Phase II/III Proposal: Job and Business Process Design, IT Systems and Outsourcing Services

September 6th, 2012

EMA·
Improving Performance Through
PEOPLE & IDEAS

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1.0 INTRODUCTION

To follow upon the Assessment and Alignment activities completed in the first phase of the work, the Phase II and lll activities will implement the recommended changes to achieve the projected savings (except for savings associated with upgrade of the process control system). This phase consists of seven main tracks:

- Job Design and Business Practice Design
- Information Technology (IT) Master Plan
- Requirements development, procurement management and implementation of the HR, Payroll and Timekeeping Systems.
- Computerized Maintenance Management System (CMMS) and Financial system updates and configuration
- IT System Requirements development, procurement management and implementation of the Document Management, Hazardous Materials Management, Learning Management and Performance Management Systems
- Implementation of an Asset Management and Reliability Program
- Procurement and Implementation of Outsourcing functions

The primary track of this phase is the Job Design Track, where job designs and classifications will be developed and implemented throughout the department.

To support the Job Design Track, the IT Track will work with existing systems and applications to develop recommendations for providing functionality to all users within the Department. This will include the consolidation of some applications and the implementation of a number of new or replacement systems including HR, Payroll and Timekeeping, Document Management, Hazardous Materials Management, Learning Management and Performance Management .

The main tools used for maintenance of the Department's assets and control of financial operations will require modifications to support the new work practices. The Practice Track will help the Department revise its asset management and reliability practices and configure required modifications to the CMMS and Financial systems.

The work within the department is delivering services to the customer through the core business of treating and distributing water, collecting and treating wastewater and the maintenance of the assets and finances to support these functions. Activities that are not value added and are not critical to the key business functions will be reviewed for possible outsourcing. The Outsourcing Track will develop the requirements, business cases to determine if savings can be realized from outsourcing and will generate documents to procure the services and will provide support for the initial implementation of these services within the department if savings of 10% or more are possible.

Each track activity is detailed in the following sections, the Program Management tasks are described below.

1.1 PROGRAM MANAGEMENT

The tasks included in this proposal impact all areas of the Department. As the job design and pilot implementation will touch all job classifications, and impact all staff in the organization, management of the activities and communication to the staff is critical for the success of the project. The Program Management will link the Organization and Practice tasks of the Job Design with the Technology and System tasks associated with the application review and system requirements.

To ensure success, the Program Manager will monitor and coordinate activities between the five Job Design teams to ensure uniformity of approach. The Program Manager will also provide coordination of the functional requirements for the HR, Payroll and Timekeeping systems with the design teams. This coordination will provide for input into the requirements and procurement packages from design teams.

Program Management tasks include monitoring and ensuring that time, scope and cost aspects of the project is met. Defining interactions between tasks, communications to staff and management/steering committee and providing benefits tracking information for the project are additional PM tasks.

Our Program Management approach is based on leadership, inclusion and results. This means providing the drive to energize the teams to achieve the targets. We understand the challenges facing the team in Phase II and we understand how to help the teams overcome those challenges.

Overcoming the challenges will involve the right resources in the right teams applying the right approach, using the right methods and using the right tools. When they are done the teams will have successfully:

- Built a flexible work force
- Reduced the O&M budget
- Installed an integrated IT infrastructure
- Established a technology support organization
- Put in place an environment where learning, self-sufficiency and results-orientation are part of everyday working life

Open Communication Forms Basis for Understanding

In Phase II, communications will need to reach a whole new level, a level where everyone understands their role in the communications process, in the project and in the success of the Department. A level where active communication is part of everyone's day to day work.

A key success factor in our methodology is timely and effective communications to the right audience. We are proposing that this activity be given a high priority with responsibility for communication be assigned to specific DWSD and consulting resources.

Our methodology for workshops and meetings is designed for interaction, education, and achievement of objectives in a timely manner. All teams, at the orientation stage will develop a team charter to ensure that we set the stage for good team dynamics. We will apply our standard guidelines for practices implementation to ensure that all workshops and meetings are "value-added" and effective. Finally, our consultants are aware of the importance of confidentiality of any information supplied to the project team or individuals as well as any deliverables from the project. The DWSD can expect that the consulting team will deal with all information in a responsible manner.

We will take advantage of the opportunities for communications provided by our team-based performance-driven approach to Phase II. We will use techniques such as situational role-play with immediate work area application of new knowledge to ensure that we create an environment where:

- Everyone learns to communicate
- Everyone learns to facilitate
- Everyone learns to focus on results
- Everyone learns to teach

This approach has been proven to be extremely effective at a major brewery where work area performance and focus on quality, efficiency and effectiveness are the cornerstones to business health.

Managing Transition

The Organization's Transition

It will be imperative that there be a shared understanding by everyone in the Department's future when the Works Best Practices Program is implemented. The change in organization performance will move in stages from today, to learning individuals, to learning teams, to learning organization and a culture of continuous improvement. Figure 1-1 shows stages of transformation.

Leaders in the Department will be provided with the knowledge and tools to enable others to understand and practice the required behaviors to support a more team focused culture of learning, continuous improvement, and business orientation.

As sponsors of the cultural change, the Department's leaders will need practical methods of communicating the vision, managing the inevitable resistance to organization change, outlining the new roles and responsibilities, managing and evaluating performance, and ensuring accountability for results.
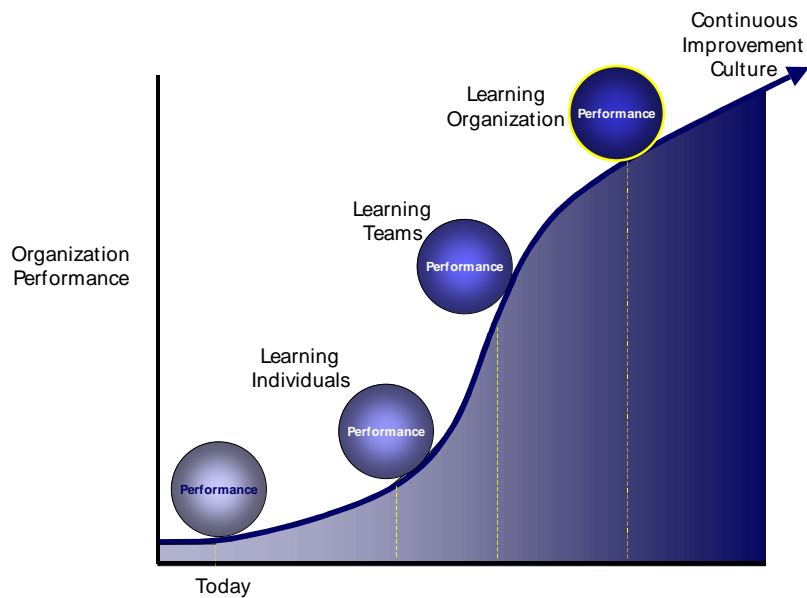
Figure 1-1 - Abilities Improvement Curve

The Employees' Transition

A successful organization transition requires a change in individual behaviors. A change in behaviors will result when the desired behaviors are modeled by the leaders and supported by skills gap analysis, individual and team training and development, performance feedback and coaching and career planning.

As the program implementation progresses over the next several years, it will be necessary to develop and manage a comprehensive transition plan that recognizes the unique status of individuals (i.e. permanent, temporary, surplus) and their associated needs.

Leadership Development

Managing and leading in the Best Practices environment will require expanded knowledge and skills with a particular emphasis on changing the management culture from an *operations* focus to a *business management* focus. The Job Design Teams will provide the objective resources to evaluate management positions, assess skill requirements, plan education and training programs to fill any skills gaps, deliver training as needed and to coach managers and leaders as individuals and as a team.

Transformation

Intensive Approach to Transformation – The Best Practices Institute

Transformational change cannot occur incrementally. EMA has developed an intensive approach to establishing the foundation of change that will prepare the Department for moving

quickly and effectively into a Best Practices culture. This approach is based on experience gained from results achieved in many private sector and some public sector utilities.
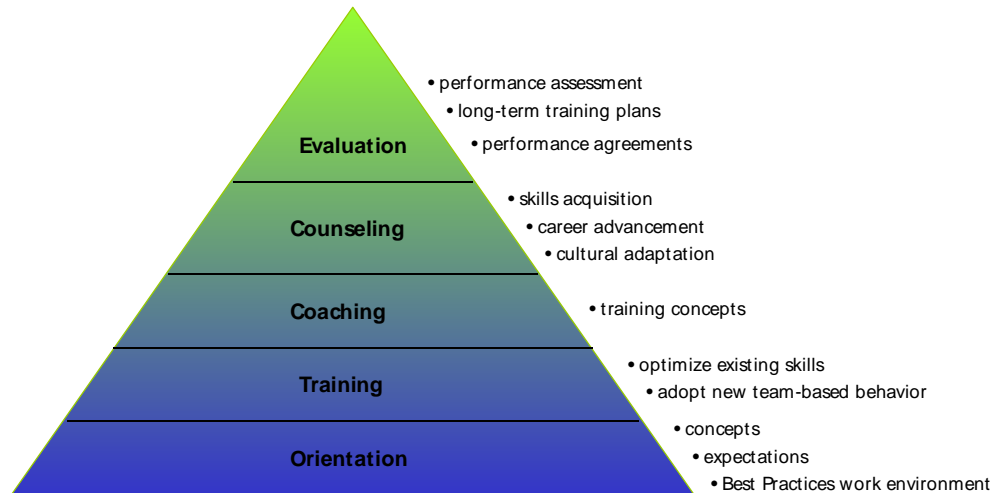

Figure 1-2 – Foundation of Changes

The initial pilot training program will be followed and supported by a program of long-term training, performance evaluation and support.

1.2 PROGRAM MANAGEMENT TASKS

1.2.1 Project Plan

The first program management task is to develop a project plan that defines objectives, success criteria, scope, budget, schedule, and participants (both EMA and DWSD). Items to be addressed include:

- Commitment to change
- Scope
- Effort required to complete the project
- Roles and responsibilities

- Deliverable requirements
- Quality assurance process
- Schedule
- Project communication protocols

Deliverables:

1. Draft Project Plan
2. Workshop materials
3. Final Project Plan

1.2.2 Project Reports

On a monthly basis a progress report will be generated in conjunction with an invoice for services. The progress report will detail activities completed during the month and detail the level of completion for each task and deliverable. The project report and invoice will be presented and discussed in a monthly project review meeting.

Deliverables:

1. Monthly Progress Report
2. Monthly Invoices
3. Monthly Progress Meeting Minutes

1.2.3 Communication Plan

Communications to all stakeholders, particularly staff will be very important because the implementation of the five pilot areas and the roll-out across the Department will significantly impact staff. The nature and extent of the impact to all staff will be identified as the Job Design tasks progress and the designs for the new Job Classifications are finalized. Communications prior to the implementation must address the changes being made and the support needed to make the implementation successful. Regular communications will occur between the Job Design teams and the remainder of the DWSD staff, these communications will provide weekly updates on the progress that the teams are making and will prepare the organization for the new flexible work teams.

EMA will develop a communication plan and assist DWSD in its implementation. A communication plan is a systematic, manageable process that encompasses information about the seven components of communication – who, what, when, where, why, how, and how much or how often.

The communications plan will be developed in four steps:

- Identify audiences
- Determine objectives
- Develop messages
- Identify how and when to implement

EMA will develop the communication plan based on the vision and goals of DWSD. Using the prepared plan, EMA will assist DWSD with the implementation of the plan. Communication of the project vision and strategies to attain the vision will be discussed. The progress of the optimization program and its organizational and individual impacts will be a significant component of the plan. EMA will also provide assistance for the provision of information to the media as needed. It's important to note that communication is an iterative process requiring review and refinement of the plan as part of the implementation process.

The communications plan will detail the materials that will be distributed to the staff and unions, the frequency and timing of communications and specific messages that should be addressed in the communications. The plan will be developed and presented in a workshop following the Job Designs and then finalized with the communication materials. This is a separate activity from the ongoing communications conducted by the Job Design Teams. The notices, memos and content that will be distributed as per the communications plan will be developed as part of the Job Design tasks.

Deliverables:

1. Draft Communications Plan
2. Communication plan workshop materials
3. Final Communications Plan

1.2.4 Program Benefits Tracking

In the Phase I Assessment baseline staffing, energy use, chemical use and fleet costs were reviewed as part of the desk audit and used to determine potential savings from which implementation projects can be funded. To track achieved savings EMA will record actual costs against baseline data collected in Phase I. Cost data on items above will be requested on a quarterly basis to complete the analysis. This information will be presented in quarterly updates included in project reports.

Deliverable:

1. Quarterly program benefits tracking updates

1.2.5 Change Management

EMA will assist DWSD in implementing an effective change management strategy for preparing, managing and sustaining the organization optimization.

A change design team will be formed by DWSD, with assistance from EMA, to facilitate and sustain a culture of change in support of the optimization program. This team should include a cross section of individuals representing all departments within DWSD. The role of the team will be to listen for employee feedback about the program and work with EMA to develop and implement a change management plan. The change design team will meet on a monthly basis to communicate and discuss organizational issues that impact the successful implementation of the program.

EMA will prepare a draft change management plan to be collaboratively developed and implemented by the change design team. This plan will be an evergreen document to guide the efforts of the team and will include best practice change management strategies.

EMA will work with the change design team to manage change communications.

Deliverables:

1. Facilitation of change design team meetings
2. Change Management Plan
3. Change management communications
4. Change design team implementation assistance

1.2.6 Team Listings

As part of the project a number of teams will be formed with EMA and DWSD staff. These teams are listed below and each Team's activities are identified in each section.

- Steering Team – The steering team will review the outputs of the Job Design Teams and the IT and CMMS Teams and will select and implement the recommendations
- Job Design and Business Process Design Teams (5)
  - o Water Team
  - o Wastewater Team
  - o Field Services Team
  - o Administration, Finance and Customer Service Team
  - o Technology Support Team
- Change Management Team – This team will identify possible issues and challenges with the Job Designs and new technologies that will be developed and will provide inputs to the communication to address them
- Information Technology Team – this team will complete the IT Master Plan and the IT System projects
- Work and Asset Management Team – this team will concentrate on the CMMS and Financial System configuration changes and Asset Management Program

2.0 JOB DESIGN AND BUSINESS PROCESS DESIGN; TEAM DEVELOPMENT, TRAINING AND IMPLEMENTATION

The primary activity of the second phase of the program is the Job Design and Pilot Implementation consisting of five design teams. The tasks are broken down into three areas, the Re-Organization Designs, Staff Training and Pilot Implementation.

2.1 Re-Organization Design

In the assessment phase of the program 32 job classifications were identified for the DWSD workforce. This replaces the over three hundred existing classifications and redefines the staff as a flexible workforce.

EMA will form five teams to perform the Job Designs throughout the Department, the teams will be structured as followed;

- Water Operations Team
- Wastewater Operations Team
- Field Services Operations Team
- Technology Support Team
- Finance, Administration and Customer Service Team

Each team will be made up of staff volunteers who will design the new jobs and the new flexible team based approach to completing the work. This will be documented in the "To-Be" practices and operations and technology system and support requirements. The teams will be lead and facilitated by an EMA Team Lead. A kick-off meeting with all five design teams and the steering team will be held to introduce the practices and vision for the project to the teams.

Figure 2-1 shows how multiple team-based work areas will move the Department from its current practices to best practices and meet DWSD mandates. Each of the elements of the new practices, organization and technology are outlined in Figure 2-1. Some of the common principles for each work area include:

- Each work area is team-based. People are trained to work in teams.
- Each work area team has specific performance measures and targets. These measures support the Department's service measures and targets to meet the Board of Water Commissioners mandates.
- Each work area integrates the new practices with enabling tools and technologies and integrates new organizational behaviors, skills and abilities. This combined approach means that people and systems work together in implementing best practices and avoids "paving the old cow path". All systems support achieving the performance results.

- Everyone in the work area understands the "paradigm shifts" necessary for new ways of working. Experienced EMA coaches will assist team members to overcome resistance by practicing new behaviors.
- Everyone in the work area understands their roles within the work area and how the work area fits into the whole Program. Communication is free-flowing and bi-directional with all team leaders and managers "walking the talk".
- Other elements of the Program support the work area based implementation. Employee development (new skills and abilities) goes hand-in-hand with new practices and behaviors in the work area teams. New tools and systems are developed, installed and supported by technology implementation teams which are loosely-coupled and coordinated with the work areas.
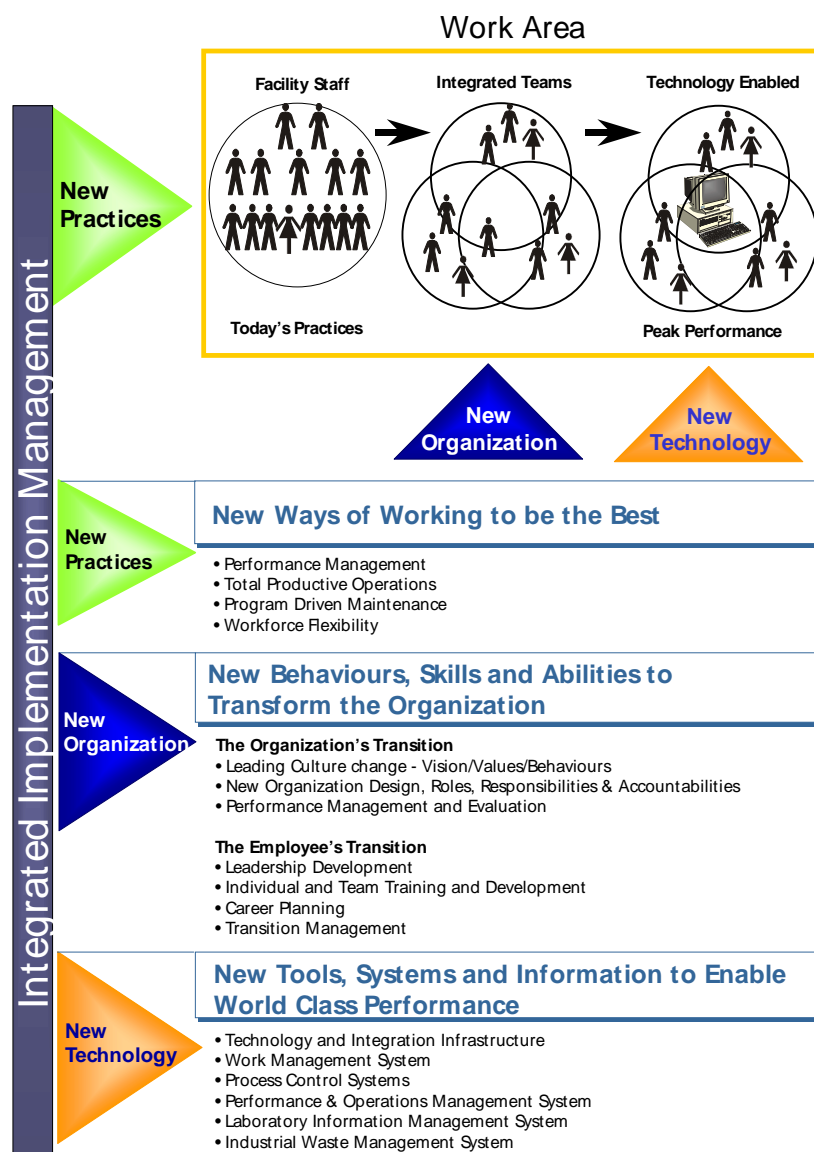

Figure 2-1 - Multiple Team-Based Work Areas Will Implement Best Practices Across the Entire Department

The Job Design activities will require a time commitment for the DWSD staff of eight uninterrupted weeks to complete the "To-Be" work models. For each design team 8-10 DWSD staff members are required. During the development of the "To-Be" models the skills and training requirements, functions, levels and progression for the 32 Job Classifications will be created. During this process further consolidation of Job Classifications, or new Classifications may occur. Coordination of Job Classification Requirements between the five teams and system requirements with the Technology tracks will be maintained by the Program Manager. The new technology requirements for the "To-Be" work processes will be documented in a Technical Memorandum for use in the IT Application Plan detailed in section 3.

Deliverables:

1. Design Team Charters (5)
2. Design Team To-Be Work Practices (currently estimated at 25)
3. Complete Job Classifications (currently estimated 32)
4. System and Technology Requirements Memo

2.2 Organization and Practice Training

We will develop and train pilot implementation team members and team leaders to work together in a team. This training will be initiated following the Job Designs and "To-Be" work practices. As the draft work practices are developed, training materials will be created to reflect the requirements. Upon finalization of the work practices the training plan and materials will be submitted for review. The training schedule, staff requirements and identification of trainers will then be finalized in a training workshop.

Deliverables:

1. Draft Training Materials
2. Training Plan
3. Training Workshop
4. Training Schedule
5. Final Training Materials

2.3 Job Design Pilot Implementation

EMA's approach is a cascaded rollout of the Program via work areas. Work area-based implementation ensures that solutions are practical and field-tested. The work area approach also means that change in practices, jobs and technology are experienced in a day-to-day operating environment, which is the key to "operationalizing" the Program for the long-term. Each of the five teams will implement the new work processes and job designs in a pilot implementation.

The pilots will prove the concepts of team-based, performance-driven practice implementation. Phase II will build on these experiences and expand the work area based approach in two ways:

1. "Ground level" work areas will drive the Program results by phased, scheduled implementations of multiple (parallel) work areas at all facilities (plant, field and support areas).
2. "Higher level" work areas will provide coordination and optimization to enable multiple ground level work areas. These higher level work areas include the facility and multi-facility levels, all the way up to the Director level.

For the higher level work areas the team includes members from the ground level work area or other higher level work areas needed for coordinating and optimizing among multiple work areas.
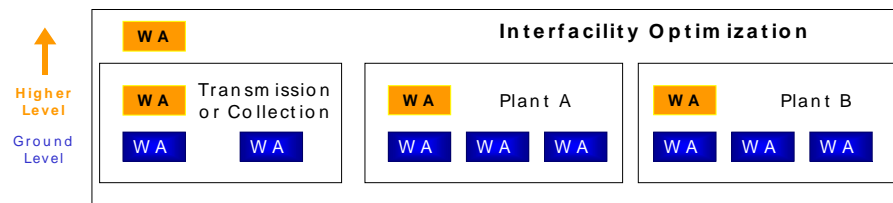

Figure 2-2 - Work Area Based Approach Can Be Successfully Applied at All Levels

All of the concepts and methods for implementing new practices, organizations and technology apply to the higher level work areas as well as ground-level work areas. However, there are differences as highlighted below because the work is different.

- New practices are still driven by performance measures and targets, however, the necessary "paradigm shifts" to implement these new practices go beyond those for ground-level work areas. Examples of these shifts include:
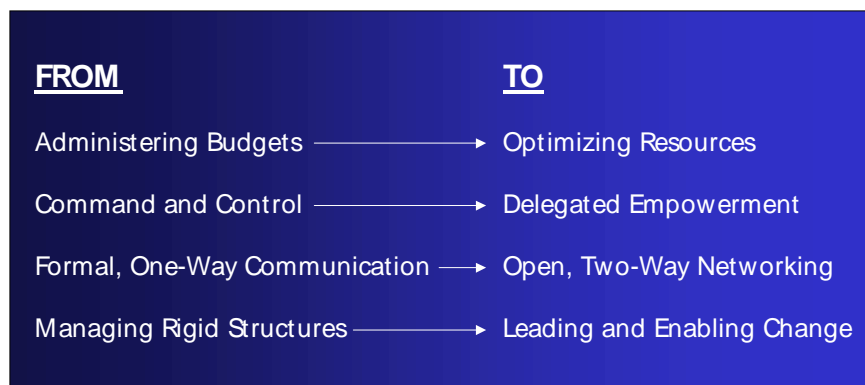

Figure 2-3 - Management Paradigm Shifts

- A number of the work areas are optimizing functions which require coordinating multiple ground level work areas at higher levels. These work area teams will implement Best

Practices at total facility levels, at inter-facility or special optimization levels and even at the Section and Department level.

- Supporting Program elements in these higher-level work areas differ in the type of employee development required such as gaining new skills and abilities in leadership, management, communications, facilitation, performance management, decision-making and continuous improvement.
- Enabling technologies for these higher level work areas will include consolidated and summary views of work area-based systems for process control, work management, laboratory information, etc. The Performance Operations Management System will integrate information from all levels and will be a key tool for performance management for these higher level work area teams.

The pilot implementation facilitates management understanding and adoption of best practices, and supports the staff transition process. Some specific products/results that this team will deliver are: a new localized organizational structure for the pilot area, new job descriptions, definition and implementation of staff training and development programs and the support of work area team selection process and implementation.

During the implementation the "To-Be" work practices and Job Designs updates, changes and tweaks will be made as the work is completed and documented, these changes will be documented and consolidated across the five teams to ensure a uniform application of the Best Practices.

The Job Design Pilot Implementation activities will require a time commitment for the DWSD staff of eight uninterrupted weeks to utilize the "To-Be" work models and flexible staff. During this time the EMA team lead and EMA team members will observe, support and mentor the flexible team in the completion of the tasks, and will facilitate any discussions needed between the facility management staff and the team members and other project team members. The EMA team lead will initially run the daily meetings and wrap-up meetings, but will transition responsibility to the DWSD Team lead during the pilot implementation.

A one week follow-up session will be conducted one month after the pilot implementation for each of the five teams. During the follow-up session further changes to the work processes will be discussed, documented and implemented and performance measures will be defined and initial data collection completed to monitor the team's performance. The performance measures will also be recorded for implementation in a Performance and Operations Management System (POMS) in a later phase of the program.

This piloted flexible team approach can then be implemented on a larger scale in each area of the Department in the next phase of the program.

Deliverables:

1. Updated To-Be work practices (currently estimated at 25)
2. Final Job Classification Updates (currently estimated at 32)

3. Pilot implementation meeting materials
4. POMS performance measures

2.4 Team Development and Training

We will develop and train managers and DWSD trainers on how work areas should function, the roles of team members and how areas should be managed.   Trainers will teach work area team members and team leaders to work together in a team.

Deliverable:

1. Department-wide Team Development and Training

2.5 Full Roll-out

We will work with DWSD managers and training staff to work with each work area team and coach the team leaders. A manager, trainer or an EMA consultant will meet with each team on a monthly basis for six months.

Deliverable:

1. Department implementation of work area teams

3.0 IT MASTER PLAN AND APPLICATION CONSOLIDATION

In the Technology Track EMA will review the existing systems and develop the Information Technology Application Plan. The plan will define how existing applications can be consolidated into a manageable environment to support business requirements.

The plan will identify strategies for managing changes surrounding current solutions, including updates to systems, configurations, access, or permissions.

The IT Application Plan will include a review of the current applications (over 100) and the Wide Area Network access for the remote working locations for reliability and access to Process and Administration systems.

Our approach to develop the IT Application Plan is driven by the following key principles:

Business Driven

- Information Technology must address the practices, processes and organizational requirements as well as technology implementation to succeed
- Technology investment plans and strategies must align with and enable business plans and strategies
- Business re-engineering, industry standards and best practices should accompany new IT investments, to optimize return on investment
- Business and management implications of technology issues and options need to be clearly articulated in order to make good business decisions

Architecture Based

- The plan identifies the key components and requirements of the business at a conceptual level
- Identify gaps, overlaps (duplication/redundancy) in current technology asset portfolio
- Identify the target data, applications and technology components (architecture) required to support the business
- Align with and leverage industry and corporate standards wherever possible to enable integration and interoperability and thus optimize life cycle costs

Facilitative Consultation

- We will leverage our industry knowledge to the greatest possible extent
- We will use a combination of facilitated workshops, questionnaires and interviews to ensure participation and input of key staff

3.1 IT Application Plan

In this step, we will define information requirements at a high level. This task includes alignment with spatial information (GIS requirements). One workshop is required to confirm the information architecture.

EMA will review existing applications against business requirements to specify the scope, purpose and business value of applications. Business requirements (services, processes and functions) will be mapped to applications. Initially, unconstrained by cost and consideration of legacy systems, the application architecture will be developed into one that is practical and cost-effective for the Department. We will conduct two workshops to develop and review the target application architecture.

Based on the above, EMA will develop an integration architecture that enables practical and efficient sharing of information and applications determined in the previous two steps. One workshop is required to confirm the integration architecture.

EMA will review system security requirements. In our proposal, we have assumed that current security provisions are generally adequate and the focus will be on supporting increased security for new requirements. One workshop will be conducted to confirm security requirements of the overall architecture, establish a framework for security management, and identify required security policies and infrastructure requirements.

EMA will develop a work plan to consolidate applications. One workshop is required to confirm the work plan with DWSD.

Deliverables:

1. Target Application Architecture. The Department's Application Architecture will clearly define applications needed to support the business (mapped to the business requirements), including identification of potential re-use of existing applications and new applications
2. Target Data and Information Architecture – a conceptual information model and data integration requirements
3. Target Integration Architecture - definition of the mechanism for inter-connectivity and inter-operability of applications
4. System security review and recommendations
5. Work plan to consolidate applications

3.2 IT Application Consolidation

We will implement assignments in the application consolidation plan.

Deliverable:

1. Application consolidation activities as defined in the application consolidation plan

3.3 IT Business Plan

3.3.1 Confirm Business Plan and Strategy

Review and confirm the strategic business plan and future direction

- Primary IT services strategies
- IT Support services strategies – stronger, clearer service level agreements
- Business definition documentation
- Business definition methods and tools

Provide and establish guiding principles for IT investment. EMA will circulate a draft to the team beforehand and then conduct one workshop with the team to validate business direction and expected outcomes for the IT Application Plan.

Deliverables:

1. Summary of the IT Business Plans and Strategies including identification of key Technology implications and opportunities and vision over the next 5 years
2. Guiding principles for IT investment

3.3.2 Define Business Model

A business model forms a framework for planning information technology as well as planning business improvement. Activities will include:

- Confirm service and process definitions already in place at DWSD
- Refresh and identify other services and processes of DWSD
- Identify business relationships with groups outside of DWSD – clients, service providers and service delivery partners

The emphasis of this step could be to capture business requirements for technology or for business improvement.

EMA will conduct a series of half-day workshops (or combined sessions which bring together several groups) with the working team to review and confirm the Department's Business Model and key business requirements in the following areas:

- Water Treatment and Supply
- Wastewater Collection and Treatment
- Infrastructure Asset Planning and Management Services
- Operational Support Services
- Business Support Services
- Divisional Management
- Specific processes for automation or information technology

EMA will provide draft models as input. To be most effective, we will need business representatives to come prepared to provide input from the business areas they represent with opportunities and requirements for technology based business improvements.

Deliverables:

1. Business Architecture - A Summarized Business Framework identifying key services, processes, and high level technology requirements
2. Detailed business model for identified business areas; the detailed framework consists of use-case (process) and interaction diagrams

3.3.3 Recommend Technology Strategies

In this step EMA will leverage strategies articulated to date by the Department and conduct one workshop to present currently available technology and trends, review and agree on technology guiding principles and strategies going forward.

Technology strategies would guide development in many areas of an IT plan and will also serve to guide implementation and schedule software version updates.

Deliverable:

1. Recommendations for the technology strategies going forward and identification of requirements to improve, enhance and/or strengthen policies and standards

3.3.4 Current Technology Assessment

EMA will provide an inventory of current Technology Infrastructure, applications and information assets, and assess the effectiveness of these assets in meeting business requirements.

Activities will include:

- Leverage inventories done to date
- Map current/planned technologies against the business model requirements
- Identify gaps and overlaps – which result in improvement opportunities
- One workshop with the team to summarize results

Deliverable:

1. An assessment of current applications, data and technologies, identifying how well the applications support business processes - identifying gaps, enhancement opportunities, integration opportunities, re-use or sharing opportunities

3.3.5 Technology Architecture

Technology infrastructure architecture defines the technology infrastructure components and standards required by the Department, including network topology, major software requirements, and

major hardware requirements for servers and clients, including the identification of head office, facilities and field operations requirements

In this step EMA will:

- Align with existing standards
- Incorporate new requirements: Wireless, network, standards existing and required, servers and client workstations, Videoconferencing, Internet
- Conduct two workshops to confirm the target Infrastructure architecture

Deliverable:

1. Target Technology Architecture

3.3.6 IT Support Plan

In this step we will also define the Department's requirements for IT support, based on an assessment of current technology support requirements, and refinement as needed.

We will facilitate a review of strategy and options with the working team. This could include the evaluation of alternative support models, e.g.:

- Define options (maximum in-sourcing, maximum outsourcing, combination)
- Define criteria to evaluate options (including risk, cost, effectiveness, quality)
- Facilitate one evaluation session
- Document recommended governance and organizational solution
- Define estimate of ongoing budget requirement
- Clarify guidelines for operating vs. capital budget

Deliverable:

1. Technology Support Requirements (strategy, service level requirements, roles, annual support cost update, identification of improvement opportunities and requirements)

3.3.7 Define IT Standards

EMA will review the target architecture and identify gaps in the current standards. One workshop is needed to review the assessment and plan standards development.

Deliverable:

1. Information Technology Standards – an assessment of existing standards and recommendation for future standards development

4.0 PAYROLL, TIMEKEEPING AND HUMAN RESOURCES SYSTEMS

In the Technology Track EMA will review the existing systems and develop the functionality requirements for the Department to implement an internal or hosted system to allow autonomous operation from the City. The payroll system requirements, analysis and procurements will be completed first to allow for the department to operate independently from the city.

4.1 Payroll and HR Requirements and Procurement

4.1.1 Develop System Requirements

EMA will review existing documentation and help DWSD gain a common understanding of its environment and analysis needs. EMA will document key business drivers, issues, concerns, and initial perspective. From the data collected during this analysis, we will develop a requirements framework. The requirements framework will serve as a baseline for the analysis of solutions and service providers in subsequent tasks. These activities will be completed without consideration of the existing framework to allow for an unimpeded development of the requirements.

After the framework has been compiled, EMA will validate the requirements framework and further refine the requirements to form the foundation for the analysis. The resulting analysis will include:

- Required modules
- Integration capabilities
- Security requirements
- Availability requirements (up vs. down time)
- Other requirements and considerations such as configurability

Deliverables:

1. Draft Requirements Framework
2. Requirements Workshop Materials
3. Requirements Listing

4.1.2 Vendor Analysis

EMA will then perform an analysis of service providers who may be candidates for outsourcing all or some functions. This analysis will focus on those providers having the most closely related experience to that needed by DWSD. Key factors of the service provider analysis may include:

- Experience relevant to DWSD (for example, water and wastewater utility)
- Technical capabilities to support modules and functions required by DWSD
- Number of years in business

- Client feedback where possible
- Budgetary cost estimates

The primary benefits are to:
- Validate the existence of service providers that meet DWSD's needs, and
- High level evaluation of potential service providers that can be used as a basis for future inquiries such as a Request For Proposals (RFP)

A preliminary review of segment leading vendors will be undertaken from commercially available documentation and recent projects completed by EMA. This analysis will be completed for all three systems. The listing of vendors and a functionality matrix will be presented for review. In the workshop, additional questions for the vendors will be compiled for inclusion in a Request For Information (RFI). The RFIs will be sent to the vendors and the responses used to update the functionality matrix and the requirements listing.

Deliverables:

1. Preliminary vendor analysis
2. Draft Functionality Matrix
3. Vendor analysis workshop materials
4. Vendor RFIs
5. Final vendor analysis
6. Final Functionality Matrix
7. Updated Requirements Listing

4.1.3 Review Hosting Service Issues

EMA will perform an analysis of the technical aspects of utilizing hosted systems to provide the HR, Payroll and Timekeeping functions. The analysis will include the following items;
- Access issues for the systems from all locations and staff
- Data integration issues
- Reporting and data export issues
- Security issues
- Termination and retrieval of DWSD data issues

Deliverables:

1. Hosting Analysis Report

4.1.4 Develop Specifications and Procurement Documents

We will develop and review the requirements and specifications with you in a series of three workshops, one for each system:

Present Procurement Documents for systems. In this step we will present the Specifications and Procurement Documents and gain your consensus on proceeding with procurement. This will be done in a workshop to present draft documents, followed by a time for your review and then a second workshop to go over comments. Your review comments will then be incorporated in the final Specifications and Procurement Documents.

Deliverables:

1. Draft Procurement Documents (3)
2. Review Workshop Materials (3)
3. Final Procurement Documents (3)

4.1.5 Procurement Support

Procurement Support – We will answer vendor questions, prepare addenda and facilitate evaluation of technical and cost proposals.

Deliverables:

1. Agenda for Proponents Meeting (3)
2. Responses to Proponent Questions
3. Evaluation of vendors and recommendation memos (3)

4.2 Payroll and HR implementation

EMA will assist the Department in implementing the payroll and HR system by developing an implementation plan and then executing assigned tasks such as loading software, testing software, loading historic information, training users and guiding system administrators on system and user support. Configuring software will be done in conjunction with the Practices Track.

Deliverables:

1. Implementation plan for the Payroll, Timekeeping and HR system(s)
2. Implementation tasks as defined in the Implementation Plan

5.1 IT System Designs Requirements

The IT Application Plan will be supplemented by functional requirements and business cases for four systems:

- Learning Management to schedule and track training, licensing requirements, and course attendance
- Hazardous Materials Management, a Material Safety Data Sheet (MSDS) Management System or implement this function in a Document Management System,
- Document Management to provide needed access and training to Staff, eliminate requests for documentation, provide data for Maintenance, Operations, Planning and support activities and handle GIS, drawings, O&M information
- Performance Management to report measurable items, according to accountability, automate reporting and make data available to all staff

Pending business case approval we will define functional and other requirements for these systems. Functional requirements will be defined in use cases and interaction diagrams. The use of existing systems and upgrade or procurement of new modules for existing systems will be considered in each business case. EMA will prepare the use cases and interaction diagrams and review them with selected staff in four workshops. The use cases and interaction diagrams will be updated from staff comments and information.

Deliverables:

1. Business case for each of four systems
2. Functional requirements for each of four systems
3. Other requirements (such as user interface, security and operating system) for each of four systems

5.2 IT Systems Design and Procurement

We will develop procurement documents containing business requirements and specifications for each of the identified systems. This will be done in a series of three workshops for each system: draft procurement document preview, draft procurement document review and final procurement document review.

Develop Specifications and Procurement Documents for systems. In this step we will present the Specifications and Procurement Documents and gain your consensus on proceeding with procurement. This will be done in a workshop to present draft documents, followed by a time for your review and then a second workshop to go over comments. Your review comments will then be incorporated in the final Procurement Document, which will be reviewed in the final workshop.

We will support the procurement process by answering vendor questions, preparing addenda and facilitating evaluation of technical and cost proposals.

Deliverables:

1. Draft procurement document for each of four systems
2. Final procurement document for each of four systems
3. Procurement support for each of four systems

5.3 IT System Implementation

We will assist the Department in implementing the identified systems by developing an implementation plan and then executing assigned tasks in the plan such as loading software, testing software, configuring software, loading historic information, training users and guiding system administrators on system and user support.

Deliverables:

1. Implementation plan for each of four systems
2. Implementation tasks for all four systems as identified in the implementation plans

6.0 CMMS AND FINANCIAL SYSTEMS OPTIMIZATION

DWSD is in the process of investing in the purchase, configuration and implementation of Oracle WAMS and JD Edwards Financial Systems. Based on our assessment, the full role out is expected for early 2013. The application of Oracle WAMS is a good direction for DSWD, providing the organization with a top-level Work and Asset Management System (WAMS). However, the design and configuration is based on the existing O&M and business model which is slated for a dramatic change moving forward.

As part of the changes being faced by DSWD, ones that are important to the work management process are the streamlining of the procurement, material management and time keeping processes. These changes will have an impact on the way Oracle WAMS will need to be used. As well, the change in organization structure and the increased emphasis on planning and scheduling will likely also require modification to the Oracle WAMS configuration and user profiles.

Based on the assessment results our goal is to define the configuration changes needed to:

- Apply reliability program to achieve 80/20 PM to reactive work split
- Streamline the purchasing of parts and services
- Streamline materials management and time tracking through integration
- Interface GIS and CMMS to better manage linear assets
- Implement the Asset Management Program
  - Assessment
  - Design
  - Implementation
- Adjust work order management practices to align with new organizational structure
- Align WAMS configuration with new organizational structure and practices
- Configure CMMS to meet performance management requirements (develop queries and reports)
- Configure the Financial and CMMS system for integration to streamline the procurement process
- Configure the CMMS system to integrate time keeping and allocation of costs to assets
- Configure the Financial System to provide cost reporting at a granular level to support performance management reporting

6.1 CMMS OPTIMIZATION INITIATION

EMA will facilitate workshops on the Financial and WAMS configuration requirements to address each of the above areas of optimization. The workshops will address business processes including governance. Through a comprehensive redesign, EMA will help align your business practices with the capabilities of the WAMS to optimize maintenance management.

Deliverables:

1. Requirements Workshop Materials
2. Requirements Listing

6.1.1 Oracle WAMS Desk Audit

EMA will review the current Oracle WAMS configuration documentation and workflows to understand the configuration, interfaces and user profiles. We will also validate the status of the implementation at the start of the project to gain an understanding the current roll-out progress. The intent is to allow the current roll-out to continue if it is near completion and then use that configuration as the launch point for the revised configuration of WAMS.

Deliverable:

1. Draft List of Configuration Changes

6.1.2 Project Team Formation

EMA will meet with DWSD to define the Work and Asset Management Team member requirements including the types of knowledge, skills, and personalities needed for a successful project. We will establish appropriate representation by business unit and position. Once the team has been selected, we will help create the invitation and communication plan to ensure we begin with a solid team that wishes to participate.

Please note that this project may require the participation of the current Oracle WAMS implementer due to their high level of understanding of the new Oracle WAMS configuration.

Deliverable:

1. Work and Asset Management Team Charter

6.1.3 Education and Vision Development

EMA provides an interactive, entertaining educational curriculum that will prepare DSWD staff to participate actively in the WAMS reconfiguration requirements definitions. We will introduce your team to essential concepts and best practices related to maintenance management. EMA's educational workshops include simulation exercises that will allow your staff to put new concepts into practice and immediately see the impact of asset management and maintenance management decisions based on varying information quality, different business practices, and organizational structures. At the conclusion of the workshops, your team will be ready to develop improved business processes, improved maintenance performance as well as lays the foundation for a future asset management program. They will understand why certain practices, certain types of data and certain system functionalities are important. They may even be able to implement some "quick win" improvements to current practices that take immediate advantage of what they have learned.

Deliverables:

1. Training Materials
2. Training Schedule

Task 6.1.4 Review Existing Business Processes with Staff

In workshop settings, EMA will review both your existing business process and the revised Oracle WAMS process and financial processes with the Work and Asset Management Team and the Financial Team members. The intent of these workshops is to have all stakeholders understand the whole process, the time and effort required in each step of the process and the bottlenecks that exist.

By creating valid "as-is" workflows of your business processes, we are able to illustrate where problems and inefficiencies are present. The business processes that will be reviewed will include but are not limited to:

- Asset tracking (and link to GIS)
- Fleet cost allocation
- Work request and approval
- Work order planning & scheduling
- Inventory management
- Purchasing interface to Oracle UWAM
- Work order completion and closure
- Timekeeping
- Use of functions for charge out purposes
- CMMS Reporting
- Bill Payments and Accounts Payable
- Budgeting
- Billing and AR
- Financial Reporting

During these workshops, we will also identify any missing business processes and reports that are needed from the system.

Deliverable:

1. 10 As-Is CMMS Workflows and 4 Financial Workflows expected with two additional workflows if required

6.1.5 Education and Best Management Practices Identification

EMA provides an interactive, entertaining educational curriculum that will prepare the DSWD Work and Asset Management Team member to participate actively in the WAMS reconfiguration requirements definitions. We will introduce your team to essential concepts and best practices

related to asset and maintenance management. EMA's educational workshops include simulation exercises that will allow your staff to put new concepts into practice and immediately see the impact of asset management and maintenance management decisions based on varying information quality, different business practices, and organizational structures. At the conclusion of the workshops, your team will be ready to develop improved business processes, improved maintenance performance as well as lays the foundation for a future asset management program. They will understand why certain practices, certain types of data and certain system functionalities are important. They may even be able to implement some "quick win" improvements to current practices that take immediate advantage of what they have learned.

Deliverables:

1. Best Practices Educational Workshop Materials
2. Quick Win Business Case and Implementation Plans

6.1.6 Recommend Business Processes That Should be Optimized

After the completion of the as-is workflows, EMA will conduct a series of three workshops to validate the workflows and identify where the different business processes can be optimized. Our focus will be on developing non-system related business process recommendations. The recommendations will need to incorporate the overall re-organization change plans identified earlier in the project. The workshops will develop application-specific recommendations. EMA's role is to provide the team with an understanding of the system options and flexibility but to also listen and understand the real life issues and challenges they face and to provide real solutions for their specific needs.

The key to this task is that it is done with the business process stakeholders and thus will have their buy-in. EMA's role is to guide the team towards the general direction of best practices but to also listen and understand the real life issues and challenges they face and to provide real solutions for their specific needs.

Deliverables:

1. 3 Workflow workshop materials
2. 18 Updated workflows
3. Application update recommendations

6.1.7 Identification of Data Requirements

EMA will perform database inspections and conduct a series of workshop to identify data gaps based on typical financial and maintenance and asset management needs. The gaps need to be confirmed, resolved, and eliminated early in the re-configuration process since data collection can be a very time consuming activity.   A listing of required data points, sources of the data, and possible integration requirements will be developed. In order to ensure that the re-configuration is successful, our team will identify any key missing data and then help create appropriate data collection projects that will be in lock step with the reconfiguration project.

Deliverables:

1. Data Gap Listing
2. Data Source and Integration Requirements

6.2 CMMS Configuration

Task 6.2.1 Identification of CMMS Reconfiguration Needed

Using the information gathered from the previous tasks, we will identify the reconfigurations needed in the CMMS. The list will expand upon the recommendations proposed in the assessment to provide more details on changes proposed and the desired outcomes required. This task will be performed in workshop settings and include key stakeholders from the Work and Asset Management Team. Reconfigurations may be applied to tables, existing system interfaces, workflows and/or data standards. It is important to note that this task will also help identify those configurations that are deemed to be of good value and should not be changed.

Deliverable:

1. Configuration Requirements

Task 6.2.2 Resource Needs for Reconfiguration

At this stage, requirements for data collection, technology improvements, and reconfiguration will have been identified and well documented. As a result, EMA and the Work and Asset Management Team will be able to identify all the tasks, their estimated duration, and the skills & experience needed to successfully complete them. In workshop settings with the Steering Team, we will work with staff to identify the appropriate resources needed to help achieve the reconfiguration and external professional services that can be procured to complete the work. The internal staff resource level used for the configuration will impact the timeline.

Deliverables:

1. Level of Effort for Configuration Changes
2. Procurement Options

Task 6.2.3 Description of Project Tasks

At this stage, EMA will be ready to define all the project tasks needed to implement the desired reconfiguration. Based on the problems and deficiencies list, the tasks will now be expanded to provide execution details such as the activities needed, the participants who must attend, and the sequence in which the work should be done. Most important, clear and desired outcomes will accompany each tasks description to ensure that the intent of the task is understood by those who will be responsible for the execution of the task. EMA will work with your team to identify the project timelines. We will take into consideration other initiatives and the staffing availability from within DWSD.

1. Detailed Task Listing
2. Procurement Documentation (if required)
3. Procurement Support (if required)
4. Configuration Scheduling, Testing and Management

6.3 Financial System Configuration

Task 6.3.1 Identification of Financial System Reconfiguration Needed

Using the information gathered from the previous tasks, we will identify the reconfigurations needed in the financial system. Reconfigurations may be applied to specific data integration requirements, new or combined GL accounts, reporting requirements and budgeting tools. After all requirements and selection of the various systems then the design will begin for the integration of these systems.

Deliverable:

1. Configuration Requirements

Task 6.3.2 Resource Needs for Reconfiguration

At this stage, requirements for data collection, technology improvements, and reconfiguration will have been identified and well documented. As a result, EMA and the Financial Team will be able to identify all the tasks, their estimated duration, and the skills & experience needed to successfully complete them. In workshop settings with the Steering Team, we will work with staff to identify the appropriate resources needed to help achieve the reconfiguration. As with the CMMS configuration, utilization of internal and external resources will be reviewed against the resource availability and timelines.

1. Level of Effort for Configuration Changes
2. Procurement Options

Task 6.3.3 Description of Project Tasks

At this stage, EMA will be ready to define all the project tasks needed to implement the desired financial system reconfiguration. Based on the problems and deficiencies list, the tasks will now be expanded to provide execution details such as the activities needed, the participants who must attend, and the sequence in which the work should be done. Most important, clear and desired outcomes will accompany each tasks description to ensure that the intent of the task is understood by those who will be responsible for the execution of the task. EMA will work with your team to identify the project timelines. We will take into consideration other initiatives and the staffing availability from within DWSD.

1. Detailed Task Listing
2. Procurement Documentation (if required)
3. Procurement Support (if required)

4. Configuration Scheduling, Testing and Management

7.0 RELIABILTY AND ASSET MANAGEMENT TRAINING, DESIGN AND RCM PROGRAM IMPLEMENTATION

7.1 Development of DWSD's Asset Management Program Plan

EMA will help DWSD develop an asset and reliability program through education, assessment, and proof of concept based on global leading practices for asset management in Water and Wastewater Utilities. EMA will help DWSD assess their current asset management competencies and prioritize the gaps identified. Using the assessment results the team will define specific activities that needed to be performed to achieve responsible asset management at DWSD for the plants and in-ground assets. The resulting activities will be grouped together based on typical responsibility built up to achieve three stages of competency; 1) Know the standard, 2) Meet the standard and 3) Set/Create the standard.

We will create an Asset Management (AM) framework which allows us to frame these activities into initiatives and in turn create an initial set of initiative documents. These draft documents will define the full scope of work needed to develop a responsible Asset Management Program at DWSD. The results will then be pulled together into a presentation to be delivered to the DWSD Leadership Team. This presentation coupled with a report will present the key findings and recommendations moving forward.

7.1.1 Project Objectives and Tasks

The objectives for the Asset Management and Reliability assessment and proof of concept include:

- Introduction of AM concepts to include leading practices for the entire asset life-cycle.
- Development of a vision for AM at DWSD.
- Identification of a gap analysis based on global leading asset and reliability practices.
- Identification and prioritization of asset groups (process areas) needing reliability improvement
- Development of an AM Program and presentation of data to inform and gain commitment from the DWSD Leadership Team for an AM Program implementation.
- Present proof of concept with a limited example of asset and reliability management outputs.

7.1.2 Assessment

In order to better understand the current situation at DWSD with respect to asset management and the related competencies, EMA will perform an Asset Management Assessment using the WERF Strategic Asset Management assessment framework. As part of the process, members of the Asset Management Team will pair with EMA consultants to meet various stakeholders in the

organization prior to the assessment workshops to explore and understand the current situation with respect to the assessment questions.

The assessment questions will be scored and commented on by the DWSD Asset Management team members in a group setting. All questions will be read aloud and then discussed, clarified and responded to by the team members. Scores and key notes will be captured by EMA during the workshop.

The assessment scores are presented for each statement and all notes are also included. At the end of each assessment section, the score will be tabulated in a graph format. All responses that are identified as "Critical" are flagged to show where urgency exists.

7.1.3 Framework

The Assessment will result in the identification of actions that need to be taken to close the assessment gap and to address real and meaningful issues identified by the Asset Management team members during the assessment progress. Due to the typical vast number of recommendations, the varying priorities of the recommendations and the need for foundations or more evolved practices, the summarized recommendations will be placed in a table to create a larger unified framework.

The development of the framework is generally broken down into three stages, 1) Know the standard, 2) Meet the standard and 3) Set/Create the standard because it is understood that evolution over time is needed to reach the desired end goals. The framework is generally also further broken down into project groupings and specific competencies as follows:

- Program Management
  - Asset Management Organization
  - Communication
  - Performance measures
- Technology and Data
  - Technology systems
  - Data capture
- Maintenance and Resource Management
  - Asset Data
  - Work Management
  - Resource Management
- Material Management
- Reliability and Condition Assessment
  - Reliability Management
  - Asset Condition
- Asset Life Cycle Management
  - Asset Remaining Life
  - Customer level of Service
  - Capital Improvement Plan
  - Asset Management Plan

The result is a framework that helps align the desired outcomes from the assessment into very real and practical project activities grouped into logical project initiatives as seen below in Figure 7-1.
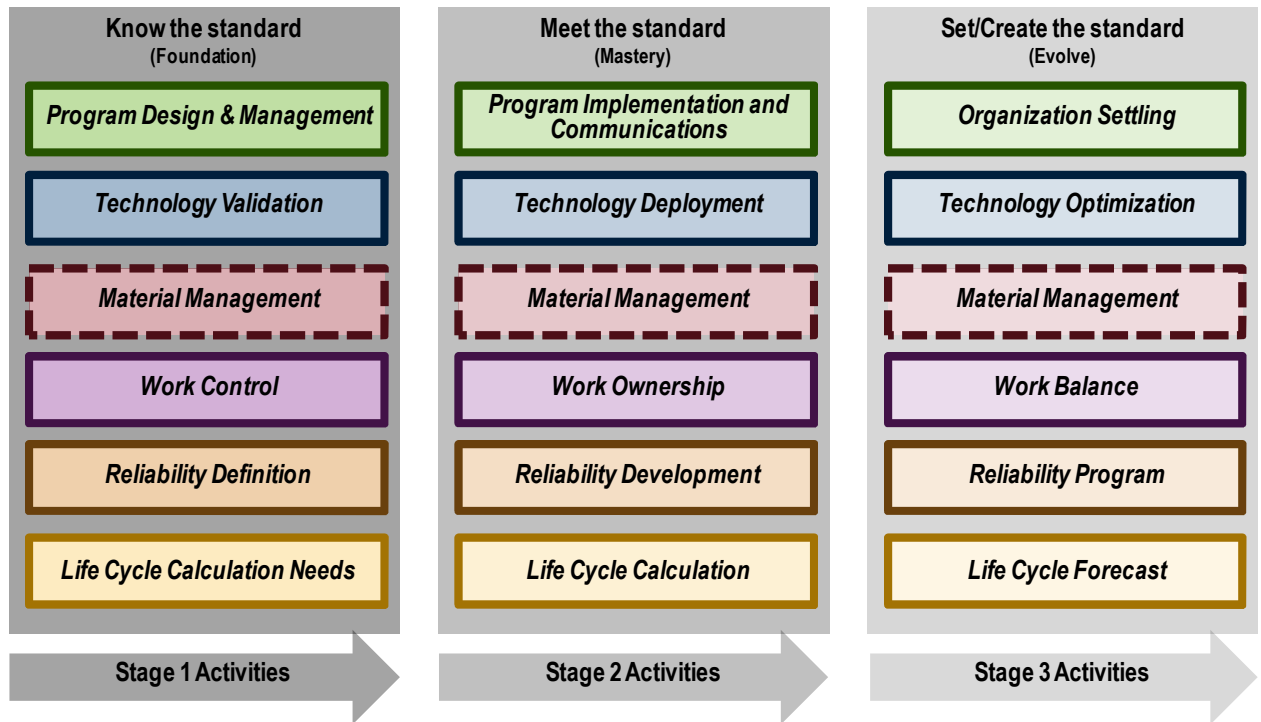

Figure 7-1: High Level Framework turned into project initiatives

7.1.4 Proof of Concept

EMA will provide a sample output of a reliability program and show it can apply to DWSD. The example will be a full Reliability Centered maintenance (RCM) report along with the maintenance and redesign recommendations. We will show how the approach can be applied at DWSD to increase your asset reliability.

EMA will also provide a proof of concept on how an asset management program uses work management information to support decision making on asset renewal and reliability. The example will show how asset age, condition, performance and reliability combined with a consequence rating, helps define the remaining useful life of the asset and thus help rank the priority of the renewal process.

7.1.5 Initiatives

In order to better understand the full scope of effort needed to develop the DWSD asset and reliability management, EMA will develop draft initiative documents for each initiative identified. These documents are structured in a common layout with the intent to expand the initiative desired outcomes, key tasks and resource requirements. Specifically they will present:

- Initiative Overview
- Priority
- Timing
- Cost Range
- Duration
- DWSD Team members
- Development / project Needs
- Project Description
- Dependencies
- Sustainability Needs
- Primary benefit statements

7.1.6 Reliability Prioritization

To better understand the reliability needs for DWSD, a high level physical assessment will be done of the core processes at each operating facility. As well, a process criticality framework will be developed based on the consequence of failure. EMA will deliver a high level ranking of the DWSD processes which have a combination of condition and consequence of failure. The results will be used to identify the Reliability program needs moving forward and the highest priority process that need to be put through a reliability improvement evaluation.

7.1.7 Deliverable

The end deliverable for this project is to provide a presentation on the findings and recommendations of the Asset Management team along with a report that identifies the initiatives required to fully develop the Asset Management Program Plan. The EMA team will, with the DWSD Asset Management team members, create and deliver a presentation that summarizes the findings and recommendations.

7.2 Asset Management Design

EMA will work with DWSD to design the Asset Management Program. The Asset Management Program will define the coordination needed between capital projects and the maintenance program. It will define high priority asset improvement projects.

Deliverable:

1. Asset Management Program Design Report

7.3 Asset Management and Reliability Program Implementation

We will work with you to implement the asset management and reliability program throughout the Department.

Deliverable:

1. Asset Management Plan for Water, Wastewater and In-ground Assets
2. Asset Management and Reliability Program implementation support

8.0 OUTSOURCING

EMA will assist the Department in procurement of the following services (with estimated annual value of):

- Non-repetitive lab functions ($1M)
- Rate Setting ($150K)
- Grounds Maintenance ($500K)
- Facilities Maintenance ($2M)
- Office Cleaning & Garbage Collection ($500K)
- Minor/Major fleet repairs ($300K)
- Payroll ($40K)
- Print Shop ($100K)

8.1 Outsourcing Analysis

EMA will develop a business case for outsourcing each of the identified service packages. The business case will be presented to and reviewed by the Steering Team. If approved, the business case would form the scope of work for proceeding with development of outsourcing procurement documents, if a 10% saving cannot be achieved through outsourcing the activity will remain in-house.

During this analysis, the services will be reviewed to determine what functions can be bundled to achieve economies of scale from a single service provider.

Deliverables:

1. Business case for each of the service packages
2. Presentation of each business case to the Steering Team

8.2 Outsourcing Procurements

EMA will develop procurement documents containing business requirements and specifications for each of the identified service packages. This will be done in a series of three workshops:

- Draft procurement document preview
- Draft procurement document review
- Final procurement document review

Develop Specifications and Procurement Documents for systems. In this step the Specifications and Procurement Documents will be presented to gain consensus on proceeding with procurement. This will be done in a workshop to present draft documents, followed by a time for

review and then a second workshop to go over comments. Review comments will then be incorporated in the final Procurement Document, which will be reviewed in the final workshop.

Within the procurement documents vendor commitment to retain displaced DWSD employees for any new staffing requirements will be included in the proposal evaluation criteria.

Deliverables:

1. Draft procurement documents for up to eight service packages
2. Final procurement documents for up to eight service packages

8.3 Outsourcing Support

Procurement Support – We will answer vendor questions, prepare addenda and facilitate evaluation of technical and cost proposals.

Deliverables:

1. Procurement support for up to eight service packages

8.4 Outsourcing Contracting Option

As an option, the functions identified for outsourcing can be included in the professional services contract and billed as a sub-contractor. To manage the set-up, invoicing and performance of the contract a 15% subcontracting fee is included. These costs are presented in section 10.

Deliverables:

1. Management of the eight service packages

The in-depth skills and strong personal commitment of the individuals on the project team will be a major determinant of project success. EMA will bring a diverse team of individuals that have been selected because their expertise matches your specific project needs. All of our team members have worked together previously, which results in a team that works well with you and adds significant value every step of the way. The organization chart demonstrates the proposed project teaming arrangements and the various roles to help you achieve your project goals and objectives. The following biographies serve as an introduction to team members.
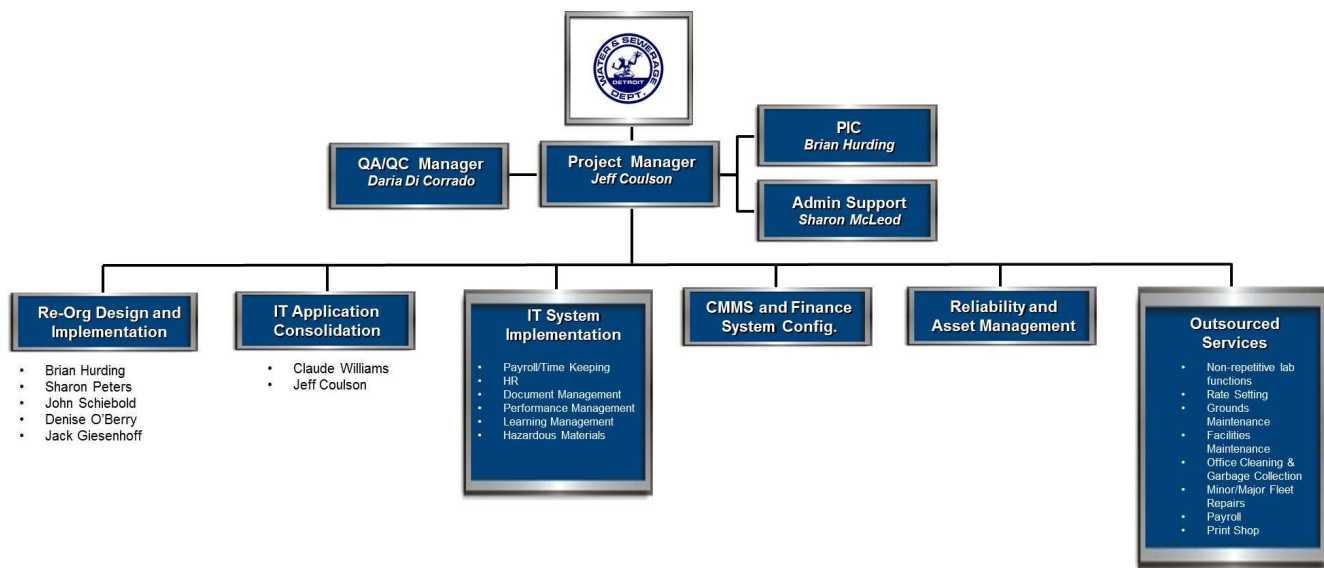
Jeff Coulson, P.E., PMP – Project Manager: Jeff has over 15 years managing instrumentation and control system, IT and change management projects. Jeff's strong technical background includes experience in assessing SCADA and process control systems utilizing multiple environments and products, software development, works management system requirements definition, configuration and implementation, and general information technology integrations and strategic planning. Jeff has successfully managed complicated multi-track, multi-contractor utility automation projects. Jeff was the project manager on the Toronto Water Technology Blueprint project which set the stage for the Toronto water and wastewater utility to embark on a multi-million dollar Plant Services SCADA Upgrade project. He was also involved in The Works Best Practices Program for the City of Toronto as well as the preparation of a five-year technology plan for the Region of Peel.

Daria Di Corrado, P. Eng. has worked more than ten years as QA/QC Manager on multiple contracts for the Water/Wastewater market including the Toronto Works Best Practices Project, their Plant Services Project, and the Toronto Water Wastewater Collection System SCADA Upgrade Project. As well she was responsible for developing and administering the WAN and LAN design and procurement for the City of Toronto's Process Control Upgrade Project.

Jack Geisenhoff, P.E., PMP: Jack has over 30 years of experience focusing on improving the operation of utilities in order to reduce costs, improve reliability, and provide environmentally safe water, air, and sludge. Conducted utility case studies, reviewed literature, and analyzed existing energy management tools to establish a framework for an AWWA Decision Support System for water system. He has extensive experience in water and wastewater management, operations and control. Prior to joining EMA, he was a manager for a large wastewater utility in Saint Paul, MN. Jack has led the design and implementation efforts for control systems at several large utilities. He also has experience in improving processes and organizations for many utilities. Jack helped create the latest version of the Staffing analysis tool in support of a similar project in Minnesota.

Frank Godin: Frank has more than 16 years experience in asset and maintenance management practices consulting, with the last 10 years specializing in water and wastewater maintenance practices and asset management program implementation. Frank developed the EMA Staffing Analysis tool and procedures, having enhanced it over the last 10 years through multiple project deliveries using the tool and redesign approach. He has written papers on the subject of staff loading and presented them at both WERF and the Utility Management Conference. Frank also brings a strong understanding of the utility industry.

Heather Haskell: Heather has seven years of experience in utility GIS database design, maintenance, and analysis. Her experience includes software installation, user support, application design and development, quality control/quality assurance (QC/QA), and project coordination. Heather is also experienced with the implementation, user support, and training aspects related to Cityworks' CMMS system.

Brian Hurding, P.Eng. – Principal In Charge: Brian has more than 40 years experience in Operations and Maintenance, specifically Plant, Public Works, Solid Waste and Fleet Operation Optimization focusing on operations, maintenance, engineering, purchasing, inventory and work management systems and management consulting. His extensive experience with Total Productive Operations/Maintenance (TPM) includes planning, designing, training, and implementing projects for manufacturers and utilities worldwide. Through the development of preventive and predictive maintenance programs, performance measuring, and benchmarking, he has significantly reduced the O&M budgets for many clients with good buy–in through involvement and participation from staff and Unions. Brian designed and implemented Best Practices for the City of Winnipeg for Water and Wastewater, achieving savings of over $42 million dollars over 10 years. Brian is Practice Lead for implementing best practices in the City of Toronto for Water and Waste Water. Brian has been with EMA for 17 years.

Denise O'Berry: Denise has over 25 years of experience in organization effectiveness consulting in public, private, and non-profit sectors. Her expertise includes human resources best practices, strategic planning, succession planning, organization redesign, workforce development, change management, organizational performance measurement, leadership coaching and development, team building, communication, and group process development. In addition, Denise was a member of the research team for the AwwaRF project *Strategies to Help Drinking Water Utilities Ensure the Effective Retention of Knowledge.*

Sharon Peters: Sharon has 23 years of experience in utility operations and environmental management. Sharon combines a strategic perspective with technical expertise and exceptional interpersonal and communication skills to achieve corporate goals. She is a strategic thinker and effective change manager who can motivate and integrate work groups to deliver results. As Operations Superintendent, Sharon led commissioning of Canada's largest drinking water filtration plant under a high pressure timeline and met Metro Vancouver's commitment to provincial medical health officers and the International Olympic Committee to deliver clean, safe filtered drinking water to all Olympic venues throughout the 2010 Winter Olympic Games.

John Schiebold, PMP: John is a Senior Project Manager with over 15 years of experience in the design, development, and implementation of technological solutions for municipal clients. John is also a certified Project Management Professional (PMP). Much of his experience has been focused on GIS solutions. In addition to GIS, John has led several large CRM (311) implementations, as well as integrations with Customer Information Systems, Work Management Systems and other key business systems. John focuses on understanding a municipality's business needs for the technology and then tailoring technical solutions to address those needs as precisely as possible.

Claude Williams, P.E.: Claude is a Senior Consultant with EMA. Claude has more than 30 years' experience in the Water/Wastewater industry and has managed and completed numerous Strategic Technology Plans and SCADA Master Plans. Claude has also contributed to manuals of practice for instrumentation for WERF and was also a member of the Instrument Testing Agency.

10.1 Project Costs

The project costs are presented below for the Phase II and III activities, each major track is presented along with program management and expenses.

Task	Cost
Program Management of EMA Activities	$2,186,817.00
Re-Organization Design and Implementation	$4,200,000.00
IT Master Plan and Consolidation	$1,000,000.00
HR/Payroll System	$1,178,780.00
IT Systems	$1,900,000.00
CMMS and Finance System Updates	$3,500,000.00
Reliability and Asset Management	$1,750,000.00
Outsourcing Analysis and Procurement	$1,050,000.00
Sub Total EMA Professional Services	$16,765,597.00
Outsourcing Contracts and Management	$21,114,000.00
Subtotal	$37,879,597.00
Contingency (20% of Subtotal)	$7,575,919.40
Expenses on EMA Professional Services (15%)	$2,514,839.55
Total	$47,970,355.95

Table 10-1 – Project Cost Summary

10.2 Project Benefits

Through the phases of the program, the Job Redesign and flexible team implementation will allow for staffing reductions through attrition, re-assignment or retirement. Some initial staff savings will be realized in the first year, but the majority would be available at the end of the Department Wide implementation at the end of 2014. The potential for staff reduction is identified as 1,144 positions with targeted savings of $98.5 Million annually. The technology items identified in the four new IT systems and the updates to the CMMS and Financial Systems are necessary to support the new organization.

Targeted net savings for outsourcing of non-core business activities are estimated of $27.8 Million. A cost benefit of at least 10% is required from the business case analysis to implement outsourcing of the function. Both the Job Design implementation and Outsourcing will reduce the requirement for fleet vehicles and with targeted savings of $3.6 million annually.

The control system upgrades to support the reduction in energy and chemicals and the further reduction of staff through less attended automation are not included in this contract and represent additional savings of $16 Million annually that can be achieved in a subsequent effort.

10.3 Schedule and Cash Flows

The project will last approximately 60 months from initiation. Given a start date of October 1st, the project will be completed in September of 2017, with the final Job Descriptions and levels available on March 29th, 2013. The schedule (Figure 10-1) and estimated cash flows by calendar year is presented below;

| Year	Professional Services Cash Flow	Outsourcing Cash Flow
2012	$1,412,581.08	$0.00
2013	$6,433,459.92	$1,429,593.75
2014	$5,913,430.77	$5,740,368.75
2015	$3,633,337.15	$5,740,368.75
2016	$1,693,863.46	$5,740,368.75
2017	$584,090.86	$2,463,300.00
Total	$19,670,763.24	$21,114,000.00

Table 10-2 – Project Cash Flow Summary

The project cash flows do not include any contingency funds.

If there are any questions regarding the pricing or staff assignments, EMA can meet to discuss any aspects of the proposal and costing.

Figure 10-1 Project Schedule
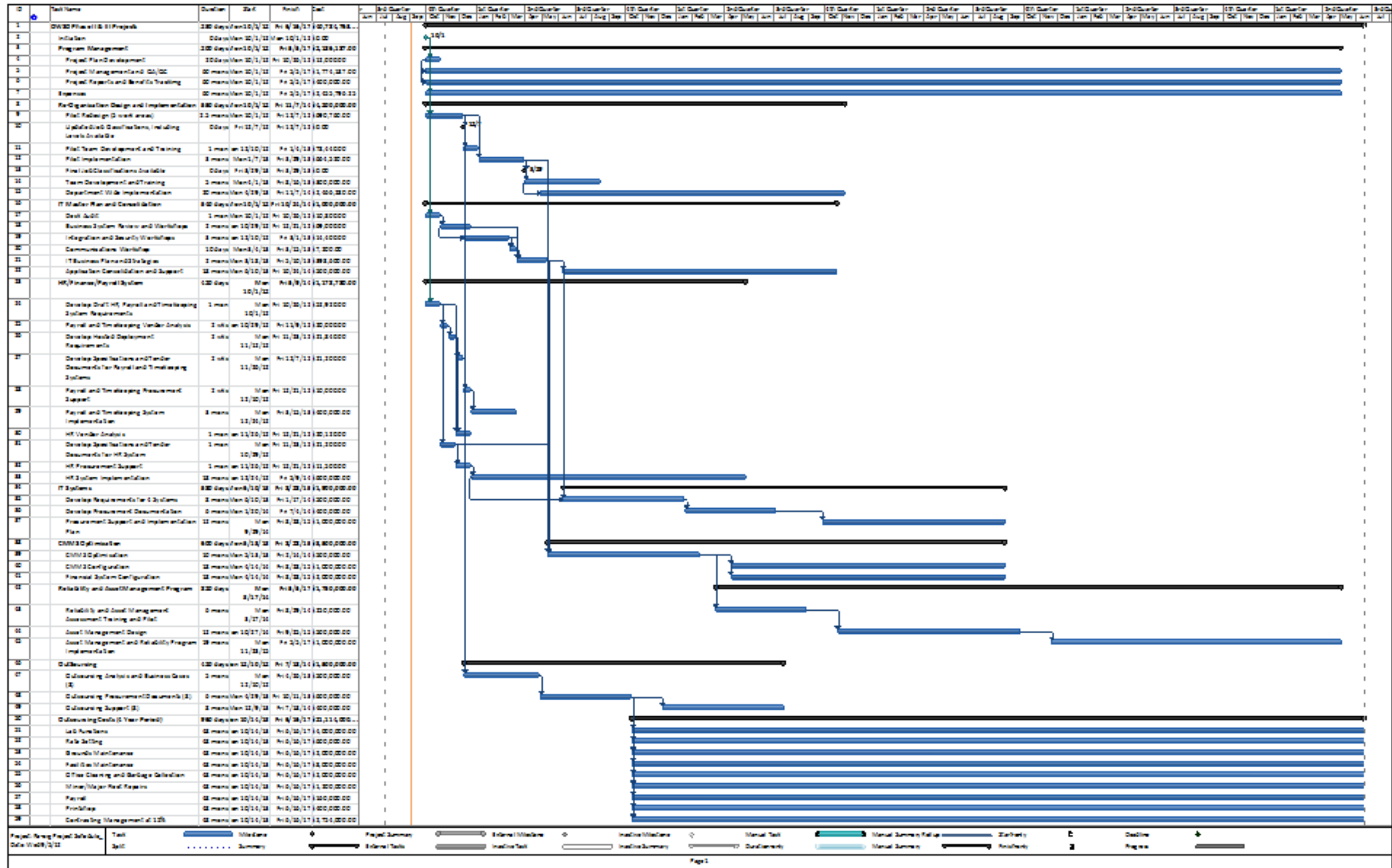
LEADERSHIP, INCLUSION AND MANAGING FOR RESULTS KEY TO PHASE II AND III SUCCESS

Phase II and III success will depend on leadership, inclusion and managing for results. EMA will:

- Lead the teams to meet the challenges of Organization Re-Design and supporting technology upgrades
- Include everyone so they have a stake in the Department's success
- Manage for results so that targets are met

These principles are embedded throughout our approach and produce the following major benefits:

- Best value/lowest overall implementation cost
- Best practices implementation that achieves 140 million/year reduction
- Transformation to self-sufficiency, pride and accomplishment

BEST PRACTICES, SELF-SUFFICIENCY ACHIEVED WITH EMA APPROACH

People learn new ways of thinking and new ways of working through experience. Our approach recognizes this and drives forward using the implementation of "work areas", where teams are established, performance is the focus and new *practices* start the ball rolling towards improvement. *Technologies* are brought on board in the work areas when staff needs and wants them and *organization* is a fundamental enabler to setting up effective teams, developing skills, career planning and determining compensation and rewards.

As we move towards implementation, more people are involved in the process and the cone of influence grows with time (*Figure 11-1 below*), winning over more supporters for the program anchoring the new best practices behaviors into the culture of the DWSD.

Change Management

EMA will assist DWSD in implementing an effective change management strategy for preparing, managing and sustaining the organization optimization.

EMA will work with the DWSD Steering Team to facilitate and sustain a culture of change in support of the ongoing program. The team will be to listen for employee feedback about the program and work with EMA and the Job Design Teams to develop and implement a communications plan for implementing the Job Design changes.

EMA will prepare a draft communication plan that will further be collaboratively developed and implemented by the Steering Team.

The effect of new job design is a reduction of $140 million per year. Indications from the initial work suggest that this is definitely achievable. Annual reductions of $23 million have already been "booked" as a result of workforce reductions – without reductions in quality of service. The magnitude of cost reductions, the potential to realize them in a short time and the evidence that the targets can be reached, make the program one of the best business improvement initiatives ever undertaken by DWSD. Accumulated savings by 2022 will exceed $0.7 billion.

The basis for meaningful, permanent change is interwoven throughout the elements of our project by way of our paradigms, or behaviors, that are typical of a best practice organization, as demonstrated in Figure 11-1. These eight paradigms have been the focus for the Assessment and the organization redesign activities in Phase 1 of the program.

Figure 11-1: Best Practices Concepts

Each of the eight Best Practices is described briefly below:

- ***Total Productive Operations (TPO) Enables Effective Achievement of Common Goals:*** Using TPO, there will be less distinction between and among various jobs and tasks. Everyone will be working on the same team towards common goals, with a full workload throughout the day. This means everyone is working at maximum productivity.
- ***Program-Driven Work (PDW) Maximizes Productivity and Reduces Costs:*** Program-driven work maximizes productivity and can reduce the cost of maintenance by up to 40 percent. It is based on problem prevention, and will help you get the right plans, skills, tools, and parts, which improves productivity significantly.
- ***Less Attended Facilities Saves Substantial Labour Resources:*** The best operators in North America maximize the use of technology to minimize labour cost. Less attended facilities, when supported through technology, save substantial labour resources. In the case of the collections distribution area, this can be mobile communications for the crew

supervisors so that they do not have to be tied to the office to download work plans or plan and schedule new work.

- **Workforce Flexibility (WFF) Maximizes Productivity:** WFF can enhance productivity by up to 40 percent by cross-training and multi-skilling staff. WFF increases the value of a worker's time on the job, and enhances career development leading to improved employee morale and job satisfaction.
- **Technology as Strategy – Technology is Essential in Minimizing Costs:** The best operators use technology to provide enterprise wide information and minimize costs. They systematize information so people can share it and work together to re-engineer the way they do work.
- **Organization as Strategy - Flexible Organization Creates Empowerment:** Changes in large and small organizations are being accomplished through new approaches. Removing organization barriers, and becoming more team-based empowers an organization.
- **Customer as Advocate Program Yields Spontaneous and Positive Public Support:** By viewing customers as partners in delivering the best possible value, soliciting proactive feedback and anticipating customer needs into the future.
- **Assets as an Investment:** Minimize initial investments and invest in assets with the lowest life-cycle ownership costs that meet your service level objectives. Put in place now the financial policies that will ensure the integrity of your infrastructure well into the future.

Transformation to Self-sufficiency

The most important aspect of developing an organization that drives toward self-sufficiency is creating a natural learning environment where everyone strives to set the right example and show the right behaviors. In other words, build an environment where everyone "walks the talk" of new ways of doing business.

EMA Accountability, Flexibility, Proven Experience Minimize Risk for DWSD

Partnering Options Provide Choices for Program Implementation

Keeping results on track with the DWSD objectives will require strong joint decision-making and joint accountability across the project teams. All professional services firms, contractors and City staff need a clear understanding of their roles and responsibilities in the program. They also need a clear understanding of their levels of authority in decision-making.

Flexibility to Respond Immediately to Changing Needs

EMA has the resources on the field or on the bench to immediately respond to all challenges faced by the Department. This includes the challenges in Phase 2 and any new challenges that can be anticipated as the Program accelerates into implementation.

The best response to changing business needs is a proactive strategy that anticipates, drives and shapes the future. This strategy results in "Program-driven" business changes. Members on our team have helped shape the water and wastewater industry in North America over the past 37 years by being first to anticipate industry needs. Underlying this strategy is our team's ability to respond to all challenges creatively and decisively.

Proven Experience: Partnering with Industry Leaders is Only Option

Second best isn't good enough. There is no room for compromise in Phase 2. To be the leader in the water and wastewater industry you need to partner with the leader that can get you there. EMA is that leader. The experience summary shown below highlights the proof of leadership, the policy of inclusion and the achievement of results so critical to the success of this Program.

Building on Phase 1:

Phase 1: Experience Provides Valuable Input for Phase 2 Success

- *Momentum plays an important role.* Long periods of uncertainty and instability in the plants reduce morale and increase resistance, making implementation difficult. We know that once implementation begins in a plant, it needs to proceed quickly across the whole plant, with substantial implementation support available, to transition quickly and achieve some stability with the new people, jobs and practices.
- *Clear achievable targets are important.* Without specific targets set jointly with management, plants staff are not clear on what to expect from the project teams, and what is expected from them. Plant implementation teams need these targets, and the authority to coordinate the resources and assistance they require to achieve those targets.
- *Significant amounts of project management effort are required to remove roadblocks.* The project team needs to accept this reality, remain flexible, plan for contingencies, design flexible responses.
- *Integration requires leadership, talent and diligence.* Careful design of various teams' membership, responsibilities and lines of communication will be essential to coordinate efforts and ensure integrated results.
- *Too much communication is impossible.* There needs to be commitment of resources to improve communications with employees, unions, management teams, Board of Water Commissioners and Council to promote understanding, increased acceptance and reduce resistance. This would involve more face-to-face communications by leaders with field staff.
- *Communication needs to be more than merely factual.* There must be a continuous communication and interpretation by senior staff – constantly "walking and talking" the Program vision and goals to all stakeholders.
- *This is not the kind of change process that can be "buttoned down".* Project planning and managing needs to be extremely flexible within business-driven milestones. This means managing to a single, high level, integrated milestone plan focused on achieving benefits targets.

- *Difficult decisions need to be made by Department managers to stay on track.* Time must be set aside, appropriate forums at several levels must be created, and experienced experts are needed to challenge managers and staff with new ways of thinking, working and decision-making.