11

WATER AND WASTEWATER OPTIMIZE WORKS PROGRAM CONSULTANT AWARD FOR PHASE 2 IMPLEMENTATION SERVICES

The Transportation and Works Committee recommends the adoption of the recommendation contained in the following report, August 26, 2004, from the Commissioner of Transportation and Works:

1. RECOMMENDATION

It is recommended that:

1. Regional Council authorize the award to the consulting team of EMA Canada Inc., for the provision of consulting services for the Water and Wastewater OPTimize Works program Phase 2 implementation with an upset limit of $1,082,143 (including PST and GST).

2. PURPOSE

This report seeks authorization from Transportation and Works Committee and Regional Council to award a consulting assignment for the Phase 2 implementation of the OPTimize Works program.

3. BACKGROUND

OPTimize Works is the culmination of the Water and Wastewater Branch's best practices initiative. In 2002, the Branch conducted the Operations and Maintenance Service Assessment that identified a number of key objectives designed to achieve improved operational efficiencies. In 2003, the Branch completed the redesign phase of the OPTimize Works program (Phase 1).

In March 2004, the Region issued a Request for Qualification (RFQ) for implementation services for OPTimize Works Phase 2 to solicit team qualifications from qualified consulting firms with expertise in operational and maintenance management practices in the water and wastewater sector, business process redesign and change management experience. The purpose of the next phase of the OPTimize Works project is to implement the recommendations outlined from the Phase 1 project. Three consulting teams were selected for moving into the Request for Proposal (RFP) stage. The RFP was issued on June 30, 2004 and closed on July 28, 2004. This report outlines the results of the procurement process and provides a recommendation for awarding the contract for consulting services.

4. ANALYSIS AND OPTIONS

As part of the Phase 1 redesign portion of the project, the Region spent considerable effort detailing the scope of work to be undertaken in the Phase 2 implementation assignment. This scope effort included the development of a detailed work breakdown structure (WBS) upon which the RFQ and RFP documents were based. The high-level WBS was included in the RFP call to provide guidance to the proponents in preparing their responses.

The OPTimize Works Phase 2 implementation includes the following components:

- Project Management and Integration Services.
- Organization Implementation Services.
- Practices Implementation Services.
- Technology Implementation Services.

4.1 OPTimize Works Phase 2 Major Activities and Deliverables

The RFP outlined detailed requirements related to the program's major activities and deliverables. These are illustrated in the following sections.

4.1.1 Project Management and Integration Services

Project management and integration services include ensuring the project remains within scope, on time, and on budget. Additionally, the project management team will coordinate and integrate across all teams, functions, and peripheral projects identified as part of the overall Branch's service improvement program.

Major activities of the Project Management and Integration Services track include:

- Develop and execute the project plan.
- Conduct project kick off – project and strategy team orientation.
- Provide overall project scope, time, resource, and cost management (planning, scope definition, change management and control, task definition, duration estimation, sequencing of activities, schedule development and control, resources, estimates/budgets, cost control).
- Conduct risk assessment workshop.
- Provide quality assurance and control including benefits tracking.
- Integrate organization, practices, and technology related activities.
- Develop and manage the project communications strategy.
- Assist with managing the implementation and tracking of Phase 1 recommendations ("Quick Wins" and longer term recommendations).
- Coordinate implementation activities with other service improvement projects (i.e. SCADA Master Plan, Asset Inventory Program).
- Prepare a best practices sustainability plan for the Water and Wastewater Branch including updated business case for ongoing activities.

Key deliverables of the Project Management and Integration Services track include:

- Integrated Project Plan.
- Risk Management Plan.
- Communications Strategy.
- Project Documentation (including agendas, minutes, progress reports, presentations, strategic planning templates, implementation report).
- Tracking and Action Log for Phase 1 Recommendations.
- Presentations (as needed to various stakeholder groups).

4.1.2 Organization Implementation Services

The Organization Implementation Services requires confirming the proposed organization structure and associated positions, finalizing all job descriptions, presenting the job descriptions to the Region's job evaluation committee, and securing final approval for job descriptions. Other elements of this track include the development of a training program and training tracking system, and developing the Branch's strategic planning tools.

Major activities of the Organization Implementation Services track include:

- Provide project management for the Organization Implementation Services track (including issues tracking/escalation, progress reporting, and integration with other tracks) and coordination with the Core project team.
- Develop job descriptions for all branch positions and work through the job evaluation process (includes compensation, union and Human Resources liaison).
- Conduct a skills and certification analysis and assessment to identify any skills and certification gaps and identify methods for addressing the gaps.
- Develop a training and leadership program suitable to meet the needs of both the redesigned organization and the outcomes of the skills and certification assessment.
- Assist staff with implementing cultural change management strategies.
- Develop and implement a performance management program.
- Develop the strategic planning framework for each of the branch business units.

Key deliverables of the Organization Implementation Services track include:

- Issues Tracking Log (for the Organization Implementation Services track).
- Final Approved Job Descriptions (including confirmed compensation rates).
- Skills and Certification Gap Analysis and Assessment Document.
- Documented Training Program (including training tracking database).
- Performance Management Document.
- Strategic Plan Template.

4.1.3 Practices Implementation Services

The purpose of the Practices Implementation Services track is to implement the work practice recommendations identified in the Phase 1 project. Redesigned practices will be

implemented for the new business units and will cover all aspects of: work management, materials management, asset management, physical water and wastewater practices, performance management, and support services provided by other Regional branches and departments.

The most significant changes are proposed for the Water and Wastewater Operations and Asset Management business units. Practices for the Water and Wastewater Operations business unit will be tested during a pilot that will coincide with the pilot testing of the Computerized Work Management System (CWMS). The CWMS implementation is continuing as part of the Phase 1 project. The Practices Implementation Services team will be required to coordinate practices efforts to ensure the success of the pilot.

Major activities of the Practices Implementation Services track include:

- Provide project management for the Practices Implementation Services track (including issues tracking/escalation, progress reporting, and integration with other tracks) and coordination with Core project team.

- Coordinate and facilitate the development of the strategic plans for each business unit.

- Confirm, validate and document practices for each business unit.

- Planning for the Water and Wastewater Operations pilot (one geographic hub area and the central maintenance team are to be included in the pilot) – review of facilities within the hub, validate practices, develop central and hub stores practices, define roles and responsibilities, develop pilot implementation plan, and develop training needs for pilot staff).

- Implement and evaluate the Water and Wastewater Operations pilot (hub and central maintenance).

- Develop and implement Water and Wastewater Operations practices roll-out plan.

- Provide staff support during the pilot and subsequent full-scale practices roll-out.

- Integrate practices with ISO programs and identify elements of ISO procedures needing updates.

- Select members for participation in asset management (AM) team and orient and train the team.

- Assist the AM team with developing the key elements for the asset management strategic plan.

- Facilitate the creation of an annual asset management plan including the annual linear asset inspection program, inspection program for discrete assets in coordination with Water and Wastewater Operations, programs for inspecting technology and SCADA/PCS assets, and prioritization process for identifying capital projects.

- Develop and/or revise the current asset management related standards.

- Develop procedures for asset data capture and analysis.

- Develop data update and maintenance practices including procedures for updating record drawings, O&M manuals, new asset information, and GIS records (this activity will be coordinated with the Technology track team lead and other practices teams).

- Develop requirements definition for an asset management system.

- Facilitate the development of the Water Resource Protection Program (including aquifer management & monitoring, aquifer/resource protection planning, and new water supplies) and the development of the Water and Wastewater Planning Program (including fiscal planning, system modelling, master planning, supply & demand analysis, and infrastructure management).

- Coordinate the design of activities and projects related to protection and management the Region's groundwater resources and the Water and Wastewater Planning Program.

- Identify links and interdependencies between the Water Resource Planning business unit and other branch business units or external branches and departments and clarify roles and responsibilities with respect to these links.

- Orient the redesigned Operations Support team.

- Develop coordination procedures for business planning within the branch.

- Coordinate the development of activities and projects needed to support the business improvement and quality programs.

- Facilitate development and coordination of records management practices in coordination with the Asset Management team lead.

- Provide training assistance and coordination based on redesigned organization.

Key deliverables of the Practices Implementation Services track include:

- Issues Tracking Log (for the Practices Implementation Services track broken down for each business unit).
- Documented business directions including priority projects for inclusion in the strategic plan templates.
- Documented practices for each business unit.
- Water and Wastewater Operations pilot implementation and Hub roll-out plans.
- Pilot evaluation document.
- Documented changes required for ISO procedures.
- Annual Asset Management Plan.
- Documented Asset Management Standards.
- Documented Asset Data Capture and Analysis Procedures.
- Procedures for Maintaining and Updating Asset Data.
- Requirements Document for an Asset Management System.
- Documented interdependencies, roles, and responsibilities definition.
- Branch business planning procedures.
- Documented business improvement and quality programs.
- Documented records management practices.

4.1.4 Technology Implementation Services

Phase 1 of the best practices project included the development of an Information Systems Master Plan (ISMP). The ISMP defined the overall "blueprint" for information, systems, and technologies needed to support the efficient and effective management and delivery of Water and Wastewater services, and developed a capital investment plan to design, acquire/build, and implement the necessary information, systems, and technologies. A key technology solution identified at the outset of and included in the Phase 1 project was the selection and implementation of CWMS which will be ongoing through 2004 and into 2005. Other key technology components of the Phase 2 Implementation project are: data management standards and data model, integration architecture, network architecture, and GIS services.

Major activities of the Technology Implementation Services track include:

- Provide project management for the Technology Implementation Services track (including issues tracking/escalation, progress reporting, and integration with other tracks) and coordination with core project team.

- Align data management standards with branch/department data standards requirements and objectives.

- Analyse business and operational workflow processes to document specifications for business and user data requirements.

- Develop data standard specifications for collecting and reporting business critical data.

- Define data integrity standards, specifications, and requirements.

- Define data validity requirements for collecting and reporting business critical data.

- Develop a water and wastewater data model for the design of a data warehouse.

- Develop new workflow processes/procedures aimed at reducing or eliminating manual data extraction from one system to another for reporting purposes (such as billing and preventative maintenance planning).

- Improve the reliability of business critical data for local municipal billing and Ministry of Environment compliance reporting.

- Increase the availability and value of key performance indicators by providing real-time access to business critical data.

- Coordinate with Corporate Information Technology Services (ITS) to align integration specifications and requirements with corporate integration infrastructure and initiatives.

- Increase branch productivity by identifying redundant data stores to eliminate multiple instances of the same data.

- Develop a detailed set of specifications based on the framework specified in the Water and Wastewater – Information Systems Master Plan (ISMP).

- Analyse and develop integration requirements for in-branch application systems and for in-branch to corporate application systems (examples would include SCADA to Computerized Work Management System (CWMS), CWMS to PeopleSoft Financials, PeopleSoft Financials to CWMS).

- Specification of the type of data, quantity and frequency of interfaces (triggers, batched, real-time, etc.) that are required to automate the following processes: preventative maintenance work orders based on set points measured by SCADA; and, purchase order process integration with PeopleSoft.

- Develop a business case, budget, resource requirements, and a three year detailed integration plan.

- Define network architecture principles.

- Review and analysis of network requirements in the SCADA Master Plan and the Information Systems Master Plan for alignment with the integration principles and design recommendations.

- Consolidate network architecture requirements and integration methodology for SCADA and business applications.

- Review existing systems with consideration for future systems (five year vision) requirements to determine network load requirements.
- Define network architecture implementation prerequisites.

- Define network architecture maintenance requirements to develop an architecture sustainability plan with consideration of an asset management strategy to maintain currency.

- Develop Service Level Agreements between infrastructure owners and Water and Wastewater (at operations level).

- Develop network architecture and infrastructure phased rollout blue print (including the development of network architecture specifications for hardware to meet the requirements).

- Develop network architecture requirements to address the following technical requirements as a minimum: bandwidth; uptime (5/9, 6 Sigma, etc.); downtime contingencies; redundancy; failovers; network devices; network protocols; bandwidth dedication; and security.

- Complete a comprehensive data audit and analysis to identify the needs and requirements for the GIS (primary goals are to gain a thorough understanding of current spatial datasets, document future business needs for the data, and design and model database structures that will meet the branch's business needs).

- Ensure the GIS GeoDatabase is designed to accommodate integration with CWMS, SCADA and the Hydraulic Model.

- Design a GeoDatabase Schema and Data Dictionary.

- Verify data to ensure accuracy, completeness and overall quality and identify deficiencies that will hinder the branch's ability to meet business needs.

- Develop a strategic methodology to reconcile, create, populate and construct GIS datasets that will meet the branch's business needs.

- Structure and carry out a pilot project to help develop and test data preparation and conversion processes.

- Prepare Request for Qualification (RFQ) and Request for Proposal (RFP) documents to solicit proposals from outside data conversion specialists.

- Develop GIS quality standards and an overall Quality Assurance and Quality Control (QA/QC) Plan.

- Review Branch's existing cartographic standards against best practices in the GIS field.

- Compile and document cartographic standards for the Branch including Feature Symbolization, Standard Page Sizes and Scales, and Map Elements including North Arrows, Legend Keys, Scale Bars, Page Borders, and other relevant Geographical Elements.

- Develop standard procedures for maintaining and updating the GeoDatabase.

- Develop GeoDatabase toolkit that vendors and partners of the Water and Wastewater Branch will use to create layers that are compatible with the solutions developed throughout the above phases.

Key deliverables of the Technology Implementation Services track include:

- Issues Tracking Log (for the Technology Implementation Services track broken down for each business unit and/or each technology subproject).
- Documented specification of data management standards that will define content, context, structure, quality, origin/source, condition, access, transfer, and citation of core Water and Wastewater business data (examples of core business data include: process monitoring data; station operation logs; customer billing data; Ministry of Environment compliance reporting data; key performance indicators (KPIs) defined by the corporation and the Municipal Performance Measurement Program (MPMP); minor and major capital upgrades; reserve fund adequacy; etc.
- Documented business intelligence data requirements for key performance indicators (KPI's).
- Documented specifications for business and user data requirements.
- Specification of business performance drill down paths.
- Design and specification of a water and wastewater data model.
- Documented implementation plan and business plan for deploying the data model for the network architecture, integration architecture, and data warehouse.
- Integration planning templates.
- Integration requirements definition for core Water and Wastewater business activities (Operations, Asset Management, Water Resource Protection and Planning, Operations Support, and Accounts Payable).
- Integration architecture logical design.

- Integration specification indicating data, size, number of components, and frequency of each interface.
- Representative point-to-point specification for SCADA to CWMS (one-way) and CWMS to PeopleSoft (two-way) integration.
- Network architecture scope, requirements and specifications document.
- Operational level Service Level Agreements.
- Network architecture and infrastructure blueprint.
- Network architecture hardware and software specifications for direct implementation.
- Business case and three year integration plan for the Integration Architecture and Network Architecture projects.
- Documented data audit and analysis of current Water and Wastewater branch datasets.
- Design and definition of a GeoDatabase Schema and Data Dictionary.
- Standard procedures for GeoDatabase maintenance and updating.
- Cartographic standards and map templates.
- Request for Qualifications documentation for pre-qualifying data conversion specialists.
- Request for Proposal documentation for procuring data conversion services.
- Integration specifications for GIS to Water and Wastewater branch business applications (such as the Computerized Work Management System (CWMS), SCADA, and our Hydraulic Modelling Software).
- Vendor standards and specifications toolkit.

4.2 Consultant Proposal Evaluation Summary

In March 2004, the Region issued a Request for Qualification (RFQ) for the provision of consulting services for the OPTimize Works Phase 2 implementation. Teams having expertise in operational and maintenance management practices in the water and wastewater sector, business process redesign, and change management experience were invited to submit their qualifications. Four teams submitted their qualifications: Delcan Corporation, Deloitte Incorporated, EMA Canada, Inc., and UMA Engineering Ltd. The submissions were evaluated on the following components: qualifications and relevant experience (50%), understanding of the project (40%), and quality and completeness of submission (10%).

Through the prequalification process, three consulting teams were invited to submit proposals under P-04-33 during the RFP stage. These teams were: Deloitte Incorporated, EMA Canada, Inc., and UMA Engineering Ltd. The proposal call closed on July 28, 2004. Proponents were required to make a presentation to the evaluation team as part of the overall evaluation process for this RFP. The Deloitte team did not make a proposal submission in response to P-04-33.

The evaluation team was comprised of representatives from the Water and Wastewater Branch and the Supplies and Services Branch. The submission requirements included a two-envelope evaluation process: the first envelope being the technical submission, and the second envelope being the financial submission. Section 6 Selection Process of the

RFP states, in part, that "Submissions must attain a score of 60 points out of the available 80 points for the Technical Proposal to be considered for further evaluation."

The technical proposals and presentations were scored by the evaluation team by consensus following the proponents' presentations on August 4, 2004. The scores are illustrated in Table 1.

Table 1
Consultant Proposal Evaluation Summary

Consulting Firm	Technical Score (Out of 80)	Upset Limit (including PST & GST)	Financial Score (Out of 20)	Total Score
EMA Canada, Inc.	67.3	$1,082,143	20	87.3
UMA Engineering Ltd.	51.3	n/a	n/a	n/a

As required in the RFP, proponents' submissions must attain a minimum technical score of 60 points to be carried forward to the financial submission stage. UMA Engineering Ltd. did not meet this condition and their financial envelope was not opened.

EMA Canada, Inc. submitted a proposal that met the technical requirements score. Together with the financial points, the final weighted score for the submission is 87.3%. The proposed fee is considered a good price for the extent of services requested and is in line with previously projected costs for implementing the OPTimize Works program. Additionally, a review of the hourly rates for the consulting resources proposed are comparable to similar management services undertaken on prior assignments.

With their previous experience working with the Region on the redesign phase of OPTimize Works, EMA demonstrated their thorough knowledge of the work already completed and the work needed to be done during implementation. EMA brings extensive experience in implementing best practices projects and is a leader in this field.

This benefit will enable EMA to start into the project immediately with minimal time required for acquainting the consulting team with the work done to date. EMA brings a team of knowledgeable personnel to the project with the advantage of having many resources that have worked with the Region on the Phase 1 project. This will assist the implementation teams by providing continuity and maintaining the relationships already established.

5. FINANCIAL IMPLICATIONS

The consulting team has submitted the financial proposal broken down into the four line items: project management office, organization track, practices track, and technology track. The individual line costs including both PST and GST are illustrated in Table 2.

Table 2
Cost Breakdown by Track for OPTimize Works Phase 2

Track	Cost
Project Management Office	$ 108,071
Organization Track	156,638
Practices Track	313,395
Technology Track	504,039
Total	$1,082,143

The total upset limit fee for this project is $1,082,143 (including both PST and GST). This fee is in line with the cost anticipated in the business case during the Phase 1 project for implementing the OPTimize Works program. The proposed fee for the OPTimize Works Phase 2 implementation project is within the total forecasted budget as outlined in the Region's 10 Year Capital Program.

5.1 Benefits of Implementing OPTimize Works

The costs associated with program implementation are broken down as follows:

- Project costs to implement the program including: dedicated staff in key project roles; consulting services; and, CWMS and SCADA vendor resources.
- Organization costs such as: staffing adjustments to meet growth; staffing adjustments to support and sustain best practices; training.
- Technology cost including hardware and work management systems software.

The staff related costs are associated with the internal resources necessary to implement, support, and sustain the program. The major sources of savings are derived from staff related costs (reduction in overtime due to improved automation and technology access, geographic based work units for decreased driving time and increased time at facilities, cross-trained and multi-skilled employees for greater work force flexibility, shifting of frontline and supervisory permanent full-time employees in the Water and Wastewater business unit to fill needs in other work units, absorbing some of the temporary full time positions into the permanent pool of resources). The implementation of these conclusions will require an initial increase in staff however, over the longer term, the requirements for growth in the staff complement will reduce.

Costs are derived from the redesigned business units and the associated positions needed to support the redesign and enabling technologies (creation of the Asset Management unit, shifts in focus for Operations Support, merging of Water and Wastewater Planning with Water Resources Protection); training; implementation of ISMP projects (CWMS, network and integration architecture, SCADA Master Plan, GIS).

The program's simple payback period is approximately five years from the Phase 1 project start in 2003 with a continued cost savings thereafter associated with the residual benefits of maintaining a best practices work environment. The benefits will primarily be derived from reductions in the growth of labour needs over the long term, improvements

through program driven work, and increased use of technology. The cash flow projections for the first five years of this program are summarized in Table 3.

Table 3
OPTimize Works Program Implementation ($1,000)

Item	2003	2004	2005	2006	2007	2008
Benefits						
Technology and Practices[1]	0	375	950	1,300	1,350	1,550
Costs						
Technology related		646	1,032	237	130	130
Consulting	543[2]	553	390	15	0	0
Total Costs	543	1,199	1,422	252	130	130
Cumulative Cash Flow	-543	-1,367	-1,839	-791	429	1,849

1. Practices benefits include moving from reactive work practices to preventative and planned work practices and ensuring that the right resources and equipment are available for the job (Program Driven Work).
2. Consulting costs for OPTimize Works Phase 1.

Phase 2 implementation activities are programmed for 2004 and 2005. Once fully implemented, the net savings associated with work force savings, technology utilization, and program driven work (Practices and Technology) are estimated to be $1.5M per year.

Organization related costs are balanced with the program savings. Productivity improvements, reduction in casual salaries, and the implementation of the proposed organization will result in shifting roles and responsibilities and the associated costs and savings. Estimated benefits of $1.8M are offset against estimated costs of $2M for the initial implementation to the end of 2005 amounting to a net cost of $200K. By 2008, the cost-benefit shifts with benefits estimated at $5.1M and cost estimated at $4.9M (net savings of $200K).

6. LOCAL MUNICIPAL IMPACT

OPTimize Works is an overall efficiency improvement program aimed at York's water and wastewater services and products. The nine local municipalities that are the direct users of the services and products provided by the Water and Wastewater Branch will similarly benefit, resulting in increased value to the community and customers.

7. CONCLUSION

The Water and Wastewater Branch together with the Supplies and Services Branch issued an RFP for the provision of consulting services to implement the OPTimize Works program. Responses have been evaluated in accordance with the Region's purchasing policy, and it is recommended that the contract be awarded to EMA Canada, Inc.

The recommended proposal carries an upset limit of $1,082,143 including both PST and GST. The proposed contract fee is within the total forecasted budget outlined in the Region's 10 Year Capital Program.

The Senior Management Group has reviewed this report.