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To: William G. Lynes
          Senior Manager, Compensation Policy
          Chief Executive Office

From: Richard Sanchez
          Acting Chief Information Officer

Subject: **PROPOSED CREATION OF A COUNTYWIDE GEOGRAPHIC INFORMATION SYSTEMS (GIS) CLASSSIFICATION SERIES**

This is to request your assistance in developing and establishing Countywide Geographic Information Systems (GIS) items. This lack of GIS items is hindering efforts to support the recruitment and retention of GIS staff and expertise.

Background

Geographic Information Systems (GIS) emerged and grown rapidly over the past twenty years and is now used by the majority of County departments. GIS spatial analysis and visualization technology improves planning, emergency response, communication, and operational efficiency.

Recognizing the value GIS as a decision support tool, the County appointed a County Geographic Information Officer (GIO) and established a GIS governance structure, comprised of a Steering Committee of department representatives to support countywide GIS implementation, management and planning.

A common problem identified by GIS Steering Committee is the lack of countywide GIS classifications. GIS requires a set of training, skills, and software which are unique since it combines geo-spatial, programming, and analytical skills. These skills are taught in a number of disciplines, including Geography, Social Sciences, Engineering, Planning, and Public Policy. Educational institutions increasingly are offering specialized certificates, programs, and degrees in GIS.

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Issues

The County's current classification requirements are hindering efforts to develop and maintain GIS technical expertise and have caused an over reliance on contractors for GIS skill sets. Key issues include:

- GIS staff is supported on items that are departmental specific, limiting recruitment, transfer, promotional opportunities;
- Classification minimum requirements that do not recognize GIS degrees and certificates; and
- Current salary levels are not completive with the industry and hamper efforts to attract and retain skilled GIS staff.

A GIS Positions Subcommittee comprised of eight departments (Chief Executive Office, Public Works, Mental Health, Regional Planning, Health Services, Public Health, Fire, Registrar-Recorder/County Clerk) has been established to address these issues. They have been working with Susan Curran, CEO, to develop and establish these Countywide GIS positions.

Attached is a survey of County departments conducted by this Subcommittee. The survey results identify over 200 employees performing GIS functions, show the range of salaries and variations among budgeted items that provide GIS expertise, and highlight the use of GIS and the issues discussed above (See Attachment A). Also attached is a proposed GIS classification series and specifications (See Attachment B).

If you have any questions or need additional information, please contact Mark Greninger of my staff at (213) 974-2154 or via e-mail at mgreninger@cio.lacounty.gov.
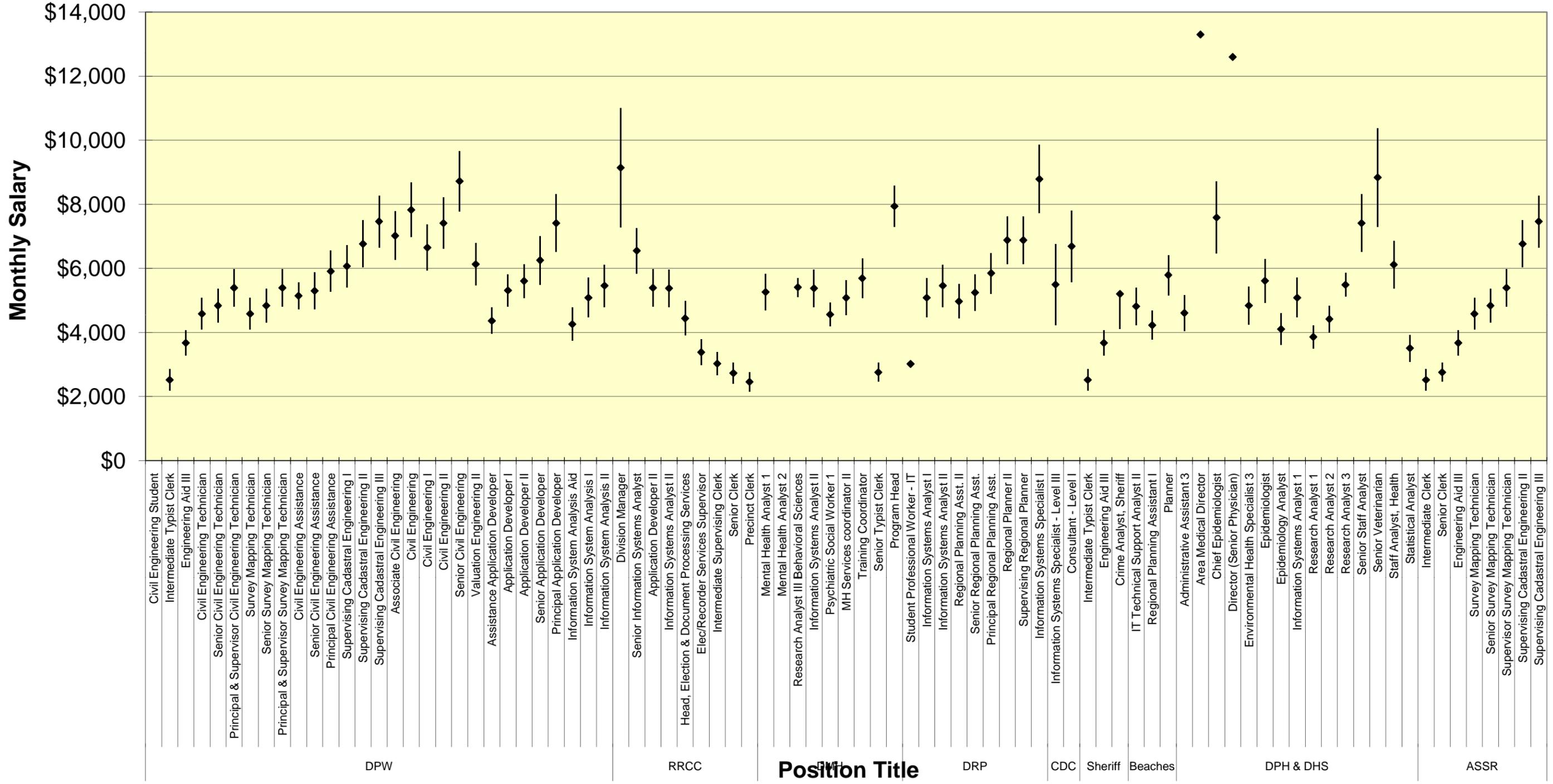
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Attachments

c: Ellen F. Sandt

ATTACHMENT A
**COUNTYWIDE GIS
SALARY AND CLASS SURVEY**

Dept	Title	Minimum	Maximum	Average	Number
	MAPPING & GIS SERVICES SALARY LIST				
DPW	Civil Engineering Student		$2,763		3
	Intermediate Typist Clerk	$2,180	$2,857	$2,519	1
	Engineering Aid III	$3,281	$4,066	$3,674	9
	Civil Engineering Technician	$4,086	$5,076	$4,581	0
	Senior Civil Engineering Technician	$4,313	$5,359	$4,836	1
	Principal & Supervisor Civil Engineering Technician	$4,808	$5,973	$5,391	2
	Survey Mapping Technician	$4,086	$5,076	$4,581	0
	Senior Survey Mapping Technician	$4,313	$5,359	$4,836	5
	Principal & Supervisor Survey Mapping Technician	$4,808	$5,973	$5,391	5
	Civil Engineering Assistance	$4,726	$5,561	$5,143	1
	Senior Civil Engineering Assistance	$4,726	$5,871	$5,299	0
	Principal Civil Engineering Assistance	$5,268	$6,544	$5,906	0
	Supervising Cadastral Engineering I	$5,412	$6,724	$6,068	3
	Supervising Cadastral Engineering II	$6,033	$7,494	$6,763	2
	Supervising Cadastral Engineering III	$6,657	$8,270	$7,464	1
	Associate Civil Engineering	$6,260	$7,777	$7,018	0
	Civil Engineering	$6,977	$8,667	$7,822	0
	Civil Engineering I	$5,929	$7,366	$6,648	0
	Civil Engineering II	$6,608	$8,210	$7,409	1
	Senior Civil Engineering	$7,777	$9,660	$8,718	0
	Valuation Engineering II	$5,466	$6,790	$6,128	1
	Assistance Application Developer	$3,948	$4,773	$4,361	0
	Application Developer I	$4,808	$5,813	$5,311	0
	Application Developer II	$5,076	$6,137	$5,607	0
	Senior Application Developer	$5,493	$7,011	$6,252	0
	Principal Application Developer	$6,511	$8,311	$7,411	0
	Information System Analysis Aid	$3,742	$4,773	$4,258	0
	Information System Analysis I	$4,465	$5,700	$5,082	0
	Information System Analysis II	$4,796	$6,122	$5,459	0
RRCC	Division Manager	$7,272	$11,007	$9,140	1
	Senior Information Systems Analyst	$5,842	$7,257	$6,550	1
	Application Developer II	$4,808	$5,973	$5,391	1
	Information Systems Analyst II	$4,796	$5,958	$5,377	1
	Head, Election & Document Processing Services	$3,901	$4,977	$4,439	1
	Elec/Recorder Services Supervisor	$2,977	$3,789	$3,383	2
	Intermediate Supervising Clerk	$2,662	$3,387	$3,025	2
	Senior Clerk	$2,403	$3,058	$2,730	6
	Precinct Clerk	$2,158	$2,755	$2,457	9
DMH	Mental Health Analyst 1	$4,691	$5,828	$5,259	1
	Mental Health Analyst 2				2
	Research Analyst III Behavioral Sciences	$5,114	$5,700	$5,407	1
	Information Systems Analyst II	$4,796	$5,958	$5,377	1
	Psychiatric Social Worker 1	$4,188	$4,928	$4,558	1
	MH Services coordinator II	$4,532	$5,630	$5,081	1
	Training Coordinator	$5,076	$6,306	$5,691	1
	Senior Typist Clerk	$2,463	$3,050	$2,757	1
	Program Head	$7,293	$8,582	$7,938	1
DRP	Student Professional Worker - IT			$3,017	0
	Information Systems Analyst I	$4,465	$5,699	$5,082	0
	Information Systems Analyst II	$4,796	$6,122	$5,459	0
	Regional Planning Asst. II	$4,432	$5,506	$4,969	4
	Senior Regional Planning Asst.	$4,679	$5,813	$5,246	3
	Principal Regional Planning Asst.	$5,216	$6,479	$5,848	1
	Regional Planner II	$6,137	$7,624	$6,881	0
	Supervising Regional Planner	$6,137	$7,624	$6,881	0
	Information Systems Specialist I	$7,719	$9,852	$8,786	1
CDC	Information Systems Specialist - Level III	$4,225	$6,760	$5,493	1
	Consultant - Level I	$5,574	$7,802	$6,688	1
Beach Sheriff	Intermediate Typist Clerk	$2,180	$2,857	$2,519	0
	Engineering Aid III	$3,281	$4,066	$3,674	0
	Crime Analyst, Sheriff	$4,106	$5,202	$5,202	32
	IT Technical Support Analyst II	$4,229	$5,399	$4,814	1
	Regional Planning Assistant I	$3,770	$4,679	$4,225	1
	Planner	$5,165	$6,416	$5,791	1
DPH & DHS	Administrative Assistant 3	$4,046	$5,165	$4,606	1
	Area Medical Director		$13,297	$13,297	1
	Chief Epidemiologist	$6,463	$8,710	$7,587	1
	Director (Senior Physician)		$12,595	$12,595	1
	Environmental Health Specialist 3	$4,250	$5,426	$4,838	1
	Epidemiologist	$4,928	$6,291	$5,609	9
	Epidemiology Analyst	$3,608	$4,599	$4,104	12
	Information Systems Analyst 1	$4,465	$5,700	$5,082	2
	Research Analyst 1	$3,495	$4,219	$3,857	1
	Research Analyst 2	$3,997	$4,832	$4,414	8
	Research Analyst 3	$5,114	$5,857	$5,485	8
	Senior Staff Analyst	$6,511	$8,311	$7,411	1
	Senior Veterinarian	$7,293	$10,377	$8,835	1
	Staff Analyst, Health	$5,372	$6,857	$6,115	2
	Statistical Analyst	$3,088	$3,929	$3,509	1
ASSR	Intermediate Clerk	$2,180	$2,857	$2,519	2
	Senior Clerk	$2,463	$3,050	$2,757	1
	Engineering Aid III	$3,281	$4,066	$3,674	7
	Survey Mapping Technician	$4,086	$5,076	$4,581	13
	Senior Survey Mapping Technician	$4,313	$5,359	$4,836	12
	Supervisor Survey Mapping Technician	$4,808	$5,973	$5,391	5
	Supervising Cadastral Engineering II	$6,033	$7,494	$6,763	1
	Supervising Cadastral Engineering III	$6,657	$8,270	$7,464	1

GIS Positions and Salaries

ATTACHMENT B
PROPOSED COUNTYWIDE
GIS CLASSIFICATION SERIES

GIS Positions – Proposed Setup

GIS Principal

GIS Principal
Performs complex GIS research and directs major assignments and projects that may involve other divisions or departments.

1) Masters Degree with two years experience in GIS.
2) or Bachelors Degree with six years of experience in GIS.
3) or Two years at the level of GIS Specialist 2.

GIS Specialist

GIS Specialist 2
Designs, develops, maintains and updates Geographic Information Systems (GIS)

Application Development	Database Management	Analyst

1) Masters Degree with two years experience in GIS.
2) or Bachelors Degree with four years of experience in GIS.
3) or Two years at the level of GIS Specialist 1.

GIS Specialist 1
Develops, maintains and updates GIS under minimal supervision

Application Development	Database Management	Analyst

1) Bachelors Degree with degree in Geography, GIS or closely related field.
2) or Bachelors Degree and two years of experience in GIS.
3) or Two years at the level of GIS Technician 2.

GIS Technician

GIS Technician 2
Performs complex technical duties related to maintaining and updating GIS under general supervision

1) Bachelors Degree with coursework in GIS or related field.
2) or Associates Degree and two years with GIS coursework or a related field. A GIS Certificate can be used to replace one year of experience.
3) or Two years at the level of GIS Technician 1.

GIS Technician 1
Performs technical duties related to maintaining and editing GIS under immediate supervision

1) Associates Degree or two years with GIS coursework or a related field
2) or one year of responsible technical experience in the use and operation of GIS.
3) or Three years at the level of GIS Clerk. A GIS Certificate can be used to replace one year of experience.

GIS Clerk

GIS Clerk
Clerical duties related to maintaining and updating GIS under immediate supervision

High School Diploma or equivalent

Class Specification: GIS Clerk

DEFINITION:
Responsible for performing clerical duties related to maintaining and updating Geographic Information Systems (GIS) under immediate supervision.

CLASSIFICATION STANDARDS:
Positions of this class perform clerical duties under immediate supervision related to GIS and mapping. The position works and assists with the maintenance of GIS data, maps and related products, and uses GIS programs to generate graphics for reports. Work involves compiling and tabulating data, checking GIS data and maps for accuracy, data entry, retrieval, and data searches within an established procedure.

EXAMPLES OF DUTIES:
Completes assignments where the objective is clearly defined, using established methods, procedures, and standards.

Maintains data records.

Completes GIS data entry and editing assignments.

Maintains simple geographic features including points, lines, and polygons.

Uses standard Geographic Information Systems (GIS) Software.

MINIMUM REQUIREMENTS:

TRAINING AND EXPERIENCE:
High School Diploma or equivalent.

LICENSE:
A valid California Class C Driver License or the ability to utilize an alternative method of transportation when needed to carry out job-related essential functions.

PHYSICAL CLASS:
2 - Light.

Class Specification: GIS Technician 1

DEFINITION:
Responsible for performing technical duties related to maintaining and editing Geographic Information Systems (GIS) under immediate supervision.

CLASSIFICATION STANDARDS:
Positions of this class perform technical duties related to GIS and mapping under immediate supervision. The position maintains and edits GIS data, maps and related products, and uses GIS programs to generate maps, graphics, and reports. Work involves compiling and tabulating data, checking GIS data and maps for accuracy, data entry, retrieval, and data searches within an established procedure.

EXAMPLES OF DUTIES:
Completes assignments where the objective is clearly defined, using established methods, procedures, and standards.

Maintains geographic data files and data records.

Maintains GIS metadata.

Performs quality assurance of geographic features including points, lines, and polygons.

Generates maps and reports within existing GIS applications.

Uses standard Geographic Information Systems (GIS) Software.

Assists in maintaining equipment, supplies, and inventory.

Responds to inquiries and requests for assistance in a professional and responsible manner.

May serve as a team member on projects, assist other analysts, or assist GIS clerical staff.

Attends work-related meetings, training, and conferences as requested.

MINIMUM REQUIREMENTS:

TRAINING AND EXPERIENCE:

(1) Associates Degree or two years in a 4 year program from an accredited college with coursework in GIS or a related field.
(2) or one year of responsible technical experience in the use and operation of GIS.
(3) or three years at the level of GIS Clerk. A GIS Certificate can be used to replace one year of experience.

LICENSE:
A valid California Class C Driver License or the ability to utilize an alternative method of transportation when needed to carry out job-related essential functions.

PHYSICAL CLASS:
2 - Light.

Class Specification: GIS Technician 2

DEFINITION:
Responsible for performing complex technical duties related to maintaining and updating Geographic Information Systems (GIS) under general supervision.

CLASSIFICATION STANDARDS:
Positions of this class perform complex technical duties related to GIS and mapping under general supervision. Incumbents must have a good working knowledge of GIS concepts and operations. The position maintains and creates GIS data, databases, and related products, and uses standard GIS programs to generate analysis, maps, and graphics for reports.

EXAMPLES OF DUTIES:
Completes assignments using established methods, procedures, and standards.

Creates and maintains geographic data files.

Creates and maintains GIS metadata.

Converts data file formats to and from GIS and related systems.

Creates and edits maps and completes quality assurance operations.

Generates maps and reports within existing GIS related programs.

Uses standard Geographic Information Systems (GIS) Software.

Performs spatial analyses such as buffering, spatial overlay, and distance calculations using established methods and procedures.

Operates contemporary GIS specific hardware, including large format plotters and scanners.

Assists in maintaining equipment, supplies, and inventory.

Converts addresses to geographic coordinates using geocoding algorithms.

Collects field data using GPS and/or GIS related equipment as needed.

May serve as a team member on projects, may assist other analysts, or may independently complete a segment of a more complex study, as assigned.

MINIMUM REQUIREMENTS:

TRAINING AND EXPERIENCE:
 (1) Bachelor's Degree from an accredited college or university with coursework in GIS or a related field;
 (2) or Associates Degree and two years of experience in GIS. A GIS Certificate can be used to replace one year of experience;
 (3) or two years of experience at the level of GIS Technician 1.

LICENSE:
A valid California Class C Driver License or the ability to utilize an alternative method of transportation when needed to carry out job-related essential functions.

PHYSICAL CLASS:
2 - Light.

Class Specification: GIS Specialist 1

DEFINITION:
This is the beginning of the professional/specialist series. Responsible for performing duties related to developing, maintaining and updating Geographic Information Systems (GIS) under minimal supervision.

CLASSIFICATION STANDARDS:
Positions of this class perform complex GIS mapping, analysis, and development duties under minimal supervision. Incumbents must have expert working knowledge of GIS concepts, operations, and development. The position develops, creates, and maintains GIS data, databases, applications, and related products, using demonstrated expertise with standard GIS programs to generate complex analysis, maps, and graphics for reports.

EXAMPLES OF DUTIES:
Organizes and categorizes GIS information.

Creates, designs, and modifies customized maps and map templates using cartographic and cadastral standards and elements, including scale, map units, and graticules.

Creates and maintains geographic data files, including geographic data models, polygons, lines, and points.

Creates output from three-dimensional models including digital elevation models and digital terrain models.

Performs spatial analyses such as projecting GIS data, boundary analysis, distance calculations, geographic density analysis, routing, and network analysis.

Implements geographic topology, dynamic segmentation, and geometric networks

Creates geocoding services for use in converting addresses to geographic coordinates.

Maintains and provides quality control for GIS metadata.

May use photogrammetric principles and standards.

May lead a team of GIS technicians or related staff.

Provides training, and makes presentations to GIS users.

MINIMUM REQUIREMENTS:

TRAINING AND EXPERIENCE:
    (1) Bachelor's Degree from an accredited college or university with degree in
        Geography, GIS, or closely related field;
    (2) or Bachelor's Degree from an accredited college or university and two years of
        experience in GIS;
    (3) or two years of experience at the level of GIS Technician 2.

LICENSE:
A valid California Class C Driver License or the ability to utilize an alternative method of
transportation when needed to carry out job-related essential functions.

PHYSICAL CLASS:
2 - Light.

SPECIALTY REQUIREMENTS:

Specialty
Data Base Management
One year of the required experience must have been in the maintenance, modification, and
administration of GIS and spatial databases including Relational Database Management
Systems, including loading data into spatial data repositories, data organization, user
access control, data integrity, and security integration. It also must have included
experience in the use of logical data relationships, performance measurement and system
monitoring, or data base recovery techniques.

Applications Development
One year of the required experience must have been in applications development
using information technology standards and techniques for the analysis of technical
requirements and solution of project development problems. It must have included
experience in designing, documenting, programming, maintaining, and testing Geographic
Information Systems (GIS) applications, models, procedures, and software routines to
automate geographic analysis and data processing.

Spatial Analysis
One year of the required experience must have been in spatial analysis, such as projecting
geographic data, boundary analysis, distance calculations, geographic density analysis,
routing, network analysis, three-dimensional modeling including digital elevation models and
digital terrain models, implementing geographic topology, dynamic segmentation, and
geometric networks. It must have included writing reports of the results of spatial analyses.

Class Specification: GIS Specialist 2

DEFINITION:
This GIS professional is responsible for performing duties related to designing, developing, maintaining and updating Geographic Information Systems (GIS). This position may be responsible for project management, oversight of positions in the GIS Technician series, and budget oversight.

CLASSIFICATION STANDARDS:
Positions of this class perform very complex GIS mapping, analysis, and development duties under minimal supervision, and may include project management and budget oversight duties. Incumbents demonstrate expertise and knowledge of GIS concepts, operations, and development. The position develops, creates, and maintains GIS data, databases, systems, and applications, exhibits creative problem solving and expertise in GIS programs to generate highly complex analysis, maps, and graphics for reports.

EXAMPLES OF DUTIES:
Organizes and categorizes GIS information.

Creates, designs, and modifies customized maps and map templates using cartographic and cadastral standards and elements, including scale, map units, and graticules.

Designs, creates and maintains geographic data files, including geographic data models, polygons, lines, and points.

Creates visual representations of geospatial data using complex procedures such as analytical modeling, quantitative spatial analysis, and three-dimensional rendering.

Converts data between various spatial formats and projections, and loads data into spatial databases and geographic data models.

Designs, creates, and maintains logical data structures and spatial data models including topology, dynamic segmentation, geometric networks, and address models.

Designs, develops, and implements geocoding and fuzzy matching algorithms.

Completes cell-based spatial analysis including elevation modeling, visibility analysis, flow modeling, hydrographic modeling, and three dimensional rendering.

Conducts feasibility studies or identifies system, time, equipment, or cost requirements for projects.

Analyzes and makes recommendations concerning GIS technical matters.

Develops training materials, provides training, and makes presentations to GIS users.

Assists in preparing request for proposals, bids, contracts, and service agreements.

Leads a team of GIS technicians or related staff.

Makes recommendations regarding upgrades, considering implications of new or revised GIS software, equipment, or applications.

MINIMUM REQUIREMENTS:

TRAINING AND EXPERIENCE:
(1) Masters Degree from an accredited college or university with two years experience in GIS;
(2) or Bachelor's Degree from an accredited college or university with four years of experience in GIS;
(3) or two years of experience at the level of GIS Specialist 1.

LICENSE:
A valid California Class C Driver License or the ability to utilize an alternative method of transportation when needed to carry out job-related essential functions.

PHYSICAL CLASS:
2 - Light.

SPECIALTY REQUIREMENTS:

Specialty
Data Base Management
One year of the required experience must have been in designing, developing, and implementing GIS and spatial data repositories, including developing data organization, data loading algorithms, user access, data integrity, automation, replication, and security. It also must have included experience in developing logical data relationships, performance measurement and system monitoring, or data base recovery techniques.

Applications Development
One year of the required experience must have been in applications development using information technology standards and techniques for the analysis of technical requirements, recommending, and overseeing the solution of complex development problems. It must have included experience in modeling, designing, documenting, programming, maintaining, and testing Geographic Information Systems (GIS) applications, models, procedures, and software routines to automate geographic analysis and data processing.

Spatial Analysis
One year of the required experience must have been in spatial analysis, such as projecting and reformatting geographic data, routing, network analysis, cell-based spatial modeling including elevation modeling, visibility analysis, flow modeling, hydrographic modeling, and three dimensional rendering, geocoding and fuzzy matching, implementing geographic topology, dynamic segmentation, and geometric networks. It must have included writing reports of the results of spatial analyses.

Class Specification: GIS Principal

DEFINITION:
Performs complex GIS research and directs major assignments and projects that may involve other Divisions and Departments. Supervises the work of GIS staff comprised of various subordinate positions or specialized functions.

CLASSIFICATION STANDARDS:
Positions in this classification may lead a team of GIS staff, have responsibility for project and contract management, coordination, budget oversight, and administrative duties for one or several units. Incumbents must demonstrate significant expertise and knowledge of GIS concepts, operations, and development. The position oversees the development, creation, and maintenance of GIS data, databases, systems, applications, and procedures.

EXAMPLES OF DUTIES:
May supervise and provide direction and guidance to GIS Technicians and GIS Specialists.

Responsible for developing and managing budgets related to departmental and project level GIS.

Researches, evaluates and makes recommendations for computer hardware and software upgrades to effectively maintain GIS-related computer technologies.

Plans, implements, and manages significant thematic projects within a department.

Manages day-to-day operations of GIS activities in compliance with departmental and countywide objectives and procedures.

Manages multiple GIS projects including coordination of all associated work. Establishes priorities, ensures deadlines are met. Monitors project status against established standards, and takes corrective action when necessary.

Conducts GIS presentations in front of small to large audiences.

Prepares technical and/or management reports on a periodic basis. Establishes and maintains technical and user documentation for new and existing GIS.

Interacts with outside consultants and vendors.

Participates in the establishment of department and countywide GIS strategies, plans, and procedures.

Assist the public and inside customers with GIS related inquiries.

Help the department integrate GIS into workflows to improve efficiency and customer service.

MINIMUM REQUIREMENTS:

TRAINING AND EXPERIENCE:
(1) Masters Degree from an accredited college or university with two years experience in GIS;
(2) or Bachelor's Degree from an accredited college or university with six years of experience in GIS;
(3) or Two years of experience at the level of GIS Specialist 2.

LICENSE:
A valid California Class C Driver License or the ability to utilize an alternative method of transportation when needed to carry out job-related essential functions.

PHYSICAL CLASS:
2 - Light.

SPECIALTY REQUIREMENTS:

Specialty
Data Base Management
One year of the required experience must have been in designing, developing, and implementing GIS and spatial data repositories, including developing data organization, data loading algorithms, user access, data integrity, automation, replication, and security. It also must have included experience in developing logical data relationships, performance measurement and system monitoring, or data base recovery techniques.

Applications Development
One year of the required experience must have been in applications development using information technology standards and techniques for the analysis of technical requirements, recommending, and overseeing the solution of complex development problems. It must have included experience in modeling, designing, documenting, programming, maintaining, and testing Geographic Information Systems (GIS) applications, models, procedures, and software routines to automate geographic analysis and data processing.

Spatial Analysis
One year of the required experience must have been in spatial analysis, such as projecting and reformatting geographic data, routing, network analysis, cell-based spatial modeling including elevation modeling, visibility analysis, flow modeling, hydrographic modeling, and three dimensional rendering, geocoding and fuzzy matching, implementing geographic topology, dynamic segmentation, and geometric networks. It must have included writing reports of the results of spatial analyses.