) conducted a comprehensive study to identify the critical competencies and tasks for successful performance of Cartographic Technician work across the Department. OHC worked with Cartographic Technician subject matter experts from across the Department in order to create a thorough and accurate representation of the work performed by DOI Cartographic Technician professionals and the knowledge, skills, and abilities required to perform that work.

The study involved a variation of the U.S. Office of Personnel Management's Multipurpose Occupational Systems Analysis Inventory – Closed-Ended (MOSAIC) method for gathering and analyzing information about work. The MOSAIC approach has been utilized to study and describe work performed within the Federal Government for over 25 years. The study included a wide-ranging literature review to build lists of tasks and competencies used to describe Cartographic Technician work across the Department. Next, focus groups with DOI Cartographic Technician subject matter experts were held to ensure these lists were complete and accurately represented the job. A trained job analyst also linked each task to competencies to confirm they were required to perform the work. DOI Cartographic Technician professionals rated the tasks and competencies to demonstrate the importance and utility of each component of the study. Finally, Cartographic Technician subject matter experts reviewed the results of the study to ensure its accuracy.

The results of this study establish a common set of Cartographic Technician tasks and competencies across the Department, which can be used to create assessment and selection techniques and tools and establish common practices and terminology for recruitment, performance management, workforce planning, training, and employee development. This work provides DOI with current, validated information that can be used to ensure its Cartographic Technician workforce has the tools to meet future challenges.

Please reference the Competency Model Interpretive Guidance for assistance in interpreting and applying the results of this study.

Cartographic Technician Competency Model

Table 1: General Competencies by Grade¹

The following general competencies are valid for assessment and selection, performance management, and other related human capital functions across the Cartographic Technician occupational series included in this study at the grade levels listed below.

GS-4	GS-5	GS-6	GS-7
<i>Compliance (2)</i> <i>Integrity/Honesty</i> <i>Learning</i> <i>Reading</i> <i>Reasoning</i>	<i>Attention to Detail</i> <i>Compliance (2)</i> <i>Flexibility</i> <i>Integrity/Honesty</i> <i>Interpersonal Skills</i> <i>Learning</i> <i>Reading</i> <i>Reasoning</i> <i>Self-Management</i> <i>Technical Competence</i>	- Attention to Detail - Compliance (2) - Integrity/Honesty - Learning - Reading - Reasoning - Interpersonal Skills - Self-Management - Technical Competence <i>Information Management</i>	- Attention to Detail - Compliance (2) <i>Creative Thinking</i> <i>Customer Service</i> <i>Decision Making</i> - Flexibility - Information Management - Integrity/Honesty - Interpersonal Skills - Learning <i>Oral Communication</i> <i>Problem Solving</i> - Reading - Reasoning - Self-Management <i>Teamwork</i> - Technical Competence <i>Writing</i>
GS-8	GS-9	GS-10	GS- 11
<i>Accountability</i> - Attention to Detail - Compliance (2) - Creative Thinking - Customer Service - Decision Making - Flexibility - Information Management - Integrity/Honesty - Interpersonal Skills - Learning - Oral Communication - Problem Solving - Reading - Reasoning - Self-Management <i>Stress Tolerance</i> - Teamwork - Technical Competence - Writing	- Accountability - Attention to Detail - Compliance (2) - Creative Thinking - Customer Service - Decision Making - Flexibility - Information Management - Integrity/Honesty - Interpersonal Skills - Learning - Oral Communication - Problem Solving - Reading - Reasoning - Self-Management - Stress Tolerance - Teamwork - Technical Competence - Writing	- Accountability - Attention to Detail - Compliance (2) - Creative Thinking - Customer Service - Decision Making - Flexibility - Information Management - Integrity/Honesty - Interpersonal Skills - Learning - Oral Communication - Problem Solving - Reading - Reasoning - Self-Management - Stress Tolerance - Teamwork - Technical Competence - Writing	- Accountability - Attention to Detail - Compliance (2) - Creative Thinking - Customer Service - Decision Making - Flexibility - Information Management - Integrity/Honesty - Interpersonal Skills - Learning - Oral Communication - Problem Solving - Reading - Reasoning - Self-Management - Stress Tolerance - Teamwork - Technical Competence - Writing

¹ Italics represent the lowest grade at which the competency appears.

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Table 2: Required Proficiency Levels by Grade Level

Proficiency Level Scale Definitions

Proficiency Level	General Competencies	Technical Competencies
5 = Expert	• Applies the competency in exceptionally difficult situations • Serves as a key resource and advises others	• Applies the competency in exceptionally difficult situations • Serves as a key resource and advises others • Demonstrates comprehensive expert understanding of concepts and processes
4 = Advanced	• Applies the competency in considerably difficult situations • Generally requires little or no guidance	• Applies the competency in considerably difficult situations • Generally requires little or no guidance • Demonstrates understanding of concepts and processes
3 = Intermediate	• Applies the competency in difficult situations • Requires occasional guidance	• Applies the competency in difficult situations • Requires occasional guidance • Demonstrates understanding of concepts and processes
2 = Basic	• Applies the competency in somewhat difficult situations • Requires frequent guidance	• Applies the competency in somewhat difficult situations • Requires frequent guidance • Demonstrates familiarity with concepts and processes
1 = Awareness	• Applies the competency in simplest situations • Requires close and extensive guidance	• Applies the competency in simplest situations • Requires close and extensive guidance • Demonstrates awareness of concepts and processes

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Table 2: Required Proficiency Levels of General Competencies²

	GS-4	GS-5	GS-6	GS-7	GS-8	GS-9	GS-10	GS -11
Accountability					3	4	4	5
Attention to Detail		1	2	2	3	4	5	5
Compliance (2)	1	2	3	3	4	4	4	5
Creative Thinking				3	3	4	4	5
Customer Service				3	4	4	4	5
Decision Making				2	3	3	4	4
Flexibility		3		3	3	3	4	4
Information Management			2	3	3	4	4	5
Integrity/Honesty	1	2	3	4	4	4	5	5
Interpersonal Skills		3	4	4	4	4	5	5
Learning	1	2	3	4	4	4	5	5
Oral Communication				2	3	4	4	5
Problem Solving				2	3	4	4	4
Reading	1	2	2	3	4	4	5	5
Reasoning	1	2	3	3	3	4	4	5
Self-Management		1	2	2	3	4	4	5
Stamina (†)**								
Stress Tolerance					3	3	3	3
Teamwork				2	3	3	4	4
Technical Competence		1	2	2	3	3	4	4
Writing				3	3	4	5	5

² Bolded competencies are validated for use for assessment and selection purposes.

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Table 3: Behavioral Examples for Competencies

The following competency specific behavioral examples can be used when designing rubrics/rating forms. Please see the DOI Assessment Guide for additional clarification, information, and examples regrading rating rubrics and rating forms.

Competency Name	Definitions
Accountability	Holds self and others accountable for measurable high-quality, timely, and cost-effective results. Determines objectives, sets priorities, and delegates work. Accepts responsibility for mistakes. Complies with established control systems and rules. • <i>Takes responsibility for results and work products</i> • <i>Ensures work is completed on time and at the level of quality required</i> • <i>Understands the rules and regulations of the work performed and ensures compliance with them</i> • <i>Demonstrates responsibility with important materials, critical processes, or confidential information</i>
Attention to Detail	Is thorough when performing work and conscientious about attention to detail. Recalls information that has been presented previously. • <i>Sets the standards for the quality of the work completed for the organization</i> • <i>Leads others in attending to detail in difficult and/or high-pressure circumstances</i> • <i>Reviews and edits work completed by others to ensure that the quality of work meets acceptable work standards</i> • <i>Independently completes thorough and accurate work</i>
Compliance (2)*	Ensure adherence to regulatory requirements, laws, regulations, industry standards, and agency policies. Ability to identify, manage and mitigate compliance risks while fostering a culture of ethical behavior and accountability within the organization. • <i>Shows familiarity with the structure and terminology of various rules and regulations of the Federal Government</i> • <i>Demonstrates the ability to search for and find appropriate rules or regulations</i> • <i>Understands how to apply appropriate rules and regulations to guide direction of work or make decisions</i>
Creative Thinking	Uses imagination to develop new insights into situations and applies innovative solutions to problems; designs new methods where established methods and procedures are inapplicable or are unavailable. • <i>Creates a work environment that encourages creative thinking and innovation</i> • <i>Explores new ideas, methodologies, and alternatives to reach outcomes</i> • <i>Introduces new concepts or strategies that significantly improve or revise the way work is performed</i> • <i>Suggests or proposes alternative ways to view or define problems; is not constrained by conventional thinking and established approaches</i> • <i>Combines ideas in unique ways or makes connections between disparate ideas</i>

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Customer Service	Works with clients and customers (that is, any individuals who use or receive the services or products that your work unit produces, including the general public, individuals who work in the agency, other agencies, or organizations outside the Government) to assess their needs, provide information or assistance, resolve their problems, or satisfy their expectations; knows about available products and services; is committed to providing quality products and services. • <i>Commits to serving the public and understands their advisory role</i> • <i>Utilizes outreach, needs assessment, evaluation, and other marketing skills to identify and anticipate customer needs and provide exemplary customer service</i> • <i>Understands diverse customer groups, their perspectives, issues and needs</i> • <i>Works to ensure customers' needs are met, even when those needs are outside of the typical role of the position</i> • <i>Identifies and develops metrics to assess customer service satisfaction</i> • <i>Continuously improves products and services</i> • <i>Works and plans strategically, using a systems perspective to anticipate developing customer issues and needs and to provide timely solutions that focus on long-term benefits</i>
Decision Making	Makes sound, well-informed, and objective decisions; perceives the impact and implications of decisions; commits to action, even in uncertain situations, to accomplish organizational goals; causes change. • <i>Decides on the best course of action, even in situations with competing stakeholders or when results of decisions are not immediately clear</i> • <i>Weighs the pros and cons of potential decisions before choosing which actions to take</i> • <i>Commits to determining the best alternatives and evaluating their impact on work products</i> • <i>Uses sound methodology in reaching conclusions</i>
Flexibility	Is open to change and new information; adapts behavior or work methods in response to new information, changing conditions, or unexpected obstacles; effectively deals with ambiguity. • <i>Effectively adjusts strategies or course of action in response to changing conditions</i> • <i>Makes quality decisions when faced with ambiguous situations</i> • <i>Is willing to incorporate new information into decision making process</i> • <i>Adapts behavior to overcome challenges</i>
Information Management*	Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems. • <i>Demonstrates an understanding of where and how data or other information are maintained</i> • <i>Shows familiarity with the information management systems of the organization</i> • <i>Effectively searches for and finds appropriate information to address the needs of a project</i> • <i>Uses discretion when handling sensitive content</i>

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Integrity/Honesty	Contributes to maintaining the integrity of the organization; displays high standards of ethical conduct and understands the impact of violating these standards on an organization, self, and others; is trustworthy. • <i>Takes pride in exhibiting personal and organizational integrity and honesty</i> • <i>Acts in a just, fair, and ethical manner and encourages ethical behavior among others, even when risky to do so</i> • <i>Inspires trust and confidence among stakeholders through reliability, authenticity, and accountability</i>
Interpersonal Skills	Treats others with courtesy, sensitivity, and respect. Considers and responds appropriately to the needs and feelings of different people in different situations. • <i>Shows respect for the values and ideas of others, even when not agreeing with them</i> • <i>Empathizes with the concerns of others</i> • <i>Demonstrates tact and courtesy when interacting with associates</i> • <i>Is proactive in defusing arguments among peers</i> • <i>Seeks feedback from others to avoid blind-spots that can cause misunderstandings</i> • <i>Explores issues with the team; shares information; solicits ideas' uses participative decision-making processes</i>
Learning	Uses efficient learning techniques to acquire and apply new knowledge and skills; uses training, feedback, or other opportunities for self-learning and development. • <i>Is proactive in seeking out new knowledge</i> • <i>Devotes time to building new skillsets or further developing existing skillsets</i> • <i>Understands instructions or assignments without much need for additional explanation or clarification</i> • <i>Is open to constructive feedback on performance</i> • <i>Rarely makes the same mistake more than once</i> • <i>Effectively applies new knowledge or skills in applied environments</i>
Oral Communication	Expresses information (for example, ideas or facts) to individuals or groups effectively, taking into account the audience and nature of the information (for example, technical, sensitive, controversial); makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately. • <i>Speaks honestly, effectively and with integrity</i> • <i>Makes convincing, articulate, and accurate oral presentations using non-verbal and vocal qualities that support the verbal spoken message</i> • <i>Effectively uses various communication channels, including meetings, presentations and briefings</i> • <i>Actively considers, plans for, and reacts appropriately to the audience and the contextual environment in order to minimize barriers to understanding</i> • <i>Explains complex information clearly and accurately, and seeks feedback to determine that understanding has occurred</i> • <i>Acts as an effective facilitator in group or team settings</i>

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Problem Solving	Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations. • Examines problems and solutions with a long-term perspective • Effectively leads others in the effort of developing, identifying, and formulating problem solving strategies consistent with organizational goals • Uses logic to develop and implement innovative tools and techniques to resolve complex problems and issues • Uses logic to resolve complex, unique, or unusual problems • Consistently anticipates challenges that are not obvious to others • Determines the relevance of information in reaching effective conclusions • Formulates recommendations for the best course of action to address problems
Reading	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations. • Interprets written information from multiple sources (e.g., instructions, reports, charts, and tables) and uses the information to make decisions on work tasks. • Understands and explains the meaning of written rules, regulations, or standard operating procedures and applies them to typical work situations. • Evaluates charts, graphs, and data tables to identify patterns, inconsistencies, or required actions. • Identifies key points in short written documents (e.g., emails, memos) and applies the information to immediate tasks.
Reasoning	Identifies rules, principles, or relationships that explain facts, data, or other information; analyzes information and makes correct inferences or draws accurate conclusions. • Determines the relevance of information in reaching effective conclusions • Uses logic to determine relationships among information in order to reach conclusions • Makes appropriate inferences from data, rules, or other information
Self-Management	Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve; demonstrates responsible behavior. • Sets own goals and priorities and coordinates activities and deadlines with others to ensure project goals are met • Continually applies significant effort and persistence toward achievement of goals in all situations • Takes initiative and seeks out new or additional responsibilities and tasks • Completes work and meets objectives with minimal supervisory intervention
Stamina (†)**	Exerts oneself physically over long periods of time without tiring (which may include performing repetitive tasks such as hammering or lifting objects). • Can perform monotonous work for long periods of time without lapses in accuracy • Able to run at a moderate pace for several minutes at a time • Can perform relatively strenuous work (e.g., lifting heavy loads) repeatedly
Stress Tolerance	Deals calmly and effectively with high stress situations (for example, tight deadlines, hostile individuals, emergency situations, dangerous situations). • Remains calm and focused when facing tight deadlines, high workload, or unexpected operational challenges.

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	• <i>Maintains professional conduct and clear judgment when dealing with difficult stakeholders or emotionally charged situations.</i> • <i>Continues performing essential duties effectively during emergencies, disruptions, or rapidly changing conditions.</i> • <i>Uses coping and prioritization strategies to manage stress and prevent negative impact on work quality.</i>
Teamwork	Encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit; works with others to achieve goals. • <i>Volunteers to assist associates with projects</i> • <i>Commits to working toward team or group goals</i> • <i>Displays team pride and empowers team pride among other group members</i> • <i>Works effectively in group settings in order to achieve team objectives</i>
Technical Competence	Uses knowledge that is acquired through formal training or extensive on-the-job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues. • <i>Demonstrates proficiency of technical subject matter area</i> • <i>Performs job tasks using the required physical and cognitive skills and abilities</i> • <i>Models technical task performance for others</i> • <i>Maintains currency on technical knowledge and technique</i>
Writing	Recognizes or uses correct English grammar, punctuation, and spelling; communicates information (for example, facts, ideas, or messages) in a succinct and organized manner; produces written information, which may include technical material that is appropriate for the intended audience. • <i>Composes clear, concise, and logical documents or correspondence involving complex technical information</i> • <i>Consistently and effectively tailors written products to a wide range of audiences and for diverse purposes in order to achieve a desired outcome</i> • <i>Proofreads and edits the writing of others</i> • <i>Effectively explains complex technical material to a non-technical audience</i> • <i>Uses correct grammar, punctuation, and spelling</i> • <i>Writes in an organized fashion that is easy to understand</i>

* *Compliance (2) and Information Management was validated for being **Important** for the job, however it is not **needed at entry**. It is not officially included in the model as the model depicts competencies that are validated for Needed at Entry as well as Importance. It might be a competency that the community trains to, however it shouldn't be used in hiring.*

***Stamina(f) was validated as a competency that is **needed at entry** but **not important** for the community. While it is included in the model, it is most likely only important for certain positions. Thus proper alignment with the position duties should be considered before using the stamina competency.*

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Table 4: General Competencies by Assessment Tool

When considering which assessment tool to utilize to assess various competencies, the following tables lists a variety of assessment tools and indicates how well-suited each tool generally is for measuring each competency. For each competency, each assessment tool is listed as high, medium, or low, potential for effectiveness in assessing the competency.

Competency	Structured Resume Review	Structured Interview	Situational Judgment Test	Writing Assessment (Work Sample)
Accountability	Low	High	High	Low
Attention to Detail	Medium	Medium	Low	High
Compliance (2)	Medium	High	Low	Low
Creative Thinking	Low	High	Low	Low
Customer Service	Low	High	Low	Low
Decision Making	Low	High	Medium	Medium
Flexibility	Low	High	Medium	Low
Information Management	Medium	Medium	Medium	High
Integrity/Honesty	Low	High	Medium	Low
Interpersonal Skills	Low	High	Low	Low
Learning	Medium	Medium	Low	Medium
Oral Communication	Medium	High	Medium	Medium
Problem Solving	Low	High	Medium	High
Reading	Medium	Low	Medium	Medium
Reasoning	Low	Low	High	Medium
Self-Management	Low	High	Low	Low
Stamina	Medium	High	Medium	High
Stress Tolerance	Low	High	Medium	High
Teamwork	Medium	Medium	Medium	Medium
Technical Competence	Medium	High	Medium	High
Writing	Medium	Low	Low	High

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Competency	Accomplishment Record	Personality Inventory	Biodata	Cognitive Ability Test
Accountability	Low	High	High	Low
Attention to Detail	Medium	Medium	Low	High
Compliance (2)	Low	High	Low	Low
Creative Thinking	Low	Medium	Medium	Medium
Customer Service	Medium	High	Low	Low
Decision Making	Medium	Medium	Medium	Medium
Flexibility	Low	High	Medium	Low
Information Management	Medium	Low	Medium	Medium
Integrity/Honesty	Low	High	Medium	Low
Interpersonal Skills	Low	High	Low	Low
Learning	Low	Low	Medium	High
Oral Communication	Low	Medium	Medium	Low
Problem Solving	Low	Low	Medium	High
Reading	Low	Low	Low	High
Reasoning	Low	Low	Low	High
Self-Management	Medium	Medium	Medium	Low
Stamina	Low	Medium	Medium	Low
Stress Tolerance	Low	Medium	Medium	Low
Teamwork	Low	Medium	Medium	Medium
Technical Competence	High	Low	Low	Low
Writing	High	Low	Medium	Low

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Table 5: Technical Competencies for Assessment & Selection

The following technical competencies are valid for assessment and selection, performance management, and other related human capital functions for the occupational series listed below. (NOTE: While the technical competencies below have been validated for assessment and selection for the series listed below, other technical competencies not listed below may be required depending on the position. Rely on the results of a job analysis and feedback from the hiring manager and subject matter experts to determine the exact technical competencies needed for a particular hire).

**Table 5: Technical Competencies for Assessment & Selection
GS-1371 – Cartographic Technician**

- Cartography (2)
- Cartography Design
- Data Interpretation
- Data Management (2)
- Geographical Sciences (3)
- Geospatial Information on Systems (2)
- Map Interpretation
- Remote Sensing (2)*
- Surveying (2)**
- Research and Statistics (2)
- Technology Application
- Technology Awareness (2)

** Remote Sensing(2) was validated for being **Important** for the job, however it is not **needed at entry**. It is not officially included in the model as the model depicts competencies that are validated for Needed at Entry as well as Importance. It might be a competency that the community trains to, however it shouldn't be used in hiring.*

***Surveying (2) was validated as a competency that is **needed at entry** but **not important** for the community. While it is included in the model, it is most likely only important for certain positions. Thus proper alignment with the position duties should be considered before using the surveying competency.*

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Appendix A: Cartographic Technician General Competencies

The following lists highlight the key competencies that were identified through the Job Task Analysis (JTA) with the community. Competencies are an observable, measurable pattern of skills, knowledges, abilities, behaviors, and other characteristics that an individual needs to perform work roles or occupational functions successfully. Competencies can be used in the hiring process, to shape training programs, guide professional development, and support performance evaluations- ensuring consistency and alignment across the Department. Both the General and Technical Competencies for the job are listed.

Accountability	Holds self and others accountable for measurable high quality, timely, and cost-effective results. Determines objectives, sets priorities, and delegates work. Accepts responsibility for mistakes. Complies with established control systems and rules.
Attention to Detail	Is thorough when performing work and conscientious about attention to detail.
Compliance (2)*	Ensure adherence to regulatory requirements, laws, regulations, industry standards, and agency policies. Ability to identify, manage and mitigate compliance risks while fostering a culture of ethical behavior and accountability within the organization.
Creative Thinking	Uses imagination to develop new insights into situations and applies innovative solutions to problems; designs new methods where established methods and procedures are inapplicable or are unavailable.
Customer Service	Works with clients and customers (that is, any individuals who use or receive the services or products that your work unit produces, including the general public, individuals who work in the agency, other agencies, or organizations outside the Government) to assess their needs, provide information or assistance, resolve their problems, or satisfy their expectations; knows about available products and services; is committed to providing quality products and services.
Decision Making	Makes sound, well-informed, and objective decisions; perceives the impact and implications of decisions; commits to action, even in uncertain situations, to accomplish organizational goals; causes change.

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Flexibility	Is open to change and new information; adapts behavior or work methods in response to new information, changing conditions, or unexpected obstacles; effectively deals with ambiguity.
Information Management*	Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems.
Integrity/Honesty	Contributes to maintaining the integrity of the organization; displays high standards of ethical conduct and understands the impact of violating these standards on an organization, self, and others; is trustworthy.
Interpersonal Skills	Treats others with courtesy, sensitivity, and respect. Considers and responds appropriately to the needs and feelings of different people in different situations.
Learning	Uses efficient learning techniques to acquire and apply new knowledge and skills; uses training, feedback, or other opportunities for self-learning and development.
Oral Communication	Expresses information (for example, ideas or facts) to individuals or groups effectively, taking into account the audience and nature of the information (for example, technical, sensitive, controversial); makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately.
Problem Solving	Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.
Reading	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations.
Reasoning	Identifies rules, principles, or relationships that explain facts, data, or other information; analyzes information and makes correct inferences or draws accurate conclusions.
Self-Management	Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve; demonstrates responsible behavior.
Stamina (†)**	Exerts oneself physically over long periods of time without tiring (which may include performing repetitive tasks such as data entry or coding).

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Stress Tolerance	Deals calmly and effectively with high stress situations (for example, tight deadlines, hostile individuals, emergency situations, dangerous situations).
Teamwork	Encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit; works with others to achieve goals.
Technical Competence	Uses knowledge that is acquired through formal training or extensive on-the-job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues.
Writing	Recognizes or uses correct English grammar, punctuation, and spelling; communicates information (for example, facts, ideas, or messages) in a succinct and organized manner; produces written information, which may include technical material that is appropriate for the intended audience.

** Compliance (2) and Information Management was validated for being **Important** for the job, however it is not **needed at entry**. It is not officially included in the model as the model depicts competencies that are validated for Needed at Entry as well as Importance. It might be a competency that the community trains to, however it shouldn't be used in hiring.*

***Stamina (+) was validated as a competency that is **needed at entry** but not **important** for the community. While it is included in the model, it is most likely only important for certain positions. Thus proper alignment with the position duties should be considered before using the stamina competency.*

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Appendix B: Cartographic Technician Technical Competencies³

Cartography (2)	Applies cartographic principles, theories, and methods in the design, development, revision and/or interpretation of maps, charts, and related cartographic products, and photogrammatic and cartographic processing.
Cartography Design	Design detailed maps that communicate spatial information and data, utilizing cartographic techniques and tools to enhance visual clarity and user understanding.
Data Interpretation	Skill in collecting, analyzing, and interpreting data and policies, to determine actions and develop and propose guidance.
Data Management (2)	Application of the principles, procedures, and tools of data management, such as modeling techniques, data backup, data recovery, data dictionaries, data warehousing, data mining, data archiving, data disposal, and data standardization processes.
Field Data Collection	Ability to collect, record, and ensure accuracy of field data, for example, stream and river discharge measurements.
Geographical Sciences (3)	Application of the concepts, principles, theories, and methods for describing the location and distribution of features and phenomena including their relationships and characteristics.
Geology (2)	Understand and interpret geological data to understand Earth's processes, materials, and history, utilizing various tools and techniques to inform resource use and management
Geophysics (2)	Applies concepts, principles, and theories related to solid earth structure, solid earth processes, atmosphere, and the behavior of the earth's gravitational, magnetic, and electrical fields, and other forces affecting the earth and its environment.
Geospatial Information Systems (2)	Application of knowledge and skill in manipulating computer systems designed for capturing, storing, checking, and displaying data related to positions on Earth's surface in order to better understand spatial patterns and relationships.
Hydrology (2)	Applies concepts, principles, theories, and methods related to the magnitude, distribution, and quality of

³ Includes competencies identified for positions by SMEs that were not considered "critical" across each occupational series. These competencies may still be used for training and development purposes.

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	water resources including watershed management, climatology, geomorphology, groundwater hydrology, water quality, water resource management, and groundwater/surface water interactions.
Map Interpretation	Ability to read and interpret maps, aerial photos, and master title plats in order to determine land ownership and status.
Remote Sensing (2)*	Process and analyze remote sensing data to extract insights, applying appropriate techniques and technologies to interpret imagery and spatial information for decision-making.
Research and Statistics (2)	Application of scientific principles, methods, and tools of basic and applied research (for example, statistics and data analysis) used to conduct a systematic inquiry into a subject matter area.
Surveying (2)**	Measure and map land, utilizing appropriate tools and techniques to gather data for the measurement or determination of land boundaries, distances, elevations, areas, angles, and other features of the earth's surface and/or environmental assessment.
Technology Application	Uses machines, tools, instruments, or equipment effectively; uses computers and computer applications to analyze and communicate information in the appropriate format.
Technology Awareness (2)	Maintain a current understanding of emerging technologies and industry trends, applying this knowledge to enhance organizational processes, drive innovation, and inform strategic decision-making in a technology-driven environment.
Vehicle Operations (2)	Applies organizational procedures and safety standards to operate motor vehicles—ensuring safe, compliant, and effective transportation in operational contexts.

* Remote Sensing (2) was validated for being **Important for the job**, however it is **not needed at entry**. It is not officially included in the model as the model depicts competencies that are validated for **Needed at Entry** as well as Importance. It might be a competency that the community trains to, however it shouldn't be used in hiring.

Surveying(2) was validated as a competency that is **needed at entry but not important for the community. While it is included in the model, it is most likely only **important** for certain positions. Thus proper alignment with the position duties should be considered before using the surveying competency.

Appendix C: Cartographic Technician Study Tasks

The following list identifies the essential tasks for the Security Guard Dispatchers. It was compiled through the Job Task Analysis with the community. This task list can be used to develop job descriptions, guide training and competency programs, support performance evaluations, and inform recruitment criteria-ensuring consistency and alignment across the organization.

1	Collects, compiles, and organizes information.
2	Monitors, maintains, or updates data, records, or other information.
3	Conducts evaluations, examinations, or other fact finding studies to obtain or verify information.
4	Designs or conducts analytical studies or other research.
5	Analyzes or interprets data or other information.
6	Creates tables, charts, graphs, or diagrams to organize or show information.
7	Reviews reports, documents, records, data, or other materials to verify completeness, correctness, consistency, compliance, or authenticity.
8	Drafts correspondence or other written work (for example, manuals, technical reports, research, or contract proposals).
9	Discusses results, problems, plans, suggestions, terms, or conditions with others.
10	Explains or justifies decisions, conclusions, findings, or recommendations.
11	Recommends improvements or solutions to problems, or determines appropriate actions.
12	Develops, modifies, or provides input on plans, goals, or objectives for projects, programs, systems, or operations.
13	Keeps abreast of latest technology, information, research, etc., to maintain knowledge in field of expertise.
14	Develops models and theoretical approaches to serve as decision support tools.
15	Provides technical advice in subject matter area to others.

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16	Conducts environmental impact analyses.
17	Reads and records data obtained from technical or scientific instruments, or indicators.
18	Processes or analyzes data using computer systems or applications.
19	Participates in meetings with members of the public, industry, or other Federal and state agencies (e.g., conferences).
20	Instructs classes or conducts training sessions, workshops, or seminars.
21	Designs, develops, or manages geographical information systems or global positioning systems data and/or databases.
22	Coordinates immediate and long-range objectives and plans.
23	Develops computer scripts and tools in a distributed source controlled environment that support data transformation, management, and analysis.
24	Explains technical or other complex information to a nontechnical audience.
25	Mentors staff members.
26	Designs, develops, and implements advanced processing workflows and tasks through the use of currently accepted techniques or the development, testing, and application of new techniques.
27	Operates, calibrates, maintains, and/or installs technical equipment.
28	Makes determinations based on data analysis.
29	Evaluates needs, makes recommendations on procurement priorities and prepares requests (e.g. office supplies).
30	Coordinates with others to determine studies or evaluations necessary at sites.
31	Conducts field data analysis of complex types of terrain, unique topographic features or rugged topography.
32	Produces maps, tabular data, overlays, and analysis results.
33	Assists scientists in field or laboratory settings with data compilation and analysis.
34	Prepares and revises maps, charts, plats, overlays, and other cartographic products.

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35	Produces geospatial based reports, tables, graphics, statistical summaries, and other mapping outputs.
36	Compiles and organizes source materials used for mapping assignments.
37	Digitizes cartographic features and geographic coordinates into GIS databases.
38	Updates geospatial datasets related to species, habitat, land status, ownership, and rights-of-way.
39	Maintains spatial databases used to store, access, and retrieve mapping data.
40	Reviews geospatial data for accuracy, completeness, consistency, and compliance.
41	Process field data for entry into a geospatial database.
42	Documents geospatial datasets and mapping results in required metadata files.
43	Travel to designated field sites to collect accurate geospatial coordinates using GPS equipment.
44	Verify location markers, document environmental and positional conditions, capture supplemental notes or photographs as needed, and ensure all data is recorded with precision and consistency.
45	Follow established data-collection protocols, maintain equipment functionality, and report any discrepancies or obstacles encountered in the field.
46	Uses geospatial tools to analyze spatial relationships and create new map layers.
47	Interprets aerial imagery, survey records, land records, and digital source data for map development.
48	Determines land descriptions, ownership status, boundaries, jurisdiction lines, and encumbrances.
49	Plots legal land descriptions, metes-and-bounds descriptions, and rights-of-way.
50	Develops procedures or workflows when existing guidance does not meet project needs.
51	Resolves technical issues that arise during mapping and geospatial assignments.
52	Responds to requests for mapping, geospatial, and cartographic services.

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53	Provides technical guidance on geospatial software, mapping methods, and map-product interpretation.
54	Coordinates with staff, agencies, contractors, and/or the public to clarify mapping requirements and obtain data.
55	Maintains specialized right-of-way maps, records, databases, and mapping outputs.
56	Lifts or carries map files, boxes, and field materials when required.
57	Conducts occasional field work involving difficult terrain, travel, or field materials.
58	Operates a government-owned or leased motor vehicle when required.
59	Applies templates and/or develop map layouts, symbols, legends, scales, and feature placement in accordance with mapping standards.
60	Evaluates existing geospatial data for project compatibility and database use.
61	Converts analog mapping materials and source records into digital GIS formats.
62	Assures the integrity, validity, security, and standardization of geospatial data.
63	Tracks project accomplishments and mapping work status using project-tracking tools.
64	Prepares technical documents, correspondence, approval letters, work plans, Standard Operating Procedures (SOP) and other written materials.