

**CS-272 Capital Program Delivery
Proposed Scope of Services
February 25, 2019**

Services to be Performed

a. Task 1 – CIP Business Process Improvements

Consultant will review, identify and map current CIP Business processes, from project planning through construction project close-out, including warranty period. Consultant will document baseline activities and their durations, against which improvement targets may be established. Consultant will recommend improvements and new “to-be” CIP business processes to reduce administrative handling time while providing proper levels of sign-off authority for checks and balances. As part of this task, Consultant will work with GLWA to identify priority business processes and a plan to fast track the development and implementation concurrent with this Task and subsequent development of the full GLWA CIP Program Management Plan and SOPs in Task 2. Task efforts include the implementation of recommendations, including training of GLWA team members on the new processes and tools.

The following list of GLWA CIP work flow processes will need to be evaluated:

1. Planning Phase
 - Project Validation and Definition (budget development)
 - Asset Management Project Nomination and Scoring
 - Project Planning (funding, delivery methods, packaging)
2. Design Phase
 - Design Procurement (RFP development, advertising, evaluation, negotiation, contract execution)
 - Design Contract Administration (Milestone definition, schedule tracking, invoicing, scope management, budget management)
 - Design Delivery (Milestone definitions, deliverable reviews, QA/QC reviews, Constructability, Risk Management, Operations involvement)
3. Bidding and Award Phase
 - Bidding process (bid document approval/posting, Pre-bid meeting, addenda, bid schedule)
 - Bid tabulation and review
 - Contract Award
4. Construction Phase
 - Scheduling:

- Baseline Critical Path Methodology (CPM) Schedule development
 - Monthly CPM Updates
 - Activity sequencing for Maintenance of Plant Operations (MOPO)
 - Contractor Pay Requests
 - Schedule of Values Development
 - Monthly Pay Application Processing
 - Stored Materials Retainage
 - Certified Payroll Reporting
 - Submittal Workflow (RFI, Shop Drawings, etc.)
 - Non-Conformance Reporting (NCR)
 - Change Order Authorization
 - Claims and Dispute Resolution Process
5. Construction Phase
- Final Inspection and Owner Acceptance
 - Closeout Paperwork Requirements (Asset Register, Spare parts, release of retainage, record drawings, O&M Manuals, Lien waivers, warranties)
 - Warranty Period (1-Year inspection)

Consultant may identify and recommend additional business processes for consideration by GLWA. Consultant will examine the current CIP project management delivery models employed within GLWA, 1) Lifecycle model (design through start-up), and 2) Hand-off model (different PM for design and Construction). An assessment that includes commercial risk exposure during construction and associated staffing levels/skills required to make each model successful will be examined and considered. Consultant will conduct an initial Delivery Models Workshop with GLWA to ascertain how GLWA uses both models and understand GLWA's experience with each model. Recommendations will be presented and discussed in a Delivery Models Recommendation Workshop and coordinated with the development of business process improvements and Standard Operating Procedures (SOP) in Task 2.

b. **Task 2 – CIP Delivery Standard Operating Procedure (SOP) Development**

For the newly established business process improvements, Consultant will develop the standards and procedures that will define roles, responsibilities, recommended timelines and guidance to be followed by GLWA team members in delivering CIP projects. Consultant will develop the Projects Management Guidelines for the projects and the overall program in a GLWA CIP Program Management Plan (PMP) that defines the business process improvements adopted in Task 1. Anticipated standards and guidelines may include various project delivery models (design/build, design/bid/build, construction management at-risk), bid forms, General Conditions, Division 1 specifications, project management, scheduling, cost-estimating, quality assurance, and value engineering standards. The PMP will be reviewed with GLWA. When finalized, Consultant will conduct training of GLWA team members on the new business processes

In addition to Project Management Guidelines for the various delivery models in use, Consultant shall develop standard operating procedures (SOPs) based on the approved PMP business processes and guidelines to assist GLWA with the following:

- Procurement standards for CIP projects
- Quality Assurance and Quality Control (QA/QC) Program and monitoring process
- Budget and schedule control (Enterprise, department, and project levels)
- Progress reporting and tracking needs (Enterprise, department and project levels)
- Change order/contract modification and claims management Procedures

The complete list SOPs will be identified and approved in the PMP. Consultant will develop the SOPs, review with GLWA and finalize for approval and implementation.

Consultant will develop an SOP to update, as needed the GLWA CIP Program Management Plan and SOPs throughout the duration of the contract. This SOP will include a change process to capture and evaluate with GLWA changes and revisions recommended by the GLWA team members.

c. **Task 3 – CIP Delivery Resource Evaluation**

GLWA CIP staffing resources, including the number of Full-Time Equivalents (FTEs), skill sets, and organizational alignment within GLWA's organizational structure, must also be evaluated for their role in CIP delivery.

Consultant will conduct workshops and interviews with GLWA team members as needed to effectively evaluate current GLWA team members in order to clearly define the interface between Consultant's Program Management staff and GLWA staff. In coordination with GLWA team members, Consultant will develop, document, and implement a process that clearly identifies the roles and responsibilities of the GLWA Managers and Directors in the management and implementation of the CIP, including the structure of the Program Management Office. In addition, the Consultant will utilize the assessment to suggest present and future resource needs and recommendations.

The number and types of current GLWA team members (FTEs) who are engaged in the day-to-day delivery of CIP projects shall be assessed and benchmarked against similarly sized utility CIP programs. Consultant will consult, and reference, currently available benchmarking studies as published by AWWA, WEF, NACWA and other relevant water industry sources. Recommendations for appropriate staffing levels needed to sustainably deliver the future CIP shall be made.

This assessment will develop a CIP Resource Development plan which identifies current strengths of GLWA CIP resources, adequacy of staff numbers, and recommended training programs to build upon the existing staff skillsets. The plan will include an assessment of the current organizational structure of the collective GLWA CIP resources and suggest recommended changes to the structure as needed to enhance CIP delivery. Consultant is responsible for the identification of requisite knowledge, skills and abilities for all CIP-related positions within

GLWA and suggesting modifications of job classifications, job descriptions and/or required demonstrated abilities.

The goal of this task is to enhance the CIP delivery capabilities of current (and future) GLWA team members to the extent that they are able to fully manage and execute the CIP program without assistance or augmentation by the Program Management Consultant.

d. CIP Business Systems/ Information Technology Integration

1. Task 4 - Project Management Information System (PMIS) Selection and Implementation

Based upon the results of Tasks 1 through 3, Consultant shall define the technical and functional business requirements for a Project Controls/Management Information System (PMIS). GLWA and Consultant will utilize the PMIS to monitor the CIP Program schedule and budget performance, including workflows to ensure compliance with newly established CIP procedures/timelines to be developed under Task 2.

2. Task 4.01 – Requirements Definition and Procurement Planning

Consultant will define the system requirements that will be used as the basis for RFP development and system procurement. As part of this effort, Consultant will conduct interviews and facilitate workshops as necessary to collect the project requirements for the PMIS. This task will include developing PMIS functional requirements based on the PMP and SOPs, review of GLWA legacy systems for systems integration requirements, identification of dashboard requirements, and coordination with GLWA's Strategic Asset Management Plan vendor. As part of the requirements definition for the PMIS, Consultant will work with GLWA to identify CIP Key Performance Indicators (KPIs) that need to be tracked and reported by the PMIS system. Consultant will recommend monthly report formats for the Enterprise, Group, and project-levels. PMIS system requirements will be defined in a PMIS Architecture Plan for review with GLWA.

Upon approval of the PMIS Architecture Plan, Consultant will summarize available PMIS systems and provide a recommendation as to the best way to procure the PMIS. Consultant will develop a draft PMIS Implementation Plan that will define the recommended procurement approach, a PMIS Development Model and the scoping requirements for PMIS vendor selection.

Consultant will identify the anticipated number and types of workshops to be held as part of this effort and identify GLWA staff involvement and estimates of time for each. Consultant will consider the timing of their evaluation of software and the software solutions being considered together so as to ensure alignment of these important elements of effective the CIP delivery.

3. Task 4.02 - System Selection

Consultant will develop and recommend Selection Criteria to be used in the selection of the PMIS for GLWA. The evaluation criteria shall include a recommended "weighting" that will allow scoring to reflect both the ability to perform the required task and the importance of that task. Items to be included in the criteria include, but are not limited, to the following:

- Operational requirements as defined by GLWA stakeholders
- Interface requirements as defined by GLWA stakeholders
- Process support requirements as defined by GLWA stakeholders
- Gap analysis and customization capabilities
- Effort necessary to create processes and interfaces not available “out of the box”
- Total cost of ownership
- Time to deliver solution
- PMIS Vendor performance will be quantified, including implementation success and abandonment rates, customer satisfaction, and industry evaluation and product

Consultant will prepare a detailed RFP for the procurement of the new PMIS that outlines the details expected from software consultants including all product purchase and operating costs, implementation timetables, training models, and resource requirements. The RFP will include the system requirements as developed under Task 4B but shall require the submission of firm qualifications, personnel, experience, technical architecture of the proposed solution, implementation approach, and proposed software licensing model.

Consultant is expected to work with GLWA’s Procurement team members as they manage the proposal and evaluation process. Consultant shall facilitate and lead software demonstration on the most suitable PMIS systems.

4. Task 4.03 – Contract Negotiations

Consultant will assist GLWA team members in negotiating the technical elements of the contract for the PMIS, including the following terms:

- Specifications/deliverables
- Delivery schedule
- Definition of payment schedule
- Testing and acceptance criteria
- Service levels to meet (response times, batch billing window, etc.)
- Support and maintenance (hours of support, limits on annual fee increases, will enhancements be incorporated into future base releases, etc.)
- Documentation (Installation Guide, Operating Guide, Training Material, etc.)
- Source code/escrow of source

Consultant will work with the selected PMIS vendor to finalize the PMIS Implementation Plan that incorporates the negotiated scope of work, schedule, and Vendor, Consultant and GLWA roles. The final PMIS Implementation Plan will also identify the approach and responsibilities for systems integration and dashboard development based on the Vendor system integration and dashboard capabilities

5. Task 4.04 –PMIS Implementation

Consultant will work with GLWA IT team members and specifically the GLWA IT PMO Manger to provide oversight during the implementation of the PMIS. Such implementation services shall be defined in detail in the PMIS Implementation Plan which may include the following elements, at a minimum:

- Change Control Strategy
- Project Management Activities

- Software Acceptance Testing Plan
- Technical Management
- Organizational Change Management
- data capture, access, and reporting related to all CIP projects, assets etc., for loading, records verification and ongoing maintenance of those records
- capture mutually agreed upon project data elements to enable GLWA online research and reporting requirements to include where feasible within the selected PMIS system project description, Asset address where applicable, Asset/property type, project dates, budgets, projections, financial dates performed, budgets broken down by funding type, actual expenses, etc.
- ultimately make data available via an online portal twenty-four (24) hours per day, seven days per week, and 52 weeks per year, excluding any scheduled maintenance periods.

Consultant will provide an estimated PMIS Implementation Schedule and associated efforts to oversee the execution of all elements contained in the PMIS Implementation Plan.

e. Task 5 – Project Administration and Project Controls and Reporting Support

1. Subtask 5.01 – Program Administration and Reporting

Consultant will provide overall program administration and management of the Program team by the Program Manager and key program leadership, including a Deputy Program Manager, Program Safety Manager, a program Support Coordinator administrative support, and Program Advisors as needed.

Project Administration

Consultant will provide coordination between the GLWA and any Consultant subconsultants selected to carry out project tasks. Consultant is expected to have and maintain a strong and responsive local presence to assure effective Consultant subconsultant management and prompt response to GLWA needs, questions, and concerns.

The work associated with this task includes the following:

- Project Organization and Management
- Monthly Meetings and Status Reports
- Onsite Program Manager

Project Organization Management

Consultant will develop and maintain a detailed master project schedule for this Project in a CPM-type format identifying milestones, deliverables, and key coordination meetings. The master schedule shall be regularly updated and forwarded to the GLWA.

Consultant will prepare monthly master invoices for the project in accordance with requirements agreed to within the contract for services.

Consultant will be responsible for maintaining a complete project library and master files of contract and subcontract actions and reports. Consultant will provide summary reports and analyses of contract, subcontract and budget issues upon request of the GLWA. A chronological report of contract and subcontract actions, including fund transfers within contracts, is to be submitted to the GLWA as part of contract closeout procedures. All lower tier subcontracts must be closed out prior to close out of the lead contract and higher tiered subcontracts. Interim contract action summaries are to be prepared at the GLWA's request.

Monthly Meetings and Status Reports

Progress meetings between the GLWA and Consultant will be held, at first on a weekly basis and may, as the project progresses to a steady state, be reduced to a monthly basis as determined by GLWA. Consultant will prepare monthly status reports to be submitted to the GLWA at least seven days prior to the meeting. For proposal purposes, Consultant will assume that the format will contain, but not be limited to, the following information, for both Consultant and any subconsultants:

- Current scope of work completion status versus anticipated status,
- Name and classification/title of the person who performed the work (each item should refer to only one person);
- A brief description of the work performed
- Updated CPM project schedule,
- Project information and decision needs including the anticipated source, expected response time and any issues or problems that could delay the expected response,
- Completed tasks and accomplishments for the past month,
- Anticipated tasks and accomplishments for the coming month,
- Questions, comments, problematic issues and suggestions,
- Identification of out of scope task work, and
- Invoicing issues and proposals to address such issues.
- Deliverables List

Consultant will prepare agendas for the regular meetings to be submitted with the monthly status report. In addition, Consultant will prepare meeting minutes to be submitted to the GLWA for review within two working days following the meeting. Once they are reviewed and approved by the GLWA, the minutes shall be distributed to the project team.

Document and Data Management

Consultant will be responsible for all document and data management for the Consultant's deliverables. Consultant will develop and maintain a deliverables list that tracks all reports, technical memorandums, data, systems, and any other item, mechanism, or information developed for/by the project. The deliverables list shall at a minimum include a description of

the deliverable, purpose of the deliverable, delivery format (e.g. PDF & hardcopy), source of the deliverable, mechanism of delivery (e.g. Final Report), and schedule of delivery. The deliverables list shall be submitted to the GLWA monthly with the status report.

Five hard copies of all deliverables indicated in 1 through 5 shall be submitted. Hard copies shall be submitted bound, with one copy remaining unbound.

Upon completion of work, all final reports and electronic data shall be submitted to the GLWA in a timely manner. Consultant will be responsible for ensuring that all subconsultants submit final reports and data. At the discretion of the GLWA, payments may be withheld until all documents and electronic files are received in an acceptable format.

On-site Program Manager

Consultant will have staff members located at the GLWA's Administration Offices located at 735 Randolph Street, Detroit, Michigan, and/or other GLWA-owned locations to be identified based upon need. This shall include the Program Manager and all key staff required to meet program needs. The onsite staff and staff levels shall correspond to the ongoing tasks and required effort. As part of any task proposals required that may be required, Consultant will propose onsite and offsite staffing needs based on the proposed scope of work. Consultant will be required to recommend updates to the proposed onsite and offsite staffing needs. Onsite staffing needs shall be evaluated regularly and shall be reported on in Consultant's monthly status report. The GLWA shall at any time request changes to the onsite staffing levels and shall approve all onsite staffing changes requested/recommended by Consultant.

Consultant will be responsible for providing computer hardware and software needs for onsite staff. All hardware and software utilized onsite will meet GLWA IT standards.

1. Subtask 5.02 – Project Controls and Reporting Support

Consultant will provide project controls support for CIP project delivery including:

- Monitor the CIP Program progress from both a schedule and cost standpoint on a monthly basis.
- Establish key performance indicators (KPIs) to monitor the performance of individual projects and the entire CIP.
- Implement an effective Quality Assurance and Quality Control (QA/QC) Program and monitoring process.
- Implement design and construction procedures that assist with budget and schedule control.
- Implement both program level and project level schedule monitoring/control and progress reporting procedures.
- Implement change order/contract modification and claims management procedures and assist GLWA in the implementation of these procedures on a project specific basis.

b. Task 6 – CIP Validation

2. Subtask 6.01 – Initial CIP Validation

In collaboration with GLWA as part of the PMO, Consultant will develop and recommend a new 5-year CIP that balances the critical infrastructure needs and schedule drivers with available resources, including Consultant resources provided under this contract. The goals of the validated CIP are to more accurately align CIP planned cash flow to actual CIP cash flow which may involve both increases to CIP delivery as well as potential reductions in annual CIP plan. The deliverable for this task is 80-percent (or more) of the annual CIP plan on time and within budgetary estimates.

As part of the CIP validation, Consultant will review project scope definitions, procurement packaging and cost estimates (design and construction) for up to 100 projects (50 water and 50 wastewater). Following project validation, Consultant will examine GLWA delivery capacity, recommend refinements to the CIP schedule, and recommend CIP delivery goals (KPIs).

3. Subtask 6.02 – Ongoing CIP Development and Validation (Year 2-4)

Consultant will continue to support GLWA in the annual reviews and update of the 5-year CIP plan. It is anticipated that this ongoing effort will be accomplished in collaboration with GLWA and will include new projects that are deemed necessary and applicable to be added to the 5-year CIP. Consistent with the requirements as found above, GLWA anticipates no more than 10 new water and 10 new wastewater projects annually will undergo the validation as described above.

c. Task 7 - Engineering and Construction Staff Augmentation

Consultant will provide Engineering and Construction staff augmentation to GLWA. AECOM will advise GLWA regarding the appropriate staff needed to execute to 80% on-time and within budget. Engagement of staff augmentation resources will be requested by GLWA as needed.

Detailed scope of work for individual engagement will be defined in Task Authorization document to be approved by GLWA project manager.

Services under this task may include the following services.

1. Task 7A - Project Administration for CIP Projects

Consultant may be required to provide project management services and assistance for the planning and organization, design, and construction of CIP Projects, including:

- For projects not included in Task 6, CIP Validation, review existing planning level cost estimates for CIP projects and update project costs;

- Establish a budget and schedule for each project and assist GLWA Project Managers with the management and coordination of project (design and construction) schedules and budgets;
- Assist GLWA in the procurement, selection, and management of consultants providing a variety of services including design, survey, geotechnical evaluations, construction management and special technical services;
- Assist in setting up project filing system for each project consistent with established document management standards;
- Assist GLWA with the oversight of design consultants and construction contractors for CIP Projects.

2. Task 7B – Planning Phase Assistance

Provide preliminary design reports to 20% design for specified CIP Projects. The reports shall describe existing facilities and site conditions, establish the preliminary basis of design, and outline the work to be accomplished by each discipline. The reports shall include preliminary design drawings and process flow diagrams as necessary to convey the intent of the design. These reports shall be developed at least 6-months in advance of the scheduled procurement for Professional Design Services.

3. Task 7C – Design Phase Assistance

- Participate in and prepare minutes for bi-weekly progress meetings.
- Assist in design option reviews and constructability reviews to ensure the schedules and project budgets are met.
- Assist in design reviews on submittals from design consultants and in-house design group. Participate in technical reviews at initial kickoff, 30% design, 60% design, and 90% design.
- Review and evaluate cost estimates at 30%, 60% and 100% design completion.
- Provide quality control on detailed specifications for all general, civil, structural, mechanical, electrical, instrumentation and controls prepared by design engineer.
- Review and provide comments to GLWA Project Managers on technical memorandum and reports.
- Provide technical advice in specialized engineering discipline areas (e.g. electrical, mechanical, structural) during design reviews.
- Provide technical consultation as needed by GLWA Project Managers and Engineers for overall benefit of project.
- Participate in value engineering workshops and provide engineering recommendations to reduce project costs.

4. Task 7D -Bidding and Award Phase Assistance

- Define pre-qualification procedures or minimum Contractor Qualifications for construction contractors.
- Assist the GLWA with the Advertisement for Bids.
- Assist the GLWA with the preparation, assembly and distribution of addenda as required.
- Attend pre-bid meeting and prepare meeting minutes.

- Assist in the verification of bid quantities and takeoffs and provide assistance in the technical review of bids.

5. Task 7E - Construction Phase Assistance

- Participate in and prepare minutes for regularly scheduled project meetings.
- Provide technical support services in the areas of proposed design changes, review of proposed complex construction methods, cost estimating, and review of submittals.
- Assist in the management of Resident Engineering Services to ensure contract compliance and mitigate change orders.
- Assist GLWA Construction Managers, Supervisors and Inspectors in determining substantial completion and prepare lists of incomplete or unsatisfactory items and a schedule for their completion.
- Assist with change order review/approval and claims analysis/resolution.
- Assist in the monitoring of cost loaded CPM.
- Assist in tracking shop drawing submittals.
- Provide technical consultation as needed by GLWA Project Managers (Construction Supervisors) for overall benefit of project.
- Provide Construction Managers or Inspectors for CIP Projects when GLWA staff is not available to fill the role.

6. Task 7F - Project Closeout Phase Assistance

- Assist the GLWA in the review of O&M Manuals prepared by Design Consultants for projects in the FY2020-FY2024 CIP.
- Develop and/or update existing O&M Manuals on select projects as determined by GLWA.
- Review record drawings prepared by Design Consultants for projects in the FY2020-FY2024 CIP.
- Validate accuracy of existing record drawings/as-builts on select projects as determined by GLWA.
- Assemble and compile information regarding the assets to be assumed by GLWA upon project completion, including the information required for the Asset Register, and Fixed Asset Register, in accordance with the requirements of GLWA's Asset Management systems.
- Assist GLWA with obtaining and assembling final project closeout documentation including final pay estimates and Owner's acceptance of work.

A list of anticipated projects that will require assistance from the PMC for this contract, their current phase, and remaining expenditures during the duration of this contract are identified in the FY2020-FY2024 Capital Improvement Plan.

d. Task 8 - Advanced Facilities Planning

To support the creation of more reliable project scopes and project cost estimates, GLWA will look to implement Advanced Facilities Planning (AFP) services on select CIP projects or programs. Such services will assist GLWA in advancing CIP projects from the preliminary planning stages to a sufficient level of planning which could include preliminary engineering to develop more accurate engineering scopes and construction cost estimates. The AFP efforts would include detailed engineering scope definition and project lifecycle cost estimating for 8 projects that could be used to update the Enterprise CIP and be used in the future procurement RFP for design services.

e. Task 9 – GLWA Supplemental Department Staff Augmentation

GLWA will engage Consultant's resources as an extension of their team. Consultant may be asked to provide staff augmentation for non-CIP specific departments outside of Engineering and Construction to include but not limited to; Finance, Procurement, IT, and Organizational Development. It is expected that this element of the work will be more specifically developed with Consultant and GLWA as a time and material authorization for engagement.

i. Task 10 – GLWA Enterprise wide Technical/Planning Assistance

GLWA will engage Consultant resources to provide support at the Enterprise Level and may be asked to provide support in such areas as defined by GLWA to include but not limited to; Energy Optimization, Sustainability, and Advanced Master Planning in order to assist GLWA in meeting its "Best-in-Class" goal. It is expected that this element of the work will be more specifically developed with Consultant and GLWA as a time and material authorization for engagement.