

Management Study of the Capital Project Management Process

CITY OF MILWAUKEE, WISCONSIN

matrix 
consulting group

101 Southpointe Drive, Suite E
Edwardsville, IL 62025
t.618.692.9085 f.618.692.9086

October 23, 2007

TABLE OF CONTENTS

Section	Page
1. INTRODUCTION AND EXECUTIVE SUMMARY	1
2. PROFILE OF CAPITAL BUDGET MANAGEMENT OF DPW	9
3. SUMMARY OF THE EMPLOYEE SURVEY	33
4. BEST PRACTICES ANALYSIS	46
5. ANALYSIS OF THE USE OF TECHNOLOGY AND REPORTING	54
6. ANALYSIS OF POLICIES AND PROCEDURES	72
7. ANALYSIS OF PUBLIC WORKS DEPARTMENT MANAGEMENT OF CIP PROJECTS.	84
ATTACHMENT A – EMPLOYEE SURVEY	124
ATTACHMENT B – BEST MANAGEMENT PRACTICES	128
ATTACHMENT C – AIM REPORT – CAPITAL PROJECT REPORTING	141

1. INTRODUCTION AND EXECUTIVE SUMMARY

1. INTRODUCTION AND EXECUTIVE SUMMARY

This initial chapter of the report introduces the approaches utilized in this study and summarizes key findings, conclusions and recommendations to be found in this report.

1. INTRODUCTION TO THE REPORT

The Matrix Consulting Group was retained by the City of Milwaukee, Wisconsin to conduct a review of the Capital Budget Management Process, including a review of the policies, procedures and approaches utilized in organizing, developing, managing and implementing capital projects in the Department of Public Works. The review also included a review of the procedures utilized within the Budget Office. In reaching the conclusion of the study, the project team has assembled this final report, which summarizes our findings, conclusions and recommendations.

2. STUDY METHODOLOGY

In this Management Audit of the City of Milwaukee's Capital Budgeting Process, the Matrix Consulting Group project team utilized a wide variety of data collection and analytical techniques. The project team conducted the following data collection and analytical activities:

- At the outset of the project, the study team interviewed the key members of the Management Team from DPW and the Budget Office, representatives of the Mayor, representatives from the Comptroller's Office, and several members of the Common Council. The purpose of these interviews was to develop an initial understanding of the issues and background which led to this study.
- The project team conducted an intensive process of interviewing staff in various divisions of DPW to gain an understanding of the current organization. These interviews included staff at every level in the organization – managers, supervisors and line staff.

- In order to maximize the employee input into this study, the project team distributed a confidential employee survey which every employee in DPW involved in capital project management had the opportunity to fill-out and return to the project team. About forty-five percent (45%) of the Department's employees took this opportunity to provide input through the survey.
- While on site, the project team collected a wide variety of data designed to document workloads, costs, service levels and operating practices.
- The project team developed descriptive summaries, or profiles, of each division of DPW involved in capital project management – reflecting organizational structure, staffing, workloads, service levels and programmatic objectives.
- In order to make the assessments of operational strengths and improvement opportunities, the project team developed a set of performance measures, called "best management practices" against which to evaluate current services, workloads and service levels for the capital budget process in the City of Milwaukee. The performance measures utilized represent the following:
 - Statements of effective practices based on the study team's experience in evaluating operations in other cities. These measures are both qualitative and quantitative.
 - Where they exist, statements reflecting industry standards were used to incorporate commonly utilized procedures and approaches in addition to targets developed by national research organizations.
 - In both instances, these measures of efficiency and effectiveness were selected and adjusted to reflect the unique operating and service conditions in Milwaukee.

The best management practices analysis was a critical task in our approach – organizational strengths were identified in that document as well as minor issues which were not dealt with in this report. This report focuses on the most significant issues related to the capital budgeting process in the City of Milwaukee.

3. SUMMARY OF KEY RECOMMENDATIONS.

The following table provides a summary of the key findings and recommendations contained within this report. Recommendations are listed in the

order they appear in the report. The suggested timeframe for implementation takes into consideration the relative priority of the item and the ability to implement. Some items, while perhaps higher priority for improvement, can only be implemented after certain other recommendations have been implemented or after funds have been budgeted for this purpose.

Section	Recommendation	Management Responsibility	Suggested Timeframe
5.1	The City of Milwaukee should acquire financial planning, budgeting and project costing software that will integrate with the existing FMIS system.	Budget Office / DPW / IT	2008 and ongoing
5.1	The City should undertake an RFP process to solicit software solutions and evaluate selection based upon functionality, cost and ability to integrate with the existing FMIS.	Budget Office / IT / Comptroller / DPW	2008 and ongoing
5.2	Modifications to the current expenditure accounting system should be implemented to increase the functionality of the system for users by allowing funding year designation, allocation of capital revenues by project, and the assignment of unique project identifiers to each project.	Budget Office / DPW / IT Comptroller	2008 and ongoing
5.3	The Department of Public Works should continue progress on transferring information from the various database programs to the new platform and providing a consistent and uniform approach for data collection.	DPW	Ongoing
5.4	Budget, Council and Comptroller staff, as appropriate, should also be provided access to Public Works data on the internal system..	DPW	2008

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Section	Recommendation	Management Responsibility	Suggested Timeframe
5.5	The reports generated for the AIM Initiative should be gradually increased to include a greater percentage of DPW capital projects with a goal of developing these reports on all active capital projects on at least a semi-annual basis and providing them to the Budget Office, Mayor's Office and the Common Council.	DPW	2008
5.5	The AIM status reports should be developed monthly on those projects that have been identified as atypical or high risk to provide a greater level of review and oversight.	DPW	2008
5.5	Revisions to the format and information presented in the AIM reports should be made to increase their effectiveness in monitoring project status and informing reviewers of critical information.	Budget Staff/DPW	2008, 1 st Half
5.6	DPW should prepare a quarterly "special exception report" that outlines those capital projects that are deviating by more than 15% from the original project budget and schedule for any phase of the project.	DPW	2008
5.6	Budget Office Staff should meet with DPW staff on a semi-annual basis to review project status reports to discuss each year CIP requests and status.	Budget Office	2008
6.1	Budget staff should work and train departmental staff on the completion of capital improvement request forms and require that all forms be fully completed upon submittal.	Budget Office	2008
6.1	The Capital Improvement Request Forms should be revised to provide additional information on specific projects included within parent account submissions.	Budget Office/DPW Admin	2008

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Section	Recommendation	Management Responsibility	Suggested Timeframe
6.1	A risk factor rating should be added to the Capital Improvement Request Forms. All projects identified as atypical/high risk should have a narrative description of the potential risks and the efforts taken to minimize risks to the City.	Budget Office	2008
6.2	As part of the annual CIP development, the Public Works Department should review and sign-off on all estimates as appropriate for continued use (or prepare and present new project estimates) for all projects moving from year 2 to year 1 of the CIP.	DPW	2008, 2nd half
6.2	As part of the annual CIP preparation, all project completion schedules for the current year of CIP to be adopted should be reviewed for continued appropriateness for use. Staff resource allocations, and project scheduling assumptions should be reviewed to ensure they continue to form a sound basis for budgeting purposes.	Budget Staff/DPW	2009
6.3	Projects added or deleted from a program during the year should be clearly communicated to the Mayor, Council and OMB; including details on the reason added/eliminated, impact on program funds, and new schedule for completion, if appropriate.	DPW Director	2008
6.4	All capital projects should be reported on a total cost basis including all components of the project and all allocated funds without regard to categorization or program funding source.	DPW Director / Budget Office	2008
6.5	All capital funds for a particular budget year should be reviewed, as part of the budget close out process, to determine options for reprogramming unallocated and unencumbered funds. Funds unallocated to a specific project and non encumbered, should be "washed" into a capital project reserve (within statutory limitations).	Budget Office / DPW	2008

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Section	Recommendation	Management Responsibility	Suggested Timeframe
7.1	Responsibilities for managing the capital improvement program by the Infrastructure Services Division should be clarified with specific roles and responsibilities identified.	City Engineer	2008
7.2	A thirty-six month bar chart schedule should be prepared for all capital projects that will be designed and scheduled by the Infrastructure Services Division.	Administration and Transportation Design Manager	2008
7.3	A design authorization form should be completed before commencement of design that includes relevant project information covering the entire project.	City Engineer	2008
7.4	The Infrastructure Services Division should develop cost of construction guidelines to document and estimate staff resource requirements for the design and inspection of capital projects.	City Engineer	2009
7.5	Billability targets should be established for staff of the Infrastructure Service Division involved in CIP project design and management.	City Engineer	2008, 2 nd half
7.6	The City of Milwaukee should utilize a Request for Qualifications, every other year, to pre-qualify consulting firms for placement on a Master Contract Listing.	City Engineer	2008
7.6	The City Engineer should implement a consulting engineer evaluation system and utilize this rating system as part of the final project close-out.	City Engineer	2008
7.7	The Infrastructure Services Division should develop a comprehensive and up to date project management manual and train all employees assigned as project managers in its use and application.	City Engineer	2008

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Section	Recommendation	Management Responsibility	Suggested Timeframe
7.8	The Infrastructure Services Division should prepare a monthly progress statement regarding each capital project for customers. These reports should be distributed to all customers of the department and published on the departmental website.	Project Managers	2008
7.9	The Infrastructure Services Division should complete a formal final report including a project analysis of the positive and negative aspects of the completed capital improvement project. All final reports should be completed within six months of project completion.	Project Managers	2008
7.10	Changes should be implemented in the handling of capital project budget contingencies. A total project contingency of 10% should be allocated to each capital budget as a funded line item within the project.	Budget Office	2008
7.10	The project contingency should be allocated within the project budget to each phase of the project.	DPW Director / Budget Office	2008
7.10	Project contingency funds necessary in excess of the 10% budget should be approved by the Common Council in advance of expenditure obligation	DPW Director / Budget Office	2008
7.11	An annual review and summary report should be developed that compares, for all projects bid during the year, the sufficiency and accuracy of the estimates utilized. The report should identify the number of projects bid that were under estimate and over estimate and the percentage deviation. This report should be utilized to determine necessary changes in the estimating process and procedures utilized.	DPW Director	2008
7.12	The Public Works Department should revise its procedures and data collection to enable it to distinguish between change orders based on the underlying cause (scope change or quantity variation).	DPW	2008, 1 st half

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Section	Recommendation	Management Responsibility	Suggested Timeframe
7.13(4)	The Engineering and Design functions of Public Works should be consolidated into a centralized unit reporting to the City Engineer.	DPW	2008
7.13(4)	The costs for providing engineering and design services for Water Works projects should be monitored and charged back to the Water Works Division.	DPW	2008
7.13(5)	Staffing levels in the Public Works Department for Capital Project implementation are currently at an appropriate level based upon current annual work plans and cost of construction guidelines. Some internal reallocations are appropriate. Vacant positions in engineering, design, and inspections should be reviewed for continued necessity prior to being filled.	DPW Director	2008 - 2009
7.13 (6)	A project analyst position should be added to the City Engineer's Administration Unit to assist with project reporting and quality assurance programs.	DPW Director	2008 - 2009

2. PROFILE OF CAPITAL PROJECT MANAGEMENT OF THE PUBLIC WORKS DEPARTMENT

2. PROFILE OF CAPITAL PROJECT MANAGEMENT OF THE PUBLIC WORKS DEPARTMENT

As part of the Matrix Consulting Group's best practices review of capital project management of the Public Works Department, this profile presents the summary profile of current Public Works Department organization and operations as it pertains to capital project planning, design, construction, and accounting. For each of the divisions of the Public Works Department, the project team presents summary information regarding the following:

- Organizational charts showing authorized staff positions and reporting relationships; and
- Key staff roles and responsibilities.

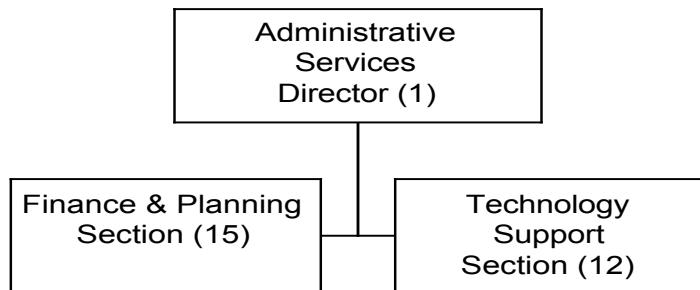
This information was developed through interviews with Departmental staff in each division, review of various budget documents and financial reports, and other documents relating to the organization, workload activity, personnel job descriptions, personnel schedules and assignments, etc.

1. PUBLIC WORKS ADMINISTRATION DIVISION

This chapter presents a descriptive profile of the Administration Division of the Public Works Department. The Public Works Administration Division is responsible for management of several divisions within the Department of Public Works, including Infrastructure, Operations, and Water Works. It should be noted that only those positions that have a relevant affect on capital project planning, design, construction, and accounting have been analyzed during the preparation of this profile.

(1) Organization

The organization of this division is shown by the following organization chart, which also includes the number of authorized positions for each classification.



(2) Personnel Roles and Responsibilities

The following table provides a summary of the key roles and responsibilities for the Financial and Planning Section and the Technology Support Section.

Function	Staffing By Classification		Roles and Responsibilities
Administrative Services	Administrative Services Director	1	<ul style="list-style-type: none">Provides direct oversight to the administrative services division, which includes the finance and planning section, Public Works Department Information Center (Call Center), payroll section, technology support section and the parking, towing, and enforcement section.Coordinates all financial activities including the departmental budget, payroll, and accounting activities.Reports directly to the Public Works Commission.Staff provides accounting summary reports to project managers regarding capital projects
Administrative Services/ Finance & Planning Section	Finance & Planning Manager	1	<ul style="list-style-type: none">Assists in the administration of the various sections that report to the Administrative Services Director.Assists in the coordination of all financial activities including the departmental budget, payroll, and accounting activities.Assists with other special projects as assigned by the Director. Reports to the Director.

Function	Staffing By Classification		Roles and Responsibilities
Administrative Services/ Finance & Planning Section (Cont.)	Public Works Accounting Manager	1	<ul style="list-style-type: none"> • Responsible for the proper accounting of project funds expended, including accounting for funds expended by program area. • Responsible for verification of funds availability prior to the approval of change orders. • Oversees inventory purchasing for the Public Works Department staff.
	Program Assistant	1	<ul style="list-style-type: none"> • Tracks and enters change order data into software system.
	Business Operations Manage	2	<ul style="list-style-type: none"> • Provides assistance to the Manager for coordination of financial activities including budget, payroll, and accounting. • Provides accounting support of capital projects primarily for building related capital projects. • Provides detail additional backup for capital projects as requested by Public Works sections. • Responsible for assisting in the preparation of departmental budget and day to day accounting functions.
	Inventory and Purchasing Manager	2	<ul style="list-style-type: none"> • Oversees inventory purchasing for the Public Works Department staff

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

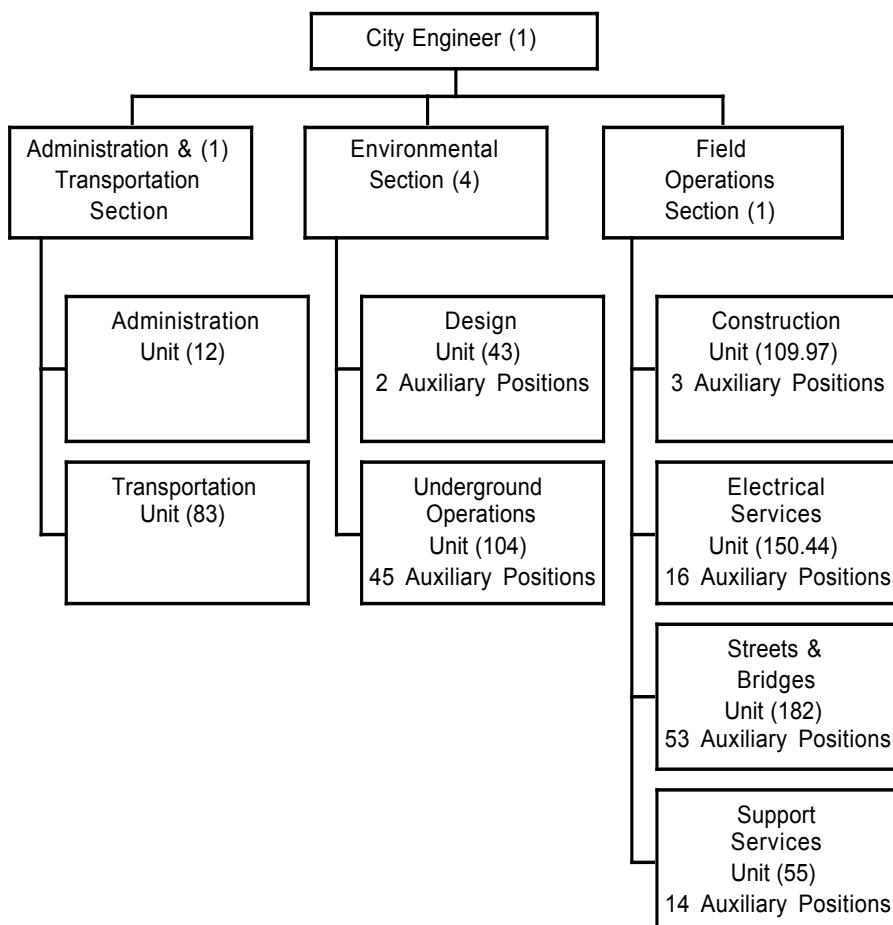
Function	Staffing by Classification		Roles and Responsibilities
Administrative Services/ Finance & Planning Section	Mgmt & Acct. Officer	1	<ul style="list-style-type: none"> • Responsible for verification of funds availability prior to the approval of change orders. • Assists with and oversees financial accounting functions. • Responsible for the proper accounting of project funds expended, including accounting for funds expended by program area.
	Business Services Spec	1	<ul style="list-style-type: none"> • Provides administrative support to the Section Manager.
	Accounting Assistants	5	<ul style="list-style-type: none"> • Entry of all payables into FMIS system for approval and check issuance.
	Business Operations Manager	1	<ul style="list-style-type: none"> • Assists in the coordination of financial activities related to budget, payroll, and accounting related activities. • Provides accounting support of capital projects primarily for building related capital projects. • Provides detail additional backup for capital projects as requested by Public Works Department sections.
Administrative Services/ Technology Support Section	Network Planning Manager	1	<ul style="list-style-type: none"> • Planner for conduit communications for the Department of Public Works. • Coordinates and negotiates underground utilities use of underground conduit. • Supervises, evaluates, and directs work activities of the Technology Support Section. • Oversees a staff of eleven.
	Telecommunications	4	<ul style="list-style-type: none"> • Responsible for the maintenance of Public Works Department telecommunications systems, including networks, PCs, website, and development of internal software systems.
	Systems Analyst	1	<ul style="list-style-type: none"> • Maintains Public Works Department servers, systems, and internal communication networks.
	Network	2	<ul style="list-style-type: none"> • Assists with conduit and underground utility work plan development, review, and oversight.
	Electrical Engineer	1	<ul style="list-style-type: none"> • Develops, maintains and troubleshoots Public Works Department databases. Prepares special reports as needed.
	Communication Fac Engineer	1	
	Engineering Drafting Tech	1	
	Database Specialist	1	

2. INFRASTRUCTURE SERVICES DIVISION

The Infrastructure Services Division spans a variety of functions including the Administration and Transportation Section, the Environmental Section, and the Field Operations Section. It should be noted that only those positions that have a relevant affect on capital project planning, design, construction, and accounting have been analyzed during the preparation of this profile.

(1) Organization

The organization of this division is shown by the following, which also includes the number of authorized positions for each unit:



(2) Personnel Roles and Responsibilities

Function	Staffing By Classification		Roles and Responsibilities
Infrastructure Services Division / Administration	City Engineer	1	<ul style="list-style-type: none"> Provides administrative oversight over the Infrastructure Services Division, which includes the Administration and Transportation Section, the Environmental Section, and a Field Operations Section. Responsible for management and oversight of all capital projects outside of Water and Sewer. Responsible for approving and signing off on all change orders to projects. Approves annual work programs based upon staff recommendations. Oversees the following Public Works Department Sections: Administration and Transportation, Environmental, and Field Operations.
Infrastructure Services Division/Administration & Transportation Section	Administration & Transportation Design Manager	1	<ul style="list-style-type: none"> Responsible for project oversight and administrative control of projects. Reviews and/or prepares Council Communications regarding capital project budgets and changes. Oversees project design functions and general capital budget administration for Infrastructure Services. Assists in resolving issues related to approved projects. Serves as Acting City Engineer as required.
Infrastructure Services Division / Business Operations	Mgmt & Accounting Officer	1	<ul style="list-style-type: none"> Provides project related support to various capital projects including traffic control, streetlights, bridges, underground conduit, streets and sidewalks.

Function	Staffing by Classification		Roles and Responsibilities
Infrastructure Services Division / Business Operations (Cont'd)	Administrative Specialist-Senior	1	<ul style="list-style-type: none"> • Prepares payments to contractors for Accounts Payable. • Prepares monthly accounting reports for capital projects to managers. • Prepares billing for state and federal capital project reimbursement.
	Accountant II Accounting Assistant	1 1	<ul style="list-style-type: none"> • Provides project related support to various capital projects including traffic control, street lights, bridges, underground conduit, streets and sidewalks. • Prepares payments to contractors for Accounts Payable. • Prepares monthly accounting reports for capital projects to managers. • Prepares billing for state and federal capital project reimbursement. • Set-up of project account codes into financial system. • Prepares change order paper work for Public Works Commission. • Encumbers projects budgets and change orders.
Infrastructure Services Division/Administration & Transportation Section/Information Systems	Engineering Systems Analyst Engineering Systems Specialist	1 1	<ul style="list-style-type: none"> • Provides IT support to the Infrastructure Services Division. • Provides programming support to four primary systems related to estimating, projects, construction, and special estimates. • Assist division in upgrading of systems to web based system versus d-based. • Provides hardware support to approximately 300 workstations. • Responsible for oversight of development of new software applications for Capital Project Management.

Function	Staffing by Classification		Roles and Responsibilities
Infrastructure Services Division/Transportation Section/Project Programming	Management Civil Engineer-Sr.	1	<ul style="list-style-type: none"> • This unit is responsible for the management of the street paving program related to 1,400 miles of streets and 19,000 street segments located throughout the City. • Assists in the determination of which street and sidewalk capital projects will be funded each fiscal year. • Oversees the Estimates Unit, which determines the projected cost of each project. • Oversees the Programs & Assessments Unit, which assesses capital projects fees to homeowners who benefit for capital projects.
	Civil Engineer III	1	<ul style="list-style-type: none"> • Maintains the Pavement Management Program for the City. • Reviews data collected by consultants every 5 years to update status of street composition. • Works with utilities to ensure coordination of projects.
	Office Assistant IV	1	<ul style="list-style-type: none"> • Provides general office administrative assistant in the unit. • Maintains files, assists with paperwork and provides support to office staff.
Infrastructure Services Division/Transportation Section/Estimates	Engineering Tech VI Engineering Tech IV	1 5	<ul style="list-style-type: none"> • Projects estimated costs of street paving projects once received from design engineers and central drafting. • Monitors construction costs and various factors affecting project expenses.

Function	Staffing by Classification		Roles and Responsibilities
Infrastructure Services Division/Transportation Section/Programs and Assessments	Assessment Tech II	3	<ul style="list-style-type: none"> Provides accounting support related to assessments related to street and sidewalk capital projects so that homeowners can be assessed fair share of improvements. Responsible for researching homeowners affected by street and sidewalk capital projects. Notifies and prepares billing for residents positively affected by improvements.
Infrastructure Services Division/Transportation Section/Major Projects	Mgmt Civil Engineer Sr.	1	<ul style="list-style-type: none"> Oversees the State Paving/Bridge Projects Unit and the Liaison & Bridge Coordination Unit of the Transportation Section located within Infrastructure Services Division. Coordination with various sections located within the Public Works Department related to Capital Projects, which require submission to the State and Feds. Ensures accuracy and timing of submittal requirements and documents. Gathers documents related to the Pavement Design Report and the Design Study Report.
Infrastructure Services Division/Transportation Section/Major Projects/State Paving & Bridge Projects	Civil Engineer III Civil Engineer II	2 3	<ul style="list-style-type: none"> Coordination with various sections located within the Public Works Department related to major Paving and Bridge Capital Projects, which require submission to the State and Feds. Ensures accuracy and timing of submittal requirements and documents. Gathers documents related to the Pavement Design Report as well as the Design Study Report. Acts as consultant for the state to help in coordination of various utilities assisting in project development.

Function	Staffing by Classification		Roles and Responsibilities
Infrastructure Services Division/Transportation Section/Major Projects/Liaison & Bridge Coordination	Civil Engineer III Civil Engineer I	1 3	<ul style="list-style-type: none"> • Coordination with various sections located within the Public Works Department related to major Paving and Bridge Capital Projects, which require submission to the State and Feds. • Ensures accuracy and timing of submittal requirements and documents. • Gathers documents related to the Pavement Design Report and the Design Study Report.
Infrastructure Services Division/Transportation Section/Traffic & Lighting Design	Traffic Control Eng V	1	<ul style="list-style-type: none"> • Responsible for the development, maintenance, design and programming of the City's traffic control signals. • Manages the City's traffic and lighting programs. • Supervises staff assigned to Traffic and Design Unit, evaluates performance and assigns projects.
	Traffic Control Engineer	2	<ul style="list-style-type: none"> • Responsible for the development, maintenance, design and programming of traffic control signals. • Determines location and suitability of additional traffic control measures. • Oversees design of new traffic control devices and lighting.
	Electrical Engineer Engineering Tech	1 1	<ul style="list-style-type: none"> • Responsible for the development, design and program oversight for City lighting programs. • Oversees design of lighting projects.
	Civil Engineer (vacant)		<ul style="list-style-type: none"> • Develops specifications for proposed traffic control and lighting systems.
	Engineer Drafting Tech	2	<ul style="list-style-type: none"> • Performs drafting services on Traffic and Lighting programs and projects to develop project plans.

Function	Staffing by Classification	Roles and Responsibilities
Infrastructure Services Division/Transportation Section/Planning & Development	Civil Engineer V	1 <ul style="list-style-type: none"> • Responsible for the oversight of the Development, Planning Research Unit and Permits/Special Privileges Units of the Infrastructure Division.
Infrastructure Services Division/Transportation Section/Development, Planning & Research	Civil Engineer IV	1 <ul style="list-style-type: none"> • Development and coordination of planning and development projects for the City including city development, traffic, air quality and other miscellaneous projects. • Provides coordination of Public Infrastructure projects to ensure coordination between utilities, state and the City. • Monitors and assists with coordination of major public improvements such as new stadium, river walk, or new condos.
	Civil Engineer III	1 <ul style="list-style-type: none"> • Coordination of Public Infrastructure projects to ensure coordination of efforts between utilities, state and the City. • Coordination of major public improvements such as new stadium, river walk, or new condos. • Civil Engineer III sits on Board of Zoning Appeals.
	Bike & Pedestrian Coordinator	1 <ul style="list-style-type: none"> • Coordination of bicycle and pedestrian related projects.
Infrastructure Services Division/Transportation Section/Development, Permits & Special Privileges	Civil Engineer III	1 <ul style="list-style-type: none"> • Central processing office for ROW-Use Permits.
	Civil Engineer II	1 <ul style="list-style-type: none"> • Review of Special Privilege Permits, which must be approved by council for use of public ROW.
	Engineering Tech IV	1 <ul style="list-style-type: none"> •

Function	Staffing by Classification		Roles and Responsibilities
Infrastructure Services Division/Transportation Section/Central Drafting & Records	Management Civil Engineer Sr.	1	<ul style="list-style-type: none"> • Responsible for the oversight of the Central Drafting and Records Unit of the Transportation Section located within the Infrastructure Services Division. • The Central Drafting and Records Unit provides services related to project design drafting, mapping, dig hotline, and underground conduit design and management.
Infrastructure Services Division/Transportation Section/Central Drafting & Records/Mapping, City Paving, Traffic Control, Investigations & Information	Engineer Drafting Tech V Engineer Drafting Tech IV Engineer Drafting Tech II Engineer Drafting Tech I	1 2 3 1	<ul style="list-style-type: none"> • Drafting of City paving plans. • Maintains city maps related to street-line maps, aldermanic maps, election maps, festival maps, and fire & police maps. • Review of oversize load permits for trucks and house moving permits. • Research and map sales related to address changes.
Infrastructure Services Division/Transportation Section/Underground Conduit Design	Engineering Tech VI Engineering Tech IV Engineering Drafting Tech II	1 1 1	<ul style="list-style-type: none"> • Preparation and coordination for underground conduit design and construction. • Coordinates and inventories City's underground conduit system with other utilities. • Oversees annual capital project related to underground conduit design and construction.
Infrastructure Services Division/Transportation Section/Right of Way and State Paving	Engineer Drafting Tech V Engineer Drafting Tech IV	1 3	<ul style="list-style-type: none"> • Responsible for drafting state paving plan projects. • Responsible for reviewing plats related to street closures, platting easements & ROW.

Function	Staffing by Classification		Roles and Responsibilities
Infrastructure Services Division/Transportation Section/Lighting Plans, Hotline, and Map Sales	Engineer Drafting Tech V Engineer Drafting Tech IV Engineering Drafting Tech II Engineering Drafting Tech I	1 3 5 1	<ul style="list-style-type: none"> Prepares drafting of street lighting, signal and paving projects. Research related to marking utilities so contractors can dig in City ROW. Projects assigned to staff based upon complexity.
Infrastructure Services Division/Environmental Section	Environmental Manager	1	<ul style="list-style-type: none"> Oversees the Environmental Unit related to sewer and stormwater design, planning, and drafting. Develops budget for assigned areas including resource allocations and work plans for assigned staff. Responsible for assisting in determining project priority and future year work schedules.
Infrastructure Services Division/Environmental Section/Administrative Support	Management & Accounting Officer	1	<ul style="list-style-type: none"> Provides project accounting support related to the sewer maintenance fund including transferring of funds. Process payments to contractors. Monitors expenditures for both capital and operations related to the sewer maintenance fund. Analyzing revenue bond guidelines to ensure debt service requirements. Prepares monthly reports to projects managers of project status.
	Office Assistant	1	<ul style="list-style-type: none"> Provides general office support and assistance to staff. Assists with paperwork related to processing of payments and monitoring of expenditures.

Function	Staffing by Classification		Roles and Responsibilities
Infrastructure Services Division/Environmental Section/Sewer Design	Mgmt. C.E. Sr. Civil Engineer	1 11	<ul style="list-style-type: none"> • Responsible for the design of all projects related to sewer lines including new and existing lines. • Develop specifications, surveys, and oversees development of drawings for sewer projects including scope, materials and plans.
	Mgmt CE Sr Civil Engineer Engineering Tech	1 8 6	<ul style="list-style-type: none"> • Responsible for the design of all projects related to stormwater control and management. • Develop project specifications and guidelines including overseeing development of all stormwater project drawings. • Define project scope, materials, and plans.
Infrastructure Services Division/Field Operations Section	Infrastructure Operations Manager	1	<ul style="list-style-type: none"> • Provides administrative oversight to the Field Operations Section within the Infrastructure Services Division. • This section oversees the construction unit, electrical services unit, street and bridge unit as well as the support services unit. • Prepares budget for unit and oversees supervision of all staff. • Sets annual work programs and monitors progress.
Infrastructure Services Division/Contract Administration	Field Ops Insp. Specialist Public Works Inspector	1 6	<ul style="list-style-type: none"> • Responsible for oversight of all contract administration issues related to bid projects. • Oversees contractor compliance with signed contracts. • Conduct field inspections as part of contract monitoring efforts.
	Sidewalk Repair Spec	1	<ul style="list-style-type: none"> • Provides technical expertise relative to sidewalk repairs, and project development.

Function	Staffing By Classification		Roles and Responsibilities
Infrastructure Services Division/Contract Administration (Cont'd)	Admin/Office Asst	2	<ul style="list-style-type: none"> Provides general office and administrative support to staff. Assists with processing, filing, and management of documents related to contracts.
Infrastructure Services Division/Field Operations Section/Construction Unit/ Design and Field Engineering	Civil Engineer V Engineering Tech VI Engineering Tech V Engineering Tech IV Engineering Tech II Engineering Drafting Tech II Engineering Tech I Eng Tech II	1 2 11 14 5 1 4 4	<ul style="list-style-type: none"> Provides design concept, actual design, background, and survey work for City capital projects. Coordinates with consultants on certain capital projects to ensure design integrity and specifications. Oversees all design work on streets, alleys, and approaches. Responsible for determining actual assessments to be allocated to each property owner on projects based upon frontage to work conducted. Conducts field surveys of actual construction to verify assessments and actual quantities utilized. Perform design review of plans to verify grading, drainage, etc.
	Testing Lab Specialist	2	<ul style="list-style-type: none"> Responsible for overseeing consultant responsible for testing materials utilized in projects for conformance with project and material specifications.
Infrastructure Services Division/Field Operations Section/Construction Unit/ Construction Management	Civil Engineer V Mgmt Civil Engineer Sr.	1 4	<ul style="list-style-type: none"> Oversees all aspects of the construction and management of City capital projects related to water, sewer, streets and sidewalks. Manages staff assigned to construction management functions. Provide quality control on work efforts.

Function	Staffing By Classification		Roles and Responsibilities
Infrastructure Services Division/Field Operations Section/Construction Unit/ Construction Management (Cont'd)	Civil Engineer III Civil Engineer II Engineering Tech II Inspection Specialist Public Works Inspector II Public Works Inspector I Engineering Inspector Asst.	3 1 5 1 25 8 6	<ul style="list-style-type: none"> Approves partial payment to vendors based on percentage complete. Maintains and develops paperwork of field inspections for project monitoring and verification. Reports daily/monthly on construction progress, work performed, and quantities utilized. Ensures work performed by contractors are in accordance with contract specifications and adopted plans.
	Water Construction Coordinator	1	<ul style="list-style-type: none"> Provides construction management function for water projects. Coordinates water construction projects with other Department Divisions and external entities.
Infrastructure Services Division/Field Operations Section/Street & Bridge Operations	Street & Bridge Service Manager	1	<ul style="list-style-type: none"> Supervises staff assigned to Street and Bridge Operations. Evaluates staff and monitors progress on annual work plan. Develops annual budget and work program for division. Assists in prioritization of projects. Responsible for oversight of street maintenance operation unit, structural design unit, bridge operations and maintenance units.

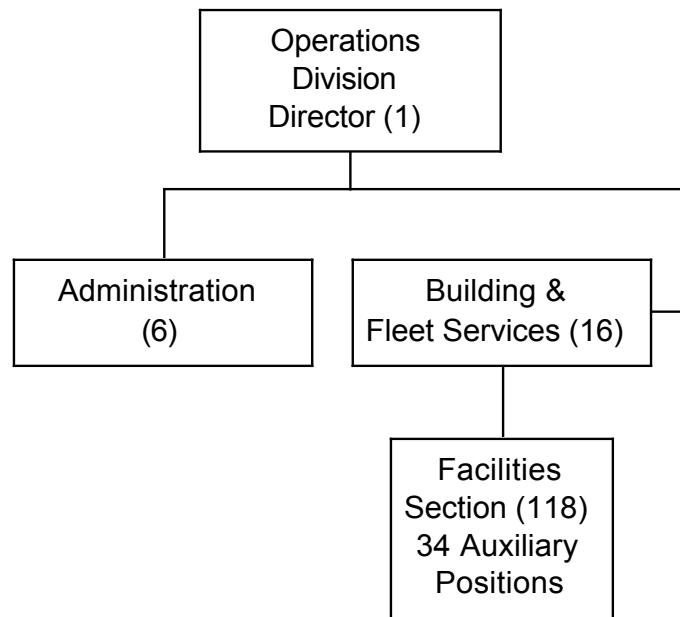
Function	Staffing By Classification		Roles and Responsibilities
Infrastructure Services Division/Field Operations Section/Street & Bridge Operations/Structural Design	Structural Design Mgr Civil Engineer IV Civil Engineer III Civil Engineer II Civil Engineer I Engineer Drafting Tech IV	1 1 2 2 1 1	<ul style="list-style-type: none"> • This unit performs safety inspections for 210 city-maintained bridges. • Design and coordination of bridge capital projects for the Public Works Department. • Unit does drafting and CAD working related to bridge design. • Coordinates with state for state funded bridge capital projects. • Assists with design and safety inspections of parking structures, dock wall structures. • Works directly with Major Projects Unit to submit for state funded capital improvement projects. • Works in coordination with design construction for certain bridge projects.
	Bridge and Pub Bldgs. Inspection	1	<ul style="list-style-type: none"> • Provides City inspections for Bridges and Public Buildings to ensure work performed is adequate, in accordance with plans, and meets contract specifications. • Maintains inspection diary/logs of daily work activities.

3. OPERATIONS DIVISION

The Operations Division Director supervises the Operations Division of the Public Works Department. The Division is responsible for Building and Fleet Services as well as Environmental Services. It should be noted that only those positions that have a relevant affect on capital project planning, design, construction, and accounting have been analyzed during the preparation of this profile.

(1) Organization

The organization of this division is shown by the following, which also includes the number of authorized positions for each unit:



(2) Personnel Roles and Responsibilities

The roles and responsibilities of the staff assigned to the Operations Division are presented below.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Function	Staffing By Classification		Roles and Responsibilities
Operations/Division Director	Operation Division Director Administrative Services Manager	1 1	<ul style="list-style-type: none"> • Oversees the Operations Division including the following units: Building and Fleet Services, Administration, and Environmental Services. • Responsible for setting budget, annual work programs, resolving programmatic problems and providing general oversight to assigned staff.
	Program Assistant Accounting Assistant	3 2	<ul style="list-style-type: none"> • Provide staff support to Management staff in managing programs, performing basic project accounting functions, and other administrative functions.
Operations Division/Facilities Development & Management Section	Bldgs. & Fleet Supt Facilities Manager	1 1	<ul style="list-style-type: none"> • Oversight of programs related to Buildings Design and Maintenance. • Oversees capital projects related to the construction, rehabilitation or remodeling of new and existing facilities. • Oversees development of plans, specifications and contracts for assigned areas. • Evaluates staff and develops annual budget for assigned functions. • Monitors project progress and completion status.
Operations Division/Facilities Development Section/Architectural Planning & Design Unit	Arch Project Manager	1	<ul style="list-style-type: none"> • Oversees the Architectural Planning and Design unit of the Facilities Development Section. • Provides oversight to departments and city management regarding building related capital improvement projects. • Prepares budget estimates and analysis for building projects developed by the City. • Coordinate and oversees building design and construction consultants.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

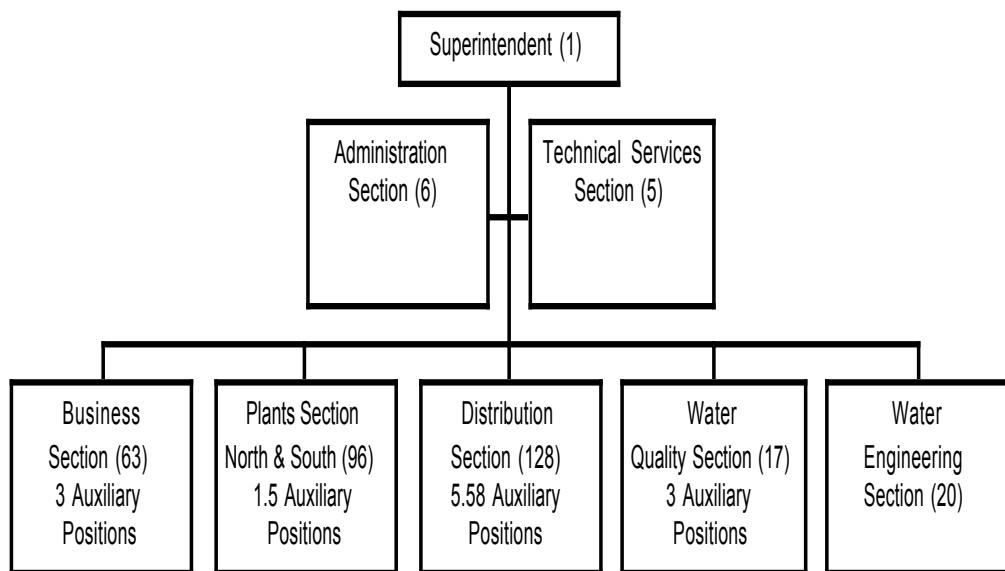
Function	Staffing By Classification		Roles and Responsibilities
Operations Division/Facilities Development Section/Architectural Planning & Design Unit	Architect III Architect IV	2 1	<ul style="list-style-type: none"> Assists City Departments / customers regarding capital improvement requests in developing designs, timelines, and cost estimates for budget process. Works directly with consultants regarding building design contracted by City. Project managers for large capital building projects. Oversees work of Architectural Designer II and Drafting Techs. Attends pre-construction, construction, and close-out meetings for projects.
	Architect Designer II	4	<ul style="list-style-type: none"> Assists City departments with the design of capital projects once the project is funded. Works directly with outside consultants and construction crews of building related projects. Defines existing conditions, program requirements, preliminary design, design development and contract documents. Attends pre-construction, construction, and close-out meetings for projects.
	Recreational Facilities Coordinator	1	<ul style="list-style-type: none"> Develops and designs capital improvements related to the City's recreational programs. Works directly with neighborhoods and alderman. Monitors age, condition, ADA requirements related to recreational facilities. Develop cost and replacement schedules of recreation facilities.
Operations Division/Facilities Development Section/Drafting Services	Eng Draft Tech IV Eng Draft Tech II	2 2	<ul style="list-style-type: none"> Responsible for the design and drafting of capital projects. Responsible for preparing contract documents, which includes site, floor plans, sections, elevations and details of building specs.
Operations Division/Facilities Development Section/Construction Management	Br & Pub Bldgs. Inspectors	6	<ul style="list-style-type: none"> Responsible for the daily inspection of project progress on building capital projects. Ensures work completed is in compliance with designed plans and specifications.

4. WATER WORKS DIVISION

The Superintendent of the Water Works Division manages the Water Utility for the City of Milwaukee. This division manages several sections including the distribution section, water quality section, technical services section, business section, water plants, and a water engineering section. It should be noted that only those positions that have a relevant affect on capital project planning, design, construction, and accounting have been analyzed during the preparation of this profile.

(1) Organization

The organization of this division is shown by the following, which also includes the number of authorized positions for each unit:



(2) Personnel Roles and Responsibilities

Function	Staffing By Classification		Roles and Responsibilities
Water Works Division/Superintendent's Office	Superintendent Admin & Project Mgr	1 1	<ul style="list-style-type: none"> Oversees operation of entire Water works operations including capital projects. Develops budget, evaluates staff, and set annual work programs. Develops priority of capital projects for Water Works. Monitors project status and funding availability.
Water Works Division/Water Engineering	Civil Eng V Mgmt C.E. Sr.	1 1	<ul style="list-style-type: none"> Develops recommendations for CIP submissions. Develop scope, specification, and drawings for all Water Projects including water main replacement, treatment plant rehab, expansion, and additions. Determine priority of projects based upon needs of the Water System. Monitor project status and progress against approved plans and designs. Verify preparation of bid documents for all Water capital projects. Oversee consultants utilized on large projects. Oversees estimating of Capital Improvement Projects (mains and plants). Oversees all preliminary and final resolution requests to the PW Committee to obtain approvals to begin construction. Approves contract awards of the CIP on behalf of the Milwaukee Water Works. Oversees new product testing and evaluation. Oversees funding allocation of all awarded contracts based upon DPW bid results. Oversees preparation and procurement of needed easements. Reviews and approves all billings and invoices for Water Works Engineering projects. Handles general project management for all CIP projects including communications, meetings, inspections, etc. Maintains project documentation including updating of maps, MUPS, etc.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Function	Staffing By Classification	Roles and Responsibilities
Water Works Division/Water Engineering (Cont.)	Civil Eng IV Civil Eng III Civil Eng II Engineering. Technician	1 3 4 2 <ul style="list-style-type: none"> Provide comprehensive water works capital project design and project development functions including electrical and mechanical systems. Develop detailed specifications and plans for all projects including scope definition. Coordinate with other Public Works Department units on the bidding of water works projects. Enters projects into FMIS to begin accounting process for Water CIP projects. Design water main projects and approves the plan preparation of other Civil Engineers, Engineering Drafting Techs, and Consultants. Prepare final estimates, contract documents, and plans for bidding. Conduct special studies as necessary to model system. Provide technical assistance on installation of mains and materials to utilize.
	Electrical Eng	2 <ul style="list-style-type: none"> Responsible for development of project scope on water works capital projects related to electrical needs, systems, etc. Develops specifications for electrical systems. Provide construction management for electrical projects at Water Works facilities, including reporting and inspection. Assist with Plant O&M projects: troubleshooting problems, researching solutions, recommending specifications for solutions, preparing scope of work documents, and provide construction management oversight of contractors.
	Mechanical Engineer	1 <ul style="list-style-type: none"> Responsible for development of mechanical system needs as part of the scope of water works capital projects. Determines specifications. Provide construction management for mechanical system projects at Water Works facilities, including reporting and inspection. Assist with Plans O&M projects: troubleshooting problems, researching and recommending specifications for solutions, preparing scope of work documents, and providing construction management oversight of contractors.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Function	Staffing By Classification	Roles and Responsibilities
Water Works Division/Water Engineering (Cont.)	Eng Drafting Technician V Eng Drafting Technician IV	1 5 <ul style="list-style-type: none"> • Perform drafting services on Water Works Capital projects. • Prepare project plans, revisions, etc. • Develop and maintain the drafting and plan preparation of Milwaukee Water Works Construction plans and computerized map system. • Review Consultant prepared plans for conformity to Milwaukee Water Works Drafting Standards. • Update and maintain service information in MUPS as impacted by construction projects and water distribution projects. • Review and comment on all Building and DPW Permits on their impact on Milwaukee Water Works pipes and facilities. • Disburse, organize, file and maintain all paper records pertaining to construction of Milwaukee Water Works pipes and facilities.

3. SUMMARY OF THE EMPLOYEE SURVEY

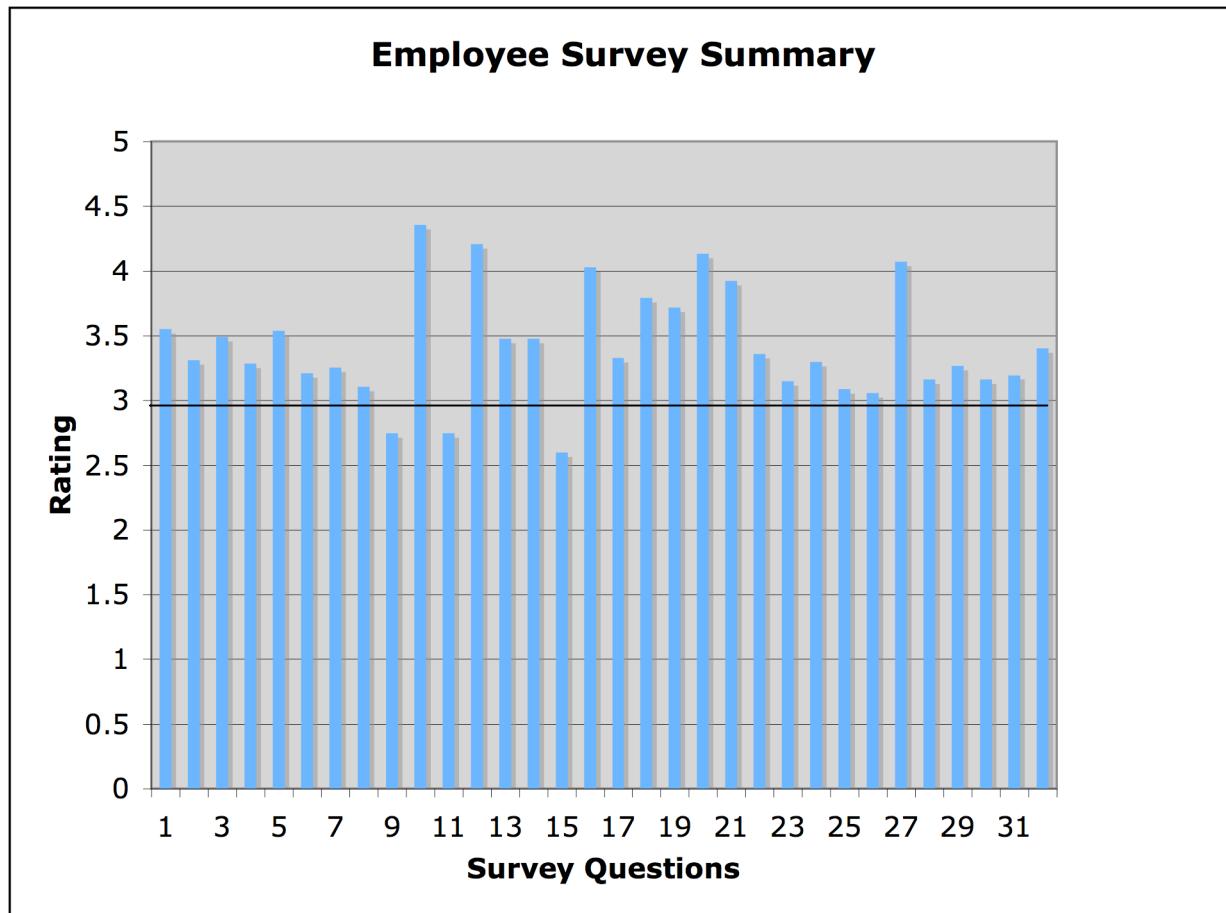
3. SUMMARY OF THE EMPLOYEE SURVEY

The Matrix Consulting Group conducted a survey of employees in the Department of Public Works involved in Capital Project Management and Administration to provide additional employee input and assist in determining organizational, operational, and other issues with the Department. This survey was conducted as part of the Management Audit of the Capital Budget Process. Surveys were distributed to 150 employees within the Department, with a total of 67 surveys returned, for a response rate of 45%. Surveys were mainly distributed to and received back from the Infrastructure Division.

The section, which follows, presents a brief overview of the results obtained from the employee survey. Provided as Attachment A to this report are the detailed results for the survey, which includes the actual responses for each statement within the survey.

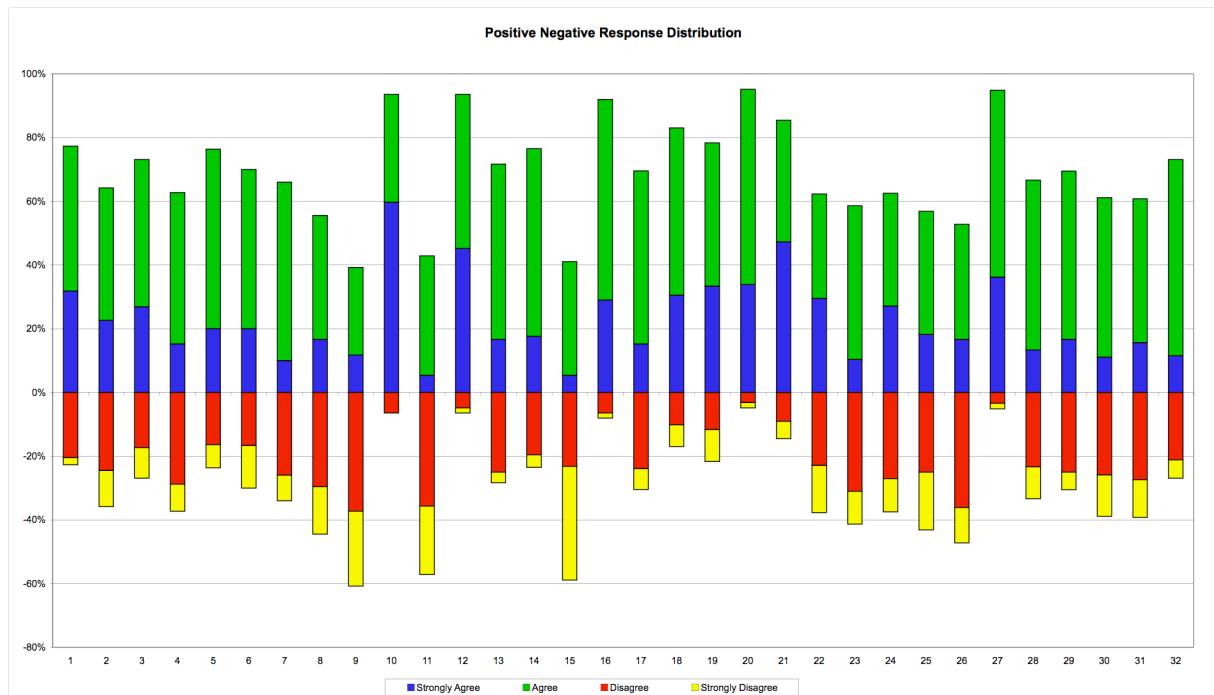
1. GENERAL FINDINGS

In reviewing the results of the employee survey, it is useful to review the overall pattern of responses. The survey contained thirty-two questions on which each employee was asked to indicate whether they agreed or disagreed with a series of statements. The instrument measured the intensity of the level of agreement or disagreement with the statement. The chart below shows the overall average rating for each statement. Note that strongly disagree is a score of 1, while strongly agree is a score of 5. An average score of 3 represents a response of neutral or neither agree or disagree.



As shown above, the majority of the responses tend towards the positive. Positive results were received for 29 of the questions, with only three questions achieving a slightly negative response. Over all, the average response rating was a 3.4 about midway between “neither agree or disagree” and “somewhat agree”.

To gain a more detailed sense of the responses from the statements by general topic of the employee survey (e.g., customer service, management and organization, workload, etc.), it is useful to look in greater detail at the topics that elicited the strongest positive and negative responses. The chart, found below, plots the number of responses that were positive and negative for each statement.

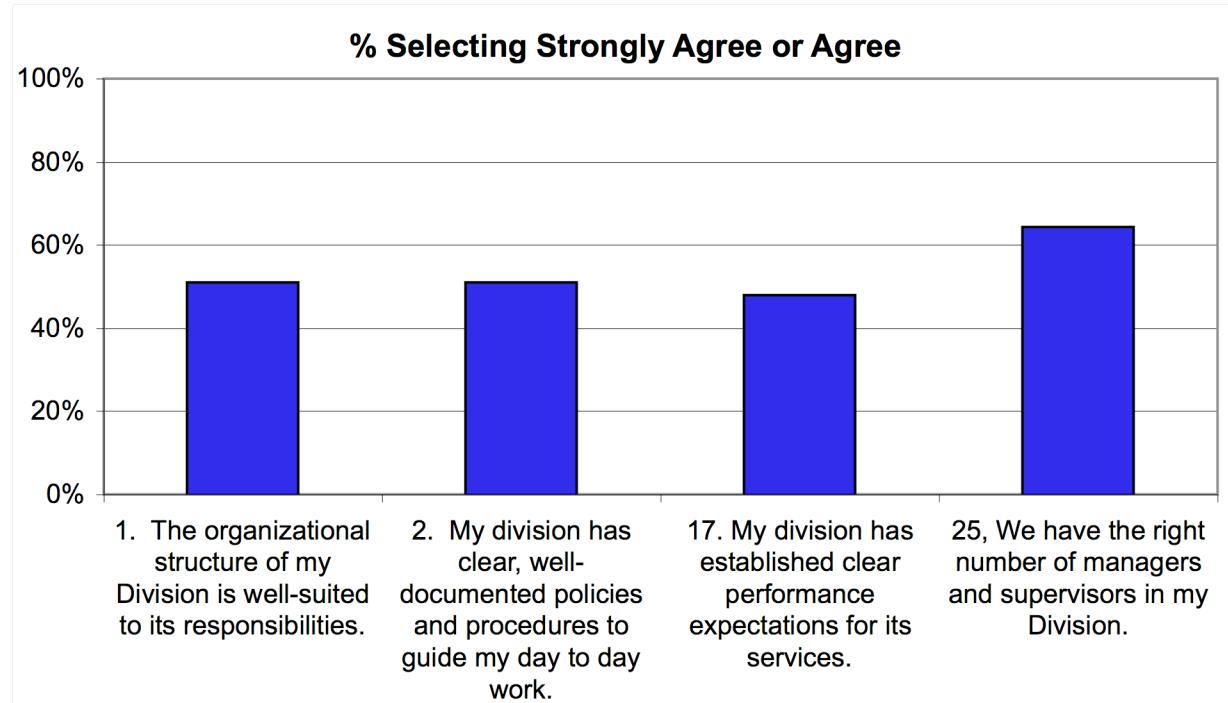


As noted, the chart above presents the positive-negative distribution of responses by each statement. The positive-negative response distribution chart shows that there were statements to which respondents had positive attitudes, as well as a number of statements to which respondents had negative perceptions.

The sections, which follow, provide a detailed discussion of the results of the employee survey for each of the topic areas identified.

2. RESPONDENTS WERE ASKED TO EVALUATE STATEMENTS REGARDING THE OVERALL MANAGEMENT OF THE PUBLIC WORKS DEPARTMENT.

The employee survey contained several statements relating to the overall management of the Public Works Department including formal management, communication, and work environment. The chart, which follows, provides a comparison of the results for statements relating to the general management of the Department.



The points, which follow, provide the results for the statements presented in the above chart.

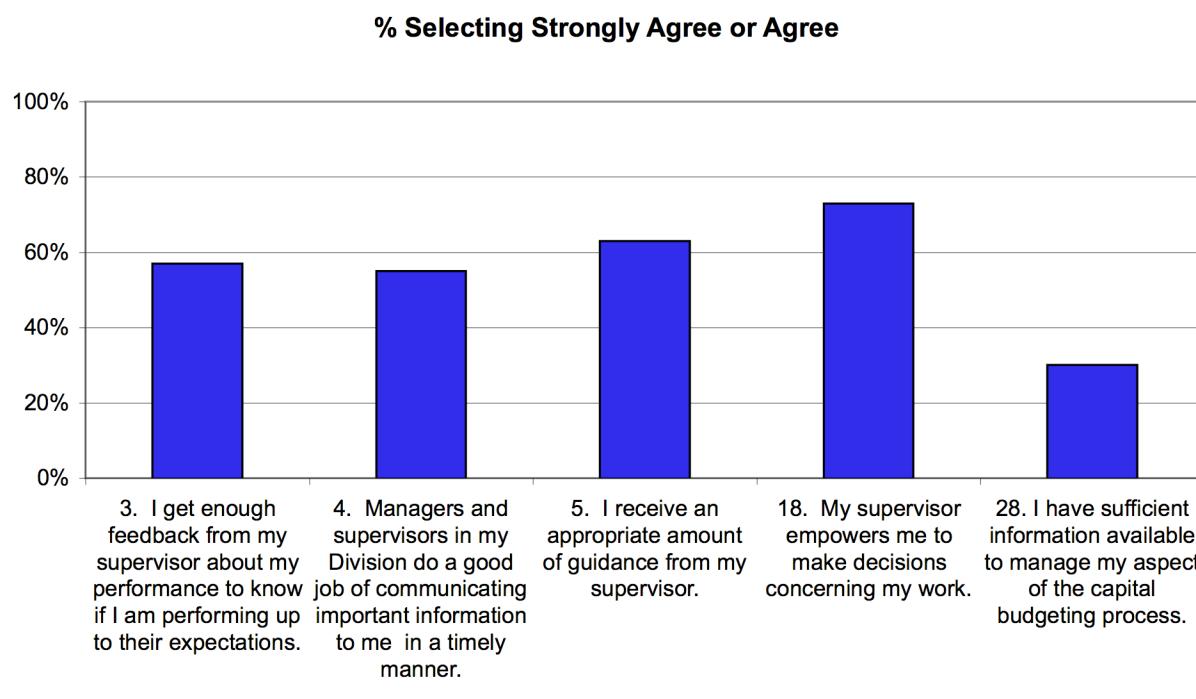
- 51% of respondents indicated agreement with the statement 'The organizational structure of my Division is well suited to its responsibilities.' 15% disagreed with this statement and 34% were neutral.
- In response to the statement, 'My department has clear, well-documented policies and procedures to guide my day-to-day work,' 51% of respondents selected 'strongly agree' or 'agree' and 21% selected 'neutral.' The remaining 28% either disagreed or strongly disagreed with this statement.
- When provided the statement, 'My division has established clear performance expectations for its services,' 48% of respondents selected 'strongly agree' or 'agree' and 31% selected 'neutral.'
- With respect to the statement, 'We have the right number of managers and supervisors in my division,' 37% of respondents selected 'strongly agree' or 'agree', 46% selected 'neutral', and 25% selected 'disagree' or 'strongly disagree'.

Overall, respondents positively viewed the general management of the Public Works Department. There are also opportunities for improvement, especially in the

areas of clearly defining performance expectations and the appropriateness of the organizational structure and number of supervisors/managers.

3. RESPONDENTS WERE ALSO ASKED TO EVALUATE INTERNAL COMMUNICATION AND PERSONNEL MANAGEMENT IN THE DEPARTMENT.

A series of questions were asked of respondents to solicit their input and evaluation of areas relating to internal communication and personnel management in the Department. The chart, which follows, provides a comparison of the results.



The points, which follow, provide the results for the statements presented in the above chart.

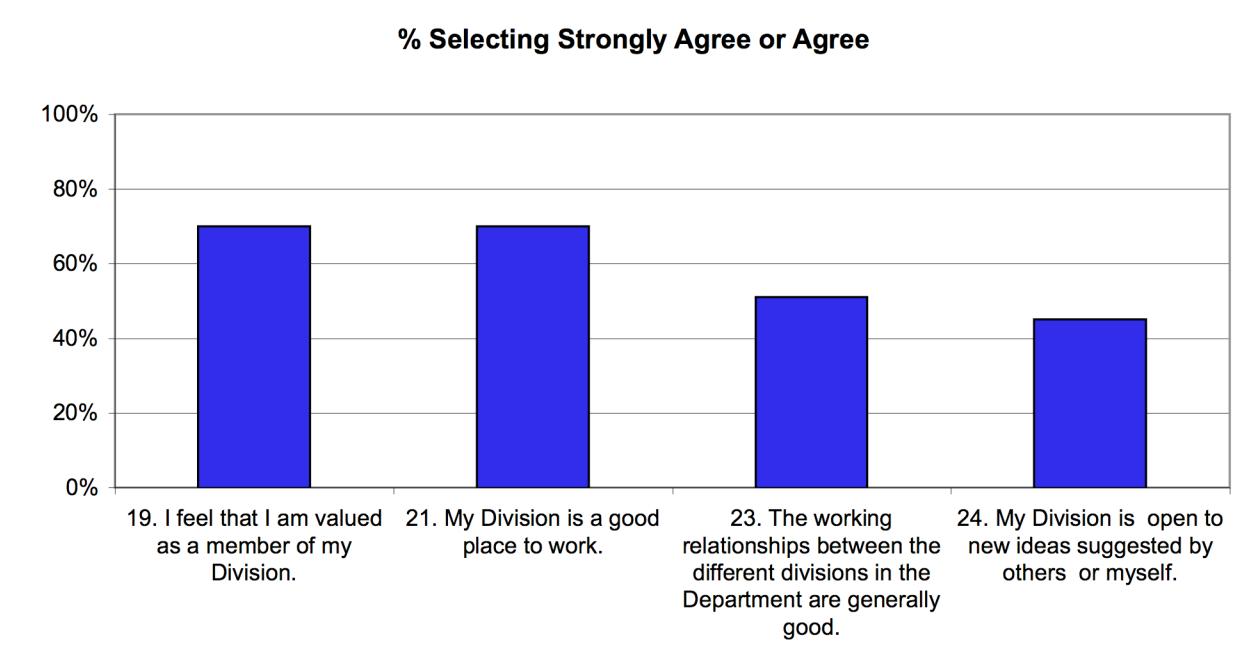
- 57% of respondents indicated agreement with the statement 'I get enough feedback from my supervisor about my performance to know if I am performing up to their expectations'. 22% were neutral regarding this statement, 21% indicated a need for more feedback regarding performance from supervisory personnel.

- Similarly, in response to the statement, 'Managers and supervisors in my Division do a good job of communicating important information to me in a timely manner', 55% indicated agreement with the statement. 12% of respondents were neutral and 33% disagreed with this statement.
- When provided the statement, 'I receive an appropriate amount of guidance from my supervisor', 63% selected 'strongly agree' or 'somewhat agree' versus only 19% who chose disagree. 18% were neutral.
- With respect to the statement, 'My supervisor empowers me to make decisions concerning my work', a strong majority of 73% respondents selected either 'somewhat' or 'strongly agree'. Only 15% chose a response indicating disagreement with the statement and 12% were neutral.
- When asked to respond to the statement 'I have sufficient information available to manage my aspect of the capital budget process' only 30% of respondents agreed with the statement. 55% were neutral and 15% disagreed with the statement.

Generally, respondents indicated that there is a need for a greater level of information exchange with their supervisors; and that a lack of information impacts their ability to manage their job responsibilities relating to the capital budget process. However, a majority of respondents indicated that they received sufficient feedback and guidance from their supervisor. A strong majority felt empowered to make decisions regarding their work activities.

4. RESPONDENTS WERE ASKED ABOUT THE GENERAL WORK ENVIRONMENT IN THE DEPARTMENT OF PUBLIC WORKS.

Survey participants were asked several questions about the work environment in the Department of Public Works. The following chart summarizes the results.



The points, below, provide a discussion of the results presented in the chart.

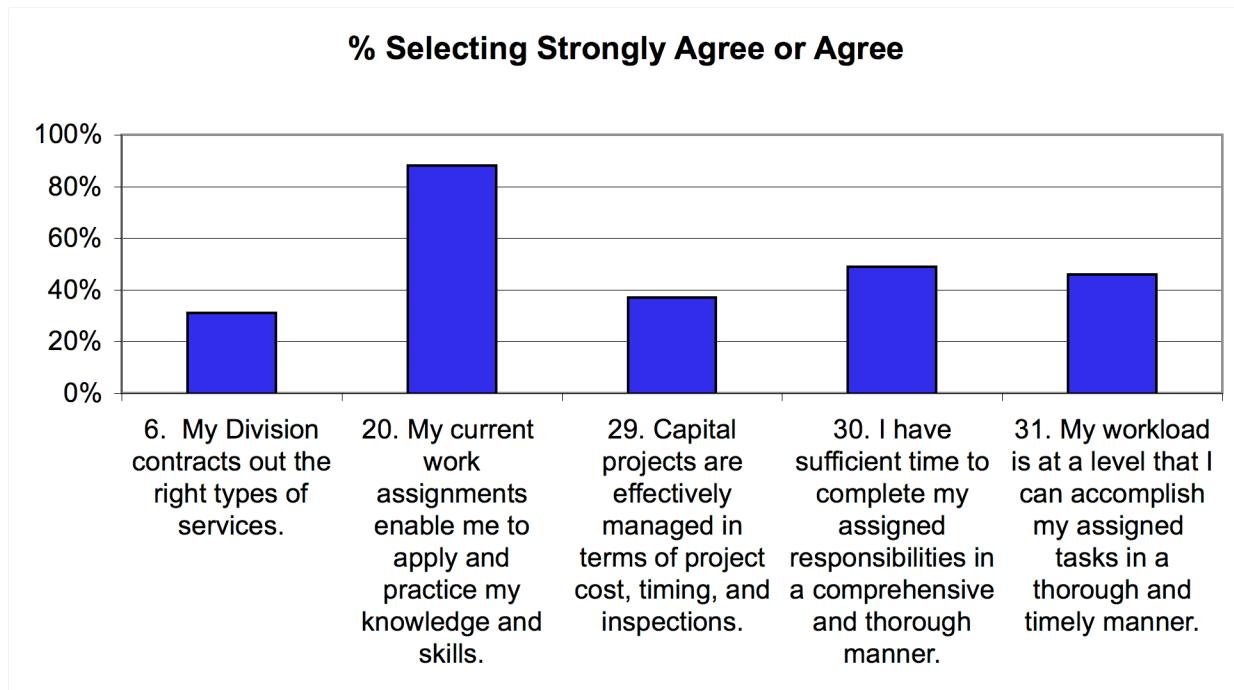
- In response to the statement, 'I feel that I am valued as a member of my department,' 70% of respondents selected 'strongly agree' or 'agree', 10% selected 'neutral', and 19% indicated a level of disagreement.
- When provided the statement, 'My division is a good place to work,' 70% of respondents selected 'strongly agree' or 'agree.' Only 12% indicated any disagreement with this statement.
- Respondents had mixed opinions with respect to the statement, 'The working relationships between the different divisions in the Department are generally good' with 51% of respondents selecting 'strongly agree' or 'somewhat agree' and 36% selecting 'strongly disagree' or 'somewhat disagree'.
- In response to the statement, 'My division is open to new ideas suggested by others or myself,' responses were split with only 45% agreeing that these suggestions were welcomed and 27% indicated a level of disagreement with the statement. 28% were neutral regarding this statement.

Overall respondents had a neutral to positive perceptions of the general work environment of the Department of Public Works as it related to being a good place to work and as a work environment where they were valued. However, there appear to be opportunities to improve the work environment in the areas of the working relationships

with other divisions in the Department and the openness of staff to new ideas and approaches to work activities.

5. EMPLOYEES EVALUATED SEVERAL STATEMENTS REGARDING EXISTING WORK PRACTICES AND WORK LOADS.

The employee survey included several statements regarding work practices and workloads. The chart, which follows, presents the results with respect to employees' perceptions of workload and practices in the Department of Public Works.



The points, which follow, present a discussion of the employee survey results with respect to workload and work practices.

- In response to the statement, 'My division contracts out the right types of services,' only 31% of respondents chose a response indicating agreement. While 55% were neutral, 13% indicated either 'strongly disagree' or 'somewhat disagree'.
- Respondents had strong positive perceptions with respect to the statement, 'My current work assignments enable me to apply and practice my knowledge and skills'. A significant number of respondents (88%) selected 'strongly agree' or

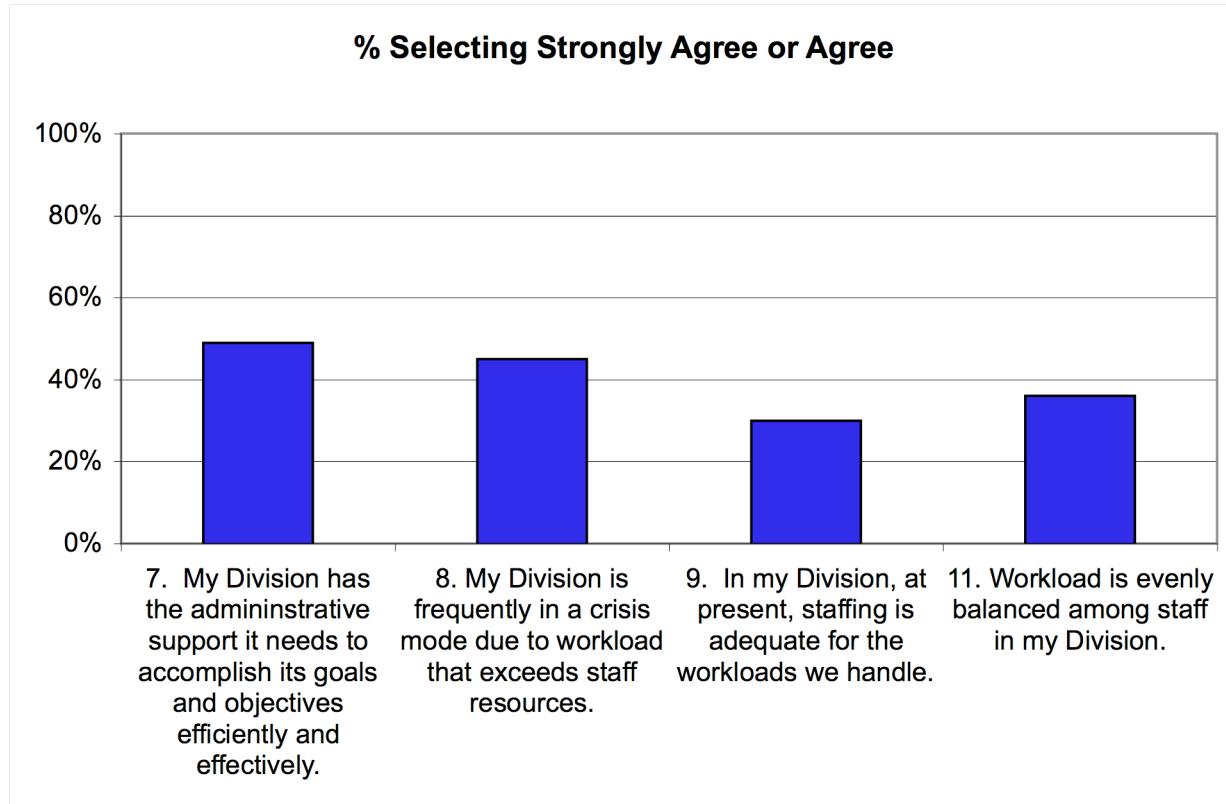
‘somewhat agree’; 7% selected ‘neutral’ and only 4% selected ‘strongly disagree’ or ‘disagree.’

- When presented the statement, ‘Capital projects are effectively managed in terms of project cost, timing, and inspections’ only 39% indicated their agreement with this statement. 46% were neutral and 16% disagreed with the statement.
- 49% of survey participants indicated agreement with the statement that ‘I have sufficient time to complete my assigned responsibilities in a comprehensive and thorough manner’. 31% disagreed with this statement and 19% were neutral.
- Similarly, only 46% of respondents agreed that “My workload is at a level that I can accomplish my assigned tasks in a thorough and timely manner”. 30% of respondents disagreed with this statement.

Overall, respondents indicated concerns with their ability to have the necessary time to complete their assigned duties in a timely and comprehensive manner. Notwithstanding the concerns regarding time availability, respondents overwhelmingly indicated that their work assignments allow them to utilize their skills and knowledge. Mixed results were obtained regarding whether the right types of work activities were contracted out.

6. SEVERAL STATEMENTS REGARDING STAFFING WERE PRESENTED TO EMPLOYEES FOR THEIR EVALUATION.

The questionnaire distributed contained several statements regarding staffing for employees to evaluate. The following table presents the employees’ perceptions regarding workloads in the Department of Public Works.



The points, which follow, present a discussion of the employee survey results with respect to workload.

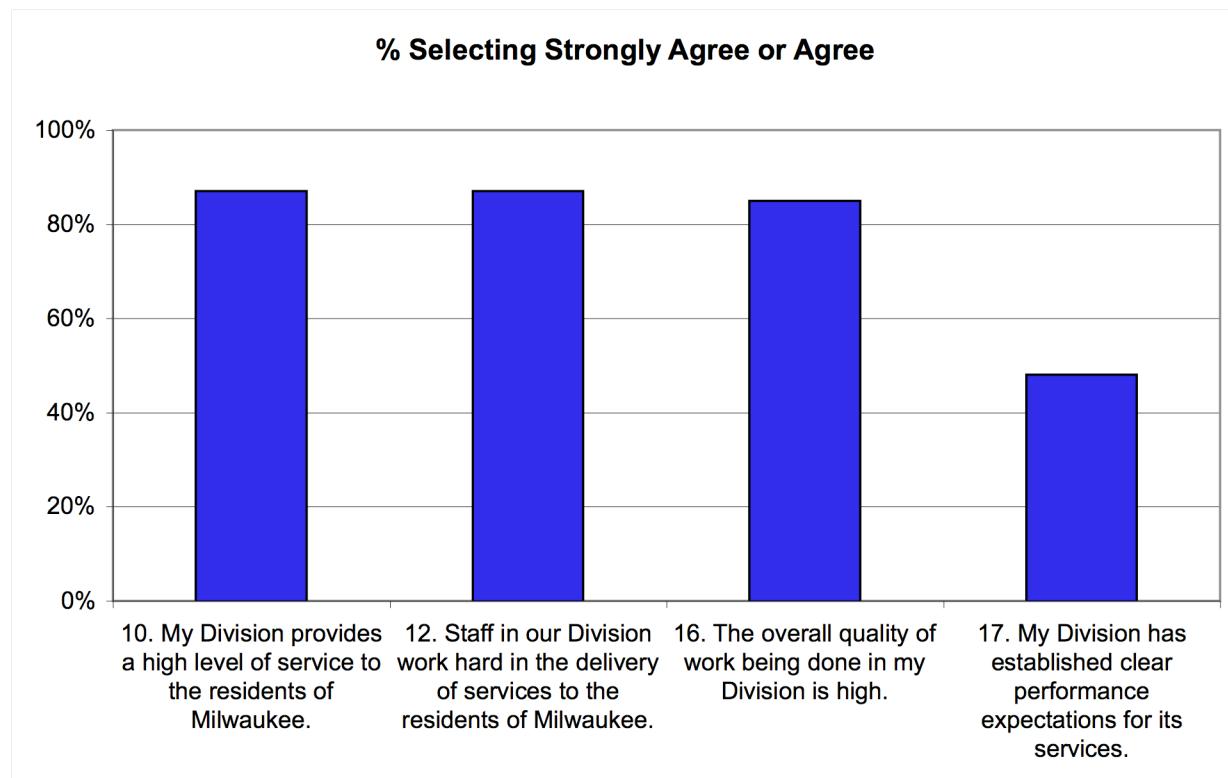
- In response to the statement, 'My division has the administrative support it needs to accomplish its goals and objectives efficiently and effectively,' only 49% of respondents selected 'strongly agree' or 'agree.' The remainder of the responses were evenly split with 25% indicating a neutral response and 25% indicating a negative response.
- When provided the statement, 'My department is frequently in a crisis mode due to workload that exceeds staff resources,' respondents provided mixed responses with 45% selecting 'strongly agree' or 'somewhat agree,' 19% selecting 'neutral' and 36% indicating 'strongly disagree' or 'somewhat disagree.'
- However, when respondents were presented with the statement, 'In my department, at present, staffing is adequate for the workloads we handle,' only 30% of respondents selected 'strongly agree' or 'agree.' While 19% indicated a neutral response, 46% selected either 'strongly disagree' or 'somewhat disagree'.
- Similarly, in response to the statement, 'Workload is evenly balanced among staff in my department,' only 36% of respondents selected 'strongly agree' or 'agree'

and 16% selected 'neutral.' The largest grouping of respondents, 48% indicated disagreement with the statement.

Overall, respondents had more negative perceptions with respect to staffing and workload in the Department. A perception clearly exists by employees that workloads are not adequately balanced among staff and that workloads exceed existing staff resources.

7. SEVERAL STATEMENTS REGARDING CUSTOMER SERVICE LEVELS WERE PRESENTED TO STAFF FOR CONSIDERATION.

Employees were asked to evaluate several statements relating to customer service in the City of Milwaukee's Department of Public Works. The chart, which follows, presents the results for statements relating to customer service.



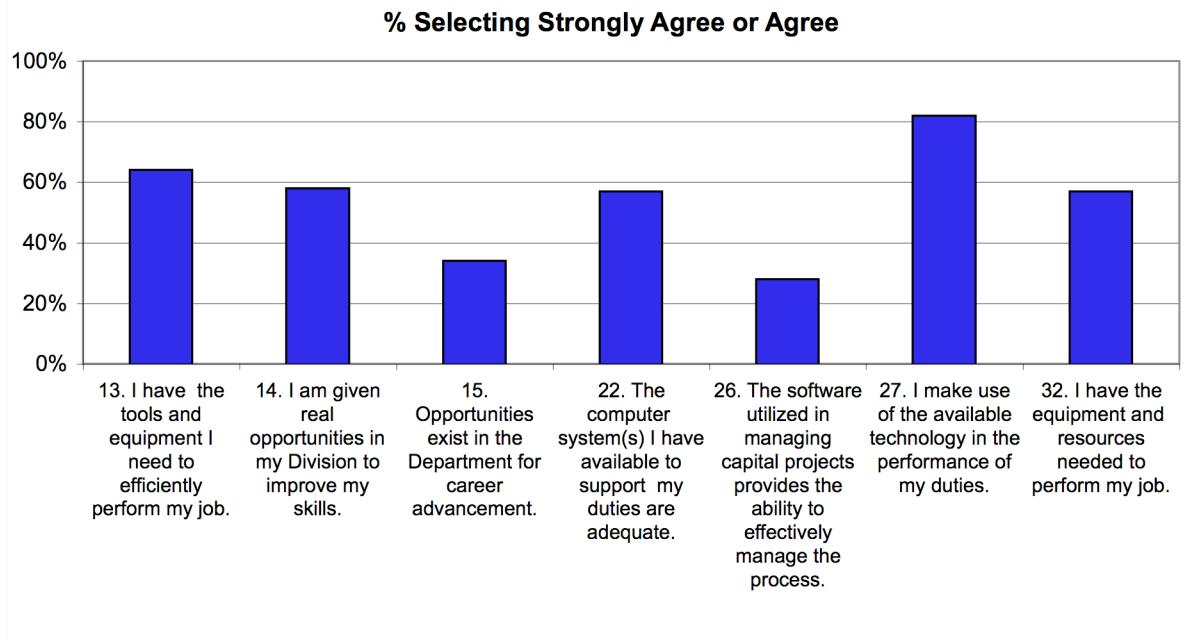
The points, which follow, present a summary of the employee survey results relating to customer service.

- In response to the statement, 'My division provides a high level of service to the residents of Milwaukee', 87% of respondents selected 'strongly agree' or 'agree.'
- When provided the statement, 'Staff in our Division work hard in the delivery of services to the residents of Milwaukee,' 87% of respondents again selected 'strongly agree' or 'agree.'
- With respect to the statement, 'The overall quality of work being done in my division,' 85% of respondents selected 'strongly agree' or 'agree.'
- Employees had mixed responses to the statement 'My department has established clear performance expectations for its services,' where 48% selected 'strongly agree' or 'agree,' 14% selecting neutral, and 21% selecting 'strongly disagree' or 'disagree.'

Employees had positive perceptions with respect to the level and quality of services provided to the Department's customers in terms of the overall level of services, the effort put forth by employees, and the quality of work performed. However, responses were mixed regarding the existence of clear performance expectations for employees.

8. EMPLOYEES WERE ASKED FOR INPUT REGARDING THE TOOLS AND EQUIPMENT AVAILABLE TO THEM AND THEIR OPPORTUNITIES FOR PROFESSIONAL DEVELOPMENT.

The final area of inquiry on the employee survey was a series of statements designed to elicit employee feedback regarding the tools, equipment and software utilized by employees in the performance of their duties and the opportunities for career development. The following table outlines the responses received:



The points, which follow, present a summary of the employee survey results relating to employee development.

- Overall, employees felt that they had available the necessary tools and equipment to perform their jobs. Employees noted a high level of agreement that they were provided the necessary technology to perform their jobs but that they didn't necessarily make use of this technology.
- Employees noted that opportunities existed for improvements in the area of career development and skills enhancement.
- Employee also noted that the software available for use didn't provide the necessary tools to effectively management capital projects.

8. SUMMARY

The employee survey, in addition to the interviews conducted by the project team, provided useful insight and information regarding the perceptions and views of the employees within the City of Milwaukee's Department of Public Works regarding issues surrounding their work activities, work loads, available technology and tools, and the general operations of the Department.

4. BEST PRACTICES ANALYSIS

4. BEST PRACTICES ANALYSIS

The study of the Capital Budget process for the City of Milwaukee is designed to provide a comprehensive analysis of operations, organization, policies and staffing that impact the development and management of capital budget projects. As such, this chapter of the report represents an important step in the assessment of the City of Milwaukee's performance in handling various components that directly impact the ability to effectively develop, manage and implement capital projects.

In order to make key assessments of operational strengths and improvement opportunities, the project team developed a set of performance measures called best management practices against which to evaluate these processes. The measures utilized have been derived from the project team's collective experience and professional standards employed throughout the nation and represent the following ways to identify strengths as well as improvement opportunities:

- Statements of effective practices based on the study team's experience in evaluating operations in other agencies or industry standards from other research organizations (such as Government Finance Officer's Association and the National Advisory Council on State and Local Budgeting Practices).
- Identification of whether and how the Department of Administration and / or Public Works Department meet the performance target.

The best management practices are presented in detail in the appendix to this report. The following sections review key strengths and opportunities for improvement in the capital budgeting process.

1. CIP PREPARATION, JUSTIFICATION AND REPORTING

There are a number of positive aspects to the current procedures utilized in preparing, justifying and reporting on the Capital Improvement Program for the City of Milwaukee, and specifically the Public Works Department component. These positive aspects are presented below.

- The City employs a multi-year approach to capital improvement project planning with a six-year plan for capital expenditures. The first year of each CIP is adopted as the annual budget and work program for capital projects.
- The CIP contains a listing of capital planning objectives and references to the Mayor's strategic outcomes for spending in order to relate presented projects to the outcomes associated with the objectives.
- The out-years of the CIP provide a five year planning horizon beyond the adopted annual work program. The out-years of the CIP are updated annually as part of the budget process.
- The criteria for qualifying as a capital project are clearly outlined in the CIP and utilized in reviewing submitted projects. These criteria include:
 1. Renovation or restoration of buildings, structures, facilities and integral equipment items with a cost exceeding \$25,000;
 2. Construction of new or replacement buildings or structures at a cost exceeding \$25,000;
 3. Remodeling of office and shop areas;
 4. Durable equipment with an original unit cost of \$50,000 or more;
 5. Equipment and furnishings which are to be purchased as part of a capital project; and
 6. Replacement equipment (an integral part of a building, structure or facility) that costs \$25,000 or more.
- Information on the CIP projects are presented in various formats including by program functional areas (surface transportation, environmental, health and safety, economic development, culture and recreation, general government, and intergovernmental grants and aids), by requesting Department, and by Revenue source.

- The City has implemented a diversified funding approach for capital projects to reduce the reliance on cash and debt financing by utilizing Water and Sewer revenue bonds, tax increment districts, state low-interest loans, and enterprise fund lease payments.
- The CIP outlines on a broad level, the goals, priorities and expected outcomes of the CIP program areas.
- Detailed information is required from submitting departments to support the capital project request. This information includes background information on the priority of the project, the project scope and purpose, the estimated useful life, a narrative project justification, and the relationship to the City's strategic plan.
- CIP project submission documents also include detailed information regarding annual financial cost of the project and the estimated funding source, revenue generation capability, and whether it will have an impact on the annual operating costs of the City.

There are also some opportunities for improvement in this area. These opportunities are presented below.

- Specific projects within the CIP do not clearly indicate how they support the City's adopted goals and objectives. While this information is available for larger program areas, specific projects, especially larger ones, should also include this information.
- The out years of the CIP are often utilized as a wish list for the various Departments and are not always reflective of identified priorities and needs or related to the availability of funding in future years.
- Goals, objectives and expected outcomes are not correlated to all specific projects within a functional area.
- Additional information submitted as part of the capital project submission process would enable better decisions and comparisons to be made between competing projects. This information would include: estimated dollar impact on the annual operating budget, a rating assigned to indicate whether the project is routine, atypical or contains elements of risk likely to impact the cost, timing or scheduling of the project.
- All information currently requested on the submission forms should be completely filled out and explained.

- Projects can be removed from the annual work program without specific authorization of the Common Council following adoption of the annual work program due to existing procedures. Following adoption of the CIP, projects are brought forward for approval to begin when the Department is prepared to move forward with the project. No routine status report is presented to the Common Council to inform them of progress being made, or anticipated changes to the annual work program, for adopted projects.
- Except for a small number of projects that have been included in the Mayor's AIM project, no on-going status reports are prepared or presented for the Mayor or Common Council that show the current status, financial and progress, for capital projects. No reports are prepared for operating departments whose projects are being serviced by the Public Works Department regarding the current status of the projects.

The strengths previously identified relating to the CIP preparation, justification and reporting mechanisms in place provide a sound basis for addressing these opportunities for improvement.

2. FINANCIAL ACCOUNTING AND SOFTWARE UTILIZATION

A review of the current financial accounting systems and software utilization was conducted to assess the strengths and opportunities for improvement of the City of Milwaukee's financial information systems utilized for managing capital projects. The strengths are presented below.

- The Public Works Department is developing a comprehensive financial software system that will enable detailed project cost accounting for all capital projects under their control. This system will have the capability of enabling status reports to be generated that track staff hours and expenditures against planned staff time and project costs.
- Procedures being developed as part of the new internal system will increase the real-time availability of project information for use by Department Management and Budget Staff in evaluating progress on capital projects.

There are several opportunities for improvement in the financial accounting systems that impact the capital budgeting process. These are outlined in the points below.

- The Budget Office compiles all CIP projects and develops the comprehensive capital budget utilizing word processing and spreadsheet software. The City's financial system does not include either a budgeting or capital budgeting module that integrates with the accounts payable function.
- Budget staff do not have access to the Public Works Department internal financial systems limiting their ability to independently track, monitor or review project status, current expenditures, unexpended funds, etc.
- The current financial system does not enable budget staff or the operating departments to easily track funds by the year appropriated.
- At the current time a fully implemented project accounting system is not in place, limiting the ability of staff to develop reports on total project costs easily. All tracking requires extensive manual compilation and development of specialized excel reports.
- The existing systems do not enable tracking of planned versus actual staff hours charged to specific projects.
- No project management software is utilized for the capital budget projects to aid engineering staff in managing their workloads.

The strengths identified in the system development underway by the Public Works Department provide a strong foundation for addressing many of these opportunities. Others must be addressed on a more city-wide or interdepartmental basis.

3. ENGINEERING, DESIGN AND ESTIMATION

There are a number of positive aspects regarding the management of the Engineering, Design and Estimating functions associated with the capital project process. These positive aspects are presented below.

- Engineering and design services are centralized in the Public Works Department with the exception of services conducted with the Water Works Division.
- The Public Works Department staff have utilized external consultants, project managers, etc. to either supplement internal staff or address key workload peaks on certain projects identified as outside of their capabilities. An example of this includes the current City Hall restoration that is on-going where external

estimating and an external project manager are being utilized to oversee day to day operations.

- Projects have at least a preliminary scope and budget estimate before design is commenced on a project.
- Capital project submissions outline detailed information regarding the level of scoping and estimation that has occurred in the preparation of the project submission. Submissions note whether the project scopes are fully defined, partially defined, or conceptual; and estimates indicate whether they are based on a thorough cost estimate, limited information, cost of similar projects or are unsupported.
- Final reports are developed for all capital projects.
- Standard design criteria have been established for the City and are utilized as part of project design review. These criteria are available on the Public Works Department website.
- Change order authority is delegated to Public Works Department staff including the Director and City Engineer to enable projects to be continued without unnecessary delay due to unexpected project changes.
- 'As needed' consultants or engineers are solicited through an RFQ process when needed to support staff of the Public Works Department.
- The Public Works Department staff maintains comprehensive and up-to-date condition assessments and ratings for the City's street network and bridge infrastructure for use in planning future projects.

There are also a number of opportunities for improvement in this area, as presented below.

- The engineering and design functions of Water Works should be centralized with the other engineering and design functions of the Public Works Department. This approach will increase the ability of management to equalize workloads, ensure consistency among staff, more fully utilize staff, and provide flexibility to handle varying project workloads. Costs associated with engineering and design would be charged to Water Works through transfers/charge-backs based upon the project cost accounting for staff time.
- The CIP documents do not identify staff requirements necessary for the annual implementation of the approved work plan. Estimated staff hours required by project are not fully developed and presented.

- Staffing decisions are not based, on an annual basis, on cost of construction guidelines or other generally accepted construction standards.
- No assessment of internal staff competencies have been developed to ensure expertise is available either internally or through external consultants for projects requiring technical expertise outside of that normally expected of municipal engineering staff (for example – the renovation of City Hall, certain bridge work).
- Staff in engineering and design are not assigned billability targets.
- Capital project scheduling, through the use of Gantt charts or other project management software, is not utilized to evaluate the sufficiency/availability of staff to handle the annual work program.
- When estimates prepared for Capital projects are based upon prior similar projects, information outlining the specific projects on which the estimate is based should be provided.
- Cost estimates, once included in the CIP for a project in the “out years”, are not systematically and routinely reviewed, updated and verified in subsequent budget years as part of the annual work program setting process.
- Trend analysis and the development of a “lessons learned” report is not conducted on all final reports. Additionally, the timely completion of final reports is not monitored with many projects remaining open over multiple budget years beyond the date of substantial completion.
- Project Managers should have expanded authority to oversee projects crossing Departmental Division boundaries.
- No project management manual has been developed for the City of Milwaukee staff to assist them in the performance of their duties.
- The change order process provides that a project budget may be exceeded by up to 10% prior to authorization by the Common Council. However, once the change order amount is authorized by the Common Council, this amount becomes a part of the “revised project budget” and change order authority remains at 10% of the new budget.
- Project contingencies are not set aside at the beginning of a project as part of the project budget. Contingencies are budgeted for program areas rather than individual projects.
- Public Works has not established an annual process for establishing a roster of “as needed” consultants/engineers based upon an RFQ process. An annual evaluation or rating of contracted consultants or engineers is not conducted.

The strengths previously identified relating to engineering, design, and estimation functions provide a sound basis for addressing these opportunities for improvement.

4. CONSTRUCTION AND INSPECTION

There are several strengths that were identified within the Public Works Department relating to the work performed in construction and inspection of capital projects. These are listed below.

- Pre-construction conferences are utilized prior to the beginning of a specific project with prime contractors and key subcontractors.
- Construction inspectors are responsible for monitoring the accuracy of the work performed by contractors, including quantities utilized, on a daily basis. Progress payment documentation is verified and reviewed by the inspector prior to being submitted for payment by the administrative staff.
- All requests for change orders are reviewed by construction inspectors.
- Inspectors maintain daily project diaries and documentation sufficient to evaluate contractor performance in accordance with the established project contract. Inspectors maintain project files including all relevant materials to the project.
- Inspectors oversee the materials testing performed by the City's contractor.

There are also areas identified as opportunities for improvement as noted below.

- Staffing allocations for construction and inspection are not based on cost of construction guidelines or developed based on the annual work program.
- Change orders do not distinguish between changes required due to variations in the quantities of materials being utilized versus changes necessary due to scope changes in the project. This results in a limited ability to easily review and analyze the reasons giving rise to the change orders. The ability to identify problems in estimation (typically resulting in quantity variations in a project) are limited by this fact.

The strengths previously identified provide a sound basis for addressing these opportunities for improvement.

5. ANALYSIS OF THE USE OF TECHNOLOGY AND REPORTING CAPABILITIES

5. ANALYSIS OF THE USE OF TECHNOLOGY

This chapter presents an analysis of the use of technology to support the capital budget process and capital project management in the City. Additionally, a review and discussion of existing reporting capabilities of these systems is provided. This analysis focuses on the use of the existing financial management system, internal departmental databases, and the plans currently in place to expand software utilization.

1. THE CITY SHOULD PURCHASE PROJECT COSTING AND PLANNING / BUDGETING SOFTWARE THAT INTEGRATES WITH THE PEOPLESOFT FINANCIAL MANAGEMENT INFORMATION SYSTEM.

Presently, the City is utilizing an enterprise-wide system acquired from PeopleSoft. The City acquired The Human Resources and Financial Management Information Systems. This included the human resource, benefits administration, and payroll modules for the Human Resources Information System; and the general ledger, accounts payable, accounts receivable, inventory, and purchasing modules of the Financial Management System. The City implemented these two systems approximately five to six years ago. Due to increasing costs, several modules, including the budget and the project costing modules, were not acquired and/or implemented.

This has resulted in a lack of functionality that is critical for both the Budget Office and the Public Works Department. The problems with the lack of functionality include the following:

- Lack of integration between different information systems and the development of “workarounds” and “silos” of information systems regarding capital projects;
- Lack of automation and reliance on manual information systems for capital projects;

- Lack of required functionality – the type of functionality that results from integrated systems – and the resulting need to enter the same information numerous times in different information systems;
- Lack of reliable and timely reporting regarding capital project costs;
- Redundant data and lack of data integrity for capital projects; and
- Lack of visibility of the total cost of capital projects.

Milwaukee has an annual operating budget in excess of \$1 Billion and an annual capital budget of \$200 Million. The City clearly meets the criteria, in terms of size, to warrant a fully functioning enterprise resource planning system.

The Budget Office is developing and compiling the annual operating and multi-year capital budgets utilizing word processing and spreadsheets software. This requires that all information submitted be developed in Microsoft Excel and Word documents, forwarded to designated Budget staff and then compiled into master documents. Following completion of the budget process and formal adoption of the budget, comptroller staff are responsible for uploading the approved budgeted amounts into the FMIS system. This process requires that data be formatted, in some cases, to bring the developed budget accounts into alignment with the accounting systems utilized by the Comptroller's Office. This disconnect between the development and adoption of the City's budget and the financial management system is significant and contributes to extra work for all parties involved, an increased likelihood for calculation and transcription errors, and a system that lacks the ability to generate the type of information and reports that many within the organization seek in order to accomplish their duties more effectively. In addition, this process makes it more difficult and time consuming to complete year-end close out for the budget process.

Similar to the procedures utilized in compiling the operating budget, the capital budget is prepared through the utilization of a variety of Microsoft Excel and Word documents. While a standard format is utilized for CIP submissions, the development of the six-year capital improvement budget requires the Budget Office to compile and integrate numerous documents from different departments into a master document for presentation to the Mayor and Common Council. In addition, following adoption of the capital budget, the adopted capital budget must be entered into FMIS. This approach, in addition to the lack of the Oracle / PeopleSoft Project Costing module, results in Public Works Department project managers not having a consistent method for developing project budgets for monitoring current expenditures versus the adopted project budget. Instead the Public Works Department project managers are creating for some projects, but not all, separate Microsoft Excel spreadsheets to track actual expenditures against the project budget. Extremely limited tracking of staff resources assigned to projects is occurring with the obvious risk of over expending capital budgets. The data utilized by Public Works Department project managers for monitoring the actual expenditures versus budgets in capital projects is taken from a variety of sources, rather than from one source – the City's FMIS. This increases the likelihood for reporting errors, inconsistencies between projects, and over expenditures of capital budgets. This data is often extracted through the use of a myriad of queries that are then entered into the spreadsheet. The ability to query and import data in the needed format under the current system is extremely limited. Finally, the reports generated are not easy to update on a recurring basis.

The City has, at various times, conducted reviews and evaluations of the

PeopleSoft Planning / Budgeting Module. However, the City has not yet acquired this module. This module is an analytical application that would help the City perform top-down target setting for budgets, bottom-up budgeting and forecasting. The functionality provided by module includes processes for budget development, planning, approval, forecasting, allocations and budget entry. Other features of this module are presented below.

- **Position Budgeting.** Position budgeting allows users to budget for specific positions by importing that data into the PeopleSoft Planning / Budgeting Module from the PeopleSoft Human Resource Information System.
- **Asset Budgeting.** Asset Budgeting is similar in that it allows users to budget for assets or asset depreciation by importing data from the PeopleSoft Asset Management. Both of these activities roll up to the Line Item budget where a user budgets for all other items.
- **Financial Analytical Tools.** The PeopleSoft Planning / Budgeting module delivers a set of analytical tools to assist users in developing their budgets. Flex Formulas, Planning Targets and Allocations are all tools that can be utilized during the budget development cycle. These tools allow users to calculate line items based upon related data, limit how much may be budgeted or transfer costs/revenue to other planning centers. PeopleSoft Planning / Budgeting module also delivers an analysis tool that allows users to do on-line reporting and data analysis. These tools can be made available to all users, but some are more complex and others require a central administrator for setup and maintenance. The PeopleSoft Planning / Budgeting module also assumes a centralized budgeting model. The analytic tools are not only demanding on the end users, but upon system resources as well and do not scale well in a distributed environment. PeopleSoft recommends a limit of 100 to 200 concurrent users.

This module is essential for the City to effectively budget for its capital projects, and the City should acquire and install this module.

The City should also acquire the PeopleSoft Project Costing module. This module uses interfaces from the Accounts Payable, Purchasing, and General Ledger modules to capture expense and cash rows. This module would enable a number of important controls for the City and for capital project managers in the Public Works

Department including:

- Budgeting features that support both revenue and cost budgeting allocations;
- Project and budget creation from either predefined templates or existing projects;
- Multiple versions of project budgets, top-down budgeting, and multiple units of measure;
- Alerts and online budget-to-actual analytics that are configurable with multiple selection criteria and detailed drill-down capabilities;
- Expenditure control functionality to create budgets, and control pre-encumbrances, encumbrances, and actual based on details of project transactions; and
- Control over erroneous transactions since they can be identified and corrected using transaction review features with review of all billing, cost, and sharing transactions before they generate internal charges.

The effective use of this module would require the Budget Office and the capital project managers in the Public Works Department to take a number of steps including the following:

- Set up the specific project;
- Set up the project funding source such as the wastewater fund or potentially a combination of funds;
- Set up the project funding amount or budget journals for the project;
- Create standard activities for the project such as design development, design administration, design survey, construction management, construction inspection, etc.;
- Set up the project budget ledger definition so that the module can handle expenditures appropriately by project (defined as the parent) and by activity (defined as the child) so that the expenditures for each activity do not exceed the project budget;
- Run project / activity reports to pull project and activity data including budgets, expenditures, encumbrances, available balances and transaction details on not less than a monthly basis including:

- Budget Status Report is a report generated from the project ledger or the activity ledger to review available balances for each budget line item.
- Another useful report is called the Budget Transaction Detail Report that can be generated from the project ledger or the activity ledger to review transaction details.

This module integrates with Microsoft Project by directly uploading and linking Microsoft Project files to the Project Costing module.

The Project Costing module integrates with a number of other modules including the general ledger, planning and budgeting, purchasing, inventory, payroll, and asset management. The module is designed to enhance the effectiveness of management controls for capital projects. Estimates developed by PeopleSoft for the purchase of these software modules is as follows:

Product	Cost
PeopleSoft Enterprise Project Costing	\$350,625
PeopleSoft Enterprise Contracts	\$264,000
PeopleSoft Enterprise Program Management	\$280,500
TOTAL	\$895,125

As shown, the initial outlay for the purchase of the three recommended components of the PeopleSoft Enterprise software would be \$895,125. There will be some associated costs with implementation and modifications, if necessary, to address the customization that the City has undertaken to its current PeopleSoft FMIS software.

It is generally acknowledged by staff that the need exists for the implementation of budgeting and project costing/program management software to improve operations. However, some significant concerns have been raised regarding immediately choosing and implementing the options available from PeopleSoft. These packages have been reviewed several times over the last few years by representatives from the Budget Office, Comptrollers Office, and operating Departments and issues have been identified

regarding ease of use, cost of implementation, and functionality with an acknowledgement of the benefits of a fully integrated and single-source software package. Absent a fully integrated financial system that includes the outlined project costing tools, many of the recommendations contained in prior Comptroller's Audits of Capital Projects will be difficult for the Department to fully implement in a cost-effective manner without devoting excessive staff time. Currently available tools do not facilitate the development of the varied and detailed reports, for all capital projects, that have been recommended in prior audits and those contained within this report. The best approach to addressing these concerns during the acquisition and implementation of these software modules is to utilize a Request for Proposals process. The RFP should be written requiring a two-part response. The first is a detailed indication of the ability to provide software containing the specific functionality required by the City of Milwaukee for each software package (budget, contract administration, program administration / project costing) and a detailed description of the ability to integrate these software solutions into the existing PeopleSoft FMIS system.

The evaluation of bid responses should be conducted based on the responses to these two areas and measured against the cost, functionality, and level of integration that is achievable through the implementation of the referenced PeopleSoft modules. A decision to acquire systems other than the PeopleSoft modules should be made only if there are significant benefits noted (either in increased functionality or reduced cost) and the level of integration necessary to eliminate duplication of efforts can be achieved. In other words, the PeopleSoft approach should be the benchmark against which all responses are measured. This is appropriate given the fact that the City has

invested significant time, effort and funds into implementing PeopleSoft as the enterprise-wide financial management system.

Recommendation: The City should acquire financial planning, budgeting and project costing software that fully integrates into the existing FMIS system. The decision of which software packages to utilize should be based upon functionality, cost, and ability to integrate with the existing FMIS system.

Recommendation: The City should undertake an RFP process to solicit software solutions. The choice of which specific vendor to utilize should be based upon functionality, cost and ability to integrate with the existing FMIS.

2. MODIFICATIONS TO THE EXISTING ACCOUNTING SOFTWARE SHOULD BE IMPLEMENTED IN ORDER TO ENHANCE THE FUNCTIONALITY AND USABILITY FOR BUDGET AND DEPARTMENTAL STAFF.

In addition to the implementation of needed modules to assist with the budgeting and monitoring of capital projects, several changes should be implemented within the current system (and should be required within any budgeting module implemented) to enable staff to conduct their duties more effectively. At the present time, departments are not able to effectively track or designate funds within the system as applying to a particular funding year. This requires then, additional manual accounting, to track allocated funds over multiple years when expenditures are encumbered and spent in the years following initial appropriation. This is largely a concern for capital projects. A "funding year" designation should be available within the system to assist in tracking unexpended funds by year. This will enable reports to be generated automatically showing balances, by account, of unexpended and available funds.

In addition, to simplify the monitoring of capital projects, each capital project should be assigned a unique project identifier to which all expenditures, payroll and other costs, are charged. This will begin developing the internal data necessary to move to the implementation of full-cost accounting by projects. A function that many

within the organization, including within the Public Works Department, Budget and the Comptrollers Office, would like to see implemented. While the payroll and financial expenditure systems are not integrated, the use of a common and unique project identifier in both systems will simplify the generation of reports by enabling the downloading of data by project.

Finally, for each of the capital projects approved as part of the annual work plan, the financial system should enable the City of Milwaukee to indicate the revenue source funding the project by type and amount. Linking this information directly to the individual capital projects will increase the ability of staff to track availability of funds, by source, for each individual project. This approach is somewhat different from the current approach of showing revenues by larger program areas for capital projects (such as Street Maintenance, Bridge Maintenance, etc.).

There is currently available within the FMIS system the ability to develop “trees” and “queries” that will enable departments, such as Public Works, to retrieve detailed financial information regarding each of their program accounts and/or specific projects. However, the utilization of this function has not been implemented to its fullest extent for a variety of reasons. These reasons include:

- Need for Comptroller staff to assist in development of “trees” so that data can be withdrawn from the system;
- Lack of confidence by department staff that the data retrieved is accurate and timely;
- Lack of staff expertise within departments to fully understand and utilize the query tools to extract data; and
- Ease of implementing work-arounds at the department level to develop needed information.

The Comptroller staff has expressed a sincere willingness to provide assistance to user departments in fully understanding and utilizing the existing FMIS system, to assist in developing of the necessary “trees” and “queries” to access needed data, and to discuss with staff appropriate modifications to the system to improve functionality.

Recommendation: Modifications to the current expenditure accounting system should be implemented to increase the functionality of the system for users by allowing funding year designation, allocation of capital revenues by project, and the assignment of unique project identifiers to each capital project.

3. THE DEPARTMENT OF PUBLIC WORKS SHOULD CONTINUE EFFORTS ON THE IMPLEMENTATION AND INTEGRATION OF THEIR INTERNAL DATA SYSTEMS.

In response to feedback from prior internal audits conducted by the City of Milwaukee Comptroller’s Office and to meet operating needs identified by internal Public Works staff, the Public Works Department has begun the development of an internal financial management system to handle their expenditures, integrate data maintained in various internal databases, and provide the ability to more accurately and effectively develop reports on the status of capital projects.

While this effort may result in a system that is not entirely integrated with the existing FMIS system and has some limited duplication of functions, the effort underway will greatly increase the ability of the Public Works Department staff to have available timely, accurate, and usable data necessary to generate the type of reports and analysis that they have been criticized for not providing in the past. The Public Works Department undertook this effort to improve its services to address these concerns after noting that it was unlikely that a City-wide system would be implemented in the foreseeable future. As noted earlier in this chapter, while separate systems that have not been integrated are generally not preferable for an organization, this effort should

continue as it will provide the ability for the Public Works Department to most immediately improve their ability to manage projects under their control and address areas of concern that have been raised regarding their operations over the last several years.

As part of the MIS system being developed, the Public Works Department is attempting to also update and integrate data from a variety of databases that it maintains throughout the Department. These databases and information sources maintained include the following:

- **Paving Management Files and Databases:** DPW maintains eight databases and several manual card files and spreadsheets to track and monitor progress on the following items: Paving Program Planning, Street and Alley Maintenance, and State Reporting files (required every two years). The major systems include: project history card files outlining completed project history by street segment; estimating computer database for paving estimates; “box car” estimate database utilized for planning; scheduling database with start to finish project data; cost estimate spreadsheet contained final project cost estimates; and special assessments database (data at individual property level to allocate final costs for special assessments).
- **Paving Construction Contract Administration:** To support this function, the Public Works Department maintains a construction contract database to track all construction activities and contractor payments.
- **Street and Alley Maintenance:** To manage the crack filling and resurfacing work performed by city staff and contractors, the Public Works Department utilizes an arcview database with approximately 25 years of street and alley maintenance records.
- **State Reporting:** To maintain compliance with state reporting requirements for state funded projects, the Public Works Department maintains the Pavement Management Application (PMA) database containing a street inventory and condition ratings.
- **Bridges:** In maintaining required information on bridge and overpass assets, the Public Works Department is utilizing a variety of spreadsheets and paper files including: paper files on each bridge with design and inspection documents; spreadsheets containing bridge inventory with market values; bridge assessment

spreadsheets containing the sufficiency ratings for the bridge and outlining inspection requirements.

- **Sewers:** The Public Works Department maintains five databases covering the following areas: sewer inventory; computer maps of sewer sections; paper maps of all sewer sections; potential sewer projects database, and a construction contract administration database.
- **Water Mains:** To support the Water Works operations, the Public Works Department maintains three major databases: Water Main break database (listing of breaks by location), water main experience (historical breakage information used for replacement planning); and Water Main Replacement Program Database (project information on planned and potential projects – with information from project concept through award of a construction contract).

For the most part, these various databases and files are not integrated in any manner and are not in a common format or software program (dBase is the predominant database being utilized). The Public Works Department has undertaken a substantial effort to begin transferring these databases to a standard format and providing a web-based platform that will enable the information to be shared and integrated for usefulness. This effort, when completed will greatly reduce the duplication of effort that is underway in entering information into multiple programs and enable easier datasharing among staff.

This effort by the Department should continue with the following caveats:

- Efforts to integrate internal databases (estimating, contracting, bidding, etc) that provide historical data and/or condition assessments should continue with a high priority on completion;
- Efforts to develop more detailed financial management reporting functions should continue only to the extent necessary to provide critical information necessary to comply with required reporting;
- Public Works should be intricately involved in the development of the RFP for the new software modules (outlined earlier in this chapter) and the review and selection of the new software;

- Public Works staff should take advantage of the expertise of the Comptrollers Office to develop and extract necessary information from the existing FMIS system in lieu of developing alternative financial tracking systems; and
- Upon selection and implementation of the new software modules, the Public Works staff should fully utilize these systems and eliminate use of any non-integrated and duplicative financial reporting systems. The benefits of the implementation of these new systems will only be achieved if they are utilized fully and as the sole source of financial information. If no new software modules are implemented, then Public Works by necessity will be required to develop an internal tracking mechanism that will have limited, if any, integration with the FMIS.

Until new software is implemented, there will be some duplication of efforts by Public Works staff since the existing FMIS does not provide any project management functions. The functionality does not exist to link funding sources below the appropriation level to specific projects.

Recommendation: The Department of Public Works should continue progress on transferring information from the various database programs to the new platform and providing a consistent and uniform approach for data collection. This project should continue to be given the highest priority rating with the department to ensure resources are available to support and fully implement this effort.

4. BUDGET, COMPTROLLER AND COUNCIL STAFF SHOULD BE GRANTED ACCESS TO THE PUBLIC WORKS DEPARTMENT'S INTERNAL FMIS SYSTEM WHEN IMPLEMENTED.

Following the implementation of the Public Works Department internal FMIS system, the budget staff assigned to reviewing and coordinating the Public Works Department capital program should be granted access to the system. As part of their roles and responsibilities in reviewing capital project submissions and reviewing the sufficiency and accuracy of submitted documentation, Budget staff must have independent access to source information utilized in the preparation of the requests. Since the City of Milwaukee does not have an integrated FMIS system at this point,

access to the new system being developed by the Public Works Department will provide budget staff with critical information that will enable them to fulfill assigned duties.

Budget staff are currently dependent upon the information that they request from departments in conducting their review of projects and verifying the sufficiency of project submissions. Access to the expenditure information, available and encumbered funds, and the background information (condition ratings, estimating data, prior project data) is necessary for independent evaluation of proposed projects.

In addition to the access provided to Budget staff, similar authority for reviewing and monitoring of this data should be provided to appropriate Council and Comptroller staff. This access is necessary to enable them to conduct their oversight and monitoring functions. As with Budget staff, access should be limited to review and extraction of data but not the ability to change data.

Recommendation: Appropriate Budget, Council, and Comptroller Staff should be granted access to the new FMIS system when it is functional.

5. SEVERAL ENHANCEMENTS TO EXISTING REPORTS AND THE IMPLEMENTATION OF NEW REPORTS ARE NEEDED TO IMPROVE THE TRACKING AND EVALUATION OF CAPITAL PROJECT PERFORMANCE.

The existing project managers for capital projects have a variety of methods they are utilizing to manage workloads and assigned projects – no uniform project management reports are currently being utilized as a standard. The most common approach is the one utilized by Engineering; that is completed every two weeks, and that consists of a basic excel spreadsheet containing limited project information (project title, description, project manager, contractor/designer, priority, and short narrative of current status). This is a working report and not developed or designed for dissemination outside of the Public Works Department.

In addition, under the Mayor's AIM initiative a small group of selected Public Works Department capital projects have been identified for a more comprehensive status reporting effort. A sample of the current AIM report generated for these capital projects is included in Appendix C. This report provides the type of information that is useful for City and Public Works Department management staff to assess the status of a project including: project description, funding data, approved budget, approved change order amounts, total budget, funds encumbered and expended, total costs incurred, percent project completed, project balance, and the starting and projected ending date of the project. In addition, this report breaks out the project by key stages of the project including design and construction phases.

The other key aspect of this report is that it pulls together, in many cases for the first time, information from the various capital programs without regard to the program funding source. In the attached example of the report on the Kilbourn Avenue Bascule Bridge project, it includes not only the project funded under the bridge program but the funding associated with the street project. Prior to the implementation of these reports, the projects would be tracked and handled separately from each other and the total cost of the project including all elements (bridge and street) was not easily available or obtainable.

At the present time these reports are prepared only for a handful of projects due to the need for the information contained within them to be pulled together manually from a variety of sources. The Public Works Department staff, with assistance and guidance from Budget staff, should develop a plan to increase the utilization of this report for all major projects within the City of Milwaukee's Capital Program and ideally

moving to the development of this report for all capital projects over the next several years. It is typical to see this type of report prepared by communities on a quarterly basis with at least semi-annual updates provided to the elected board. The reports on atypical or high-risk projects should be completed on a bi-monthly basis. Given the nature of these projects, more frequent review and reporting is appropriate.

The usefulness of the report can be enhanced with a few minor revisions. The following information should be included on the report:

- **Comments Section:** A short narrative section should be added where staff can bring to the attention of the reviewer critical information regarding the project such as major milestones achieved, problems encountered, and delays in the process.
- **Additional Date Fields:** In addition to the current date fields on the form which show the actual date action was taken, the planned starting and ending dates for each phase should be listed. This will enable the reviewer to see whether the project is on schedule or not.
- **Contingency Funds:** The amount of project contingency funds for the project should be listed as a separate item for the project and the utilization of the contingency expenditures should be tracked (amount expended and amount remaining). Specific contingencies should be set aside by each phase of the project. A more detailed description of changes in the funding of contingencies is contained later in this report.

These relatively minor changes to this report should improve the effectiveness of the information presented and better indicate to those viewing the report not only the current status of the report but how it compares to the scheduled status/progress. To facilitate the implementation of this recommendation, and understanding the current limitations on the financial systems, these reports should be initially developed for projects that are either high risk or atypical or that have a total project cost in excess of \$1 million. Following implementation of other recommendations regarding the financial systems, these reports can then be generated for the full range of capital projects.

Recommendation: The reports generated for the AIM Initiative should be gradually increased to include a greater percentage of DPW capital projects with a goal of developing these reports on all active capital projects at least semi-annually providing them to the Budget Office, Mayor's Office and the Council.

Recommendation: The AIM status reports should be developed monthly on those projects that have been identified as atypical or high risk to provide a greater level of review and oversight.

Recommendation: Revisions to the format and information presented in the AIM reports should be made to increase their effectiveness in monitoring project status and informing reviewers of critical information.

6. BUDGET STAFF SHOULD CONDUCT REVIEW MEETINGS WITH DPW STAFF TO EVALUATE PROJECT PROGRESS.

Staff from the budget office and the Public Works Department should conduct a periodic meetings to review the capital project reports and review current project status. The focus of this meeting should be on identifying potential problems or funding issues regarding capital projects. Discussion should be held regarding projects where allocated funding may be insufficient and action will be necessary, projects that have been delayed beyond the current fiscal year (and the potential exists for reallocation of these funds to other projects), scheduling issues have arisen that may impact the beginning or conclusions of projects scheduled within the current fiscal year, and other major items that could impact the capital budget. These meetings should be scheduled at least once mid-year to assess current performance and implementation of the adopted CIP and once as part of the annual Capital Improvement Plan update.

To facilitate these meetings and to provide on-going information, the Public Works Department should develop a report that summarizes for each capital project, any that are deviating by more than 15% from the originally scheduled budget or established time frame. This report should be developed quarterly and used as an early

warning indicator of potential problems that may occur with the successful completion of the project on time and within the budgeted costs for the project. In developing this report, Public Works Department staff should evaluate the budget and time schedule for each phase of the project (design, engineering, construction, etc.).

These meetings would not be designed for Budget staff to manage the day-to-day project management, but to provide a communication mechanism and discussion of major project issues that have the potential to impact future year capital planning or issues regarding the funding necessary for current or planned projects. As with the prior recommendation, this new practice may need to be phased in over several years to coincide with the implementation of the new financial software previously discussed. However, initial efforts should focus on developing these reports for high risk/atypical projects and those in excess of \$1 million.

Recommendation: The Public Works Department should prepare a quarterly “special exception report” that outlines capital projects that are deviating by more than 15% from the original budget and schedule for any project phase.

Recommendation: Budget Office Staff should conduct periodic meetings with Public Works Department staff to review capital project status, review funding levels, and discuss exception reports. These meetings should be scheduled mid-year and as part of the annual Capital Improvements Plan update.

6. ANALYSIS OF POLICIES AND PROCEDURES

6. ANALYSIS OF POLICIES AND PROCEDURES

As part of the management audit of the capital budgeting management process, the project team reviewed and analyzed the procedures and processes utilized by the City of Milwaukee in developing the CIP program and annual work plan. As noted in the chapter on best management practices, there are several positive features related to the existing procedures that are utilized including:

- Utilization of a six-year planning horizon for capital projects with the implementation of the first year as the annual capital improvement work program.
- The identification of capital planning objectives and strategic outcomes as a basis for associated projects with desired outcomes.
- Clear definition of criteria outlining what constitutes a capital project.
- Presentation of the information contained within the CIP in a variety of formats including by functional area (surface transportation, environmental, health and safety, economic development, culture and recreation, general government, and intergovernmental grants and aids), by requesting Department, and by Revenue source.
- The establishment of financing goals to guide the development of the CIP. These goals include the preservation of the City's infrastructure and capital assets; to control the City's overall debt burden; and to minimize deferred preservation.
- The adoption of formal policies guiding funding for capital programs that include targeting newly issued debt to correspond with the annual debt retirement amount, targeting the total tax level supported debt at 35.5% of the total capital project budget, and utilization of short term financing for shorter life capital projects. Additionally, cash is utilized as funding for all projects related to recurring infrastructure programs.
- Requirement that submitting departments provide detailed information to support the capital project request. This information includes background information on the priority of the project, the project scope and purpose, the estimated useful life, a narrative project justification, relationship to the City's strategic plan, and detailed financial information regarding the annual financial cost of the project and the revenue source.

These strengths provide a strong base from which to implement changes designed to improve and enhance the existing procedures. The following sections provide specific recommendations regarding proposed changes to the policies and procedures utilized in developing the capital improvement program.

1. THE EXISTING INFORMATION REQUESTED ON THE CAPITAL IMPROVEMENT REQUEST FORMS SHOULD BE REVISED AND MORE FULLY COMPLETED.

In reviewing selected copies of the project request forms submitted by the Department of Public Works, the project team noted that information elements contained on the form were often either not completed, partially completed or completed in a manner that limited the clarity and usefulness of the information. The capital improvement request form requires, among other items, that the Department provide information regarding the following items:

Element	Rating Factors
Department Priority	Ranking of priority by Department for the project (Priority X of X)
Level of Need	Essential, Important, Desired
Type of Project	New, Replacement, Repair, On-going Program
Project/Program Scope	Fully Defined, Partially Defined
Description	Infrastructure (12 choices – street, sewer, water, etc.); Building (Roof, Windows, HVAC, etc.); Miscellaneous Development (Economic, Information Systems, Equipment)
Project/Program Duration	One Year, On-going, Multi-year
Total Positions	Information on number and cost of positions needed to support the program
In Existing Six Year CIP	Yes, Yes – Modified, New Request
Project/Program Justification	Narrative Description

Element	Rating Factors
Additional Comments	Narrative Description
Available Cost Estimate	Thorough Cost Estimate, Limited Information, Based on Cost of Similar Projects, or Unsupported.
Were cost estimates verified by another source?	Yes, No, Uncertain
Are cost estimates based on industry standards?	Yes, No, Uncertain
Will city employees be performing any portion of the work?	Yes, No, Uncertain
Did you perform a cost/benefit analysis?	Yes, No, Uncertain
How will this project impact city operating costs?	Increase, Decrease, None
Estimated Start Date	
Estimated Completion Date	

Because capital project requests from the Department of Public Works are submitted on a program basis related to the Department's parent accounts for funding sources (such as Major Bridge Program, Street Lighting, Sidewalks, Parking, etc.), the information contained in these descriptions is often broad and general in nature since it is applicable to a variety of projects rather than a single project.

The supporting documentation contains a detailed list of projects with their individual project cost by year. This results in less useful information than if critical information fields were completed and available for each specific project. For example, in rating all projects submitted as part of the program area the level of need area may have all three boxes checked (essential, important and desired) rendering the ability to evaluate project based on need impossible since this need rating is not provided on each individual project. Similarly, in the section asking if the project is currently in the

CIP, is a modified request or a new request; multiple boxes maybe checked. Again, because these responses are not applied to each individual project, it becomes difficult for budget staff to distinguish which projects are currently in the CIP, which have been modified in this submission, and which are new projects being requested for the first time.

While the presentation of CIP requests, grouped by parent accounts, pulls together useful information on the total program effort for that area, it limits the availability of information by project that is useful for staff and policy decision makers in evaluating and fully understanding projects. For this reason, total project costs should also be provided as part of the CIP document.

While cognizant of the work associated with developing the volume of capital program requests that the Public Works Department is required to submit annually, a revised format should enable the provision of required information by project without having a significant impact on workloads. Similar to the matrix that the Department develops showing individual projects by annual estimated expenditure, a chart should be prepared that shows, for each project contained within the parent account, the critical basic information on that project such as:

Department Priority
Level of Need
Type of Project
Project/Program Scope
In Existing Six Year CIP
Available Cost Estimate
Were cost estimates verified by another source?

Are cost estimates based on industry standards?
Will city employees be performing any portion of the work?
Did you perform a cost/benefit analysis?
How will this project impact city operating costs?
Estimated Start Date
Estimated Completion Date

This information will provide a greater ability for staff to evaluate individual projects and to identify potential problems with specific projects. For example, projects in outer years, typically have a less defined scope and cost estimate than those in current years. This fact should be clearly noted and understood by all parties involved and more detailed information should be developed as the project moves forward in the project timeframe.

In addition to reformatting and providing the existing information requested on capital projects, there is some additional information that should be added to the Capital Improvement Request forms. This information includes:

- **Risk Rating:** A new category that should be added to the submission forms would be a risk rating to identify to Public Works Department staff, budget staff, and the Mayor and Common Council the anticipated risk nature of the project. This provides a heads up for those projects where greater oversight and management may be necessary to address uncertainties within the project (such as unknown site characteristics, a project of a type not previously undertaken by City staff, etc.). The ratings utilized could be: Low (suitable for routine projects); complex (larger projects involving multiple phases or disciplines); and Atypical/High Risk (for extremely large capital projects or one-of-a-kind projects). An example of a low risk project would be a routine street reconstruction. An example of an atypical/high risk project would be the City Hall Restoration.
- **Basis of Request:** This category should replace the former “level of need” category and provide information regarding the operational benefits of the project. Responses in this category could include: maintain replacement schedule, eliminate safety hazard, compliance with mandate (federal, state, local), new project/facility, etc.).

- **Available Cost Estimates:** For the category, based on cost of similar projects, a section should be added for the Department to identify those prior similar projects that were utilized as a basis for developing the cost estimate. This will provide budget staff the ability to review these prior project costs, if desired, to determine whether that project was completed in line with the established budget.
- **Impact on City Operating Revenues:** Currently, the choices available include Increase, Decrease or None. While these choices are sufficient, a section should be added so that when either increase or decrease is noted, the department is required to indicate the annual impact on the operating budget. This is critical information for decision makers to consider when evaluating specific projects and ensures that the appropriate adjustment is made to the operating budget if this project is approved.

These three additional elements will provide additional useful information for budget staff in evaluating the project submissions, fully understanding the information and impact of the project, and making recommendations to the Mayor and Common Council on the CIP program.

Finally, for all projects identified as atypical/high risk, the submitting department should provide a detailed narrative that addresses the efforts taken or that will be taken to minimize the risk associated with the project. Factors that should be considered and addressed include:

- Whether outside expertise or assistance was used in developing cost estimates or reviewing project scope and design?
- Whether external project management would be beneficial for day to day management of the project?
- The identified alternatives that can be implemented during the project to manage potential risks with the project.
- A description of the most likely areas that could be impacted by the project (project timing, cost, etc.).

This narrative and analysis will assist decision makers in fully understanding the level of risk associated with the project, inform them that the Public Works Department

is aware of these potential risk factors and has considered and developed approaches to minimizing them.

Recommendation: Budget staff should work with and train departmental staff on the appropriate methods for completing the Capital Improvement Request Forms and should require that all forms be fully completed upon submittal.

Recommendation: The Capital Improvement Request Forms should be revised to provide additional information on specific projects included with submissions made under parent accounts.

Recommendation: A risk factor rating should be added to the capital improvement request form to identify to all reviewers the level of risk associated with a project. A narrative should be required for all projects identified as atypical/high risk outlining the potential problems identified by the Public Works Department and the efforts that have been or will be taken to minimize the project risk.

2. PROJECT COST ESTIMATES AND SCHEDULES SHOULD BE UPDATED ANNUALLY AS PART OF THE CIP DEVELOPMENT.

While the annual development of the CIP typically starts with reviewing and updating the existing CIP and incorporating the second year of the plan as the annual CIP budget (with amendments and revisions as proposed by Departments), a special effort needs to be undertaken to ensure that the cost estimates and completion schedules for those projects remain current. Most of the cost projections for projects have been developed several years in advance, since projects are typically incorporated into the CIP in the out-years. The current practice allocates costs based upon current year figures and does not include any type of price escalator or CPI adjustment for the out-years.

In reviewing, incorporating and developing the new CIP annual work program, the Public Works Department staff should review and sign-off on a form prepared by the Budget Office that the estimates previously included in the CIP plan for the project

either remain accurate or provide a new cost estimate for inclusion in the document.

This has been a particularly problematic area for the City of Milwaukee in prior years where project cost estimates are not routinely updated to take into account changes in prices that have occurred since the original estimate was prepared.

An alternative approach would be to utilize a cost escalator in the out-years of the budget to give an indication of the expected costs of the project when it becomes part of the annual work program. While this is an approach that may be useful for Budget staff in making future projections, it is not a reliable enough method for utilization in actual budgeting of the annual CIP work program that will be adopted by the Common Council. Clearly, the more preferable and accepted practice is to ensure that all project estimates are reviewed annually for sufficiency and in line with current prices for similar work activities.

Additionally, the project completion schedules and the staff resource allocations necessary to support the proposed CIP annual work program should be reviewed and updated to ensure that they remain appropriate for use in budgeting. The correlation of staff resources to the annual CIP work program (as discussed in the following chapter) makes base assumptions on the ability of the Public Works Department to complete the annual work program based upon staffing allocations that derive from the work program developed as part of the CIP. A strong link should be developed between the adopted annual CIP work program and the required operational budget for staff resources (or contracted resources).

Recommendation: As part of the annual CIP development, the Public Works Department should review and sign-off on all estimates as appropriate for continued use (or prepare and present new project estimates) for all projects moving from year 2 to year 1 of the CIP.

Recommendation: As part of the annual CIP preparation, all project completion schedules for the current year of CIP to be adopted should be reviewed for continued appropriateness for use. Staff resource allocations, and project scheduling assumptions should be reviewed to ensure they continue to form a sound basis for budgeting purposes.

3. A REPORTING MECHANISM SHOULD BE INSTITUTED TO INFORM KEY INDIVIDUALS OF PROJECTS THAT ARE BEING ADDED, DROPPED, OR DEFERRED FROM THE ANNUAL WORK PROGRAM.

Following adoption of the annual CIP document, the first year of the program becomes the annual work plan for the Public Works Department. Since many of the projects included within that work plan are adopted under the parent account approach, specific authorization is not given to individual projects and the Department retains the flexibility to make some adjustments in the projects performed during the year, as long as the project is brought forward for approval by the Common Council. The Common Council approves the total budget for each parent account, but specific projects still require formal authorization prior to commencement.

One area of concern and frustration in the existing process is that projects can be dropped from the annual work program (due to legitimate operational reasons related to the project), but this information is not communicated to policy makers, budget staff or other interested individuals. Likewise, projects can be added (generally to replace ones that are being dropped) and the first notification of this action for many individuals is when the project is brought forward to the Common Council for authorization.

While some of the status reports discussed elsewhere in this report will assist in improving the level of communication between all interested parties, the Department of Public Works should institute a reporting mechanism that enables them to keep all interested stakeholders (Mayor, Common Council, Budget Staff, other departments)

informed of changes in the specific projects that may be undertaken in specific parent accounts. Early notification to these individuals enables policy decisions to be made regarding priorities and ensures that individuals supporting a particular project are aware of its status. This is especially critical for elected officials where projects are included and the budget and public communication regarding the City's commitment to conduct the project during the coming year has occurred.

Either as part of the quarterly reports, or as a short separate report, the Public Works Department should prepare a status report outlining projects identified as not able to move forward during the year and the potential projects that have been identified as a replacement project. This is more critical for non-assessable projects. Staff and policy-makers are familiar with and understand that a significant number of the assessable projects will not move forward based upon decisions of property-owners.

Recommendation: Projects added or deleted from a program during the year should be clearly communicated to the Mayor, Common Council and Budget Staff; including details on the reason added/eliminated, impact on program funds, and new schedule for completion, if appropriate.

4. THE FORMAT FOR REPORTING CAPITAL BUDGET PROJECTS SHOULD BE MODIFIED TO INCLUDE REPORTING TOTAL PROJECT COSTS FOR ALL CAPITAL BUDGET PROJECTS.

Due to the fact that the capital budget is generally approved as a total dollar amount by parent account (major infrastructure areas), the total cost of some projects is not readily discernable from a quick review of some capital budget documents. For example, a specific capital project may include funds from the bridge program, the streets program, the sidewalk program and the street lighting program. While the specific amounts are contained and detailed within each of these parent accounts, the current reporting does not adequately combine these totals for the project in one

location so that the overall total cost of the project, without regard to the specific funding source, is readily apparent. This is currently only being done on the AIM reports generated on a small handful of Public Works Department projects.

The Public Works Department should utilize a capital project numbering system that enables the related components of a larger project to have the same capital project number. The CIP document prepared by the Budget Office should show in a separate section, in addition to the current formats, total project costs for a capital project that includes all of the components (such as boulevard irrigation work, street lighting, etc.) that are associated with and connected to a specific paving project and revenue sources. This action will increase the understanding of individuals involved in the CIP in the total costs that will be expended on a particular project.

Recommendation: All capital projects should be reported in the CIP (in addition to the current methods), on a total project cost basis that includes all components of the project and all allocated funds without regard to categorization or program funding source.

5. BUDGET STAFF SHOULD REVIEW WITH PUBLIC WORKS DEPARTMENT STAFF, AT THE CONCLUSION OF EACH FISCAL YEAR, THE REMAINING BALANCES OF ALL CIP PROGRAM ACCOUNTS.

At the end of each fiscal year, Budget and Public Works Department staff should conduct a meeting where they review the balances remaining in each of the CIP program accounts. The purpose of this review is to determine funds that are currently unobligated for a specific project (perhaps due to the postponement or delay of a project). Decisions should be made regarding whether these funds will remain available within the program account for that year or whether they can be reauthorized as part of the next years capital budget. It is a common practice in local governments for undedicated funds to “wash” into a capital reserve fund at the end of each fiscal year.

Funds with dedicated uses should remain in a reserve fund dedicated for the initial purpose.

In many cases, funds have remained within a parent account for several years past the conclusion of a fiscal year (and in some cases beyond the three year authorization). These funds have been used for a variety of projects that arise at a later date or to address unanticipated project contingency needs. However, this approach leaves a pot of funds where no clear use is identified in advance and is counter to effective budgetary practices.

Funds remaining that are not obligated to a specific project should generally be rolled back into the parent account as undesignated funds at the end of each fiscal year and made available for the funding of capital projects in the coming year. This approach will ensure that decisions made regarding annual work programs are in line with the total funds available for each program area and will prevent the City from having stale funds sitting in an account from previous years that have no current obligation to a particular project.

There will be some difficulties in implementing this recommendation on a comprehensive basis given the current limitations and functionality of the FMIS system. However, it should begin, to the extent possible, as soon as possible with a more comprehensive overview undertaken following implementation of the new FMIS modules.

Recommendation: All capital funds for a particular budget year should be reviewed, as part of the budget close out process, to determine options for reprogramming unallocated and unencumbered funds. Funds unallocated to a specific project and not encumbered, should be “washed” into a capital project reserve (within statutory and source of funding limitations).

7. ANALYSIS OF PUBLIC WORKS DEPARTMENT MANAGEMENT OF CIP PROJECTS

7. ANALYSIS OF PUBLIC WORKS DEPARTMENT MANAGEMENT OF CIP PROJECTS

This chapter of the report addresses specifically the actions and activities of the City of Milwaukee's Public Works Department in managing capital project development and administration including a review of overall staffing requirements. As noted in an earlier chapter of this report, there are several current strengths in the Public Works Department that should be noted, including:

- Engineering and design services are centralized in the Public Works Department with the exception of services conducted with the Water Works Division.
- Projects have at least a preliminary scope and budget estimate before design is commenced on a project. The Department utilizes a concept definition report to assist them in this effort.
- Final reports are developed for all capital projects.
- Standard design criteria have been established for the City of Milwaukee and are utilized as part of project design review. These criteria are available on the DPW website.
- Change order authority is delegated to Public Works staff including the Director and City Engineer to enable projects to be continued without unnecessary delay due to unexpected project changes.
- “As needed” consultants or engineers are solicited through an RFQ process when needed to support staff of the Public Works Department.
- Public Works Department staff maintain comprehensive and up-to-date condition assessments and ratings for the City’s street network and bridge infrastructure for use in planning future projects.
- Pre-construction conferences are utilized prior to the beginning of a specific project with prime contractors and key subcontractors.
- Construction inspectors are responsible for monitoring the accuracy of the work performed by contractors, including quantities utilized, on a daily basis. Progress

payment documentation is verified and reviewed by the inspector prior to being submitted for payment by the administrative staff.

- All requests for change orders are reviewed by the construction inspectors for appropriateness.
- Inspectors maintain daily project diaries and documentation sufficient to evaluate contractor performance in accordance with the established project contract. Inspectors maintain project files including all relevant materials to the project.
- Inspectors oversee the materials testing performed by the City's contractor.

The current strengths of the Public Works Department provide a strong basis for implementation of the recommendations for improvement that follow in this chapter.

1. A STRONG FOCUS ON PROJECT MANAGEMENT SHOULD BE DEVELOPED AND COMMUNICATED THROUGHOUT THE DEPARTMENT OF PUBLIC WORKS.

Over the last several years, the Public Works Department has come under intense scrutiny regarding their level of project management. This scrutiny has been focused around several high visibility projects that when completed were significantly over budget and/or were completed with a significantly expanded scope from that which was originally submitted and approved as part of the CIP process.

The Department should begin by compiling a complete project management manual that outlines the approaches they will implement and undertake as staff to maintain projects on schedule and within budget. The critical components of project management are described in the following text and in the following chart.

MANAGEMENT REQUIREMENTS FOR PROJECT MANAGEMENT

Component of the CIP	Requirement	Responsibility
Planning and Organizing the CIP Upon Mayor and Council Approval	Preparation of a design authorization form for each CIP project to define the financing, description, scope, design considerations, and the necessary coordination with outside agencies such as the WSDOT. This process should also include an indication of whether an environmental evaluation is required and right of way acquired, as well as a determination of staffing requirements based on application of percent of construction guidelines, or others as developed by the Department.	Project Managers
	Preparation of a network schedule using Microsoft Project (or similar software) for each project, including duration time for each task, earliest and latest start and final times.	Project Managers
	Preparation of Gantt (bar chart schedules) for the entire CIP for a 3-year period showing projected timing of planned projects by major project component (e.g., design, bid, award, construction, etc.).	Administrative & Transportation Administrator
	Projection of staffing requirements to handle planned, prioritized projects for next fiscal year, including workload loading on a monthly basis.	Administrative & Transportation Administrator
	Leveling of resources to develop schedules based on available staff and other resources.	Administrative & Transportation Administrator
Project Monitoring and Reporting	Reporting via the city financial and human resource information systems (or the DPW internal payroll and MIS systems) the actual staff-hours by position type on CIP projects to provide the basis for: <ul style="list-style-type: none"> • Monitoring of staff and contractor performance against guidelines during each phase. • Monitoring actual versus projected staff needs. • Development of a database to utilize in refining project workload estimates. 	Project Managers, Construction Inspectors
	Reporting of project status on a monthly basis, including status of staff hours planned vs. actual.	Project Managers
	Reporting of financial status of each project, at least quarterly, showing expenditures to date versus the plan.	Administrative & Transportation Administrator

Component of the CIP	Requirement	Responsibility
Management of the CIP Project Resources	<p>Recommending within the monthly status report steps that can be taken to enable completion of projects on schedule.</p> <p>Communication to top management in the monthly status report of CIP projects that will not be completed on schedule and on budget, along with estimated completion dates for each project.</p>	<p>Project Managers and Administrative & Transportation Administrator</p> <p>City Engineer</p>

- **Planning and Organizing the Capital Improvement Program.** Planning of the capital projects is essential to the development of a workable approach to completing these projects on schedule and within budget. Key development requirements for management of the process include the definition of each capital improvement project through the completion of a design authorization form, preparation of a detailed schedule for each project (using Microsoft Project or a similar software program); the preparation of a three-year schedule for the Capital Improvement Program; the projection of staffing requirements to handle planned, prioritized projects; and the “leveling” of these staffing requirements to assure the work does not exceed staff capacity.
- **Project Monitoring and Reporting.** The project manager should be required to assess and report the financial and scheduling status of each project. The project manager should be able to report meaningful information in these status reports. Variances from the planned budget and schedule should be reported via this report as well.
- **Management of Capital Improvement Program Resources.** Management of the Capital Improvement Program process is as much concerned with keeping the project moving after it has started as it is with planning. Management of resources proceeds directly out of the variances identified in the monitoring and reporting phase, and the project manager is concerned with correcting these variances. Key system requirements include defining within the monthly report the steps that need to be taken to restore projects back to schedule, and alerting top management when projects will not be completed on schedule.

Although the specific duties and responsibilities are defined in the exhibit, general goals and objectives for each of the positions within the Infrastructure Services Division are presented below:

- The City Engineer, and subordinate staff, should be held accountable for delivering Capital Improvement Program projects on schedule and within budget, and for managing the Capital Improvement Program process, including planning and scoping of all capital improvement projects.
- The staff within the Infrastructure Services Division that are assigned as project managers (including those staff assigned to the design of projects) should be held accountable for the effectiveness of the project management of capital projects to which they have been assigned. Further, they should be held accountable for monitoring the planned versus actual schedule and budget for their assigned projects, including:
 - Implementing initiatives to accomplish Capital Improvement Program projects on schedule and within budget;
 - Working with management to define and secure the staff resources needed for the project;
 - Assuring that all project plans and schedules are defined as part of the planning and scoping of a capital project prior to commencement of design;
 - Monitoring and reporting progress and problems in meeting capital project plans and schedules; and
 - Managing and coordinating interfaces between various staff of the Division and other departments in the City including the client department.

The individual project manager from the beginning of the project to its final conclusion should fulfill the responsibilities listed above. This is a concept of a “cradle to grave” project. In implementing this enhanced level of accountability, it is important for management to appropriately account for items outside of the control of individual project managers in conducting evaluations. However, measures must also be implemented to prevent staff from leaning towards “over designing” or “overestimating” projects in order to meet schedules and budgets.

- The Infrastructure Services Division should be responsible for planning and scoping of the capital improvement project, and not the client department. This would be accomplished through a design authorization form as noted within a following recommendation.

The infrastructure needs of the City are significant, and the sophistication of the management of capital projects used to address those needs, including management of capital projects, needs to be adjusted accordingly.

Recommendation: Responsibilities for managing the capital improvement program by the Infrastructure Services Division should be clarified with specific roles and responsibilities identified.

2. A SUMMARIZED THIRTY-SIX MONTH BAR CHART SCHEDULE SHOULD BE PREPARED FOR ALL CAPITAL PROJECTS THAT WILL BE DESIGNED AND INSPECTED BY THE INFRASTRUCTURE SERVICES DIVISION.

This schedule should portray start and finish dates for each capital project by simple activity descriptions for design, bid package preparation, advertise/award, right-of-way acquisition, environmental impact evaluation, and construction. This schedule should be prepared for all capital projects that will be assigned to the Infrastructure Services Division over the next thirty-six month period based upon the adopted six-year capital improvement program.

This estimation of planned workload enables Management to better understand the anticipated level of resources needed (by phase) to complete assigned capital projects for the immediate future. It is also useful for identifying “bottlenecks” where project resources needed are likely to exceed available staff resources in any particular division of the organization (such as design, bidding, construction, etc). Early identification of these potential problem areas enable Public Works Department management and project managers to adjust schedules accordingly to reach realistic timeframes that staff will be able to support.

Once developed, the bar chart should be updated monthly for each project based upon current progress. The software recommendation contained in an earlier chapter provides the necessary software (Oracle's Program Management) to implement this recommendation. This function can also be completed with off-the-shelf software such as Microsoft Project.

Recommendation: A thirty-six month bar chart schedule should be prepared for all capital projects that will be designed and scheduled by the Infrastructure Services Division. This report should be updated at least quarterly.

3. A DESIGN AUTHORIZATION FORM SHOULD BE COMPLETED BEFORE COMMENCEMENT OF DESIGN.

Only the City Engineer, or designee, should authorize the initiation of design of a capital project before its commencement. Design of a project should not be initiated until the resources required (staff hours, need for consulting engineers, if any, and construction funding) for completing the project have been identified using the design authorization form. The design authorization form should include, at a minimum, the components enumerated below.

- The project title including the phase of the project, if relevant.
- A general project description including a narrative summary description of the project, specific physical improvements included, the location of the project, and the relationship to master plans.
- The capital project number (as noted in the 6 year capital improvement program).
- Financing and cost data, including the source of funds, and the appropriation status.
- A budget covering the project management or design staffing, survey staffing, construction inspection staffing, appropriate consultants, property acquisition, utility relocation, etc., by major expenditure component.
- The responsibility for completing each component of the project including:
 - Design by in-house staff or by consulting engineer;
 - Construction inspection by in-house staff or by consulting engineer;
 - Design survey and construction staking by in-house or consulting staff;
 - Environmental evaluation required;
 - Right-of-way acquisition required and, if so, the number of parcels and their locations and assessor parcel numbers;

- Utility relocations, problems with relocation and timing issues; and
 - Other key responsibilities that need to be assigned and/or accomplished.
- The extent of coordination necessary, listing the agency (division, department, or outside agency) where coordination will be required, the nature of the coordination, and the key contacts;
- The preliminary schedule for completing the design and construction of the capital project including the schedule for design, bid package preparation, advertise/award, right-of-way acquisition, environmental impact reports, and construction, including the dates of important events such as approval of the award of construction contract by the Common Council;
- A change order procedure that includes a documented, systematic approach to the handling of construction change orders;
- Staffing levels required throughout the design and construction phase, including the estimated staffing required in terms of person hours required for design and construction inspection utilizing the cost of construction guidelines;
- Materials testing policies and procedures;
- Design and construction reporting requirements, including cost and schedule control procedures;
- Design considerations or issues related to each capital project;
- Community relation and information requirements, including public hearings or meetings and how the public will be informed and involved in the preliminary design and informed about the progress of the design and construction.

The design authorization form should be completed prior to the commencement of design. It should be reviewed with the client department, if there is one, prior to final authorization.

Recommendation: A design authorization form should be completed by the Project Manager before commencement of design on each capital improvement project.

4. COSTS OF CONSTRUCTION GUIDELINES SHOULD BE UTILIZED TO DOCUMENT RESOURCE REQUIREMENTS FOR THE DESIGN AND INSPECTION OF ALL CAPITAL PROJECTS UNDER THE CONTROL OF DPW.

The following exhibit presents an example of guidelines for the design and inspection of capital improvement. These guidelines are based upon data developed by the American Society for Civil Engineers (ASCE) in their publication entitled, *Consulting Engineering: A Guide for the Engagement of Engineering Services*. The ASCE has indicated that the percentage of construction cost "has been widely used for determining the compensation of consulting engineers on assignments where the principal responsibility is the design of various works, and the preparation of drawings, specifications, and other contract documents as necessary." The following points should be noted concerning the application of cost of construction guidelines:

- Two different levels of complexity are noted: average and above average. An above average level of complexity should be based upon the need to deal with other agencies (e.g., WisDOT), the design complexities of the project, or problems with planning and construction determining the compensation of consulting engineers on assignments where the principal responsibility is the design of various works, and the preparation of drawings, specifications, and other contract documents as necessary.
- These guidelines are customized to fit the different types of construction jobs handled by Public Works Departments including street construction, street reconstruction, sanitary sewer, etc.
- These guidelines were developed to fit the different types of work activities in each capital project. These include planning and scoping, design development, design survey, design administration, construction survey, construction inspection, construction management, and project closure.
- The guidelines are expressed as a percentage of construction (e.g., the cost of staffing as a percentage of construction). To determine the number of staff hours required, divide the cost of the work activity based upon the cost of construction guidelines by the current hourly cost of a consulting engineer for engineering work activities. Use of the hourly cost for a consulting engineer will level the

playing field and ensure that the City's staff are every bit as productive and held accountable as consulting engineers.

- The guidelines identify resource requirements for each work activity associated with a project. These include design development, design survey, design administration, etc.
- If a consulting engineer is accomplishing the design, the project manager in the Engineering Services Department would utilize the guideline for design administration, and not design development.
- Project managers within DPW should utilize these guidelines to project and determine staffing level requirements for each project in terms of total person hours required for design and construction inspection.
- These cost of construction guidelines should be continually evaluated and modified to ensure consistency and applicability for the City of Milwaukee and existing local circumstances and conditions. However, they provide a suitable starting point for implementing standards for evaluating staff needs, by phase, based upon total project cost.

An annual review of actual experience to the planned experience for staff time based upon the cost of construction guidelines should be conducted by the City Engineer. Based upon experience, the standards should be modified as appropriate to serve a useful purpose in making future projections of staff resource needs.

Recommendation: The Infrastructure Services Division should develop cost of construction guidelines to document and estimate staff resource requirements for the design and inspection of capital projects.

**Allocation of Staff Resources for Design and Inspection as a Median
 Percentage of Net Construction Costs**

Type of Project	Street Construction				Street Reconstruction				Traffic Control		Water and Wastewater			
	Above Average		Average		Above Average		Average		Average		Above Average		Average	
Level of Complexity	\$0.25 million	\$1 million	\$0.25 million	\$1 million	\$0.25 million	\$1 million	\$0.25 million	\$1 million	\$0.25 million	\$1 million	\$0.25 million	\$1 million	\$0.25 million	\$1 million
Construction Cost (+/-)														
Planning and Scoping	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Design Development	10%	8%	9%	7%	13%	11%	10%	8%	8%	6%	9%	8%	8%	6%
Design Survey	1 ½%	1%	1 ½%	1%	1 ½%	1%	1%	½%	1 ½%	½%	1%	½%	1%	½%
Design Administration	2%	2%	1 ½%	1 ½%	2%	2%	1 ½%	1 ½%	1 ½%	1 ½%	1½%	1½%	1 ½%	1 ½%
Construction Survey	3%	2 ½%	2 ½%	2%	2%	1 ½%	1 ½%	1%	0.1%	0.1%	2½%	2%	2½%	2%
Construction Inspection	5%	5%	4%	4%	5%	5%	4%	4%	3%	3%	4%	4%	4%	4%
Construction Management	3%	3%	2%	2%	3%	3%	1 ½%	1 ½%	2%	2%	3%	3%	2%	2%
Project Closure	0.4%	0.1%	0.4%	0.1%	0.4%	0.1%	0.4%	0.1%	0.4%	0.1%	0.4%	0.1%	0.4%	0.1%
Total	25.4%	22.1%	21.4%	18.1%	27.4%	24.1%	20.4%	17.1%	17%	13.7%	21.9%	19.6%	19.9%	16.6%

5. BILLABILITY TARGETS SHOULD BE ESTABLISHED FOR THE INFRASTRUCTURE SERVICES DIVISION STAFF.

To assure the staff of the Infrastructure Services Division is efficiently utilized, the City Engineer should set internal billability targets for staff, including the Project Manager, Civil Engineers, Engineering Technicians, and Public Works Inspectors. These targets would represent that proportion of their work time that these staff would be billable to capital projects. All time charged should be tracked for each project that the employee is working on.

The billability targets should be based upon a reasonable annual hour total that takes into consideration the use of leave time (vacation, sick, holiday), training time, and a reasonable estimation of time required for administrative functions not related to a specific capital project. Typical billability targets for staff are around 1,500 hours annually or 125 hours per month. This target represents an aggregate for all projects under the control of an individual employee. Depending upon the number and size of the projects being worked on, some employees may be charging time to a small number of projects and others to a larger number. What is critical is monitoring the total time per employee that is spent on direct service provision that can be allocated to a project.

The project accounting system should be utilized to monitor the performance of these staff against these targets. The utilization of these targets will also enable the Public Works Department to make comparisons between the effectiveness of internal staff versus consulting engineers.

Recommendation: Billability targets should be established for staff of the Infrastructure Services Division involved in CIP project design and management.

6. SEVERAL CHANGES TO THE UTILIZATION OF CONSULTING ENGINEERS SHOULD BE IMPLEMENTED TO IMPROVE THE EFFICIENCY AND EFFECTIVENESS OF THE PROCESS INCLUDING AN ANNUAL REQUEST FOR QUALIFICATION PROCESS AND AN ON-GOING RATING SYSTEM.

The Public Works Department utilizes contracted consulting engineers, project managers, and other professional staff to provide additional resources on certain capital improvement projects. Projects selected for assignment to these external resources are ones identified by the Department as either requiring expertise not currently available from existing staff, projects that exceed the Department's ability to service in a timely manner, or ones that include complex or otherwise unique aspects that require specialized knowledge. The consulting specialists are identified through a request for proposal process.

At the present time, the Department must go through a formal Request for Qualification process on each project where a consulting professional is to be utilized. This approach adds significant time and effort to project time schedule and project implementation that is unnecessary. The Department should utilize a master contract approach that is typically seen in larger departments. Under this approach, the Department should undertake, every other year, a Request for Qualification process, designed to pre-qualify firms capable of providing consulting design services on an as-needed basis.

The Request for Qualification process should be designed to solicit responses from firms at a level of detail necessary to pre-qualify firms in individual areas of expertise (i.e.- bridges, roads, water infrastructure, etc.) for use on routine and/or recurring projects. Firms that are evaluated as having sufficient expertise, staff and capability would be submitted to the Common Council for approval to place on a pre-

qualified listing of firms. The Department would then be free to use these firms on consulting contracts, as needed, following receiving the appropriate authorization to enter into a contract with the firm without the need for conducting an individual RFQ on a specific project. Firms should be selected from the pre-qualified listing on a rotational basis as projects arise. This approach will reduce the amount of time that staff spends on developing, letting, and reviewing requests for qualifications on individual projects when consulting engineering resources are needed. It will therefore decrease the amount of time needed upfront to begin work on specific projects and enable the Department to send a project out for design in a shorter timetable since firms will already be pre-qualified. It should be noted, however, that this will not eliminate the need to conduct individual request for proposals on certain project. Projects that are atypical, high-risk, complex or for extremely large dollar amounts should still be handled under the current process to ensure that the most appropriate firm is selected with the qualifications, experience and background to perform the work.

The Public Works Department currently evaluates the performance of these consultants on an informal basis. This process should be formalized to include an evaluation mechanism that is completed at the conclusion of each project. The consulting professionals performance should be evaluated on factors such as:

- Ability to complete the project on schedule;
- Ability to complete the project within the established budget;
- The provision and completeness of the “as built” documentation provided;
- Ability of the consultant to provide timely and relevant communications to staff, including periodic status reports and the early identification of potential problems or issues on a project that would impact the completion of the project on time or within budget;

- The ability of the consultant to complete the assigned duties within the budget established for professional fees; and
- The overall quality of documentation provided during the project.

The rating should be kept at a simple scale on each of these elements such as exceeded expectations, met expectations or below expectations. In addition, an overall rating of the contracted professional should be given. Any contracted professional with an overall rating of “below expectations” should not be eligible for future utilization on projects for the City of Milwaukee and should be removed from the listing of pre-qualified firms until the next bidding opportunity.

Recommendation: The City of Milwaukee should utilize a Request for Qualification, every other year, to pre-qualify consulting firms for inclusion on a Master Contract Listing (by area of expertise) to reduce the time and effort necessary in employing consulting engineering firms.

Recommendation: The City Engineer should implement a consulting engineer evaluation system and utilize this rating system as part of the final project close-out.

7. A COMPREHENSIVE PROJECT MANAGEMENT MANUAL SHOULD BE DEVELOPED FOR DPW STAFF AND ALL STAFF INVOLVED IN CAPITAL PROJECT MANAGEMENT PROVIDED TRAINING ON IT.

To assist project managers in performing their assigned duties in a consistent and comprehensive fashion, the Public Works Department should put in place a comprehensive and up to date project manual. A project management manual should address the following duties of project managers:

- Planning work activities;
- Estimating necessary resources;
- Organizing the work;
- Acquiring resources (personnel and materials);

- Assigning tasks;
- Directing activities;
- Controlling project execution;
- Reporting progress; and
- Project closeout.

Each of these sections should detail the expectations of the project managers for the task and the applicable policies and procedures associated with the task. In addition, each section should outline the internal resources available to the project manager for utilization in accomplishing his/her assigned duties (such as databases and financial information and where it can be located). The project management manual should be made available on the Public Works Department internal computer network.

The value of a project management manual is not only to provide a resource for project managers to review existing polices and procedures, but to assist them in ensuring consistency between project managers throughout the organization. It will also serve as an important and critical training tool for employees and clients working with the Project Manager on capital projects.

Recommendation: The Infrastructure Services Division should develop a comprehensive and up to date project management manual and train all employees assigned as project managers in its use and application.

8. THE INFRASTRUCTURE SERVICES DIVISION SHOULD PREPARE AND UTILIZE A MONTHLY CAPITAL PROJECT STATUS REPORT FOR INTERNAL PROJECT MANAGEMENT AND TO PROVIDE STATUS REPORTS TO CUSTOMERS.

The Infrastructure Services Division should prepare a short monthly progress report regarding each capital project. The following information should be included in this status report.

- Capital project number (based upon the number assigned in the capital improvement program);
- The capital project name;
- The project manager or construction inspector assigned to the project (or the consulting engineer);
- A comparison of actual project costs to date versus planned including:
 - Design budget;
 - Design expenditures to date, separately identifying staff expenditures from consulting expenditures;
 - Construction management expenditures to date, separately identifying contract administration, construction inspection, and consulting engineering expenses;
 - Construction cost as budgeted; and
 - Current construction cost as estimated by the project manager responsible for construction management.
- A comparison of actual project schedule to date versus planned including:
 - The date the design was scheduled to begin and actually begun;
 - The date the design was scheduled to finish and actually finished;
 - The date the Common Council was scheduled to award a contract for the construction versus the actual (or new estimated date);
 - The date the construction was scheduled to begin and actually begun;
 - The date the construction was scheduled to finish and actually finished; and
 - The current status of the capital project containing explanations such as 30% design complete.

These should be simple reports. The Infrastructure Services Division should prepare these reports monthly and distribute them internally in DPW and to other City Departments that are being served by DPW on capital project. Ideally, these reports

would be published on-line on the Internet. The purpose is to ensure adequate communication is occurring internally on the status of projects and with the Departments being served by DPW.

Recommendation: The Infrastructure Services Division should prepare a monthly progress statement regarding each capital project. The reports should be distributed to all customers of the Public Works Department and published on the Departmental website.

9. THE FINAL REPORT PROCESS SHOULD BE EXPANDED TO IMPROVE THE EFFECTIVENESS OF THE PROCESS AND THE INFORMATION DEVELOPED.

The Public Works Department requires all project managers to complete final reports on all projects – a standard practice in the industry. However, discussions with staff and the project team's review of the process identified two areas where this process should be improved in order to enhance service levels. These improvements include the timeliness of completing final reports and a formal analysis of the results of the final report.

At the completion of the project, the project manager assigned to the project should complete a final report including:

- Project name, project number, and a description of the project. Construction costs – planned versus actual with an identification of all of the change orders and the reasons for those change orders;
- The staff hours allocated to the project - planned versus actual;
- The schedule for completion of the project - planned versus actual including whether drawings, specifications, schedules, and cost estimates were prepared consistently according to schedule;
- The design costs for the project - planned and actual including cost per sheet;
- Construction management costs - planned versus actual;
- Whether as-built plans have been completed;

- Whether the project at completion met the value expectations of the client (where appropriate) including a customer satisfaction survey completed by the client that identifies such issues as construction cost versus value, responsiveness to the client, ease of maintenance, usability, and the like; and
- Comments and discussion regarding the project, as necessary, including unusual conditions encountered during the project such as contractor deficiency, quantity differences, scope changes encountered, etc.

Without a formal analysis of the reports developed and review of the findings within the Department with key management staff, the mistakes and weaknesses of one project will almost certainly be repeated on others. The final report should focus on analyzing the positive and negative aspects of the completed project, transmitting that information in a useful format to the staff of the Infrastructure Services Division, and providing a convenient summary of the project. The analysis is designed to develop a "lessons learned" report that can be shared with other staff to improve future project management.

This report should be circulated to the other project managers, the Administration and Transportation Design Manager, the various Division Managers in the Department, the City Engineer, the Public Works Director, and the client department. After distribution of this status report, it should be the basis of a meeting with the client department. All final reports should be completed within six months of the closure of the project and the payment of final invoices.

Recommendation: The Infrastructure Services Division should complete a formal final report that includes a project analysis of the positive and negative aspects of the completed capital improvement project. All final reports should be completed within six months of project completion.

10. SEVERAL CHANGES SHOULD BE MADE IN THE APPROACH TAKEN TO HANDLE PROJECT CONTINGENCIES BOTH IN THE FUNDING METHODOLOGY AND PROJECT REPORTING.

Currently for capital improvement projects, contingencies are set aside only within the main parent (or program) account and are not designated by specific project. In general, the Public Works Department has been operating under a policy where they have the ability, subject to funding availability, to utilize a contingency level of 10% of the total project cost. After expenditure of contingency funds (which are approved only after change orders are developed and authorized and the approval of the Comptroller is received noting availability of funds), the Department would notify and seek authorization from the Common Council to add the contingency amount to the project budget. Following approval by the Common Council, the project budget would be adjusted to reflect the new project budget. At this point, the contingency policy would still enable additional contingencies of 10% of the new project budget.

The issue of project contingencies has also been addressed in a recent report from the City of Milwaukee's Comptroller's Office, where a recommendation was made to limit contingencies to 10% of the original project budget or a maximum of \$150,000. The project team would concur with this approach with a few additional clarifications regarding the contingency process. A project contingency of 10% is fairly standard nationwide for local government capital improvement projects. In addition, limiting the total departmental authorization to a maximum of \$150,000 per project is reasonable in order to provide policy-makers with the ability to effectively monitor and oversee large capital projects especially in light of issues that have arisen over the last several years on a couple of high-profile projects. Though it is not uncommon simply for a flat

percentage contingency to be utilized. Common Council authorization should be sought for all budgetary expenditures that would exceed the project contingency of 10% of the budget in advance.

In addition to this recent change, the project team would recommend that project contingencies be included as a specific budgeted line item in each project, rather than as a lump sum for each program/parent account. Each capital project should have included in the budget a contingency of 10% of the total project cost. Additionally, the project contingency should be broken out by project phase (engineering, design, construction, etc.). Unexpended contingencies would roll back into the parent account at the conclusion of the project and be available for the future funding of other capital projects.

It should be noted that the total contingency for a project should be the 10% referenced above. The practice of having a project contingency built into the project budget and an additional 10% contingency available by Council action is unique and not commonly seen in other communities. The project team recognizes the need for staff to have the ability to expend contingency funds on a timely basis to maintain project schedules and progress and that it is unreasonable for all authorization to be achieved in advance. Contingency authorization, without further action needed by the Common Council, should be limited to 10% of the project cost and should be included within the individual program and/or project budgets. Projects which have a funded contingency within their budgets, should be excluded from the authority outlined within capital guidelines that enable the transferring of funds in the amount of 10% from a capital purpose account to a specific project account.

Recommendation: Changes should be implemented in the handling of capital project contingencies. A total project contingency of 10% should be allocated to each capital project budget as a funded line item within the project.

Recommendation: The project contingency should be allocated within the project budget to each phase of the project.

Recommendation: Project contingency funds necessary in excess of the 10% budget should be approved by the Common Council in advance of expenditure obligation.

11. THE PUBLIC WORKS DEPARTMENT SHOULD CONDUCT AN ANNUAL REVIEW OF THE ESTIMATING SUFFICIENCY FOR PROJECTS BID DURING THE PRIOR YEAR.

At the conclusion of each capital budget year, the Public Works Department should conduct a review of the accuracy of the estimates prepared against the bids received and projects awarded during the prior year. The purpose of this review is to provide on an ongoing basis a validation or review of the sufficiency and appropriateness of the estimates being developed. This review can serve as an early warning indicator of issues related to the estimating of projects.

The table on the following page shows a comparison completed by the project team of some selected capital budget projects awarded by the Public Works Department during the first five months of 2007. This review may also provide insight into projects where the scope was unclear as often evidenced by bid prices received that are not within a reasonable percentage of each other.

The following chart provides an example of the information that should be reviewed:

ANALYSIS OF SELECTED CAPITAL PROJECTS RECENTLY AWARDED

Project Type	Estimate	Average Bid	Awarded Bid	% Awarded Bid from Estimate	Percentage Range in Bids Received	Number of Bids Below Estimate	Number of Bids Above Estimate
Buildings	\$930,000.00	\$1,159,686.67	\$1,069,200.00	15.0%	14.4%	0	3
Buildings	\$110,000.00	\$115,460.00	\$112,920.00	2.7%	4.5%	0	2
Buildings	\$195,000.00	\$121,620.00	\$109,670.00	-43.8%	17.1%	3	0
Paving	\$108,452.75	\$104,765.53	\$97,305.70	-10.3%	27.5%	3	1
Paving	\$119,810.25	\$115,070.05	\$105,646.45	-11.8%	23.8%	4	3
Rec Facilities	\$166,300.00	\$248,526.00	\$248,526.00	49.4%	0.0%	0	1
Rec Facilities	\$67,800.00	\$67,800.00	\$67,800.00	0.0%	0.0%	0	1
Rec Facilities	\$37,100.00	\$49,740.00	\$49,740.00	34.1%	0.0%	0	1
Sewer & Water	\$1,360,000.00	\$1,768,952.32	\$1,433,291.50	5.4%	71.3%	0	5
Sewer & Water	\$270,000.00	\$278,420.00	\$226,840.00	-16.0%	45.5%	1	1
Sewer & Water	\$269,000.00	\$227,137.00	\$215,013.00	-20.1%	11.9%	3	0
Sewer & Water	\$310,000.00	\$266,948.50	\$248,526.00	-19.8%	17.4%	3	0
Sewer & Water	\$161,000.00	\$106,931.32	\$90,290.00	-43.9%	47.7%	6	0
Sewer & Water	\$868,995.00	\$1,229,830.00	\$1,229,830.00	41.5%	0.0%	0	1
Sewer & Water	\$444,000.00	\$423,921.58	\$418,974.00	-5.6%	2.5%	3	0
Sewer & Water	\$1,388,000.00	\$759,385.15	\$662,360.25	-52.3%	34.0%	6	0
Sewer & Water	\$595,000.00	\$600,005.70	\$529,285.00	-11.0%	34.9%	3	3
Sewer & Water	\$158,000.00	\$165,448.92	\$159,785.25	1.1%	9.6%	0	3
Sewer & Water	\$220,000.00	\$227,168.67	\$219,443.00	-0.3%	9.5%	1	2
Average				-4.5%	19.5%	1.9	1.4

As can be seen on the preceding chart, this simple review and analysis, will indicate areas for further study by identifying the percentage difference in the awarded bid from the project estimate. Projects where the awarded bid deviates by more than 15% – 20% from the project estimate should be evaluated to determine what the root causes were of this deviation. Possible issues include: inadequate estimating, unclear project scope within the bid documents, local contracting environment, etc. Special attention should also be given to those projects where the range in bids received varies significantly (i.e. – greater than 25%).

The review should be utilized to determine if procedural changes should be implemented in the estimating or bidding of projects.

Recommendation: An annual review and summary report should be developed that compares, for all projects bid during the year, the sufficiency and accuracy of the estimates utilized. The report should identify the number of projects bid that were under estimate and over estimate and the percentage deviation.

12. THE PUBLIC WORKS DEPARTMENT SHOULD REVISE ITS INTERNAL POLICIES SO THAT A DISTINCTION CAN BE MADE BETWEEN CHANGE ORDERS OCCURRING DUE TO QUANTITY CHANGES AND THOSE ASSOCIATED WITH CHANGES IN THE PROJECT SCOPE.

The Department of Public Works should implement an internal change in procedure and recording of information in order to distinguish between change orders that are being requested due to changes in the quantities of materials utilized on the job and those that are associated with changes in the project scope. While both types of change orders may require changes in the project budget and the use of contingency funds, it is important for the Department to be able to evaluate the root cause of the change orders.

Project scope changes are typically unanticipated and therefore are not able to be predicted in advance on projects where a well-developed project scope has been developed. However, change orders resulting from changes in quantities utilized, (unrelated to the change in project scope) are indicative of a different situation. These are often an indication of problems in the original project scoping and estimating. A review of examples, where this type of change occurs, will enable the Public Works Department staff to learn from prior projects and determine necessary changes in their approach to project scoping and / or estimating practices.

Recommendation: The Public Works Department should revise its procedures and data collection to enable it to distinguish between change orders based on the underlying cause (scope change or quantity variation).

13. THE PLAN OF ORGANIZATION AND STAFFING LEVELS RELATED TO CAPITAL PROJECT DEVELOPMENT AND ADMINISTRATION WERE REVIEWED.

As part of the review of the capital project development and administration, the project team reviewed the existing organizational structure and staffing levels for this function. In general, the current organizational structure has been developed in a manner that enables staff to focus on a specific function (engineering, design, estimating, inspection, etc.) and / or in specific functional areas (streets, facilities, water works, etc.). At the present time, the responsibility for capital project functions and management are generally allocated to the City Engineer with the exception of projects related to Water Works which has its own engineering division. This specific area was reviewed for alternatives to the existing structure.

(1) In Evaluating the Plan of Organization of the Public Works Department Relative to Capital Project Management, a Number of Principles Should Be Considered.

In evaluating the plan of organization for the capital project development and management functions in the Public Works Department, the Matrix Consulting Group utilized a number of principles for organizational structure. These principles are presented in the paragraphs below.

- **The Department should be organized on a form follows function basis with a clear, distinct and comprehensive sense of purpose or mission for each division.** Functions are grouped consistent with their periodic interaction, management systems, delivery of services, and are linked in some way, resulting in functional cohesion.
- **The organizational structure should foster accountability.** The organizational structure fosters accountability among management and supervisory staff.
- **The plan of organization should enhance communication and coordination.** The number of handoffs/exchanges required among different divisions providing service to the public is minimized. The structure enhances shared knowledge and understanding among divisions. The channels of communication are clear and consistent.
- **Staff resources should be utilized efficiently.** The plan of organization minimizes administrative overhead. Workload can be distributed/shared to maximize the productivity of staff through peaks and valleys and offer cross-functional capabilities. Processes can be standardized to enhance the efficiency and customer responsiveness of services (e.g., the provision of estimating, design, and inspection services).
- **The potential of human capital should be maximized.** The plan of organization enhances career development opportunities, training, recruitment and retention.
- **The services provided to customers should be responsive.** The plan of organization enables staff to provide better service to the public. Customers are the hub – with the Department designed around them.
- **Each division in Public Works should be placed at a level in accordance with its importance in achieving departmental goals.** Divisions have not been placed too high in the departmental structure or too low relative to their importance.

- **The span of control for any manager or supervisor should not exceed the number which can be feasibly and effectively supervised.** The trend is to widen span of control.
- **The number of layers of management should not result in a tall, narrow configuration for the Public Works Department.** Organizations with many layers are associated with centralized decision-making. Flatter organizations tend to have decentralized decision-making, as authority for making decisions is given to the front line employees.
- **The plan of organization should enhance the effectiveness of the Public Works Department.** The organizational structure limits the span of control of the Public Works Department, provides analytical support to develop goals, objectives, and performance measures, and provides resources to build and connect with the clients served by the Public Works Department.

Reorganization efforts that ignore these principles could create new, unintended and unfortunate consequences for the future.

(2) These Principles Focused the Analysis of the Alternatives for the Public Works Department Capital Project Management Functions.

The principles described in the previous section were converted into a matrix to enable an evaluation of the current plan of organizational structure as well as alternative organizational structures for the Public Works Department relative to capital project development and administration. The primary purpose of the matrix was to focus the project team on specific components of the alternative structure, and how to evaluate it using these criteria. This matrix is presented below.

Criteria
Organization and Structure
• Clear lines of accountability
• Spans of control / number of management layers
• Functional cohesion
Communication and Cohesion
• Hand-offs / exchanges (internal / external)
• Physical / virtual proximity
• Shared knowledge and understanding
Resource Utilization (Cost)
• Administrative overhead
• Workload management (even distribution)

Criteria
• Process efficiency / standardization
• Resource sharing
Human Capital
• Career development
• Training
• Recruitment and retention
Agility and Flexibility
• Scalability (ability to manage peaks and valleys)
• Adaptability (cross functional capability)
Service Quality and Responsiveness
• Customer service
• Performance management
• Quality control checks and balances
• Consistency of policy / procedure application

From this review and analysis were developed a set of arguments for and against the organizational alternatives, leading to a recommendation of a preferred alternative.

(3) There Are a Number of Advantages and Disadvantages With the Current Public Works Department Plan of Organization.

Based upon the principles outlined in the previous section, the project team made several observations regarding the current organizational structure for the Public Works Department. The following points are some of the positive attributes of the existing plan of organization

- The Public Works Department has limited the number of organizational units to four major areas (Administrative Services, Infrastructure, Operations, and Water Works).
- Support services for the department (Finance and Planning, Information Center, Payroll, etc.) are generally centralized for the Department.
- The organization structure is generally designed to promote customer service by minimizing the number of hand-offs in providing services.
- Staff are able to specialize in particular functional areas (Streets, Facilities, Bridges, Water Works).
- Managers and supervisors are accountable for defined duties and specific performance within their assigned areas of responsibility.

- The City Engineer is generally responsible for the oversight and implementation of the Capital Improvement Project program.
- The overall structure of the Public Works Department does not have excessive management layers given the size of the Department and the functions performed. Functions are placed at the appropriate level based upon their responsibility and importance to the mission of the Department.

Notwithstanding these positives, there were also several disadvantages to the current organizational structure.

- A common supervisor for engineering and design of all capital projects does not exist. While the City Engineer is ultimately responsible for most capital projects, this is not the case for Water Works projects. Additionally, the engineering and design functions are split between various units of the Infrastructure Division (i.e. streets, facilities, bridges).
- Opportunities for cross-utilization of engineering and design staff to handle fluctuations in workload are limited due to the current organizational structure.
- Communication, coordination, and staff training of certain engineering, design and estimation functions could be enhanced through co-location and common supervision.
- Career opportunities for staff are more limited due to the specialized nature of the functions performed by engineering and design professionals.
- Management staff (specifically engineering and design) may not be as effectively utilized under the current organizational structure that limits oversight to a specific function (streets, facilities, bridges, water).

Based upon the review conducted and the factors listed above, among others, the Matrix Consulting Group recommends that minor modifications in the organizational structure be implemented.

(4) The Project Team Recommends that Minor Adjustments Be Made to the Public Works Plan of Organization By Centralizing all Engineering and Design Functions.

The project team is recommending that the Department of Public Works centralize the engineering and design functions associated with Capital Projects into a

single unit reporting to the City Engineer. This will be a relatively minor change as it relates to capital projects for streets, bridges and facilities since these functions currently fall in the organizational structure reporting to the City Engineer. However, these staff are currently allocated out in various units of the Infrastructure Division. The change will be greater, as it relates to staff assigned to the Water Works Division. These staff currently do not have a reporting relationship to the City Engineer.

This recommendation is made after careful consideration of the benefits and detriments, as outlined above, of altering the existing structure. However, the project team's evaluation indicates that the benefits outweigh any potential negatives associated with this change.

The project team reviewed the organizational structure of Public Works Departments in other similar communities relative to the centralization or decentralization of engineering and design services and found that the most common practice is a centralized approach. The following table outlines other communities that utilize a common/centralized engineering and design approach:

Community	Dept. Responsible for Engineering/Design	Comments
St. Louis, MO	Public Utilities	Centralized across all utilities.
Columbus, OH	Public Utilities	Centralized across all utilities.
Baltimore, MD	Public Works	PW responsible for all Water and Wastewater.
Houston, TX	Public Works	PW responsible for Water and Wastewater.
San Jose, CA	Public Works	PW responsible for Wastewater. Water is not a separate Department.
Atlanta, GA	Watershed Management	Consolidated department including Water, Wastewater, and Sewer. Utilize a centralized approach within the Dept.

While in some of these communities the responsibility for overseeing the Water program is not a public works function, all of these communities use a centralized approach to providing design and engineering services. Even in those communities where Water is not a division of Public Works, the provision of engineering and design functions is shared with other utilities. As evidenced by the use in other comparable communities, this approach is also one that can be suitable for Milwaukee if all involved are committed to making it work.

This change will provide a single individual with the ability to oversee and control all engineering and design functions for the Public Works Department and enhance the accountability for all capital project administration. The ability to standardize practices and performance levels will also be enhanced and fall under a common supervisor for implementation. It also significantly increases the ability of the Department to address variations in workloads among particular functional areas (streets, bridges, facilities, and water works) from year to year by reallocating staff as necessary. Employee opportunities for career development, enhanced training, and cross-training will also be improved.

In accomplishing this change, the City Engineer may continue, and should continue, to allocate staff to perform duties in a specific primary functional area – such as bridge, streets, facilities, or water works activities - as is currently done. This will minimize, if not eliminate, the impact on the organization and the current skill sets of employees as this change is implemented. It will maintain staff expertise focused on their areas of specialty. However, over time, staff should be enabled and required to

expand skills so that cross-utilization on a variety of project types can occur as, and if, needed to address fluctuations in workloads.

There are some unique aspects of the current staff deployments in Water Works that would directly impact the implementation of this change. Of note, is the fact that Water Works design staff also have ancillary duties that involve them being assigned to the water treatment plants to perform operations and maintenance funded projects. While this can be addressed through the reallocation of staff duties, it is also possible for DPW to garner a large percentage of the benefits of this recommendation by initially consolidating all non-Water Works design and engineering staff initially and moving to the full consolidation at some future point. While the project team understands concerns raised by DPW regarding this change, experience in other communities shows that this organizational structure can work effectively if the commitment is there from key managers.

Time spent by staff in the centralized design and engineering department should be charged out to the Water Division, and other non-general fund entities, based upon actual time spent on their projects. This will maintain the funding of Water services with Water revenues and prevent the general fund from absorbing costs associated with this change. This approach to centralization of the design and engineering function is similar to the approach currently taken for other aspects of Water Works capital project management (such as bidding, contract letting, and inspections) where services are performed by employees in a centralized unit of the Public Works Department.

This change will require some minor modifications to existing management and supervisory positions within the Divisions/Units where staff are being reallocated. For

example, in Water Works while there would not be a need to maintain a Civil Engineer V for the current assigned duties, there would still be a need for an individual internally to develop project scopes, oversee interaction with the Public Works Department Engineering and Design Unit, and develop CIP project requests. For this reason, the only positions recommended for reallocation are the non-management personnel. Management positions would need to be redefined into the new role they would assume under this structure.

Recommendation: The Engineering and Design functions should be consolidated in a single unit within the Infrastructure Services Division of Public Works.

Recommendation: The costs for providing engineering and design services for Water Works projects should be monitored for each project and charged back to the Water Works Division.

(5) STAFFING LEVELS FOR CAPITAL PROJECT DESIGN, ENGINEERING AND INSPECTIONS ARE AT AN APPROPRIATE LEVEL WHEN THE COST OF CONSTRUCTION GUIDELINES ARE APPLIED TO THE CURRENT ANNUAL WORK PROGRAM.

As previously noted in the report, the application of cost of construction guidelines to the capital project workloads provides a good estimation of the required resources needed for design, engineering and inspection activities. The cost of construction guidelines were applied to a two-year average of the capital budget work program the Public Works Department is responsible for overseeing. The two-year average was developed from the FY06 and FY07 adopted CIP.

It should be noted that the work program to which these were applied is the current annual work program exclusive of any projects that were carried over from prior years. This was done due to the unavailability of detailed information regarding the current level of projects in each phase of the capital project process (design,

engineering, inspections). Notwithstanding this limitation, it provides a good estimate since project carry-overs from one CIP year to the next are a frequent occurrence and will average out over time.

The exhibit on the following page shows the calculation of project cost by phase utilizing the cost of construction guidelines and an estimation of the number of staff needed for the design, engineering and inspections function to handle this workload:

Staff Requirements Based on Cost of Construction Guidelines

Functional Area	Net Construction Cost	Cost of Const. Guidelines: Design & Eng	Cost of Const. Guidelines: Constr. Mgmt.	Annual Required Hours - Design & Engin.	Annual Required Hours – Const. Mgmt.	Staff Required for Design & Eng.	Staff Required for Constr. Mgmt.
Streets	\$29,304,840.87	\$3,077,008.29	\$1,934,119.50	46,839.92	51,057.8	31.2	34.0
Alleys	\$956,521.74	\$100,434.78	\$63,130.43	1,462.40	1,666.5	1.0	1.1
Bridges	\$15,483,478.26	\$1,378,029.57	\$1,548,347.83	20,065.08	40,874.0	13.4	27.2
Street Accessories	\$4,932,608.70	\$256,495.65	\$419,271.74	3,734.76	11,068.1	2.5	7.4
Sidewalks	\$652,173.91	\$33,913.04	\$55,434.78	493.80	1,463.4	0.3	1.0
Parking	\$1,339,130.43	\$69,634.78	\$113,826.09	1,013.93	3,004.8	0.7	2.0
Subtotal	\$52,668,753.91	\$4,915,516.12	\$4,134,130.37	73,609.89	109,134.7	49.1	72.8
Water System	\$18,982,826.09	\$1,537,608.91	\$1,613,540.22	22,388.67	42,595.0	14.9	28.4
Subtotal	\$20,579,434.78	\$1,537,608.91	\$1,613,540.22	22,388.67	42,594.97	14.9	28.4
Maintenance and Remodeling	\$11,169,913.04	\$1,005,292.17	\$614,345.22	14,637.76	16,217.8	9.8	10.8
Underground Conduits	\$542,533.48	\$46,115.35	\$28,211.74	671.47	744.7	0.4	0.5
Comm. and control	\$254,347.83	\$21,619.57	\$13,226.09	314.80	349.1	0.2	0.2
Capital Equipment	\$5,782,608.70	\$491,521.74	\$300,695.65	7,156.90	7,937.9	4.8	5.3
Other Projects	\$1,101,304.35	\$93,610.87	\$57,267.83	1,363.04	1,511.8	0.05	0.03
Subtotal	\$18,850,707.39	\$1,658,159.69	\$1,013,746.52	24,144.0	26,761.3	15.2	16.9
TOTAL	\$92,098,896.09	\$8,111,284.72	\$6,761,417.11	120,142.5	178,491.0	79.2	118.0

The cost of construction guidelines and the staffing estimates shown on the previous page should be utilized with the following points in mind:

- The guidelines are expressed as a percentage of construction (e.g., the cost of staffing as a percentage of construction). To determine the number of staff hours required, divide the cost of the work activity based upon the cost of construction guidelines by the current hourly cost for engineering work activities.
- The guidelines identify resource requirements for each work activity associated with a project. These include design development, design administration, construction management, construction inspection, project closure, etc.
- Cost of construction guidelines were applied to these projects and an hourly rate of \$65.69 for engineering staff and an hourly rate of \$37.88 for construction inspection staff were utilized in the calculation of the number of hours required for the Public Works staff. These hourly rates were based upon fully loaded Public Works Department Civil Engineers and Public Works Inspectors. Since most work is accomplished in-house with City staff, these rates were utilized rather than the hourly rates of consulting engineers and inspectors. This provides a more liberal estimate of staff needs given the typical differential in salaries, but is a reasonable approach given the historical limited use to consulting engineers by the Public Works Department. This approach also recognizes that staff are not allocated 100% to capital project management and have other ancillary duties.
- The staff requirements listed are for the life of these projects and may span multiple years. However, as previously noted, since projects budgeted in the current year may carry-over into next year, staff are also currently working on projects this year that were budgeted last year. Utilization of the average provides a smoothing of this effect. A more finite estimate of staffing needs should be developed using current projects in the pipeline and considering the current status of that project in the calculation (i.e. – projects where design is already complete would be shown as only requiring construction management staff time). However, given the unavailability of this information, this calculation could not be conducted.
- These guidelines can be applied and utilized as a projection of staff needs for the initial years of the CIP enabling management to perform reasonable estimates on the staffing resources required relative to the planned CIP projects for each specific phase of the project (i.e. – planning and scoping, design development, design survey, design administration, construction survey, construction management, construction inspection, etc.). Efforts should be made to establish in-house staffing at a level sufficient to handle normal levels of capital project management services and consulting engineers utilized to address the peak levels that would exceed staff resources.

The following table outlines the current FTE staff resources assigned by function in the various units of the Public Works Department.

		Design, Engineering FTEs	Inspection FTEs	Current Total FTEs
Infrastructure	Estimates	6	0	6
Infrastructure	Major Projects	5	0	5
Infrastructure	Traffic & Lighting Design	4	0	4
Infrastructure	Central Drafting	20	0	20
Infrastructure	Environmental - Sewer Design	12	0	12
Infrastructure	Stormwater Mgmt.	15	0	15
Infrastructure	Contract Admin	7	0	7
Infrastructure	Construction Unit/Design Field Engineering	42	0	42
Infrastructure	Construction Management	0	49	49
Infrastructure	Street & Bridge Operations	7	1	8
	Subtotal	118	50	168
Operations	Facilities – Planning & Design	10	0	7
Operations	Facilities – Drafting	4	0	4
Operations	Facilities - Construction Management	0	6	6
	Subtotal	14	6	17
Water Works	Water Engineering	19	0	19
	Subtotal	19	0	19
	TOTALS	151	56	204

Of the approximately 204 FTE assigned to the various capital project management functions, 151 are assigned to Design and Engineering functions (including project management) and 56 are primarily assigned to inspectional duties. The following table compares the current staffing FTEs listed above against the staff resource requirements outlined previously based upon the application of the cost of construction guidelines. Since capital projects as listed in the CIP functional areas do not correlate directly to the functional units of the Public Works Department, the following comparison is provided for an order of magnitude evaluation of current staffing levels.

	Current Total FTEs	Cost of Construction Total FTE Estimate	Difference
Estimates	6		
Major Projects	5		
Traffic & Lighting Design	4		
Central Drafting	20		
Environmental - Sewer Design	12		
Stormwater Mgmt.	15		
Contract Admin	7		
Construction Unit/Design Field Engineering	42		
Construction Management	49		
Street & Bridge Operations	8		
Subtotal	168	161.8	6.2
Facilities - Planning & Design	7		
Facilities – Drafting	4		
Facilities - Construction Management	6		
Subtotal	17	20.6	-3.6
Water Engineering	19		
Subtotal	19	14.9	4.1
	204	197.3	6.7

As shown in the table above, the estimated total staffing for capital project administration is 197.3 FTEs. This is only 6.7 FTEs below the current staffing level of approximately 204 employees assigned to these functions. Based upon these preliminary calculations, no significant change in the overall staffing levels in the Public Works Department is recommended at this point. The existing workloads appear appropriate for the current level of staff.

However, there are several positions that are currently vacant throughout the organization in various engineering, design, and inspection positions. The vacant positions were generally not included in the estimation of staff resources available to the Public Works Department. Therefore, these positions should not be filled without a formal review of the continued necessity of the positions given existing workloads.

However, the calculations indicate that there are some disparities in the current assignment of staff among functions – mainly in the area of Water Engineering which at the current level of 19 employees is approximately four employees above the estimated 15 employees needed to manage the current annual workload for design and engineering of water works capital projects. The Facilities Division workload would support a staff of 20.6 FTEs compared to the current staffing assigned of 17 or an unmet need of roughly four employees. Similar to the water engineering unit, the staff assigned to capital project management in the Infrastructure Division appear to have a slight excess capacity of roughly six FTEs based upon the calculations performed. Reallocation of these staff should be accomplished to even the workloads of all assigned staff.

Recommendation: Staffing levels in the Public Works Department for Capital Project implementation are currently at an appropriate level based upon current workloads and cost of construction guidelines. However, internal reallocations between specific functional areas may be appropriate.

(6) A Dedicated Staff Member Should Be Assigned Responsibility for Developing and Compiling Required CIP Reports.

With the enhanced focus of reporting and accountability of many of the recommendations contained within this report, there exists a need for the Department to centralize and designate a single individual to assume responsibility for the development, implementation and compiling of the various reports necessary for appropriate monitoring of the CIP projects. While this position does not need to be a high-level management position, it does need to have knowledge, skills and analysis abilities above the level of an administrative assistant position.

This individual's primary responsibilities would be allocated to the development and compiling of the current reports generated by the Department, as well as, the new reports recommended in this report. The individual must have extensive skills and abilities in analyzing, evaluating, and working with financial data and sufficient technical knowledge of public works projects to be able to discuss and critique the assembled data for sufficiency, reasonableness, and appropriateness. Since most data will be entered by other staff (administrative personnel for invoicing data, and project managers for project status), this individual's role will be one of not only compilation but quality assurance.

This individual should be assigned to the administrative unit of the City Engineer's Office. The position should be classified as a project analyst level position. It is anticipated that the total cost of this position would be approximately \$55,000 to \$65,000 including benefits.

Recommendation: A project analyst position should be added to the City Engineer's Administration Unit to assist with project reporting and quality assurance programs.

ATTACHMENT A

ATTACHMENT A

Results of the Employee Survey Department of Public Works – Milwaukee, Wisconsin

	Received
Infrastructure	66
Other	1

Question	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
1. The organizational structure of my Division is well suited to its responsibilities.	1	9	23	20	14
	15%		34%	51%	
2. My division has clear, well-documented policies and procedures to guide my day-to-day work.	6	13	14	22	12
	28%		21%	51%	
3. I get enough feedback from my supervisor about my performance to know if I am performing up to their expectations.	5	9	15	24	14
	21%		22%	57%	
4. Managers and supervisors in my Division do a good job of communicating important information to me in a timely manner.	5	17	8	28	9
	33%		12%	55%	
5. I receive an appropriate amount of guidance from my supervisor.	4	9	12	31	11
	19%		18%	63%	
6. My Division contracts out the right types of services.	4	5	37	15	6
	13%		55%	31%	

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Question	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
7. My Division has the administrative support it needs to accomplish its goals and objectives efficiently and effectively.	4	13	17	28	5
	25%		25%	49%	
8. My Division is frequently in a crisis mode due to workload that exceeds staff resources.	8	16	13	21	9
	36%		19%	45%	
9. In my Division, at present, staffing is adequate for the workloads we handle.	12	19	16	14	6
	46%		24%	30%	
10. My Division provides a high level of service to the residents of Milwaukee.	0	4	5	21	37
	6%		7%	87%	
11. Workload is evenly balanced among staff in my Division.	12	20	11	21	3
	48%		16%	36%	
12. Staff in our Division work hard in the delivery of services to the residents of Milwaukee.	1	3	5	30	28
	6%		7%	87%	
13. I have the tools and equipment I need to efficiently perform my job.	3	15	6	33	10
	27%		9%	64%	
14. I am given real opportunities in my Division to improve my skills.	3	10	15	30	9
	19%		22%	58%	
15. Opportunities exist in the Department for career advancement.	20	13	11	20	3
	49%		16%	34%	
16. The overall quality of work being done in my Division is high.	1	4	5	39	18
	7%		7%	85%	

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Question	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
17. My Division has established clear performance expectations for its services.	3	11	21	25	7
	21%		31%	48%	
18. My supervisor empowers me to make decisions concerning my work.	4	6	8	31	18
	15%		12%	73%	
19. I feel that I am valued as a member of my Division.	6	7	7	27	20
	19%		10%	70%	
20. My current work assignments enable me to apply and practice my knowledge and skills.	1	2	5	38	21
	4%		7%	88%	
21. My Division is a good place to work.	3	5	12	21	26
	12%		18%	70%	
22. The computer system(s) I have available to support my duties are adequate.	9	14	6	20	18
	34%		9%	57%	
23. The working relationships between the different divisions in the Department are generally good.	6	18	9	28	6
	36%		13%	51%	
24. My Division is open to new ideas suggested by others or myself.	5	13	19	17	13
	27%		28%	45%	
25. We have the right number managers and supervisors in my Division.	8	11	23	17	8
	28%		34%	37%	
26. The software utilized in managing capital projects provides the ability to effectively manage the process.	4	13	31	13	6
	25%		46%	28%	

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

Question	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
27. I make use of the available technology in the performance of my duties.	1	2	9	34	21
	4%		13%	82%	
28. I have sufficient information available to manage my aspect of the capital budgeting process.	3	7	37	16	4
	15%		55%	30%	
29. Capital projects are effectively managed in terms of project cost, timing, and inspections.	2	9	31	19	6
	16%		46%	37%	
30. I have sufficient time to complete my assigned responsibilities in a comprehensive and thorough manner.	7	14	13	27	6
	31%		19%	49%	
31. My workload is at a level that I can accomplish my assigned tasks in a thorough and timely manner.	6	14	16	23	8
	30%		24%	46%	
32. I have the equipment and resources needed to perform my job.	3	11	15	32	6
	21%		22%	57%	

ATTACHMENT B

ATTACHMENT B

Best Management Practices Assessment

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
CIP Preparation, Justification, and Reporting		
A multi-year capital improvement program (at least five) has been developed by Milwaukee and adopted by the Common Council.	The City of Milwaukee utilizes a six-year capital improvement program for planning and funding capital improvements and projects. The plan is presented to and adopted by the Common Council with the first year of the plan being incorporated into the annual budget.	
The CIP outlines the primary goals and objectives that guide the development of document and indicates how projects support these identified goals and objectives.	The City of Milwaukee CIP contains a listing of Capital Planning Objectives, as well as reference to the Mayor's established strategic outcomes for City spending. The strategic outcomes addressed are identified for each group of capital projects (surface transportation, health and safety, economic development, culture and recreation, and general government).	Specific projects do not indicate the Capital Planning Objectives or Strategic Outcomes addressed by the project.
The out-years of the CIP provide a basis for planning project priorities beyond a one year period and are updated annually.	The existing CIP process provides for an annual CIP budget and an additional five years of projects for planning purposes. Each year the CIP is reviewed and updated to provide for a new first year annual CIP budget and the revised 5 year planning horizon.	The "out years" of the CIP planning process are often utilized as a rough planning tool for projects requested by Departments. Significant variation occurs in the proposed first year budget from what was previously presented in prior CIP documents.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
The CIP process has clearly defined guidelines on criteria that must be met for a project to be classified as a capital improvement.	<p>The City of Milwaukee has developed the following criteria for capital improvements:</p> <ol style="list-style-type: none"> 1. Renovation or restoration of buildings, structures, facilities, and integral equipment items whose cost exceeds \$25,000; 2. Construction of new or replacement buildings or structures at a cost exceeding \$25,000 including planning and design costs; 3. Remodeling of office and shop areas; 4. Durable equipment with an original unit cost of \$50,000 or more; 5. Equipment and furnishings which are to be purchases as a part of a capital project; 6. Replacement equipment (an integral part of a building, structure or facility) which costs \$25,000 or more. 	
The CIP Document presents detailed cost information regarding capital projects in various manners including by functional area, department, and revenue source.	The City of Milwaukee's CIP presents project costs in multiple formats to convey critical information regarding the proposed and adopted projects. This includes by functional area (Surface Transportation, Environmental, Health and Safety, Economic Development, Culture and Recreation, General Government and Intergovernmental Grants and Aids), by requesting Departments, and by revenue source.	

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
<p>The CIP planning process and the CIP document outline the financing goals and methods to assist decision-makers in making decisions regarding competing demands.</p>	<p>The City of Milwaukee has established three capital financing goals as follows:</p> <ol style="list-style-type: none"> 1. To preserve the city's infrastructure and capital assets which are essential components in protecting public health and safety, and in supporting the operation of the regional economy; 2. To control the City's overall debt burden so that the city can continue to provide essential city services; 3. To minimize deferred preservation so that future taxpayers do not assume a disproportionate responsibility of paying for infrastructure replacement. 	
<p>The City has adopted formal policies regarding the approach to be utilized in funding capital projects. The policies outline how and when cash versus debt will be utilized to finance the CIP.</p>	<p>The City of Milwaukee has implemented an approach to target newly issued debt, in any particular year, to a close approximation of the amount of property tax supported debt retired in that year. In addition, the total tax levy supported financing is targeted at 35.5% of the total capital project. Short-term capital projects are financed with notes having a term of one to five years. Cash is utilized as the primary source of funding for recurring infrastructure programs.</p>	

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
The City of Milwaukee has explored and implemented, where appropriate, diversified funding sources for capital projects to limit the reliance on available cash and debt financing.	Over the last several years, the City of Milwaukee has implemented several funding approaches that have reduced reliance on general obligation debt and available cash as the primary funding mechanism. These approaches include issuance of revenue bonds for projects that have revenue generation capability (i.e. - Sewer projects), utilization of Tax Incremental Districts, and utilization of State low-interest funding opportunities (i.e. – State of Wisconsin Clean Water Fund for Sewer Maintenance projects).	
The capital improvement program for the Department of Public Works clearly identifies the goals, priorities, and expected outcomes of the program.	Goals, priorities and expected outcomes of the CIP are addressed on a macro level for functional areas of the CIP.	The final prepared CIP document does not correlate each project with adopted goals of the City. More detailed information regarding the impact of each capital project on operations or achievement of the City's goals and desired outcomes would be beneficial.
Capital Project submissions provide sufficient background information for projects to be evaluated including detailed information on the project such as: estimated life, level of need, duration of project, program justification, and extent of project scope definition.	CIP project submission documents require the Department to provide detailed background information on the project including: to identify the priority of each project (Essential, Important, or Desired), the project scope and purpose, the estimated useful life, a project justification, the relationship to the Strategic Plan, and the duration of the program. Additionally, an indication is made regarding the projects scope definition as either fully defined, partially defined, or conceptual.	Additional information required as part of the CIP submission would provide useful information for decision-makers when evaluating projects as part of the budget setting process. This information should include impact on annual operating costs, and an indication of whether the project is routine, atypical, or contains unique risk factors (either in site conditions, project complexity, etc.) that may impact the cost, timing, or scheduling of the project.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
Capital Project submission documents require detailed financial information including estimated cost information (by year) for the project including the basis for the estimates, anticipated revenue source, impact on annual operating expenses (operating and/or maintenance cost increases or decreases, staffing implications, etc.), and new revenues that would be generated by the project (if applicable).	Departmental submissions include information on the total financial cost of each project by year and funding source, anticipated revenue generation, and impact on operating costs.	A review of selected CIP document submissions shows that all requested information is not always completely filled out. Procedures should be put in place to ensure all requested information is submitted at the time of project request.
All changes in projects to be conducted during the year, either added or deleted from the annual work program, are communicated to and approved by the Mayor and/or Common Council.	All projects require authorization by the Common Council prior to the issuance of RFP documentation and/or beginning of construction.	Projects are only brought forward to the Common Council when the City is prepared to move forward with the start of the project. Projects included in the annual CIP may not be started during the allocated year. Projects can be dropped without any formal notification or knowledge by the Common Council. No reporting mechanism is in place to provide status updates on project progress or to indicate delays or other impacts to project timing.
There are clear, easily read capital improvement program and project status reports that match the level of detail needed by the expected audience.		Other than for a small number of projects (<10) included in the Mayor's AIM Program, capital improvement project status reports are not developed by Public Works Department on a consistent basis or in a standard format. Reports are generally developed "ad hoc" to address issues that arise.
Periodic reports are provided to the Mayor and Common Council to update them on progress in implementing the annual CIP work program.		No comprehensive status reports are provided to the Mayor or Common Council updating them on the Department's progress in implementing the approved CIP work program for the current year.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
The customers receive quarterly updates that contain status, schedule, task/time assessments, budget update, program update, potential problems, and critical issues.		No periodic reports for scheduled projects are presented to customers of Public Works Department to provide project status updates or identify project issues.
Financial Accounting and Software		
The City of Milwaukee's FMIS provides integrated financial information that links and shares information regarding budgeted projects, financial expenditures, and encumbrances.	The Department of Public Works is developing an in-house financial software system that will enable more detailed project cost accounting, provide more timely financial status updates on current expenditures, obligated funds, and remaining fund balances.	The City of Milwaukee does not have in place an integrated financial management system for budgeting (operating and capital), accounts receivables, and accounts payables. The main system, overseen by the Comptroller's Office for payments, is from PeopleSoft. No budgeting or accounts receivables modules are in place. All budgeting, both operating and capital, are conducted utilizing excel spreadsheets.
The City of Milwaukee's financial system enables projects to be tracked by year of funding for easy determination of availability of fund balances and current status of prior year capital budget funds.		The current financial system does not enable funds to be tracked by budget year – requiring extensive manual tracking of account balances to determine availability of funds from prior years not expended.
A project cost accounting system is utilized to enable comparisons of planned versus actual staff hours for the design and inspection of capital projects.	The Public Works Department is developing an internal FMIS system that will enable the tracking of actual and planned staff hours.	No comprehensive project cost accounting system is available for capital project accounting. Therefore tracking of staff hours, actual versus planned, for design and inspection activities is not easily obtainable.
Project managers have access to the automated financial management system to monitor the actual versus planned design, inspection, and construction costs for capital projects.		Project managers do not have easy access to information from the automated financial management system that enables them to monitor costs for design, inspection and construction costs. No system is in place to enable a comparison of planned versus actual costs without extensive hand-construction of reports.

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
Budget staff assigned to the Capital Project have access to the City and Departmental FMIS systems in order to verify, monitor, and analyze financial information regarding capital projects.	Budget staff have access to the FMIS system utilized city-wide for expenditures.	Budget staff do not have access to the financial systems developed by the Public Works Department that provide more detailed information than is available on the City's FMIS.
Engineering, Design, and Estimation		
The engineering and design services provided by the City of Milwaukee are centralized to capture economies of scale.	Engineering and design services in the Public Works Department are general centralized with the exception of services provided for Water Works which has a separate engineering division.	Centralization of all design and engineering staff in one unit provides a greater ability to manage work load peaks and more fully utilize staff. Work associated with the Water Works can be charged to the Water Works budget.
Staffing requirements for all of the capital projects in the first year of the five-year capital improvement program have been identified.		CIP projects do not identify the staff requirements necessary for annual implementation of approved projects.
Staffing for design and inspection of capital projects is based upon cost of construction guidelines.		Staffing decisions are not based upon cost of construction guidelines or other standards that would identify the necessary staff resources needed for design and/or inspection work during project implementation.
The Department has a clear outsourcing strategy that focuses on core competencies and the continuity of the workload.	Project design, estimation, and construction management have been outsourced on project identified by staff as being outside of their normal areas of expertise (i.e. – City Hall restoration).	No formally adopted policy has been established that identifies the internal core competencies available for handling adopted projects or the special expertise needed from external resources to provide the needed special expertise. Outside resources are contracted based upon decisions made on a project by project basis.
"Billability" targets have been set for engineering staff for the design of capital improvement projects and management monitors their success in meeting these guidelines.		Staff utilization (or "billability") targets have not been established for engineering staff. Time allocation by project is tracked per project but a summary report is not utilized to monitor staff workloads..

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
A Gantt chart schedule has been developed for capital improvement projects for a two to three year period.		Capital projects are not tracked through the use of Gantt charts or other scheduling mechanisms to monitor or track future anticipated workloads to ensure sufficiency staff resources are available or to determine the need for outside/contracted resources.
Capital projects are scoped and cost estimates developed before the commencement of design.	A preliminary project scope and "box car" estimate are prepared for budgeting purposes prior to the commencement of design work.	
The basis of the cost estimates are clearly outlined within the CIP documents and project submissions.	<p>All capital project submissions indicate the level of scoping and estimate that have been prepared and are being utilized (for example – Project Scopes are identified as either: fully defined, partially defined, or conceptual; and cost estimates note whether they are based upon a: thorough cost estimate, limited information, based on cost of similar projects, or unsupported).</p> <p>CIP documentation also indicates whether cost estimates were confirmed by another source and whether they were based on industry standards or not.</p>	<p>Not all information requested on the CIP submission forms are routinely completed by the Department was preparing submissions.</p> <p>When estimates are based upon prior similar projects, the projects should be noted on the submission for budget staff to have an indication of the projects deemed comparable.</p>
Cost estimates are reviewed annually for all projects included in the CIP to ensure that they are still appropriate for use in making decisions regarding budgeting funds for the out-years of the project.		There are no requirements that cost estimates are reviewed and updated on an annual basis prior to the establishment of the new CIP annual work plan. Estimates prepared several years prior may be utilized for budgeting purposes without change.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
Quality control and evaluation mechanisms (e.g., final report) have been developed at the completion of capital improvement projects to enhance learning and correction of problems.	Final reports are developed for each capital project that is completed.	Final project close-out is often occurring significantly after the completion of the project; in some cases exceeding one year. This may leave funds previously allocated to a budget encumbered and unavailable for other projects over multiple CIP years. A formal review of final reports for identification of trends and “lessons learned” analysis is not routinely conducted.
A project manager is assigned to the management of the design, construction inspection, and construction management of capital improvement projects.	Project Managers are assigned to each CIP project to oversee the completion of design work, inspection activities, and construction management.	Project Managers with authority to oversee the project across divisions is not routinely utilized.
Project managers are responsible for capital improvement projects from “cradle to grave”, with the authority, expertise, and responsibility to keep capital projects within budget and on schedule for project development, design, construction inspection, construction management, and closeout.		A “cradle to grave” project manager is not assigned to capital improvement projects with the authority, expertise and responsibility to move projects forward and keep them on schedule.
Standard design criteria (such as minimum grades for pipelines, maximum manhole spacing, etc.) have been established in writing.	Standard design criteria have been established for City of Milwaukee projects and are utilized as part of project design review.	
A project management procedures manual has been developed for capital project management and construction management.		No project management manual exists outlining accepted project management approaches or guidelines.
Capital project management procedures are disseminated to customers.		Because no procedures manual currently exists, procedures have not been disseminated to customers.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
An automated project management system has been acquired, and all of the engineering staff have been trained in and utilize the system.		<p>No project management system is utilized. Project management is accomplished via excel spreadsheets and word documents which outline current project status (on a selected and limited basis).</p> <p>Project management forms outlining schedule and costs for each phase of the project (planning/study, design, permitting, ROW acquisition, bidding, construction and closeout) should be developed.</p>
Change order authority has been appropriately delegated to the Public Works Department Director and City Engineer.	The Public Works Department staff has authority to approve change orders to projects within established policy guidelines. Change orders are reviewed by Public Works Department line staff and approved through the City Engineer.	
A change order contingency is set-aside at the start of a project.		Project contingencies are not set aside for individual projects at the budgeting stage. A program contingency is allocated for all projects in a program area. Contingencies are set at 10% of total project costs and require notification and authorization by the Common Council for inclusion in the total project costs.
The design consultant selection is qualification based.	The Department utilizes a RFQ process to identify engineers of record based upon their qualifications. Engineers of records are categorized according to their specialty.	
An annual RFQ solicitation is used to develop an on-call list of pre-approved consultants.		An annual RFQ solicitation is not conducted to develop an "as-needed" roster of pre-approved consultants for use to supplement in-house staff or provide special expertise not available in-house.

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
Design of capital projects are accomplished on a 2D CAD system.	Capital projects are designed on an AutoCad system.	
A consultant rating system is utilized that identifies and evaluates the quality of consultant performance.		Consultants and engineers of record utilized by the Public Works Department are not formally rated following completion of duties. However, staff maintains discretion not to utilize consultants on future projects if satisfactory performance on prior work was not achieved.
A formal pavement management system has been developed and installed to preserve the City's pavement	The City of Milwaukee has had a formal pavement management system in place for an extended period of time. All roads maintained by the City are rated and categorized according to condition. Project planning and scheduling priorities are based upon the rated condition of the streets. The City is currently undergoing a comprehensive update of the pavement ratings utilizing an outside consultant.	While projects are planned based upon priority need, due to the fact that most street maintenance work is "assessable"; project proceed based upon the willingness of adjoining property owners to share in the cost of the street resurfacing. This often results in streets in better condition being resurfaced in advance of streets with a greater need.
A bridge assessment and condition analysis is maintained for all bridges within the City of Milwaukee.	The City of Milwaukee maintains a comprehensive bridge assessment database providing information on the assessed condition of bridgework.	
Construction and Inspection		
Staffing for inspection of capital projects are based upon cost of construction guidelines		Staffing allocations are not tied to cost of construction guidelines.
A pre-construction conference is conducted at the beginning of each capital project construction contract. The prime contractor, pertinent subcontractors, the project manager, and inspector attend this conference.	Pre-construction conferences are held on most capital projects with the prime contractor prior to the beginning of the project.	

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
The inspectors are responsible for checking and verifying the contractor's application for progress payment, and forwarding a recommendation of approved pay request to the project manager for payment.	Inspectors are initially responsible for ensuring the accuracy of work performed, including quantities utilized, on a daily basis for all assigned projects. Progress payments documentation is reviewed and verified by the Inspector prior to entry and payment by the administrative staff.	
Inspectors make the initial analysis of change order requests for capital projects.	Inspectors are responsible for conducting the initial review of all change orders. Change orders involving significant deviation are discussed with the appropriate Management personnel prior to approval..	The existing definition of change order does not distinguish between scope changes and quantity variations making analysis of the rationale/reason for the change order difficult to accomplish.
The inspectors maintain a personal project diary, prepare daily reports, and keep accurate records of change orders, correspondence, progress payments, shop drawings, project mix designs, material tests, samples and approved traffic control plans.	Construction inspectors maintain daily project diaries of their work activities for all assigned projects. Notations are made regarding inspections conducted, their interactions with contractors, status of material inspections, etc. The project files maintained include all necessary paperwork related to correspondence with the contractor, progress payments approved, drawings, and material testing results.	Reports on Inspector activity are completed weekly but are not conducted in a standard format.
The inspectors schedule all testing with the contracted materials testing firm under current contract with the City and review the results of these tests.	Inspectors review the results of material testing conducted by the City's testing contractor.	
The inspectors and project manager make the final walk through of the project to develop a punch list of clean up items for the contractor.	Inspectors conduct final inspection including development of a punch list for each project. Inspectors utilize initial plans, approved change orders, and as built documentation for conducting these checks.	

CITY OF MILWAUKEE, WISCONSIN
Management Study of the Capital Project Management Process

BEST MANAGEMENT PRACTICE	STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT
After completion of the project, the contractor is required to complete as-built drawings	Contractors are required to provide as built documentation to the City of Milwaukee for all projects.	
The inspectors are given a copy of all approved submittals and shop drawings. During the construction phase, the Inspector verifies the products delivered to the project match the approved submittals.	Inspectors verify quantity and quality of materials utilized as part of their daily work activities and as part of the approval process for progress payments.	
The Construction and Inspection Division posts their construction inspection standards on their web site (such as maintenance of approved plans and city standard specifications on the job site, approval for changes to plans in the field, development of as-built plans, etc.).	The City of Milwaukee's standard specification are available on the City's website.	

ATTACHMENT C

APPENDIX C – SAMPLE AIM REPORT

Kilbourn Ave Bascule Bridge over Milw River

Moveable bridge removal and replacement
Report as of October 2006

Contractor	<i>Not to contract</i>
Project Manager	Lois Gresl
Design Manager	Craig Liberto
Construction Supervisor	<i>Not to contract</i>

A	B	C	D	E	F	G	H=F+G	I=E-H	I	J	K	L	M=E-K	Milestones		
Item No.	Description - Task	Fund Share	FMIS Account	Approved Budget	Bid or Scheduled Value	Approved Change Orders	Total Approved Contract	Deviation (Budget vs. Approved Contract)	Encumbrances	Expenditures	Total Costs Incurred to Date	Percent Complete Approved Project	Project Balance	Start Date	End Date	

Design Phase by City															
1	Design - Bridge	20% City 80% WIDOT	BR32090701	\$ 1,072,000	\$ 1,072,000	\$ -	\$ 1,072,000	\$ -	\$ 129,430	\$ 885,031	\$ 1,014,461	95%	\$ 57,539	05/05	9/06
2	Design - Street	20% City 80% WIDOT	ST32090701	\$ 268,000	\$ 268,000	\$ -	\$ 268,000	\$ -	\$ 32,067	\$ 217,215	\$ 249,282	93%	\$ 18,718	<i>Letting 9/21/06</i>	
State Non-reimbursable (Not on FMIS)															
3	Bridge portion			\$ 150,000	\$ 150,000	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ -	0%	\$ 150,000		
4	Paving portion			\$ 10,000	\$ 10,000	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	0%	\$ 10,000		

Construction Phase by WisDOT/City															
<i>Bids higher than estimate. Project costs being updated</i>															
5	Construct - Bridge	20% City 80% WIDOT	BR32090710	\$ 4,763,000	\$ 4,763,000	\$ -	\$ 4,763,000	\$ -	\$ -	\$ 2,093,00	\$ 2,093,00	0%	\$ 4,760,907	10/06	07/08
6	Construct - Street	20% City 80% WIDOT	ST32090710	\$ 146,000	\$ 146,000	\$ -	\$ 146,000	\$ -	\$ -	\$ 1,124,00	\$ 1,124,00	1%	\$ 144,876	10/06	07/08
State Non-reimbursable (Not on FMIS)															
7	Bridge portion			\$ 10,887,000	\$ 10,887,000	\$ -	\$ 10,887,000	\$ -	\$ -	\$ -	\$ -	0%	\$ 10,887,000		
8	Paving portion			\$ 331,000	\$ 331,000	\$ -	\$ 331,000	\$ -	\$ -	\$ -	\$ -	0%	\$ 331,000		

TOTAL COSTS															
9	Total Project Costs			\$ 17,627,000	\$ 17,627,000	\$ -	\$ 17,296,000	\$ -	\$ 161,497	\$ 1,105,463	\$ 1,266,960	7%	\$ 16,029,040		

Note: Total Approved Budget does not reflect Resolution 060698 authorizing additional project funding of \$3.269 million related to increased construction bids which was approved by F&P on 10/4/06 with Council approval anticipated 10/24/06.

OTHER RELATED WORK

Activity	Work
Sewer	No
Water	No
Street Lighting	No
Private Utility	No