The Maryland-National Capital Park and Planning Commission

TITLE: Engineer	GRADE: 28		DATE: 10/26/2016
SERIES: Design & Construction	CODE: 3171	EEO: Professionals	FLSA: Exempt (P)

Class Definition:

Under direction, manages a full range of challenging projects to design or construct park or recreation facilities as a Registered Professional Engineer; works fully proficiently as a project manager across the continuum of planning, design (design development, contract documentation and cost estimating) and construction administration. Manages projects that are large, technically complex, politically sensitive or high visibility. Manages one very large project, or multiple projects in various stages concurrently, or leads, manages, priorities and coordinates a challenging, specialized work portfolio of smaller projects or programmatic matters. Performs technical work in engineering; certifies, or recommends certification of, designs and final plans; ensures effective project budgeting and cost control; coordinates with internal and external stakeholders; performs a full range of project manager purchasing and contract administration functions; and ensures effective design (through consultants or in-house staff) and/or construction (through a general contractor) and commissioning. Project management involves managing or coordinating with many specialists (internal or external) across varied disciplines such as land use planning, landscape architecture, architecture or engineering (civil/structural, mechanical, environmental), coordinating with multiple regulatory agencies, and handling such other factors as high levels of public interest. The work has critical impact on individual projects significant to the Department. Applies comprehensive professional knowledge of engineering along with good working knowledge of related fields (including architecture, landscape architecture and construction management) to ensure complete, integrated designs and building specifications for a full range of park and facility design and construction projects. Performs various types of analyses and solves conventional, non-standard and challenging problems, which include interactions of technical and non-technical variables, on own. Interacts with people inside and outside the organization to exchange information, coordinate, instruct, guide, advise and obtain agreement or compliance or achieve other desired actions. Performs other duties, as assigned.

Work is assigned in terms of functions, priorities, requirements of specific assignments. The incumbent works in consultation with the supervisor and others to develop project objectives, scope, schedules and budgets; independently plans and performs the work; keeps the supervisor informed; and seeks assistance for only highly complex or very sensitive matters. Work is expected to meet objectives highly effectively – the incumbent is held responsible for results, and is evaluated in terms of project management quality, quantity, timeliness, teamwork, customer service and such other factors as use of skill and ingenuity in overcoming project impediments and sound judgment and creativity in solving problems and overcoming challenges.

Examples of Important Duties (Estimated Percentages):

1. Project Management (±70%)

- Serves primarily as a fully proficient level design or construction project manager who is a Registered Professional Engineer. Leads, manages and coordinates the work for large, technically complex or high profile (high visibility or political sensitivity) projects funded in

the Capital Improvements Program (CIP) or the Major Maintenance Program (MMP) that are significant to the Department's mission, and which involve programming, facility planning, design and construction. May also lead, manage, prioritize and coordinate a challenging, specialized work portfolio of smaller projects or programmatic matters such as historic structures, playgrounds, courts, Americans with Disabilities Act (ADA) projects, trails, and pollution prevention projects. In either role, projects frequently involve many technical specialists and technical disciplines from design consulting firms such as architects, landscape architects, civil/structural engineers, environmental engineer, mechanical electrical and plumbing (MEP) engineers, cost estimators, lighting consultants, acoustic consultants, arborists/horticultural/soils consultants, ecologists, and traffic engineers and large in-house stakeholder review teams.

- Works in consultation with supervisor and other team members to develop project objectives, scope, project schedules and budgets; requests assistance or input, as appropriate, throughout the project. Prepares, plans and tracks project schedules and budgets, assigns project responsibilities, and coordinates the work to complete projects on schedule and within established budget. Monitors completion of assignments at each stage of a project for timeliness, accuracy and effectiveness in meeting work objectives. Coordinates and obtains required approvals, permits and inspections at appropriate timeframes to keep project on schedule and avoid project delays. Initiates and conducts effective progress meetings at regular intervals during design and/or construction including preparation of agendas and meeting minutes.

- Uses established tools and processes for project management and coordination, established business processes, and other applicable policies, procedures, systems and tools. Provides routine status reports on the project, and as may be requested. Provides technical support, as needed, for grant applications and develops cost estimating and schedule information for the CIP/MMP. Keeps supervisor informed of project status, problems and delays, and recommends solutions when presenting problems. Assembles and maintains comprehensive and organized project files, and archives files upon completion of projects.

- Conducts thorough, technically proficient and timely reviews of CIP project work by outside consultants, permit requests for construction on park property, mandatory referrals, public-private partnerships, developer projects, or projects by other agencies on parkland. Reviews preliminary design plans, facility plans, written reports, construction drawings, specifications, computations, cost estimates, maintenance and operations manuals, bid forms, submittals and shop drawings for quality assurance, and provides input, at appropriate stages. Reviews work for thoroughness, accuracy, practicality, economy, compliance with applicable regulatory requirements and conformance with sound design and construction practices. Reviews and approves design work and final construction documents, and recommends certification, or certifies portions, of the work (including designs and final plans) as a Registered Professional Engineer. Reviews progress of construction work at regular intervals to ensure park/space/facility or building system (such as MEP system) is constructed

according to the contract documents. Identifies deficiencies at early stages prior to adverse impacts and significant delays to projects. Applies professional expertise to improve and add value to the project, or specialized portfolio, and develops practical solutions. Interjects an awareness of Commission objectives into the review and ensures work complies with internal park and facility design and construction standards. Communicates and collaborates with others during the review process.

- As a design project manager:

  - Applies specialized professional knowledge in engineering to design and produce projects in-house, as well as to direct, review and monitor the technical work of others. Work may include preparing concept plans, facility plans, detailed designs, construction documents, written technical specifications, cost estimates, and bid forms for a full range of park spaces, facilities and systems. Develops creative design or construction solutions. Incorporates current guidelines and standards into design solutions and ensures that work complies with all Federal, Maryland and local requirements and conforms to sound engineering design principles and methods. Trains and leads technicians, interns and junior staff in performance of technical work, and provides input to performance appraisals by supervisors of staff on project. Informs Department Director, Planning Board, senior management and others of implications of proposed changes in policies, laws, procedures and work methods.

  - Writes complete and clear scopes of work for design services, including all tasks needed to meet project objectives, reviews proposals with project review panel, and recommends award of contract. Prepares complete list of bid items, special conditions, technical specifications, and detailed cost estimate, and advertises projects for construction. Compares cost estimate to project budget, and initiates and develops solutions to reduce costs when necessary prior to bidding. Consults in advance with contract specialist and supervisor to consider and select purchasing methods. Effectively administers design contracts during design and construction phases of the project, reviews and signs off on payment requests. Proactively manages vendors and takes appropriate actions if and when performance does not meet the terms of the contract. Processes change orders and invoices in a timely manner and closes out contract upon completion.

  - Attends on-site construction progress meetings among contractors, subcontractors, inspectors, regulatory agencies and park staff. Visits job site during construction and monitors progress to ensure work is being performed to contract requirements to meet design intent. Communicates regularly with construction management and inspection staff to identify any project design issues requiring resolution. Resolves problems and technical design issues reported by the Commission's construction manager, inspector and other team members. Manages design consultants throughout the construction phase of work. Reviews work and recommends payment to construction manager for specific contract work. Liaises between contractors and other park staff to enforce contract conditions and negotiate contract claims. Based on field conditions and weather, makes

decisions for changes to contract requirements. Reviews as-built plans at the completion of construction.

- As a construction project manager:

  - Conducts thorough, technically proficient and timely constructability reviews of CIP/MMP project work, permit requests for construction on park property, public-private partnerships, developer projects, or projects by other agencies on parkland. Reviews preliminary design plans, facility plans, written reports, construction drawings, specifications, computations, cost estimates, maintenance and operations manuals, bid forms, submittals and shop drawings, and provides input at appropriate stages. Reviews work and suggests modifications for clarity, practicality and functionality, cost savings, compliance with bid documents, compliance with applicable regulatory requirements, and conformance with sound construction practices. Reviews and approves final construction documents prior to advertising for bids. Reviews and monitors progress of construction work at regular intervals to ensure work is constructed according to the contract documents. Identifies deficiencies at early stages prior to adverse impacts and significant delays to projects. Applies technical expertise to improve and add value to the project, and develops practical and creative solutions. Interjects an awareness of Commission objectives into the review and ensures work complies with internal park space, facility and system design and construction standards. Communicates and collaborates with others during the review process.

  - Reviews scopes of work for design-build and construction services including all tasks needed to meet project objectives, reviews proposals with project review panel, and recommends award of contract. Reviews or prepares complete list of bid items, special conditions, technical specifications, and detailed cost estimate, and may coordinate advertisement of projects for construction. Compares cost estimate to project budget, and helps to develop solutions to reduce costs, when necessary, prior to bidding. Consults in advance with contract specialist and supervisor to consider and select purchasing methods. Effectively administers construction contracts during construction phase of the project, reviews and signs off on contractor payment requests. Proactively manages vendors and contractors and takes appropriate actions if and when performance does not meet the terms of the contract. Processes change orders and invoices in a timely manner and closes out contract upon completion.

  - Provides overall coordination and direction for construction projects; applies knowledge of construction management and specific contracts. Schedules and conducts on-site construction progress meetings among contractors, subcontractors, inspectors, regulatory agencies, design staff and park staff. Visits job site during construction and monitors progress to ensure work complies with contract requirements and meets design intent. Reviews and monitors detailed construction sequences and schedules. Coordinates activities between various trades shops, subcontractors, inspectors and utilities. Schedules and orders materials. Communicates on a daily basis with construction

inspection staff to track the progress of the work and identify any project issues requiring resolution. Resolves problems reported by the Commission's construction inspector and other team members. Makes ongoing design decisions (in consultation with designers) to meet practical needs, fill in details, correct errors in original plans, or satisfy regulatory inspectors' interpretations of requirements. Reviews, negotiates and approves change orders. Reviews project inspection logs and diaries of contract activities to ensure that they are kept current, in order to review and approve payment for contract work and maintain expenditure records. Liaises between contractors, other park staff, and legal staff to enforce contract conditions and negotiate contract claims. Based on field conditions and weather, makes decisions for changes to contract requirements. Ensures that as-built plans are prepared at the completion of construction.

- Maintains records and files. Prepares reports.

2. Other (±30%)

- Stays abreast of developments in engineering, design technology and construction technology, materials, methods and practices; evaluates potential for application in Commission projects/facilities.

- Communicates and interacts effectively with business contacts. Establishes and maintains or enhances working relationships, including teamwork. Identifies, involves and coordinates with internal and external stakeholders including staff, consultants and sub-consultants, contractors and subcontractors, citizens, community groups, public officials, regulatory inspectors, and representatives from other agencies at appropriate stages; resolves conflicts at earliest possible stage in accordance with Commission policies and procedures, and for the more difficult/sensitive issues, with supervisory assistance. Meets with individuals, community groups and other stakeholders to understand concerns and perspectives, explain on-going design or construction projects, answer questions, respond to complaints, obtain agreement, gain compliance. Listens to stakeholder wants/needs and develops options/solutions that incorporate key stakeholder concerns into the project, as practicable.

- Uses a computer, modern office suite software, enterprise software, specialized software (such as project planning/scheduling software), and various technical devices/tools for planning, scheduling, communicating (email), word processing, manipulating data, preparing presentations, reporting time and attendance, requisitioning, researching (the Internet), and performing other functions. May use computer aided design and drafting (CADD) software and hardware.

<u>Important Worker Characteristics:</u>

A. (1) Comprehensive professional knowledge of the concepts, principles, practices, and techniques of civil, structural, electrical, mechanical or environmental engineering.

(2) Good working knowledge of directly related fields such as, but not limited to, architecture, landscape architecture, geo-technical or transportation engineering, and construction management.
(3) Knowledge of:

- Building and building system (MEP) functionality, maintainability and sustainability including green building objectives, principles and practicalities for site and building design and construction;
- Construction practices and the characteristics and uses of construction and building materials including state-of-the art construction technology and materials;
- Key aspects of land surveying pertinent to projects;
- County*, Maryland* and Federal codes, industry standards and other guidelines affecting design and construction such as County soil erosion, sediment control, stormwater management and forest conservation requirements, building codes, use and occupancy requirements, fire protection and historic preservation requirements, US Army Corps of Engineers (USACE) and Maryland Department of the Environment (MDE) requirements, various Code of Maryland (COMAR) Titles, American Society of Testing and Materials (ASTM) standards for various materials, products and methods of construction, Consumer Product Safety Commission (CPSC) Guidelines for Design of Public Playgrounds, and accessibility provisions of the ADA.

(4) Skill in using design and construction project management methods and techniques to manage a full range of projects.
(5) Knowledge of Commission organization, policies, and procedures.*

**Typically acquired or fully developed primarily after employment in this job class.*

B. Considerable skill in problem solving to select, organize and logically process relevant information (verbal, numerical or abstract) to solve a problem. This includes skill in identifying subtle aspects of problems and making recommendations and decisions. Examples include applying a variety of quantitative and qualitative measures to design and project management problems to assess and balance form, function, cost; assessing project scope, approaches; developing preliminary designs and specifications and reviewing proposals and detailed designs/specifications; quality assuring construction; and reviewing change orders and invoices.

C. Skill in communication to understand verbal and written information (including facts, assertions and arguments), draw inferences, form hypotheses and develop logical arguments and to express such information so that others will understand and agree or comply. This includes skills in actively listening to ascertain key information including perspectives, concerns, wants and needs of others, in expressing information in ways that help people in both technical and non-technical disciplines understand both technical and non-technical issues, and in communicating effectively to obtain desired actions including agreement or compliance.

D. Interpersonal skills to interact effectively with business contacts in a businesslike, customer service-oriented manner; this includes skill in establishing and maintaining effective working relationships and working as a member or a leader of a team.

E. Skill in using a computer, modern office suite software (such as MS Office), enterprise software and specialized software.

Minimum Qualifications (MQs):

1. A Bachelor's Degree in Civil, Structural, Electrical, Mechanical or Environmental Engineering, or a degree in any related field.

2. Five years of progressively responsible designer and/or construction manager experience that includes substantive work in the range of duties and responsibilities in this class specification.

3. An equivalent combination of education and experience may be substituted, which together total 9 years.

4. Valid Registered Professional Engineer License issued by any state within the United States is required for eligibility. A valid Registered Professional Engineer License issued by the State of Maryland is required within six months of appointment.

5. Valid driver's license in accordance with both State and Commission rules and regulations. Driver's license must be unencumbered by restrictions, revocations, suspensions, or points that could limit the employee's ability to drive Commission vehicles or perform driving duties required by the position of assignment.

Working Conditions:

Works in indoor and outdoor settings. Work is mainly sedentary, but requires some occasional exertion in the field and at construction sites. Is occasionally exposed to inclement weather and construction site hazards including close proximity to energized equipment and moving vehicles. Maintains situational awareness, adheres to established safety procedures, takes care and wears personal protective equipment to minimize potential hazards to self. May be subject to various job demands such as high volume of work and tight deadlines.