



STATE OF NEVADA
Department of Administration
Division of Human Resource Management

CLASS SPECIFICATION

<u>TITLE</u>	<u>GRADE</u>	<u>EEO-4</u>	<u>CODE</u>
TRANSPORTATION GIS MANAGER	40	B	6.343
TRANSPORTATION GIS SUPERVISOR	38	B	6.342
TRANSPORTATION GIS ANALYST II	36	B	6.341
TRANSPORTATION GIS ANALYST I	33	B	6.340

SERIES CONCEPT

Transportation GIS Analysts are responsible for designing, implementing, supporting and administering all aspects of a department's enterprise geographic information system.

Develop and maintain the Geographic Information Systems (GIS) Linear Referencing System (LRS) including maintenance of the statewide road network, calibrated linear referencing methods and associated GIS data layers; ensure agency business units' ability to integrate and synchronize business data with LRS.

Plan, design, modify, implement and administer multiple departmental spatial databases; develop and enforce administration procedures and security standards; facilitate and monitor multi-user versioned editing and viewing workflows; design, implement and monitor spatial database security, performance and availability; create database objects, user and roles; create and maintain spatial database replication environment, schedule and monitor replica synchronizations; test and perform software updates.

Install, configure and administer GIS Server application software; create, optimize, publish and monitor multiple web map, feature, geoprocessing, and search services on the intranet and internet; document web-service data-source dependencies.

Develop, implement, document and enforce GIS server-related administration procedures and security standards; monitor system utilization and responsiveness, and tune server configurations to enhance performance and ensure availability of published services; test and perform software updates; collect user requirements, design, write, test, deploy and maintain multiple statewide custom GIS software applications using multiple programming languages; develop and enforce GIS application-related operational procedures and security standards; adhere to software development best-practices, maintain code in shared source code repository, and maintain technical currency with coding techniques and relevant IT and GIS technologies.

Analyze user requirements, existing business workflows, policies, regulations and statutes to develop and implement enhanced GIS-based solutions and workflows; determine project objectives by analyzing user needs through consultation with end-users, technicians, analysts, management and vendors; review available hardware and/or software tools to choose implementation platform; identify required sequencing of steps and coordination with other departmental personnel; execute project steps and ensure that project deliverables meet customer requirements; provide technical support to end-users in order to resolve software and database related issues.

Design, implement and maintain GIS datasets and perform quality assurance/quality control procedures and corrections; perform spatial analyses and interpret and communicate analytical results; use Global Positioning System (GPS) hardware and software to collect and validate data in the field; produce digital and printed cartographic products using GIS software.

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SERIES CONCEPT (cont'd)

Coordinate and conduct formal and informal training sessions to educate department end-users on the usage of off-the-shelf and custom GIS software; coordinate with internal and external entities to disseminate and share GIS data, and collaborate on GIS projects.

Perform related duties as assigned.

CLASS CONCEPTS

Transportation GIS Manager:

Under administrative direction, performs duties outlined in the series concept and, in addition, manages GIS functions for the department and plans, organizes, controls, integrates and evaluates the work of subordinate Transportation GIS Supervisors. The incumbent is responsible for providing timely, efficient and cost effective GIS products and services including the development and maintenance of GIS applications, tools, enterprise GIS databases, and linear referencing system to meet departmental operational and decision support need.

Manage the design, development, enhancement and delivery of GIS products and services to meet on-going and ad-hoc business and information needs; manage development and maintenance of geospatial data layers and databases; manage and may participate in the design and development of GIS applications and tools to automate processes and facilitate analyses and reporting; review GIS products for accuracy, completeness and aesthetics and for compliance with customer requirements; coordinate the delivery of services and sharing of data with other departments and outside entities; oversee or perform complex technical work associated with projects and on-going assignments; research alternatives and recommend appropriate, cost effective technology solutions.

Oversee and participate in the design, development, integration and maintenance of GIS database architectures, data layers and databases; perform highly complex analytical projects, including spatial and other analyses and forecast modeling; analyze, research, develop, implement and maintain processes for enhancing the utilization of GIS technologies and solutions to support department business requirements and GIS initiatives; work with departmental staff in planning, design, development, configuration, testing, implementation and maintenance of large-scale GIS applications and web portals, backend processing modules and associated data layers and databases; develop, implement and monitor work plans to achieve goals and objectives.

Analyze and evaluate technology solutions to ensure their consistency and integration with departmental technology standards; develop enterprise GIS policies, standards and procedures; guide and mentor other GIS professionals; develop training materials and conduct training for GIS professionals; serve as an expert resource and provides advice to other departments or agencies on complex GIS technical issues; may serve on steering committees and advisory groups to foster cooperation and ensure consistent practices for storage, sharing, maintenance and utilization of geospatial data; write reports and prepare custom maps and other GIS products.

Prepare and evaluate proposals, bids, contracts and service agreements for GIS software, equipment and consulting services or participates in doing so; may administer contracts; develop or assist in the development of the GIS budget; monitor expenditures against budget; participate in the development, implementation and evaluation of departmental goals and objectives; supervise and oversee development, implementation and evaluation of programs, work processes, systems, policies and procedures to achieve annual goals, objectives and work standards; serve as a technical expert to departmental, district, and

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CLASS CONCEPTS (cont'd)

Transportation GIS Manager (cont'd)

divisional managers and advises on the design and uses of GIS technologies and products that will improve business process efficiency and enhance support for decision and policy making.

Transportation GIS Supervisor:

Under general direction from the Transportation GIS Manager, incumbents perform the full range of duties outlined in the series concept and function as technical expert and project manager over either: design, development, testing, implementation and maintenance of large-scale or highly complex divisional and/or departmental GIS software applications, tools, and backend processing modules; OR, data management projects, and associated data layers and databases. Incumbents evaluate GIS technologies and solutions; develop policies, standards and procedures; develop plans and approaches to meet project objectives; and supervise a staff of lower level Transportation GIS Analysts.

Transportation GIS Analyst II:

Under general supervision, incumbents perform the full range of duties outlined in the series concept and participate in design, testing, implementation and maintenance of divisional and departmental GIS software applications, tools, data management projects, and associated data layers and databases. This is the journey level in the series.

Transportation GIS Analyst I:

Under close supervision, incumbents receive training in performing the duties described in the series concept. This is the trainee level in the series and progression to the next level may occur upon meeting minimum qualifications, satisfactory performance, and with the recommendation of the appointing authority.

MINIMUM QUALIFICATIONS

TRANSPORTATION GIS MANAGER

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and four years of progressively responsible professional GIS experience. Two years of this experience must have also included project management and supervision of GIS Analyst staff and one or more of the following: spatial database management, GIS application development, GIS application server administration; **OR** Associate's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and five years of progressively responsible professional GIS experience as described above; **OR** one year of experience as a Transportation GIS Supervisor in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at the time of application):
Detailed knowledge of: capabilities and functionality of at least one major GIS software suite; project management techniques and/or software application development methodologies; two or more programming or scripting languages. **Working knowledge of:** GIS system architecture design and planning; multiple enterprise database management systems; linear referencing and dynamic segmentation. **Ability to:** communicate effectively both orally and in writing; establish and maintain effective working relationships with others; analyze data and reach logical conclusions; write grammatically correct business

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MINIMUM QUALIFICATIONS (cont'd)

TRANSPORTATION GIS MANAGER (cont'd)

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (cont'd)

correspondence; supervise and mentor assigned staff; and all knowledge, skills and abilities required of the lower levels

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):

Detailed knowledge of: State and departmental regulations and policies concerning information security, purchasing and personnel administration; critical departmental spatial and non-spatial datasets and their relationship to the enterprise GIS system; application of linear referencing and dynamic segmentation techniques to transportation GIS data; major state and federally mandated reporting requirements that include or rely upon GIS data.

TRANSPORTATION GIS SUPERVISOR

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and three years of progressively responsible professional GIS experience. One year of this experience must have also included one or more of the following: spatial database management, GIS application development, GIS application server administration; **OR** an Associate's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and four years of progressively responsible professional GIS experience as described above; **OR** one year of experience as a Transportation GIS Analyst II in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at the time of application):

Detailed knowledge of: structured query language (SQL); spatial data validation techniques; spatial topologies; GIS analysis tools; multi-user GIS editing workflows. **Working knowledge of:** server and web-based GIS technologies; mobile GIS technology and GPS data collection; enterprise spatial databases and database security; map services. **Ability to:** collect user requirements and design a GIS dataset that includes data validation and quality assurance mechanisms; create GIS software add-ins and stand-alone programs or web mapping applications or write moderately complex scripts to automate GIS processes; install and administer spatial databases install and administer GIS application server software and publish map services; integrate non-spatial data with the enterprise linear referencing system and dynamically segment data; automate routines to make corrections to improve database quality; develop geospatial data structures to model complex interrelated geographic features; lead highly complex GIS development and maintenance projects; manage and perform highly complex analytical projects; serve as an expert resource to other GIS specialists and end-users; differentiate between common GIS and IT-related problems; and all knowledge, skills and abilities required at the lower levels.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):

(These are identical to the Entry Level Knowledge, Skills and Abilities for Transportation GIS Manager.)

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MINIMUM QUALIFICATIONS (cont'd)

TRANSPORTATION GIS ANALYST II

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and two years of progressively responsible professional GIS experience; **OR** an Associate's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and three years of progressively responsible professional GIS experience as described above; **OR** one year of experience as a Transportation GIS Analyst I in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):

Detailed knowledge of: basic GIS software functionality, spatial relationships; theories, principles, and concepts related to GIS technology; geoprocessing and editing tools, and spatial data validation techniques; GIS analysis tools. **Working knowledge of:** spatial topologies; structured query language (SQL); cartographic principles, map projections and coordinate systems. **General knowledge of:** map services and enterprise spatial databases; multi-user GIS editing workflows; linear referencing and dynamic segmentation; mobile GIS technology and GPS data collection. **Ability to:** collect user requirements and design a GIS dataset that includes data validation and quality assurance mechanisms; solve moderately complex GIS problems; differentiate between common GIS and IT-related problems; write basic scripts to automate GIS processes; effectively train and mentor low-level users and end-users in the use of GIS Software; solve moderately complex GIS software problems and assist end-users with second-level technical support; perform moderately difficult spatial analyses; and all knowledge, skills and abilities required at the lower level.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):

(These are identical to the Entry Level Knowledge, Skills and Abilities required for Transportation GIS Supervisor.)

TRANSPORTATION GIS ANALYST I

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and one year of professional GIS experience; **OR** Associate's degree from an accredited college or university with a major in geographic information systems, geography, cartography or a closely related field which included coursework in geographic information systems and two years of professional GIS experience; **OR** equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):

Working knowledge of: basic GIS software functionality, spatial relationships; theories, principles, and concepts related to GIS technology. **General knowledge of:** basic cartographic principles, map projections and coordinate systems; sources of information and research techniques; problem-solving methods. **Ability to:** create a map layout suitable for printing, edit GIS data, perform spatial and attribute queries, label features on a map; solve simple GIS software problems and assist end-users with first-level technical support; understand and utilize computer systems and GIS software; make mathematical and statistical computations including addition, subtraction, multiplication, division and algebra; communicate effectively both orally and in writing; establish and maintain effective working relationships with others; analyze data and reach logical conclusions; write grammatically correct business correspondence; read and understand technical information.

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MINIMUM QUALIFICATIONS (cont'd)

TRANSPORTATION GIS ANALYST I (cont'd)

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
(These are identical to the Entry Level Knowledge, Skills, and Abilities required for Transportation GIS Analyst II.)

This class specification is used for classification, recruitment, and examination purposes. It is not to be considered a substitute for work performance standards for positions assigned to this series.

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