

**POSITION DUTY STATEMENT**

PM-0924 (REV 01/2022)

CLASSIFICATION TITLE Information Technology Specialist III	OFFICE/BRANCH/SECTION ADSD/Division Office	
WORKING TITLE Geographic Information System (GIS) Architect	POSITION NUMBER 900-170-1415-924	REVISION DATE 03/11/2024

As a valued member of the Caltrans leadership team, you make it possible for the Department to provide a safe and reliable transportation network that serves all people and respects the environment.

**GENERAL STATEMENT:**

Under the administrative direction of the Division Chief (CEA), the GIS Architect, Information Technology Specialist (ITS) III, is responsible for performing activities in support of discovering, assessing, architecture and delivery of multi-environment enterprise GIS solutions with integrated GIS infrastructure. Assignments require an advanced level of organizational understanding to bridge the strategic intent and practical technical application. In addition, advise executive leadership on formulating IT strategy, policy, and governance for Caltrans's current and emerging GIS technology portfolio.

The GIS Architect serves as a technical lead and solution architect, responsible for defining, designing, developing, documenting, coordinating, and integrating the products managed within the Division, with primary focus around GIS based solutions implemented through IT, to enable the business to meet its objectives. The incumbent possesses a wide and deep practical technical knowledge base, which includes emerging "cutting-edge" GIS technologies, including the department's standard software, Esri ArcGIS. The incumbent is recognized as a subject matter expert in their area of specialization, developing prototypes, models using various business intelligence analytics, procedures, and software. Exhibiting a mastery level of team leadership qualities, the incumbent will direct technical teams, and advise executive leadership on most GIS related projects.

The ITS III performs within duties related to the architecture, design, development, integration, operation, and maintenance of infrastructure and software systems including user research, user-centric design, development or configuration, testing, and implementation.

Domain(s):

Software Engineering

Information Technology Project Management

**CORE COMPETENCIES:**

As an Information Technology Specialist III, the incumbent is expected to become proficient in the following competencies as described below in order to successfully perform the essential functions of the job, while adhering to and promoting the Department's Mission, Vision, Values, Strategic Imperatives and Goals. Effective development of the identified Core Competencies fosters the advancement of the following Leadership Competencies: Change Commitment, Risk Appetite, Self-Development/Growth, Conflict Management, Relationship Building, Organizational Awareness, Communication, Strategic Perspective, and Results Driven.

- **Creativity and Innovation:** Thinks beyond the confines of traditional models to recognize opportunities, seek creative solutions and take intelligent risks. (Strengthen Stewardship and Drive Efficiency - Engagement, Innovation)
- **Dealing with Ambiguity (Risk):** Can comfortably handle risk and uncertainty, as well as make decisions to act without having the total picture. (Strengthen Stewardship and Drive Efficiency - Innovation)
- **Initiative:** Ability to identify what needs to be done and doing it before being asked or required by the situation. Seeks out others involved in a situation to learn their perspectives. (Strengthen Stewardship and Drive Efficiency - Innovation)
- **Problem-solving and Decision-making :** Identifies problems and uses logical analysis to find information, understand causes, and evaluate and select or recommend best possible courses of action. (Strengthen Stewardship and Drive Efficiency - Innovation)
- **Teamwork/Partnership:** Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Strengthen Stewardship and Drive Efficiency - Innovation)
- **Organizational Awareness:** Contributes to the organization by understanding and aligning actions with the organization's strategic plan, including the mission, vision, goals, core functions, and values. (Strengthen Stewardship and Drive Efficiency - Innovation)
- **Communication:** Expresses oneself clearly in all forms of communication. Gives feedback and is receptive to feedback received. Knows that listening is essential. Keeps others in the Division and other functional units informed as appropriate. (Strengthen Stewardship and Drive Efficiency - Innovation)
- **Forward Thinking:** Anticipates the implications and consequences of situations and takes appropriate actions to be prepared for possible contingencies. Anticipates and prepares for future developments. (Strengthen Stewardship and Drive Efficiency - Innovation)

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**POSITION DUTY STATEMENT**

PM-0924 (REV 01/2022)

- **Technical Expertise:** Depth of knowledge and skill in a technical area. (Strengthen Stewardship and Drive Efficiency - Innovation)

**TYPICAL DUTIES:**

Percentage		Job Description
Essential (E)/Marginal (M) <sup>1</sup>		
35%	E	<p><b>Technical Expertise:</b> Using the department's standard GIS software (Esri ArcGIS), serve as the lead for the development of most complex enterprise GIS applications/services. Engage in software development, including customization of applications through programming and scripting. Ensure quality assurance through implementation of measures and protocols for accurate and high-quality geospatial data. Design and implement advanced automated processes utilizing statistical software for capturing data and applying quality control procedures. Direct the enhancements and continued support of enterprise GIS solutions and data within the Division portfolio. Perform or oversee most complex geospatial analysis, utilizing techniques such as spatial queries and statistics to derive insights and help the organization with data-driven decisions. Implement and manage Business Intelligence software such as ArcGIS, ArcGIS Dashboards, ArcGIS Insight, &amp; ArcGIS for Server. Lead in the management and customization of ArcGIS dashboards, ArcGIS applications, and custom GIS tools.</p> <p>The incumbent will perform the most complex and challenging development of ArcGIS tools in support of the enterprise geospatial applications, ArcGIS dashboards, and ArcGIS Experience Builder web applications. Develop and analyze complex modes in order to identify new strategies or sources for collecting data, coordinating data migration efforts, and assign patterns to forecast future impacts on trends as they pertain to the multiple applications. Develop and analyze complex modes in order to identify new strategies or sources for collecting data, coordinating data migration efforts, and assign patterns to forecast future impacts on trends as they pertain to the multiple district and departmental functions.</p> <p>As the recognized technical expert and GIS subject matter expert, influence and drive continuous improvement of enterprise GIS technologies and best practices for business analytics, data mining, and data visualization.</p>
30%	E	<p><b>Architecture:</b> Provide expertise and guidance for the development, implementation, and management of the department's GIS systems and technologies. Evaluates and recommends new and emerging technologies needed to achieve operational objectives. Design overall architecture of new systems, analyzing requirements, and creating a framework for storing, processing, and visualizing geospatial data. In addition design and manage geospatial databases, selecting appropriate tools, and data models for efficient data storage and retrieval. Integrate geospatial data from various sources, ensuring compatibility and interoperability. Performs most complex architectural analysis of existing systems, proposed solutions and requirements, to assess feasibility and impacts of proposed system changes. Identify and design integration endpoints between the new and existing systems.</p>
20%	E	<p><b>Technical Leadership:</b> Provides technical leadership and coordination to departmental IT projects and activities. Guides the development of plans and artifacts to obtain internal and external approvals. Leads review and analysis of technical and architectural deliverables, and design documents. Provides technical direction to ensure that the unique product and technology domains stay aligned throughout the project life cycle. Ensures the required process for project is supported and provides required documents and approvals. Ensures compliance with the complete range of System Development Life Cycle (SDLC). Participates in vendor procurement and selection process. Assists with risk analysis and lessons learned. Identify opportunities for technology efficiencies through consolidation, reuse, and retirement of obsolete technology. Assess and monitor vendor and state-staff for compliance with contract terms and technology best practices. Provide mastery level technical advisory role to the team and leadership. Liaison with internal and external stakeholders to evaluate, recommend new technology, technical components, interfaces, protocols, and architectures. Coordinate with Business Programs and IT Teams for GIS software upgrades. Assist IT with resolution of GIS related issues.</p>

**POSITION DUTY STATEMENT**

PM-0924 (REV 01/2022)

5%	E	<p>Communication and Working Relationships</p> <p>Maintain effective communications and working relationship with team members, business customers, multiple management levels, executive leadership, vendors, State control agency staff, and State, Federal and local government entities. Proficiently communicate intricate technological concepts and issues to executive leadership within the department and oversight agencies using easily understandable language. Skillfully incorporate updated specifications and requirements into the architecture of systems, ensuring seamless integration and alignment with organizational objectives. Provide informed recommendations to management regarding the direction and use of various business intelligence tools, and best practices, for data visualization, geospatial technology, and end user web mapping applications to help shape IT strategy, policy, and governance to align with enterprise architectural goals and technology modernization efforts.</p>
5%	E	<p>Continuously demonstrate a commitment to professional development for self and team. Stay informed about the latest trends, tools, and methodologies in the field. Assess training needs related to the application of technology. Train other team members on new enhancements and domain specific topics. May need provide technical support and troubleshooting and provide training to end-users and support staff in using GIS tools and applications and also</p> <p>Understand business drivers and business capabilities (Current State and Future State) and determine the corresponding enterprise system designs and change requirements to drive targeted business outcomes.</p>
5%	M	<p>Performs other duties as required within the specifications of the classification, including but not limited to training, research, consulting, unplanned projects and initiatives, provides leadership and expertise for establishing and maintaining standards, processes and procedures (e.g., IT hardware and software standards, system build and configuration documents, incident management, configuration management, change management, user guides, etc.) for IT operations; leverages established documentation to provide training to IT professionals and users.</p>

<sup>1</sup>ESSENTIAL FUNCTIONS are the core duties of the position that cannot be reassigned.

MARGINAL FUNCTIONS are the minor tasks of the position that can be assigned to others.

**SUPERVISION OR GUIDANCE EXERCISED OVER OTHERS**

The incumbent is the technical expert over multi-functional, highly complex teams. The ITS III does not supervise but may act as a lead to others and will be regarded as the Subject Matter Expert.

**KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS**

Knowledge of: Emerging technologies and their applications to business processes; business or systems process analysis, design, testing, and implementation techniques; techniques for assessing skills and education needs to support training, planning and development; business continuity and technology recovery principles and processes; principles and practices related to the design and implementation of information technology systems; information technology systems and data auditing; the department's security and risk management policies, requirements, and acceptable level or risk; application and implementation of information systems to meet organizational requirements; project management life-cycle including the State of California project management standards, methodologies, tools, and processes; software quality assurance and quality control principles, methods, tools, and techniques; research and information technology best practice methods and processes to identify current and emerging trends in technology and risk management processes; and state and federal privacy laws, policies, and standards.

Ability to: Recognize and apply technology trends and industry best practices; assess training needs related to the application of technology; interpret audit findings and results; implement information assurance principles and organizational requirements to protect confidentiality, integrity, availability, authenticity, and non-repudiation of information and data; apply principles and methods for planning or managing the implementation, update, or integration of information systems components; apply the principles, methods, techniques, and tools for developing scheduling, coordinating, and managing projects and resources, including integration, scope, time, cost, quality, human resources, communications, and risk and procurement management; monitor and evaluate the effectiveness of the applied change management activities; keep informed on technology trends and industry best practices and recommend appropriate solutions; foster a team environment through leadership and conflict management; effectively negotiate with project stakeholders, suppliers, or sponsors to achieve project objectives; and analyze the effectiveness of the backup and recovery of data, programs, and services.

**RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR**

The incumbent must exercise good judgment, analyze problems, and take appropriate action. Poor decisions or recommendations could result in significant losses or departmental efficiencies through unnecessary delays, loss of data,

## POSITION DUTY STATEMENT

PM-0924 (REV 01/2022)

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equipment damage, loss of employee productivity, and user dissatisfaction.

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### PUBLIC AND INTERNAL CONTACTS

The incumbent will have frequent contacts with managers and staff in Caltrans, IT leaders throughout the state, private consultants, and vendor representatives concerning the needs and development of IT systems. The incumbent may initiate contacts with other departments, governmental agencies, or private companies concerning IT technology related to the performance of this position.

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### PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The employee may be required to sit for prolonged periods of time using a keyboard, monitor, mouse, and telephone. Employee must value cultural diversity and other individual differences in the workforce; adjust rapidly to new situations warranting attention and resolution; be open to change and new information; adapt behavior and work methods in response to new information, changing conditions, or unexpected obstacles; consider and respond appropriately to the needs, feelings, and capabilities of others; be tactful and treat others with respect. In addition, the employee must have the ability to multi-task, adapt quickly to changing priorities, and perform completed staff work or tasks and projects with short notice.

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### WORK ENVIRONMENT

This position may be eligible for telework. The amount of telework is at the discretion of the Department and based on Caltrans's evolving telework policy. Caltrans supports telework, recognizing that in-person attendance may be required based on operational needs. Employees are expected to be able to report to their worksites with minimum notification if an urgent need arises. The selected candidate will be required to commute to the headquartered location as needed to meet operational needs. Business travel may be required, and reimbursement considers an employee's designated headquartered location, primary residence, and may be subject to CalHR regulations or applicable bargaining unit contract provisions. All commute expenses to the headquartered location will be the responsibility of the selected candidate.

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Core Work Hours: Monday - Friday 8:00am-5:00pm. The incumbent may work after regular business hours and/or weekends to perform activities to support business operations. The incumbent must carry a cell phone and respond to calls after hours to support these business operations.

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I have read, understand and can perform the duties listed above. (If you believe you may require reasonable accommodation, please discuss this with your hiring supervisor. If you are unsure whether you require reasonable accommodation, inform the hiring supervisor who will discuss your concerns with the Reasonable Accommodation Coordinator.)

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EMPLOYEE (Print)

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EMPLOYEE (Signature)

DATE

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I have discussed the duties with, and provided a copy of this duty statement to the employee named above.

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SUPERVISOR (Print)

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SUPERVISOR (Signature)

DATE

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