JIM PETRO
AUDITOR OF STATE
STATE OF OHIO

MAHONING VALLEY SANITARY DISTRICT PERFORMANCE AUDIT

JUNE 6, 2002

STATE OF OHIO
OFFICE OF THE AUDITOR

JIM PETRO, AUDITOR OF STATE

To the Customers of the Mahoning Valley Sanitary District:

The Auditor of State's Office is pleased to provide the completed performance audit report of the Mahoning Valley Sanitary District (MVSD). This audit was completed at the request of the MVSD Board of Directors and was designed to provide a resource that can be used by the Board to guide its efforts to improve the efficiency of operations, better plan and budget for capital needs, and provide quality finished water to MVSD customers. The Board is faced with significant staffing and operational issues and sought an independent review by the Auditor of State to guide its decision making.

This report assesses six key areas which affect MVSD's operational effectiveness: Organizational Management, Human Resources, Planning and Financial Operations, Purification and Pumping Operations, Field Maintenance, and Security. Assessments include the rate structure, adequacy of planning, labor contract issues, compensation and benefits, interactions between the Board and management, and organizational structure and staffing. The Auditor of State's Office conducted an independent assessment of these operational areas with the objective of providing recommendations to MVSD and the Board that can either result in financial benefits through cost reductions or achieve efficiency improvements in operations and service delivery.

An executive summary has been prepared which includes the project history; objectives, scope and methodology of the performance audit; an overview of MVSD; and a summary of findings, commendations, recommendations and financial implications. This report has been provided to members of the MVSD Board of Directors and its contents have been reviewed with key staff members. The MVSD Board of Directors is encouraged to utilize the results of the performance audit as a resource in improving the district's overall operations and service delivery. Additional copies of this report can be requested by calling the Clerk of the Bureau's office at (614) 466-2310 or the toll free number in Columbus, (800) 282-0370. In addition, this performance audit can be found on the Internet through the State Auditor's Office website at http://www.auditor.state.oh.us/ by choosing the "On-Line Audit Search" option.

Sincerely,

JIM PETRO
Auditor of State

June 6, 2002

Executive Summary

Project History

In an attempt to optimize operational efficiencies and reduce operating costs, the Board of Directors (BOD) of the Mahoning Valley Sanitary District (MVSD) engaged the Auditor of State (AOS) to conduct a performance audit. The BOD is faced with key staffing and operational decisions and sought an objective analysis from AOS to guide its decision making. Specifically, the BOD requested AOS to perform an operational assessment to provide detailed guidance on how to make necessary improvements.

The overall objectives of this performance audit are to present findings based on data related to MVSD operations and to develop commendations and recommendations concerning selected areas of operations. Key areas assessed include rate fairness, adequacy of planning activities, labor contract provisions, compensation and benefits, interaction between the BOD and management, organizational structure, maintenance practices, staffing, and security. The performance audit provides an independent assessment of MVSD operations to identify potential areas for cost reduction and improved effectiveness. Based on discussions with the BOD and members of MVSD, the following areas of operation were selected for assessment:

- Organizational Management;
- Human Resources;
- Pumping and Purification Operations;
- Field Maintenance; and
- Security.

Objectives and Scope

A performance audit is defined as a systematic and objective assessment of the performance of an organization, program, function or activity to develop findings, conclusions, recommendations and commendations. Performance audits are usually classified as either economy and efficiency audits or program audits.

Economy and efficiency audits consider whether an entity is using its resources efficiently and effectively. These audits attempt to determine if management is maximizing output for a given amount of input. If the entity is efficient, it is assumed that it will accomplish its goals with a minimum of resources and with the fewest detrimental consequences. A program audit, on the other hand, is normally designed to determine if the entity's activities or programs are effective, if they are reaching their goals, and if the goals are proper, suitable or relevant. These audits attempt to

determine if the actual outputs match, exceed or fall short of the intended outputs. The performance audit conducted on MVSD was primarily an economy and efficiency audit.

Methodology

To complete this report, the auditors gathered and assessed a significant amount of data pertaining to MVSD, conducted interviews with various individuals associated with MVSD, the Court of Jurisdiction, the Advisory Council, and major customers, and assessed benchmark criteria from selected peer water treatment operations. In evaluating the various performance audit areas, the auditors spent a significant amount of time gathering and reviewing pertinent documents and information. Numerous interviews and discussions were held at many levels and with groups of individuals involved internally and externally. Furthermore, the Appomattox River Water Authority, the Buckeye Water District, the Rural Lorain County Water Authority, and the water treatment operations of the cities of Akron, Lima, and Toledo were selected to provide benchmark comparisons.

Overview of MVSD

The Mahoning Valley Sanitary District is a political subdivision of the State of Ohio established in 1926 under the authority of the Sanitary District Act of Ohio (Ohio Revised Code Section 6115) for the purpose of providing a public water supply to the member cities of Niles and Youngstown. Oversight of MVSD is provided by a BOD and a Court of Jurisdiction (the Court). The Court consists of one common pleas judge from Mahoning County and one from Trumbull County. The Court's primary responsibility is to review and rule on water rate adjustments and certain other acts as outlined in Ohio Revised Code (ORC) Section 6115.

As a result of an AOS special audit report issued in 1997, several changes were made to ORC section 6115, which governs MVSD. These changes became effective in May 1998. The major change was to the governance of the District. Since 1998, MVSD has been governed by four directors who make up the Board of Directors. The mayor and the city council of each member city each appoint one director. Each director serves for a period of three years. While the BOD is directly responsible for oversight and control of MVSD, the BOD employs a chief engineer and treasurer to manage daily operations.

The current BOD inherited an entity with an outmoded facility, a large amount of debt, and relatively high water rates already in place. These factors limit the BOD's ability to address MVSD infrastructure issues. It appears, based upon peer analysis, that the rates paid by MVSD customers are relatively high, providing little flexibility for the BOD to address capital and operating needs through a rate increase. Therefore, reducing operational cost is a critical challenge the BOD faces, particularly since MVSD has already issued a large amount of debt. In addition, improving MVSD's antiquated facilities is a crucial step toward improving the efficiency of operations. For example,

updating MVSD facilities for automatic data acquisition (ADA) could be done over the next few years and would allow operations to be monitored from remote locations and should allow a reduction of up to six employees. The BOD should consider a change at the executive management level to successfully lead MVSD in making the necessary changes to meet the challenges ahead.

The capital improvement plan needs to be updated to reflect current costs and priorities. Ideally, the relevant costs of the capital improvement plan would be accounted for in the rate structure, although obtaining a rate increase to account for needed capital improvements will likely be difficult under current circumstances. The other viable option for MVSD to address capital needs is to pursue outside grant funding from federal and state agencies, such as the Environmental Protection Agency (EPA) and the Public Works Commission (PWC). The BOD should involve the Court in advance, as appropriate, in efforts to obtain additional funding.

The inefficiencies created by the antiquated facilities, costly provisions in the labor contracts and a rate structure that only meets current debt requirements, represent major challenges to the BOD and its efforts to plan for MVSD's future. Because of the current debt load and rates paid by customers, the BOD will have to be visionary in finding ways to fund necessary capital improvements. To meet current challenges, the BOD needs to undertake extensive strategic planning to provide direction for the organization, plan for capital improvements and the use of technology, and expand its customer base to allow for more efficient use of its capacity. The BOD should also take steps to improve its internal practices by developing rules to guide its operations, using functional committees to facilitate its monitoring and oversight responsibilities, adopting needed policy guidance, and performing formal evaluations of top management. Specifically, the BOD should adopt policies to guide the use of MVSD natural resources; hiring, staff development and evaluation; and management of MVSD documents.

The BOD also needs to address staffing needs and improve an inefficient organizational structure. For example, the field maintenance division (FMD) cannot perform its duties effectively because of inadequate resources and staffing. MVSD could improve its use of existing resources by consolidating security and maintenance employees under one division and all operations staff under one division; and by contracting out non-core operations such as janitorial and grounds keeping work. Consolidating MVSD's organizational structure into two divisions would provide for a more appropriate span of control, facilitate cross-training, and improve communication and accountability within the organization. The pumping and purification divisions could also be improved by providing an adequate number of operators and assistant operators and cross training all operators and assistant operators to perform all pumping and purification duties. The reorganization should also include eliminating two vacant supervisory positions, having the chief financial officer/treasurer report to the chief operating officer/chief engineer, and hiring an assistant operator and increasing grounds maintenance capacity by four full-time equivalent employees through hiring of full-time and/or seasonal staff.

Current resources and staffing also provide minimal security coverage to MVSD. To improve security, a strategic plan or goals based upon a security plan resulting from a formal risk assessment should be developed. The BOD should contract with a security specialist to complete a security risk assessment and security plan to help develop strategic goals, objectives and activities. Technology should be used to address identified security risks, whenever possible, as opposed to hiring additional staff. MVSD should also improve training for security staff.

Basic human resources functions are not being carried out or managed effectively and MVSD does not have an adequate management information system to facilitate effective analysis of key human resources data. The BOD needs management to begin providing it with key management information and statistical data, such as the number and nature of workers' compensation claims and cost and sick leave and overtime usage and cost. The BOD should consider engaging a part-time human resources/risk manager to implement comprehensive human resources policies to guide supervisors regarding personnel issues, provide necessary management information, and oversee staff development efforts. Fundamental policies and procedures the human resources manager should oversee include formal employee evaluations, staff development plans, a training plan and budget, EEO policy and various leave management policies.

The human resources manager should also oversee needed efforts to improve safety and health training and management of workers compensation. Overtime use and workers compensation costs at MVSD are high. Better management of sick and other leave time through proper enforcement of existing leave policies and recommended new policies (along with proposed staffing increases) should also help to reduce overtime costs. Worker safety is also an issue. In past years, MVSD's workers' compensation premiums were up to double the average for similar positions and organizations. During the audit, AOS discovered MVSD was improperly classified as a private employer. In reclassifying MVSD as a public employer, the Bureau of Workers' Compensation (BWC) is treating MVSD as a new organization with no claims history. This will save MVSD more than $50,000 in 2002. If MVSD aggressively manages workers' compensation, the savings MVSD realizes as a result of the reclassification should increase in future years compared to what MVSD's premiums otherwise would have been.

The BOD also faces restrictive labor contract language that limits its ability to effectively oversee MVSD. The BOD should focus future labor contract negotiations on reducing high compensation and benefits costs to be more comparable to peers. Under the current labor contract, union staff compensation is eight to ten percent higher, on average, than peers or other government entities in the region. MVSD could eliminate this disparity by negotiating to have union employees pay 8.5 percent of their pay toward their Public Employee Retirement System (PERS) contribution, which is typically paid by the employee in most organizations. In contrast to union staff, certain supervisory staff compensation is below peers and area entities and should be increased. Health care and other benefits are also consistently higher than peers and other area entities. On average, MVSD total healthcare benefits costs are $10,300, or more than 40 percent higher than comparable entities.

Any savings from reduced compensation and benefits should be directed toward making necessary capital improvements to MVSD facilities.

MVSD needs to improve all aspects of its financial planning and budgeting processes including: improving budgeting, forecasting, investments, rate structure review, and capital planning activities. Effective financial practices are particularly critical for a utility like MVSD which must make sure that its rate adequately covers operational costs and provides funding for maintenance of capital assets. The BOD must be able to demonstrate that MVSD rate structure is appropriate and that costs are minimized by efficient operations. Currently, MVSD's treasurer is responsible for financial operations but does not function as a true chief financial officer. The proposed chief financial officer position should have the ability to perform financial forecasting, planning, budgeting, analysis, debt management, and financial reporting for the BOD.

Key Findings/Recommendations

The performance audit report and executive summary contain a number of findings and recommendations pertaining to MVSD's operations. The following are the key findings and related recommendations:

- MVSD does not have a strategic or technology plan in use. Without a plan, the BOD is not able to effectively direct and monitor MVSD operations.

  The BOD should develop and adopt a strategic plan for MVSD, including mission and vision statements. As part of that strategic plan, the BOD should set goals, prepare action plans, outline technology needs and goals, and establish accountability goals. Effective strategic guidance should improve MVSD's ability to operate effectively by providing guidance to management and measures to assess activities.

- MVSD has a particularly high number of division managers when compared to the peers. Conversely, MVSD is below the peer average in the number of assistant manager positions. Also, unlike peers, MVSD has two executive managers (chief engineer and treasurer) that report the BOD and are accountable MVSD operations.

  MVSD should restructure to reduce the number of division manager positions, increase managers' span of control, consolidate functions, and improve communication and accountability. This should result in a cost saving of approximately $111,000. The chief financial officer/treasurer should report to the chief operating officer/chief engineer, as opposed to reporting to the BOD directly. The chief operating officer/engineer should be solely accountable to the BOD for the success of MVSD operations.

- MVSD does not have rules to guide its internal operations or use committees in its regular business activity. Peers use rules or bylaws to facilitate their activities and use committees to oversee certain important aspects of the organization and have stated that their committee work is an effective element in their operation.

  The BOD should adopt bylaws to guide its activities and demonstrate accountability. The BOD should also create a minimum of three functional committees to facilitate its involvement in MVSD's operations. The recommended committees are a Planning/Budget Committee, a Personnel Committee, and a Safety/Security Committee. Board members should serve on these committees allowing them to become more proactive and appropriately involved.

- Since MVSD's inception, many resolutions have established policies; however, no formal process or mechanism exists for the BOD to review or evaluate the relevancy or

effectiveness of MVSD policies. The BOD also has not provided policy guidance to management in key areas and needs to improve communication with management.

The BOD should create and adopt key policies and rules in order to more clearly define their position on otherwise ambiguous areas. For example, the BOD should create a natural resources policy, a management hiring policy, and a document and data control policy to direct management decision making. The BOD should conduct regular performance evaluations of the chief engineer and the treasurer and require management to report regularly on progress toward implementing BOD resolutions and other important initiatives.

- The human resources functions that are being performed at MVSD are inconsistent, incomplete and lack proper documentation. Management of workers' compensation and safety training also needs to be improved. MVSD does not have a human resources or risk management director dedicated to performing human resource functions.

  MVSD should hire a part-time human resources/risk manager to oversee and coordinate MVSD's human resources function and manage workers' compensation and safety training. This position should provide for a more effective human resources function and reduce accidents and workers' compensation costs. The cost to hire a human resources/risk manager is approximately $32,000.

- Managers at MVSD lack tools for tracking and analyzing significant human resource performance indicators.

  MVSD should acquire human resource software to facilitate management tracking and analysis of key human resources data. This can be accomplished through the technology assessment and planning recommended in the **organizational management** section.

- MVSD has a residency preference in its hiring policy that raises both legal and operational issues.

  In order to ensure the integrity and effectiveness of the hiring process, MVSD should revise its hiring policy and process. Improving the hiring process would help put the focus on hiring the most qualified candidates.

- During the audit, AOS discovered that MVSD was classified incorrectly with the BWC as a private corporation instead of a public employer. The BWC has agreed to reclassify MVSD as a public employer. Because there is not a provision in the BWC regulations to transfer the claims experience forward, MVSD will start the year 2002 with no claims history upon which to base workers' compensation premiums. In comparison to similar entities, BWC costs for MVSD have been high in past years.

MVSD should work with BWC to ensure that BWC properly reclassifies MVSD. The reclassification will make MVSD eligible for certain programs and discounts and will temporarily reduce its premiums, providing MVSD with an opportunity for cost savings. To take advantage of this opportunity, MVSD should take steps to improve the management of its workers' compensation program, be more proactive in addressing safety issues in the work place, and reduce workers compensation costs.

- The average number of sick days taken per employee in 2000 was 14, or almost three weeks per employee. The average number of sick days taken by MVSD employees is almost three times the amount taken by the average 12-month government worker and the average worker in the Bureau of Labor Statistics (BLS) category of "operator, fabricator, and laborer," of about five days. The large amount of sick leave used by MVSD employees is likely a major cause of overtime.

  MVSD should employ sick leave policies and procedures to reduce the amount of sick leave used. During future contract negotiations, MVSD should attempt to modify any language in the union contract that hinders its ability to implement effective sick leave policies. This should enable MVSD to utilize staff more effectively and reduce costs by about $80,000.

- MVSD staff have worked a large amount of overtime in the past several years. The average hours of overtime worked per hourly employee, from1998 through 2000, is 270 hours. The average number of days worked in overtime per employee for the past three years is approximately 34 days. The average annual overtime cost per employee for those three years is approximately $6,600.

  MVSD should take steps to eliminate its excessive overtime costs. Overtime should typically only be used to compensate for unexpected leave time or emergency situations. Steps MVSD should take to reduce overtime costs by about $181,000 include the following:

  - ♦ Improve management of sick, vacation , and other leave use;
  - ♦ Employ enough hourly workers to cover all shifts and have adequate staffing for routine work;
  - ♦ Examine possibilities for contracting out or hiring temporary seasonal employees;
  - ♦ Negotiate overtime policy to be in line with the minimum requirements set forth by the federal Fair Labor Standards Act (FLSA), so that MVSD only pays overtime for hours worked in excess of 40 in a one week period.

- The adjusted average hourly employee wage at MVSD is consistently higher than that of the peer average in all four selected job classifications. The aggregated average wage of the peers and area entities is eight to ten percent lower than the total average wage of the hourly employee at MVSD. MVSD also pays the employee share of the Public Employee Retirement

System (PERS) contribution which is 8.5 percent. This is typically paid by the employee in peer organizations.

MVSD should negotiate compensation levels which are more in line with the peer water districts and surrounding localities by requiring hourly employees to make the PERS employee contribution. This should reduce MVSD costs by about $136,000 and provide desperately needed funding for critical capital improvements.

- The average wage for a division manager of the peers is approximately 17 percent higher than that of a division manager at MVSD. The average wage for an assistant division manager of the peers is only slightly higher than at MVSD.

  The BOD at MVSD should adjust management salaries so that they are more comparable with the peer water districts. The increase could coincide with increases in management authority resulting from the organizational restructuring. Ensuring appropriate pay levels for management staff is critical for recruiting and retaining qualified managers. Increasing certain managers' salaries would cost about $20,000.

- MVSD total health care costs are, on average, 42 percent higher than peers and other comparable entities.

  MVSD should pursue strategies to lower these costs, such as by negotiating a maximum health care contribution it will pay per employee. This could result in annual savings of $85,000.

- MVSD lacks financial planning policies and procedures that can help ensure long term financial stability and growth. The treasurer is primarily responsible for the accounting function within MVSD's financial operations, but is not actively involved in financial decision making. As a result, MVSD's financial management information is inadequate for management and the BOD to assess how MVSD plans to pay for future maintenance and capital improvements.

  MVSD should ensure that the treasurer position is the primary person managing and coordinating the financial planning responsibilities within MVSD. By ensuring the treasurer position functions as a chief financial officer, MVSD should be able to improve its processes for financial planning and reporting and enable MVSD to become a more fiscally accountable entity. The treasurer should be responsible for producing financial management information regarding how MVSD anticipates funding or financing maintenance and capital improvement projects identified in an updated capital improvement plan. In addition, the chief financial officer should report directly to the chief engineer/chief operating officer.

- MVSD has a capital improvement plan (CIP) that has not been updated since 1997. The plan originates from a capital improvement study conducted by an outside consultant in 1985. MVSD used the consultant's study to create a summary of the major improvements identified and the costs associated with those improvements.

  MVSD should update its CIP and implement an ongoing planning process. MVSD should also establish a formal capital improvement planning committee to update the CIP to reflect the current operational needs and costs associated with capital improvements. By establishing a capital improvement process, MVSD could establish an orderly and routine method of planning and financing for required capital improvements and make capital expenditures more responsive to community needs by informing and involving customers.

- MVSD's main source of revenue is from the sale of water to the member communities of Niles and Youngstown. However, MVSD is at its legal debt limit in issuing general obligation bonds. The Village of McDonald also pays MVSD for water it receives under contract. The water rate structure determines the amount of revenue each community is charged. The new water rates were based on a flow of 29 million gallons per day (MGD) and resulted in three rate increases, including 2.00 percent effective November 1, 1999, 3.46 percent effective July 1, 2000, and 3.44 percent effective July 1, 2001.

  MVSD should evaluate the adequacy of its current rate structure and work to make improvements in the structure where needed. The water rate structure should be reviewed and updated periodically based on factors such as the impact of inflation, other cost increases and the adequacy of the coverage of costs. It is critical for a utility that its rate structure is current and adequately covers operational costs and capital improvement needs.

- Historically, MVSD has primarily funded capital improvements through general obligation and water revenue bonds. MVSD has not sought additional funding on an ongoing basis, although MVSD is currently pursuing a six million dollar loan from the Ohio Environmental Protection Agency (OEPA). In contrast, the peers actively pursue grant and low interest loan opportunities on an ongoing basis.

  MVSD should develop a collaborative process to identify and obtain additional funding from professional organizations and state and federal programs that provide funding sources in the form of grants and low interest loans. Obtaining additional funding, particularly from grants, would help MVSD supplement the cost of capital improvements and help mitigate the need for rate increases. Receipt of eligible grant dollars could increase revenues by about $250,000 per year.

- MVSD maintains more square feet per full-time equivalent employee (FTE) than the peers and industry standards. The assistant operators are currently responsible for performing

custodial maintenance functions on a total of 121,400 square feet. Approximately19,600 square feet in eight buildings are seldom cleaned.

MVSD should hire an assistant operator trainee for the purification division to provide adequate operator staffing and assist with overall custodial and janitorial functions that are not currently being performed adequately. Filling the assistant operator vacancy should lead to a reduction in overtime costs of about $19,000. Salary and benefits cost for an assistant operator trainee would be about $42,000. In addition, the custodial work that is not part of the core operation of MVSD should be contracted out. The cost of outsourcing would be about $8,000, but could be offset by a $10,000 reduction in overtime costs. MVSD could also improve its custodial program by establishing measures to assess both MVSD staff and contract work performed.

- MVSD performs more chemical tests with less laboratory staff than peers by having its purification operators perform certain chemical tests.

  MVSD should be commended for using its purification operators in a particularly efficient and effective manner which enables MVSD to carry out a higher workload with less laboratory staff.

- MVSD currently does not use an automatic data acquisition (ADA) system, which would provide for continuous and remote monitoring of key information and processes. An ADA system is the first step toward implementing a supervisory control and data acquisition (SCADA) system that allows remote monitoring and control of key processes and could facilitate significant gains in operational efficiency and effectiveness. If current staffing structures and duties were revised, an ADA system could also permit staffing reductions.

  MVSD should begin taking the first step toward a SCADA system, by planning for and implementing an ADA system. As it updates and implements its CIP, MVSD should ensure that future improvements enable the implementation of a SCADA system in the future. Implementing these systems should result in efficiency gains and more effective operations. Initial planning costs for an ADA system should be about $50,000 to hire an engineering firm. Implementing an ADA system should cost about $750,000. However, MVSD could save up to $200,000 per year, once an ADA system is in place, by reducing staffing by at least four operator positions.

- The staffing levels of FMD have been declining since the mid 1980s, and in recent years, the BOD has not hired additional staff recommended by management. While staffing has decreased in recent years, maintenance demands have increased with the aging of vehicles, systems and equipment, addition of new structures, and addition of new pipeline corridors and trails. As a result, MVSD has incurred significant overtime costs for maintenance activities and has also been deferring necessary maintenance activities. Staffing for vehicle

and equipment maintenance appears adequate and would permit the elimination of the vacant mechanic's helper position.

MVSD should increase field maintenance production capacity. This can be done by hiring seasonal workers to perform grounds keeping duties. The use of permanent staff to carry out critical core functions, such as pipeline maintenance, will enable MVSD to focus on core competencies central to the mission of MVSD. This should result in a more effective use of resources and reduced costs. Hiring seasonal staff could cost about $60,000 and eliminating related overtime and the mechanic's helper position could save about $96,000 annually.

- Security expectations are not well defined by the Board of Directors (BOD), thereby making it difficult to determine if security division (SD) operations are appropriate. The BOD has not established formal goals, objectives or expectations for security priorities or coverage. MVSD also does not have a security policy or plan that guides the use of technology.

  The BOD should contract with a security specialist to assess the security risks at all MVSD properties including threat, vulnerability and criticality assessments. The BOD and Chief of Security should use the results of the assessment to develop MVSD strategic goals and objectives to make decisions about BOD expectations and necessary security coverage, methods, and technology to meet those expectations. This could cost about $20,000.

Additional Findings and Recommendations

The rest of the executive summary is organized by report section and highlights other recommendations and related findings.

Organizational Management

Background: The Mahoning Valley Sanitary District (MVSD) is governed by section 6115 of the Ohio Revised Code (ORC) with an appointed, four member board of directors (BOD) serving as executive management responsible for overseeing all operations. The BOD members are appointed by the cities of Niles and Youngstown, the two statutory customers, or members, of MVSD. The chief engineer is the superintendent of all works and improvements and currently supervises three department managers including the superintendent of purification, the resident engineer, and the chief of security.

In 1998 section 6115.104 was added to the ORC requiring an MVSD Advisory Council to annually review and evaluate MVSD's receipts and disbursements of funds from the previous year and to review and evaluate the operations, policies, programs, and improvements and make recommendations for improvement. The ORC requires the council to meet at least once a year.

Findings: A summary of additional findings in the Organizational Management section includes the following:

- Several board members have indicated that the four member composition of MVSD's BOD has caused operational problems. An odd-number of BOD members and increasing the BOD size could be beneficial.

- The BOD has not complied with its own policy to meet on the third Wednesday of every month.

- Unclear criteria were used in hiring legal counsel in 1998. As of January 2002, the BOD had not formally renewed the contract for legal counsel which expired in July 1999.

- The job description for the clerk position is outdated in regards to necessary technical skills. MVSD employed 1.5 clerical FTEs. If MVSD acquires certain recommended technology and makes certain proposed reassignment duties, one FTE could effectively carry out the proposed clerical duties.

- Appointing authorities for MVSD advisory council have not complied with the law regarding advisory council appointments. Consequently, the advisory council appears to be in disarray, ineffectual, and out of compliance with Ohio law and its own bylaws.

Recommendations: A summary of additional recommendations in the Organizational Management section includes the following:

- The BOD should pursue increasing the board size to five or seven members. This would cost up to $7,200 and would enable to the BOD to more effectively implement a functional committee system.

- The BOD should meet at least monthly and follow or amend its policy to meet on the third Wednesday of each month. Meeting monthly will improve the BOD's ability to monitor MVSD activities and the BOD would be in compliance with its own resolutions.

- The BOD should plan, select, manage, and rebid the legal services contracted for MVSD legal counsel using the criteria specified in this report. This will help ensure that necessary and appropriate legal services are obtained at a fair price.

- MVSD should update the clerk position description to include necessary computer skills such as creating reports and performing analysis using spreadsheets and other software. MVSD should employ one FTE to carry out these duties and train the current clerk to carry out the recommended duties, if necessary.

- The advisory council and its appointing authorities should comply with the law and its bylaws. Specifically, appointing authorities should make timely appointments to fill vacancies and submit authenticated copies of appointment confirmations to MVSD and the Court of Jurisdiction and advisory council members should reappoint a chairperson and secretary as appropriate.

Human Resources

Background: MVSD does not have a separate department dedicated to performing human resource functions. The chief engineer, administrative staff and department heads participate in the administration of human resource activities. The chief engineer directs the operations of MVSD and is solely responsible for the coordination of the department heads, recruitment of new employees and the interview process. The chief engineer makes recommendations to the BOD as to the most qualified candidate for an open position, but the BOD has the final authority to hire employees. The chief engineer also conducts the grievance process on behalf of MVSD and negotiates and oversees the administration of two labor union contracts.

The treasurer is responsible for payroll and benefits administration. The resident engineer is responsible for workers compensation filings, OSHA requirements, training and employee safety issues. The chief of security monitors time sheets, sick leave and vacation slips, reconciling them to the treasurer's payroll records. The division heads and supervisors are charged with the in-house training of new employees. Division managers are also responsible for the first phase of the grievance process, which includes attempted resolution and a written answer to an employee filing the grievance. The division heads monitor employee performance by observation during the day shift and by reviewing charts and records completed by hourly staff.

Findings: A summary of additional findings in the Human Resources section includes the following:

- MVSD does not have a performance appraisal process for management or hourly staff.

- MVSD does not have a formal training program in place for management personnel. MVSD does not have a procedure in place for monitoring employee certification requirements. MVSD does not specifically appropriate funds in the annual budget for training needs.

- MVSD has numerous provisions in its union contract that are more generous than peers and result in high costs to MVSD or unreasonably limit management's ability to operate MVSD in an efficient and effective fashion. For example, vacation accrual and additional payment provisions are generally more generous than peer contracts.

- MVSD is required to follow worker safety and health requirements established by the Ohio Department of Commerce, Division of Occupational Safety and Health (DOSH) under Ohio

Revised Code (ORC) 4167.04. MVSD's last on-site inspection by an industrial safety consultant specialist with the DOSH was performed on January 2, 1997.

- MVSD's personnel manual and job descriptions are outdated.

- MVSD's employment policy states that MVSD is an equal opportunity employer (EEO) and shall comply with all local, state and federal discrimination laws and regulations. However, MVSD does not have a formal EEO policy and does not provide training on this issue.

- MVSD does not have an exit interview process.

- Under the union contract, MVSD is required to have a safety committee with employee and management representatives. The committee last met in October 2001.

- MVSD lacks adequate union negotiation policies and procedures and could benefit from the expertise of a union negotiation specialist.

- MVSD does not have a formal policy for awarding annual vacation leave. Also, MVSD does not follow policies and contract provisions that permit management to require vacation be used at least in eight hour blocks and that employees submit vacation requests at least 24 hours in advance.

Recommendations: A summary of additional recommendations in the Human Resources section includes the following:

- MVSD should implement a formal employee evaluation process. This should better enable MVSD to make promotion and retention decisions, develop employees' skills, and improve employee morale.

- Leaders at MVSD should adopt and budget for a formal training program. MVSD should place particular emphasis on the training and development of their employees to ensure that they have the competencies, knowledge, skills, abilities, and behaviors needed to successfully perform and contribute to MVSD's mission-critical activities. MVSD would likely need to spend about $29,000 on training.

- MVSD should attempt to negotiate contract provisions and additional payments more in line with peer contract provisions. Making these changes would reduce costs and improve the ability to operate MVSD efficiently and effectively. For example, reducing vacation accrual rates could save about $7,800 annually and improve the ability to reduce overtime caused by leave usage.

- MVSD should develop and implement a plan to comply with DOSH safety and health requirements. This should improve worker safety and help reduce costs associated with worker safety and health issues.

- MVSD should update its personnel manual and require employees to sign receipts acknowledging they have received and understand the manual. Job descriptions should also be updated and approved by the BOD.

- MVSD should develop, adopt and implement an EEO policy that prohibits employment discrimination, ensures equal employment opportunity and insures that each employee has an equal chance to succeed or fail based on ability, skills, commitment and performance. An effective EEO policy should expand the pool of viable candidates and help protect MVSD from legal liability. MVSD should also provide annual training on the EEO policy. It should cost about $150 to purchase necessary EEO materials and $245 annually to pay for an EEO training seminar.

- MVSD should implement an exit interview process to identify employee recruitment and retention issues that merit policy or procedure changes.

- The safety committee should meet at least quarterly. Regular meetings of the safety committee will ensure compliance with the union contract and provide a link between management and staff for improving worker safety and reducing related costs.

- MVSD should improve its efforts to prepare for and conduct union negotiations, which could be facilitated by contracting with a union negotiation specialist and ensuring that the negotiation team is provided with a clear mission by the BOD. Contracting for a negotiation specialist could cost about $4,200 annually.

- MVSD should adopt a formal policy for awarding annual vacation leave and should require vacation awarded outside of the annual process to be taken in eight hour blocks and be requested at least 24 hours in advance. MVSD should also work to have the union contract changed to require two week notice for vacation requests. Taking these steps should help ensure vacation leave is awarded fairly under the terms of the union contract and enable management to better manage leave time and the need for overtime.

Planning & Financial Operations

Background: The secretary-treasurer (treasurer) and the chief engineer, under the direction of the board of directors (BOD), are responsible for carrying out the planning and financial operations within MVSD.

Findings: A summary of additional findings in the Planning and Financial Operations section includes the following:

- According to the Government Financial Officers Association (GFOA), a government should have a financial planning process that assesses long term financial implications of current and proposed policies, programs and assumptions that develop appropriate strategies to achieve its goals. MVSD's five year forecast is the only long term financial document that MVSD produces, but it is primarily used as an analysis tool rather than as a management document. As a result, MVSD's forecast lacks a detailed set of appropriate assumptions.

- MVSD does not prepare, publish or circulate a formal budget document and the budget does not serve as an effective financial planning tool or operations guide.

- MVSD should convert from the cash receipts and disbursements method of accounting to an accrual basis of accounting permitted by GAAP. By preparing financial statements according to GAAP, MVSD can more accurately present its financial position.

- MVSD has not implemented or participated in bulk buying programs, cooperative purchasing arrangements, federal contracts, automated purchasing system including e-commerce and use of the internet or procurement cards. MVSD has not developed standard bid document templates.

- MVSD also does not have formal policies and procedures for qualifying, evaluating, and choosing appropriate contractors and consultants.

- MVSD does not regularly review key areas impacting its ability to successfully issue debt.

Recommendations: A summary of additional recommendations in the Planning and Financial Operations section include the following:

- MVSD should improve its financial forecasting by creating a cash flow forecast and incorporating additional data and analysis to estimate future needs. Improving its financial forecasting will better enable MVSD to gauge its financial position and proactively carry out its financial operations.

- MVSD should improve its main operating budget document so that it shows revenue-raising and spending decisions and describes why the decisions were made. The budget should serve as a financial planning and operations guide to enable effective oversight and guidance. The BOD may want to obtain training to improve its understanding of MVSD finances. Training for four BOD members would be about $260.

- MVSD should convert from the cash receipts and disbursements method of accounting to the accrual basis of accounting permitted by GAAP. This will better enable the district to assess and present its financial position.

- MVSD should consider implementing or participating in bulk buying programs, cooperative purchasing arrangements, federal contracts, an automated purchasing system and procurement cards to improve its procurement process. MVSD should also update bidding documents.

- MVSD should develop formal policies and procedures regarding financial and financial criteria for qualifying, evaluating, and choosing appropriate contractors and consultants to ensure it receives effective services for a fair price.

- The treasurer should monitor and annually report to the BOD on MVSD's financial position regarding criteria that would impact its ability to successfully issue debt financing. Monitoring key criteria will enable MVSD to identify areas for needed improvement.

Operations

Background: The Operation section analyzes the staffing and processes of the purification and pumping divisions. The purification and pumping divisions carry out MVSD's core functions of water treatment and supply to customers, including the cities of Niles and Youngstown and the Village of McDonald. The pumping division (PPD) is responsible for the pumping of water to MVSD customers and monitoring water flow within MVSD. The purification division (PFD) manages the purification and filtration process that results in potable water. The PPD includes 9 employees (4 operators, 1 assistant operator, 2 plant mechanics, and 2 electricians) and PFD has 13 staff persons (2 supervisors, 7 operators, 2 assistant operators, 1 sample collector, and 1 assistant chemist), as of November 2001.

The PPD and PFD operators' major responsibilities include touring respective buildings to insure water quality compliance, monitoring pumps and chemical feeds (and changing doses as needed) reading and interpreting meters gauging flow through plant and operating equipment to assure plant flows meet required pumping requirements. The plant mechanics and electricians are responsible for all mechanical and electrical maintenance within the operations facilities. The PFD staff includes operators, assistant operators, an assistant chemist and a sample collector. The PFD operators and assistant operators are certified in operational laboratory testing which qualifies them to perform chemical testing.

Findings: A summary of additional findings in the Operations section includes the following:

- MVSD's plant mechanic and electrician staffing appears adequate, but could be used more effectively if all maintenance staff were combined under one division.

- MVSD could improve its preventive maintenance plan (PM) program by developing a comprehensive inventory and assessment of all equipment in a centralized database.

- MVSD's contingency plan needs to be updated and improved to be more effective when an emergency occurs by putting non-emergency information into another document. MVSD also does not provide regular training to staff on the emergency procedures.

- PPD and PFD staff are not cross trained on each other's duties, which limits management's flexibility in addressing staffing needs.

- MVSD does not engage in regular formal benchmarking and assessment of its treatment operations using American Water Works Association (AWWA) standards or other resources.

- MVSD provides free sample collecting and testing for non-customers.

Recommendations: A summary of additional recommendations in the Operations section includes the following:

- MVSD should address mechanical and electrical maintenance needs using their existing staff. Implementing the restructuring plan previously recommended should allow for better coordination of all maintenance activities and facilitate more effective use of field maintenance workers for minor mechanical work within the operational buildings.

- MVSD should improve its PM program to be systematic and data driven by developing a comprehensive inventory of all equipment, which will allow for physical segregation, security of inventory, and prioritization of responsibilities.

- MVSD should update its contingency plan and improve it by only including information that might be needed in an emergency situation. Staff should be trained annually on emergency procedures.

- All operators and assistant operators should be certified and trained to be able to carry out all pumping and purification duties. This should improve MVSD flexibility to address staffing needs and manage leave time. Cost for pumping operator certifications would be about $5,300.

- As a part of its strategic planning process, MVSD should establish formal performance measures and engage in benchmarking comparisons and take other continuous improvement steps that will improve its operations and enable it to be more efficient.

- MVSD should charge non-customers for sample collecting and testing, which would generate revenue of about $4,000 annually and help limit any legal liability arising from such testing.

Field Maintenance

Background: The Field Maintenance Division (FMD) handles the routine maintenance needs of MVSD, including plant maintenance, such as rehabilitating the filters, fixing windows, maintaining the roof and snow plowing; pipeline maintenance, such as repairing leaks and exercising valves; grounds keeping activities, such as mowing and repairing fences; and routine equipment maintenance. FMD's responsibilities have increased in the past several years with the addition of several buildings and patrol trails. FMD is currently led by the resident engineer, who supervises seven FMD employees. Since the retirement of the superintendent of pumping in May 2001, the resident engineer has also largely taken over the responsibility for overseeing mechanics and electricians in the Pumping and Purification divisions. The FMD includes five field maintenance workers, one painter, and one fleet mechanic, as of November 1, 2001.

Findings: A summary of additional findings in the Field Maintenance section includes the following:

- MVSD could improve its maintenance program by developing monthly and yearly plans for the routine maintenance needs of all equipment and by keeping maintenance history records for the life of the equipment in a centralized database. MVSD also does not have a cost estimate for deferred maintenance taking place.

- MVSD does not use preventative maintenance (PM) management software. PM software can be used to develop a more effective preventive maintenance program by permitting more effective tracking and analysis of maintenance work.

- MVSD does not have an ongoing capital improvement program to address FMD needs. For example, much of the pipeline maintained by the FMD is in poor condition and may need to be replaced.

Recommendations: A summary of additional recommendations in the Field Maintenance section includes the following:

- The FMD should improve its maintenance activities with better long term planning and by performing a comprehensive inventory assessment. Developing a centralized inventory would cost about $7,900. Also, MVSD should track and estimate the cost of deferred maintenance projects and develop a plan to address these maintenance needs.

- MVSD should purchase a PM system to develop and support the systematic collection and analysis of asset information and the systematic analysis of equipment replacement needs based on priorities of the overall organization. PM software would enable the use of cost-benefit modeling techniques to help management decide what point in time is the most beneficial to replace an asset. Overall cost would be approximately $7,000 including about $1,000 in ongoing costs.

- The FMD should be involved in updating and implementing a CIP for MVSD. This plan should include a process for assessing MVSD pipeline and implementing a pipe replacement program to reduce costs and prevent emergency breaks or service disruptions.

Security

Background: The Security Division (SD) is responsible for protecting the water supply, facilities and staff at MVSD. SD staff is able to patrol MVSD properties about 100 hours per week. MVSD's Meander Reservoir and watershed are somewhat unique in that no public access or recreational uses are allowed, which permits the SD force to concentrate on controlling trespassing and other potential security threats. The security staff consists of two full-time and one part-time reservoir patrolman. The reservoir patrolmen maintain the security of the district's property by securing gates and inspecting all buildings and land. Each reservoir patrolman is a state certified peace officer, who may carry a firearm, issue citations, and make arrests.

Findings: A summary of additional findings in the Security section includes the following:

- The AWWA and the Federal Bureau of Investigation (FBI) have issued recommendations regarding steps water utilities should take to ensure adequate security and reduce the risk of terrorist action.

- Other than general touring of the facilities prior to or immediately after being hired, training for reservoir patrolmen is limited to fire arms qualification and procedures associated with the re-certification required of certified peace officers.

- The chief of security recently began aggregating patrol location and frequency data, which could be useful in planning security activities.

- The appropriate use of technology can increase the effectiveness of existing staff, decrease the need for additional staff, and otherwise increase the level of security provided. The one-time initial costs of technological applications are typically off-set by increased performance, and cost avoidance of additional staff. For example, the Akron Water Department uses technology to improve its security without adding additional staff. The SD makes minimal use of technology.

Recommendations: A summary of additional recommendations in the Security section includes the following:

- The chief of security should review the AWWA and FBI recommendations and develop an action plan to address the recommendations. The BOD should review, approve, and monitor the implementation of the final plan to ensure MVSD is taking proper security measures.

- MVSD should develop and implement a formal in-service training program for its security staff, as a part an overall training program that includes a minimum number of hours of in-service training each year. MVSD should base training requirements on what would be necessary to effectively accomplish its strategic security goals and objectives. This would cost about $2,200 per year.

- The Chief of Security should routinely aggregate and analyze key patrol data and use it to monitor patrolling activities and ensure appropriate coverage in light of BOD priorities.

- The BOD should implement new technologies for security in keeping with BOD policies and decisions arising from the comprehensive security assessment. At a minimum, MVSD should employ technology to control access to MVSD grounds and facilities only to authorized personnel, particularly controlling access to hazardous chemicals and sensitive plant areas. Effective use of technology should enable MVSD to improve security coverage, while minimizing costs, particularly by reducing the need to hire additional staff. MVSD should complete the assessment prior to making any major technology purchases.

Summary of Financial Implications

The following table summarizes the performance audit recommendations which contain financial implications. These recommendations provide a series of ideas or suggestions which the Mahoning Valley Sanitary District should consider when making the important decisions necessary to improve the effectiveness and efficiency of its operations while continuing to meet the needs of its customers. Certain recommendations are dependent on labor negotiations or Court of Jurisdiction approval. Approximately $319,000 in cost savings and $76,000 in annual implementation costs identified in the performance audit are subject to labor negotiations. Detailed information concerning the financial implications, including assumptions, is contained within the individual sections of the performance audit.

Ref. No	Recommendation	Revenue Enhancement (Annual)	Estimated Cost Savings (Annual)	Estimated Implementation Costs (One-Time)	Estimated Implementation Cost (Annual)
Organizational Management					
R2.4	Restructure staffing resulting in the elimination of two management positions		$111,000		
R2.8	BOD expansion to five or seven members				$7,200
R2.15	Advisory Council to obtain OFAC training			$845	
	Sub-Total Organizational Management		**$111,000**	**$845**	**$7,200**
Human Resources					
R3.1	Hire a part-time human resource/ risk manager				$32,000
R3.9	Obtain EEO training and manuals			$150	$245
R3.10	Establish budget for ongoing training and development				$29,000
R3.11	Ensure BWC reclassification		$15,000	$47,000	
R3.14	Reduce vacation accrual [1]		$7,800		
R3.15	Hire contract negotiation specialist				$4,200
R3.16	Reduce sick leave usage resulting in overtime savings [1]		$80,000		
R3.18	Implement policies to reduce overtime		$22,000		
R3.19	Require employees to make PERS contribution [1]		$136,000		
R3.20	Increase division level manager salaries				$20,000
R3.22	Establish a maximum amount per employee for healthcare coverage [1]		$85,000		
	Sub-Total Human Resources		**$345,800**	**$47,150**	**$85,445**

Ref. No.	Recommendation	Revenue Enhancement (Annual)	Estimated Cost Savings (Annual)	Estimated Implementation Costs (One-Time)	Estimated Implementation Cost (Annual)
Planning and Financial Operations					
R4.8	Obtain OFAC training for the BOD			$260	
R4.15	Apply for PWC and other funding	$250,000			
	Sub-Total Planning and Financial Operations	**$250,000**		**$260**	
Operations					
R5.1	Hire one assistant operator**.** Cost would be partially offset by overtime savings		$19,000		$42,000
R5.3	Contract out janitorial services**.** Cost would be offset by overtime savings [1]		$10,000		$8,000
R5.7	Require all operators to obtain Class I license [1]				$5,300
R5.9	Charge for sample collecting and testing	$4,000			
R5.10	Implementation of an ADA system, which could be recovered by subsequent cost savings resulting from a reduction in staffing		$200,000	$750,000	
	Sub-Total Operations	**$4,000**	**$229,000**	**$750,000**	**$55,300**
Field Maintenance					
R6.1	Hire seasonal staff for grounds maintenance work and eliminate mechanic's helper position[1]		$96,000		$60,000
R6.3	Develop centralized inventory assessment			$7,900	
R6.5	Purchase PM software			$6,000	$1,000
	Sub-Total Field Maintenance		**$96,000**	**$13,900**	**$61,000**

Ref. No.	Recommendation	Revenue Enhancement (Annual)	Estimated Cost Savings (Annual)	Estimated Implementation Costs (One-Time)	Estimated Implementation Cost (Annual)
Security					
R7.1	Contract for a security and risk assessment			$20,000	
R7.5	Require continuing education for security staff [1]				$2,200
	Sub-Total Security			**$20,000**	**$2,200**
Total		**$254,000**	**$781,800**	**$832,155**	**$211,145**

[1]These recommendations require future contract negotiations.

Organizational Management

Background

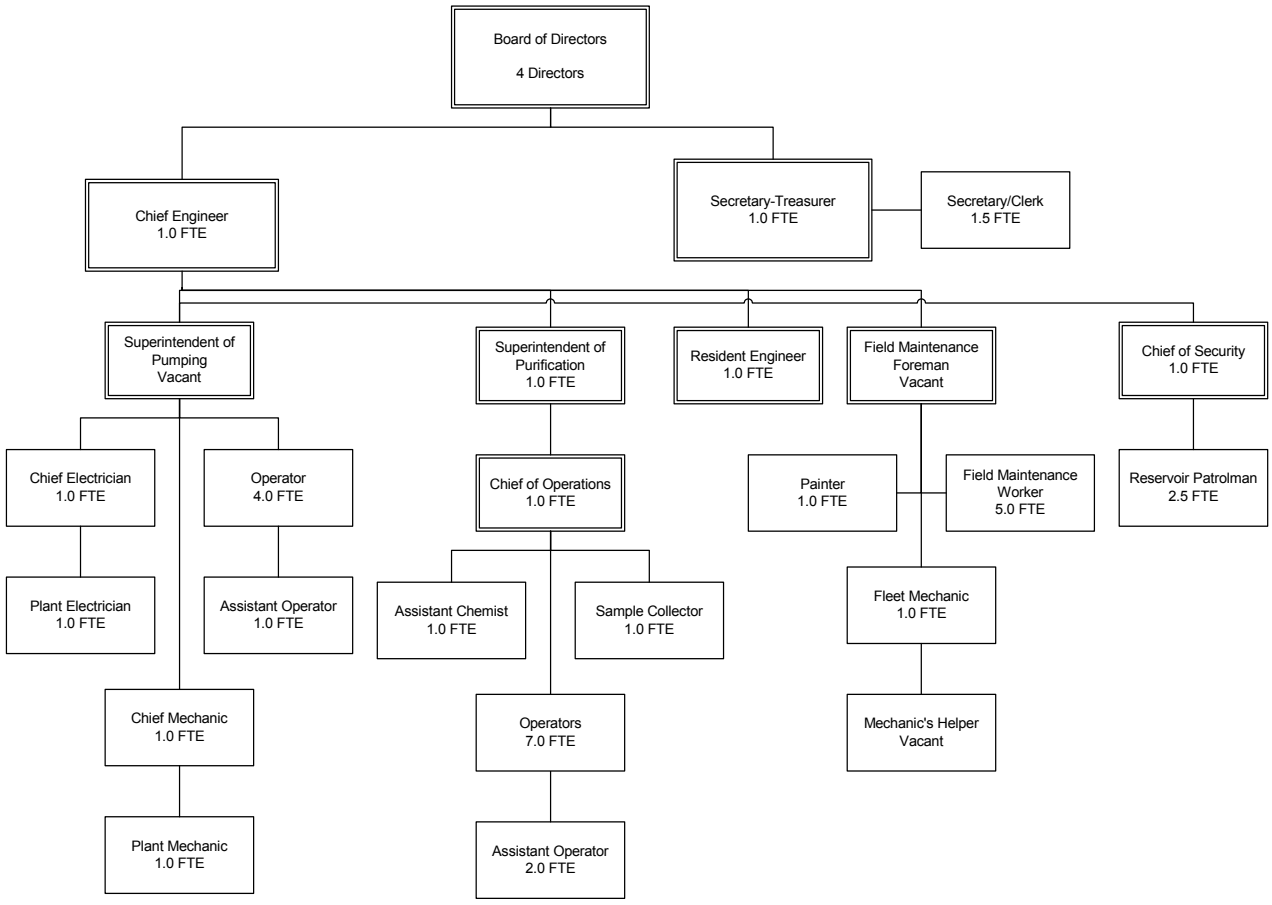
This section assesses the executive management of the Mahoning Valley Sanitary District (MVSD). MVSD is governed by the Ohio Revised Code (ORC) section 6115 as a "water district organized wholly for providing a water supply for domestic, municipal, and public use that includes two municipal corporations in two counties." The ORC authorizes sanitary districts to construct reservoirs, sewers, siphons, pumping stations, treatment and disposal works and wells, and perform all other necessary work to fulfill the purpose of providing a water supply to the public.

This section will focus on the operation and oversight of MVSD provided by the Board of Directors (BOD) and the chief engineer, the organizational structure of the district and the activities of MVSD Advisory Council. A detailed assessment of the activities of the secretary/treasurer and departmental management are presented in subsequent report sections. The BOD will be compared to three peers selected because they also have appointed executive bodies that oversee the district. Unlike the other sections in this report, this section does not use the peer water departments of Akron, Lima, and Toledo because the executive management structures are too different. Two of the peers are located in Ohio, including the Buckeye Water District (BWD) the Rural Lorain County Water Authority (LCWA) located in Wellsville and Lagrange, Ohio respectively. The third peer is the Appomattox River Water Authority (ARWA) located in Virginia.

Organizational Chart

Chart 2-1 graphically depicts MVSD current official organizational structure.

Chart 2-1 MVSD Organizational Chart, November 2001



Source: MVSD

As shown in **Chart 2-1**, MVSD executive management is headed by a Board of Directors composed of four appointed members. The two executive managers are the chief engineer and the secretary/treasurer, who are required to be under separate contract with the BOD. Under the official organizational chart, the treasurer is also the BOD secretary and the chief engineer oversees five departmental managers. However, two of the departmental management positions are vacant with the position of Superintendent of Pumping vacant since mid-2001, and the position of field maintenance foreman vacant since 1998. As a result of the management vacancies, the resident engineer has taken over all the duties of the field maintenance foreman as well as the responsibility of supervising the electricians and mechanics. The superintendent of purification and chief of operations have taken over the other duties previously handled by the superintendent of pumping. MVSD also employs a part-time, temporary clerical staff person who performs clerical work for MVSD managers.

The Board of Directors

The BOD is responsible for overseeing the operation of MVSD. The BOD is ultimately accountable for the following functions under the ORC :

- Develop and implement the district improvement plan (ORC 6115.16);
- Determine reasonable water rates for recommendation to the Court of Jurisdiction (the Court) for approval (ORC 6115.19);
- Bid and approve contracts exceeding $10,000 in cost (ORC 6115.20);
- Obtain purchased services exceeding $10,000 in cost using a selection process outlined in sections 153.65 to 153.71 of the ORC;
- Comply with EPA regulations (ORC 6115.23);
- Maintain and manage three separate budget funds for the district (preliminary, bond, and maintenance) (ORC 6115.20).
- Adopt a seal and keep a record, which must be open for inspection to all "interested parties," of all proceedings, meeting minutes, certificates, contracts, bonds given by employees and corporate acts (ORC 6115.12); and
- Consider all recommendations made by the Advisory Council (ORC 6115.104).

BOD members are appointed by the cities of Niles and Youngstown, the two statutory customers or members of MVSD. The mayors and the city councils from each city appoint one member to the Board of Directors. BOD members serve three year terms, can be reappointed, and may be removed for "cause."

Each director takes an oath to honestly, faithfully and impartially perform the duties of the office, and vows not to have financial or other interest in any MVSD contract. The BOD must choose one of its members to be president. The duties of the president are not specified in the ORC . Members of the BOD are compensated for up to twelve meeting days per year at a rate of two hundred dollars per day. BOD members may also receive reimbursement for expenses.

A majority of the BOD constitutes a quorum and a majority vote is required for the BOD to take an action on behalf of MVSD. All actions by the BOD must be approved by resolution. The BOD must select a secretary who may or may not be a member of the BOD. The principle responsibilities of the BOD secretary are to be the custodian of its records and to assist the BOD in the performance of its duties. The secretary also serves as the treasurer of the district, unless the BOD chooses to make the positions separate. A more detailed presentation and analysis of the activities of the secretary/treasurer is presented in the **planning and financial operations** section.

The BOD may employ or contract for an executive director, chief engineer, other engineers, attorneys, agents and assistants and may provide necessary equipment and supplies as needed to execute the improvement plan. The BOD may use an individual, partnership or corporation for these

functions. The BOD has chosen to employ a chief engineer as the general manager of the district's daily operations.

MVSD's Board of Directors may sue to enforce its orders. The BOD may use stream gauges and surveys of stream flow and other scientific and engineering subjects as are necessary for the operation of MVSD. Additionally, the BOD may make and enforce regulations to prevent pollution and waste of the water supply and police its works and property. In times of great emergency, the BOD may compel assistance in the protection of its works.

BOD meetings are governed by the ORC section 121, commonly known as the Sunshine Law. The Sunshine Law's requirements are supposed to be "liberally construed" and include the following:

- All meetings and minutes of the meetings must be open to the public;
- Reasonable establishment and notification of the time and place of all regularly scheduled meetings and the time, place and purpose of all special meetings must be provided;
- At least, 24-hour notice must be given to the news media, and others who have requested such notification, prior to a special meeting. A special meeting may only be held in the event of an emergency requiring immediate official action;
- Executive sessions may be held only for specific purpose such as conducting conferences with an attorney, considering the employment or dismissal of an employee and matters that must be kept confidential by federal or state requirements; and
- A resolution, rule or formal action of any kind is invalid unless adopted in an open meeting of the public body.

Advisory Council

In 1998, the ORC was changed to include the addition of requiring an MVSD Advisory Council. The Council is required to perform the following duties:

- Annually review and evaluate MVSD's receipts and disbursements of funds from the previous year; and
- Review and evaluate the operations, policies, programs and improvements of MVSD, and make recommendations to the BOD for improvement.

There are eleven members on MVSD's Advisory Council, which are appointed by the legislative authorities of entities who use water supplied by MVSD either directly or indirectly. Within ten days after making an appointment to the council, the appointing authority must submit an authenticated copy of the appointment resolution to MVSD Board of Directors and to the clerk of the Court. Appointments must be made within sixty days after an entity begins receiving water from MVSD or after an entity's council position is vacated. Council members may be removed with or without cause. The Council must appoint one of its members as chairperson and one as secretary. However, duties for these positions are not specified. A majority of the Council constitutes a quorum and a

majority vote is required to take action. Members are not compensated or reimbursed for their involvement. The ORC requires the Council to meet at least once a year.

Chief Engineer

The chief engineer of MVSD is required by law to be the superintendent of all works and improvements of MVSD and must make a full report to the BOD at least once per year. Also, the chief engineer must make suggestions and recommendations to the BOD and perform all other duties required by the BOD, including execution of contracts. The chief engineer may serve as the secretary to the BOD if a separate treasurer is appointed.

Currently, the chief engineer is responsible for coordinating MVSD's engineering and technical operations in order to provide a safe and adequate supply of water to the district's member cities. This position is also responsible to understand MVSD's budget development and administration, labor contract negotiation, interpreting and applying laws, regulations and policies, participating in long range planning and ensuring the quality of work as measured against established standards. The chief engineer currently supervises three department managers including the superintendent of purification, the resident engineer and the chief of security.

Court of Jurisdiction

The ORC requires that certain actions of the BOD be approved by the Court prior to becoming effective. One judge from the court of common pleas in Trumbull county and one from Mahoning county serve on the Court. The Court must keep a written transcript of all meetings regarding MVSD, other than litigation involving MVSD, and this transcript must be made available to the public.

Prior to 1998, the Court appointed MVSD Board of Directors. Today, the Court's main function is to approve any rate increases proposed by MVSD before the rates can become effective. The Court has a few other responsibilities regarding MVSD. For example, if the BOD becomes involved in the buying or selling of land, the Court must select a board of appraisers.

Performance Measures

The following performance measures were used to review MVSD's organizational management:

- Assess MVSD's strategic planning efforts;
- Assess MVSD's organizational structure;
- Evaluate the operations and composition of the BOD;
- Examine the policy guidance provided by the BOD in natural resources;
- Evaluate management's hiring policy and process;
- Assess the legal counsel performance and selection process;
- Assess the interaction between the chief engineer and the BOD;
- Assess clerical staffing; and
- Determine the effectiveness of the Advisory Council and its compliance with the ORC.

Findings / Commendations / Recommendations

Strategic Planning

F2.1 MVSD has not developed a mission and key goals. According to the California Management Assistance Partnership, an organization's mission statement provides an agency with an ultimate purpose and a reason for existence. Generally speaking, a mission statement is a form of inspiration, explaining the principles which guide the organization's staff in delivering services. Without clear guidance from the BOD as to the mission and strategic goals of MVSD, MVSD cannot operate effectively. The mission statement typically describes an organization in these terms:

- **Purpose:** Why the organization exists and what it seeks to accomplish
- **Business:** The main method or activity through which the organization works to fulfill this purpose
- **Values:** The principles or beliefs which guide an agency's staff members as they pursue the agency's purpose

R2.1 MVSD should develop a mission statement to reflect its purpose, business and values. The mission statement should reflect an outcome-based approach. An agency's mission statement should be outcome-based; it should convey the ultimate reason for an agency's existence. By developing a mission statement, MVSD can clarify their mission and reason for existence within the service area.

F2.2 MVSD does not have a short or long term strategic plan to direct its operations. Unlike peer districts, MVSD does not use strategic planning to guide organizational activities or to evaluate management. Due in large part to an Auditor of State special audit, the BOD has deferred the implementation of the CIP. The absence of a strategic operating or management plan limits a governing board's ability to be proactive. The lack of a strategic plan has caused the BOD to become mainly reactionary in its operation and concern itself mostly with activities that are routine in nature. Furthermore, many of the BOD's meetings in recent years have been special meetings to deal with emergency issues. Without a strategic plan and more effective BOD involvement, agenda items will likely continue to involve issues of an immediate nature.

Strategic planning is a tool that can be used to identify, define, and implement the strategic thinking of an organization. The strategic planning process can be used as an organizational development tool to bring a group of people together around a goal, and as an accountability mechanism to measure the degree to which the organization is achieving its goals. Effective strategic planning activities include the following:

- Set a vision;
- Create a road map;
- Prepare action plans;
- Establish accountability goals; and
- Develop a performance-oriented organization.

The American Water Works Association (AWWA) has identified seven industry trends that it recommends for utility governing boards and management to understand and consider regarding their short and long term strategic plans. These trends include the following:

- *Infrastructure Management*: An effective strategic planning process should include an analysis of specific infrastructure needs including the consequences of failing to provide for that infrastructure.

- *Environmental Regulations*: Develop reasonable plans to align improvement efforts with the Clean Water Act, Safe Drinking Water Act, and the Endangered Species Act.

- *Water Utility Structure*: Water utilities will continue to restructure and push for stronger, more effective public governance. Investigate consolidation with other utility services such as gas and electric.

- *Good Customer Relations*: The Internet will be a powerful means of continuous performance improvement, with real-time water quality information likely becoming the norm. Actively involving stakeholders in setting goals and expectations increases public understanding.

- *Continuous Performance Improvement*: Utilities will be driven to establish strong management and leadership strategies to adapt to a changing work environment.

- *Technology Use*: Technological advances will improve water quality, affect customer service, and reduce costs. Consider installing more automation management systems to reduce labor and save energy. Integrate and streamline internal information systems to maximize effective communication, facilitate easy access to information by employees, and improve timeliness and quality of decision-making. See **the human resources, operations, security** and **field maintenance** sections for more information on technology use.

- *Watershed Management*: There is a growing conflict between population growth, development, and environmental regulations. Approach managing watersheds for species enhancement, water yield, and pollution control. See the **natural resources policy** subsection for more information.

R2.2 The BOD should develop and implement a strategic plan for MVSD and should incorporate aspects of the CIP. For more information on the CIP and planning process, see the **planning and financial operations** section of this report. The BOD should create a strategic vision and goals for MVSD and work with management to prepare corresponding action plans and accountability goals with performance measures to develop a performance-oriented organization. Also, the BOD should create clear, specific, and brief statements that explain staff roles in the plan for each major component of the strategic plan, so that everyone on the staff can see where and how his or her work contributes to MVSD's mission and vision. The BOD should account for the seven industry trends identified by the AWWA in their strategic plan. By accounting for and acting on those trends, the BOD will be best positioned to more successfully lead MVSD. In addition to providing the district with strategic goals and plans, the BOD should also provide adequate resources to allow management and staff the opportunity to meet those goals and expectations. Creating a strategic plan for guiding and evaluating the activities of MVSD management is critical for the success of the organization. An effective strategic plan should also enable the BOD to proactively focus its involvement at MVSD to an appropriate level.

As part of its ongoing strategic process, management should provide the BOD with key management information and statistical and operational data. For example, the number and nature of worker's compensation claims and cost and sick leave and overtime usage and cost. The information should be presented as a summary with raw data available should the BOD request it. See the **human resources** and the **planning and financial operations** sections for additional detail on the information that management should provide to the BOD.

The BOD should also work with the cities of Youngstown and Niles to expand the number of customers in MVSD's service area. One option is to work with Youngstown and Niles to obtain a change in the ORC that would allow MVSD to seek out additional member communities directly. Expanding the number of customers served would enable MVSD to use more of its plant capacity and spread its fixed cost over more customers. This could better enable MVSD to pay for capital improvements.

F2.3 MVSD lacks a technology plan to guide its activities. In conjunction with procuring the appropriate technology for a water utility, planning for future needs and technology replacement is very important. Best practice organizations develop and implement a long-term strategic technology plan that incorporates business operations and strategic plan goals. In essence, the plan should describe technological objectives and how technology, funding and resources will help achieve those objectives. In addition, a formal review and revision process should be established allowing the technology plan to evolve. The planning process should, at a minimum, accomplish the following objectives:

- Set technology priorities and rank technology projects accordingly;
- Establish the justification for new initiatives;

- Provide recommendations to executive management;
- Review progress of technology projects;
- Offer resolutions for significant organizational issues impeding project progress;
- Assess the need for implementation of new technology; and
- Establish and approve technology standards.

In conjunction with their technology plans, best practice organizations develop, update and periodically test a disaster recovery plan which should describe in detail the steps required to re-establish the organization's functionality after an unexpected service disruption, such as a fire, flood, or tornado. The plan should at least address how to accomplish the following objectives:

- Communicate with key officials;
- Re-establish communications with the various district facilities;
- Re-establish transaction processing; and
- Establish a new site or prepare the existing site for reuse.

The disaster recovery plan should establish roles for key members of the disaster recovery team and outline each team member's specific responsibilities. The goal of the plan should be to minimize the ambiguity and confusion that typically occurs when an organization loses the capability to operate normally and establish a clear action plan to resume functionality and ensure that documents and data can be recovered.

R2.3 As a part of its strategic planing process, MVSD should develop a technology plan to regularly assess the functionality of its technology and the need to update or alter it. Each division should be included in determining potential technology needs. MVSD should regularly examine its use of technology to ensure it is maximized and used effectively in carrying out MVSD's mission. Effective technology planning will better enable MVSD to serve its customers in an efficient manner. Developing a companion disaster recovery plan would better prepare MVSD for unforseen service interruptions.

Organizational Structure

F2.4 The consulting firm of Gortz and Associates, Inc. developed revised position descriptions for MVSD in 1994. While the Gortz descriptions were not officially approved by the BOD, the descriptions are the most up-to-date documentation of the responsibilities of the various positions at MVSD. The following are primary duties of MVSD division and assistant manager positions:

- *Superintendent of Pumping*: Supervises the pumping division staff performing custodial, maintenance and operational duties; oversees inspection, maintenance and repair of building equipments and systems related pumping, heating and carbonation process. This position has been vacant since May 2001. The functions of this

position have been split between the chief of purification operations and the resident engineer. The chief of purification operations is responsible for the pumping operators and assistant operators and all pumping functions. The resident engineer is responsible for mechanics and electricians and related maintenance functions.

- *Superintendent of Purification*: Supervises the purification division staff performing laboratory, sample collecting, custodial and operational duties; oversees and directs activities related to water quality monitoring; and handles reporting to Ohio Environmental Protection Agency (OEPA).

- *Chief of Operations*: Assists the superintendent of purification with supervision of purification staff, particularly in the area of treatment operations and laboratory work. Also assists with some of the Superintendent of Pumping duties.

- *Resident Engineer*: Provides technical assistance including designing system updates, inspecting construction sites, surveying property, and collecting watershed data; and administers and coordinates MVSD's safety program.

- *Field Maintenance Foreman*: Supervises field maintenance activities. This position has been vacant since 1998. These duties are currently carried out by the resident engineer.

- *Chief Patrolman (Chief of Security)*: Patrols MVSD property and facilities and performs various testing and inspection of safety and security equipment, such as fire extinguishers and alarm systems; and supervises security staff.

In addition to their core functional responsibilities, managers at MVSD carry out various personnel and administrative functions, such as reviewing time sheets, approving overtime, scheduling employees, ensuring compliance with relevant legal requirements, attending meetings, purchasing and reporting on division activities or certain statistical data (for more detail on the activities performed see the **human resources** section).

F2.5 When compared to peers, MVSD has a high number of management positions, particularly division managers. MVSD currently has eight management positions, two of which are not currently filled. Of the eight positions, the chief engineer and secretary-treasurer positions could be termed executive management positions, one position could be considered an assistant manager position (chief of operations), and the remaining five could be termed division manager positions. **Table 2-1** compares the number of MVSD management positions to peers based upon whether they are classified as division or assistant manager positions.

Table 2-1: Comparison of Supervisory Staffing and Span of Control[1]

	MVSD	Akron	Lima	Toledo	Peer Average
Division Manager Positions	5	2	1	2	1.7
Assistant Manager Positions	1	4	2	3	3.0
Total	6	6	3	5	4.7
Division Manager Average Span of Control	8	30	18	32	26.7
Assistant Manager Average Span of Control	11	14	8	13	11.7

Source: MVSD and peer cities
[1]Numbers are in full-time equivalent (FTE) employees, which work at least 35 hours per week.

Additionally, **Table 2-1** reveals that MVSD's overall number of management positions is more than a FTE position higher than peers. MVSD has a particularly high number of division managers when compared to the peers. Conversely, MVSD is below the peer average in the number of assistant manager positions. More importantly, the span of control for MVSD's division managers is significantly below the peer average. For assistant managers, MVSD is slightly below the peer average span of control. This suggests MVSD could increase the number of employees supervised by its management staff either by restructuring or increasing staff without negatively impacting operations.

F2.6 Akron and Toledo peer water departments are divided into two main divisions and the Lima water department is all under one division or department supervisor. All the peer water departments combine pumping and purification operations under one division supervisor. Currently, MVSD has five division manager positions with four true divisions (i.e., pumping, purification, field maintenance, and security).

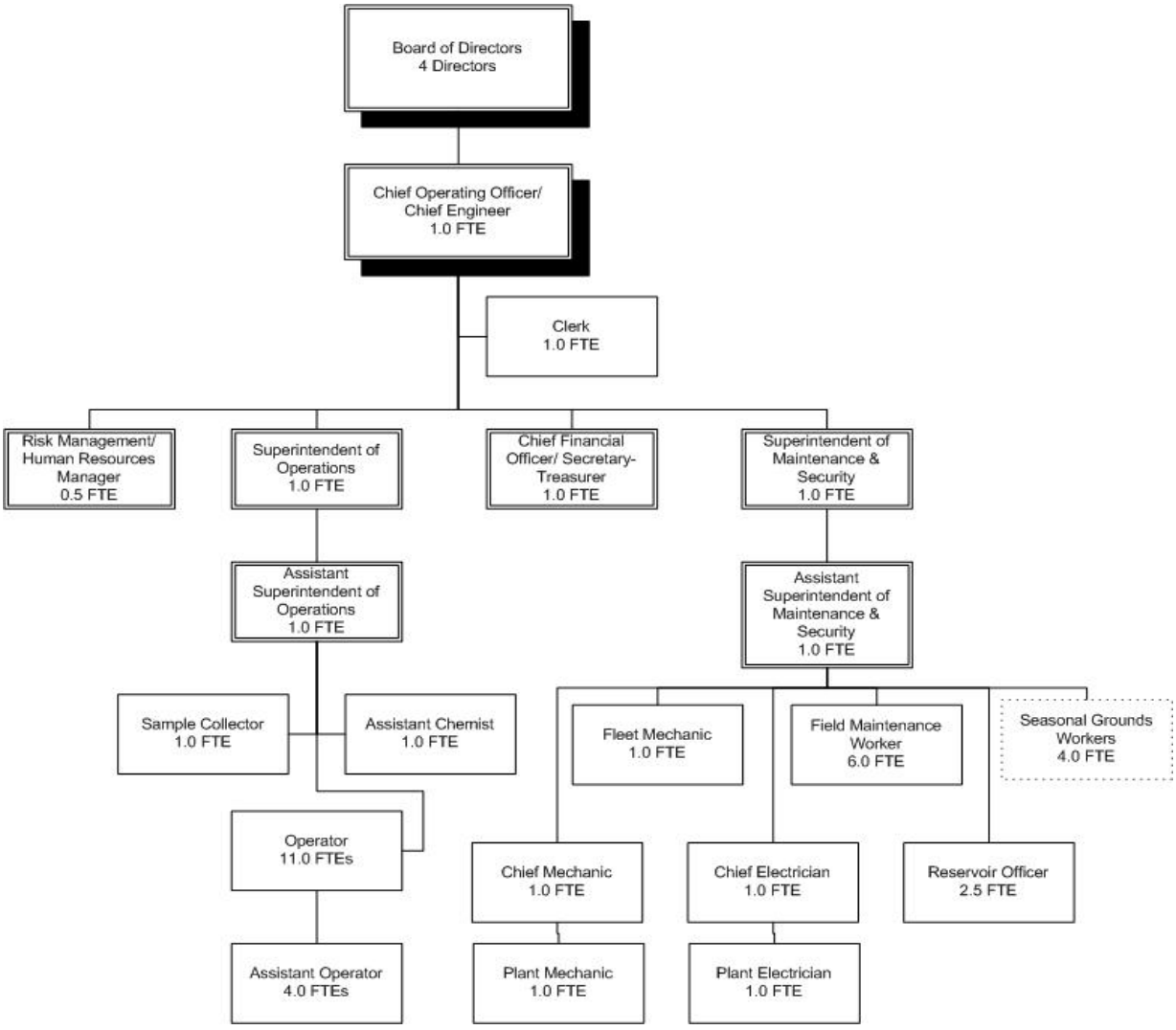
Two of the three peers house all maintenance functions under one division. MVSD's maintenance functions are housed under two divisions, with most plant maintenance performed by pumping division staff and other maintenance performed by field maintenance division staff. However, since the retirement of the superintendent of pumping in May 2001, the manager supervising field maintenance staff has also been supervising the pumping maintenance staff.

R2.4 MVSD should restructure to reduce the number of division manager positions, increase managers' spans of control, consolidate functions and improve communication and accountability. **Chart 2-2** shows the recommended organizational structure, including recommended staffing levels (for detail on staffing recommendations see the **human resources**, **operations**, and **field maintenance** sections and **R2.14**). In essence, the proposed

change to the management structure reduces the overall number of management positions by two. Under the recommended structure, six management positions are affected, including the chief of operations, chief of security, field maintenance foreman, resident engineer, superintendent of pumping and superintendent of purification. These six positions are replaced with four new management positions. This would not impact current management staffing as two of the current management positions are vacant. Current managers could fill the recommended superintendent and assistant superintendent positions.

As shown in **Chart 2-2**, MVSD should consolidate into two divisions: 1) Operations, which would include the pumping and purification divisions, and 2) Field Maintenance and Security, which would include all maintenance functions.

Chart 2-2: Recommended Organizational Structure



Source: Auditor of State

The superintendent of operations could have the same duties as the superintendent of pumping and the superintendent of purification. The superintendent of operations could be assisted by the assistant superintendent of operations, much like the current chief of operations assists with the superintendent of purification's duties. The superintendent of maintenance and security duties could include the technical assistance responsibilities of the resident engineer and the duties of the field maintenance foreman and the chief of security. The superintendent of maintenance and security should also have an assistant to help carry out these duties. The assistant superintendents can provide more direct supervision for certain activities, complementing the skills and knowledge of the superintendents.

For example, if the superintendent of field maintenance and security's primary expertise is in engineering and maintenance, then an assistant superintendent could be hired who has more experience in security. The creation of new superintendent and assistant superintendent positions, with broader duties, could also provide the BOD some in-house options for filling executive and division management positions that become vacant, while consolidating the number of overall managers.

While span of control would increase under the recommended structure, the superintendents would have reduced training, human resources and workers compensation management responsibilities with the addition of a part-time position devoted to human resource and risk management activities shown in **Chart 2-2** (for more detail on this position see **human resource** section). This will allow MVSD's managers to spend more time on the core operations related functions, which are a major part of their responsibilities and less time on human resources activities. Overall, an effective reorganization should reduce management costs, improve communication and accountability and create a better environment for developing managers in-house for promotion.

Chart 2-2 also reflects the recommendation to eliminate the positions of the mechanic's helper and painter and to hire an assistant operator trainee (see the **field maintenance** and **operations** sections for the financial implication of these recommendations). However, adopting the staffing recommendations and structure could also result in overtime and leave savings detailed in the **human resources** section.

The following table summarizes the recommended staffing levels for the proposed divisions, and also shows the recommended changes in executive management. The changes in executive management would establish one function that would be the chief operating officer.

Table 2-2: Comparison of Actual and Proposed Staffing and Structure

Current Division(s)	Supervisors	Staff	New Division	Supervisors	Staff
Executive Management	2.0	1.5	**Executive Management**	1.0	1.0
Pumping **Purification**	1.0[1] 2.0	9.0 11.0	**Operations**	2.0	17[2]
Field Maintenance **Security**	1.0[5] 1.0	7.0 2.5	**Maintenance & Security**	2.0	17.5[3]
HR/Risk Management	N/A	N/A	**HR/Risk Management**	0.5	0.0
Financial Operations	N/A	N/A	**Financial Operations**	1.0[4]	0.0
Difference	*N/A*	*N/A*	**Difference**	*-0.5*	*4.5*
Total	**7.0**	**31.0**	**New Total**	**6.5**	**35.5**

Source: MVSD and peer cities
[1]This position became vacant in May 2001
[2]Four FTEs were transferred to maintenance and one new assistant operator FTE added
[3]Includes 4 new FTEs and four positions transferred from pumping
[4]Position of treasurer (chief financial officer) moved from executive level to being a division manager under the chief engineer (chief operating officer)
[5]Resident engineer currently performs field maintenance foreman duties as this position has been vacant for several years and is not reflected in the totals

Table 2-2 describes the recommended staffing and structure changes. Overall, the changes recommended would result in a total staffing of 42 FTEs, which includes 4 seasonal workers to carry out grounds keeping duties. This represents an increase of four and one-half FTEs over current hourly staffing. Under the proposed structure, pumping and purification division staffing would be combined into one unit with an increase of one assistant operator and the transferring of four maintenance staff to a new maintenance and security division. The new maintenance and security division would also include four new seasonal FTEs to perform grounds keeping work. Finally, clerical staffing would be reduced by one-half FTE.

Under the proposed structure, supervisor staffing is reduced overall by one-half FTE compared to 2001 staffing levels and by 1.5 FTEs if the vacant field maintenance foreman position is included. Executive management would be reduced by one with the transfer of the treasurer or chief financial officer to a division level management position. A one-half time management employee would be added to manage human resources and risk management. The currently vacant management positions of field maintenance foreman and superintendent of pumping would be eliminated.

Financial Implication: Restructuring MVSD management could result in a net savings of $111,000 with the permanent elimination of the field maintenance foreman and the

superintendent of pumping positions. This savings estimate includes salaries and benefits. The cost implications of other staffing recommendations can be found in **R3.1**, **R5.1**, and **R6.1**.

BOD Operations and Composition

F2.7 **Table 2-3** compares the key aspects of peer boards' methods of operation and compositions with MVSD.

Table 2-3: Comparison of BOD Composition and Operations

Entity	Board Members	Policies of Operation	Meeting Frequency	Use of Committees
MVSD	4	No	Monthly[1]	No
Appomattox River Water Authority (ARWA)	5	Yes	Quarterly	No
Buckeye Water District (BWD)	9	Yes	Monthly	Yes
Rural Lorain County Water Authority (LCWA)	26	Yes	Monthly	Yes

Source: MVSD and peer cities
[1]Resolution No. 5146 established a monthly meeting schedule, but it has not been consistently followed.

MVSD varies in several notable ways in comparison to peer boards. **Table 2-3** shows that MVSD Board of Directors has less members than all the peers. All peers also have policies of operation and follow regular minimum meeting frequencies. Two of the three peers also use board committees to facilitate the accomplishment of board duties. MVSD may be able to benefit from operating in a more similar fashion to peer boards.

F2.8 The BOD relies solely upon the ORC to provide rules and guidance for conducting its business. In 1999, the Advisory Council recommended that the BOD adopt bylaws to clearly outline how it would conduct its business. The Advisory Council considers bylaws important for ensuring standards against which the BOD could be evaluated and held accountable.

BOD members were asked if creating bylaws or policies of operations would be beneficial. BOD members generally agreed that the ORC provides sufficient guidance for BOD activities and creating an additional set of guidelines or bylaws would be redundant and unnecessary. The BOD members and the general counsel pointed out that bylaws or operating guidelines are not legally required. A review of the relevant ORC and interviews with BOD members, indicates the ORC provides little specific guidance on how the BOD should conduct its business. For example, ORC section 6115.13 states that the BOD shall choose one of its members as president of the BOD, but offers no guidance regarding the authority or responsibilities of the president. In fact, the July 12, 2000 BOD meeting minutes report revealed discussion regarding whether or not the BOD president is allowed

to make or second a motion revealing the practical impact not having written operational rules can have.

F2.9 As noted in **Table 2-3,** all the peers have established rules for governing their operations. Virginia law does not require the ARWA to adopt bylaws; however, ARWA implemented bylaws because of the benefits bylaws provide in terms of running effective meetings and demonstrating accountability. The other two peer boards are required by ORC section 6119 to establish and maintain a set of rules that govern their board of trustees' operations. The bylaws adopted by BWD and LCWA have the following key similarities:

- A detailed description of board of trustees composition including terms of office, compensation, reimbursement, appointing authorities, vacancies, successors and reappointment policies;
- Formal and detailed description of board and executive management duties;
- Quorum and meeting establishment requirements;
- Indemnification statement; and
- Policy statements on committees, purchasing, financing, construction of improvements plan, staff needs and permanent file policy.

R2.5 The BOD should develop and adopt a set of rules that govern their operations for the purpose of regulating its affairs, conducting business and to carry into effect its powers and purposes. Minimally, these operational policies should include the following:

- Minimum frequency requirements for BOD meetings;
- Procedures for calling special meetings and rescheduling regular meetings that are cancelled;
- Voting procedures;
- Description of BOD duties and officer responsibilities and duties;
- Committee charters;
- Procedures for dissemination of minutes;
- How to amend the rules of conducting BOD meeting business; and
- A statement indicating that Roberts Rules of Order, or some other similar guidelines, will be used for conducting meetings in a formal and consistent fashion.

Rules that govern operations define the way governing entities do business internally and places the focus on the situation at hand and not on the process for handling them. Effective operating rules should help eliminate confusion over how the BOD will operate, help ensure the BOD operates in a consistent and fair fashion, and provide MVSD customers and the public with clear expectations and standards for holding the BOD accountable.

F2.10 MVSD does not use committees in its regular business activity. Although MVSD's *Employment Policy Administration* document, dated January 2000, describes the potential use of a panel for purposes of reviewing, interviewing and selecting candidates for hire, the

use of this panel is optional and up to the discretion of the chief engineer. The interview process is determined by MVSD's chief engineer (see **human resources** section for more on the hiring process).

As indicated in **Table 2.3**, two of the three peers have committees to oversee and set policy on certain important aspects of the organization. More specifically, the BWD clearly declares a committee policy in their bylaws which describes the committees as being a function of the board of trustees. Also the BWD may appoint public members to serve as members of committees. These public members have full voting rights on the committees, but have no official standing with the BWD's board of trustees. In 2001, BWD's nine-member board utilized the following committees comprised only of board members:

- *Service Committee*: Hears customer complaints which are not resolvable at the district management level. The resolution may require a change in policy or may require new policy for new customers or new issues that arise.

- *Budget/Audit Committee*: Reviews the findings from the state's financial audit and prepares any questions. Also, the committee reviews the budget prior to submission to the board.

- *Personnel Committee:* Ensures performance evaluations are appropriately conducted, proposed raises are within the budget and disciplinary procedures are within the parameters of the established policy. The committee is also involved in the hiring process of both staff and managerial level employees.

- *County Engineer-District Liaison Committee*: Intended to be used as a communication tool between the county engineer's office and the water district, but it has not met since its inception.

- *Property Appraisal Committee*: Manages property acquisition by the BWD.

- *Engineering Committee*: Oversees scheduling, planning, and prioritizing the CIP. The BWD is in the middle of an aggressive capital improvement roll-out and anticipates the committee to stay active for the next seven to eight years. After that, the committee may dissolve or move to a temporary status.

BWD committees select a chairperson and have three members, except for the County Engineer-District Liaison Committee which is comprised of only two members. BWD board members receive $2,400 per year for attending regular meetings. Additionally, the BWD receives an extra $75 per committee or special meeting, not to exceed $300 per month. BWD includes committee reports as part of their regular board meeting agenda. A representative from each committee presents a project summary and a written copy of the report is added

to the minutes record. Although not a member, the district manager attends all committee meetings.

The BWD district manager indicated that committee work is an effective element in their operation but cautioned against their overuse. The district manager also stated the importance for committees to keep involvement at the proper level to be effective. Committee members should maintain their involvement at the oversight and guidance level and not involve themselves in the day-to-day activities. According to BWD's district manager, three standing committees are best, and any more than that should be temporary with specific agendas and goals that are achievable and finite. Three standing committees were suggested, including a Personnel Committee, a Safety Committee, and a Budget and Planning Committee.

R2.6 The BOD should use certain functional committees to enhance their involvement in MVSD's operations. The BOD should appoint a minimum of three standing committees. BOD members should serve on these committees allowing them gain a better understanding of MVSD operations and become more proactively and effectively involved with MVSD operations. Other benefits of forming committees include more effective monitoring and oversight of operations, ensures follow-through and collaboration on projects, and provides a mechanism for conducting more comprehensive performance reviews of management and district operations. See the **human resources section** for more information on performance evaluations.

All committees should be comprised of an odd number of members with at least one BOD member serving as chairperson. The chairperson should keep appropriate records, maintain a meeting schedule and report specific progress and recommendations to the BOD. Other members may include the chief engineer, secretary/treasurer or other supervisory personnel, as appropriate. Involving other MVSD employees to participate as needed would help ensure their buy-in toward MVSD's mission and facilitate good labor-management relations.

Also, the BOD should consider offering a seat on these committees to the advisory council members. This action would help solidify a partnering relationship with the community as well as bring a potentially valuable perspective and insight to public interests and priorities. The BOD should consider allowing all non-BOD committee members to have full voting rights as committee members, but have no official standing with the BOD.

The main responsibility of these committees should be to monitor and oversee the implementation of MVSD policies developed by the BOD. With a BOD member as chairperson, there is a built-in mechanism for effective and timely communication directly back to the BOD on committee progress. These standing committees should meet at least quarterly. The recommended committees are as follows:

- *Planning/Budget Committee*: Should include the treasurer and the chief engineer and be primarily responsible for overseeing the CIP including developing financing strategies, developing a short and long term budget, overseeing financial forecasting and steering the development of a strategic operating plan. See **planning and financial operations sections** for more information.

- *Personnel Committee*: Should be responsible for establishing and implementing an effective management hiring policy, monitoring an equal employment opportunity policy and employee evaluations. The chief engineer and selected managers responsible for human resource functions should serve on this committee. The committee should help ensure appropriate staffing levels are maintained and make recommendations to the BOD regarding management candidates for hire. The personnel committee should develop instruments of evaluation for all MVSD candidates for hire and for assessing current employees (see **human resources** section for more on employee evaluations).

- *Safety/Security Committee*: Should be responsible for monitoring safety and security activities at MVSD and for reporting to the BOD any potential shortcomings and solutions in MVSD's security or emergency plan. The committee should also monitor the compliance with safety training and operator certification requirements.

The BOD should consider any committee recommendations and committee progress should be a standing BOD agenda item. Each committee representative should present a project summary report to the BOD to ensure timeliness of progress and to assist in communicating committee efforts to the public. The BOD should appoint other committees as situations warrant. For example, a policy committee may be temporarily established to develop and recommend a natural resource policy for MVSD. The committee may contact peers, the AWWA, elicit community opinion and otherwise gather and analyze data for making recommendations to the BOD. Once a policy is developed, the group could disband, regroup or begin efforts toward the development of other policies. All committee business is subject to the requirements of the Sunshine Law.

F2.11 During interviews, some BOD members expressed concern regarding the manner in which policies and resolutions are being managed. Currently, resolutions are filed in order of resolution number, which most often is also chronological order. No formal process or mechanism exists for the BOD to review or evaluate the relevancy or implementation of these MVSD policies. Thousands of resolutions exist since MVSD's inception and are stored in the same manner. Under the current BOD, the following six policy resolution documents have been passed:

- Regular Meeting Establishment, Resolution No. 5146;
- Employment Policy, Resolution 5213;
- Travel Regulations, Resolution No. 5247;

- Audit Committee Policy, Resolution No. 5289;
- Computer Disaster Plan, Resolution No. 5290 and
- Purchase Order Policy, Resolution No. 5291.

Concern was also expressed about all of MVSD's original drawings, BOD meeting minutes, and other important MVSD documents stored in the administration building vault. Although the items are in a fireproof environment, deterioration will appear as they age. With computerization and other electronic means available today, electronic storage is a much more efficient and compact way to store vital records.

F2.12 The BWD manages their policy resolutions by ensuring that these policies are carried over into their Rules and Regulations Book. All master resolution documents are stored chronologically. When the BWD updates a policy, the staff is responsible to ensure the policy changes are incorporated in the Rules and Regulations Book. The BWD district manager claims that a comprehensive policy review is overdue, and also indicated the reviews should take place annually or bi-annually to be effective. Additionally, policies should be reviewed to ensure that all updates have been included and to inform staff of any additional changes that need to be made.

The International Organization for Standardization (ISO) has developed a set of five individual but related international standards on quality management named ISO 9000:2000. Initially, published in 1987 and revised in 1994 and 2000, they are not specific to any particular industry, product, or service. One of the cornerstones in the standard is the importance placed on adopting an effective document and data control system. In order to effectively control documents and data, an organization must clearly define which documents and data must be controlled and who is responsible for overseeing document control. Responsibility for this function can be centralized or de-centralized, but an organization must ensure that the most current documents are at necessary points of use, obsolete documents are removed, and help ensure that appropriate and periodic reviews by the entity that created them are performed. Controlling documents and data is critical for management to be able to make decisions on current and fact-based information and for ensuring compliance with organizational policies and procedures. A copy of the ISO standard may be gained by contacting www.asq.org.

R2.7 The BOD should create and adopt a document and data control policy similar to BWD's method, using ISO standards as a guide. This policy should help the BOD effectively demonstrate that MVSD controls all levels of their documentation from policies to records. The policy should include the control of relevant external documents such as AWWA specifications, laboratory test methods, and EPA regulations and requirements to ensure that only the most current document is available for use. The policy should also include guidelines for digitizing these records as well as all of the original drawings and BOD meeting minutes stored in the administration building vault. Management should consider centralizing the responsibility for this function.

The BOD should consider writing and approving a resolution stating that all policies written prior to a specific date (e.g., January 1, 1991) are null and void. Obsolete documents should be clearly identified to preclude unintended use. This action would allow BOD members and committees to create relevant and necessary policies without fear of contradiction or redundancy. All current policy statements should be stored and maintained in a policy book and made available to all committees and employees as appropriate.

At least annually, management should report to the BOD on progress implementing policies and when certain policies are no longer necessary. This review of progress should occur in time for inclusion into the annual report. By implementing this recommendation, MVSD should always be current in its procedures and policies and should be able to concentrate more on the effective operation of the district and not on its documentation. Furthermore, it can also serve as a tool for providing monitoring and oversight of management activities.

F2.13 Four BOD members serve MVSD and represent their appointing authorities from both Youngstown and Niles. Because the BOD is composed of an even number of members, the ORC allows the BOD to request from the Court, a temporary fifth member, in matters where the BOD finds itself unable to agree. The ORC defines this temporary director as a member of the BOD until the question in dispute has been satisfactorily adjusted. Prior to 1998, when the BOD was comprised of only two members, a temporary third member had been requested and granted by the Court . According to interviews, the process was cumbersome and not conducive to an expeditious resolution of the issue: The option of acquiring a temporary fifth member has not been exercised by the current BOD.

F2.14 Several BOD members indicated that the composition of MVSD's BOD has caused operational problems. For example, one BOD member recalled a stalemate over who should serve as president when the newly constituted BOD met. Also, MVSD's general counsel has occasionally been asked to help resolve stalemates arising from the even BOD membership. Another BOD member said that an even number of BOD members has proven to be ineffective and in some cases thinks the BOD should be reduced to three members.

F2.15 **Table 2-2** shows that peers have governing boards comprised of an odd number of members or boards that are larger than MVSD. ARWA and BWD have governing boards that are composed of five and nine members respectively. LCWA's board of trustees is comprised of 26 members which is the total number of villages and townships within its district. The BWD district manager stated that, with respect to quorum requirements, seven members is the ideal board size. Seven members is in line with organizational literature which states that the ideal group size ranges from five to ten members.

F2.16 In 1997, the BOD passed Resolution No. 5146 establishing a regular BOD meeting schedule, however, since its inception, this schedule has not been maintained due to quorum requirements. By not meeting on a regular basis, the BOD cannot effectively oversee and

monitor the operations of MVSD. According to BOD interviews, the BOD has not complied with its own policy for the following reasons:

- Most of the BOD members are busy professionals and it is difficult to adhere to a fixed meeting schedule.
- One member of the BOD travels extensively and is often not available to meet.
- The reduced compensation of the BOD does not provide the incentive to spend the time required to meet regularly.

F2.17 The ARWA uses board member alternates to help ensure it is able to meet quorum requirements, particularly in instances where quick action is necessary. Alternates serve as regular voting members whenever a quorum cannot be met with regular members. ARWA director's use of alternates has benefitted the district and enabled them to operate more effectively.

R2.8 The BOD should be increased to five or seven members. The following are benefits for increasing the BOD size:

- Enable the BOD to more consistently meet quorum requirements.
- Improve BOD's ability to effectively implement a committee structure to carry forth its duties (see **R2.6**).
- Eliminate stalemate votes, provide more definitive resolution of issues before the BOD and preclude the need for the BOD to request the Court to select and compensate a temporary director.
- Increase the diversity of backgrounds, experiences and expertise available for the BOD to utilize.

Another possibility for addressing quorum issues, whether or not the BOD size is increased, is to allow for the appointment of alternates who can fill in when a BOD member is unable to attend a regular meeting. By allowing for the appointment of alternates, the BOD would strengthen its ability to meet on a timely and regular basis because alternates could fill in when regular BOD members are unable to attend. However, this option would have no effect on stalemates.

There are various feasible options for appointing new BOD members if the BOD size were to increase or to appoint alternates. The options include allowing appointments to be made by the Advisory Council, the Court, or by agreement between the mayors or city councils of Niles and Youngstown. Increasing the BOD size or permitting the use of alternates would require changes to the ORC.

Financial Implication: If the BOD size were expanded, the additional cost of increasing the BOD size to five or seven would amount to between $2400 and $7200 per year, respectively.

R2.9 Until the BOD amends Resolution 5146 or adopts a resolution that supersedes it, the BOD should comply with its own policy of meeting on the third Wednesday of each month as required in the resolution. By not complying with its own resolution, the BOD demonstrates a lack of accountability and sends a poor message to the organization and the public. Not meeting on a regular consistent basis also hinders the BOD's ability to effectively carry out its responsibilities.

Natural Resource Policy

F2.18 A fundamental responsibility of the district is to protect its natural water supply, which is accomplished through effective planning, analysis and action to protect the watershed. The quality of the district's water supply is primarily a function of the quality of the runoff flowing into the watershed, primarily from property not under MVSD's control. In fact, the major risk to MVSD watershed is the surrounding land used by the general public (e.g., leaking septic tanks and runoff from chemically treated lawns or farm land). A comprehensive watershed protection plan includes strategies to minimize the pollutants which may enter the water supply through controlling land development and land uses in the watershed.

Currently, Youngstown State University (YSU) is conducting two studies for MVSD with a report due to MVSD in April 2002. YSU is hoping to be able to identify the specific problems causing certain algae growth and specific land uses which are or could negatively impact the watershed. YSU's report will include recommendations about practices to control and prevent pollution, and may provide ideas for how to work with surrounding communities to help protect the watershed.

Monitoring watershed water quality can help identify pollution sources and measure the results of protection measures put in place. Effective watershed protection policies include ongoing testing of tributary water quality as well as studies that identify pollution trends and possible point sources and non-point sources of pollution for corrective action. According to the YSU 's Department Chair of Civil, Environmental and Chemical Engineering, who is overseeing the two current studies, an effective plan for MVSD to assess water quality and prevent pollution should include the following:

- Tributary monitoring should be ongoing so that MVSD can maintain a constant water quality awareness;
- Land use studies for the watershed, like the study YSU is currently conducting, only need to be done when significant land use changes occur in the watershed. This may only be necessary every 10 years; and
- MVSD should study the watershed continually. The OEPA tries to visit and study the watersheds in Ohio on a five-year cycle; however, their last visit in 1995 was to focus on the main stem of the river and not into the Meander's watershed. Also, the

OEPA does not attempt to identify sources of pollution, they only assess the existing water quality.

MVSD is rather unique in that it owns the land surrounding the Meander Creek and Reservoir and large portions of the land surrounding MVSD property are not developed. This situation provides an opportunity for MVSD to implement policies, in conjunction with surrounding jurisdictions, that can help ensure the health of its watershed. In fact, ORC section 6115.23 gives the BOD rather broad authority to promulgate regulations, with OEPA approval, to "prevent the pollution or unnecessary waste of the water supply."

F2.19 The BOD lacks a natural resource or watershed protection policy to guide MVSD actions. However, the nature of its mission and interviews with BOD members and management suggest numerous concerns and issues regarding MVSD's natural resources. For example, MVSD BOD members and management agree that MVSD property should not be opened to the general public for recreational activities. However, there is some disagreement as to whether or not MVSD should allow some limited recreational activity. One BOD member would like MVSD to permit certain limited and controlled recreational activities, such as fishing tournaments, to generate revenue, develop a relationship with the public and to obtain other benefits. For example, allowing limited deer hunting could help control the deer population on MVSD property.

Conversely, some BOD members and managers reported that no recreational use of any type should be allowed at MVSD. These individuals view protecting the watershed as a critical goal of MVSD and think no activity should be permitted on MVSD property that could potentially impact the watershed in any fashion. These BOD members and managers also think that MVSD does not need the revenue that could be obtained by permitting limited recreational uses on its property. Other land management issues that may merit guidance from the BOD include whether MVSD would sell property, allow gas drilling, and permit the harvesting of timber (MVSD currently sells some of its timber) .

F2.20 According to the AWWA, local drinking water suppliers across the industry have urged that more federal level emphasis be placed on pollution prevention to minimize costs of treating and removing contaminants from polluted water. The Safe Drinking Water Act Amendments enacted in 1996 include provisions as follows regarding "Source Water Quality Protection Partnerships:"

- States may establish programs to act on petitions submitted by local, voluntary partnerships formed by governments or drinking water systems. The purpose of a petition is to redirect federal and state assistance to address source water contaminant problems which would otherwise require an investment in treatment facilities.
- Funds from several other water pollution control programs including the Drinking Water and Clean Water are available to respond to local petitions.

- States are to delineate areas which provide source water for drinking water systems and are to conduct vulnerability assessments for high priority areas.

R2.10 MVSD should develop and implement a natural resource plan to ensure effective management of its natural resources and protection of the watershed. The natural resource plan should identify and detail key issues regarding MVSD water and land, such as watershed protection, recreational or commercial uses and land management practices. Based upon these issues, the BOD should adopt goals and objectives for its natural resources with strategies for how the goals and objectives are to be met. These strategies should detail methods of implementation and any necessary rules and procedures to be followed. Any policy allowing for limited recreational use by the general public should be planned and properly controlled. As a part of its natural resource policy, the BOD should develop the following comprehensive watershed protection program to minimally include:

- MVSD staff responsible for developing and coordinating the program and the process for BOD adoption and amending the program;
- Water quality standards to be pursued, along with a monitoring process and schedule;
- MVSD and local authority to control development, the degree to which these controls are currently exercised and a strategy of implementing and coordinating controls, including implementing new controls; and
- Alternative funding sources available for watershed protection activities and strategies to pursue them.

Developing and implementing an effective natural resource policy should help MVSD identify and address pollution problems and help protect the watershed from any future pollution. Also, a natural resource policy should help guide management activities to be in line with the BOD philosophy. Protecting the Meander Reservoir watershed is critical to MVSD's mission and success.

Management Hiring Policy and Process

F2.21 BOD members indicated that a major barrier to carrying out its responsibility to MVSD was the inability to agree on hiring decisions. While a hiring policy does exist, BOD members do not want it applied to management positions. One BOD member did not think the BOD should be involved in any hiring of hourly personnel. BOD members believe that MVSD is understaffed but could not agree in 2001 on who to hire or how many.

F2.22 One BOD member stated that MVSD should implement a management training program where employees could be brought in as assistants to management personnel. Eventually,

assistants would replace the manager at the time of their retirement or separation from MVSD. Given that several management personnel at MVSD are in a position to retire in the next two to five years, having a sound succession policy in place will greatly reduce the sense of urgency associated with the search for the qualified candidates.

The United States General Accounting Office (GAO) suggests that organizations identify the skill sets needed to achieve the level of performance required for each position. After identifying the skill sets, organizations should implement human capital policies and practices that are designed to competitively hire, develop and retain employees with the desired skills and competencies within their industry and market locations.

R2.11 The BOD and the chief operating officer/chief engineer should work together develop a management hiring policy and procedure for recruiting, selecting and hiring management and supervisory personnel. MVSD should identify its own unique set of leadership characteristics which are essential for achieving organizational results and long-term success. The BOD should identify core leadership competencies that define knowledge, skills, abilities and behaviors that the organization believes its leaders must possess to effectively manage MVSD's operations. These characteristics should serve as the basis for developing a policy to recruit, hire, develop and sustain leaders who embody the identified leadership qualities. The personnel committee recommended in **R2.6** could be charged with recommending criteria to the BOD. MVSD should explicitly evaluate all management candidates on the extent to which they exhibit MVSD's identified competencies and hire those individuals whose behaviors, skills and attitudes will help fill certain perceived gaps in the workforce. The policy and procedure could be used by the BOD when hiring a chief operating officer and by the chief operating officer to determine which management candidates to recommend to the BOD. This would also help to establish the chief operating officer's responsibility to execute MVSD's mission as established by the BOD.

MVSD's formal training and development programs should also focus on developing those same competencies internally. Using the criteria to evaluate and guide staff development activities for managers will help ensure that MVSD develops leaders internally who can be promoted from within the organization. With the expectation of key position retirements, the BOD should view leadership development and succession planning as essential to maintaining a cadre of leaders with the customer focus, interpersonal skills, motivation and industry-specific knowledge needed to achieve the organization's ongoing success in the water treatment and delivery industry. Adopting the new management structure recommended in **R2.4** could also help MVSD in developing managers who can be promoted internally when vacancies occur. Additionally, the new management structure establishes the ability to more effectively train and cross train which will help to remedy the loss of valuable information and experience through retirement, extended leaves, and vacations.

Legal Counsel

F2.23 Timeliness of legal service was cited as a concern by most of the BOD members and management personnel, particularly in regard to writing MVSD's drug policy. One BOD member stated that even though legal counsel has been effective at keeping the district out of litigation, there has been disappointment, on occasion, with the way legal counsel comes to BOD meetings ill prepared and is un-timely in meeting BOD requests. Another BOD member stated that the current legal counsel is a formidable litigator, but is not very strong in labor and contractual areas. This BOD member thinks that MVSD's legal needs may have changed.

F2.24 The BOD did not use well-defined and documented criteria when hiring the current legal counsel. Most BOD members and MVSD managers could not identify evaluation criteria used in selecting legal counsel. However, one BOD member stated that current general counsel was hired because of his reputation as an excellent attorney. As of December 31, 2001, the legal counsel's contract had not been officially renewed, though the contract stipulated the period of July 1998 through June 1999.

F2.25 **Table 2-4** shows a breakdown by category of the fees paid to the general counsel for fiscal year 2001.

Table 2-4: MVSD Legal Counsel Fees, FY 2001

	Cost	Hours	Percent
General Matters[1]	$6,398	67	35%
Drug Policy	$5,776	61	32%
Labor Negotiations	$3,895	41	21%
Litigation	$2,464	24	12%
Total	**$18,533**	**193**	**100%**

Source: FY 2001 legal invoices obtained from Secretary/Treasurer of MVSD.

[1]This includes such services as correspondence with MVSD personnel, other entities on MVSD matters, contract work, research, attendance at BOD meetings, and preparation of resolutions.

Table 2-4 shows that the BOD legal counsel spent more than two-thirds of billable time on general matters and drug policy development. Overall, MVSD was charged $96 per hour for legal counsel services. This is in line with the contract. In total, BOD legal counsel worked 193 hours in FY 2001 for MVSD or just under five weeks. The current general counsel suggested that a full-time, in-house counsel may be more cost effective for MVSD; however, based upon the number of hours worked in **Table 2.4**, there does not appear to be a sound

justification for employing a full-time staff attorney, particularly considering drug policy work is not an ongoing need and litigation hours could be reduced in future years.

F2.26 Best practices for managing outside legal counsel identified for San Antonio, Texas' City Attorney's Office include the following:

- Develop a clear policy and objective criteria for identifying matters best handled by outside counsel;
- Develop a formal referral/bidding process, including selection criteria for awarding legal matters to firms providing the most cost-effective services;
- Formalize guidelines governing how the work will be handled and how payments are to be made;
- Administer effective controls over the direction and costs of every counsel matter; and
- Develop and implement a formal system for assessing the performance of outside counsel and determine whether any future work should be referred to that lawyer or firm. This assessment should include at least the following four categories: Responsiveness, honesty about chances for success in a given transaction or litigation, effective communication and accessibility on short notice.

F2.27 There are several important factors to consider in acquiring legal services according to Altman Weil, Inc. a prominent legal consulting firm. Organizations that only focus on lower cost are usually disappointed by the results. A value-based strategy that balances cost against other important factors is better. The following is a list of the criteria that Altman Weil, Inc. has identified as being the most important:

- *Quality*: Sound legal advice on which an organization base business decisions. This involves not only an understanding of the business, but also pertinent legal expertise.
- *Accessibility*: Effective legal counsel should be readily accessible to provide assistance. Conversely, the lack of easy access to outside counsel is frequently the greatest source of client frustration.
- *Responsiveness*: Fast, on-target, answers are important. A frequent criticism of outside counsel is the length of time it sometimes takes to get an answer.
- *Low Cost*: Cost is the "other half" of the value equation in assessing outside legal counsel.

A successful strategy considers all four components to increase the overall value of outside legal services . An expected gain in one area can be offset by unexpected negative impacts in the other three. Effective use of these criteria can produce gains in accessibility, responsiveness and quality, which push the overall value of legal service upward, notwithstanding higher costs.

R2.12 The BOD should develop formal processes for selecting and evaluating outside legal services. MVSD should rebid for legal counsel services using a value-based selection strategy and other best practices. The BOD should develop selection criteria and performance measurements that clearly relate to its needs which should be used in the selection process and to evaluate firms to determine if their contract should be renewed. The selection criteria should include components that address the concepts of accessibility, responsiveness and quality in addition to cost. The personnel committee recommended in **R2.6** could be charged with recommending selection and evaluation standards and forms. MVSD can realize high quality legal service for less money through ongoing evaluation and clearly defining and implementing the best practice criteria. Clearly documenting selection and renewal decisions will help ensure better decisions and accountability.

Interaction with Chief Engineer

F2.28 According to the job description developed by Gortz, the chief engineer is primarily responsible for the following duties:

- Supervising and determining operational needs;
- Compiling and processing information for rate report and annual report and ensuring budgetary compliance;
- Participating in long range plans;
- Determining necessary staffing and recommending staffing levels;
- Monitoring and ensuring compliance with environmental regulations;
- Reviewing supply, treatment, and pumping data;
- Researching and implementing cost-saving measures;
- Reviewing grievance dispositions at the Step 1 level, and hears grievances at the Step 2 level of the union grievance procedure; and
- Implementing the CIP.

Additionally, the ORC section 6115.14 requires the chief engineer to make a full report to the board each year, or more often if required, and may make such suggestions and recommendations to the board as he deems proper.

BOD members expressed concerns about the performance of the chief engineer in some of the areas. BOD members indicated that the technical expertise of the chief engineer was good, communication and the management of personnel functions could be improved. For example, BOD members cited failures to manage sick leave use and perform employee evaluations as examples of personnel and administrative concerns. Interviews and meeting minutes also suggest the BOD does not trust the recommendations made by the chief engineer. As a result, the BOD often does not take action on issues important to the district. Despite their concerns, BOD members agreed that the chief engineer's performance was good enough that they would like to continue to retain his services.

F2.29 The chief engineer agrees that his relationship with the BOD is inadequate , due mainly to BOD's unwillingness to act on his recommendations in recent years. The chief engineer also does not think some of the actions desired by the BOD would be beneficial to MVSD. The chief engineer also stated that for MVSD to improve in its business operations and management activities, the BOD should:

- Set clearly defined policies and allow the staff to support them through procedures;
- Establish a proper minimum staffing level and trust the management to hire competent and qualified candidates that would fit within that framework; and
- Operate and move forward using the CIP as a map.

R2.13 The BOD should take steps to improve its monitoring, oversight, and communication with the chief operating officer/chief engineer, and the chief operating officer/chief engineer should take steps to improve communication and personnel and planning functions at MVSD. The organizational restructuring proposed in **R2.4** would facilitate more effective communication and accountability by making one manager accountable for MVSD operations. While the results of this performance audit do suggest that the chief engineer could improve human resource and planning practices at MVSD, the audit also indicates the BOD has not done an adequate job of providing guidance for and oversight of MVSD management. Ultimately, the BOD is accountable for the operations at MVSD and needs to improve its practices in regard to setting clear expectations and polices for the management and holding management accountable when its resolutions are not followed or adequately implemented.

A critical step the BOD should take is to conduct formal performance evaluations, at least annually, with the top MVSD management (see **R2.11**), especially the chief operating officer/chief engineer. The performance evaluation should be a comprehensive review of the manager's performance with strengths and areas for improvement clearly indicated. During this process, the BOD should make its performance expectations and policy objectives clear. The BOD should also solicit opinions from managers about their concerns and steps the BOD can take to assist management in accomplishing MVSD goals. The BOD should develop an evaluation form to facilitate and document the evaluation. The chief operating officer/chief engineer should also carry out evaluations of other management personnel using the guidance from the BOD.

The final result of the evaluation process and dialogue should be a plan that outlines goals for each manager for the upcoming year, how attainment of those goals will be measured, and time lines for reporting progress. The plan should also detail how the BOD will assist each manager in achieving the individual and organizational goals outlined in the development plan. For example, the BOD may agree to pay for a particular educational course or training workshop to help a manager develop in an area identified for improvement. As described in **R2.6**, the personnel committee could be charged with

identifying and recommending to the BOD criteria for the performance evaluation, an evaluation instrument, and key skills necessary for various management positions.

Finally, the chief operating officer/chief engineer, should report, at least annually, on progress made implementing various BOD policies. This information could be provided as a part of the regular annual report submitted to the BOD. Within the annual report, management should report on actions taken, costs incurred, and future progress expected on BOD policies and resolutions.

Properly implemented, this recommendation should improve communication and interaction between the BOD and management. By providing managers with clear policy guidance, performance expectations, evaluations of performance, and needed assistance will better enable to meet BOD demands and MVSD goals. Creating formal feedback, evaluation, and reporting processes should improve coordination with the BOD and management and increase accountability throughout the organization. This recommendation should help the BOD to adequately monitor management and provide feedback on performance, so that managers will know what they need to do to improve their performance and meet BOD expectations. This will also provide the BOD with the information necessary to make informed and fair employment decisions regarding MVSD managers. Ultimately, this should lead to a more efficient and effective operation at MVSD.

Clerical Staffing

F2.30 Until early 2002, MVSD employed 1.5 FTEs for performing clerical and administrative work. The full-time Secretary/Clerk (Clerk) officially reports to MVSD secretary/treasurer but only supports that function 20 percent of the time. The other 80 percent of the Clerk's time is spent answering the telephone and directing calls, distributing the mail, typing bills and correspondence, maintaining personnel files and managing the office supply inventory.

Through early 2002, MVSD also employed a part-time intern who carried out various administrative functions, particularly ones involving use of spreadsheets and other computer software and technology. The intern compiled attendance reports and overtime, calculated water meter reports, organized telephone logs, and maintained files and manuals. The intern performed work for the Chief engineer and other managers, as requested. Officially, the intern position was considered to be temporary and is not a permanent position in the organizational structure. However, the intern was employed by MVSD for more than four years.

F2.31 **Table 2-5** compares MVSD clerical staffing, as of November 2001, to peer staffing levels.

Table 2-5: Clerical Support to Total Employee Ratio

	MVSD	Akron	Lima	Toledo	Peer Average
Clerical FTEs	1.5	1.0	1.0	3.0	**1.7**
Total Employee FTEs	37	51	26	64	**47**
Ratio	1:25	1:51	1:26	1:21	**1:33**

Source: MVSD and peers.

Table 2-5 indicates that the peers employ one clerical staff person for every 33 employees. MVSD employed 1.5 clerical FTEs for an employee roster of 37 or about 1 clerical employee for every 25 employees. This is below the peer average. Interview and observational data also suggest the overall workload of clerical staff could be managed by one FTE.

R2.14 MVSD should employ one FTE to carry out clerical duties and should update the position description of the clerk position to reflect MVSD's need for someone with the ability to use computer software to create reports and perform spreadsheet analyses. The resignation of the part-time intern provides an opportunity for MVSD to eliminate the intern position and redefine the clerk job description. The BOD should re-examine and more clearly define the clerical functions and skill set required in order to assess the person currently assigned and provide for additional training if necessary. The chief operating officer/engineer should ensure that the person filling the clerk position has the necessary technical skill to carry out the duties, as recommended.

MVSD should also reassign some responsibilities, such as the maintenance of the personnel files and the coordination of annual physicals, to the human resources/risk manager function recommended in **the human resources** section. The clerk position should report to the chief operating officer/chief engineer, but assist all management personnel within MVSD. Broadening the clerical function's authority and responsibility may require a salary increase to attract qualified candidates when the position becomes vacant. MVSD should reassess the salary for the clerk position when it becomes vacant. Consolidating clerical staffing, updating clerical staff skill requirements and reassigning some clerical functions could slightly reduce clerical costs while improving the effectiveness of clerical services.

Advisory Council

F2.32 Appointing authorities for MVSD advisory council have not complied with the law regarding advisory council appointments. MVSD advisory council was officially organized

on December 17, 1998 with13 members; however, none of these appointment confirmations are on file with MVSD as required by ORC 6115.104. In addition, some council members that are deceased or resigned have not been replaced. A representative for the Boardman Township Trustees indicated the trustees were unaware that the advisory council's chairperson, who was a Boardman appointment, had resigned over one year ago. Additionally, according to the mayor of Girard, no reappointment to the advisory council has been made since the death of its representative in February 2000.

F2.33 The advisory council appears to be in disarray, ineffectual and out of compliance with Ohio law and its own bylaws. The advisory council has not met within the past year, reviewed MVSD budget, nor appointed a chairperson or secretary, as required by law. In addition, advisory council and BOD members indicate that the advisory council has not been an effective and productive organization. Interviews with council members indicate a lack of clarity and agreement as to the goals and purpose of the advisory council. The council has yet to make a positive contribution to MVSD.

F2.34 The Ohio Financial Accountability Certification (OFAC), is a self-paced web-based training program based on the Elected Officials Guide series produced by the Government Finance Officers Association. This course is designed for public officials and anyone else interested in learning about financial topics that affect local governments in Ohio with a focus on purchasing, investing, and fraud prevention. It consists of ten chapters which cover topics such as procurement, internal controls and fraud prevention, investing and multi-year budgeting. At the end of each chapter, participants take a brief quiz which tests their comprehension of the subject matter.

R2.15 The advisory council and its appointing authorities should comply with the law and its bylaws. Specifically, appointing authorities should make timely appointments to fill vacancies and submit authenticated copies of appointment confirmations to MVSD and the Court . In addition, advisory council members should reappoint a chairperson and secretary, as appropriate, abide by the council's bylaws as written, meet at least annually to review and evaluate MVSD receipts and disbursement of funds, and review, evaluate, and make recommendations to the BOD. Also, the BOD and members of the advisory council should consider obtaining training to assist them in carrying out their functions. One option is to go through the OFAC program or other relevant training.

Financial Implication: Total cost for 13 council members to obtain OFAC training would be $845. The cost of attending the OFAC course is approximately $65 per individual. This cost would not be incurred by MVSD, but by the individual members or their appointing authorities.

Summary of Financial Implications

The following table summarizes the annual cost savings and implementation cost for the recommendations in this report. For the purpose of this table, only recommendations with quantifiable financial impacts are listed.

Recommendation	Estimated Implementation Cost (One-Time)	Estimated Implementation Cost (Annual)	Estimated Cost Savings (Annual)
R2.4: Restructure staffing resulting in the elimination of two management positions			$111,000
R2.8: BOD expansion to five or seven members		$7,200	
R2.15 Advisory Council to obtain OFAC training	$845		
Total	$845	$7,200	$111,000

Conclusion

The BOD needs to take major steps to improve its own internal operations so that it can be more effective and demonstrate proper accountability. The BOD should adopt rules to guide its operations, use committees to facilitate its monitoring and oversight function and follow the resolutions it adopts. Also, the BOD needs to be more systematic in carrying out its duties and documenting its activities. The BOD can accomplish this by developing forms and processes to more effectively select and evaluate legal counsel and management staff. Regular evaluation of top management is critical for effective communication, staff development, and identifying performance standards that can be used to measure success. Improving its own internal operational procedures and processes will also enable the BOD to better assess and monitor management activities.

The BOD needs to improve its planning efforts and the policy guidance it provides to direct management activities. The BOD's failure to effectively plan for MVSD's short and long term future is a key factor limiting the efficient and effective operation of MVSD. The lack of strategic planning is a critical issue that needs to be addressed immediately. The BOD must clearly define MVSD's purpose and priorities through the development of a vision and a mission statement, key goals and effective and relevant policies. Without adequate strategic planning materials, management lacks the guidance necessary to make decisions in line with BOD expectations. Policy guidance in the areas of natural resource use and protection, management hiring and employee evaluations are also necessary to effectively guide management and communicate expectations. The support and involvement of management and staff will be necessary to implement the developed goals and policies which, in turn will make effective communication essential at all levels of the organization. The BOD should establish formal channels of communication, such as requiring regular reports on the status of policy implementation to facilitate communication.

Furthermore, the BOD should make changes to improve MVSD structure and work to obtain changes in the BOD composition. Consolidating to improve the organizational structure should help improve communication and accountability within MVSD, while improving the ability to promote managers from within. Expanding the BOD's size could help improve its ability to effectively monitor and oversee management activities, while adding to the expertise and diversity of the BOD.

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Human Resources

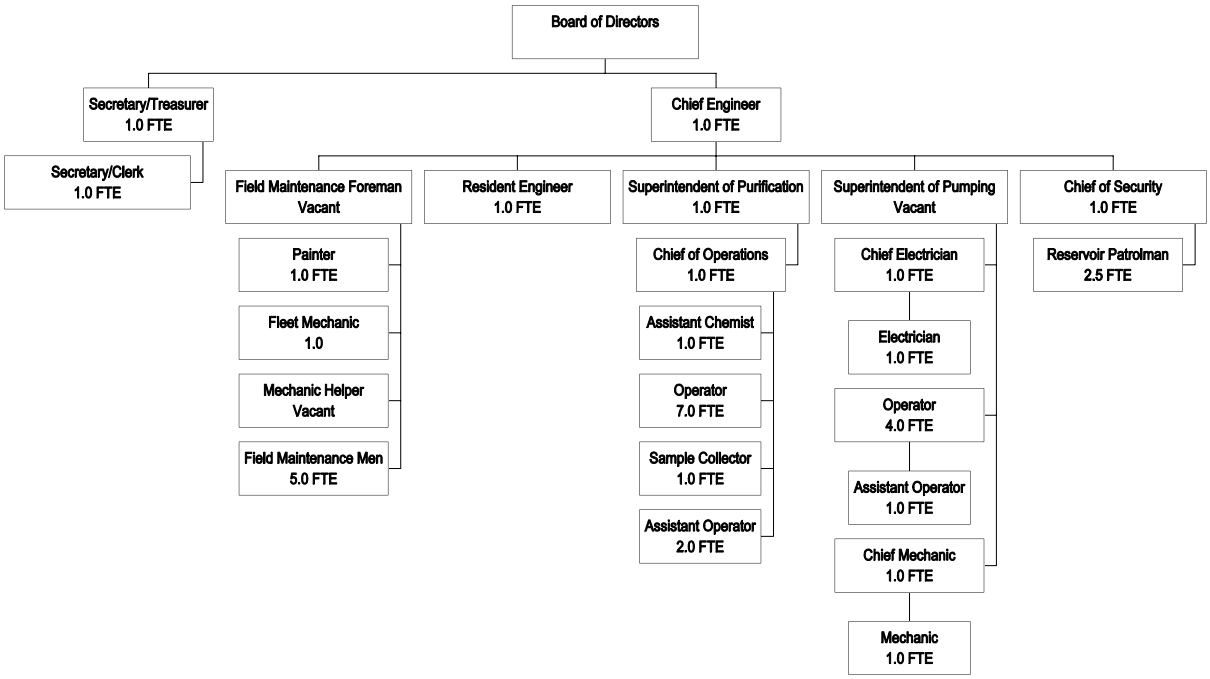
Background

This section summarizes the human resources functions of the Mahoning Valley Sanitary District (MVSD). It will focus on the appropriateness of human resource activities being performed at MVSD and the necessity to implement human resource activities that are not being performed. The management of workers' compensation, the negotiation process and union contracts will be analyzed. The wage and benefit packages are also examined and compared to similar job classifications. Comparisons are made with peer water departments of Akron, Lima and Toledo.

Organizational Chart

Chart 3-1 provides an overview of the organizational structure at MVSD, as of November 2001.

Chart 3-1: Organization Chart



Source: MVSD

Nine of the positions shown in **Chart 3-1** are not affiliated with a union. These include eight managerial positions and a receptionist. MVSD employs a part-time clerical assistant, however this position is temporary. The field maintenance foreman management position has been vacant since April, 1998 and the superintendent of pumping position has been vacant since May 2001. There are 29 full-time unionized employees and one part-time patrolman who also belongs to a union. The mechanic helper position is also vacant. The chief engineer and the secretary/treasurer (treasurer) report directly to the Board of Directors (BOD). The receptionist reports to the treasurer. The part-time clerical assistant once reported to the superintendent of pumping, but now reports to various department heads depending on necessity. Hourly employees report to their respective supervisor and the supervisors report to the chief engineer.

Summary of Operations

MVSD does not have a separate department dedicated to performing human resource functions. The chief engineer, administrative staff and department heads participate in the administration of human resource activities. These individuals are responsible for the following human resource functions:

- Coordinating the activities and programs for the in-house training of new hires;
- Participating in new employee orientation;
- Maintaining personnel files;
- Monitoring employee certification requirements;
- Developing policies and procedures, ensuring compliance with federal and state laws;
- Conducting and monitoring grievance policies and procedures; and
- Administering union contracts.

The chief engineer directs the operations of MVSD and is solely responsible for the coordination of the department heads, recruitment of new employees and the interview process. The chief engineer includes department heads and supervisors in the interview process when he deems it appropriate. The chief engineer makes recommendations to the BOD as to the most qualified candidate for an open position, but the BOD has the final authority to hire employees. The chief engineer also conducts the grievance process on behalf of MVSD and negotiates and oversees the administration of two labor union contracts:

- Collective Bargaining Agreement between AFSCME Ohio Council 8, Local 1649, AFL-CIO, Service and Maintenance Employees and The Mahoning Valley Sanitary District; and
- Collective Bargaining Agreement between AFSCME Ohio Council 8, Local 1649, AFL-CIO, Patrolmen and The Mahoning Valley Sanitary District.

The treasurer is responsible for payroll and benefits administration. The resident engineer is responsible for workers' compensation filings, OSHA requirements, training and employee safety issues. The chief of security monitors time sheets, sick leave and vacation slips, reconciling them to the treasurer's payroll records. The department heads and supervisors are charged with the in-

house training of new employees. They are also responsible for the first phase of the grievance process, which includes attempted resolution and a written answer to an employee filing the grievance. The department heads monitor employee performance by observation during the day shift only. There are no supervisors on-site for the afternoon and night shifts.

Due to the two management vacancies, the resident engineer is currently taking on the responsibilities of the field maintenance foreman and is supervising the electricians and the mechanics in the pumping department. The superintendent of purification is assuming the superintendent of pumping's other duties.

Performance Measures

The following is a list of performance measures that were used to review MVSD's human resource functions:

- Examination of staffing levels;
- Evaluation of human resource activities;
- Assessment of recruiting, hiring and termination procedures;
- Analysis of training and certification process;
- Assessment of Workers Compensation procedures;
- Analysis of union contracts and negotiation process;
- Analysis of overtime and leave usage; and
- Evaluation and comparison of wage and benefits packages.

Findings / Commendations / Recommendations

Staffing

F3.1 **Table 3-1** compares the staffing levels, in full-time equivalent (FTE) employees, between MVSD (as of November 2001) and the peer water departments.

Table 3-1: MVSD Staffing Comparisons with Peer Water Districts [1]

	MVSD	Akron	Lima	Toledo	Peer Average [2]
Administrative [3]	1.5	1.0	1.0	3.0	1.7
Pumping Operations	5.0	6.4	1.4	9.0	5.6
Purification Operations	13.0	12.4	8.4	24.0	14.9
Maintenance [4]	12.0	23.0	15.0[5]	26.2[6]	21.4
Security	3.5	8.0	N/A[7]	N/A[8]	8.0
Total	**35.0**	**50.8**	**25.8**	**62.2**	**46.3**

Source: MVSD organization chart and peer organization charts.

[1] Because of differences in the structure of the peer water departments compared to MVSD, the number of employees in each division of the peers has been calculated by the amount of time that staff member spends working in each area.

[2] The peer average calculations in this table and throughout this report do not include MVSD, unless otherwise noted.

[3] The chief engineer and the treasurer have been omitted from this comparison due to the unique nature of their positions compared to peers.

[4] Includes maintenance staff regardless of division or department

[5] Does not include any electricians or grounds maintenance staff

[6] Only includes facility maintenance staff. No grounds maintenance staff are included.

[7] City Park Rangers provide security for the Lima Utilities Department, which include treatment operations.

[8] Toledo uses a combination of city police officers, county sheriffs, and contracted staff for security.

Without accounting for differences in workload demands and operational practices, **Table 3-1** indicates that MVSD is generally understaffed when compared to the peers. However, the adequacy of MVSD staffing appears to vary widely, depending upon the functional area. MVSD is very close to the peer average in the administrative and pumping areas and less than two full-time equivalent employees (FTEs) below the peer average in purification operations, suggesting staffing may be sufficient in these areas. MVSD is below the peer average in terms of security staffing. However, no conclusion can be drawn from this as the average only includes one peer and security staffing needs can vary greatly depending upon the facilities and property protected, technology employed, coverage desired, and whether or not property protected is open to the public. Additional analysis is required to determine if MVSD staffing

in these areas is sufficient (see the **organizational management**, **operations**, and **security** sections for additional staffing analysis).

MVSD is well below the average in terms of maintenance staffing, with MVSD's staffing almost half of the peer average. However, additional information is required to determine the number and type of additional maintenance staff needed, particularly since the responsibilities of MVSD and the various peer maintenance staff vary widely (further analysis is provided in the **field maintenance** and **operations** sections).

Human Resources Functions

F3.2 MVSD does not have a human resource director or designated personnel dedicated to performing human resource functions. The management staff at MVSD incorporate these additional responsibilities into their work day. **Table 3-2** shows the results from interviews and a questionnaire completed by MVSD management regarding the time they spend each week performing human resource activities.

Table 3-2: Hours Per Week Spent on Human Resources Activities

Human Resource Function	Chief Engineer	Treasurer	Superintendent Purification	Chief of Security	Resident Engineer	Chief of Operations	Total
Recruit applicants	0.19	0.00	0.00	0.00	0.00	0.00	0.19
Conduct and coordinate employee interviews	1.50	0.00	1.25	0.00	1.00	1.00	4.75
Provide an orientation program for new employees	0.00	0.00	0.15	0.00	0.00	3.50	3.65
Maintain personnel files on employees	0.00	2.00	1.00	1.00	3.00	2.00	9.00
Maintain Employee Certifications	0.25	0.00	2.00	0.50	2.00	0.50	5.25
Develop and prepare policies and procedures	4.00	0.00	2.00	0.50	5.00	1.00	12.50
Ensure compliance with state and federal laws	1.00	0.00	1.00	1.00	4.00	1.00	8.00
Negotiation and administration of labor union contracts	1.28	0.51	1.00	0.00	1.00	1.00	4.79
Conduct grievance procedures and internal investigations	0.00	0.00	0.15	1.00	0.00	0.00	1.15
Follow through with disciplinary actions	0.17	0.03	0.04	0.00	0.00	0.00	0.24
Compile leave (sick, vacation and personal) information	0.50	2.00	1.00	1.00	5.00	4.00	13.50
Compile overtime usage	0.50	0.00	0.00	0.50	1.00	2.00	4.00
Totals	**9.39**	**4.54**	**9.59**	**5.50**	**22.00**	**16.00**	**67.02**

Source: MVSD responses to AOS survey

As **Table 3-2** indicates, MVSD managers spend approximately 67 hours per week performing human resource functions. The compilation of leave time, the maintenance of personnel files and the development of policies and procedures are the top three functions where management spends its time. The resident engineer spends the most time on human

resource activities because he supervises the most employees and also oversees the workers' compensation and training programs. The chief of operations also spends much of his time performing human resource functions for the purification and pumping divisions since the retirement of the pumping superintendent.

The human resource functions that are being performed at MVSD are inconsistent, incomplete and lack proper documentation. Employee personnel files are maintained and updated by various management personnel on an as needed basis. Overtime is tracked by the payroll system by hours worked and includes the premium pay when a shift worker works on a holiday. Job descriptions are not updated on a regular and consistent basis. The employee personnel manual has not been updated since 1997 and certain health and safety requirements are not being met.

Each of the peer water districts have a human resource director and department to manage employee services. Centralizing key human resource functions helps to ensure consistency, fairness, and quality by having one manager, who has expertise in this area and makes these activities a priority, oversee the function.

R3.1 MVSD should hire a part-time human resource manager to oversee and coordinate MVSD's human resources function (one part-time manager should be able to oversee both the human resources function and the risk management function recommended in **R3.12**). Human resources coordination, documentation and reporting should be centralized to improve the consistency and quality of the work performed. In order for MVSD to maximize the value of MVSD employees, human resource activities need to become a management priority. Employing an experienced professional dedicated to human resources functions should help achieve this goal. However, management at MVSD still should take an active roll in the achievement of human resource functions because of the technical nature of operations at MVSD. Management is needed in such matters as development of policies and procedures and compliance with state and federal laws. Also, all managers will need to work with the human resource manager to effectively implement human resources policies and procedures.

While the human resources manager would coordinate and oversee human resource functions and centralize human resources files and information, much of the work of approving leave time and time sheets, initiating disciplinary action, and enforcing policies and procedures would still be done by division managers. Also, acquisition of software recommended in **R3.5** should largely automate the collecting, aggregating, and analyzing of human resources data and significantly reduce the time spent on these activities. While an initial time investment over 24 hours per week may be needed to institute changes to MVSD's human resources activities, once in place the responsibilities of the human resources manager should be able to be handled by a part-time manager.

Financial Implication: Hiring a human resource/risk manager to work three, eight hour days per week plus benefits at about $20 per hour will cost MVSD approximately $32,000.

F3.3 The chief engineer formulated MVSD's Personnel Policy Manual (PPM) and it has not been updated since 1997. The PPM covers many issues and topics that should be covered in an effective policy manual, such as describing the organizational structure at MVSD, explaining equipment usage policies, detailing various condition of employment policies, and outlining important procedures. However, the PPM either does not cover certain topics or issues that should be in a good personnel manual or is inadequately developed in certain sections. Some of the issues that should be addressed in the manual are as follows:

- Equal employment opportunity policy;
- Employee development section including the performance evaluation process and training and certification guidelines;
- Probationary period policy;
- Call in policy;
- Drug and alcohol-free work place policy;
- General anti-harassment policy that includes sexual and racial harassment policies; and
- Explanation of benefits.

Each policy and procedure in the handbook should be reviewed and updated periodically to ensure that it reflects current situations. Employees at MVSD are required to sign a receipt acknowledging that they have received, read and understand the contents of the policy manual. The signed receipt is kept in the employee's personnel file. However, some employees, who were employed before the manual was adopted, refused to sign a receipt and no disciplinary action was taken.

R3.2 MVSD's personnel manual should be updated by management, reviewed by legal counsel, and then adopted by the BOD. Every employee and appropriate manager should be required to sign a receipt acknowledging that the employee has received, read and understands the personnel policy manual as a condition of employment. The signed receipt should be placed in the employee's personnel file. However, an employee's refusal to sign the receipt should not exempt the employee from complying with the manual's provisions. In such cases, it should be explained to the employee that the employee is still responsible for following the manual requirements. Also, a statement to this effect should be included on the receipt and the employees refusal to sign the receipt should be noted along with the fact that the manual provisions were explained to the employee. The receipt should then be signed by the manager and put in the personnel file.

Employee handbooks that are properly drafted and tailored to an organization's needs can serve as the cornerstone of human resource administration. Employee handbooks are an essential part of positive employee relations. Properly used, employee handbooks:

- Communicate policies and procedures;
- Play a key role in the orientation process for new employees;
- Serve as a valuable employee relations vehicle for educating current and prospective employees;
- Contribute to uniform and consistent application, interpretation, and enforcement of company policies; and
- Protect against claims of improper employer conduct.

While carefully drafted employee handbooks can become valuable employee relations tools, handbooks that are improperly drafted and not legally sound can create organizational and legal liabilities. Courts increasingly view employee handbooks as binding contracts subject to judicial enforcement. In order for MVSD to protect itself from possible legal action by employees and former employees, MVSD should specifically state in the employee handbook that MVSD retains the right to revise the employment relationship and that the handbook is not an employment contract, but merely a policy guide, which MVSD has the right to change or revise at any time.

F3.4 Although State and local government workers are excluded from Federal coverage under the Occupational Safety and Health Act of 1970, MVSD is required to follow worker safety and health requirements established by the Ohio Department of Commerce, Division of Occupational Safety and Health (DOSH) under Ohio Revised Code (ORC) 4167.04. To assist local governments in meeting these requirements DOSH created the Public Employee Risk Reduction Program (PERRP). DOSH, and the Public Employment Risk Reduction Advisory Commission (PERRAC), a sixteen-member body consisting of eight representatives of public employers and eight representatives of public employees, develop rules and procedures for the program. PERRP is designed to ensure that the public employees in the state of Ohio are provided with a safe and healthy working environment. The implementation and administration of PERRP is performed by the Ohio Department of Commerce, Division of Occupational Safety and Health (DOSH).

Under PERRP, DOSH provides "no fee, no risk" on-site safety inspections, safety training, and hazard recognition at the employer's request for all public employees except firefighters, peace officers, emergency medical technicians, paramedics and correctional officers in county and municipal facilities in order to assist with compliance with all safety and health standards adopted by the PERRAC. DOSH does not issue fines or violations, perform random general inspections, or use prior consultation activity as a basis for a citation.

PERRP works with government entities to identify actual and potential safety hazards. PERRP also examines mandatory written procedures (blood borne pathogens, hazard communication, confined space, etc.) for compliance with safety and health rules and regulations. PERRP will prepare a detailed report to assist MVSD in developing specific programs and hazard abatement methods. According to DOSH, using PERRP services helps government entities to increase employee productivity and morale while reducing the following:

- Accidents that result injury or death;
- Lost workdays; and
- Workers' compensation, medical and legal costs.

F3.5 MVSD's last on-site inspection by an industrial safety consultant specialist with the DOSH was performed on January 2, 1997. MVSD's resident engineer is in charge of safety and health programs at MVSD. He formulates training manuals which have been reviewed and approved by DOSH, and conducts training sessions for the employees at MVSD. Although the resident engineer attempts to keep current with all safety and health programs, he believes that MVSD is not in full compliance with the regulations outlined by PERRP. The resident engineer thinks more time and resources should be dedicated to this effort. Because MVSD does not have sufficient staffing for a comprehensive risk management plan that consistently and regularly takes steps to promote worker safety and train staff to comply with PERRP requirements, workers are put at risk and MVSD puts itself at legal risk.

R3.3 MVSD should develop and implement a plan to comply with DOSH safety and health requirements. MVSD should request a free DOSH consultation of its facility to identify issues that need to be addressed in the plan. MVSD should work with DOSH to develop the plan, which should outline periodic training for all staff. For example, DOSH provides safety training and hazard recognition to educate supervisors and employees about the application of safety and health standards that MVSD could include as a part of its health and safety plan. MVSD management should review its health and safety plan on at least an annual basis. Management should report, at least annually, to the BOD regarding progress on implementing the plan, key health and safety statistics and issues, and recommendations for any changes that need to be made to the health and safety plan on an annual basis.

Implementing an effective health and safety plan will help ensure MVSD is meeting relevant health and safety requirements. MVSD should make this a priority in order to ensure the safety of MVSD employees and the integrity of the organization. The personnel committee recommended in **R2.6** of the **organizational management** section of the report and the human resource/risk manager recommended in **R3.12** could help to successfully implement this recommendation.

F3.6 MVSD does not have a performance appraisal process for management or hourly staff. Page 23 of MVSD's Personnel Policy Manual is titled "Employee Evaluations." This page is blank except for the statement (To be inserted upon development). The manual was developed in 1997 and MVSD has not yet developed an employee evaluation form or performance appraisal process.

Of the many factors used in making employment decisions, on-the-job performance is considered the most important. When employment decisions are clearly and specifically related to job performance, decisions are more likely to be accepted by employees, the need for third-party intervention and exposure to employment-related claims and lawsuits are reduced. Employee evaluations supply an organization with information needed to effectively manage human resources. Performance appraisal information can be used to facilitate employee promotions, identify training needs and allows for better assessment of employee development needs.

R3.4 MVSD should implement a formal employee evaluation process. The responsibility for completing employee evaluations on a timely basis should belong with the respective employee's immediate supervisor. Evaluations for all employees should be done at least once a year. However, specific time frames and evaluation forms should not be included in negotiated agreements. Inclusion of this data would prevent MVSD from effectively modifying the evaluation process without future negotiations. Frequent evaluations are important for the following reasons:

- Ensure employees receive clear feedback on areas for improvement and to surface and document disciplinary problems;
- Facilitate the professional improvement of the employee;
- Provide evidence about the quality of employees' professional performance;
- Improve efficiency and effectiveness of the employees in carrying out the duties of the job description;
- Improve employee morale; and
- Monitor an employee's success and progress.

F3.7 Managers at MVSD lack tools for tracking and managing significant human resource performance indicators and for assessing the efficiency and effectiveness of operations. Key workload indicators and performance metrics are not used. Some useful data is accumulated by the payroll system, but it is only used for payroll purposes. Because of the lack of data accumulation and analysis, MVSD cannot measure and identify problems. For example, MVSD does not regularly analyze overtime use and its cause. Therefore, MVSD cannot identify leave problems and develop strategies to address them.

According to the United States General Accounting Office reports, good data and information systems, in addition to information control systems, are essential to supporting sound human

resource planning and decision-making. To make informed human capital allocation decisions, information and feedback on performance, productivity, cost of programs, and operations are critical. The data and information provided by well planned information systems give organizations the ability to build comprehensive measures, collect relevant data, and perform analyses which can be used to support strategic as well as operational budgeting decisions. Some key areas that should be measured include:

- Hiring, separations and turnover;
- Discipline and grievance actions;
- Recruitment statistics;
- Development of key policies and procedures;
- Performance assessment completion;
- Exit interview data;
- Overtime usage by department by reason;
- Training initiatives; and
- Scheduled and ad-hoc reporting requests.

F3.8 The treasurer uses the Macola accounting software package. MVSD purchased this software in 1992 at a cost of approximately $5,000. MVSD pays an annual maintenance fee of $1,800, which includes upgrades and technical support. MVSD uses the general ledger, accounts payable, purchase order, and payroll modules of this software. The payroll module offers a human resource component that MVSD has not purchased. This module costs $1750 for the software and $540 for the installation and four hours of initial training. This module can be used to aggregate and analyze the following data:

- Demographic information;
- Education history, including degrees earned and license information;
- Training history and requirements;
- Position information such as department code, supervisor, division, pay grade, salary; history, and job title; and
- Performance management tracks promotions, pay increases, review dates.

The Macola payroll module can generate standardized reports that are dictated by program parameters. If MVSD requires additional reports, Crystal Report Writer can be used to extract data from the Macola payroll module. Crystal Report Writer is a programmable report writer and can be programmed to generate various reports that could be beneficial to MVSD. When MVSD wants to analyze information that is not readily available, the Macola support person must come to MVSD and set up that particular report at a cost of $135 per hour. Macola offers training programs for Crystal Report Writer so that the operator can program the software to generate customized reports. The training is offered in eight hour sessions at a cost of $1,080 per session.

R3.5 MVSD should evaluate its human resource software needs and what software is available to meet those needs as a part of developing the technology assessment and planning recommended in the **organizational management** section. If MVSD decides that the Macola human resource module is an effective program, then training should be pursued so that MVSD has the ability to formulate payroll reports with Crystal Report Writer. In order for MVSD to analyze and manage its human capital effectively, the ability to gather valid and reliable data regarding such matters as hiring, retention, promotions, and performance incentives is essential. This data can help MVSD develop a profile of its human capital, providing useful historical and prospective views. Further, because sound human capital information can spotlight areas of concern before they develop into crisis, gathering these data is an indispensable part of effective risk management. Based upon its needs assessment, MVSD should determine if it makes sense to continue to use its current software or acquire new software. Whether Macola is kept or new software is purchased, MVSD should ensure that staff have sufficient training to be able to maximize the functionality of its accounting software.

F3.9 In 1993, MVSD contracted with Gortz and Associates to update job descriptions developed in 1987. These updated descriptions were submitted to MVSD on June 10, 1994. The Gortz job descriptions are more detailed and more up-to-date than the descriptions from 1987 that MVSD is currently using. Also, the 1987 descriptions do not include management positions. The Gortz job descriptions were not formally adopted by the BOD and are not used by MVSD.

R3.6 MVSD should update and adopt the Gortz job descriptions. By updating job descriptions to reflect current conditions and requirements of each specific job, MVSD is supplying the employee and MVSD with documented evidence of what is expected of each job classification. The job description should be used as a measurement tool when conducting performance appraisals. It can also serve as a tool to resolve disagreements between employees and their supervisor regarding work duties.

Since job descriptions are task oriented, individuals who are most familiar with the job should be consulted in their development. This should include the employee as well as the employee's direct supervisor. The job description should be detailed enough to identify the tasks necessary to perform the job, but general enough so that management has the authority to direct the employee without the concern of a grievance being filed because the task was not identified in the job description. MVSD should review job descriptions on an ongoing basis to ensure that they accurately reflect the position duties. If MVSD chooses to implement the restructuring recommendation made in the **organizational management** section, job description updates should be made in conjunction with the restructuring. Also, the human resource manager could oversee this process if hired (see **R3.1**).

Recruiting and Hiring

F3.10 MVSD has an employment policy that sets guidelines for recruiting, selection, employment eligibility, appointment, anti-fraternization and anti-nepotism. MVSD advertises job openings in the local newspapers and uses Ohio Department of Job and Family Services to post openings and accept applications on behalf of MVSD. The recruiting function represents one of the important elements of a successful human resources effort. According to *Accountability in Human Resource Management*, effective recruiting practices can have a significant positive impact on the organization. Whereas, poorly designed and executed recruiting strategies will have both short-term and long-term negative impacts, such as an inadequate pool of candidates and the possibility of hiring under-qualified staff. Closely related to recruiting, the selection is equally important. An effective selection process should select the best candidate from a pool of applicants.

F3.11 MVSD has a process for evaluating interview candidates, however the process could be more formalized. The chief engineer interviews each candidate according to the required job qualifications. The chief engineer often includes the department head and/or other relevant supervisors in the interview and selection process. There is no common evaluation instrument used to document the ratings of different interviewers. The candidates are rated by the chief engineer, after seeking input from the other interviewers and supervisors involved. The chief engineer makes the final recommendations to the BOD for final approval, as required by the hiring policy.

In December 1999, on the recommendation of the chief engineer, MVSD BOD authorized the hiring of four hourly employees. In February 2001, the chief engineer recommended five candidates to the BOD. This included the position of assistant superintendent of pumping, an operator and three field maintenance employees. The BOD did not authorize any of these positions to be filled. Therefore, MVSD has not added to its workforce since December 1999. Part of the concern raised by BOD members about the 2001 hiring process was that certain managers involved in the hiring process did not agree with the final recommendations and did not think they adequately reflected the input provided by everyone involved. Interviews also indicate concerns that MVSD process does not adequately focus on or ensure the hiring of the most qualified candidates.

F3.12 MVSD has a residency preference in its hiring policy that raises both legal and operational issues. MVSD's employment policy contains a residency preference, which states that "Residency within a member city shall not be a requirement for employment with MVSD: provided, however that the Board of Directors may choose to hire a resident of a member city over a non resident if, but only if, all other qualifications of the applicants for the position are equal."

The current residency policy is written unrealistically and perhaps overly broad. For example, how often does a situation actually arise where two candidates' qualifications are exactly equal and how does MVSD determine and document when this occurs? Also, interviews suggest that the policy is really applied more precisely than written. At least one BOD member views the residency policy as applicable mainly when hiring laborers, such as entry level field maintenance workers. These positions are viewed by this BOD member as unskilled ones where residency should be the primary, if not the sole, criteria for hiring personnel for these positions. If this is how the policy is applied, rewriting the policy in a clearer and more limited fashion would help ensure a fair, consist, and more legally defensible policy.

While there is nothing in the law that explicitly prevents MVSD from having such a preference, any time an entity employs any preference, it opens itself up to the possibility of lawsuits. For example, if a person living in Youngstown or Niles applied for a position and was not hired by MVSD, that person may be able to successfully use the preference as evidence of some other bias, such as gender discrimination.

The residency requirement has caused disagreement between management and the BOD in regards to how and when the process should be applied during the hiring process. Interview responses indicate that disagreements over the policy have contributed to the failure to hire necessary staff. Interviews also raised concerns that the residency policy takes attention away from the critical issue of selecting the most qualified candidates.

R3.7 In order to ensure the integrity and effectiveness of the hiring process, MVSD should revise its hiring policy and process. Improving the hiring process would help put the focus on hiring the most qualified candidates. A revised employment policy should include the following changes:

- Development and implementation of a formal evaluation document to be completed by all individuals who interview candidates, review resumes, or otherwise interact with or evaluate candidates. An evaluation form would provide the BOD with documented evidence citing each candidate's qualifications and how each candidate was rated by each rater. This would also help ensure that candidates were ranked on some common criteria, providing some consistency and objectivity to the interview process. The evaluation should be tailored to the specific job qualifications desired, assigning points to individual requirements to rate the candidates. Ranking candidates based upon criteria approved by the BOD would also help ensure that candidates are selected based upon criteria deemed most important for carrying out the job responsibilities. For recommendations on management hiring procedures, see the **organizational management** section.

- Eliminate the residency requirement. This preference has created controversy during the hiring process and can take the focus away from hiring the most qualified

candidate, with no direct benefit to MVSD. There is nothing in the law that prevents MVSD from instituting hiring preferences based on location, but the preference could have legal ramifications in certain limited instances. Eliminating the residency preference would eliminate the problems it has created during the hiring process and any potential legal liability, without any loss to MVSD.

F3.13 MVSD does not have an exit interview process which would assist in identifying issues related to turnover in specific positions, management styles of specific supervisors and employee concerns regarding safety issues. According to the chief engineer, MVSD does not have retention problems. Besides retention concerns, an exit interview can identify such issues as recruiting deficiencies, training needs, working conditions and the quality of supervision.

R3.8 MVSD should implement an exit interview process. Monitoring reasons for separation from employment may identify specific issues that would allow MVSD to improve management policies, procedures and future recruiting strategies. Receiving feedback from terminated employees could also assist MVSD identifying steps it could take to improve employee relations. Exit interviews are critical for the following reasons:

- Defining the reason for the turnover;
- Establishing potential trends for future assessments;
- Gauging the morale of employees; and
- Providing criteria for changes in future contractual issues.

F3.14 MVSD's employment policy states that MVSD is an equal opportunity employer (EEO) and shall comply with all local, state and federal discrimination laws and regulations. However, MVSD does not have a formal EEO policy. An effective EEO policy is critical for ensuring fair hiring decisions and to help protect an entity from legal liability. In fact, MVSD has been found guilty of discriminatory practices in the past.

F3.15 The Equal Employment Opportunity Commission (EEOC) provides free information about EEOC laws and procedures through presentations and meetings. The EEOC's Technical Assistance Program Seminars are designed to educate employers and provide technical assistance related to the federal anti-discrimination laws. The EEOC program and on-site training are designed to meet the organization's individual needs. These services are provided on a fee-for service basis.

R3.9 MVSD should develop, adopt and implement an EEO policy that prohibits employment discrimination, ensures equal employment opportunity and ensures that each employee has an equal chance to succeed or fail based on ability, skills, commitment and performance. Developing and implementing an effective policy will allow the BOD and management to communicate clearly and unequivocally its commitment to equal employment opportunity. This will help protect MVSD legally and allow for a work environment free of discrimination

due to race, color, religion, sex (including sexual harassment and sexual orientation), national origin, disability, age or veteran's status. The EEO policy should contain MVSD's commitment to non-discrimination in all areas of employment, the instructions on how to file a discrimination complaint, the steps taken during the investigation of the allegation and a description of possible resolutions. Each employee should receive a copy of the EEO policy, which should be contained in MVSD's personnel policy manual. MVSD should conduct training programs to ensure that the employees at MVSD are informed of the EEO policy.

Financial Implication: A seven-volume set of resource manuals is a comprehensive library on employment discrimination issues and can be purchased from the EEOC at a cost of $150. Technical Assistance Program Seminars conducted by EEOC experts are offered by half-day seminars at a cost of $125 and full-day seminars at a cost of $245.

Training

F3.16 The American Water Works Association (AWWA) cites that much of today's most progressive management literature talks about creating a "learning organization." A learning organization can generally be defined as one where change is accepted as a constant and is seen as a positive improvement in the work ethic. Change is managed and planned so that the environment is not chaotic for employees and employees are expected to be constantly looking for ways to improve work processes. For a learning organization to be a nurturing environment, it is essential for the leadership team to make a strong commitment to employee training and skill development.

F3.17 MVSD does not have a formal training program in place for management personnel. The chief engineer maintains that training of management has evolved in the day-to-day activities as situations necessitate such training. MVSD also does not have a formal, systematic, training program for hourly employees. Department heads are responsible for the on-the-job training of new employees. Because no employee evaluations are done at MVSD, there is not a formal process to identify training needs. The AWWA strongly encourages each water utility to adopt personnel policies that endorse competence-based training and career development opportunities through attendance at educational, technical and scientific conferences, and other continuing education programs. Competence-based training targets the individual job criteria and qualifications as identified by MVSD.

F3.18 MVSD does not have a procedure in place for monitoring employee certification requirements. Continuing education is required for all employees who are certified. The number of hours per year is dependent on the level of certification. If the educational requirements are not met, an employee forfeits certification. Without proper certification, an employee is not qualified to perform job requirements under the contract. Also, in certain cases, if MVSD was not aware of an expired certification, MVSD could be legally liable for allowing the employee to

perform certain chemical or other tests. For more detail on certification requirements, see the **operations** section of this report.

F3.19 MVSD does not specifically appropriate funds in the annual budget for training needs. Training is charged as a miscellaneous expenditure. The AWWA recommends that personnel development provisions authorize time and adequate funding for training of personnel at all levels of the water utility's operation. According to MVSD management, current staffing levels do not allow for the absence of employees from their normal daily work schedule to attend training programs and training has not been viewed as a priority. Because of the responsibility that community water systems have for the public health and safety of their customers, it is increasingly essential that all employees of water utilities acquire the specialized knowledge and skills needed for the competent and efficient operation of their system and its facilities.

R3.10 MVSD should adopt and budget for a formal training program. Training and development are vital to an effective learning organization. Continuous learning should be treated as an investment in success rather than as a cost to be minimized. MVSD must be prepared to focus on how best to invest in their people, or human capital, to achieve high performance of their missions and strategic goals. To achieve this high performance, MVSD should place particular emphasis on the training and development of their employees to ensure that they have the competencies, knowledge, skills, abilities, and behaviors needed to successfully perform and contribute to MVSD's mission-critical activities. To design and implement effective training programs, MVSD should:

- Identify the competencies needed to achieve MVSD's specific mission and goals and measure the extent to which their employees exhibit those competencies;
- Identify training and development needs to be addressed; and once those training opportunities are in place; and
- Evaluate the extent to which MVSD's programs are actually increasing employees' individual competencies and individual and overall organization performance levels.

Financial Implication: Data taken from the 1999 American Society for Training and Development (ASTD) "State of the Industry" report from the 1999 edition of the Training and Development magazine shows that the average total training expenditure is about 1.81 percent of total payroll or approximately $649 per employee. Assuming an average payroll of $1.6 million, MVSD could spend about $29,000 on training annually.

Workers' Compensation

F3.20 The Bureau of Workers' Compensation (BWC) administers Ohio's workers' compensation system which provides medical and wage-loss compensation for injured workers and their families for work-related injuries, diseases, or death. MVSD pays premiums to the BWC for

the management of claims, payment of compensation and underwriting of all workers' compensation coverage. Premium costs are primarily driven by the total number of claims paid out by the BWC. The claims history also determines the type of BWC program in which the entity is enrolled and the experience modification figure which is used to project the cost of workers' compensation based on the actual loss experience of the individual employer.

As one of the most significant factors in determining premium levels, the experience modification factor (EMF) compares the losses and safety results of MVSD to other similarly classified entities in the state of Ohio. Fewer accidents and losses than average will result in an EMF lower than 1.00 and a reduction in the premium. Likewise, more accidents and losses will result in a higher premium. The BWC uses the EMF as a tool to more accurately predict future losses for an individual employer. To calculate the EMF, the BWC uses the oldest four of the last five years' experience losses of the employer.

Because of MVSD's history of accidents and workers' compensation claims, MVSD is "experienced rated" by BWC. Experience rating is mandatory for all Ohio private and public employers expected to experience $8,000 or more in losses during a four-year period. All entities with higher claims costs are grouped in the same category and share premium expenses. In the experience rating system, employers with better than average loss experience (credit rating) pay a reduced premium and employers with worse than average loss experience (penalty rating) pay an additional premium.

F3.21 **Table 3-3** shows MVSD's workers compensation claims history since 1999.

Table 3-3: Workers' Compensation Claims History

Fiscal Year	Payroll	BWC Premium	Premium as a Percent of Payroll	Experience Modifier
1999	$1,656,733	$102,053	6.2%	1.33
2000	$1,558,490	$103,373	6.6%	1.50
2001	$1,635,991	$94,481	5.8%	1.31

Source: MVSD and BWC

As illustrated in **Table 3-3**, MVSD's total premium costs (before the BWC discounts granted in these years) from fiscal year 1999 to 2001 remained relatively high over the three-year period. Over the past three years, MVSD's experience modifier has ranged from 1.3 to 1.5, which indicates that MVSD's workers' compensation rates are up to 50 percent higher than average. MVSD's experience modifier for the fiscal year July 1, 2001 through June 30, 2002 is calculated at 2.21, indicating that MVSD's workers' compensation costs are 121% higher than the expected average for an entity of MVSD's size and operation.

The premium costs as a percentage of the total payroll have remained just below or slightly above six percent over all three years. If MVSD's modifier was in line with the average, its premium cost as a percentage of payroll would have been approximately 4.5 percent per year, saving an average of $27,500 per year.

F3.22 As a result of Auditor of State (AOS) inquiries to the BWC regarding MVSD, AOS discovered that MVSD has been mis-classified by BWC as a private corporation instead of a public employer. AOS efforts initiated a process that resulted in BWC's reclassifying MVSD as a public employer beginning in 2002. Because there is not a provision in the BWC regulations to transfer the claims experience forward in this unique situation, MVSD will start the year 2002 with no claims history upon which to base workers' compensation premiums. As a result, BWC reports that MVSD will start the year 2002 with a base rate of 4.9829 percent, which is significantly below the rate MVSD would have paid were it not reclassified.

However, because it is being treated as if it were a new public entity with no BWC claims history, MVSD is also unable to benefit from certain discounts being offered to public employers in 2002. Specifically, BWC is offering a discount program for public employers that attend safety seminars. Public employers can receive a 25 percent discount on their workers' compensation premiums for attending the seminar. MVSD is not eligible to participate in the 2002 discount program because it being treated as a new public entity with no claims or payment history upon which to base the discount.

R3.11 MVSD should follow-up with the BWC to ensure that it was properly reclassified. Proper classification will make MVSD eligible for certain programs and discounts and will initially reduce its premiums, providing MVSD with an opportunity to take steps to ensure that its rates do not rise as they have in the past. Also, although MVSD is not eligible for the BWC discount program offered in 2002, MVSD should still attend the safety seminars offered by the program. The seminars are free, offered locally, and could help MVSD improve its workers' compensation management strategies. MVSD should work with the BWC to see if there is a way MVSD can be permitted to benefit from the 2002 discount program since it is the result of a classification error for which there are no clear requirements for handling. MVSD should take advantage of other BWC safety programs for public employers. Besides providing premium discounts to MVSD, these programs also help to reduce workers' compensation claims.

Financial Implication: In 2002, the reclassification could cost MVSD about $47,000 because BWC is offering private organizations a 75 percent discount on premiums (estimated at $131,000 for MVSD in 2002). MVSD's premium for the calendar year 2002 will be about $80,000 under the new classification, assuming no discount. In future years, after 2002, MVSD should save approximately $15,000 per year on workers' compensation premiums, not accounting for possible discount programs offered by BWC. MVSD can increase this savings in future years by concentrating on safety and accident prevention, which will help to reduce

workers' compensation claims, and by participating in discount programs available for public employers. These estimates are based upon payroll of $1.6 million, a 2.21 experience modifier in 2002 and 1.60 in future years under the old classification, and a base rate of 4.9829 percent under the new classification with no experience rating.

F3.23 When an employee is injured on the job at MVSD, the chief of security immediately conducts an investigation. The resident engineer fills out the required paper work and sends it to the third party administrator, Professional Risk Management (PRM). PRM files the claims, attends hearings, keeps records and monitors the claims. Because of PRM's vast experience with workers' compensation claims and its diversified staff, PRM has access to resources and information that is beyond the scope of the management at MVSD. Therefore, once the paperwork is filed, MVSD simply relays information to PRM regarding the employee.

F3.24 MVSD does not have a manager who is directly responsible for risk management. An effective risk manager can implement programs and coordinate efforts to help ensure the health and welfare of employees and to protect the employer against liability. Duties of a risk manager can include:

- Helping management and employees identify accident prevention and safety and health training needs through perception surveys, interviews, behavior sampling or other methods;
- Assisting supervisors in making changes or developing strategies that improve the organization's safety systems and processes;
- Identifying and communicating new safety and health requirements and working with employees to optimize safe work practices;
- Compiling injury and illness related records, tracking progress on safety and health-related projects and providing claimants, timekeepers and supervisors with copies of disability leave approval forms;
- Providing advice and support to supervisors and managers regarding safety management responsibilities; and
- Designating departmental safety officers that meet on a monthly basis to discuss emerging safety concerns related to workers' compensation.

F3.25 The BWC offers a Premium Discount Program(PDP) that can result in a discount on workers' compensation premiums. MVSD participated in the PDP from fiscal year ending June 30, 1996 through fiscal year ending June 30, 1999. MVSD received the maximum discount of 10% for the first two years of the program and the maximum of 5% discount for the last two years of the program. To comply with the PDP, MVSD implemented a ten-step business plan. The plan requires a commitment of time and resources on the part of the employer to put into place a safety program. Also, the BWC Division of Safety and Hygiene provided educational activities that fulfill some of the requirements. The ten steps of the business plan are as follows:

- Visible active senior management leadership;
- Employee involvement and recognition which includes forming safety teams and commending employees for actively participating in accident prevention and safety and health processes;
- Medical treatment and return-to-work practices;
- Communications such as written and verbal feedback to all employees;
- Timely notification of workers' compensation claims;
- Safety and health process coordination and employer education designates an employee as the accident prevention coordinator;
- A written orientation and employee training plan;
- Written and communicated safe work practices;
- Written safety and health statement and philosophy; and
- Record-keeping and data analysis to verify the success of organization safety efforts.

The resident engineer at MVSD, who is responsible for the safety program, states that the procedures implemented in the ten step plan are still being carried out to the extent that it is possible in light of under staffing. Since the retirement of the field maintenance foreman, the resident engineer has taken on that supervisory responsibility and does not have sufficient time to accomplish some of the requirements in the plan. Some areas that could be improved include employee recognition, a written orientation and training plan and communications concerning safety issues. Because of the time constraints on management, visible active senior management leadership could also be improved.

F3.26 The BWC offers a Drug-Free Workplace Program (DFWP), which is an incentive program designed to help employers establish a safer and more cost-effective workplace. The DFWP program encourages employers to detect and deter substance use and misuse, and take appropriate corrective action. There are three levels of participation, each with specific requirements for a specific discount. The higher the program level, the greater the discount percentage and the greater the requirements. Discounts are available for up to five years. Level one of the DFWP offers a 10 percent discount and requires development of a written policy and certain types of testing including: pre-employment and/or new hire, reasonable suspicion, post-accident, and follow-up. In addition to testing, the DFWP requires employers to do annual employee education and supervisor training and develop a list of local community resources that employees with problems can turn to for assistance. As a result of its reclassification by BWC, MVSD is eligible for a public employer grant program that provides funding to help defray DFWP start-up costs.

Employers who implement the DFWP can provide greater protection for all employees. Statistics from national studies estimate the cost of substance abuse to employers range from $7,000 to $25,000 annually per substance abuser. Potential benefits of this program include an increase in productivity and a decrease in accidents and the severity of accidents. Other

benefits include the reduced use of workers' compensation medical benefits by substance abusers, a decrease in thefts, and other costs.

F3.27 The BWC offers a wide range of free safety and training programs for local government entities. BWC also employs business consultants who can assist public employers with workers' compensation and safety issues. All business consultant services are available upon request at no additional cost to the employer. Services provided by the business consultants include:

- Safety consultations;
- Ergonomic analysis to ensure that employee work stations are designed to facilitate proper posture which alleviates fatigue and skeletal related injuries;
- Industrial hygiene and engineering; and
- Resources for employers and employees - safety training, publications, a videotape library and a reference library.

F3.28 MVSD does not perform an analysis on workers' compensation claims history. This recommended analysis contains two components: claims trending and employee surveying. A claims trending program cross tabulates the number of accidents and lost work days per employee for various job locations. This type of analysis reveals patterns in types and causes of injuries and allows corrective action to be taken. This information is useful to direct the departments with a high number of claims to establish safety performance measures and targets and tracks performance against those targets. The employee survey component is equally important. An effective survey includes questions regarding employees' job descriptions and current health status. Surveying employees will reveal these complaints so that prevention through education can be initiated. All employees in a department are surveyed, not simply those who have been injured and have filed claims. These surveys also serve to illuminate any potential pre-existing conditions should an injury occur in the future, which is important in recovering handicapped reimbursement.

R3.12 MVSD should take steps to improve the management of its workers' compensation program, be more proactive in addressing safety issues in the work place, and reduce workers compensation costs. To accomplish this, MVSD should take the following steps:

- *Implement a system to monitor employee health and safety claims for analysis and claims prevention*. MVSD should develop performance goals using this data to assess its performance and target areas that require improvement. By implementing a successful monitoring system, MVSD can effectively meet the specific training needs of its employees with empirical evidence to support the need for each course or program. Measuring program results against established safety program targets can further assist MVSD in determining the most efficient means of addressing safety and training needs.

- *Hire a part-time risk manager to oversee workers' compensation and worker health and safety at MVSD*. Effective management of these areas should reduce workers' compensation costs and reduce accidents. The high workers' compensation costs incurred by MVSD indicate that it needs a manager who can focus on reducing these costs and protecting workers. These responsibilities could be combined with the responsibilities in **R3.1** to create a part-time human resources/ risk management administrative position.

- *Establish an ongoing relationship with the BWC business consultant in its region to take advantage of the range of services offered by the BWC*. Effective communication and coordination with the BWC can help improve worker safety by improving the health and safety training provided by MVSD and help ensure MVSD is aware of latest programs and discount possibilities.

- *Implement, at least, Level 1 of the DFWP and take advantage of the available grant monies provided to fund the program.* Implementing an effective drug policy could help reduce workers' compensation costs and improve worker safety and productivity. Implementing a drug policy of any type would require a change in the union contract.

- *Evaluate managers on the role they take in promoting worker safety and health and in reducing accidents among their staff.* This will give managers a stake in improving safety and health conditions at MVSD.

- *Hire qualified, competent employees with good work records.* MVSD should implement recommended changes to hiring processes to help ensure the hiring process focuses on hiring the best candidates.

F3.29 Article 14 of the union contracts state "There shall be a joint safety committee composed of three (3) union members and at least two (2) employer representatives." MVSD's safety committee is composed of seven plant personnel: the supervisor and one elected employee from each department and the resident engineer. The committee is intended to provide a line of communication within the plant concerning matters of safety that cannot be rectified within a specific department. The safety committee member from each division is charged with the responsibility, under the direction of the relevant supervisor, to see that safety equipment is maintained in their specific areas. In addition, the committee member also monitors and reviews safety measures and brings forth questions of employee safety and health and makes recommendations in any matter involving safety. According to MVSD's Safety Committee Policy, the safety committee is to hold monthly meetings on the third day of each month in the office of the resident engineer. The meetings were documented through written agendas and meeting minutes. The committee used to meet regularly, but now only meets as needed. The last meeting was held in October, 2001.

R3.13 MVSD's safety committee should hold regular meetings as required by its own policy. However, MVSD should consider revising its minimum meeting requirements to at least quarterly meetings, if management deems that meeting monthly is unnecessary. Minutes should be distributed to all employees on the safety committee and archived based upon the document control policy in **R2.7**. This committee should report to and coordinate with the safety/security committee recommended in the **organizational management** section of this report. This would allow MVSD workforce to actively participate in safety programs and bring safety concerns to the attention of management and the BOD.

Contractual Issues

F3.30 **Table 3-4** compares some key contractual issues between MVSD and the peer water districts.

Table 3-4: Union Contract Comparison

	MVSD	Akron	Lima	Toledo
Probationary Period	90 calendar days	90 calendar days	270 calendar days	120 Calendar days
Length of Work Day	24 hour operations - 8 hours per day (includes a 30 minute paid lunch in which the employee is still on duty and two fifteen minute breaks) All other employees - 8.5 hours per day (includes a 30 minute unpaid lunch hour and two fifteen minute breaks)	8.5 hours per day (includes a 30 minute unpaid lunch - Breaks are not specified in the contract and are administered by the department. Most departments receive two fifteen minute breaks.)	8 hours per day (includes two fifteen minute breaks) Hours shall be consecutive, except for interruptions for a 30 minute unpaid lunch break	24 hour operations - 8 hours per day (includes a 30 minute paid lunch in which the employee is still on duty and two fifteen minute breaks) All other employees - 8.5 hours per day (includes a 30 minute unpaid lunch hour and two fifteen minute breaks)
Actual Time Worked per Day	7.5 hours	7.5 hours	7.5 hours	7.5 hours

	MVSD	Akron	Lima	Toledo
Sick Leave Accrual	15 days per year. Employees receive 18 paid sick days, however 3 days are considered to be personal days and can be taken without limitations.	15 days per year	15 days per year	15 days per year for employees hired prior to June 30, 1993. Employees hired after June 30, 1993: 10.5 days per year until 52.5 days have accumulated then 15 days per year.
Maximum Number of Sick Days Accrued	Unlimited	120 days	Unlimited	Unlimited
Sick Leave Pay Out	Employees with 10 or more years of service receive ½ of accumulated sick days up to a maximum of ½ of 180 days at rate of pay at the time of retirement or termination.	If an employee retires and is granted disability or a normal retirement pension under the PERS, the employee receives pay for accumulated sick leave up to 120 workdays.	Employees with 5 or more years are compensated upon retirement under the PERS at the rate of 1 day for each 3 days of unused sick days not to exceed 65 days at the rate of pay upon retirement. Employees with 10 or more years are compensated upon resignation at the rate of 1 day for each 3 days of unused sick days not to exceed 50 days at the rate of pay on the day of termination.	Employees who die or retire while employed by the city or separate in good standing after 21 years of service receive at the employee's regular rate of pay, 50 percent of up to 200 days and 100 percent of sick time in excess of 200 days. Terminated employees not meeting the above requirements, receive 33 percent of salary for the first 40 days and 50 percent of salary for the next 40 days for a maximum of 80 days.
Sick Leave Incentive	None	A maximum of 30 sick days in excess of 120 are converted to cash at year end. Accumulated sick	Sick days in excess of 90 can be converted to vacation or cash at year end: One day of	A maximum of 40 sick leave hours not used by the end of the year can be turned in for

	MVSD	Akron	Lima	Toledo
		leave up to 120 days is paid at 100% at retirement. Employees with 20 or more years of service receive one extra week vacation when 120 days of sick leave are banked.	vacation or cash for each 3 days of unused sick leave accrued in the previous year.	payment at a percentage of salary as follows: employee uses 20 hours or less sick leave during the year - 50% of salary employee uses > 20 < 41 - 33 % of salary Employees with fewer than 420 accumulated hours or have used more than 40 hours during the year are not eligible for conversion. Employee can earn up to 5 bonus days if sick leave use is less than 2 days per year. Bonus days decrease as sick leave usage increases.
Vacation Time Accumulation	1-5 years: 10 days 6-12 years: 15 days 13-19 years: 20 days 20-24 years: 25 days 25+ years: 30 days	1-5 years: 10 days 6-11 years: 15 days 12-19 years: 20 days 20+ years: 25 days 20+ years and 120 sick days banked: 30 days	1 year: 5 days 2-7 years: 10 days 8-14 years: 15 days 15-24 years: 20 days 25+ years: 25 days	<than 1 year: .916 days for each full month 1-6 years: 10 days 7-13 years: 15 days 14-20 years: 20 days 21-24 years: 25 days 25+ years: 30 days In addition to the above, after 1 full calendar year of service the employee receives 1 full additional discretionary vacation day.

	MVSD	Akron	Lima	Toledo
Number of Personal Days Received	3 days deducted from sick leave accumulated balance[1]	1 day with pay	3 days with pay	2 days with pay (these days are in addition to the 15 holidays and are referred to as discretionary holidays)
Number of Holidays	11 plus: ½ day on Christmas Eve and ½ day on New Years Eve if those days fall on a Monday, Tuesday , Wednesday or Thursday	12	12	15
Holiday Wage	8 hours regular pay plus 1 ½ times hourly rate for hours worked	8 hours regular pay plus 1 ½ times hourly rate for hours worked	1 ½ times hourly rate for hours worked plus one additional day off with pay. Employee may exercise option to receive pay in lieu of additional time off.	Day- turn employees do not work and receive 8 hours regular pay for 15 scheduled holidays. Shift workers receive ten hours at the employee's regular straight time rate for working 8 hours on six major holidays. They are granted 12 extra days off with pay that they schedule with their department supervisor.
Number of Leave Days to Conduct Union Business	Maximum of 10 days per employee per calendar year: unpaid	None stated	Twenty days annually for total bargaining unit: paid	Reasonable time to conduct union business during working hours.

	MVSD	Akron	Lima	Toledo
Number of Days to File a Grievance	Within 7 calendar days of knowledge of the occurrence of the facts or of the date of occurrence of the facts	Within 3 working days (could equal 5 calender days) of knowledge of the occurrence of the facts or of the date of occurrence of the facts	Within 10 working days (could equal up to 14 calendar days) of the occurrence of the incident giving rise to the grievance.	Within 5 working days (could equal 7 calendar days) after the existence of the dispute is known to the employee.
Overtime Pay	One and one-half times employee's hourly rate for time worked in excess of 40 hours in any work week, or 8 hours in any 24 hour period.	One and one-half times employee's hourly rate for time worked in excess of 40 hours in any work week, or 8 hours in any 24 hour period.	One and one-half times employee's hourly rate for time worked in excess of 40 hours in any work week, or 8 or 10 hours in any 24 hour period (depends on work schedule)	One and one-half times employee's hourly rate for time worked in excess of 40 hours in any work week, or 8 hours in any 24 hour period. Overtime on Sunday is paid at double the employee's hourly rate. Overtime on a holiday is paid at triple the employee's hourly rate.
Minimum Call-in Hours Paid for Emergencies	The greater of 4 hours or the actual time worked at 1 ½ pay [2]	The greater of 4 hours or the actual time at appropriate rate. (1 ½ pay is paid only when employee has worked more than 8 hours in a 24 hour period or 40 hours in a week. Comp time and sick leave are not considered hours worked)	The greater of 3 hours or the actual time worked at 1 ½ pay [2]	The greater of 4 hours or the actual time worked at 1 ½ pay or; if employee is called out 2 hours before shift starts, then 2 hours at 1 ½ pay. If call out is on Sunday, then a minimum of 4 hours at double regular pay.

Source: Collective bargaining agreements for MVSD and peers.

1 An employee receives 24 hours of personal leave per year only after completing one year of service. This is not additional paid time off, but is deducted from the employees accumulated sick days.

2 This policy is effective for those employees who have worked a full workday and have left for the day or if the employee is called out to work beyond his normal work schedule.

MVSD's union contracts are similar to peers in many respects, but with a few key differences. MVSD has two union contracts. One is between MVSD and the patrolmen and the other is between MVSD and the service and maintenance employees. The contracts are similar, except

for some minor benefit differences and a monetary allowance for uniforms stipulated in the patrolmen's contract.

Table 3-4 compares MVSD's union contract with peer water departments on key issues. MVSD's contract is similar to peer contracts or more advantageous than peer contracts in many areas including: probationary period, work day, sick leave accrual, holidays off and holiday pay, overtime accrual, and time for conducting union business. While MVSD employees accumulate three more sick days than its peers, personal days are deducted from the employee's sick leave accumulated balance. Therefore, MVSD's contract is essentially the same as peers with MVSD employees having 15 sick days each year. MVSD does not offer an incentive for employees to accumulate sick time. At retirement, only a portion of sick time accumulated is paid to the employee up to 90 days. ORC 124.39 states that a political subdivision may adopt a policy allowing an employee to receive payment for more than one-fourth the value of the employee's unused sick leave or for more than the aggregate value of thirty days of the employee's unused sick leave, or allowing the number of years of service to be less than ten. However, the ORC requirements are after 10 years of service that the employee receive one-fourth the value of the employee's accrued but unused sick leave up to a maximum of 30 days at the rate of pay at the time of retirement.

MVSD is somewhat more generous than the peers in terms of vacation accrual and personal days. Over a 30-year period, MVSD employees accumulate 30 additional vacation days than the peer average. After 25 years of service, MVSD accumulates three more days per year than the peer average (this assumes that Akron employees do not have 120 days of sick leave after 20 years). MVSD employees also receive one more personal day per year than the peer average of two days per year. Personal days are only paid to the employee if that employee has the sick leave time to cover it.

The call-in policy set forth in the union contract is different from peer contracts. Currently, MVSD's call-in policy states that if an employee works a full, eight-hour workday and is then called into work or if the employee is called into work beyond his normal schedule, the employee is entitled to one and one-half times the rate of pay for the greater of four hours or the actual time worked. Therefore, an employee receives one and one-half his rate of pay when he is called out unexpectedly, regardless of the amount of hours he has worked for the week. Because MVSD cannot plan ahead for emergency situations or the unexpected report off of an employee, this policy could cause a potential abuse of overtime by employees.

In addition, although employees are not required to work the full four hours when called in after their initial call-in activities have been completed, there are provisions provided in the union contract for additional work to be assigned by the appropriate supervisor. Also, the chief engineer has the authority to dictate whether the employee works the full four hours or is dismissed once the call- in duties are completed. The chief engineer said that MVSD uses call-

in very infrequently. Call- in is used only under extreme emergencies such as pipeline breaks. He estimates that call-in overtime as percentage of total overtime is less than one percent.

F3.31 Article 18 of the union contracts reads "The District agrees not to engage private contractors to perform work normally performed by the bargaining unit employees provided such employees are available and able to perform the task efficiently and timely. No such contracting may result in the lay-off, or continued lay-off, of a bargaining unit employee." Although the article does not explicitly prohibit outsourcing, in practicality, the language precludes MVSD from being able to contract out in cases where it might be beneficial.

R3.14 MVSD should attempt to renegotiate certain provisions in its union contract. The following are some of the issues that MVSD should consider addressing in future contract negotiations:

- Increasing the probationary period for new employees to 270 days.
- Reducing the maximum number of sick days paid out at retirement to a maximum of 30 days.
- Reducing vacation accrual after 25 years by at least 3 days and by reducing by an average of 1 day vacation days received in each previous step range.
- Reducing the number of personal days received to the peer average of 2 days per year, which would also reduce the number of sick days earned per year to 17.
- Replacing the language in Article 18 with language that would allow MVSD to appropriately pursue contracting out services. Effective use of contracting out could allow MVSD to help eliminate overtime costs and reduce costs to carry out certain functions (for specific recommendations see the **field maintenance** and **operations** sections).

Financial Implication: MVSD could realize an average annual savings up to $7,800 if vacation accruals mirrored the peer's average. Over a 30-year period, based on current staffing levels, the total savings would be up to $234,000. The 30-year savings is understated because it is based on current staffing and wages. Other issues noted in this recommendation would likely result in addition cost savings. However these savings could not be quantified due to reduced overtime usage, reduced pay out costs at retirement, more time to evaluate new employees to determine if they will be productive employees, and ability to contract out where efficiencies could be gained (For specific financial implications on contracting out, see the **field maintenance** and **operations** sections of the report.).

F3.32 The union contracts are negotiated by the chief engineer, the union president along with four to five union members, an AFSCME staff representative and legal council contracted by MVSD, who acts as an arbitrator between the union and management. MVSD also uses its contracted legal counsel during negotiations. Except for a hearing aid benefit and three personal days, the BOD extends the same benefits to management as the bargaining unit members. There is no BOD resolution that dictates that management benefits mirror the union

members' benefits, but over the years it has become a common practice. This situation could limit management's incentive to negotiate reduced benefits that would produce cost savings to MVSD and creates an appearance of conflict-of-interest.

Based upon a review of the fact-finding report from 2000 union negotiations, MVSD management may not adequately prepare for fact-finding conferences when negotiations with the bargaining units come to an impasse. In a fact-finding report dated July 6, 2000, MVSD requested changes in the union contracts on nine separate issues. The arbitrator rejected all but one of these changes. In several discussions within the fact-finding report, the arbitrator cites that he cannot support the change because MVSD does not provide evidence to support a modification to the contract. MVSD's legal counsel also suggested that MVSD could benefit from hiring a negotiation specialist.

F3.33 According to E. Edward Herman, author of *Collective Bargaining and Labor Relations*, the effectiveness of a bargaining team is determined by its ability, knowledge and experience. The team should include a note taker, a language draft person, and people with operating and costing expertise, as well as representatives of various constituencies that would be affected by the negotiation outcome. A team well-versed in tactics, strategy, and timing will be in a better position to avoid impasses and strikes, and will end up with a better agreement than a team composed of inexperienced people. The most important member of the management bargaining team is the spokesperson. That individual is responsible for representing major positions, communicating priorities, timing concessions, making threats and commitments, and determining the responsibilities of each team member.

Economic data should be collected for bargaining purposes. Although the nature of the data varies, there is a basic statistical package that most negotiators find helpful. They try to assemble data on business conditions, the state of the economy, and terms of settlement in the region and the industry in question. They also gather statistics on wages, benefits, profitability, productivity, family budgets, and the Consumer Price Index. Internal and external data are also important to the bargaining process, both for the purpose of effective negotiations and for accurate costing of the agreement.

Wage and benefit surveys can be useful tools for formulating wage proposals and anticipating the opposition's moves. Information should be gathered on base pay rates of various job classifications and on benefits. The survey should be confined to the local area of the employer. The U.S. Department of Labor, Bureau of Labor Statistics (BLS) is the cheapest and most acceptable source of survey results, wage and benefit data, and other pertinent information for collective bargaining purposes. The following BLS resources can be helpful to negotiators: Compensation and Working Conditions, Industry Wage Surveys, Area Wage Surveys, Employment and Earnings, and News Releases on the Consumer Price Index (CPI), a monthly report on consumer price movements.

R3.15 MVSD should take steps to improve its contract negotiation policies and procedures and consider engaging a negotiation specialist to conduct negotiations on behalf of MVSD. When negotiating with the union, MVSD should prepare documents that provide data and analysis to support the benefits of, and need for, the changes to the contract it is requesting. At a minimum, MVSD should perform wage and benefits analyses to determine fair compensation and benefits. The State Employee Relations Board (SERB) can provide information from other union contracts for this type of analysis. Hiring a third party to conduct contract negotiations would help MVSD eliminate any conflict of interest, or appearance of such conflict, on the part of management and also benefit from the knowledge and objectivity of an outside specialist. Furthermore, management benefits should not automatically coincide with the benefits negotiated in the union contracts. The BOD should establish management benefits separately based upon an analysis of salaries and benefits provided to managers with similar experience in similar positions.

Financial Implication: During fiscal year 2001 MVSD's legal council spent approximately 41 hours on labor negotiations, billed to MVSD at $125 per hour. Legal council acted only as a mediator between management and the bargaining unit and did not actually conduct the negotiations. Assuming a negotiation specialist spends 100 hours at $125 per hour, the cost to MVSD would be $12,500 every three years, or approximately $4,200 annually.

Overtime and Leave

F3.34 **Table 3-5** presents sick leave use data for MVSD employees.

Table 3-5: Sick Leave Usage, 2000

Department	Number of Employees[1]	Estimated Sick Days Used	Estimated Sick Days Per Employee	Actual Sick Days Used (Includes Personal Days)	Actual Sick Days Per Employee (Includes Personal Days)	Total Overtime Costs by Division
Management and Administrative	8.0	67.9	8.5	67.9	8.5	$0
Purification	11.5	152.1	13.2	187.1	16.3	$86,441
Pumping	9.0	130.0	14.4	157.0	17.4	$28,163
Field Maintenance	8.0	168.0	21.0	192.0	24.0	$29,490
Security	2.5	26.7	10.7	33.7	13.5	$0
Totals	**39.0**	**544.7**	**14.0**	**637.7**	**16.4**	**$144,094**

Source: MVSD 2000 sick leave reports.
[1]There are employees included in these numbers that may no longer be actively employed at MVSD. However, because they used sick leave in the year 2000, they are included in this analysis.

All employees at MVSD earn 18 sick days per year. However, union employees are permitted to take 3 of those days as personal days with a 48 hour notice to the supervisor. These personal days are deducted from the employee's sick leave accumulated balance and paid as a sick day. Assuming that union employees used all three personal days in 2000, **Table 3-5** shows the estimated number of sick days taken per employee without including three personal days that are accounted for as sick time usage by MVSD. MVSD was not able to provide a break-out of how many personal days were actually taken by employees. **Table 3-5** also shows the actual number of sick days taken by MVSD employees, which includes the 3 personal days as sick days used.

As **Table 3-5** shows, the estimated average number of sick days taken per employee in 2000 (not including the 3 personal days) was 14 or almost three weeks per employee. The average number of sick days taken by MVSD bargaining-unit employees is almost three times the amount taken by the average 12-month government worker, and the average worker in the Bureau of Labor Statistics (BLS) category of "operator, fabricator, and laborer," of 4.96 days or about one week. The average number of sick days taken by MVSD bargaining-unit employees is also more than twice the amount taken by all State of Ohio bargaining-unit

employees. The Ohio Department of Administrative Services recently reported that the average bargaining-unit employee took slightly less than 7 days of sick leave in 2000. The overtime in this table represents the total overtime paid at MVSD in the year 2000. The large amount of sick leave used by MVSD employees is likely a major cause of overtime.

As suggested by **Table 3-5**, sick leave taken has the ability to increase overtime costs incurred by MVSD. The average number of sick days taken by management is 8.5, while the average number of days taken in the year 2000 for hourly union employees is 15.38. This is greater than the total sick leave received by a union employee for the year when counting three days earned as personal leave. It is also greater than the average number of almost 6 sick days taken by State of Ohio exempt employees. The responsibilities of divisional employees using sick leave often must be carried out either through staff redeployment or through overtime use. Because management does not earn overtime, union employees' sick leave is a significant cause behind MVSD's high overtime costs.

In the year 2000, there were two employees at MVSD who used excessive amounts of sick leave due to illness and/or illness of a family member. If these two employees sick leave usage for 2000 is eliminated from the analysis shown in **Table 3-5**, the average number of sick days used per employee is 11.3, and the average number taken by union employees is 12. The number of sick days taken by management remains at 8.5.

F3.35 MVSD's union contracts stipulate that "the chief engineer may require the employee to furnish satisfactory proof that the absence was due to one of the causes for which sick leave may be used, if the employee is absent more than three consecutive days of sick leave usage." Neither of the contracts makes a doctor's excuse necessary for extended or excessive absenteeism, which is contrary to the practice of many other local government contracts in the State of Ohio. Many local governments have a requirement for employees to provide a doctor's note after a total number of days are missed in a year.

R3.16 MVSD should adopt sick leave policies and procedures to reduce the amount of sick leave used. During future contract negotiations, MVSD should attempt to modify any language in the union contract that hinders its ability to implement effective sick leave policies. Such policies should help reduce sick leave usage include:

- Implementing a rolling year occurrence policy where employees are held accountable for the number of times taken off rather than the length of each time taken off. This would need to be negotiated in the union contract.
- Requiring all employees to complete a standardized sick leave explanation form.
- Requiring sick leave use to be a component of the employee's evaluation (see **R3.4**).
- Analyzing sick leave use trends to identify potential abuse and disciplining employees abusing sick leave, either formally or informally, such as by discussing apparent abuse with the employee or days off without pay.

An effective sick leave usage policy from the City of Lorain reads: "All bargaining unit employees shall be required to furnish a signed sick leave form to his/her supervisor within forty-eight hours of his return to work to justify the use of sick leave or the employee will not be paid for the use of sick leave on the next scheduled pay-day and disciplinary action may be implemented . . . If medical attention is required *or* if the employee is absent for three or more consecutive work days, a certificate stating the nature of the illness from a licensed physician shall be required to justify the use of sick leave."

Financial Implication: Based on an average employee wage of $20 per hour, the payment of sick leave (not including 3 personal days that union members receive) cost MVSD approximately $87,000 in 2000. If MVSD could reduce the amount of sick leave to the average of 12-month government workers of about five days per year per hourly employee, MVSD could realize an annual cost savings of approximately $80,000. This cost savings should be realized through a reduction in overtime and includes overtime wages and benefits. Better management of sick leave, along with other recommendations made in this report (see **R3.14**, **R3.16**, **R3.17**, **R3.18**, and **operations** and **field maintenance** sections) should largely eliminate the need to use overtime to accomplish routine work.

F3.36 MVSD's Personnel Policy Manual states that vacation requests must be made at least 24 hours in advance. However, requests of an emergency nature or due to special circumstances will be granted at the supervisor's discretion in accordance with the best interests of MVSD. The union contract says that the employee may take one-day vacations provided they receive permission in advance from their immediate supervisor. MVSD's payroll records demonstrate that employees often take less than a full-day vacation. This practice could cause unnecessary overtime or call-in pay costs.

F3.37 MVSD's union contract states that vacations shall be scheduled according to seniority of the employees, the operating needs of the department, and, to the extent possible, the written request of the employee. There is not a formal process that is documented, and in the past, each division manager awarded vacation time following different procedures. Recently, a common process for awarding vacation time was implemented by all divisions. Under the current process, at the end of each year, the department head solicits vacation requests from the employees and then awards vacation time by seniority. Once all vacation requests are submitted and vacation is awarded, each employee is assured to receive those approved dates.

F3.38 **Table 3-6** shows the amount of vacation used in the year 2000 and total vacation accumulated as of December 31, 2000 at MVSD.

Table 3-6: Vacation Leave Usage, 2000

Division	Number of Employees[1]	Vacation Days Taken	Average Vacation Days Taken Per Employee	Accumulated Vacation Days @ December 31, 2000	Average Accumulated Vacation Days Per Employee
Management and Administrative[1]	8	197	24.6	299	37
Purification[1]	11.5	185	16.1	105	9
Pumping	9	179	19.9	104	12
Field Maintenance	8	190	23.8	150	19
Security	2.5	27	10.8	28	11
Totals	39.0	778	19.9	686	18

Source: MVSD Vacation Accrual Report

[1]There are employees included in these numbers that may no longer be actively employed at MVSD. However, because they used vacation in the year 2000, they are included in this analysis.

Both management and hourly staff took the majority of their vacation time earned in 2000. Management accrued just over five weeks of vacation, on average, in 2000, and as **Table 3-6** shows, management used an average of about five weeks of vacation in 2000. Hourly staff accrued just under four weeks of vacation in 2000, and used just under four weeks of vacation in 2000. However, both management and hourly employees have accumulated significant vacation time from previous years (for a detailed analysis of vacation accrual schedule see **Table 3-4**). Management use of compensation time does not appear to be a major factor in vacation accrual for management. For example in calendar year 2000, each manager earned an average of 17.6 hours or about two days of compensation time and used an average of about 20 hours compensation time or about two and one-half work days. Compensation time available as of December 31, 2000 was about four hours per manager.

While MVSD employees used much of the vacation earned in 2000, both management and hourly staff have accumulated vacation time from previous years. On average, each management or administrative employee has accumulated over seven weeks of vacation and hourly staff about two and a half weeks as of December 31, 2000. The union contract states that vacation leave shall be taken by the employee during the year in which it accrued and prior to his next employment anniversary date. Employees may in special and meritorious cases approved by the chief engineer, carry over his vacation leave to the following year provided, however, no vacation leave shall be carried over more than 3 years. Therefore, employees who earn the maximum amount of vacation of 6 weeks per year can potentially accumulate 90 days

of vacation or 18 weeks. Any vacation accumulated beyond this maximum is lost upon retirement.

R3.17 MVSD should formalize its process for scheduling vacation and should enforce contract provisions stating that hourly employees may be required to take a minimum of eight hours per vacation usage. The process should become part of the employee personnel manual and should be adhered to by all divisions and employees. Employees should submit a form at the end of each year that requests vacation days throughout the year. Once the vacation time is approved by the immediate supervisor, the form should be signed by the supervisor and the employee, and kept in the employee personnel file. Vacation time requested outside of the annual award process should be made at least two weeks in advance. MVSD should negotiate to require at least two weeks advance requests for vacation time. If vacations are scheduled further in advance and only permitted in a minimum of eight hour increments, MVSD has a much better chance of covering for the person taking off and avoiding excessive overtime costs. When an employee is permitted to take vacation with little notice, and the shift must be covered, management is forced to cover the shift with an employee who must be called-in or with an employee that is asked to stay past his regular shift, which causes overtime. Formalizing a consistent process and enforcing current contract provisions should help eliminate any potential problems that current practices may create and ensure a fair and consistent process for all hourly staff.

F3.39 The three-year average overtime paid and average number of hours worked by division at MVSD is shown in **Table 3-7**.

Table 3-7: Average Overtime Usage, 1998- 2000

Division	Average Overtime Paid[1]	Percent of Overtime Cost	Average Hours	Percent of Overtime Hours
Purification	$121,206	61%	4,922	60%
Pumping	$49,003	25%	2,019	25%
Field Maintenance	$28,847	14%	1,239	15%
Total	$199,057	100%	8,180	100%

Source: MVSD Employee W-2's

[1]The employee's base wage was calculated using his hourly rate and annual number of regular paid hours. This figure was deducted from his W-2 wage and the excess is considered overtime paid. Average overtime costs include wages only and does not include the cost of benefits associated with these wages.

As shown in **Table 3-7**, on average, 8,180 hours of overtime have been worked per year or more than 157 hours per week. The average hours of overtime worked per hourly employee for 1998 through 2000 is 270 hours. The average number of days worked in overtime per employee for the three years is approximately 34 days. The average annual overtime cost per

employee for those three years, including benefits, is approximately $8,200. As of June 22, 2001, total overtime paid is $80,968 and total overtime hours worked is 3,013. This appears to be consistent with the average for the past three years. The percentages of hours worked and paid by division in 2001 also appear to be consistent with the above analysis.

As **Table 3-7** shows, the purification division incurs the highest amount of overtime, followed by pumping and then field maintenance. Some percentage of the overtime incurred by purification and pumping could be attributed to employees from those divisions performing work for the field maintenance division. Because field maintenance is understaffed, there is almost always an opportunity for voluntary overtime to accomplish the work that is necessary to be completed. Overtime is tracked by employee in the payroll system and not by specific division. Therefore, overtime that is being performed in the field maintenance division by purification and pumping employees is reflected in those respective divisions. If this overtime was charged by division, the field maintenance percentage of overtime would be much greater.

F3.40 Management does not actively carry out an effective disciplinary process, which hinders MVSD's ability to effectively manage leave time. According to management, most disagreements between employees and management are resolved in-house to avoid a temporary loss of staff, which would exacerbate currently low staffing levels. There have only been five grievances filed by MVSD employees in the past three years. Discussions with MVSD management, combined with the low number of grievances filed, indicates few disciplinary actions are initiated at MVSD. Not initiating these actions compromises the disciplinary process and also deprives management the opportunity to better mange MVSD operations and address leave abuse.

F3.41 MVSD does not out-source any of the work performed at MVSD. The chief engineer thinks the union could successfully contest any attempts to contract out any type of service that can be provided by union employees. The union contract language on outsourcing is written such that it may practically prohibit MVSD from outsourcing any functions (see **F3.31** and **R3.14**). If MVSD could out-source certain functions, it might be able to eliminate some of the overtime accumulated by hourly workers and reduce costs. For example, janitorial and grounds-keeping activities may be good candidates for outsourcing (see the **field maintenance** and **operations** sections for outsourcing recommendations).

F3.42 Although MVSD only includes holidays as time worked, it pays employees overtime for all hours in excess of eight in a 24-hour period. The Fair Labor Standards Act (FLSA) requires a premium wage (i.e., overtime) to be paid for hours worked in excess of 40 during a given work week. These requirements are also reflected in Ohio law (ORC 124.18). In determining the total hours worked, an organization is not required to include hours in active pay status when work is not actually performed. Examples of hours that are not required to be included as time worked include sick leave, personal leave, professional leave, vacation leave, and holiday leave.

R3.18 MVSD should take steps to eliminate its excessive overtime costs. Overtime should typically only be used to compensate for unexpected leave time or emergency situations. The overall savings, including wages and benefits, resulting from taking steps to eliminate overtime for the year 2000, could have been up to $181,000. By comparison, the annual three year average overtime costs, including benefits, is approximately $249,000. Therefore, in an average year, eliminating about $181,000 of overtime would leave about $70,000 for MVSD to cover overtime needs. Steps MVSD should take to reduce overtime costs include the following:

- Improve management of sick **(R3.16)**, vacation **(R3.17)**, and other leave use;
- Employ enough hourly workers to cover all shifts and have adequate staffing for routine work (see staffing recommendations and financial implications in **R2.4** and **R6.1**);
- Examine possibilities for contracting out or hiring temporary seasonal employees to reduce overtime costs. However, MVSD should ensure that contracting out costs less than the overtime cost and the cost to hire a new staff person (see recommendations and financial implications in **R5.3** and **R6.1**); and
- Negotiate overtime policy to be in line with the minimum requirements set forth by the FLSA, so that MVSD only pays overtime for hours worked in excess of 40 in a one week period.

Financial Implication: Because MVSD does not track overtime by categories, such as reason for use or type, it is not possible to estimate the precise savings resulting from this recommendation. However, subtracting the estimated total cost savings from other recommendations from the total 2000 overtime costs, indicates a savings of about $22,000 by changing overtime policy. Other recommendations account for $159,000 of the total estimated $181,000 in savings from the all recommendations in the report. As indicated in this recommendation, the estimated overtime cost savings still allows for MVSD to have nearly $70,000 available to cover overtime costs. See **R3.16, R5.1, R5.3,** and **R6.1** for other overtime cost savings estimates.

Compensation and Benefits

F3.43 **Table 3-8** through **Table 3-11** show the hourly compensation for selected hourly positions (water plant operator, water plant mechanic, electrician and field maintenance worker) at MVSD in comparison to the union employees of the peers.

Table 3-8: Comparison of Water Plant Operator Compensation

Water Plant Operator	MVSD	Akron	Lima	Toledo	Peer Average	MVSD Percent Above Peer Average
Average Hourly Wage (Excluding PERS Pickup)	$18.29	$16.70	$16.76	$18.05	$17.17	6.5%
Value of PERS pickup paid by Entity	$1.70	$0.00	$0.00	$1.68	$0.56	N/A
Employee Healthcare Contributions	N/A	N/A	N/A	N/A	N/A	N/A
Total Average Hourly Employee Wage	$19.99	$16.70	$16.76	$19.73	$17.73	12.7%
Cost of Doing Business Factor[1]	1.10	1.28	1.11	1.00	1.13	N/A
Adjusted Average Hourly Employee Wage	$21.99	$21.38	$18.60	$19.73	$19.90	10.5%

Source: MVSD and peer union contracts

[1]The CODBF adjusts for regional differences in costs using a figure that accounts for area differences in wages and utility costs between MVSD and peers. Wage differences account for 85 percent of the factor and utility costs 15 percent.

Table 3-9: Comparison of Water Plant Mechanic Compensation

Water Plant Mechanic	MVSD	Akron	Lima	Toledo	Peer Average	MVSD Percent Above Peer Average
Average Hourly Wage (Excluding PERS Pickup)	$18.55	$17.55	$17.31	$18.05	$17.64	5.2%
Value of PERS pickup paid by Entity	$1.72	$0.00	$0.00	$1.68	$0.56	N/A
Employee Healthcare Contributions	N/A	N/A	N/A	N/A	N/A	N/A
Total Average Hourly Employee Wage	$20.27	$17.55	$17.31	$19.73	$18.20	11.4%
Cost of Doing Business Factor	1.10	1.28	1.11	1.00	1.13	N/A
Adjusted Average Hourly Employee Wage	$22.30	$22.46	$19.21	$19.73	$20.47	9.0%

Source: MVSD and peer union contracts

Table 3-10: Comparison of Electrician Compensation

Electrician	MVSD	Akron	Lima	Toledo	Peer Average	MVSD Percent Above Peer Average
Average Hourly Wage (Excluding PERS Pickup)	$18.55	$17.55	$18.47	$18.05	$18.02	2.9%
Value of PERS pickup paid by Entity	$1.72	$0.00	$0.00	$1.68	$0.56	N/A
Employee Healthcare Contributions	N/A	N/A	N/A	N/A	N/A	N/A
Total Average Hourly Employee Wage	$20.27	$17.55	$18.47	$19.73	$18.58	9.1%
Cost of Doing Business Factor	1.10	1.28	1.11	1.00	1.13	N/A
Adjusted Average Hourly Employee Wage	$22.30	$22.46	$20.50	$19.73	$20.90	6.7%

Source: MVSD and peer union contracts

Table 3-11: Comparison of Field Maintenance Worker Compensation

Field Maintenance Worker	MVSD	Akron	Lima	Toledo	Peer Average	MVSD Percent Above Peer Average
Average Hourly Wage (Excluding PERS Pickup)	$16.60	$15.27	$16.76	$15.39	$15.81	5.0%
Value of PERS pickup paid by Entity	$1.54	$0.00	$0.00	$1.43	$0.48	N/A
Employee Healthcare Contributions	N/A	N/A	N/A	N/A	N/A	N/A
Total Average Hourly Employee Wage	$18.14	$15.27	$16.76	$16.82	$16.28	11.4%
Cost of Doing Business Factor	1.10	1.28	1.11	1.00	1.13	N/A
Adjusted Average Hourly Employee Wage	$19.96	$19.55	$18.60	$16.82	$18.32	8.9%

Source: MVSD and peer union contracts

Table 3-12: Average Compensation for Four Position Classifications[1]

	MVSD	Akron	Lima	Toledo	Peer Average	MVSD Percent Above Peer Average
Adjusted Average Hourly Employee Wage	$21.64	$21.46	$19.23	$19.00	$19.90	8.7%

Source: MVSD and peer union contracts

[1]Includes the positions compared in **Tables 3-8** to **3-11**, which make up 41 percent of the unionized workforce at MVSD.

The comparisons in **Tables 3-8** to **3-12** include the base hourly rate and not supplemental or overtime earnings, take into account the value of retirement costs paid by the entity, and any employee related healthcare contributions paid by the employer. To take into account regional economic factors, the total wages, the retirement benefits, and employee contributions were adjusted for a cost-of-doing-business factor to yield an estimated adjusted average employee compensation package. The selected job classifications for this analysis represent approximately 41 percent of the union employees at MVSD.

As shown in **Table 3-8** to **Table 3-12**, the adjusted average hourly employee wage at MVSD is consistently higher than that of the peer average in all four selected job classifications. **Table 3-12** shows the aggregated average wage for the four classifications selected for this analysis at MVSD is 8.7 percent higher than the total average wage of the hourly employees of the peers in the same classifications. The water plant operator at MVSD is paid 10.5 percent more than the peer average for that position. The water plant mechanic is paid 9.0 percent more than the peer average. The electrician is paid 6.7 percent more than the peer average and the field maintenance worker at MVSD is paid 8.9 percent more than the peer average.

MVSD employees are paid a set hourly rate for each job classification. The peer water departments have a base rate established and receive step increases, usually at the end of each service year, with a satisfactory performance evaluation. Within the peer entities, the number of steps vary from a minimum of four to a maximum of seven. The percentage increases vary depending upon the entity and the job classification. The average range of increase from the base to the maximum hourly rate ranges from 10 percent to 30 percent. **Table 3-8** to **Table 3-11** use the highest level of hourly wage for each of the peers when comparing to the hourly rate of MVSD employee.

F3.44 MVSD pays the employer share of the Public Employees' Retirement System (PERS) contribution of 13.55 percent and the employees' share of 8.5 percent. Toledo is the only peer that mirrors this practice. The PERS payment was negotiated in MVSD union contracts that were effective from 1985 to 1988. It was a concession made by MVSD to the employees in exchange for the forfeiture of cost of living adjustment (COLA) increases for the three-year term of the contract.

F3.45 **Table 3-13** compares MVSD union employees' average base hourly wage with those of the peers and surrounding localities. The base hourly wage is adjusted with the cost-of-doing-business factor, but does not include any adjustments for the employers' payment of the employees' PERS contribution or the employees' healthcare contribution.

Table 3-13: Comparison of Employee Wages[1]

	MVSD	Akron	Lima	Toledo	Niles	Youngs-town	Warren	Girard	Peer & Region Average	MVSD Percent Above Peer Average
Electrician	$20.41	$22.46	$20.50	$18.05	$20.41	$21.20	N/A	N/A	$20.52	(0.6)%
Mechanic	$20.41	$22.46	$19.21	$18.05	$16.26	$17.29	$15.74	$17.62	$18.09	12.8%
Painter	$19.91	$21.38	N/A	$18.05	N/A	N/A	$15.74	N/A	$18.39	8.3%
Plant Operator	$20.12	$21.38	$18.60	$18.05	$14.65	N/A	$14.75	$17.23	$17.44	15.3%
Average	$20.21	$21.92	$19.44	$18.05	$17.11	$19.25	$15.41	$17.42	$18.37	10.0%

Source: MVSD and peer union contracts and SERB Clearinghouse Benchmark Report

[1] SERB Clearinghouse report does not provide regional organizations' PERS contribution or healthcare contributions, therefore the wages in **Table 3-13** of MVSD and the peers differ from **Table 3-8 to Table 3-12** because those amounts are not included in the calculation of hourly wage

Table 3-13 shows the average base hourly wage for union employees at MVSD is approximately 10 percent higher than the calculated average of the peers and the surrounding areas. Furthermore, Akron is the only entity in the analysis that has an average hourly rate that is greater than MVSD's average hourly rate. This further supports the conclusion that hourly staff wages at MVSD are high.

R3.19 MVSD should negotiate compensation levels more in line with peers and surrounding localities. One option would be to negotiate smaller cost of living adjustments in future contracts. Another option is to negotiate that MVSD employees pay the employee share of the PERS contribution. This would not only generate a savings presently, but that savings would increase each time that MVSD provides an hourly increase in the base wage of its employees. Getting hourly employees pay more in conjunction with peers will help reduce high staff costs and ultimately reduce operating costs and the cost of supplying water to MVSD customers. Reducing compensation levels will also provide potential revenue for future capital improvements.

MVSD should also consider negotiating entry level hourly rates at less than the present employees' rate and initiating a step increase plan. Small differences in entry-level hourly wages can have a large impact on personnel services costs as step increases, retirement, insurance, overtime and subsequent negotiated increases are all based upon the initial hourly wage amount.

Financial Implication: Assuming an average payroll of $1.6 million, if MVSD would require the employees to make their own PERS contribution of 8.5 percent of gross wages, this

would realize a savings to MVSD of approximately $136,000 annually. This savings would increase as staffing levels increase and as compensation levels rise through COLA increases.

F3.46 **Table 3-14** shows the average wage for a division manager at MVSD compared to the peers. **Table 3-15** shows the average wage for an assistant division manager at MVSD compared to the peers. The analysis uses the employees' base annual wage, which does not include any supplemental or overtime earnings. The analysis takes into account the value of retirement costs paid by MVSD and the peers, and any employee related healthcare contributions required by the employees. This wage is then adjusted for a cost of doing business factor which takes into consideration the regional economic factors.

Table 3-14: Comparison of Division Manager Compensation Packages

	MVSD	Akron	Lima	Toledo	Peer Average	MVSD Percent Above Peer Average
Average Salaries (Excluding PERS Pickup)[1]	$45,646	$57,897	$48,971	$58,815	$55,228	(17.4)%
Value of PERS pickup paid by Entity	$4,240	$0	$0	$5,464	$1,821	N/A
Employee Healthcare Contributions	N/A	N/A	N/A	N/A	N/A	N/A
Total Average Employee Compensation Package	$49,886	$57,897	$48,971	$64,279	$57,049	(12.6)%
Actual Hours Worked During the Day	8	8	8	8	8	N/A
Actual Hours per Year	2,080	2,080	2,080	2,080	2,080	N/A
Adjusted Compensation Package for the Hourly Rate Based on the Actual Time Worked	$23.98	$27.84	$23.54	$30.90	$27.43	(12.6)%
Cost of Doing Business Factor	1.10	1.28	1.11	1.00	1.13	N/A
Adjusted Average Hourly Employee Compensation Package	$26.38	$35.63	$26.13	$30.90	$30.89	(14.6)%

Source: MVSD wage resolution and peer human resource directors.
[1]Employees' base annual wage does not include any supplemental or overtime earnings

Table 3-15: Comparison of Assistant Manager Compensation Packages

	MVSD	Akron	Lima	Toledo	Peer Average	MVSD Percent Above Peer Average
Average Salaries (Excluding PERS Pickup)	$42,377	$43,108	$42,578	$47,374	$44,353	(4.5)%
Value of PERS pickup paid by Entity	$3,937	$0	$0	$4,401	$1,467	N/A
Employee Healthcare Contributions	N/A	N/A	N/A	N/A	N/A	N/A
Total Average Employee Compensation Package	$46,313	$43,108	$42,578	$51,775	$45,820	1.1%
Actual Hours Worked During the Day	8	8	8	8	8	N/A
Actual Hours per Year	2,080	2,080	2,080	2,080	2,080	N/A
Adjusted Compensation Package for the Hourly Rate Based on the Actual Time Worked	$22.27	$20.73	$20.47	$24.89	$22.03	1.1%
Cost of Doing Business Factor	1.10	1.28	1.11	1.00	1.13	N/A
Adjusted Average Hourly Employee Compensation Package	$24.49	$26.53	$22.72	$24.89	$24.71	(0.9)%

Source: MVSD wage resolution and peer human resource directors.
[1]Employees' base annual wage does not include any supplemental or overtime earnings

As **Table 3-14** illustrates above, the average wage for a division manager at MVSD is approximately 14.6 percent lower than that of a division manager of the peers. **Table 3-15**

shows that the average wage for an assistant division manager at MVSD is only slightly lower than that of the peers.

The AWWA strongly recommends that governing boards and water utility managers establish fair and equitable compensation policies that reward the critical elements of protecting the public health and that are competitive with other industries, utilities, and professional services in their service area. It is recognized that public water services contribute directly and indirectly to the general health and well-being of the communities they serve and that implemented compensation programs and strategies should be designed to attract, reward and retain highly qualified managerial, professional, technical, and operating personnel. Therefore, the AWWA urges the adoption of compensation policies and programs to attract and retain employees competent to manage and operate water systems in a manner that will assure safe and satisfactory water service to the consuming public.

R3.20 The BOD at MVSD should adjust management salaries so that they are more comparable with the peer water districts. Benefits, as with salaries, should also be in accordance with general practices of other industries, utilities, and professional services in their service areas. Management salary increases should be done initially in conjunction with implementing the restructuring plan recommended in the **organizational management** (**R2.4**) section of this report.

A periodic review of management salaries should be performed every other year, possibly by the personnel committee also recommended in the **organizational management** (**R2.6**) section. By increasing management salaries and ensuring that they are comparable with surrounding areas and like industries, MVSD will benefit by retaining the expertise of experienced management. Current management salaries could be increased gradually under a pay-for-performance system based upon annual evaluations. An equitable compensation program should include:

- Equal compensation for work of equivalent responsibility;
- Periodic review of the utility's compensation plan and compensation in related industries in both the public and private sector, with periodic compensatory adjustment to maintain a competitive salary base;
- Special attention to current conditions and trends in employee benefits because benefits represent a significant portion of the total payroll;
- A method of rewarding employees for competent service;
- Employee retention plans, including succession planning that offers utility employees work opportunities and special assignments that develop the knowledge, skills, and abilities required in more responsible and/or promotional positions designed to maintain continuity and stability in water utility operations; and
- Regular review of position descriptions to ensure they reflect operational and technological changes that might impact compensable factors.

Financial Implication: If MVSD would increase the current division managers' wages by 17 percent to be comparable with the peers, the cost to MVSD would be approximately $20,000 annually which would include the increase in wages and benefits.

F3.47 **Table 3-16** shows the additional payments earned by union employees at MVSD compared to the peers.

Table 3-16: Additional Payment Schedule

Payment Types	MVSD	Akron	Lima	Toledo
Shift Differential	None	None	"One-step" premium for all hours on shifts starting between 3 p.m. & 7 a.m.	As follows: $0.40 per hour for afternoon $0.50 per hour for evening
Meal Allowance	$ 5 meal for working 12 or more consecutive hours	None	None	$4 meal when working 16 consecutive hours, more than 8 hours of overtime, or more than 4 hours of emergency overtime
Standby	No	No	No	No
Dirty & Disagreeable / Hazard	1.5 to 2 times hourly rate[1]	None	None	$0.40 per hour
License **Class I:** **Class II:** **Class III:**	As follows: $16 per week $30 per week $40 per week[2]	As follows: $10 per week $15 per week $20 per week	None	None
Longevity	1-10 years: $27 per year[3] 10-20 years: $30 per year 20-30 years: $33 per year	5 years: $500 10 years: $550 15 years: $600 20 years: $650 25 years: $700[5]	10 years: $550 15 years: $900 20 years: $1250 25 years: $1600[5]	5 years: 2% 10 years: 4% 15 years: 6% 20 years 8%[4]
Employee Healthcare Contribution	None	None	None	None

Source: MVSD and peer union contracts

[1]Dirty and disagreeable pay is paid at the discretion of the chief engineer, depending upon the circumstance, and is generally not paid during normal working hours.

[2] The license pay at MVSD has been converted from an hourly rate to a weekly rate so that it is comparable to the peers.

[3]Paid after one full year of service.

[4]Payment is the % of the employee's annual base wage based on rates in effect on July 1, 1976

[5] Payment is made annually once the employee reaches the initial service years requirement.

Overall, there is not a significant difference in the additional pay that employees receive at MVSD compared to the peers. None of the peers require their employees to contribute to

their healthcare premium costs. However, unlike MVSD, all of the peers participate in a self-insurance program.

Employees at MVSD do receive a meal allowance when working 12 or more hours per day. Toledo is the only peer that offers this benefit to its employees. MVSD's meal allowance is more generous than Toledo, however the financial implication to MVSD is minimal. MVSD's dirty and disagreeable pay is paid at one and one-half to two times the regular rate of pay. This is also more generous than Toledo, who is the only peer to offer this pay, but the chief engineer at MVSD says that this is only paid in extreme emergencies at his discretion. MVSD employees receive a premium per hour depending on the level of license they have achieved. Currently, this is only paid to the purification workers at MVSD. Class I is 60 percent higher than the license pay of an Akron worker and Class II and III at MVSD is 100 percent higher than an Akron worker. Combined with the fact that MVSD's average hourly operator rate is higher than all of the peers, this makes the licensed hourly workers' pay in purification even higher than illustrated in **Table 3-8.**

MVSD employees do not receive a shift differential for working afternoon or midnight turns as do two of the peers. MVSD pays annual longevity payments to its employees earlier than the peers, however when calculating the total amount paid to an employee over a 30-year period, the peer average is approximately 30 percent higher than the total pay out at MVSD. The peer average total pay out for 15 years is approximately 34 percent higher than MVSD. Although the percentages over the length of an employee's career at MVSD appear to be significantly lower than the peer average, over a 30-year period, an employee at MVSD receives an average of $147 less annually than the peers.

R3.21 In future contract negotiations, MVSD should consider renegotiating certain additional payments made to MVSD union employees. Although there is not a significant difference in additional payments made to MVSD employees, these payments increase the disparity between MVSD compensation and that of peers and surrounding localities. Reducing some of the additional payments is another option for bringing down MVSD's high compensation costs. The savings gained from reducing certain additional payments could also become more significant in the future. For example, as workers get promoted or earn higher license certifications the savings from reducing additional payments would increase. MVSD should consider addressing the following additional payments in future contract negotiations:

- Meal allowance;
- Dirty and disagreeable pay;
- License pay; and
- Lack of an employee healthcare contribution.

Although the savings currently to MVSD would not be significant, such changes could help bring down excessive compensation costs. Also, as the workforce increases, and employees

reach higher license certifications and if recommendations made in the **operations** section of this report (**R5.7**) are implemented and pumping operators are required to obtain license requirements, the savings to MVSD by reducing the license pay could become more significant in the future.

F3.48 **Table 3-17** compares the healthcare costs at MVSD with the healthcare cost of the peers.

Table 3-17: Health Care Costs Comparison, 2001[1]

Entity	MVSD	Lima[2]	Toledo[2]	Peer Average	MVSD Percent Above Peer Average
Providers	Anthem Blue Cross and Blue Shield: Preferred Provider Option Health Maintenance Plan	The City of Lima Medical Benefits Plan	City of Toledo, Ohio Employee Health Benefit Plan		
Monthly Premium for Single Plan	PPO: $323.98 HMP: $382.51	$403.45	$212.21	$307.83	PPO: 5.2% HMP: 24.3%
Full-Time Employee Share	PPO: None HMP: None	None	None	N/A	N/A
Monthly Premium for Family Plan	PPO: $960.72 HMP: $1,105.43	$1,053.96	$517.69	$785.83	PPO: 22.3% HMP: 40.7%
Full-Time Employee Share	PPO: None HMP: None	None	None	N/A	N/A
Self Insured	No	Yes	Yes	N/A	N/A

Source: MVSD healthcare invoice for July, 2001and interviews with peer benefits administrators.
[1]Premiums include healthcare coverage and prescription coverage, but not dental or vision coverage.
[2]The peer entities in the table are self-insured. They do not pay actual premiums. Claims are paid in full by the cities. The premium listed for the peers is a calculated actuarial figure that reflects the cost the cities incur for a single and family plan.

The peer premiums included **Table 3-17** are an actuarial calculation for the year 2001. It is based on the actual cost per single and family plan that the peer incurs for their employees.

This is the payment amount that a terminated employee would have to pay to keep his health insurance coverage in effect after leaving the employment of the respective city. Akron is not included in **Table 3-17** because comparable single and family rates could not be provided.

F3.49 MVSD's PPO premium for a single plan is 5.2 percent higher than the peer average. MVSD's PPO family rate is 22.3 percent higher than the peer average. MVSD's HMP single premium is 24.3 percent higher than the peer average and the HMP family rate is 40.7 percent higher than the peers.

F3.50 The co-pay for prescription drugs under MVSD's HMP plan is $3. The co-pay for prescription drugs under MVSD's PPO plan is $5.00 for generic drugs and $12 for brand name drugs whether purchased at a member pharmacy or by mail-order. A 30 day supply of the prescription drug can be purchased at a member pharmacy and a 60 day supply can be purchased by mail-order. MVSD has established a Prescription Savings Account (PSA) in the amount of $3,696 per contract year. Amounts not utilized in one year roll over to the succeeding contract year. The purpose of the PSA is to offset the difference between the $5 prescription co-pay and the $12 prescription co-pay, which is $7. Employees who attempt to purchase a prescription as generic, but are unsuccessful, are eligible to receive $7 per prescription from MVSD. Bargaining unit employees enrolled in Anthem PPO are eligible for approximately 26 prescription reimbursements per year. If monies are still available in the fund at year end (June 30 of each year) an equal disbursement is made amongst employees exhausting their approximately 26 prescription total. Verification of purchases are required. Employees hired after July 1, 1997 are not eligible for this benefit.

F3.51 **Table 3-18** compares the dental and vision premiums of MVSD to that of Toledo. Lima is not included in this table because an actuarial premium was not calculated.

Table 3-18: Dental and Vision Costs Comparison, 2001

Entity	MVSD	Toledo	MVSD Percent Above Peer Average
Providers	Anthem Blue Cross and Blue Shield AFSCME	City of Toledo, Ohio Employee Health Benefit Plan	
Monthly Premium for Single Plan	PPO: $48.25 HMP: $48.25 AFSCME: $24.50[1]	$19.63	PPO: 145.8% HMP: 145.8% AFSCME: 24.8%
Monthly Premium for Family Plan	PPO: $136.13 HMP: $150.87 AFSCME: $24.50[1]	$49.10	PPO: 177.3% HMP: 207.3% AFSCME: (50.1)%
Self Insured	No	Yes	N/A

Source: MVSD healthcare invoice for July 2001, AFSCME benefit booklet and interviews with peer benefits administrators.

[1] MVSD pays $24.50 to AFSCME who provides union members with dental and vison coverage.

There is no employee contribution for dental and vision benefits for MVSD or Toledo. Salaried employees are covered by Anthem Blue Cross and Blue Shield. MVSD pays a premium of $24.50 to AFSCME who supplies dental and vision coverage for union employees under the Ohio AFSCME Care Plan. As **Table 3-18** demonstrates, MVSD dental and vision premiums, with the exception of the AFSCME family dental and vision plan is significantly higher than Toledo.

F3.52 A report on the Cost of Health Insurance in Ohio's Public Sector was completed by the State Employee Relations Board (SERB). Based on the 2000 study, approximately 65 percent of the responding employers required their employees to pay a portion of the cost of a family plan. Fifty-one percent required their employees to share the cost for the single plan. When employees pay a portion of the premium cost for medical coverage, their monthly contributions average $23.41 and $66.68 for single and family coverage, respectively. These rates amount to 10.8 percent of the cost of a single plan and 12.1 percent of the monthly family premium.

F3.53 **Table 3-19** compares MVSD's monthly medical premiums to public entities in Ohio. The comparison group was chosen by jurisdiction, region, and number of covered employees.

Table 3-19: Monthly Medical Premium Cost Comparison, 2001[1]

	MVSD - PPO[3]	Special Districts (Includes Sanitary Districts)[2]	Warren/ Youngstown[2]	Entities In Ohio With Less Than 50 Employees[2]	Average of Jurisdiction/ Region/ Employees Covered	MVSD Percent Above Peer Average
Single Premium	$282.51	$242.44	$276.67	$241.16	$253.42	11.5%
Family Premium	$837.75	$628.89	$652.97	$633.30	$638.39	31.2%

Source: MVSD healthcare invoice for July 2001and 2000 SERB Report of the Cost of Health Insurance in Ohio's Public Sector.

[1] The monthly medical premium includes medical only, and does not include prescription, dental or vision coverage.

[2] The SERB report for 2001 is not available at this date. Therefore, the 2000 report was used and adjusted for inflation to calculate the 2001 premiums based on the percentage increase of premiums from 1999 to 2000. The SERB survey included 39 respondents for Special Districts, 46 respondents for the Warren/Youngstown region and 191 respondents for employers with less than 50 covered employees.

[3] MVSD's HMP plan is not included in this analysis because the medical premium includes prescription coverage and would not be comparable to these medical only premiums.

Table 3-19 demonstrates that MVSD's PPO single medical premium is 11.5 percent higher than the average for a similar public entity in the state of Ohio. The PPO family monthly premium at MVSD is 31.2 percent higher than the average.

F3.54 **Table 3-20** compares MVSD's total costs of all insurance benefits to public entities in Ohio. The costs included in this analysis include medical, prescription coverage, dental, vision and life insurance.

Table 3-20: Comparison of Total Health Care Costs, 2001[1]

	MVSD	Special Districts (Includes Sanitary Districts)[2]	Warren/ Youngstown[2]	Ohio Entities With Under 50 Employees[2]	Average of Jurisdiction/ Region/ Employees Covered	MVSD Percent Above Peer Average
Single Premium	PPO Salary: $401.48 PPO Union: $366.23 HMP Salary: $460.01 HMP Union: $424.76	$274.38	$339.83	$292.28	$302.16	PPO Salary: 32.9% PPO Union: 21.2% HMP Salary: 52.2% HMP Union: 40.6%
Family Premium	PPO Salary: $1,126.10 PPO Union: $1,002.97 HMP Salary: $1,285.55 HMP Union: $1,147.68	$688.97	$764.89	$721.86	$725.24	PPO Salary: 55.3% PPO Union: 38.2% HMP Salary: 77.3% HMP Union: 58.2%
Total Annual Cost Per Employee	$10,330.66	$6,532.00	$8,019.00	$7,241.00	$7,264.00	42.2%

Source: MVSD healthcare invoice for July 2001and 2000 SERB Report of the Cost of Health Insurance in Ohio's Public Sector

[1] The healthcare costs included in this analysis include medical, prescription, dental, vision, and life insurance.

[2] The SERB report for 2001 is not available at this date. Therefore, the 2000 report was used and adjusted for inflation to calculate the 2001 premiums based on the percentage increase of premiums from 1999 to 2000.

Table 3-20 indicates that MVSD's total healthcare costs are substantially higher than Ohio public entities of similar operations, location, and same size organizations. The individual plans at MVSD compared to the average in **Table 3-20** range from 21.2 percent to 77.3 percent higher than comparable groups. The annual cost per employee at MVSD is 42.2 percent higher than the average cost of the groups in the survey.

F3.55 MVSD procures medical benefits through Specialty Insurance, an independent insurance agent. Each year, Specialty Insurance solicits healthcare providers to ensure that MVSD is receiving the best price for the quality of benefits that they are currently receiving. Some of the reasons that MVSD premiums are higher than average are as follows:

- The age of MVSD's workforce which results in a number of claims and prescription needs;
- MVSD's healthcare plans are more generous than other similar entities, particularly the HMP plan; and
- MVSD cannot effectively competitively bid for a new insurance provider because of the outmoded and generous provisions in its HMP plan and because it offers two

plans to employees, which severely limits an insurer's ability to spread risk across employees in a given plan (16 employees participate in the HMP and 21 in the PPO plan).

F3.56 **Table 3-21** compares the level of coverages and quality of benefits of the healthcare plan at MVSD compared to the peers.

Table 3-21: Health Care Costs Comparison

	MVSD **Anthem Blue Cross/ Blue Shield - PPO, HMP**	**Akron** **Medical Mutual of Ohio**	**Lima** **The City of Lima Medical Benefits Plan**	**Toledo** **City of Toledo, Ohio Employee Health Benefit Plan**
Office Visits	PPO: In-network - $10 co-payment and 100% Out-of-network - 20% co-payment HMP: $0	80% coinsurance after deductible	80% coinsurance for the first $2,000, then 100%	In-network - $10 co-payment and 100% Out-of-network - $10 co-payment and 80 %
Employee Annual Deductible	PPO: In-network- $200 single/ $400 family Out-of-network $400 single/ $800 family HMP: $0	$100 single/ $200 family	$100 single/ $200 family	$100 single/ $200 family
Employee Out of Pocket Maximum	PPO: In-network- $1,000 single/ $2,000 family Out-of-network $2,000 single/ $4,000 family HMP: $1,500 single/ $3,000 family	$625 per person (20% coinsurance) plus deductible	$500 single $1,000 family	No maximum out of pocket
Prescription Plan Included	PPO: No HMO: Yes	Yes	Yes	Yes
Need to Choose Primary Physician	PPO: No HMP: Yes	No	No	No

	MVSD **Anthem Blue Cross/ Blue Shield - PPO, HMP**	**Akron** **Medical Mutual of Ohio**	**Lima** **The City of Lima Medical Benefits Plan**	**Toledo** **City of Toledo, Ohio Employee Health Benefit Plan**
Maternity	PPO: In-network - 100% HMP: Out-of-network-20 % co-payment	100%	100%	In-network - 100% Out -of-network - 80%
Well Child Care	PPO: In-network - $10 co-payment Out-of-network - not covered HMP: $10 co-payment	$150 per policy year $500 total maximum	80% with a $150 annual maximum	In-network - $10 co-payment then 100% with a $500 annual maximum Out-of-network - $10 co-payment then 80% with a $500 annual maximum
Inpatient Hospital Care	PPO: In-network - 100% Out-of-network - 20% co-payment HMP: 100%	100%	100%	In-network - 100% Out-of-network - 80% until a $2,000 coinsurance maximum is met, then 100%
Out Patient Care	PPO: In-network - 100% Out-of-network - 20% co-payment HMP: 100%	100%	100%	In-network - 100% Out-of-network - 80% until a $2,000 coinsurance maximum is met, then 100%

Source: MVSD and peer cities.

F3.57 MVSD's HMP plan is more generous than the peers in the areas of office visits and employee annual deductibles. There is no co-pay for the office visit and the plan has no annual deductible amount. The employee annual deductible under the PPO plan at MVSD is twice as high as the peer deductibles. MVSD's HMP and PPO out-of- pocket maximum is higher than two of the three peer entities. The remaining differences in benefits are minimal.

R3.22 MVSD should take steps to reduce health care costs, particularly since it needs additional dollars to fund financial obligations and expand capital improvements. Some of the options

that MVSD should consider include the following (implementing any of these options would require union agreement):

- Establishing a maximum amount per employee that MVSD pays for healthcare benefits and requiring the employee to pay the difference;
- Requiring employees enrolled in the HMP to pay the difference between the HMP premium and the PPO premium;
- Requiring employees to make a healthcare contribution. Based upon SERB data, a standard level of employee contribution is approximately 10 percent;
- Joining with other public employers, such as Youngstown or Niles, to get a better group rate;
- Negotiating less costly plans that have higher co-pays and higher deductibles;
- Eliminating the prescription savings plan; and
- Offering employees one healthcare plan verses the two that are now available.

Financial Implication: Establishing a maximum amount per employee that MVSD pays for healthcare benefits and requiring the employee to pay the difference could save MVSD more than $85,000, assuming the maximum amount was based upon the average premium cost in the Youngstown/Warren region as reported in the 2000 SERB report. Specifically, MVSD benefits cost about $10,300 per employee, while the cost for public employees in the Warren/Youngstown region is about $8,000 per employee. The difference times the 37 employees receiving benefits is over $85,000.

Financial Implications Summary

The following table summarizes the total estimated savings and implementation costs from the above recommendations. Certain recommendations are dependent on labor negotiations.

Recommendation		Estimated Implementation Cost (Annual)	Estimated Cost Savings (Annual)	Estimated Implementation Cost (One-Time)
R3.1	Hire a part-time human resource/risk manager	$32,000		
R3.9	Obtain EEO training and manuals	$245		$150
R3.10	Establish budget for ongoing training and development	$29,000		
R3.11	Ensure BWC reclassification		$15,000[2]	$47,000
R3.14	Reduce vacation accrual[1]		$7,800	
R3.15	Hire contract negotiation specialist	$4,200		
R3.16	Reduce sick leave usage resulting in overtime savings[1]		$80,000	
R3.18	Implement policies to reduce overtime		$22,000	
R3.19	Require employees to make PERS contribution[1]		$136,000	
R3.20	Increase division manager's wage to be more in line with the peers	$20,000		
R3.22	Establish a maximum payment per employee for healthcare coverage[1]		$85,000	
Total		**$85,445**	**$345,800**	**$47,150**

[1]These recommendations require future contract negotiations.
[2]This savings would start in 2003.

Conclusion

The human resource function at MVSD is not a priority and basic human resource activities are not being carried out. Fundamental policies and procedures not in place include formal employee evaluations, staff development plans, a training plan and budget, EEO policy and various leave management policies. As a result, MVSD faces excessive leave, overtime and compensation costs and its ability to operate efficiently, effectively, and safely is significantly limited. A major contributing factor to these problems is that sufficient resources have not been provided to enable management to carry out the human resource function effectively. MVSD management and the BOD need to significantly improve staff development and union contract negotiation activities, along with the necessary resources and the adoption and implementation of numerous human resource policies and procedures to remedy this situation.

Leave time at MVSD is not managed effectively. For example, sick leave is used as fast as it is accumulated and while MVSD has a policy in place for vacation usage, it is not followed. The lack of sufficient staff at MVSD combined with leave use, cause overtime paid at MVSD to be excessive. It is critical that MVSD establish and implement policies to manage sick, vacation, and other leave along with providing adequate staffing (see **organizational management** for an overview of staffing needs and organizational structure).

A critical step MVSD should take to emphasize the importance of its human capital management is to centralize the human resource function by creating and filling a management level position dedicated to human resource activities. Currently, human resource activities are put off, carried out inconsistently, or are not performed at all because no manager is responsible for these activities and managers have other pressing matters to address that are more directly related to the core operations of MVSD. For example, MVSD does not have an updated personnel manual or position descriptions and lacks key human resource data for analysis and decision making. Current managers may also lack sufficient expertise to effectively carry out the human resource function. A manager with the appropriate expertise, whose primary responsibility is human resources, could address many of MVSD's deficiencies in human resources.

MVSD union contracts and negotiation process are also critical issues that should be addressed. MVSD is incurring excessive compensation and leave costs in large part because its union contracts have unfavorable provisions and are significantly more generous than peers, particularly in terms of employee compensation. Union employees at MVSD earn approximately 8.7 percent more than the peer average and 10 percent more than the average of the peers combined with regional areas. MVSD employees do not contribute the employee share of the PERS contribution, which compounds the cost to MVSD each time employees are awarded an increase in pay. The contracting out and sick leave use provisions are particularly problematic in terms of hindering the ability to efficiently manage MVSD and its staff. MVSD needs to be more systematic in preparing for negotiations by collecting data and performing analysis, such as the analysis done in this report, to both help determine what its bargaining positions should be and to provide factual support and a

detailed rational for the contract terms it seeks. The BOD should consider hiring a negotiation specialist to facilitate an effective negotiation process.

Another key concern is that MVSD is not maximizing the potential of its employees. MVSD needs comprehensive policies and procedures in place to ensure that qualified staff are hired, retained, and developed. This begins with improving the recruiting and hiring process. MVSD needs to identify the competencies, knowledge, skills and behaviors needed to achieve high performance and then build and sustain its talent pool through recruiting, hiring, staff development and retention policies and practices targeted at its missions and goals. For example, division managers at MVSD are paid about 17 percent less than the peer average. In order to attract and retain competent managers, MVSD should increase the division managers' wages, perhaps in conjunction with an annual evaluation process.

The BOD should formally evaluate managers and MVSD managers should perform evaluations for all hourly employees, at least annually. These evaluations should be used to help determine promotions, but just as importantly to create individual plans, for both management and hourly employees, to develop their professional skills and knowledge. Progress on these plans should be a part of subsequent evaluations. These individual staff development plans, legal requirements, and management analysis should be used to develop a training plan and budget for MVSD. Based upon MVSD's high workers' compensation premiums and other safety issues identified in the audit, safety training should be an important part of the training plan.

MVSD also needs to place a greater emphasis on worker safety and accident prevention. MVSD has been experienced rated with the BWC for a number of years which makes their workers' compensation premiums well above the average. However, as of January 1, 2002, because of a mistake made in their classification status, MVSD gets a unique chance to start fresh with no claims experience. This is a perfect opportunity to concentrate on safety and risk management. If MVSD can keep its workers' compensation claims to a minimum, they can continue to reduce the cost of their premiums. Safety training and other risk management issues could be improved by having the recommended human resource manager also focus on risk management activities.

MVSD does not make the management of human resource activities a priority. To be effective, human capital management requires the sustained commitment and attention of management at all levels. Managing the workforce is not a problem for which the organization can supply an answer and then move on. MVSD management must continually monitor and refine its human resource policies and procedures to ensure ongoing effectiveness and continuous improvement.

Planning and Financial Operations

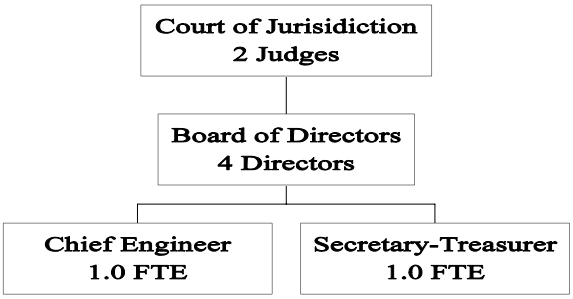
Background

This section summarizes the planning and financial operations within the Mahoning Valley Sanitary District (MVSD). MVSD treats water from the Meander Reservoir and distributes it the member communities of Niles and Youngstown and the Village of McDonald, where the treated water is distributed to residents of those communities. MVSD bills the member communities and McDonald for water supplied on a monthly basis. Comparisons of MVSD's planning and financial operations are made to the peer treatment facilities located in the cities of Akron, Lima and Toledo.

Organizational Chart

The following chart graphically depicts the key planning and financial positions in the organization.

Chart 4-1: Planning & Financial Operations



MVSD's planning and financial operations are completed by the chief engineer and the secretary-treasurer (treasurer) and are overseen by the Board of Directors (BOD). According to the Ohio Revised Code (ORC) section 6115, the BOD is responsible for appointing a secretary and a treasurer. The secretary is designated as the custodian of the records of MVSD and assists the BOD in the performance of its duties. The treasurer is the fiscal officer of MVSD. The secretary can be a member of the BOD or the BOD may choose someone not on the BOD to be secretary. The BOD may appoint a separate treasurer or the secretary may serve as the treasurer. Currently, the secretary also serves as treasurer at MVSD. The BOD may also appoint a chief engineer, who is the superintendent of all public works and improvements.

The primary role of the Court of Jurisdiction (the Court) is to review any rate structure changes or increases recommended by the BOD. The water rate structure determines the amount each

community is charged for water supplied and the BOD is responsible for determining reasonable rates of compensation for water. Upon the determination of the need for a rate change, the BOD makes a report of its determination to the Court. The Court renders a summons to interested parties stating that a rate change has been proposed and hears testimony regarding the increase. Based upon the testimony, the Court can approve or deny the rate increase. MVSD only reviews its water rate structure periodically, when it appears a water rate increase may be necessary to obtain more revenue.

Summary of Operations

The budgeting process is carried out by the treasurer and the chief engineer with minimal accountability or performance measures for all divisions. MVSD's financial forecast is created by the chief engineer, with minimal assistance from the treasurer. A critical part of the forecast is to estimate the revenues generated from the sale of water. MVSD's main source of revenue is from the sale of water to the member communities of Niles and Youngstown, and also McDonald.

The water rate structure determines the amount of revenue collected from each community. In July 1994, MVSD began charging for water based on a bifurcated rate structure approved by the Court. The bifurcated structure consists of two components: one for operations and maintenance and the other for payment of principal and interest on the Series 1994 Water Revenue Bonds. In 1999, MVSD began charging for water based on a fixed/variable non-bifurcated rate structure that is more prevalent in today's utility financial management. MVSD bills McDonald, Niles and Youngstown on a monthly basis based upon the amount of water supplied.

MVSD supplements its water revenue through the issuance of general obligation and water revenue bonds to help cover the cost of capital improvements. MVSD has already issued its maximum limit of general obligation bonds allowed by law. In previous years, MVSD received state funding that was distributed to the member communities because they pay a portion of MVSD's debt, but MVSD does not regularly pursue state or federal grants or low interest loans. MVSD has a capital improvement plan (CIP), but has not updated the plan since 1997. The CIP originated from a capital improvement study conducted by an outside consultant in 1985.

Financial Data and Operational Statistics

Table 4-1 presents MVSD's actual expenditures for FY1998-99 through FY 2000-01 and the budgeted expenditures for FY 2001-02 as presented in the annual reports.

Table 4-1: MVSD Financial Data

Expenditure	FY1999 (Actual)	FY 2000 (Actual)	FY 2001 (Actual)	FY 2002 (Budget)
Personnel Service	$2,424,141	$2,268,130	$2,379,146	$2,731,159
Equipment	13,419	35,329	20,000	0
Supplies & Service	2,031,936	1,894,809	1,833,166	2,364,863
Miscellaneous	25,410	22,752	26,000	31,519
Total	**$4,494,906**	**$4,221,020**	**$4,258,312**	**$5,127,541**

Source: MVSD annual reports
Note: MVSD's fiscal year is July 1 to June 30.

As shown in **Table 4-1**, MVSD's total annual expenditures average more than $4 million. There are some significant variances in expenditure line items. Notable variances in expenditures are a result of the following factors:

- Personnel service expenditures include salaries and benefits and are budgeted to increase 14.8 percent in FY 2002. Expenditures for personnel service decreased by approximately 6.4 percent from FY 1999 to FY 2000 due to the reduction of five employees. Personnel service expenditures are budgeted to increase 14.8 percent in FY 2002. However, MVSD consistently overestimates expenditures for personnel services because this line item is budgeted for a higher number of employees than MVSD actually employs.

- Equipment expenditures for FY 1999-00 ($35,329) were twice as high as equipment expenditures for FY 1998-99 ($13,419) due to the purchase of two new vehicles in FY 1999-00. MVSD purchased new vehicles in FY 2001, but does not anticipate purchasing any new vehicles in FY 2002.

- Expenses for supplies decreased approximately 6.7 percent from FY 1998-99 to FY 1999-00 and approximately 3.3 percent from FY 1999-00 to FY 2000-01 due to MVSD spending less on chemicals. In addition, MVSD entered into an agreement with Ohio Edison in which MVSD was granted a lower electric rate. Supplies are budgeted to increase 29.0 percent in FY 2001-02. However, MVSD's budgeting process lacks sufficient detail to support this increase.

MVSD maintains its accounting records in accordance with the principals of "fund" accounting. Fund accounting is a concept developed to meet the needs of governmental entities in which legal or other restraints require the recording of specific receipts and disbursements. MVSD uses three funds to account for its financial activity: the Maintenance Fund, the Bond Fund, and the Bond Retirement Fund. The Maintenance Fund is required by ORC section 6115.45 and is the operating

fund for MVSD. When MVSD refinanced its 1994 Water Revenue Bonds in December 1999, MVSD began operating with a more traditional financial structure associated with government utility entities. As a result of refinancing the 1994 Water Revenue Bonds, MVSD's Maintenance Fund no longer accounts for the revenue received from the sale of water, or any monies received by MVSD that can be classified as operating or non-operating revenues.

The Bond Fund is required by ORC section 6115.45 and consists of the proceeds of levies made against the special assessments of benefits equalized and confirmed under ORC sections 6115.01 to 6115.79. This fund is also used to account for financial resources to be used for the acquisition or construction of major capital facilities and/or equipment. MVSD records its water revenue receipts into the Bond Fund and transfers a percentage of the water revenue receipts to the Maintenance Fund to pay MVSD's operating expenses. At year-end, any excess funds within the Bond Fund are transferred to MVSD's Replacement Account and/or the Remaining Revenue Account, as required by bond covenant.

The Bond Retirement Fund is required by various bond covenants. It is used to account for the accumulation of resources and for the payment of principal, interest, and related costs. The following lists MVSD's significant Bond Retirement Funds:

- **1998 Series Bond Fund** - This fund is used to account for the accumulation of resources for, and the payment of principal, interest, and related cost of the 1998 Bond Series.

- **1998 Bond Debt Service Reserve Fund** - The interest in this account is utilized to make interest and principal payments when due.

- **Rate Stabilization Account Fund** - This fund was created at the time of refunding of a prior debt. Monies are to be deposited and used by MVSD, as authorized and approved by the BOD, for any lawful purpose.

- **1999 Series Bond Fund** - This fund is used to account for the accumulation of resources to be used exclusively for the payment of the 1999 Series Bond's debt service charges to the extent amounts in the Debt Service Fund are insufficient.

- **1999 Series Bond Debt Service Reserve Fund** - This fund must maintain a certain amount based on the 1999 Series Bond's trust agreement.

Table 4-2 presents the fund balances as of June 30, 2001 for MVSD's Maintenance Fund, Bond Fund and Bond Retirement Fund.

Table 4-2: MVSD's Fund Balances as of June 30, 2001

Fund	Dollar Amount
Maintenance Fund	$928,290
Bond Fund	$1,779,428
Bond Retirement Fund	$8,645,309
Total	$11,353,027

Source: MVSD's FY 2001 Financial Audit

Table 4-3 summarizes MVSD's combined financial information for its Maintenance Fund, Bond Fund and Bond Retirement Fund from FY 1999 through FY 20001.

Table 4-3: MVSD's Financial Information for FY 1999, 2000, & 2001

	FY 1999	FY 2000	FY 2001
Operating Revenue:			
Sale of Water	$6,990,990	$6,983,603	$7,264,239
Levy Receipts	1,764,342	1,739,668	1,729,268
Capital Charge - McDonald	83,867	127,525	87,740
Total Operating Revenue	**$8,839,199**	**$8,850,796**	**$9,081,247**
Non-Operating Revenue:			
Earnings on Investment	$405,948	$292,322	$574,669
Timber Sales	126,431	178,510	156,672
Gas Royalties	24,780	47,336	70,527
Bond Interest Receipts	256,149	204,434	0
Insurance Reimbursement	0	31,601	112,000
Miscellaneous	54,163	41,242	3,903
Total Non-Operating Revenue	**$867,471**	**$795,445**	**$917,771**
Total Operating & Non-Operating Revenue	**$9,706,670**	**$9,646,241**	**$9,999,018**
Operating Expense:			
Personal Service	$2,411,148	$2,254,097	$2,369,799
Equipment	13,419	26,313	9,016
Supplies & Services	2,010,048	1,884,372	1,781,554
Forestry Consultant	7,850	17,851	14,667
Capital Charge - McDonald	83,867	93,899	87,739
Legal	76,523	0	0
Miscellaneous	$47,065	77,094	26,000
Total Operating Expense	**$4,649,920**	**$4,353,626**	**$4,288,765**

Non-Operating Expense:			
Annual Renewal & Replacement	$0	$0	$12,747
Equipment - non-operating	0	0	$20,000
Service Charges	13,746	3,507	11,983
Contracts	106,871	0	0
Bond Issuance Cost	19,789,921	1,001,923	119,489
Principal Payments	650,000	810,000	1,820,000
Interest Payments	2,729,620	2,653,283	2,406,302
Interest Rebate	49,111	95,507	0
Miscellaneous	84,379	6,007	2,500
Total Non-Operating Expense	**$23,423,648**	**$4,580,114**	**$4,393,021**
Total Operating & Non-Operating Expense	**$28,073,568**	**$8,933,740**	**$8,681,786**
Total Revenues over/(under) Expenses	**($18,366,898)**	**$712,501**	**$1,317,232**
Other Financing Sources/(Uses)			
Proceeds of Bonds	$20,685,000	$30,775,000	$0
1994 Bond Defeasance	0	(31,175,318)	0
Transfers In/(Out)	0	0	0
Total Other Financing Sources/(Uses)	**$20,685,000**	**($400,318)**	**$0**
Excess of Revenues and Other Financing Sources Over/ (Under) Expenditures and Other Financing Uses	**$2,318,102**	**$312,183**	**$1,317,232**
Fund Cash Balance, July 1	**$7,405,507**	**$9,723,609**	**$10,035,792**
Fund Cash Balance, June 30	**$9,723,609**	**$10,035,792**	**$11,353,024**
Reserve for Encumbrances	**$0**	**$175,157**	**$243,395**

Source: MVSD's FY 1999 - FY2001Regular Financial Audit

As shown in **Table 4-3** for all years presented, the majority of MVSD's total revenue is derived from the sale of water. MVSD's FY 2000 and FY 2001 operating expenses account for approximately 49 percent of total expenses. The majority of the remaining 51 percent of total expenses consists of non-operating expenses associated with MVSD's debt. In addition, MVSD has consistently increased its fund cash balance at the end of each fiscal year presented.

As of June 30, 2001, MVSD had a combined fund cash balance for its Maintenance Fund, Bond Fund and Bond Retirement Fund of approximately $11.4 million. Although MVSD is required to meet certain reserve requirements that are outlined in the bond covenants, MVSD could use a portion of the fund balance to make capital improvements to MVSD's outdated infrastructure. In addition, as shown in **Table 4-5**, MVSD has approximately $48.8 million outstanding in general obligation bond debt and water revenue bond debt.

Table 4-4 lists various comparative figures for the finances and operations of MVSD and the peer water departments.

Table 4-4: Peer Treatment Facility Comparison - FY 2000-01

Selected Financial Information and Operational Statistics[1]	MVSD	Akron	Lima	Toledo	Peer Average
Operating Revenue (Millions of Dollars)[2]	$9.1	$28.9	$6.8	$27.4	$21.1
Non-operating Revenue (Millions of Dollars)[3]	$0.9	$4.5	$0.0	$3.1	$2.5
Operating & Maintenance Expenses (Millions of Dollars)	$4.3	$21.6	$6.1	$21.4	$16.4
Non-Operating Expense (Millions of Dollars)	<$0.1[4]	$2.4	$0.0	$3.7	$2.0
Long-Term Debt Outstanding (Millions of Dollars)	$48.8	$66.9	$8.4	$65.0	$46.8
FY 2001 Debt Payment (Millions of Dollars)	$4.2[5]	$7.1	$0.8	$6.3	$4.7
Selected Operational Statistics					
Total Annual Water Supplied (Billion Gallons)	10.0	14.6	5.1	30.1	16.6
Average Daily Pumping (Million Gallons)	27.2	40.0	14.3	82.7	45.7
Cost of Chemicals per Million Gallons	$53.54	$91.17	$60.12	$75.75	$75.68
Population served	300,000	275,000	74,750	498,000	283,000
Number of Employees	35.0	50.8	25.8	64.1	46.9

Source: MVSD and peer records

[1]Revenue and expense figures represent millions of dollars.

[2]Operating Revenue consists of revenue received from the sale of water. MVSD's operating revenue also includes levy receipts from Niles and Youngstown and the capital charge received from the Village of McDonald.

[3]Non-operating Revenue consists of all other revenue received, except for revenue received from the sale of water, levy receipts, and the McDonald capital charge.

[4] MVSD's Non-operating Expense was approximately $35,000, exclusive of bond issuance costs and debt service payments.

[5] MVSD's debt service payment includes payments for its general obligation bonds and water revenue bonds.

Table 4-5 summarizes MVSD's outstanding general obligation bond and water revenue bond debt as of June 30, 2001.

Table 4-5: MVSD's Outstanding Debt as of June 30, 2001

Revenue Source	Principal	Interest Rate
General Obligation Bonds	$19,040,000	5.0%
Water Revenue Bonds	$29,790,000	6.0%
Total	**$48,830,000**	

Source: MVSD FY 2000-01 regular audit

MVSD defeased the outstanding debt of the Series 1994 water revenue bonds. MVSD refinanced this debt with the issuance of the water revenue refunding bonds, series 1999. The original water revenue bonds issued in 1994 were used to pay the $7.9 million bond anticipation note, as well as providing funds for the EPA clear well project. The water revenue bonds are obligations of MVSD, and are payable from the revenues, and are secured by a pledge of, and lien on, the revenues in the Maintenance Fund. Outstanding general obligation bonds consist of MVSD's construction issues. General obligations bonds are direct obligations of MVSD for which its full faith, credit, and resources are pledged and payable from assessments levied on the cities of Youngstown and Niles, and paid through their water departments.

Performance Measures

The following is a list of performance measures that were used to review the planning and financial operations of MVSD:

- Assess adequacy of capital improvement planning techniques;
- Assess flow of funds for ability to pay for capital improvements;
- Evaluate adequacy of rate structure development;
- Evaluate budgetary practices;
- Assess adherence to ORC for entering contracts;
- Determine the effectiveness of internal controls over purchases; and
- Assess the ability to obtain additional grants or other funding.

Findings/Commendations/Recommendations

Financial & Capital Improvement Planning

F4.1 MVSD lacks financial planning policies and procedures that can help ensure long-term financial stability and growth. According to a study completed by the University of Georgia, water utilities need to become more sophisticated and knowledgeable about finances. The study states that lack of sufficient management information and necessary specialized financial expertise, are the basic reasons why systems often fail to undertake the needed financial planning. Long term planning and fiscal management are no longer just for large or wealthy utilities, but must be practiced by all water managers. While the majority of water systems produce a safe, wholesome water supply, many others have deficiencies and lack the capital needed to upgrade their facilities or lack the revenue needed for day to day operation and maintenance, according to the study. Often, budgeting processes and record keeping practices of utilities are inadequate, according to the study. These managerial problems interfere with the revenue flow of the system and the ability to obtain necessary funding or adequately evaluate the impacts of such funding on customers and water rates. By adopting and following financial planning policies, organizations are able to support a process that assesses long term financial implications of both current and proposed operating and capital budgets, budget policies, cash management and investment policies, and financial assumptions.

F4.2 The treasurer is primarily responsible for the accounting function within MVSD's financial operations. However, the chief engineer completes the five-year forecast independently, with minimal input from the treasurer. There is no official job description outlining the treasurer's job responsibilities. However, job descriptions were created in 1994 by Gortz & Associates, but the BOD did not adopt them. If MVSD had adopted the job descriptions, the treasurer position would serve as the chief financial officer (CFO) of MVSD. The following lists the key administrative and investment responsibilities outlined in the job description:

- Participates in development of annual operating and capital improvement budgets;
- Prepares year-end financial statements for submission to the Court;
- Prepares requests for water rate increases for submission to the Court;
- Reconciles payroll records;
- Certifies availability of funds for capital improvement contracts;
- Furnishes financial information regarding capital improvements to the BOD, chief engineer, and others, as necessary;
- Invests bond proceeds so as to maximize return while ensuring cash flow, in accordance with the ORC; and
- Researches and applies for eligible grants and low interest loans provided by professional organizations or the state and federal government. (see **R4.15**)

F4.3 MVSD produces financial management information which is inadequate for management and the BOD to assess how MVSD plans to pay for future maintenance and capital improvements. According to the American Water Works Association (AWWA), to fund or finance maintenance and capital improvement projects, several planning and financial considerations need to be addressed. Overall, this requires a deliberate, fact-based approach that identifies maintenance elements, generates short and long term plans and financial impacts, and identifies budget, capital improvement, water rate and economic impacts. Repair versus replacement approaches needs to be addressed using life cycle cost principles, risk assessments, system condition assessments and overall water system assessment and financial condition. In addition, alternative financing approaches need to be considered for replacement depending on the type of asset involved, including: funding from current revenues, bond financing, system development charges and reserve funds for replacement. The following lists the common needs to achieve maintenance and capital improvements:

- Collecting sufficient water system data and project and maintenance information;
- Applying or understanding financing tools or mechanisms in light of specific local circumstances;
- Gathering good cost projections and financial and water rate impacts; and
- Committing to addressing infrastructure requirements.

R4.1 MVSD should ensure that the treasurer position is the primary person managing and coordinating the financial planning responsibilities within MVSD. To ensure the treasurer completes the necessary financial functions, MVSD should use Gortz's treasurer job description as a guide to establish formal job responsibilities and should consider requiring the treasurer to report to the chief operating officer/engineer (See **R2.4**). The treasurer should function as the top financial position within MVSD and should be primarily responsible for planning, budgeting, analysis and accountability processes, as well as for providing financial management services to the chief operating officer and the BOD. The treasurer position should also ensure sufficient financial statements, forecasts and budgets are prepared and presented to the chief operating officer and the BOD in a timely manner. The BOD should determine if the current treasurer possesses the necessary financial management skills to function as a CFO or if the desired skills could be obtained through additional training. By ensuring the treasurer position functions as a CFO, MVSD should be able to improve its processes for financial planning and reporting and enable MVSD to become a more fiscally accountable entity.

The treasurer should be responsible for producing financial management information regarding how MVSD anticipates funding or financing maintenance and capital improvement projects identified in an updated capital improvement plan. This information should be submitted and reviewed by the capital improvement committee and approved by the BOD before any improvement is undertaken. The treasurer should be responsible for identifying existing financial resources to determine which maintenance and capital

improvements can be funded from MVSD's own sources and which projects must be financed from outside sources. To accomplish this, the treasurer should identify all monies MVSD can devote to meeting maintenance and capital improvement needs. After this has been determined, the treasurer should consider financing alternatives from outside sources such as banks and state and federal financing programs. By producing this type of information, MVSD would have a better understanding of how it can obtain funding or financing to complete capital improvements. In addition, producing this type of information would potentially increase MVSD's chance of receiving grants and low interest loans by demonstrating its ability to operate as a fiscally accountable organization.

F4.4 In MVSD's FY 1999 regular audit, the Auditor of State's Office (AOS) recommended that MVSD should establish an audit committee to serve as a liaison between management and its auditors. An audit committee is useful, too, in helping to focus and document a government entity's process for managing the financial statement audit. The primary functions of the audit committee are to monitor and review MVSD's accounting and financial reporting practices, and to follow up on citations and recommendations made by its auditors. During the course of this performance audit, MVSD established a formal audit committee to serve as a liaison between management and its auditors. As a result, the audit committee will help ensure MVSD is adhering to all accounting and financial reporting practices and following up on citations and recommendations made by its auditors.

F4.5 MVSD has a capital improvement plan (CIP) that has not been updated since 1997. The plan originates from a capital improvement study conducted by an outside consultant in 1985. MVSD used the consultant's study to create a summary of the major improvements identified and the costs associated with those improvements. The 1997 CIP estimated the construction costs for CIP projects to be approximately $82 million. From 1985 through 1997, MVSD completed approximately $32.6 million in construction projects identified in the CIP. However, the BOD ceased authorizing the implementation of capital improvements in 1997, with the exception of turbidmeters installed in 2001 as a result of EPA requirements. As a result, the 1997 CIP does not adequately reflect the operational needs and advancements, including a reasonable estimated cost associated with each capital improvement, to enable MVSD to use the current CIP as a strategic planning tool in the future. During the course of this performance audit, the chief engineer analyzed the remaining $49.4 million in construction projects identified in the CIP to see if MVSD can reduce those construction costs by implementing changes to their treatment processes.

F4.6 MVSD does not have a formal committee in place for implementing an effective capital improvement planning process. Such a committee could be used to determine what capital improvements are necessary, how to prioritize projects, project scheduling, financial implications of projects, and how the projects relate to achieving the mission of the BOD. A capital improvement planning committee would be responsible for establishing processes and procedures for identifying, evaluating and making recommendations regarding the

current and future needs of MVSD. The following criteria, listed in decreasing order of priority, should be used to identify needs and prioritize projects:

- Projects required to meet health, safety, and welfare of customers;
- Projects to meet health, safety, and welfare of MVSD operations or operators/staff;
- Projects with associated cost savings that off-set or exceed initial and/or operating costs;
- Projects recommended but not required by regulatory bodies; and
- Projects which extend the life of a system.

R4.2 MVSD should update its CIP and implement an ongoing planning process. Initially, MVSD should adjust the cost estimates for projects listed in the CIP. Since costs estimates for projects are normally based on current (uninflated) dollars, it is necessary to inflate future years' capital costs so that financing needs and water rate impacts can be estimated in future (inflated) dollars. MVSD should use prior experience, economic forecasts or professional judgement to estimate inflation in construction costs over the planning period. In addition, MVSD should link costs associated with capital improvements directly to the water rate structure, the budget process and the five-year financial forecast.

MVSD should also establish a formal capital improvement planning committee to update the CIP to reflect the current operational needs and costs associated with capital improvements (the planning/budgeting committee recommendation **R2.6** could serve this role). The committee should consist of at least the chief engineer, the treasurer, some members of the BOD, select employees from each division of MVSD and possibly, members of the communities that MVSD serves.

By establishing a capital improvement process, MVSD could establish an orderly and routine method of planning and financing for required capital improvements and make capital expenditures more responsive to community needs by informing and involving customers. In addition, by prioritizing projects according to criteria that are embedded in MVSD's mission and goals, the CIP could also create a more understandable investment decision making process, improve linkages between capital investments and MVSD's long term vision and goals and build citizen confidence by making more efficient use of available resources. Updating and implementing its CIP is critical to the long term success of MVSD.

F4.7 MVSD lacks financial policies that outline the organization's position regarding financial planning policies, revenue policies and expenditure polices. Financial planning policies address both the need for long term planning and a balanced budget. Effective revenue polices help ensure stability by protecting against revenue shortfalls that can cause service disruptions or unplanned rate increases. Expenditure policies define an entity's ongoing commitment to accountability to ensure fiscal stability. These types of policies encompass

the broad scope of decision-making with regard to the use of resources and are summarized in the budget document (see **R4.7**).

R4.3 MVSD should adopt formal financial planning policies, revenue policies and expenditure policies. These policies should be used to frame major policy initiatives and be summarized in the budget document. In addition, these policies, along with any others that may be adopted, should be reviewed during the budget process. The treasurer should review the policies to ensure continued relevance and to identify any gaps that should be addressed with new policies. The results of the review should be shared with the BOD during the review of the proposed budget.

Also, MVSD should create financial planning policies that support a balanced budget and long-range planning. A balanced budget policy defines a balanced operating budget, encourages commitment to a balanced budget under normal circumstances and provides disclosure when a deviation from a balanced operating budget is planned or actually occurs. Long range planning policies assess the long term financial implications of current and proposed operating and capital budgets, budget policies, cash management and investment policies and financial assumptions.

Establishing revenue policies is essential to prudent planning. A policy regarding fees and charges would enable MVSD to identify the manner in which fees and charges are set and the extent to which they cover the cost of service provided (see the **operations** section regarding sample collecting and testing fees). MVSD should also adopt a policy regarding the use of one-time revenues. This type of policy discourages the use of one-time revenues for ongoing expenditures, which could potentially help MVSD appropriately manage any future grant revenue it may receive.

Establishing expenditure policies regarding debt capacity and management, reserve or stabilization accounts and capital expenditures foster accountability and fiscal stability. Debt capacity, issuance and management policies specify appropriate uses for debt and identify the maximum amount of debt and debt services that should be outstanding at any time. Since MVSD is at its debt limit for general obligation bond debt (See **F4.26**), MVSD should have a debt policy in place which recognizes that when MVSD is at its general obligation bond debt limit, alternative funding sources are needed to address capital needs. Reserve or stabilization account policies are designed to enable an entity to maintain a prudent level of financial resources to protect against the need to reduce service levels or raise taxes and fees due to temporary revenue shortfalls or unpredicted one-time expenditures. Capital expenditure accountability policies compare actual expenditures to budget periodically (e.g., quarterly) and outline actions that could be taken to bring the budget into balance, if necessary.

Water Rate Structure

F4.8 MVSD's main source of revenue is from the sale of water to the Village of McDonald and the cities of Niles and Youngstown. The water rate structure determines the amount of revenue each community is charged. In July 1994, MVSD began charging for water based on a bifurcated rate structure approved by the Court. The bifurcated structure consists of two components; one for operations and maintenance and the other for payment of principal and interest on the Series 1994 Water Revenue Bonds. MVSD bills McDonald, Niles and Youngstown on a monthly basis based upon the amount of water supplied. **Table 4-6** depicts the amount of water supplied to McDonald, Niles and Youngstown for June 1999.

Table 4-6: Quantities of Water Supplied for June 1999

Customers	Gallons Supplied for Month	Average per Day Gallons
Youngstown	747,393,000	24,913,000
Niles	213,493,000	7,116,000
McDonald	19,825,000	661,000
Total Gallons Supplied	**980,711,000**	**32,690,000**

Source: MVSD Treasurer's Office

According to **Table 4-6**, MVSD supplied a total of 980,711,000 gallons of water for the month of June, which averages to 32,690,000 gallons (32.69 MGD) supplied per day. Once MVSD determines the average number of gallons supplied, the bifurcated rate structure as shown in **Table 4-7** is used to determine how much money is collected based on the average daily quantity of water metered to McDonald, Niles and Youngstown.

F4.9 MVSD's bifurcated rate structure from June 1999 is detailed in **Table 4-7**.

Table 4-7: MVSD Bifurcated Water Rate Structure

Average Daily Quantity of Water Metered	Rate Per Thousand Gallons		
	Total	Maintenance & Operations	Capital Improvement
Less than 26 MGD	.73739	.41273	.32466
26 MGD or more, but less than 28 MGD	.70310	.39047	.31263
28 MGD or more, but less than 30 MGD	.66177	.37070	.29107
30 MGD or more, but less than 32 MGD	.62586	.35357	.27229
32 MGD or more, but less than 34 MGD	.59437	.33858	.25579
34 MGD or more, but less than 36 MGD	.56653	.32536	.24117
36 MGD or more, but less than 38 MGD	.54173	.31359	.22814
38 MGD or more, but less than 40 MGD	.51952	.30308	.21644
40 MGD or more, but less than 42 MGD	.49948	.29360	.20588
42 MGD or more, but less than 44 MGD	.48134	.28504	.19630
44 MGD or more, but less than 46 MGD	.46483	.27725	.18758
46 MGD or more	.45377	.27027	.18350

Source: MVSD 1999-2000 Annual Report

Collectively, McDonald, Niles and Youngstown were supplied an average 32.7 MGD for the month of June (see **Table 4-6**). Therefore, based on **Table 4-7**, MVSD would base the amount charged to McDonald, Niles and Youngstown using the 32 MGD or more, but less than 34 MGD line item. As a result, McDonald, Niles and Youngstown were each charged a rate of .33858 for maintenance and operations and .25579 for capital improvements on the average amount of water supplied.

Table 4-8 presents the amount collected from McDonald, Niles and Youngstown during June 1999 based upon the bifurcated water rate structure.

Table 4-8: Water Revenue for June 1999

Water Rate Information	McDonald		Niles		Youngstown		Total	
Rate Structure for 32 MGD or more, but less than 34 MGD	Gallons Supplied (,000)	Dollar Amount	Gallons Supplied (,000)	Dollar Amount	Gallons Supplied (,000)	Dollar Amount	Gallons Supplied (,000)	Dollar Amount
Maintenance & Operations Rate (.33858)	19,825	$6,712	213,493	$72,284	747,393	$253,052	980,711	$332,049
Capital Improvement Rate (.25579)	19,825	$5,071	213,493	$54,609	747,393	$191,176	980,711	$250,856
Total	19,825	$11,783	213,493	$126,893	747,393	$444,228	980,711	$582,905

Source: MVSD Treasurer's Office & MVSD 1999-2000 Annual Report

According to **Table 4-8**, MVSD received approximately $583,000 from the sale of water supplied during June 1999. Approximately $332,000 was collected to cover MVSD's maintenance and operational costs, and approximately $251,000 was collected for payment of principal and interest on the Series 1994 Water Revenue Bonds. Therefore, the capital improvement rate MVSD charged is not used to fund future capital improvement costs. Instead, it was used to pay historic capital improvement costs that were funded through the proceeds of the Series 1994 Water Revenue Bonds. The 1994 bond proceeds were used to pay a $7.9 million bond anticipation note, as well as providing funds for the design, engineering and construction of the clear well project. Since the sale of water is MVSD's primary revenue source, it is reasonable to expect that capital improvements would be significantly funded with these revenues. According to the treasurer, representatives from McDonald, Niles and Youngstown understand that the rate structure depicted in **Table 4-8** does not account for the costs of current or future capital improvements. Therefore, an increase in the rate structure would likely be necessary if MVSD decides to undertake any capital improvement project.

F4.10 In 1999, MVSD contracted with a private financial consulting firm, Public Financial Management (PFM), to assist MVSD with financial strategic planning. PFM assisted MVSD in structuring and implementing the proposed refinancing of outstanding debt in a manner that could allow MVSD to meet long term financial management objectives. Refinancing the Series 1994 Revenue Bonds created substantial savings to MVSD and brought about a restructuring of MVSD's financial management methodology. A fixed/variable non-bifurcated rate structure was established that is more prevalent in today's utility financial management.

PFM identified and developed approaches to enhance the long term financial stability of MVSD to meet operational and capital funding needs by developing an equitable water rate

structure for MVSD. However, the new rate structure does not include an inflationary or cost of living adjustment (COLA). In contrast, Akron has historically included a COLA in its rate structure in an effort to help citizens absorb cost increases more easily and allow Akron's revenues to keep pace with costs. MVSD's rate structure also does not account for future capital improvement needs.

In addition to adopting a new rate structure, water rates were increased after a November 23, 1999 hearing before the Court. The new water rates were based on a flow of 29 million gallons per day (MGD) and resulted in three rate increases, including 2.00 percent effective November 1, 1999, 3.46 percent effective July 1, 2000, and 3.44 percent effective July 1, 2001. **Table 4-9** presents MVSD's water rate structure effective November 1, 1999.

F4.11 **Table 4-9** presents MVSD's monthly water rate based on an average daily flow of 29 MG supplied to McDonald, Niles and Youngstown.

Table 4-9: MVSD's Water Rate Structure as of November 1, 1999

Fiscal Year	Annual Fixed Expense	Monthly Fixed Expense	Average Daily Flow	Monthly Fixed Rate	Variable Expense per MG				Total Monthly Rate
					Electric	Chemicals	Sludge	Total	
1999-00	$5,470,497	$455,875	29 MG	$515.40	$80.00	$61.50	$18.06	$159.56	$674.96
2000-01	$5,682,613	$473,551	29 MG	$536.86	$80.00	$63.04	$18.51	$161.55	$698.40
2001-02	$5,915,202	$492,933	29 MG	$558.83	$80.00	$64.61	$18.97	$163.58	$722.42
2002-03	$5,882,914	$490,243	29 MG	$555.78	$81.00	$66.23	$19.45	$166.68	$722.46
2003-04	$5,843,014	$486,918	29 MG	$550.50	$84.05	$67.88	$19.93	$171.86	$722.37

Source: MVSD Treasurer's Office and PFM study

As **Table 4-9** illustrates, the total water rate charged consists of a fixed rate portion and additional variable rate components. MVSD's annual fixed expense includes total operating and non-operating expenses plus total debt service and additional coverage, excluding other operating and non-operating revenue and annual variable costs. The monthly fixed rate is determined by dividing the monthly fixed expense by the total monthly metered water for the respective month. MVSD's variable expense includes costs for electric, chemicals and sludge and are charged per MG supplied. The total monthly water rate for each month within each fiscal year is multiplied by the metered water (expressed in a unit of one million gallons) supplied to McDonald, Niles and Youngstown for the respective month to determine the monthly billing.

F4.12 The University of Virginia conducted a study in 1999 entitled "A Guide for Financing and Rate-Setting Options for Small Water Systems" to help water providers gain public support for water rate structures. There is no method to guarantee wide public support for a water rate increase. However, if the public has a clear understanding of the proposed rate

structure, why the rate structure is necessary to operate the system on a financially sound basis, and that each class of customers pays their fair share of the cost, it is easier to gain consumer support. Based on this study, the following basic water rate structure principles were identified:

Rates should be set at a level that cover full costs of producing, treating, storing and distributing water to customers. This includes debt service, financial reserves, operation, maintenance, capital improvement and regulatory compliance costs.

- Rates should be fair and equitable. Fair means the rate is high enough to cover the full cost of the system; equitable means that each customer is paying their fair share of the costs.
- Customers should be aware of water rates. The member communities should post the water rates at the Water Department and consider sending them to customers at least once per year.
- Water rate structures have a short life span. The existing rate structure should be examined once a year as part of the budget development process to determine if any adjustments should be made.
- Good water rate structures are based on good budgets and good record keeping. It is difficult to develop a fair and equitable rate structure if the user is not sure what the expenses and revenues have been for the past two to three years and how much water is being sold to each customer.
- The water rate structure should be easy to administer. If it is complex and difficult to administer, it is more likely that it is going to be hard for customers to understand and support.

R4.4 MVSD should use the basic water rate structure principles identified by the University of Virginia to determine the fairness of the current rate structure and promote public support. Information on water rates should be made readily available to the public. This includes sharing MVSD's policy regarding full cost recovery and information about the water rate structure, current and proposed, both before and after adoption. By making more information regarding the water rate structure available to the public and seeking public input, MVSD will be better able to support the current rate structure and future rate increases.

F4.13 The Ohio Environmental Protection Agency's (EPA) Office of Fiscal Administration annually produces a sewer and water rate analysis of approximately 500 sewer and water systems located throughout Ohio. Although MVSD does not directly participate in the survey, the communities of McDonald, Niles and Youngstown do provide water rate information to the Ohio EPA. The survey details current water rate structures, causes for any increases which occurred in the most recent survey year and information regarding sludge disposal methods for water and wastewater treatment plants.

Table 4-10 shows water costs for MVSD's member communities, the peer cities, and the statewide average in Ohio for the last ten years. The water rates presented in **Table 4-10** for MVSD's member communities are established by the cities of Niles & Youngstown. The member communities' water rates include the costs charged by MVSD to treat the water plus additional costs associated with operating their own water department.

Table 4-10: Ohio EPA Water Rate Comparison[1]

Year	Statewide Average	MVSD Member Communities			Peer Cities			
		McDonald	Niles	Youngstown	Akron	Lima	Toledo	Peer Average
2000	$323	$202	$232	$228	$285	$129	$85	$166
1999	$316	$186	$232	$228	$285	$129	$85	$166
1998	$306	$186	$194	$228	$285	$129	$81	$165
1997	$296	$186	$194	$228	$285	$129	$81	$165
1996	$281	$141	$194	$228	$265	$109	$81	$152
1995	$269	$141	$194	$228	$252	$93	$81	$142
1994	$254	$141	$194	$228	$240	$93	$81	$138
1993	$239	$141	$148	$132	$228	$93	$81	$134
1992	$225	$141	$148	$132	$217	$93	$78	$129
1991	$210	$113	$148	$132	$207	$93	$75	$125
1990	$195	$113	$148	$117	$207	$81	$75	$121
1989	$188	$113	$148	$117	$207	$81	$75	$121

Source: Ohio EPA Office of Fiscal Administration

[1]Consumption levels are standardized assuming 85 gallons of water per person for a three-person household. Also, water rates were calculated for customers within municipal limits. The assumed consumption level was 7,756 gallons per month.

Although Niles and Youngstown's water rates are below the statewide average, both cities exceed the peer average for all years presented. Specifically, in 2000, Niles' water rates were below the statewide average by approximately 28.1 percent, but above the peer average by 40 percent. Similarly in 2000, Youngstown's water rates were below the statewide average by 29.4 percent, but above the peer average by 37.3 percent.

In contrast, the Village of McDonald's water rates were below the statewide average for all years presented and below the peer average by approximately 6.6 percent for 1989 and 1990; 9.6 percent below in 1991 and approximately 1 percent below in 1995 and 7.2 percent in 1996. However, for the years 1997 through 2000, McDonald's water rates exceeded the peer average. In 2000, McDonald is above the peer average by approximately 21.7 percent.

F4.14 MVSD treats water and sells it to the cities of Niles and Youngstown, which distribute the water to citizens within their respective communities. Niles and Youngstown charge citizens

based upon their own water rate structure, which includes the treatment expenditures incurred by MVSD in addition to each city's own operating and debt service expenditures. In contrast, the peer cities treat and distribute their own water. **Table 4-11** compares treatment expenditures, excluding debt, that MVSD incurs and passes along to Niles and Youngstown to the treatment expenditures the peer cities incur by treating their own water.

Table 4-11: Treatment Expenditure Analysis - FY 2001

	Niles	Youngstown	Akron	Lima	Toledo	Peer [1] Average
Total Treatment Expense [2]	$1,056,118	$3,515,233	$7,104,450	$2,062,873	$7,329,880	$5,499,068
Total Expense [3]	$2,355,182	$12,607,994	$26,008,620	$8,622,082	$23,641,000	$19,423,901
% of Treatment Expense to Total Expense	44.8%	27.9%	27.3%	23.9%	31.0%	27.4%
Amount of Water Treated	2,308,000	7,500,000	14,600,000	5,060,000	30,190,000	16,616,667
Treatment Expense per gallon	$0.47	$0.47	$0.49	$0.41	$0.24	$0.38

Source: Cities of Niles, Youngstown, Akron, Lima and Toledo

[1]Peer Average does not include Niles or Youngstown

[2]Amounts for Total Treatment Expense for Niles and Youngstown are for water purchased from MVSD, exclusive of debt service payments.

[3] Total expenses only include operational and maintenance expenditures. Debt payments for Niles, Youngstown, and the peers were not included.

The total treatment expenditures shown in **Table 4-11** for Niles, Youngstown and the peers include costs associated with the water treatment process, exclusive of debt incurred by the water treatment facilities. For this analysis, the debt incurred by MVSD that is normally passed on to Niles and Youngstown is not included in total treatment expenses or total expenses. Instead, total treatment expense and total expenses include costs for labor, chemicals and other supplies, electricity and maintenance expenditures.

As shown in **Table 4-11**, Niles pays approximately 39 percent more for the purchase of treated water than the peers incur for treating their own water. In contrast, Youngstown's cost for treated water is in line with the peer average. In addition, approximately 45 percent of Niles' total expenditures and 28 percent of Youngstown's total expenditures are for the purchase of water from MVSD. In contrast, Akron, Lima and Toledo's treatment expenditures account for approximately 27 percent, 24 percent and 31 percent, respectively, of total expenditures. In addition, Niles and Youngstown's treatment expense per gallon is approximately 19 percent higher than the peer average.

Since MVSD uses different treatment processes than the peers to treat water, costs for labor and chemicals and electricity per million gallons were analyzed to determine reasons for higher treatment costs per million gallons than the peers. **Table 4-12** shows MVSD's

adjusted average hourly employee wage and chemical and electricity costs per million gallons compared to the peers.

Table 4-12: MVSD Wage, Chemical and Electricity Costs Compared to the Peers

	MVSD	Akron	Lima	Toledo	Peer Average
Adjusted Average Hourly Employee Wage [1]	$21.64	$21.46	$19.23	$19.00	$19.90
Chemical Cost per million gallon	$53.54	$116.44	$84.43	$65.95	$88.94
Electricity Cost per million gallon	$78.74	$64.73	$47.06	$52.45	$54.75

Source: MVSD and peer union contracts

[1] The positions chosen for this analysis make up 41 percent of the unionized workforce at MVSD.

As shown in **Table 4-12**, MVSD's adjusted average hourly employee wage(for 41 percent of its unionized workforce) is approximately 8.7 percent higher than the peer average (see **F3.43**). In addition, MVSD pays approximately 44 percent more in electricity cost per million gallons than the peers. In contrast, MVSD pays approximately 40 percent below the peer average for chemicals per million gallons.

The following list contains other factors not presented in **Table 4-12** that may explain why MVSD incurs higher treatment costs per million gallons than the peers:

- MVSD and the peers treat water from different sources. For example, MVSD, Akron and Lima treat water from reservoirs, whereas Toledo treats water from Lake Erie. In addition, MVSD, Lima and Toledo use water softening processes, whereas Akron does not. As a result, MVSD and the peers use different processes to treat water, which explains differences in chemical and electricity costs.
- The peers have implemented technological advancements that have allowed them to reduce the number of staff needed to treat water.
- MVSD provides its own security protection for its water supply, whereas the peers use security from their respective municipalities.

F4.15 According to the AWWA, the public can be served best by self-sustained water systems that are adequately financed with water rates based on sound engineering and economic principles. To accomplish this, AWWA recommends utilities operate in line with the following principles:

- Every water utility should receive sufficient revenues from water services and user charges to enable it to finance all operating and maintenance expenses and all capital costs;
- Water utilities should maintain their funds in separate accounts. Such funds should not be diverted to uses unrelated to water utilities;

- Every water utility should adopt a uniform system of accounts based on generally accepted accounting practices. Modifications may be made to satisfy the financial needs of the utility and to meet the requirements of the regulatory bodies; and
- Water rate schedules should distribute the cost of water service equitably among all customers.

F4.16 In 1996, Lima conducted an internal review of the financial resources of the city's water and sewer funds to meet the operations, maintenance, debt service, capital needs and regulatory mandates required of these funds. As a result of this review, Lima conducted a water and sewer revenue and needs assessment. Throughout the analysis, Lima City Council and public input were sought to ensure water users fully understood the needs of the water system and the resources necessary to meet these needs. The needs assessment included a detailed analysis of the past water rate history, needs of each fund, future costs and revenue projections and the water rate projections on a typical residential customer. The water needs were identified and divided into the categories of regulatory requirements, technology enhancements, infrastructure improvements and replacements and scheduled equipment purchases. The costs of these needs were included in Lima's water rate structure and were analyzed through a five-year rate projection from 1996 through 2001. As a result, Lima increased water rates by 18 percent in 1996 and 1997 with no additional increases in 1998 through 2001. In addition, Lima analyzed how these water rate increases would impact residential customers based upon the amount of water used.

R4.5 MVSD should reevaluate the adequacy of its current rate structure and work to make improvements in the structure where needed. The water rate structure should be reviewed annually and updated periodically based on factors such as the impact of inflation, other cost increases and the adequacy of the coverage of costs. MVSD should try to get an inflationary factor or COLA incorporated into the rate structure. This policy would allow member communities to more easily absorb cost increases and help ensure that MVSD has the necessary funding to operate efficiently and effectively.

Although MVSD implemented a three-year rate increase in 1999, the rate increase did not include costs associated with future capital improvements. It is critical to MVSD's success that it have adequate funding to carry out a proper capital program. Any changes to the rate structure should be based upon a detailed CIP (see **R4.2**). Therefore, MVSD should conduct a capital needs assessment of its current operations. The needs assessment should identify major areas of operations, such as technology, infrastructure and equipment purchases, and necessary capital improvements in these areas and the estimated cost of the improvements.

Once MVSD identifies the needed capital improvements, the relevant associated costs should be reflected in the water rate structure. MVSD should analyze its water rate structure by performing a five-year rate projection to determine how these capital improvement costs would affect MVSD's current rate structure. This type of analysis would help MVSD

determine if water rate increases alone would be enough to cover capital improvement costs in addition to operating costs without overburdening its customers. This could help MVSD determine if other financial funding sources should be used to supplement the costs of capital improvements. The committee recommended in **R4.2** could be used to carry out this assessment.

During any type of analysis where water rates could be potentially increased, MVSD should seek input from the member communities and public involvement to facilitate an understanding of why capital improvements are necessary. MVSD's Advisory Council could serve a role in obtaining public input. MVSD should also analyze how any water rate increases would impact the residents of McDonald, Niles and Youngstown.

Financial Management and Budgetary Reporting

F4.17 The MVSD's financial statements follow the basis of accounting permitted by the AOS, which is similar to the cash receipts and disbursements basis of accounting. Revenues are recognized when received in cash rather than when earned, and disbursements are recognized when paid rather than when a liability occurs. Although the cash receipts and disbursements method of accounting is permitted under ORC 6115, this method of accounting does not present a clear representation of MVSD's actual financial situation. In contrast, if MVSD followed the accrual basis of accounting, which is the prescribed method of GAAP, the financial statements would show MVSD's assets and liabilities, resulting in an enhanced picture of MVSD's financial position.

R4.6 MVSD should convert from the cash receipts and disbursements method of accounting to the accrual basis of accounting permitted by GAAP. The chief financial officer should possess the necessary skills to convert MVSD's financial information and prepare financial statements that are in conformity with GAAP. By preparing financial statements according to GAAP, MVSD would be better able to present its financial condition and would have more useful information for decision making.

F4.18 According to the Government Financial Officers Association (GFOA), a government should have a financial planning process that assesses long term financial implications of current and proposed policies, programs and assumptions that develop appropriate strategies to achieve its goals. A key component in determining future options, potential problems and opportunities is the forecast of revenues and expenditures. Revenue and expenditure forecasting does the following:

- Provides an understanding of available funding;
- Evaluates financial risk;
- Assesses the likelihood that services can be sustained;
- Assesses the level at which capital investment can be made;

- Identifies future commitments and resources demands; and
- Identifies key variables that cause change in the level of revenue.

F4.19 MVSD's five year forecast is the only long term financial document that MVSD produces. However, the forecast is primarily used as an analysis tool rather than as a management document. As a result, MVSD's forecast lacks a detailed set of approved assumptions. In contrast, financial management documents explain historic and projected information and contain explanatory comments regarding all facets of operations. In addition, MVSD does not update the financial forecast on a regular basis when situations occur that could potentially affect operations.

R4.7 MVSD should improve its financial forecasting by creating a cash flow forecast and incorporating additional data and analysis to estimate future needs. Taking steps to improve its financial forecasting will better enable MVSD to gauge its financial position and pro-actively carry out its financial operations. While it is extremely useful to provide the BOD with the expected financial outcomes, the treasurer should complete the forecasting process by preparing a formal cash flow forecast document incorporating all relevant information based upon a specific set of assumptions or recommendations that have been adopted by MVSD. The forecast should be updated during the year as situations occur which materially affect MVSD's financial position.

The financial forecast should also be used to obtain a more accurate picture of MVSD's future needs. The treasurer's five-year forecast and accompanying assumptions and notes should be expanded and consistently present more detailed historic and projected information and explanatory comments in the following areas:

- Historic and projected inflation rates;
- Actual results of the three most recent fiscal years, for comparison, with explanation of significant variances between forecasted and actual amounts;
- Impact of current and future capital improvement costs identified in MVSD's capital improvement plan;
- Effect of water rate increases on the member communities;
- Historic projected staffing by position;
- Description of MVSD's efforts to control fringe benefits costs, especially those related to health care and workers compensation;
- Description of grants and loans obtained to fund operations and capital improvements
- Description of debt service obligations; and
- Impact of outstanding encumbrances at year-end.

The forecast should extend at least three to five years beyond the budget period and should be regularly monitored and periodically updated. The forecast, along with its underlying assumptions and methodology, should be clearly stated and made available to participants in

the budget process. It also should be referenced in the final budget document. To improve future forecasting, the variances between previous forecast and actual amounts should be analyzed. The variance analysis should identify the factors that influence revenue collections, expenditure levels and forecast assumptions. By providing more detail in the forecast and its supporting notes, the BOD and public will better understand the financial condition of MVSD.

F4.20 MVSD's budgetary process is highly centralized. The treasurer has the responsibility of carrying out the budgetary process and decisions are made by the chief engineer and the treasurer, who make the recommendations to the BOD for formal approval. Since the budgetary process is centralized, employees may not feel responsible to control costs or take ownership of the process. MVSD's budget is not based on performance measures or the achievement of specified goals and objectives. In addition, MVSD does not have a formal budget policy that establishes timetables for the preparation and adoption of the budget. Furthermore, MVSD does not have a detailed instruction manual to provide guidance on budgeting techniques, analytical methods and the disclosure of relevant assumptions and critical factors. Formal in-service training is not provided for MVSD's management staff to further their understanding of the budgeting process. As shown in **Table 4-1**, MVSD historically overestimates budgeted expenditures for personnel services and supplies and services because these line items are budgeted for higher number of employees than MVSD actually employs. As a result, MVSD's budget lacks sufficient detail to support the budgeted amounts.

R4.8 MVSD should improve its budgeting processes by involving divisions more formally in the process and by developing performance measures and goals that can be used to help assess performance throughout the year. MVSD should also create a budget policy, and ensure staff have skills and training necessary to carry out the budgeting process effectively. The annual budget should be built upon operational unit performance plans with input from each division. Responsibilities and authority pertaining to an operational unit should be delegated to those who will be held accountable for performance. Performance indicators should be incorporated in the budget to facilitate assessment of divisional performance. Resources should be allocated based on strategic priorities, necessary levels of service and standards of performance, as set in budget and planning documents approved by the BOD.

Effective budgeting reflects the goals and priorities of the entity. MVSD's stated goals and objectives should be clarified by the BOD prior to the onset of the annual budget process to ensure funding is made available for the high priority activities. Once the BOD establishes its goals, progress toward achieving them should be monitored and reported upon by the treasurer through reports which incorporate performance measurements. The goals and priorities should be confirmed in clear documentation and made available to all those involved in the budgetary process.

Management should be held accountable for performance throughout the year, not just after year-end results are tabulated. Management should submit written reports to the BOD to describe progress made on the goals and measures set forth in the performance plans. Once a year, the results should be compiled, summarized and published. The reports should be made public through a formal budget document. Also, fiscal management should be a component of every manager's performance evaluation (see **human resources** section for more on evaluations).

Management and the BOD should be provided with in-service training on budget preparation, performance measurement and management reporting. Training should include information on funding sources and provide instruction on analysis of historical trends, monitoring of current results and forecasting of future needs. The training should also cover MVSD's purchasing and grant management procedures. The chart of accounts and general ledger codes should be reviewed. Annual refresher courses should be offered to expose the managers to technological advances, procedural changes and new management techniques. (See **R3.10** for training recommendations and financial implications)

Finally, written manuals should be developed and provided, outlining the specific steps to follow and control mechanisms to be employed for the budgetary, revenue, purchasing and payroll processes, as well as for grants management. Board policies, statutory requirements and MVSD procedures should be documented in the manuals. Copies of sample computer screens and reports should be included. The manuals should be kept current through annual review and through distribution of revisions and inserts as needed (see **R2.7)** for more on document control).

F4.21 MVSD does not prepare, publish or circulate a formal budget document. Instead, MVSD prepares an operating budget which quantifies anticipated expenditures but does not include explanations or justifications for spending levels. Planned expenditures are not linked to accomplishment of MVSD's goals or objectives. By not closely monitoring spending levels, management is not held accountable for their portion of the total budget. In addition, MVSD does not produce an executive summary of the budget that highlights the key issues as well as the proposed budget and historical comparisons. Therefore, the budget is not used as a financial plan, an operations guide or a communications guide.

R4.9 MVSD should improve its main operating budget document to present revenue-raising and spending decisions made by the BOD and MVSD's management. To be effective, it should communicate how and why these decisions were made. The budget should serve not only as a policy document but also as a financial plan, an operations guide and a communications device. MVSD should prepare a budget document containing an executive summary which would highlight the key issues as well as the proposed budget and historical comparisons. The published document should be made available to the public. Charts and graphs could be included to increase the document's readability. Descriptions of recent accomplishments and

the status of projects should be included to provide a progress report on the implementation of MVSD's capital improvement plan. MVSD's goals and objectives for the ensuing fiscal year should be presented. Fiscal priorities should be articulated and any changes in priorities explained, with the factors leading to the changes encountered. The following information should also be included the budget document:

- Financial trends and factors affecting the budget, including the long-range outlook, expected water rate increases, anticipated future borrowing and significant use of or increase in fund balance;
- Important assumptions underlying the budget;
- Performance indicators; and
- Staffing levels and organizational information substantially impacting the budget.

Improving the main budget document should enable it to serve as an effective financial plan, a useful operations guide and a communication guide to demonstrate accountability to the public and other relevant entities, such as bond rating agencies. These changes would permit the budget document to be used by the BOD and management as an effective tool for evaluating and guiding the financial operations of MVSD. A step the BOD could take to better perform its financial oversight duties is to obtain training such as the Ohio Financial Accountability Program (OFAC) or by attending AWWA seminars (see **F2.35**).

Financial Implication: Cost for four BOD members to obtain OFAC training would be $260.

Procurement Practices

F4.22 ORC section 6115.20 outlines MVSD's legal requirements relating to competitive bidding for goods and services that exceed $10,000. This is below the current threshold of $15,000 contained in ORC section 735.05 relating to municipal corporations, and $50,000 for supplies and $25,000 for services contained in ORC section 125.05 relating to direct purchases by state agencies and/or purchases through the Ohio Department of Administrative Services (DAS). The limits contained in ORC section 125.05 are adjusted periodically based on increases or decreases in the United States Bureau of Labor Statistics Consumer Price Index. The lower limits currently used by MVSD cause it to incur additional costs in obtaining competitive bids when compared to other entities using a higher threshold. ORC section 6115.20 also requires MVSD to advertise in at least one newspaper of general circulation for five consecutive weeks. This requirement draws out the bidding process making it difficult to obtain goods and services in a timely manner.

MVSD's BOD has documented its purchasing policy in Resolution No. 5291. **Table 4-13** summarizes selected national best practices for purchasing. Information from **Table 4-13** is analyzed in **F4.23** and **F4.24**.

Table 4-13: National Best Practices for Purchasing

Best Practices	MVSD Practices
1) Clearly defined roles and responsibilities for Purchasing and Financial staff involving contract bidding, purchasing, and requisition exist.	Resolution 5291 dated 10/17/01 specifies roles and responsibilities
2) Purchasing policy and procedure changes are disseminated to appropriate people on a timely basis with instructions and means for follow-up education, if necessary	Any changes are communicated to appropriate staff on a timely basis. Training is provided when needed.
3) Purchasing policies and procedures are adhered to	Review of purchase orders and invoices indicate policies and procedures are followed; however Resolution 5291 contains no requirement for competitive bids on purchases below $10,000 or requirement to utilize small and disadvantaged suppliers. (See **F4.23, R4.10, F4.24, R4.11**).
4) Internal controls are effective and consistent	Department head signatures are required on all requisitions less than $1,000. Over $1,000 up to $10,000 also require chief engineer approval. BOD resolution required for expenditures more than $10,000. Treasurer certification is required before purchase order can be issued. Receipts must be verified by department head. Invoices must be approved by department head and chief engineer before treasurer issues payment via check. A BOD member countersigns all checks before issuance.
5) Emergency purchasing procedures are appropriate	Approvals are obtained after the fact and then and now purchase orders are issued and approved by the BOD as required.
6) A list of recommended or preferred suppliers (including minority suppliers) is compiled	A supplier list is maintained but no formal program exists to determine how a supplier is designated as a preferred supplier or to encourage use of small and disadvantaged suppliers . (See **F4.24, R4.11**)
7) Supplier performance is monitored	No formal program exists. Inadequate performance is addressed with suppliers when it happens (See **F4.24, R4.11)**
8) Volume purchases are annually pursued for discounts	Purchase orders are issued for annual purchase volumes where appropriate to take advantage of volume discounts. Volume purchases are not pursued to reduce the number of suppliers or increase purchasing dollar leverage. (See **F4.24, R4.11)**

Source: GAO statement for Contract Management, "Trends and Challenges in Acquiring Services; Financial Systems, State of Ohio, AOS, "Preliminary Assessment of Functional Areas"; City of San Antonio Performance Review.

F4.23 The BOD adopted Resolution No. 5291 entitled "The Purchasing Policy for the Mahoning Valley Sanitary District" on October 17, 2001 to comply with an AOS annual financial audit recommendation. The resolution outlines internal controls that were put in place to control expenditures; however, there are no segregation of duty controls in place related to the issuance of purchase orders and the payment of invoices. There is also no reference to the need for competitive bids for expenditures below $10,000.

The resolution also makes reference to previous BOD resolutions dealing with existing procedures but does not identify the specific procedures. It mentions the use of blanket orders and super blanket orders being in place to facilitate the normal purchasing process but does not specifically reference any of them. Other than the use of blanket orders and membership in the Ohio Cooperative Purchasing Program, the resolution does not mention any other procurement programs that will improve purchasing efficiency or utilize MVSD's purchasing power. The resolution also does not mention MVSD's ability to implement or participate in bulk buying programs, other cooperative purchasing arrangements, federal contracts if allowed, better use of the automated purchasing system including e-commerce and use of the internet, use of procurement cards in a controlled manner for small dollar purchases, and disposal of surplus and obsolete items.

R4.10 MVSD should take steps to improve its procurement process. To enhance its procurement activities, the BOD should take the following action:

- Evaluate the need to seek an increase in the competitive bidding threshold and a decrease in the number of weeks that requests for bids are advertised. A decision to increase the threshold and decrease the advertising time would decrease the associated cost of advertising and obtaining competitive bids, and would allow MVSD to obtain necessary goods and services in a timely fashion. This will require a change to the ORC.

- Require the treasurer to document all related purchasing resolutions, provide a list of all types of blanket orders, and work with MVSD management to implement purchasing programs that would streamline the purchasing process and reduce costs. For example, an effective procurement card program would eliminate the issuances of many small dollar purchase orders and require the payment of fewer invoices. Taking these steps could potentially reduce MVSD's procurement costs.

- Assign the responsibility of entering purchase requisitions and issuing purchase orders to clerical staff. Sound purchasing practice separates the issuance of purchase orders and the payment of invoices. Personnel involved in purchasing should not have access to accounts payable processing and vice versa. The purchasing process would involve all computer data associated with purchase order issuance, and the accounts payable process would involve all data needed for payments. Security access to computer files should be established to prevent unauthorized access.

- Update Resolution No.5291 to reflect when competitive bids are required for purchases below $10,000 and to identify other types of purchasing programs for participation in addition to the Ohio Cooperative Purchasing Program.

F4.24 MVSD maintains a comprehensive list of contractors and suppliers that MVSD has conducted business with in the past. During January and February of each year, MVSD sends letters to the contractors asking them if they wish to renew or submit a new contract for any type of chemical MVSD uses. If the contractor wants to submit a bid, MVSD sends them the appropriate materials to fill out and return. MVSD also replies to responses received from newspaper advertisements. Although only a limited number of capital improvement projects have been undertaken in recent years, MVSD anticipates that several improvements will be necessary in the near future. Therefore, it is important for MVSD to choose appropriate contractors and consultants to help construct capital improvements. Although cost is an important consideration, cost should not be the sole factor upon which to base a decision. The lowest bidder approach does not recognize value associated with the service provider and proposed staff experience, skills, service and other enhancements above the minimum criteria.

Table 4-14 outlines selected national best practices for contract administration, and MVSD's current contract administration practices.

Table 4-14: National Best Practices for Contract Administration

Best Practices	MVSD Practices
1) Clearly defined roles and responsibilities for Purchasing and Financial staff in contract bidding, purchasing, and requisitions.	Resolution 5291 dated 10/17/01 specifies roles and responsibilities
2) Information about purchasing policy and procedure changes are disseminated to appropriate people on a timely basis with instructions and means for follow-up education, if necessary.	Any changes are communicated to appropriate staff on a timely basis. Training is provided when needed.
3) Bidding process is appropriate	ORC 6115.20 specifies the bidding process for expenditures exceeding $10,000. It is followed but the bidding threshold and advertising requirements require review to be more in line with peers and other state agencies (See **F4.22, R4.10**).
4) Internal controls are effective and consistent	Department head signatures are required on all requisitions less than $1,000. Over $1,000 up to $10,000 also require chief engineer approval. BOD resolution required for expenditures more than $10,000. Treasurer certification is required before purchase order can be issued. Receipts must be verified by department head. Invoices must be approved by department head and chief engineer before treasurer issues payment via check. A BOD member countersigns all checks before issuance.
5) Standard Contract Monitoring exists, complete with checklists, controls, and performance measures	Bid packages and contracts reviewed show no standardization. (See **F4.25, R4.12**).
6) Complete documentation of contract objectives, changes, history and interpretations to ease transition for new staff are maintained.	No formal process exists to document everything associated with contracts (See **F4.25, R4.12)**.

Source: GAO statement for Contract Management, "Trends and Challenges in Acquiring Services; Financial Systems, State of Ohio, AOS, "Preliminary Assessment of Functional Areas"; City of San Antonio Performance Review.

R4.11 MVSD should formalize its procedures for qualifying, choosing and evaluating appropriate contractors and consultants including small and disadvantaged suppliers, and take steps to add new contractors and consultants to its list. MVSD should also pursue volume purchases with appropriate suppliers to decrease the number of active suppliers and increase dollar leverage leading to additional discounts. In addition, MVSD should account for non-financial factors during its bidding process. MVSD should require all contractors and consultants to submit proposals based on a number of nonfinancial and financial factors. Nonfinancial factors should include qualifications and experience of staff promised to work on MVSD's project and the contractor's ability to meet regulatory requirements. Financial factors used to evaluate the monetary aspects of a proposal should include cost effectiveness, financial strength of the respondent and the compensation package to existing employees. Taking these steps will help

to ensure that MVSD receives bids from qualified sources and maximizes the services received in terms of quality, service and price.

F4.25 Bid/contract packages reviewed indicate that different contract and request for bid templates are being used. Usually the bid/contract packages are documents provided by the engineering company who has completed the design work for a specific project. Typically they are the standard forms published by the American Institute of Architects or the National Society of Professional Engineers and they may or may not contain standard paragraphs that MVSD needs. This often necessitates a legal review by MVSD's counsel which delays the contract approval process and increases legal costs. The review also indicated that there is no formal procedure documenting how bid/contract packages are to be processed and maintained. This could cause records essential to a contract record to be lost or be incomplete.

R4.12 The chief engineer should work with MVSD's legal counsel to develop separate templates for requests for bid document and a standard construction contract that contains standard, general terms and conditions favorable to MVSD. One way to approach this task is to take all of the documents currently being used by the various MVSD contractors and collect all of the standard paragraphs from them and develop draft documents for legal review. Once this in completed, the need for legal review in the bidding process can be minimized, which will subsequently reduce time spent on the contract completion process and reduce overall legal costs.

A procedure also should be developed stating how bid/contract packages should be processed and maintained. This will ensure that all documents relating to a project are centralized and are available for anyone to review, including new staff. One method to accomplish this is to use a contract file checklist. The checklist could be constructed with headings and activities including the following:

- *Overall contract administration*: contract abstract containing key dates and contract provisions, contract responsibility assignment and contact data, and a contract event log;

- *Contract Planning and Solicitation*: planning documents, budget authorization, procurement solicitation document such as a request for quote or proposal, contractor proposals, contract evaluation and selection documentation, discretionary contractor disclosures, and contract award letter;

- *Contract Approval and Negotiation*: request for resolution, executed resolution, executed contract, and executed contract amendments;

- *Contract Monitoring*: fiscal performance reports, non-fiscal performance reports and data, insurance and bonding records, disadvantaged business participation records, applicable federal and state requirements, budget revisions, and audit reports;
- *Contract Billing*: invoices and billing statements, and payment records; and
- *Miscellaneous*: other contractor correspondence, other MVSD correspondence, other general correspondence, and pending data requirements.

Additional Funding Sources

F4.26 There are a variety of funding sources available for water treatment facilities to use to finance capital improvement projects. **Table 4-15** presents five financing sources that many water systems use to fund capital improvements.

Table 4-15: Financing Sources

Financing Source	Provides Funds	Repayment	Advantages	Disadvantages
Revenue Bonds	Immediately	By rate payers over 10-30 years	Makes funds available immediately; ties payment to benefits received	Increases rates; high interest cost
General Obligation Bonds	Immediately	By rate payers of 10-30 years	Makes funds available immediately; ties payment to benefits received; potentially lower interest costs	Increases taxes; compete with other local services for limited bond funds; separate payments from benefit
Reserves	In Future	By rate payers each year until reserve is adequate	Eliminates need for borrowing; improves financial stability of system	Can be politically difficult; difficult to protect reserves for intended use; impractical for large projects
Revolving Loans	Immediately	By rate payers over 10-20 years	Makes funds available immediately; ties payment to benefits received; potentially lower interest costs	Increases rates; competition with other local agencies
Grants	Immediately	N/A	Makes funds available immediately, no repayment required	Competition with other local agencies, may have to provide matching funds

Source: University of Virginia Research Center

As shown in **Table 4-15**, financing sources have advantages and disadvantages. MVSD should carefully consider the advantages and disadvantages of each of the financing sources when deciding how to fund its activities. Currently, MVSD has approximately $30 million outstanding in revenue bonds and has met its limit allowed by law for general obligation bond debt outstanding. In addition, MVSD does not have a reserve fund that is adequate to pay for future capital improvements. MVSD is researching the possibility of receiving a low interest revolving loan from the Ohio EPA. However, MVSD does not research or apply for any grants

from professional organizations. For example, the Ohio EPA provides the following grant opportunities which water systems can take advantage of:

- Water Supply Revolving Loan Account (WSRLA) can provide loans and other types of financial assistance for capital improvements
- Public Water System Supervision Grants (PWSS Grants)
- Watershed Protection Grants

Therefore, MVSD is potentially missing grant opportunities to fund capital improvements by not consistently pursuing grants. Grant funds offer an opportunity to address capital improvement needs without having to issue debt or increase water rates.

F4.27 MVSD primarily funds operations through the sale of water. However, in 2001, MVSD applied for a revolving loan from the Ohio EPA. The Ohio EPA's Drinking Water Assistance Fund (DWAF) was created by the ORC and the Safe Drinking Water Amendment of 1996 (SDWA). Through the United States EPA grant monies and matching funds provided by OWDA, the DWAF can provide financial assistance to public water systems with the primary goal of bringing systems into compliance with the SDWA and all state drinking water regulations.

The DWAF created the Water Supply Revolving Loan Account (WSRLA), which provides loans and other types of financial assistance for capital improvements to community water systems. Eligible projects are capital improvement projects which are necessary to ensure compliance with the SDWA, all applicable regulations in the ORC, and all applicable rules of the Ohio Administrative Code. After ranking, projects are placed on a project priority list for the current program year. According to the project priority list released in December 2001, MVSD is eligible to receive approximately $5.8 million for improvements to its filtration system. According to the chief engineer, MVSD anticipates repaying this loan through a five percent water rate increase in FY 2002 and FY 2003 and a 4.5 percent increase in FY 2004 and a 2.25 percent increase in FY 2005. However, the chief engineer did not receive authorization through a BOD resolution to pursue a low interest loan from the Ohio EPA. The interest rate for this loan has not been determined, but it will not be lower than 3.5 percent. The Ohio EPA updates the project priority list every six months and allows water systems to apply for funding for multiple projects. Factors which determine a project's ranking include:

- Human health risks;
- Compliance with federal and state SDWA requirements;
- Affordability;
- Population or service area;
- Regionalization/consolidation; and
- Effective management.

According to the Ohio EPA, most systems are able to obtain financing for entire projects, as long as it meets WSRLA eligibility criteria. During FY 2002, the maximum amount WSRLA could award to any one system is $11 million. The WSRLA fund offers six different interest rates based on length of loan, system size and type and affordability criteria. Interest rates range from 2.0 percent to 4.28 percent. Short term loans (for up to five years) are available for planning and design of projects. Before a loan is made to a water system, the Ohio EPA will evaluate the ability of a system to maintain financial, managerial and technical capabilities in the operation of its public water system. The Ohio EPA encourages all water managers considering applying for a loan to first evaluate the use of effective management tools in operation of the water system. In addition, the Ohio EPA also recommends water systems apply before June 2002.

R4.13 MVSD should receive a BOD resolution that authorizes management to pursue grants and low interest loans. If MVSD anticipates raising water rates to repay the loan, MVSD should solicit permission from the Court before MVSD commits to the loan. The Court should inform MVSD that if the loan is not received, the water rate increase will not be implemented.

F4.28 MVSD has issued general obligation and revenue bonds as alternative sources for capital improvements. MVSD's general obligation bonds are direct obligations of MVSD for which its full faith, credit and resources are pledged and payable from assessments levied on the cities of Youngstown and Niles, and paid through the cities' water departments. Revenue bonds can be issued by most units of government, special districts, and in many states, by non-profit water associations through public facilities boards. With revenue bonds, the interest and principal are paid from the revenue generated by the project or utility. Revenue bonds usually require the issuer to set up specific reserve funds that provide additional security to the investors. Reserve funds that guarantee adequate money for operation, ongoing capital requirements and debt service are usually part of the revenue bond indenture.

F4.29 **Table 4-16** summarizes MVSD's outstanding debt as of June 30, 2001.

Table 4-16: MVSD's Outstanding Debt as of June 30, 2001

Revenue Source	Principal	Interest Rate
General Obligation Bonds	$19,040,000	5.0%
Water Revenue Bonds	$29,790,000	6.0%
Total	**$48,830,000**	

Source: MVSD FY 2000-01 regular audit

Table 4-16 reveals that MVSD has approximately $49 million in debt outstanding. MVSD issued water revenue bonds in 1994 and refinanced them in 1999. Outstanding general obligation bonds consist of MVSD's construction issues. The water revenue bonds are obligations of MVSD and are payable from the revenues, and are secured by a pledge of and lien on the revenues in the Maintenance Fund. The 1994 water revenue bonds were used to pay the $7.9 million bond anticipation note and to provide funds for the EPA clear well project. MVSD's 1999 water revenue bonds were issued at $30,775,000, of which approximately $19.7 million were used for construction projects. The following lists details how MVSD used the proceeds from the 1999 refinanced water revenue bonds:

- Financing certain improvements to MVSD's water supply system;
- Retiring all of the outstanding MVSD Revenue Bond Anticipation Notes;
- Funding a Debt Service Reserve Account;
- Reimbursing MVSD for certain engineering costs incurred in anticipation of issuing the revenue bonds; and
- Paying certain costs of issuance of the water revenue bonds.

MVSD's amortization schedule of the general obligation and water revenue bonds, including interest, is presented in **Table 4-17**.

Table 4-17: MVSD's Debt Amortization Schedule

Year Ending June 30:	General Obligation Bonds	Water Revenue Bonds
2002	$1,705,469	$2,625,435
2003	1,690,869	2,624,629
2004	1,709,769	2,624,835
2005	1,706,869	2,625,640
2006	1,702,569	2,622,063
Subsequent Years	18,643,822	34,086,511
Total	**$27,159,367**	**$47,209,113**

Source: MVSD FY 2000-01 regular audit

F4.30 There are three organizations that rate bonds. The bond rating criteria used by these organizations are a good guideline to follow before making the decision to go into debt for large amounts of money to complete capital improvements. The following is a list of questions and criteria that lenders and investors consider when deciding how safe a credit risk and issuer are:

- *Legal Provisions*: Revenues must be sufficient to cover both the debt service of the bonds and operating and maintenance expense. Water rates should generate an additional 25 percent of the annual debt service as a reserve so that bondholders are protected in case there is an unforeseeable decline in revenue. How much other debt does the issuer have and what position will a new creditor have for being repaid? The lien position defines the payment priorities of the debt service in relation to other loans or bond issues. Prior liens means debt service is paid before subordinate liens.

- *Economic Factors*: What is the economic stability of the area? Is it a mix of residential and industrial consumers? What are the trends in the population, employment and income level? If an industry is a major rate payer, is that industry committed to the community and financially stable?

- *Operating Factors*: How stable is the governing body and operating staff? Is the system well run? Are the existing facilities in good shape? How good is the compliance record of the system? How well will the system be able to meet future demand? What is the current rate structure? Can rates be raised quickly and effectively to meet unforeseen financial shortfalls?

- *Financial Factors*: How well has the entity performed financially in the past? Are reserve funds adequate? Does a CIP exist and how much is going to have to be spent in the future for improvements to meet regulations?

R4.14 The treasurer should annually monitor and report to the BOD questions and criteria used by bond rating organizations to identify areas for requiring improvement, before deciding whether to issue more bonds to fund operations and capital improvements. Criteria such as legal provisions, economic factors, operating factors and financial factors should be reviewed and presented to the BOD in order to determine MVSD's ability to repay the debt. If most questions asked by the bond rating organizations cannot be answered favorably, MVSD will have a good idea of what areas to improve. MVSD can potentially enhance management, operational and financial performance by producing more management documents regarding how the rate structure is developed and what capital improvements will be undertaken in future years and how issuing bonds will affect the rate structure and capital improvement plan.

F4.31 The Ohio Water Development Authority (OWDA) is an independent agency created by the State of Ohio in 1968 to provide financing to governments for projects related to solid waste,

water supplies and water pollution control. The goals of OWDA are to provide Ohio communities with access to reasonable financing for facilities needed to protect Ohio's natural resources and the environment and to improve the quality of life for all Ohio residents. Since 1968, OWDA has provided financing to governments, private industry and utilities for more than 2,400 projects totaling more than $4.6 billion. OWDA receives no state funding. Instead, administrative costs are covered by a one-time administrative fee paid by loan applications and private activity bond issuers when projects are financed.

OWDA financing is available for projects that involve planning and designing wastewater treatment and collection facilities, water supply, distribution facilities and solid waste facilities. This includes costs associated with feasibility and engineering studies, legal fees, and acquisition, engineering and design and certain miscellaneous administration costs. Eligible water projects include the development and/or acquisition of potable water sources, construction and expansion of water treatment facilities, and the installation or improvement of water distribution systems. Interest rates on loans, for the period January 1, 2002 through March 31, 2002, range from two percent to 5.65 percent.

F4.32 MVSD has not applied for State Issue 2 funding since 1996 and does not have a designated employee responsible for researching and applying for grants. State Issue 2 provides funding in the form of grants, loans and local debt support for local governments under the State Capital Improvement Program (SCIP). MVSD is eligible for SCIP funding, which could be used to cover costs for engineering and design, construction, equipment and financing related to capital improvement projects.

The Ohio Public Works Commission (OPWC) in Columbus, Ohio administers SCIP, also known as State Issue 2. During each program year, 80 percent of SCIP's allocation can be awarded in the form of grants. A minimum 10 percent matching funds are required for a repair or replacement project and 50 percent of a project's total cost if it is a new or expansion project. The remaining 20 percent of SCIP's allocation must be awarded in the form of interest free or low interest loans or in the form of local debt support. Applicants can request up to 100 percent funding in the form of a loan. OPWC funds are available on a yearly basis.

For the purposes of allocating SCIP funds, the 88 counties in the state have been organized into 19 districts. MVSD is located within district six, which has a SCIP allocation of approximately $8.5 million. District integrating committees, consisting of public and private officials, have been formed in each district to evaluate and rank projects for the OPWC. The committees are mandated to use specific evaluation criteria in determining which projects will be recommended for financial assistance. An applicant must prepare and submit the necessary application materials prior to the deadline established by the district integrating committee to have its projects considered for funding.

MVSD received State Issue 2 funding in 1995 and 1996 in the amounts of approximately $616,500 and $213,300, respectively. The money was classified as a credit enhancement, with the intention of using the proceeds to pay off the interest on MVSD's bonds. MVSD distributed the proceeds to the member communities since they are responsible for paying a portion of MVSD's debt. According to the district six integrating committee, MVSD was approached to apply for the money since district six had additional funding available that needed to be distributed.

OPWC funding for SCIP is provided with debt issued by the state and must periodically be reauthorized by voters. The state can sell bonds in the amount of $120 million a year, for no more than ten years. In 1995, Ohio voters renewed the SCIP program for ten years. Therefore, this funding will no longer be available after 2005 unless it is reauthorized by voters.

F4.33 The peers actively pursue grants and low interest loans to help finance operations and capital improvements. Akron has entered into loan agreements with the OWDA and the OPWC for its water system and sewer system and other public improvements. More specifically, Akron has loans with outstanding balances of approximately $4 million for water system improvements from OWDA and OPWC. The payments under these loan agreements are required to be made out revenues from the water system after payment of operation and maintenance expenses and the requirements of any revenue bonds issued. The loan agreements grant no security or property interest to OWDA or OPWC in any property of Akron, and do not pledge the general credit of the city, or create a debt subject to the direct or indirect debt limitations or require the application of the general resources of the city for repayment.

R4.15 MVSD should develop a collaborative process to identify and obtain additional funding from professional organizations and state and federal programs that provide funding sources in the form of grants and low interest loans. MVSD should collaborate with the Ohio EPA, Ohio Public Works Commission, and other similar entities on a regular basis to identify grant funding possibilities. Obtaining additional funding, particularly from grants, would help MVSD supplement the cost of capital improvements and help mitigate the need for rate increases. The treasurer should be primarily responsible for researching and applying for grants and loans since organizations that provide grants and loans to water utilities require a significant amount of financial and management information. However, management, including the chief engineer and the BOD, should assist the treasurer in identifying and obtaining other funding sources by gathering the necessary information to complete the grant or loan application process.

At a minimum, MVSD should annually apply for State Issue 2 grants to help supplement capital improvement costs identified in an updated capital improvement plan. According to

OPWC, the average grant and loan award is approximately $500,000. OPWC loans are interest free and are for 20 years or the life of the project, whichever is shorter. The planning/budgeting committee recommended in **R2.6** could be used to oversee the application process and recommend projects for funding. When debt financing is required, MVSD should also consider applying with OWDA or the EPA. Both organizations provide loans at below market interest rates that can be used to fund improvements to MVSD's water system.

Financial Implication: Applying and receiving State Issue 2 funding could provide MVSD with an additional $250,000 for capital improvement costs on a periodic basis. Other grants could provide additional funding and low or no interest loans could result in significant cost avoidance.

Financial Implications Summary

The following table presents a summary of the revenue enhancements and implementation costs discussed in this section. Only recommendations with quantifiable financial impacts are listed.

Recommendation	Revenue Enhancement (Annual)	Estimated Implementation Cost (One-Time)
R4.9 Obtain OFAC training for the BOD		$260
R4.15: Apply for OPWC and other funding	$250,000	
Totals	**$250,000**	**$260**

Other findings and recommendations identified in the performance audit that are not listed above could potentially have a financial impact on MVSD. For example, if MVSD decides to implement any of the remaining $49.4 million construction projects identified in the 1997 CIP, MVSD may issue additional debt and subsequently increase water rates. In addition, if MVSD developed a collaborative process to identify and obtain additional funding from professional organizations and state and federal programs, MVSD could potentially receive additional grants and low interest loans to fund capital improvements. Furthermore, the implementation of several recommendations identified throughout this performance audit will increase efficiencies within MVSD's planning and financial operations and subsequently impact levels of financial decision making, which would result in additional cost savings and revenue enhancements to MVSD.

Conclusion

MVSD needs to improve all aspects of its financial planning and budgeting processes. It is critical for water treatment facilities to operate as technically, managerially and financially sound systems. For MVSD, this means improving its budgeting, forecasting, investment and capital planning activities. In general, MVSD needs to be more systematic in developing and assessing its budget activities and more detailed and sophisticated in developing financial planning documents to make decisions. For example, MVSD does not formally analyze the rate structure on an annual basis or establish performance measures to foster improvements and assess its financial operations. MVSD also should do more to obtain grant funding from entities, such as OPWC, to supplement water and debt revenues. To enable MVSD to become a more fiscally accountable organization, the BOD should consider employing a chief financial officer that would be responsible for managing and coordinating the financial planning activities. The chief financial officer should report directly to the chief engineer/chief operating officer and provide any financial management services to the BOD.

A critical issue that MVSD should address is to implement a capital improvement plan and ensure the relevant costs of the plan accounted for in its rate structure. Effective capital planning is critical for ensuring MVSD's ability to operate effectively. Failure to carry out a CIP could have catastrophic consequences if infrastructure deteriorates too far. The first step MVSD needs to take in this regard is to update its CIP. Creating a standing committee could effectively facilitate the necessary update and provide for an ongoing capital improvement planning process. Establishing an ongoing capital improvement process is important for having an orderly and routine method of planning and financing for required capital improvements using strategic planning and budgeting goals and materials as a guide. Also, prioritizing projects according to criteria that are embedded in MVSD's mission and goals could create a more understandable investment decision making process, improve linkages between capital investments and MVSD's long term vision and goals and build citizen confidence by making more efficient use of available resources.

The BOD and management also need to ensure that employees involved in the budget process have adequate skills and knowledge to effectively carry out MVSD's financial operations and implement the recommendations in this section. Particularly, MVSD needs a skilled CFO to help implement the recommendations from this section and effectively manage its finances. Currently, the treasurer position completes primarily day to day financial tasks, such as processing payroll and paying MVSD's bills, instead of managing and coordinating the strategic and financial planning responsibilities within MVSD. The treasurer should have the skills and experience to function as the top financial position within MVSD and should be responsible for planning, budgeting, analysis and accountability processes as well as provide financial management services to the BOD.

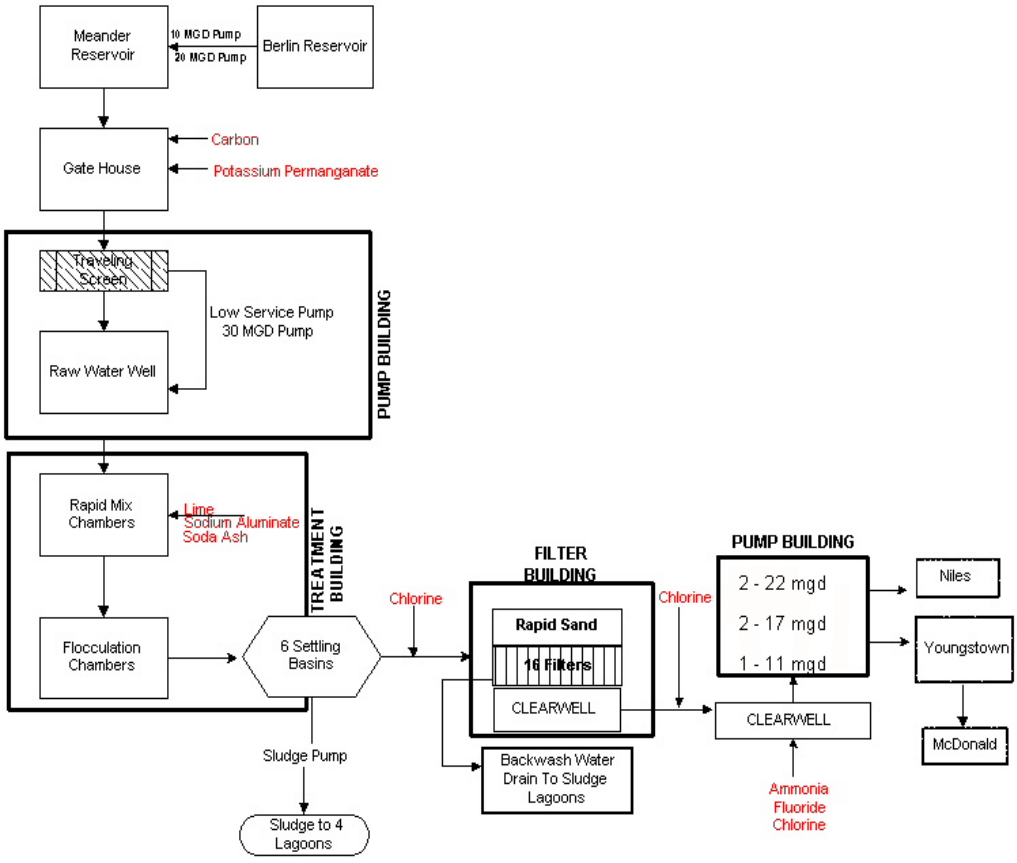
Improving its financial operations and planning is essential to the long term success of MVSD. The lack of effective financial operations could limit MVSD's ability to access capital markets, especially in times of emergencies or needed upgrades and repairs. Improving its financial planning, will also help ensure MVSD is able to obtain grants or necessary loans. Using the recommended data and performance measures is important for MVSD to accurately assess its financial position, identify areas of needed improvement, and encourage improvements in operational efficiency. MVSD could substantially improve the efficiency and effectiveness of its financial operations by implementing recommended procedural changes and best practices.

Operations

Background

The Operations section analyzes the staffing and processes of the Purification and Pumping divisions. The analysis includes comparisons with the staffing and practices used by the Akron, Lima, and Toledo water departments. **Chart 5-1** illustrates the process carried out by MVSD's Purification and Pumping divisions. The Purification and Pumping divisions carry out MVSD's core functions of water treatment and supply to customers, including the cities of Niles and Youngstown and the Village of McDonald.

Chart 5-1: MVSD Water Treatment and Pumping Operations



As illustrated at the top of **Chart 5-1,** the raw water supply for the MVSD is obtained from Meander Creek Reservoir. MVSD is able to store 11 billion gallons in the Meander Reservoir. Nearly 30 million gallons of water are pumped and treated daily (MGD). Raw water is usually drawn into the treatment facility by gravity, but if Meander Reservoir water level falls to an elevation of 888 feet, the low service pumps must be turned on to deliver the raw water. The entire treatment and filtering process takes about 10 hours.

Treatment of the raw water begins with the addition of carbon and possibly potassium permanganate at the gate house. Carbon is used for taste and odor removal. Potassium permanganate is used primarily to treat certain odor and taste problems. Carbon and potassium permanganate are the first chemicals added because they require extended contact time with the raw water to be effective. After leaving the gate house, the water flows through large screens in the pump building, which filter out debris, such as tree branches and leaves. The water then flows through the raw water well before it continues on to the treatment building where sodium aluminate, lime, and soda ash are injected into the water in rapid mixing chambers. Lime and soda ash are used to soften the water. Sodium aluminate facilitates the "flocculation" process, which causes particulates in the water to coagulate or clump together. Flocculators then slowly swirl the water to help facilitate the creation of large particulate matter. The water takes about 20 minutes to travel through the flocculators.

The water then flows to one of six settling basins, where the sludge or particulate matter settles to the bottom. The water remains in the settling basin for about four hours. The sludge is eventually removed to one of four sludge lagoons located off-site. A contract is issued periodically to a contractor for sludge removal. The water from the settling basins then flows into the filtration building where chlorine is added prior to the filtration process. The filtration building has 16 rapid sand filters, each with 1,400 square feet of surface, and each capable of filtering 2 gallons per minute per square foot or 4 MGD. These filters consist of a layer of sand, gravel, and ceramic balls, which provide final filtration of any remaining fine particulates. The filtration process takes only 20 minutes to complete. Actual plant demand determines the number of filters in service at any one time. Typically, all 16 filters are in use when they are all in working order. The filters are backwashed periodically to remove impurities. The backwash water is flushed to the four sludge lagoons.

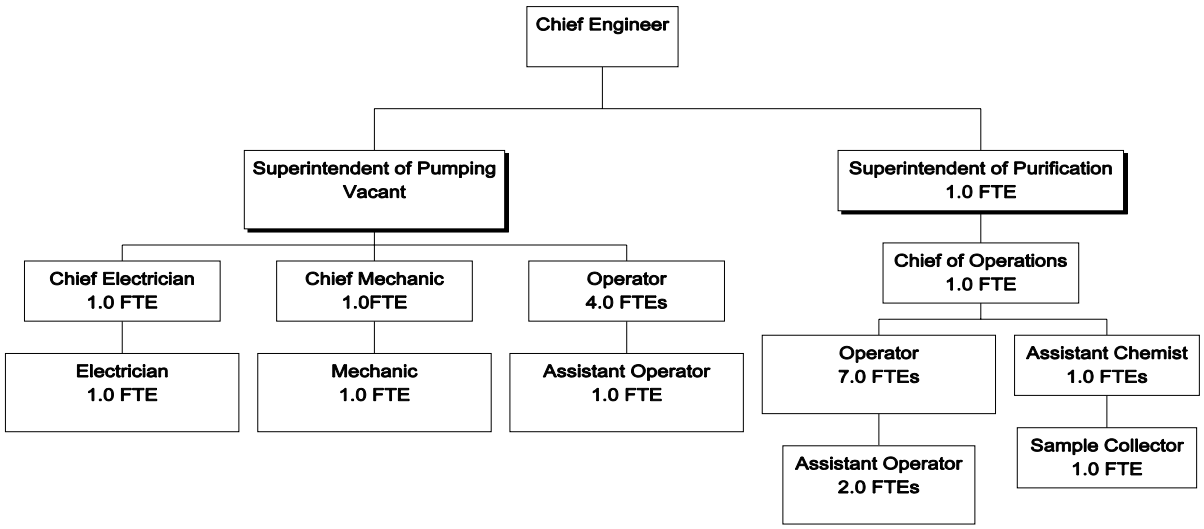
Filtered water flows to the large underground clearwell tank where chlorine, fluoride and ammonia are added to the water. The water stays in the clearwell for about four hours to allow enough contact time for the chlorine to disinfect the water. Once this stage is complete the water is considered to be "finished" and is potable. The finished water flows by gravity to the pumping station where it is pumped into the transmission mains, which supply water to MVSD's customers. MVSD pumps the finished water to the City of Youngstown through twin 36 inch force mains, each five miles long, to a 30 million gallon distribution reservoir maintained by MVSD, and through a 2.8 mile, 48 inch water main to Youngstown’s Webb Road Pumping Station. A 12 inch feeder main goes to McDonald from one of the Youngstown's force mains. MVSD also pumps finished water to the

City of Niles through two 20 inch force mains, and a recently added 24 inch force main to the main distribution system.

Organization and Operation

Chart 5-2, provides an overview of the Pumping Division (PPD) and Purification Division (PFD) organizational structure and staffing levels.

Chart 5-2: Pumping and Purification Organization



All positions shown in **Table 5-1** include the number of full-time equivalent (FTE) employees working in each position at MVSD, as of November 2001. The superintendent of purification, with the assistance of the chief of operations, oversees the day-to-day functions within the PFD.

The PPD is headed by the superintendent of pumping, a position that has been vacant since May 2001. The superintendents of pumping and purification report to the chief engineer. The chief of operations and the resident engineer have assumed the managerial functions of the vacant superintendent of pumping position (see **organizational management** and **field maintenance** sections for more detail on duties of resident engineer) . The resident engineer's role in the management of the PPD includes the human resource responsibilities for mechanics and electricians, such as monitoring vacation, sick and personal time. Additional responsibilities include the scheduling of daily workloads, overseeing inspections of facilities, maintaining and repairing all mechanical and electrical equipment, and ordering equipment and parts as needed. The chief of operations' role in the management of PPD includes the human resource responsibilities for pumping

division operators and assistant operators. Additional responsibilities that the chief of operations has taken on include:

- Scheduling;
- Reviewing employee certification training requirements and expiration dates;
- Evaluating employee work performance;
- Regulating water flow;
- Checking operator tabulations and log sheets;
- Reviewing employees time sheets;
- Authorizing overtime;
- Assigning workload; and
- Training employees.

As of November 2001, there were 9 FTE hourly employees in the PPD and 11 hourly FTEs in the PFD for a total of 20 hourly operations employees and two management staff. The PPD is responsible for the pumping of water to MVSD customers and monitoring water flow within MVSD. This is achieved by constantly communicating with the filter operators and monitoring of elevation readings. The PPD and PFD operators' major responsibilities include touring respective buildings to insure water quality compliance, monitoring pumps and chemical feeds, adjusting chemical doses when necessary, reading and interpreting meters gauging flow through plant and operating equipment to assure plant flows meet required pumping requirements. Also, the pumping operators monitor the elevation in both Niles' and Youngstown's reservoirs. The mechanics and electricians are responsible for all mechanical and electrical maintenance within the operations facilities.

The PFD manages the purification and filtration process that results in potable water. The PFD staff includes operators, assistant operators, an assistant chemist and a sample collector. The purification operators play a key role in making sure that all water coming into MVSD is treated and filtered in accordance with Ohio Environmental Protection Agency (OEPA) guidelines. The assistant chemist is responsible for bacteriological testing of both raw and finished water within the facility and throughout the distribution system to ensure that drinking water quality is in accordance with OEPA requirements. The PFD operators and assistant operators are certified in operational laboratory testing, which qualifies them to perform chemical testing. Chemical tests allows MVSD to determine the proper dosage of chemical treatment and to make changes as needed.

Performance Measures

The following is a list of performance measures that were used to conduct the review of the operations functions carried out by MVSD's Pumping and Purification divisions:

- Analysis of current staffing;
- Assessment of policies, procedures and work load;
- Assessment of the maintenance program and scheduling;
- Assessment of the capital improvement planning role; and
- Assessment of technology use.

Findings/Commendations/Recommendations

Staffing

F5.1 **Table 5-1** illustrates the staffing level of the PFD compared to peer treatment departments.

Table 5-1: Comparison of Purification Staffing Levels

Position	MVSD	Akron	Lima	Toledo	Peer Average	Staffing Assessment
Supervisor	2.0	2.2	1.4	1.0	1.5	**F2.5**
Operator	7.0	4.5	5.0	14.0	7.8	**F5.3, F5.4, F5.5**
Assistant Operator	2.0[1]	0.7	0.0	0.0	N/A	**F5.3, F5.4, F5.5**
Laboratory	2.0	5.0	2.0[2]	9.0[2]	5.3	**F5.12**
Total FTEs	**13.0**	**12.4**	**8.4**	**24.0**	**14.9**	**N/A**

Source: MVSD and peer water treatment districts
Note 1: Staffing levels are as of November 2001
Note 2: MVSD is not included in peer average
[1] As of December 2001, one assistant operator was transferred to field maintenance for not obtaining a Class 1 license within two years of hire, but is still counted in this table.
[2] Lima and Toledo does not include sample collecting in their staffing

As illustrated in **Table 5-1,** the PFD currently has 13 FTEs compared to nearly 15 FTEs for the peers. However, MVSD is above average in the number of supervisors compared to peer average (see **F2.5** in **organizational management** section for further analysis of supervisory staffing). After accounting for assistant operators, MVSD appears adequately staffed with purification operators when compared to peers (see **F5.3** to **F5.7** for further analysis). Although MVSD's laboratory staffing is lower than the peers, no staffing increases are recommended as MVSD appears to be operating effectively (see **F5.11, F5. 12** and **C5.1**).

F5.2 **Table 5-2** presents staffing levels for the PPD of MVSD and peer water departments.

Table 5-2: Comparison of Pumping Staffing Levels

Position	MVSD	Akron	Lima	Toledo	Peer Average	Staffing Assessment
Supervisor	0.0[1]	1.9	0.4	1.0	1.1	**F2.5**
Operator	4.0	4.5	1.0	9.0	4.8	**F5.3, F5.4, F5.5**
Assistant Operator	1.0	0.0	0.0	0.0	N/A	**F5.3, F5.4, F5.5**
Mechanic	2.0	2.1	2.0	11.0	5.0	**F5.9**
Electrician	2.0	1.0	N/A[2]	5.0	3.0	**F5.10**
Total FTEs	**9.0**	**9.5**	**3.4**	**26.0**	**13.0**	**N/A**

Source: MVSD and Peer Water Departments
Note: staffing levels are as of November 2001
[1]Functions are currently performed primarily by the chief of operations and the resident engineer
[2]Contracts out major electrical services

As illustrated in **Table 5-2**, the PPD has a total of 9 FTEs compared to the peer average of 13 FTE's. **Table 5-2** shows a wide variance in peer FTEs for several positions. MVSD is below the peer average in its number of mechanics. (see **F5.9** for additional analysis on mechanics). MVSD is one FTE below the average number of electricians (see **F5.10** for additional analysis on electricians). MVSD is also below the peer average number of supervisors due to the vacancy in the position of superintendent of pumping (see **F2.5** for further analysis of supervisory staffing). After accounting for one assistant operator position, MVSD is at the peer average number of operators, as peers do not have assistants who can fill in for operators.

The overall staffing variance, as shown in **Table 5-1** and **Table 5-2**, is largely related to the size of the facility and the level of automation, such as use of a supervisory control and data acquisition (SCADA) system that can significantly reduce the number of personnel that are needed (see **F5.23, F5.24** and **R5.10** for more details). All of the peers have implemented a SCADA system to some extent and have been able to reduce the number of personnel needed per shift as a result. Because MVSD has outmoded technology and infrastructure, the number of operations personnel needed to operate its facilities is greater. Because of MVSD's outmoded system, it is estimated that MVSD needs three operator shifts to run the facility, each of which requires about 5 FTEs (operators and assistant operators) to cover one 24-hour shift 7 days a week. Therefore, 15 operators and assistant operators are needed (5 each for the pump, filter and treatment buildings) to cover the three shifts without using overtime. For a more detailed operator staffing analysis see **F5.3** to **F5.7**.

Operators and Assistant Operators

F5.3 Currently the PPD and PFD have a total of 11 operators and 3 assistant operators or a total of 4.7 FTEs per shift, which is slightly below the estimated 5 FTEs needed to adequately staff each shift. The number of shifts that one employee can cover in one week is five. Therefore, the minimum number of employees needed to effectively cover 21 shifts is 4 FTEs. However, if leave time is taken into account, approximately five FTEs are required to cover 21 shifts.

F5.4 There are a total of three assistant operators employed at MVSD, one in the PPD, and two in the PFD (as of November 2001). The assistant operators in both divisions only work the day shift, unless called out to fill-in for another employee or in an emergency situation. The assistant operators' main function is to provide back-up support for operators. The assistant operator's secondary function is to perform custodial maintenance services, such as cleaning rapid mixers, oil room, ammonia room; and janitorial functions such as cleaning restrooms, mopping floors, and emptying trash.

The assistant operators are currently responsible for performing custodial and janitorial functions on a total of 121,393 square feet. However, only 101,800 square feet require regular maintenance, which includes total square feet of the chlorine, ammonia and fluoride (CAF), filter, pumping and treatment buildings. Approximately19,593 square feet in eight other buildings are not being regularly cleaned because the buildings are unoccupied and have minimal foot traffic, including the following areas or items: the pump, sludge, backwater, maintenance, McDonald meter building, recycle, gate house and the Berlin pump station buildings. Both the peers also have square footage that is not regularly being maintained because the facility is unoccupied.

F5.5 **Table 5-3**, compares assistant operator janitorial workload demand to International Facility Maintenance Association (IFMA) standards.

Table 5-3: Janitorial Workload Demand

	MVSD
Number of Buildings	11
Janitorial Staff FTE	1.8[1]
Square Footage[2]	101,800
Square Feet Per FTE	56,556
IFMA Standard for Square Feet Per FTE	14,126

Source: MVSD and peer cities and International Facility Management Association 1997 standards
[1]Assumes 3 FTE assistant operators spend 60% of time performing custodial/janitorial duties
[2]Total square feet is based upon roof square feet

Table 5-3 shows that janitorial workload demand for current staff is four times more than the IFMA recommended standard for janitorial staff. The actual disparity is even greater under current staffing because assistant operators spend significantly less than 60 percent of their time performing custodial/janitorial functions to cover operator duties. This results in janitorial functions not being performed regularly.

Akron contracts out certain janitorial work to reduce the amount of square footage its staff are responsible for maintaining and permit the staff to focus on the more critical custodial maintenance duties. Specifically, the City of Akron contracts out general janitorial services for their offices, laboratory and restrooms of 6,200 square feet for about $8,000.

F5.6 MVSD has performance goals for routine maintenance and janitorial functions, such as, cleaning restrooms daily and mopping floors weekly, for 3 out of 11 buildings. The three buildings include the treatment, CAF, and filter buildings, which are the most heavily used buildings and have a great deal of custodial maintenance and janitorial work that needs to be done. MVSD's performance goals are consistent with custodial performance standards for industrial cleaning and in accordance with the special needs of MVSD. However, these performance goals have not been achieved due to inadequate staffing.

F5.7 Management staff does not have a formal policy and procedure for regularly inspecting custodial work performed by assistant operators when they are not performing operator functions. Therefore, custodial duties performed are not being monitored and evaluated. As a result, custodial maintenance and janitorial functions performed may not be in accordance within the goals initially set by MVSD.

R5.1 MVSD should hire an assistant operator trainee for the purification division to provide adequate operator staffing and assist with overall custodial and janitorial functions. **Table 5-4** illustrates the custodial/janitorial square feet maintained under current and recommended assistant operator staffing levels.

Table 5-4: Recommended Janitorial Staffing

	Total FTEs	Total Square Feet[2]	Square Feet Per FTE
Current Staffing	1.8[1]	101,800	56,556
Recommended Staffing	2.4	95,600[3]	39,833

Source: MVSD

[1]Assumes the assistant operators perform custodial and jantiorialfunctions 60% of the time

[2]Based on roof square feet

[3]Based upon Akron's experience, assumes a reduction of 6,200 square feet due to contracting out (see **R5.2**)

As shown in **Table 5-4**, filling the assistant operator vacancy, in conjunction with contracting out, would reduce the square footage demand per FTE by nearly 30 percent.

Filling the assistant operator vacancy will also give MVSD another licensed employee who may function as a back-up operator, if needed. Filling the assistant operator vacancy could also lead to a reduction in overtime expenditures to cover the operator vacancy ($9,000 in 2000) and in some of the overtime incurred for routine maintenance and janitorial functions ($20,000 in 2000).

Financial Implication: The total net cost for hiring an assistant operator trainee should be about $23,000. Hiring of one assistant operator trainee will cost MVSD approximately $42,000 for salary and benefits. However, this cost could be offset by about half of the overtime savings that were accrued in FY 2000 for performing custodial functions or $10,000 and elimination of $9,000 in overtime used to cover the 21st operator shift in PFD.

R5.2 MVSD should also contract out janitorial functions such as cleaning restrooms, offices, hallways and any other areas that are not restricted to licensed personnel on an annual basis. The janitorial cleaning contract should be conducted through the bidding process and should include offices, restrooms and other areas that are not off limits to non-certified personnel. Any contract for janitorial work should include performance requirements and measures by which contractor performance can be evaluated.

Financial Implication: Contracting out janitorial work for its administrative building offices and restrooms could result in a savings of approximately $2,000. Contracting out routine janitorial services could cost approximately $8,000, which could be offset by $10,000 overtime savings.

R5.3 If MVSD hires additional staff and contracts out certain janitorial work, it should improve its custodial program by monitoring and evaluating staff performing routine maintenance and janitorial functions. The custodial program should include policies and procedures for maintaining all eleven facilities. The policies should include regular facility inspections by appropriate management staff, to determine whether prescribed custodial methods are being followed. With the recommendation of filling the assistant operator vacancy in **R5.1**, MVSD should expand its custodial performance goals to incorporate the eight other buildings, including the following: the pump, sludge, backwater, maintenance, McDonald meter, recycle, gate house and the Berlin pump station buildings. However, because these are unoccupied buildings that do not have restrooms, they should require less attention. Overall custodial and maintenance goals and objectives should be developed in a manner which focuses on maintaining a safe, secure and accessible work environment in all facilities.

Plant Mechanics and Electricians

F5.8 The superintendent of pumping is officially responsible for supervising the mechanics and electricians, which includes monitoring workload, and assigning and scheduling tasks. However, the resident engineer has taken over these responsibilities since the retirement of

the superintendent of pumping and subsequent position vacancy. Requests for building maintenance can be submitted on "maintenance request forms" by anyone at the facility. Based upon these requests and the preventive maintenance (PM) plan, the resident engineer distributes plant maintenance assignments. Priority work includes any electrical or mechanical problems that affect the operations of the facility.

All work performed by the mechanics and electricians is documented by making hand-written entries in a daily diary, which include the specific action taken, the date and time and the name of the employee. The resident engineer checks the diaries to see if the employees performed the work and reviews the quality of the work. Documentation of all work performed is hand-written and not computerized, making it difficult to regularly aggregate and analyze the data to determine actual workloads of the mechanics and electricians or to systematically track maintenance histories. A more accurate work load determination and more effective PM program could be developed if MVSD used a better system for tracking plant maintenance work.

F5.9 **Table 5-5** analyzes MVSD plant mechanic staffing as compared to peer cities' staffing. The square feet maintained per FTE was analyzed to provide a general assessment of the workload and staffing for mechanics and electricians.

Table 5-5: Mechanic Workload Comparison [1]

	MVSD	Akron	Toledo	Peer Average
Plant Mechanics	2.0	2.1	11.0	6.5
Facilities Square Feet	121,393	118,000	223,000	170,500
Square Feet per FTE	**60,700**	**56,190**	**20,273**	**38,231**

Source: MVSD and peer cities

[1] The City of Lima did not provide information for this table

As shown in **Table 5-5**, the mechanics at MVSD maintain 22,469 more square feet per FTE than peers or over 59 percent more square feet. This suggests that MVSD may need additional mechanical staff to meet the workload demand. However, Akron, which is most similar to MVSD, requires two mechanics for similar square feet. Therefore, mechanic staffing appears adequate.

F5.10 **Table 5-6** compares MVSD electrician staffing with peer cities' staffing.

Table 5-6: Electrician Workload Comparison [1]

	MVSD	Akron	Toledo	Peer Average
Electricians	2.0	1.0	5.0	3.0
Total Square Feet	121,393	118,000	223,000	170,500
Square Feet per FTE	**60,700**	**118,000**	**44,600**	**81,300**

Source: MVSD and peer cities
[1]The City of Lima did not provide information for this table

As revealed in **Table 5-6**, MVSD's electricians maintain 20,600 less square feet, or 25 percent less per FTE than the peer average. This suggests that electrician staffing is adequate.

R5.4 MVSD should address mechanical and electrical maintenance needs using their existing staff primarily by improving operations and use of current staff. Implementing the restructuring, as recommended in **R2.4** should allow for better coordination of all maintenance activities and facilitate more effective use of field maintenance workers for minor mechanical work within the operational buildings. For example, minor mechanical work could include cleaning motor and HVAC filters, which is currently performed by the mechanics.

Also implementing an improved, data driven preventive maintenance (PM) process (see **R6.7** in **Field Maintenance** section) should allow MVSD to better prioritize maintenance activities, deploy staff more effectively, and identify equipment that needs to be replaced. MVSD should also analyze work order data to evaluate the need for additional staff and assess the type of skills that may be required in the future. For example, increased automation of MVSD facilities (see **R5.11**) would likely mean that more expertise in electronics and computer systems will be required. Improving maintenance management and coordination should improve efficiency and effectiveness of current maintenance activities.

Laboratory Chemist

F5.11 After they receive their Class I certifications, the PFD operators and assistant operators are eligible to receive an operational laboratory certification based on seniority and qualifications. The operational laboratory license authorizes the employees to perform chemical tests for turbidity, hardness, alkalinity and chlorine. These tests are conducted every two hours by PFD operators. This allows the operators to determine if the chemicals are being fed effectively and if the turbidity monitors are working accurately. PFD operators are also responsible for monitoring filter performance by reviewing turbidity readings and chemical feeds. These tests are conducted to ensure that MVSD water quality goals and OEPA guidelines are being met.

F5.12 To carry out bacteriological and chemical testing for its own water operations and for its customers, MVSD runs two certified laboratories. One performs microbiological testing (e.g., total coliform and fecal coliform testing) and the other performs chemical testing (e.g., hardness, alkalinity, and chlorine level testing). MVSD must renew its certification for these laboratories with the OEPA every three years.

Table 5-7 compares the number of microbiological and chemical tests performed annually by MVSD and peer water districts.

Table 5-7: Annual Laboratory Testing Per FTE[1]

	MVSD	Akron	Toledo	Peer Average
Bacteriological Tests	6,240	3,380	8,500	5,940
Chemical Tests	13,000	13,000	152,000	82,500
Total Annual Tests	19,240	16,380	160,500	88,440
Chemist FTEs	1.0	5.0	9.0	7.0
Tests Performed Per FTE	**19,240**	**3,276**	**17,833**	**10,555**

Source: MVSD and Peers
[1]The City of Lima did not provide information for this table

Table 5-7 shows that MVSD performs 82 percent more (8,685 hours) bacteriological and chemical tests per FTE than the peer average. This suggests that MVSD may be understaffed in this area. However, MVSD has two back-up certified employees who are able to perform bacteriological tests if needed. MVSD also may use the certified PFD operators to perform operational laboratory tests as a part of their regular duties. The operational laboratory tests are performed by chemists within the peer water departments. This allows MVSD to perform more tests with fewer chemists. MVSD also performs well in comparison to laboratory personnel benchmark standards**,** which state that a laboratory worker should be able to perform six tests per hour. MVSD laboratory staff perform approximately nine tests per hour. When compared to the peers and to the standard, MVSD appears to have an exceptionally productive and efficient laboratory operation.

C5.1 MVSD uses its PFD operators in a particularly efficient and effective manner that enables MVSD to carry out a higher workload with less staff than is typical. If it were operating at the peer average, MVSD would likely need to hire an additional assistant chemist to effectively manage the testing workload. Because of its efficient operations, MVSD does not need to hire an additional chemist, which saves MVSD approximately $53,000 per year.

Programs, Policies and Procedures

Preventive Maintenance

F5.13 MVSD could improve its PM program with better long term planning and by completing an inventory of equipment and facilities. The resident engineer creates daily maintenance schedules, but is not able to create more long term monthly and yearly plans for the routine maintenance needs of all equipment. The PM requirements for each piece of equipment are in each individual manufacturer's manual. Records of work orders completed and maintenance performed are maintained in various file cabinets. Operations and maintenance manuals outlining maintenance procedures are used to guide staff maintenance work.

The age of MVSD's facilities range from 50 to 80 years old, which is the cause of its rapid deterioration which increasingly results in breakdowns. Staff has indicated that PM is largely performed after emergency breakdowns are fixed. Emergency breakdowns during periods of peak demand has caused the mechanics to get behind on routine PM functions. MVSD staff describe numerous pump, flocculator, and filter PM tasks that are not being performed as needed. This type of emergency maintenance typically leads to unnecessary expenditures and such maintenance lapses can increase the potential for compromising the quality of finished water. Use of an effective PM program could improve MVSD's ability to carry out maintenance activities in an optimal fashion.

F5.14 The OEPA conducted an evaluation of MVSD in May 1997. The purpose of the evaluation was to assess MVSD's ability to provide adequate, safe and potable water under the OEPA's Primary and Secondary Drinking Water Rules. One of the recommendations made to MVSD was to develop a formal maintenance program. This same recommendation was reiterated in another letter from the OEPA to MVSD dated May 4, 1998. The recommendation reads: "Our office strongly recommends the development and implementation of a maintenance program for the equipment at the plant. Especially with the continued plant expansion and improvements, keeping track of standard maintenance for all pieces of equipment will necessitate the development of a detailed tracking system. This will eventually save time and effort in determining items needing attention, as well as with the budgeting aspects of overseeing the maintenance of such a large facility."

R5.5 MVSD should improve its PM program by making it more data driven. MVSD should start by developing a comprehensive inventory of all equipment, which will allow for physical segregation, security of inventory, and prioritization of responsibilities. Improved data will enable systematic analysis that can improve decision-making. An improved PM program will enable MVSD to replace or maintain components at such intervals that the total maintenance costs are minimized. Improving its PM program should improve MVSD's ability to minimize costs, maximize available resources, and improve the ability to efficiently and effectively

achieve its mission. Use of PM software would facilitate the effective implementation of this recommendation (see **R6.7**).

Emergency Planning

F5.15 MVSD is required to prepare and maintain a written contingency plan for providing safe drinking water to its service area under emergency conditions. Chapter 3745-85 of the Ohio Administrative Code (OAC) sets forth EPA requirements for water supply facilities to follow pertaining to emergency planning activities. OAC section 3745-85-05 states that "the contingency plan required by this chapter of the Administrative Code shall be revised and updated as necessary, but at least annually." MVSD's contingency plan has not been updated since 1998. As a result, the contingency plan may have outdated emergency names and phone numbers. However, at the time of this audit, MVSD began work on updating its contingency plan and entering it into the computer so that it may be easily updated. OEPA regulations also require that one copy of the contingency plan shall be kept at the water treatment plant and another be kept in the water system administrator's office. Furthermore, three additional copies of the plan should be housed at various accessible, secure locations in the service area. MVSD only keeps a copy of the contingency plan at the administration building.

The OEPA has detailed guidelines as to what must be included in the emergency contingency plan. The contingency plan should include processes and procedures for handling at least ten emergency situations, in addition to procedures on operating emergency equipment. MVSD has included in their contingency plan the process and procedures for handling ten emergency situations such as hazardous chemical spills, employee strike, fire, power outage, and drought. However, MVSD also has in their contingency plan a list of all non-emergency operating procedures on how to perform alkalinity tests, collect water samples, adjust feed rates, read wind gauge and how to switch chlorine tanks. In addition, MVSD's contingency plan has no index or table of contents to help guide the reader directly to the appropriate page, but instead the reader has to go through all non-emergency procedures before they get to the emergency procedures and the necessary phone numbers.

According to OAC section 3745-85-04 (B), "the contingency plan shall contain a statement of amounts budgeted for emergency use along with a statement showing who can authorize expenditures for such purpose, and under what conditions such authorization and expenditure can occur. MVSD's contingency plan does not include any statements of responsibility for emergency purchasing and budgeting. However, MVSD does have funds budgeted for emergencies that are included in its financial report. One of the most important aspects of any emergency situation is to have individuals, including back-up people, that will be authorized to sign checks for emergency purchases or the rental of equipment or vehicles.

R5.6 MVSD should take steps to improve its contingency plan and to ensure that it is in compliance with the OEPA guidelines and with the Ohio Administrative Codes. MVSD should only include procedures that relate directly to emergency operations in the contingency plan. All non-emergency procedures should be kept in a separate operations policy and procedure manual to eliminate confusion in an emergency situation. The contingency plan should also be updated on an annual basis. All key emergency phone numbers should be updated, as needed, including emergency vendors, hazardous materials organizations and all mutual-aid communities. MVSD should include a statement of responsibility for authorizing emergency expenditures and include the process for making emergency purchases and/or rentals. Finally, a copy of the contingency plan should be kept in the following buildings: Pump, filter, CAF, treatment and administrative, so that all emergency procedures and numbers are easily accessible from various locations. In addition, the contingency plan should be sent off site to the Mahoning County Emergency Management Agency. To help with the review of employees duties, all employees should be trained on the emergency procedures, at least annually, in-house by administrative staff.

Cross-Training

F5.16 MVSD requires all purification personnel to become Class I water supply licensed within two years after they are hired, so that they are properly trained and certified to perform filtering, treatment and pumping operations functions, if needed, under OAC section 3745-7-2. MVSD sends all Class I licensed employees to Operator Training Committee of Ohio, Inc. (OTCO) once every two years for a two day course in Columbus, Ohio. This course allows operators and assistant operators to receive their continuing education credits (or contact hours) required to maintain their license. OEPA regulations require Class I license holders to obtain at least 12 hours of continuing education credits every two years. The purpose of contact hour education requirements is to ensure that certified water operators in the State of Ohio are knowledgeable of regulatory requirements and technological advancements.

F5.17 The City of Toledo water department requires all of its pumping and purification operators to be cross-trained and have Class I licenses, so that all operators can perform both pumping and purification functions. To ensure staff stay knowledgeable in both areas, operators are required to work ten days per year performing functions outside of the areas that they are normally assigned to perform. This better enables Toledo to cover for operators that are using leave time or in an emergency situation, by creating a larger pool of qualified operators to draw from for both operator positions.

MVSD does not require pumping operators to obtain a Class I license, which prohibits them from performing any purification operations functions. This limits MVSD's ability to cover for operators using leave time or in emergency situations. According to the OEPA, pumping

personnel are not required to be licensed, only those employees making decisions on treatment, or the involvement of adding or subtracting chemicals to the water system.

R5.7 MVSD should consider requiring all pumping operators and assistant operators to obtain at least a Class I water supply license. This will create a greater pool of licensed employees to be used for either pumping or purification functions in the event of emergency, and to allow for adequate employee coverage during sick, personal and vacation time. In addition, scheduled rotations of duties should be required of each employee. Rotation of duties will keep the job from becoming too mundane, and may increase staff satisfaction and performance. Like Toledo, MVSD should annually cross-train operators and assistant operators to ensure that they remain proficient in the skills and comprehensive knowledge of operations and maintenance functions. Cross-training will also help MVSD move to a more automated system because all operators will be qualified to perform necessary pumping and purification duties. Implementing this recommendation would require a renegotiation of the union contract to include these requirements and to address other related issues, such as how operator and assistant operator seniority issues would be resolved.

Financial Implication: The total annual cost for the increase in wages and the cost involved in obtaining a Class I water supply license for five pumping employees will be approximately $5,300. The cost for pumping operators and one assistant operator to obtain at least a Class I public water supply license at $0.40 extra per hour would increase annual wage expenditures by approximately $4,000. Additional costs would include continuing education expenses for operator technical certification training, examination and application fee, mileage and overnight lodging to the training at a cost of about $500 per person for a total of $1,300 annually. Having additional staff to cover for operators using leave time could also help reduce the amount of overtime needed to cover operator shifts.

Continuous Improvement

F5.18 MVSD has maintained standards for purification in accordance with EPA guidelines and with American Water Works Association (AWWA) standards for water quality for chlorine residual, turbidity, fluoride and pH. However, MVSD has not recently undertaken a comprehensive self-evaluation of its operations and does not regularly compare its processes to peers or best practices relating to staff performance. In addition, MVSD does not have long-term or short-term goals and objectives beyond complying with EPA requirements.

Within the field of water treatment, numerous management resources exist to measure performance, both within the organization and in comparison to other water treatment facilities. MVSD is a member of the AWWA, which is primary resource for conducting performance assessments. A few of the notable resources offered by the AWWA include the following:

- The AWWA Research Foundation has developed an industry-wide clearinghouse for performance benchmarking in the water industry, primarily for technical processes.
- WATERSTATS is the AWWA water utility database of useful statistics for technical processes.
- The QUALSERVE peer review program is new and will provide utilities with the opportunity to get an expert third party review of their organization and to participate in peer benchmarking.

As part of its Leading Change Team program, the City of Akron has established annual long-term and short-term goals and objectives, some of which include (FY 2000):

- Reduce chemical cost by reducing alum and caustic soda use by 10 percent;
- Remove more than 50 wet tons of aquatic weeds;
- Eliminate 20 sources of pollution;
- Eliminate 7 property encroachments; and
- Conduct "Water Education for Teachers" workshops.

R5.8 As a part of its strategic planning process, MVSD should develop a plan for evaluating its treatment operations against peers and/or best practices in the industry using various accepted indicators or measures. This will help MVSD improve technical processes that were not covered in this audit and provide a process for MVSD to become an organization focused on continuous improvement of operations reviewed in this audit. MVSD could benefit from changing its existing organizational culture by focusing on continuous improvement efforts and continually measuring its performance. Measuring performance levels will help MVSD develop both long-term and short-term goals and objectives for improving its treatment operations, which are critical to the success of MVSD's mission of producing high quality water.

These goals and objectives could be included in the annual budget and used by the Board of Directors and management to help make budget decisions and evaluate the success of MVSD operations. MVSD should, at least, use the resources available through its membership in the AWWA. In particular, the QUALSERVE peer review program could provide MVSD with improved processes and future performance advancements in treatment or filtering. Developing and implementing an effective continuous improvement plan for water treatment at MVSD could help ensure that continuous improvement becomes a part of MVSD organizational culture and improve the efficiency and effectiveness of MVSD operations.

Sampling and Testing for Customers

F5.19 Under OAC section 3745-81-21, the local government, to which MVSD supplies water are required to collect routine samples and test for total coliform and fecal coliform at selected sites throughout their distribution systems. These local governments do not have the

expertise in-house to perform these tests and MVSD has chosen to collect and analyze the distribution samples for these governments at no additional cost. For every routine sample that tests positive for total coliform or fecal coliform, MVSD attempts to find the source and isolate it. This is done by testing four additional samples from various locations on the distribution system. When the bacteria is located and the positive test result is confirmed, the proper authorities are notified, such as the OEPA, local media and the city that is affected. MVSD performs such testing for local governments of Niles, Youngstown, Girard, Canfield, McDonald, Mineral Ridge and Lordstown.

MVSD also collects water samples and performs chemical and bacteriological tests at the request of these local governments at no charge. For example, MVSD performs special sample testing when there is a water main break or line extensions are added to one of these entities' distribution systems. MVSD prefers to have its staff conduct the required testing because the tests can provide useful data to MVSD about the quality of its water supply. MVSD also wants to ensure the testing is carried out properly, as the results can have implications for both the local governments and MVSD.

Table 5-8 presents the monthly routine sample collections.

Table 5-8: Routine Samples Collected per Month for Testing[1]

Government Entity	Samples Collected
Youngstown	120
Niles	30
McDonald	6
Canfield	12
Lordstown	6
Mineral Ridge	6
Girard	25
Total	**205**

Source: MVSD
[1]Does not include MVSD internal samples

As shown in **Table 5-8**, the number of routine samples that are collected for bacteriological and chemical testing in all satellite cities per month is 205. The total number of special samples collected over the last four years averaged 170 per year. The City of Niles may be expanding its operations to part of Howland Township and the Trumbull County airport. If Niles increases its distribution system, this will increase the number of samples that will need to be collected and analyzed. Currently, the samples are collected before noon each

day to allow the assistant chemist sufficient time to perform bacteriological tests and determine results within 24 hours. Laboratory regulations state that water samples must be tested and analyzed within 30 hours. Increases in customer distribution systems, such as the one planned by Niles, require an increase in sample collecting and bacteriological testing, which impacts the amount of time available for the assistant chemist to analyze and determine results within the required time frame. Eventually, these expansions could require MVSD to hire additional staff to complete tests within the 30 hour requirement.

F5.20 MVSD contracts with Niles, McDonald and Youngstown to provide water to their service areas. There is no specific requirement in these agreements that states MVSD must provide bacteriological testing services nor is there any specific mention of payment for conducting the sample collection and testing. The cost to perform chemical and bacteriological testing could reasonably be assumed to be accounted for in the water rate structure.

However, this is not the case for the other local governments for which MVSD performs water sample collection and testing. MVSD has no contractual agreements of any type with Canfield, Lordstown, Mineral Ridge, and Girard and receives no payments of any type from these communities. Therefore, MVSD is providing these services at no cost. Overall testing performed for these entities totaled 24 percent of overall routine distribution testing (49 per month) and 19 percent of the overall special testing performed at MVSD (32 in 2001).

F5.21 The cost for MVSD to provide sample collecting and testing is less than what other entities charge. Organizations that provide bacteriological and chemical testing services charge approximately $7.50 to $27.00 for running bacteriological tests five days a week. MVSD's cost to provide these services is about $5.90 for each sample collected and tested (equipment, salary and benefits), which is less than it would cost the satellite cities to go elsewhere for sample collecting and testing.

R5.9 If MVSD is going to provide water sample collection services and testing for non-customer entities, it should require these entities to enter into contractual agreements to pay for the cost of these services and hold MVSD harmless from legal liability. The fees should cover the cost of performing both the sample collecting and testing and include any administrative costs (e.g, billing costs). Requiring local governments to pay for the services will enable MVSD to minimize costs currently born by the customers and help ensure that it has adequate resources to provide these services to both customers and non-customers in an effective and efficient manner. Charging a fee should also help limit the workload of the assistant chemist in performing bacteriological tests which, if it continues to grow, could require the use of overtime or eventually additional staff. Requiring non-customers to sign written agreements could also help limit any legal liability or cost MVSD may incur as a result of the testing activities or outcomes.

Financial Implication: There are many different pricing schedules MVSD could implement to recover testing costs. However, if MVSD were to charge non-customer cities (Canfield, Lordstown, Mineral Ridge and Girard) $6.50 per water sample tested this could amount to an annual revenue increase of approximately $4,000.

Technology and Capital Improvement Planning

F5.22 There is no ongoing capital improvement planning process at MVSD. Aging infrastructure and equipment creates an increasing need for preventive maintenance, repairs, and improvements. Because PPD and PFD are responsible for carrying out the core operations of MVSD and are responsible for a large portion of MVSD's capital facilities, the lack of a capital improvement planning process substantially impacts the workload and success of these divisions. For instance, the lack of a capital improvement plan and a process to carry out the plan could result in a violation of EPA requirements, which can result in fines and other penalties. Many of MVSD's facilities were built in the 1920's and 1930's, with filter improvements made in 1958. Technology in the pump building was updated in 1990 with new switch gears. The CAF, carbon, sludge, recycle, and backwash buildings were also built in the 1990's. These buildings were constructed to accommodate automated operations that would eventually lead to a full SCADA system.

F5.23 MVSD operators routinely inspect and take readings in five buildings, three of which are fully manned 24 hours per day by operators and assistant operators, or a total of 15 FTEs. The filter operator takes hourly turbidity readings from filters and performs chemical tests in the laboratory, which is located in the filter building. Currently the treatment operator writes down the chemical feed readings every hour and then walks across the facility to read the CAF and Carbon buildings. The pump operator only takes pump and elevation readings from one room, which only takes approximately 15 minutes. Another 15 minutes of the pump operators time is spent walking to the pump building to make sure that the pumps are running cold and that there are no major problems inside the building. MVSD is currently in the process of implementing handheld computers to make the recording and reporting of data from readings more efficient.

F5.24 Many water treatment facilities rely on technological applications to reduce the need for staff, monitor systems' performance, manage assets, collect and share information, and otherwise perform functions more efficiently and effectively. Investments in technical applications often pay for themselves in cost savings and operational improvements. For example, Martin County (Florida) Utilities (MCU), improved its operation of nine water treatment facilities by automating and centralizing many activities using a computerized maintenance management system (CMMS) and a SCADA system. The SCADA system's network provides for remote operation of any of the treatment plant functions via computer from any location. Half-way through the first year of operation of its SCADA system, MCU has saved approximately $550,000 primarily due to labor and overtime reductions. When the

SCADA system is fully operational, additional labor and overtime savings will result from making final staff adjustments. Other expenses that may be reduced include chemical costs, due to automated chemical feeds which more precisely control feed rates.

Plants can be automated to varying degrees, with the final result being full automation of the process. The first step toward complete automation is to implement automatic data acquisition (ADA), which collects and stores the information such as pump, filter and chemical readings and allows real-time readings from remote locations. Implementing ADA can significantly reduce the time operators spend writing down hourly readings by walking from one building to another. The final stage to a full SCADA system is enabling a supervisory controlled operations from a centralized location. With supervisory control a person is able to control from a central remote location the chemical feeds, pumps, valves and filters when needed, based upon the ADA information. The supervisory control stage is the most costly to achieve of the major infrastructure improvements that are required, particularly of older facilities like MVSD. Because this stage is so costly most water treatment facilities incorporate these improvements in a long-term CIP. This also makes it difficult to determine the precise cost of implementing a SCADA system, because many of the capital improvements would need to be made even if automation were not a goal.

Based upon preliminary discussions, it appears that MVSD could largely automate its data collection in less than a year and under a million dollars. Determining the actual cost would require an analysis of the entire operation by an engineering firm to determine MVSD's specific needs to develop an accurate cost and time line required to implement ADA. This assessment could cost less than $50,000 to evaluate the entire operations to determine MVSD's needs for automation.

The differences in cost and time to implement more extensive automation with a SCADA system are evident in the efforts of the cities of Akron and Lima. The City of Akron is in the process of implementing a SCADA system, but has not reached full automation of its purification process. The City of Akron had to make numerous improvements to its infrastructure prior to implementing the SCADA system, including the addition of fiber optic cable and new valves. Akron has implemented the ADA stage which automatically allows them to view and record all chemical feeds and pumping readings at one central location. Akron’s implementation of SCADA has resulted in a staffing reduction of 15 operators down to 8 (46 percent reduction). The total cost of these improvements was $2.5 million. However, Akron still has more improvements to make to fully automate it’s operations.

The City of Lima water treatment department started the first phase in the implementation of a SCADA system in 1989 and ended in 1992. The first phase of implementation included major infrastructure improvements such as adding one clarifier, upgrading a pumping station and adding necessary hardware and software at a total cost of $6 million. Both of Lima's

water and sewer departments have gone to a SCADA system that has resulted in a total utility staff reduction from 118 to 97 (17 percent reduction), with more staffing reductions to come upon final implementation of this automated system.

R5.10 MVSD should start the first stage of implementation towards a SCADA system by contracting for an engineering firm to evaluate MVSD's system to determine the cost and a feasible time frame for implementing ADA. The implementation of ADA should eliminate the need to record about 130 pieces of data every hour in five buildings and could significantly reduce the amount of time operators spend making rounds to take readings and inspect operational processes because readings will be automated and be able to be viewed from a central location. Implementing ADA could also facilitate more systematic analysis of MVSD operations to identify inefficient processes. With the effective implementation of an ADA system, operator cross training, and modifications of operator routines, MVSD could reduce the number of operators needed to monitor operations by up to four operators.

For example, the ADA system should allow MVSD to go to an unmanned pump building that would result in a total reduction of up to four operators. After full implementation of the ADA system, MVSD could reduce additional operator positions in purification by modifying existing practices and operator responsibilities. The assistant operator in pumping would still be needed to maintain custodial maintenance functions during the morning shift (see **R5.1**). The ADA system could eliminate the need for operators to take operational readings every hour. This would leave more time for the treatment or filter operators to continually inspect all five metered facilities and make adjustments as needed to chemical feeds, water levels, pumps and filters, in addition to performing laboratory chemical tests. MVSD could achieve further staffing reductions after full SCADA automation is achieved.

Financial Implication: The cost for an engineering firm assessment could be less than $50,000 and the cost to implement an ADA system could be about $750,000. Additional costs would have to be incurred for MVSD to purchase software for analyzing data collected. The annual cost savings, as a result of the reduction of at least four pump operators, could be about $200,000, assuming average operator salary and benefits of $50,000. Therefore, the payback period to recover the total ADA cost implementation from subsequent savings could be about 3.75 years depending upon the actual total cost and the amount, if any, that had to be financed by issuing debt.

R5.11 PFD and PPD should be involved in a formal capital improvement assessment and planning program as part of an ongoing management effort, as detailed in the **financial planning** and **operations** section. An important consideration for MVSD when making capital improvement decisions should be to determine how proposed improvements will further its ability to become more automated. Updates of projects already in the CIP should include an assessment as to whether or not any proposed technology is still current. As it has done with previous improvements, MVSD should develop a CIP with the goal that operations functions

become automated and the Board of Directors should make a formal policy stating its intent that MVSD move toward becoming an automated facility. Ensuring that automation of operations is a part of its long term capital improvement strategy should enable MVSD to increase operating efficiencies by reducing energy, labor, and chemical costs.

Financial Implication Summary

The following table summarizes performance audit recommendations within this section which contain financial implications that could be reasonably estimated and quantified. Detailed information concerning the financial implications, including assumptions, is contained within the specific findings and recommendations.

Recommendations	Estimated Implementation Costs (Annual)	Revenue Enhancement (Annual)	Estimated Implementation Costs (One-Time)	Estimated Cost Savings (Annual)
R5.1 Hire one assistant operator. Cost would be partially offset by overtime savings	$42,000			$19,000
R5.2 Contract out janitorial services. Cost would be offset by overtime savings	$8,000			$10,000
R5.7 Require all operators to obtain Class I license	$5,300			
R5.9 Charge for sample collecting and testing		$4,000		
R5.10 Implementation of an ADA system, which could be recovered by subsequent cost savings resulting from a reduction in staffing			$750,000	$200,000
Total	$55,300	$4,000	$750,000	$229,000

Conclusion

In order to become more efficient and effective, MVSD needs to take steps to improve PPD and PFD's ability to meet its workload through improved technology use and better planning efforts. Hiring another assistant operator for PFD should provide adequate operator coverage and help address custodial maintenance and janitorial needs. However, MVSD will also likely need to contract out some janitorial functions to be able to operate effectively in this area. Cross training operators would also provide additional flexibility for meeting scheduling needs by providing a greater pool of licensed employees to be used for either pumping or purification functions in emergency situations and in covering for staff using sick, personal and vacation time. The operations' divisions cannot effectively carry out their responsibilities without improving the ability to meet workload demands.

In terms of planning, involvement in a capital improvement planning process is critical for the success of the operations divisions and the implementation of ADA would improve efficiency. The age of MVSD facilities creates operational problems that largely need to be addressed by carrying out an effective capital program. Also, carrying out a capital improvement plan that moves MVSD toward automation should help the operations divisions become more efficient. Updating and improving its contingency plan is also an important planning need that should help ensure continuation of service and protect safety if an emergency occurs.

Taking steps to improve long term planning, technology, and continuous improvement efforts should improve the efficiency and effectiveness of PPD and PFD operations and maintenance program. Using technology to improve work order and inventory tracking should help improve the MVSD maintenance program and provide better information for assessing staffing adequacy in this area. Operations are generally good, but a systematic focus on benchmarking and planning could make MVSD an excellent operation. Laboratory testing activities and coordination are already excellent in that MVSD performs more tests with fewer chemists. This suggests particularly efficient operations that enables MVSD to carry out a higher workload with less staff than is typical.

While performing free sample collecting and testing for non-customers may not currently be a major financial or legal issue for MVSD, it has the potential to become a problem in the future. Therefore, MVSD should only perform these services for a charge under a contractual agreement with these entities.

Field Maintenance

Background

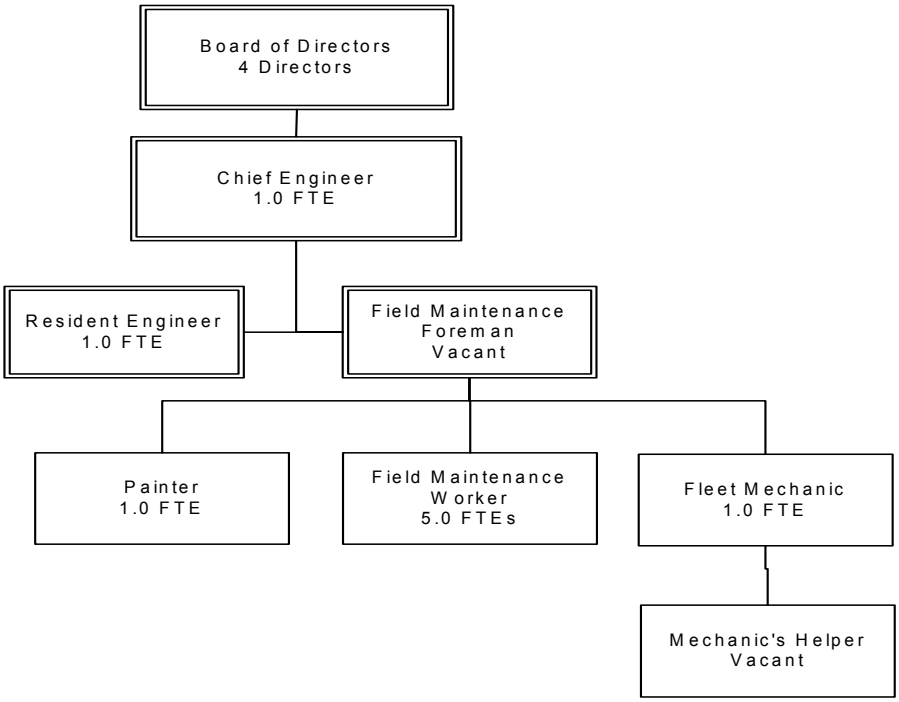
The Field Maintenance Division (FMD) at MVSD is responsible for ensuring the operation of the dam gateways and performing maintenance on all MVSD properties, facilities, vehicles and equipment, excluding janitorial work and maintenance of the infrastructure inside buildings. FMD's responsibilities have increased in the past several years with the addition of several buildings and patrol trails. An additional pipeline corridor will be added in 2002 with the acceptance of responsibility for the new pipeline to Niles. FMD is currently responsible for the following land and facilities:

- Treatment plant grounds of approximately 16 acres and 13 structures;
- Transmission pipelines of about 37 miles and associated valves;
- Water and sludge pipeline corridors of 22 miles or 161 acres;
- Youngstown distribution reservoir;
- Niles standpipe;
- Berlin Pump Station;
- Trails of more than 44 miles for a total of approximately 183 acres;
- Reservoir fence-line of 35 miles;
- 5,807 acres of mostly forested land;
- Dam and 3 spillways;
- Sludge lagoons and related storage of sand from filter rehabilitation operations; and
- Inventory of 15 cars and trucks, 6 tractors; a backhoe, a grader, a bulldozer; 2 boats, and multiple mowers, compressors, pumps, welders, weed eaters, and other equipment.

Organizational Chart

Chart 6-1 provides an overview of the organizational structure and staffing of the FMD at MVSD.

Chart 6-1 MVSD Field Maintenance Division Organization



Until 1997, FMD was led by the field maintenance foreman, a position that has been vacant for more than four years. FMD is currently led by the resident engineer, who supervises seven FMD employees. Outside of his FMD duties, the resident engineer, who reports to the chief engineer, provides in-house engineering services and technical expertise to plant supervisors and outside agencies regarding plant design, operation, and maintenance. Since the retirement of the superintendent of pumping in May 2001, the resident engineer has also largely taken over the responsibility for overseeing mechanics and electricians in the Pumping and Purification divisions.

As shown in **Chart 6-1**, the current official MVSD organizational chart includes the following hourly staff positions:

- *Painter*: Prepares and paints buildings and equipment.
- *Fleet Mechanic*: Maintains and repairs MVSD motor vehicles, and heavy equipment.
- *Mechanic Helper*: Assists the fleet mechanic.
- *Field Maintenance Worker*: Performs various grounds-keeping and field maintenance duties.

Summary of Operations

The FMD handles the routine maintenance needs of MVSD, including plant maintenance, such as rehabilitating the filters, fixing windows, maintaining the roof and snow plowing; pipeline maintenance, such as repairing leaks and exercising valves; grounds keeping activities, such as mowing and repairing fences; and routine equipment maintenance. In 2001, treating the Meander Reservoir with copper sulfate for algae control required a large amount of FMD staff and work time. According to the resident engineer, the treatment process may become an ongoing responsibility for FMD staff. The resident engineer evaluates work assignments and problems on a daily basis and dispatches FMD workers to correct problems based on their certification and skills. Typically FMD staff work an eight-hour shift five days a week, but all maintenance employees are on call 24 hours a day, 7 days a week, so that the resident engineer can call in necessary staff if an emergency maintenance problem arises. Staff from other divisions may be utilized by FMD on an overtime basis to perform low skill work but if a problem cannot be resolved by MVSD staff, then outside assistance is obtained.

Performance Measures

The following performance measures were used to analyze the FMD:

- Analyze current staffing levels;
- Analyze leave and overtime usage;
- Assess policy and procedures governing maintenance program;
- Analyze role in the capital improvement planning process; and
- Assess technology use.

Findings / Commendations / Recommendations

Staffing

F6.1 FMD job requirements and infrastructure inventory are relatively unique compared to other treatment facilities because much of its equipment is from the 1950s or earlier and cannot be easily replaced. Therefore, staff need extensive experience at MVSD to become familiar with the workings and idiosyncracies of existing equipment and to be able to repair the equipment in an efficient and effective fashion. MVSD is also fairly unique in that it does not have a complex distribution system requiring extensive distribution lines with frequent line size changes, frequent line turns and a high number of meters. MVSD's distribution system is relatively simple with high volume pipelines that are short and with fewer meters. This reduces MVSD pipeline maintenance demands when compared to other water operations. However, MVSD maintenance staff also performs grounds maintenance functions not performed by peer districts. These factors make it difficult to directly compare MVSD maintenance staffing needs to the maintenance functions of other water treatment operations.

F6.2 Appropriate staffing levels must be provided to operate MVSD efficiently and effectively. The staffing levels of FMD have been declining since the mid 1980s, and in recent years, the BOD has not hired additional staff recommended by management. Specifically, on February 26, 2001, five people were recommended for hire, including three for the FMD, but the BOD vote was split and no one was hired. While staffing has decreased in recent years, maintenance demands have increased with the aging of vehicles, systems and equipment, addition of new structures, and addition of new pipeline corridors and trails. As a result, MVSD has incurred significant overtime costs for maintenance activities (see **F6.16**) and has also been deferring necessary maintenance activities.

F6.3 The five current field maintenance workers fall exclusively into two higher paid worker classifications (field maintenance worker II and III). This results in the utilization of higher paid staff to perform tasks that lower paid positions should perform. Consequently, labor costs are increased and experienced staff is not used efficiently. For example, a field worker III with a base wage of $17.33 per hour may be operating a weed-wacker which should be performed by a field worker 0 with a base of $15.33 per hour. Sometimes this work is performed in an overtime pay scenario, which exacerbates the inefficiency.

The field maintenance worker position includes four classifications. Employees in the higher classifications are required to be able to perform the duties of lower classifications plus additional duties. Field maintenance worker 0 and I are entry level positions that primarily require unskilled work, such as heavy manual labor and operating power mowers. MVSD has two employees classified as field maintenance worker II's and who are required to

perform additional work, including pipeline maintenance and operating light equipment such as dump trucks. There are currently three field maintenance worker IIIs, who serve as team leaders, trainers and operate heavy equipment such as backhoes and bulldozers. MVSD has no employees in the lower classifications.

F6.4 As many as four FMD employees could retire within the next two years. If these employees do retire, MVSD will lose staff with valuable knowledge and expertise. If no new employees are added while these experienced employees are still at MVSD, then an opportunity to share this knowledge will be lost. As a result, it will likely take longer for new staff to become knowledgeable about the facility and be productive and efficient in their duties.

F6.5 In recent years, the resident engineer has taken on extensive additional duties. The most recent position description for the resident engineer (completed for MVSD by Gortz and Associates in June 1994), which preceded the reassignment of Field Maintenance Foreman duties to the resident engineer, indicates that the resident engineer's responsibilities include technical assistance at 50 percent, safety program management at 45 percent and miscellaneous additional duties as assigned at 5 percent. There is no specific assignment of any FMD functions to the resident engineer in the Gortz position description.

Adequate management staffing to directly supervise FMD staff and plan FMD activities is critical for effectively and efficiently carrying out the maintenance function. Requiring the resident engineer to carry out the responsibilities of the vacant FMD Foreman position in addition to the official responsibilities of the resident engineer compromises the ability to perform both job functions at MVSD This also impacts maintenance supervision and safety training activities (see **human resources** section).

F6.6 Interviews with BOD members, MVSD staff, and visual observations by the audit team confirm that maintenance is being deferred in multiple areas (see **F6.14** and **R6.3**). For example, several of the FMD staff members mentioned fence repair as a severely neglected task. One senior FMD worker has estimated that a significant portion of the reservoir perimeter fence is in substantial need of repair. This and other deficiencies create an increasingly unsafe workplace, cause higher repair and replacement costs, and create a negative rippling effect on other operations. For example, deferring filter rehabilitations can put water quality at risk and security effectiveness is decreased by impassable trails and security fencing in disrepair.

F6.7 MVSD performed an internal staffing needs study in September 1997 that recommended the addition of two FMD workers for a total of fifteen FMD employees. Comparisons were made to the City of Columbus and City of Akron because the systems and organizational structures were considered similar to MVSD. However, specific task comparisons were not provided.

MVSD contracted for a staffing study with the engineering firm of Burgess-Niple (B-N) which was completed in March 1998 and recommended an increase of three FMD workers at the time, for a total of fourteen FMD employees. The B-N Staffing Study compared MVSD to Columbus, Akron, Cleveland, and Toledo water divisions. It is unclear how well the B-N study accounted for the differences in responsibilities between positions at MVSD and the same positions at the comparison entities.

F6.8 Mechanic staffing for vehicle and equipment maintenance is sufficient. MVSD currently employs a fleet mechanic to provide vehicle and equipment maintenance. In past years, MVSD has employed a mechanic's helper to assist with these duties, but this position is currently vacant. The fleet mechanic maintains about 26 vehicles and multiple mowers, compressors, pumps, welders, weed eaters, and other equipment. Other audits suggest that a mechanic should be able to maintain between 30 and 70 vehicles or more than 60 vehicles and pieces of equipment. Currently, the fleet mechanic is responsible for somewhat less preventive maintenance and repair operations because the reduction in field maintenance workers has reduced the use of equipment and vehicles. Based on the Gortz job description, about 15 percent of the fleet mechanic's duties involves supervisory, clerical, and other responsibilities, such as field maintenance work. However, supervisory duties are currently negligible since the mechanic's helper position is vacant. According to the resident engineer, the fleet mechanic currently is used about two days per week for field and plant maintenance.

If MVSD addresses its staffing needs as recommended in **R6.1**, this would increase the work load of the fleet mechanic. Benchmark data suggest that the one fleet mechanic should be adequate even with an increase in workload and that the vacant mechanic's helper position could be eliminated. Also, if MVSD improves its maintenance policies and processes and increases staff, the fleet mechanic's workload could also decrease because time-consuming problems could be prevented and vehicles and equipment with excessive problems could be replaced with new vehicles and equipment that require less maintenance.

F6.9 MVSD employs one full-time painter, which appears more than adequate. According to the Gortz description, the painter is responsible for painting building surfaces, water tanks, pipe valves, repairing broken windows, waterproofing roofs, and repairing ceilings. On average, peers reported spending about 700 hours per year on painting work. This suggests that MVSD may need the equivalent of a part-time employee to adequately meet painting needs and that the current painter could be used to assist with other maintenance duties.

Most of the peers do not employ a full-time painter for painting duties. Instead these duties are a part of the operators and/or maintenance staff duties. For example, Lima maintenance staff perform painting duties as well as other maintenance functions. Akron also uses other maintenance staff to carry out painting duties. Toledo has one painter, but also occasionally uses contractors for large projects such as elevated tank, filter gallery piping, or major

remodeling. Toledo's painter also paints equipment in the facility and when the weather permits, the painter paints valve stands, vent pipes, window frames and fences.

F6.10 Based upon Michigan State Parks System (MPS) standards, the equivalent of about four full-time equivalent (FTE) workers are needed to do all grounds maintenance tasks. The Michigan State Parks System (MPS) has established performance standards for grounds maintenance, which can be used as benchmarks for estimating the time demand for MVSD grounds maintenance and appropriate staffing levels for this activity, after accounting for leave and vacation usage. Using MVSD data and MPS parks standards, approximately 6000 work hours would be needed to complete grounds maintenance activities of mowing and brush and tree removal.

The City of Akron Water Department has 22 miles of force main and requires two pipeline maintenance workers to perform routine maintenance. The City of Akron staffing levels were used to develop a pipeline staffing need estimate for MVSD. Based upon the Akron standard, approximately two FTEs are needed at MVSD to perform routine pipeline maintenance tasks at MVSD.

The last major categories of responsibilities that FMD staff carry out are plant maintenance activities and miscellaneous. Miscellaneous duties are estimated to be 5 percent of Field Maintenance Worker duties under the Gortz description and plant maintenance is about 20 percent. As a part of plant maintenance duties, FMD staff rehabilitate filters and perform routine basic maintenance and cleaning of basins, chambers, and sludge flumes. Based upon MVSD management estimates and comparisons with peer practices, it is estimated that MVSD would need the equivalent of about three FTEs to carry out plant maintenance duties.

R6.1 MVSD should increase field maintenance production capacity by the equivalent of four FTEs. This could be accomplished by hiring full-time staff, seasonal workers, or some mix of full-time and seasonal employees. For example, seasonal temporary staff could perform most grounds-keeping tasks, assist with painting needs, and would cost less than hiring full-time staff. However, full-time staff could be trained in other duties before more experienced staff retire and assist in other areas, as needed.

Appropriate staffing in conjunction with an improved maintenance program (see **R6.4**) and adequate management supervision (see **R2.4**) should enable MVSD to maximize the efficient and effective utilization of its resources. Addressing FMD staffing needs should largely eliminate maintenance overtime and associated costs and create a more efficient allocation of staffing responsibilities. Also, future costs could be avoided by reducing repairs and parts replacement costs that may otherwise be required due to deferred maintenance caused by inadequate staffing. There are potential union contract issues with any hiring of seasonal temporary staff on a routine basis.

Hiring additional staff to perform grounds keeping functions would allow MVSD to better utilize its staff on critical core functions, such as pipeline maintenance. Permanent, full-time staff should be primarily used to perform higher skill tasks and activities central to the mission of MVSD. This allows MVSD to focus its main human resources on key functions and allow less critical functions to be performed by lower skill workers for less cost.

MVSD should eliminate the position of mechanic's helper. MVSD should also eliminate the separate position classification of painter. Instead, painting responsibilities should be a part of the Field Maintenance Worker classification duties. The current painter could be reclassified if this change were implemented. Certain aspects of this reclassification would have to be negotiated in the union contract.

Financial Implication: Depending on the options selected the costs could vary. For example, the total cost to hire four FTE seasonal staff for grounds maintenance activities, such as mowing and brush removal, could be about $60,000, assuming seasonal employees made $10 per hour. It would cost more to hire full-time permanent staff. The effective costs for any of these options could be reduced by about $50,000, assuming implementation largely eliminates the need for maintenance overtime costs. Therefore, the net cost hiring of hiring seasonal staff could be about $10,000. Based upon the mechanic staffing analysis, MVSD does not need to fill, and could eliminate, the currently vacant position of mechanic's helper, which would result in a cost saving of about $46,000.

Leave and Overtime Usage

F6.11 An important part of effectively and efficiently managing staff time and work demands requires management to account for leave usage by staff and plan for overtime usage as it becomes necessary. Unusual and extraordinary overtime and leave usages are typically indicative of insufficient staffing and/or poor management. FMD overtime in calendar year 2000 was 1,232 hours at a cost of $29,490. This is six percent of the regular work hours of the FMD work group. Overtime work is available to any FMD staff desiring to take advantage of it. Considering the increasing maintenance backlog, the current staffing levels in FMD, and the opportunity for staff to work overtime whenever desired, the amount of actual overtime incurred appears moderate. While FMD overtime usage seems reasonable under current circumstances, overtime could be significantly reduced at MVSD if FMD was adequately staffed and work more effectively managed.

Pumping and Purification staff also perform FMD tasks as part of their overtime work hours and accounted for more than $49,000 in overtime in 2000. Approximately 378 hours of Pumping Division staff overtime in 2000 was performed doing general field maintenance tasks at a costs of approximately $7,400. In addition, Purification Division staff performed 514 hours of overtime performing un-designated field maintenance work at a cost of

$12,500. Pumping and Purification overtime performing field maintenance tasks totaled 891 hours at a total cost of $19,900.

R6.2 MVSD should take steps to obtain adequate staff and improve its policies and procedures to better manage leave usage and staff activities to eliminate the need to use overtime for routine maintenance activities (see **R6.1** and **human resources** section). Overtime usage should only be worked in response to unusual or emergency work demands. Significantly reducing or eliminating overtime would result in cost savings. See **R6.1** for financial implication.

Maintenance Program Policies and Procedures

F6.12 MVSD could improve its maintenance program with better long term planning. The resident engineer creates daily maintenance schedules, which list opportunities for overtime work. MVSD does not develop long-term maintenance plans or schedules because field maintenance currently has to respond to urgent daily needs, in large part due to understaffing. The age of MVSD's facilities range from 50 to 80 years old and is one of the causes of the rapid deterioration of equipment and facilities and increasingly results in breakdowns. Staff has indicated that PM is largely performed after emergency breakdowns are fixed, which typically leads to unnecessary expenditures and can increase the potential for compromising the quality of finished water. The resident engineer does not have time to create more long term monthly and yearly plans for routine or PM work and there is a lack of adequate staffing. Therefore, MVSD is not able to implement an effective PM program.

F6.13 MVSD uses various forms and manuals to guide and track maintenance activities. The maintenance requirements for each piece of equipment are in each individual manufacturer's manual. Records of work orders completed and maintenance performed are maintained in various file cabinets. Operations and maintenance manuals outlining maintenance procedures are used to guide staff maintenance work. While many field maintenance data sources are available, they are in various forms and locations, and are not integrated into a formal assessment of work actions. Although the inability to carry out maintenance functions effectively is primarily due to the age of the equipment and current staffing, the lack of centralized data collection and systematic analysis of the data limits MVSD's ability to optimize its maintenance activities.

F6.14 MVSD does not have comprehensive equipment and infrastructure assessments and has no objective and reliable assessment of the remaining useful life for many of its assets. Lack of staffing has resulted in a significant amount of deferred maintenance, but MVSD does not have a detailed listing of deferred maintenance projects or an estimate of the total cost of these projects. Therefore, MVSD cannot effectively predict replacement needs, prioritize maintenance efforts, or support an on-going capital improvement planning process. A point of diminishing returns eventually occurs where it becomes more cost effective to replace an

asset rather than continuing to maintain it. This point is most effectively determined through a regular condition assessment and maintenance program, which includes a systematic analysis of the history of repairs to assets with a decision-making model that takes into account the various cost factors of repair and replacement.

MVSD has numerous assets with a limited life including transmission pipes, water storage tanks, pumps, chemical storage buildings, treatment and filtering systems, vehicles, and other capital investments. Determining the actual useful life of any of these assets depends on a wide variety of factors. For instance, the useful life of a water main depends on the materials and quality of pipe construction, soil conditions, temperature fluctuations, depth at which the pipe is buried, and activities occurring in the general area, such as rail traffic. This limits the ability to predict maintenance needs, prioritize maintenance activities, and efficiently deploy resources. This also limits FMD's ability to effectively identify and communicate to management and the BOD the information they need to make budgetary capital decisions.

F6.15 There is no formal PM program for fleet maintenance. Maintenance information is put on hand-written note cards and warranties are filed for future reference. According to the fleet mechanic, a "Fleet Evaluation Summary with Estimated Costs" report is prepared about twice a year. However, the most recent report that could be provided was from January 2000. There is no policy as to how many miles or how many hours of operation a vehicle should have, or even a general description of what condition it should be in before it is replaced.

R6.3 The FMD should improve its maintenance activities with better long term planning, improved tracking of deferred maintenance projects and related costs, and by performing a comprehensive inventory assessment. MVSD should develop policies to support replacement decisions, address deferred maintenance projects, and develop reliable assessments of the remaining useful life of its assets. Maintenance records and histories of condition assessments should be maintained for the entire inventory of assets in a centralized system that permits easy tracking and analysis. MVSD should include in the system a listing and condition assessment of all major assets and their specifications, a formal work order system with time and materials estimates, a record of actual times and materials consumed, schedules for future work activities, and other pertinent data. Cost-benefit modeling techniques should be implemented to help management decide what point in time is the most beneficial to replace an asset. Taking these steps would allow MVSD to maximize its resources for repair and replacement of assets. Such modeling techniques and the data to support them can most effectively be facilitated by computer-based maintenance management systems as recommended in **R6.6**

Financial Implication: An initial time investment may be required to complete the necessary inventory assessment. For example, MVSD may need temporary clerical support services to assist with assigning identification numbers to infrastructure (i.e, bar codes) and entering all infrastructure data into a PM system. The cost for six months of work at $5.50 per hour

would be approximately $7,900. An effectively implemented PM program can result in significant savings and reduced operational costs that far outweigh the one-time implementation costs.

Role in the Capital Improvement Planning Process

F6.16 There is no ongoing capital improvement planning process. There is no scheduled replacement program for infrastructure, vehicles and equipment and no formal inventory of repair, replacement, or preventive maintenance parts. Some of the equipment is so old that replacement parts are not available. Aging vehicles and heavy equipment create an increasing need for preventative maintenance and repairs. Because FMD is responsible for ensuring the proper condition and functionality of facilities, the capital improvement planning process substantially affects the workload and success of the department.

A particularly critical issue that needs to be addressed in a CIP is the condition of transmission pipelines. According to the resident engineer, most of the pipelines or pipeline valves at MVSD are in fair to poor condition. Many of the pipelines are made of brittle cast iron and could break at any time. The 1997 CIP included plans to replace deteriorated pipeline, but this program has largely not been carried out. If pipeline in poor condition is not replaced, MVSD could face numerous emergencies and possibly disruptions in service. Also, higher maintenance costs and staffing needs are created when a large amount of pipeline is in poor condition.

R6.4 A formal capital improvement assessment and planning program should be incorporated as part of an ongoing management effort as detailed in the **financial planning and operations** section. Input from FMD staff closest to facilities along with support data about facilities' conditions and maintenance costs will help management and the BOD make informed decisions. Of particular importance to the FMD is that the condition of its pipeline inventory be assessed. Therefore, the CIP should include an updated pipeline assessment and replacement schedule. The timely replacement of aging facilities will reduce maintenance costs and improve FMD's ability to effectively carry out its mission. Conversely, failure to address the FMD's capital needs will continue to result in unnecessarily high maintenance costs and could cause maintenance emergencies and service disruptions.

Technology

F6.17 MVSD does not have a preventative maintenance management system that could be used to develop a more effective preventive maintenance program. Many water treatment facilities rely on technological applications to manage assets, collect and analyze maintenance program data, and otherwise perform functions more efficiently and effectively. Investments in technical applications often pay for themselves in cost savings and operational improvements.

MVSD is currently using the Allmax 10 operations system module for data retrieval of pumping and purification readings. Allmax 10 has developed a preventive maintenance module called *Task Manager* that helps water treatment facilities develop a systematic preventative maintenance program. *Task Manager* allows for specific manufacturer and vendor information, inventory management, and work order processing. This system also has established reporting templates that MVSD could use in analyzing employee workloads, which is not currently being done.

R6.5 MVSD should purchase a PM system to develop and support the systematic collection and analysis of asset information and the systematic analysis of equipment replacement needs based on priorities of the overall organization. MVSD should select a system as a part of an overall effort to assess its information technology needs (**see R2.3**). One system MVSD should consider when examining PM systems is the *Task Manager* preventive maintenance software system developed by Allmax 10.

Task Manager can generate schedules, record manpower utilization and task completion, which can be used to analyze staffing needs. This system is also compatible with the existing "Water Supply" software, also developed by Allmax 10. However, before purchasing any software systems, MVSD needs to determine its overall system needs so that there is no redundancy and there is sufficient compatibility between MVSD systems (see **organizational management** section).

Financial Implication: The total one-time cost for PM software and training could be less than $6,000. Total annual costs would be approximately $1,000 per year. Costs for PM software, such as *Task Manager,* is about $3,000 for a software license, including technical support for the first year. Also, the cost to purchase a Workgroup feature to permit up to five additional software users, is about $1,400. In addition, training for up to 6 people on-site would be approximately $1,200. Ongoing, technical support could cost about $1,000 per year.

Summary of Financial Implications

The following table summarizes the recommendations from this section that contain financial implications that could be reasonably estimated and quantified.

Recommendation	Estimated Implementation Cost (Annual)	Estimated Implementation Cost (One-Time)	Estimated Cost Savings (Annual)
R6.1: Hire seasonal employees for grounds maintenance work, which will reduce overtime costs, and eliminate mechanic's helper position	$60,000		$96,000
R6.3: Develop centralized inventory assessment		$7,900	
R6.5: Purchase PM software	$1,000	$6,000	
Total	**$61,000**	**$13,900**	**$96,000**

Conclusion

Within the current resources and staffing provided by the BOD, the FMD is unable to efficiently and effectively carry out its responsibilities. This problem is exacerbated because the resident engineer is required to carry out all the duties of the field maintenance foreman and, more recently, some of the duties of the Superintendent of Pumping in addition to his regular duties. The overall result is that the resident engineer has not been able to effectively perform maintenance division management responsibilities nor safety program management duties (see **human resource** section). The BOD needs to provide the FMD with additional production capacity through some combination of new full-time or seasonal staff. Revising MVSD's organizational structure and management responsibilities, as suggested in **R2.4,** should also improve management's ability to effectively carry out the maintenance function. Ultimately, the BOD is accountable for operations at MVSD and must provide adequate resources to ensure management can carry out MVSD maintenance responsibilities in an effective fashion.

MVSD needs to improve overall planning and accountability for the maintenance function at MVSD. This will require BOD and FMD involvement in strategic and capital improvement planning, and the creation of budgeting processes (see **financial planning and operations** section) that clearly identify BOD maintenance expectations, measures and goals, and provide for the resources needed to meet those expectations. This also means developing an assessment of its inventory and implementing a centralized data driven maintenance program and better tracking of deferred maintenance. There should be regular reporting by the FMD head to the BOD regarding maintenance activities, needs, and achievement of strategic goals and objectives to ensure management accountability. Improved staffing, planning and technology use should enable the FMD to operate in an optimal fashion, reducing costs and improving operations at MVSD. Failure to address staffing and pipeline replacement issues could result in service disruptions, additional emergency problems, and unnecessary expenses.

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Security Division

Background

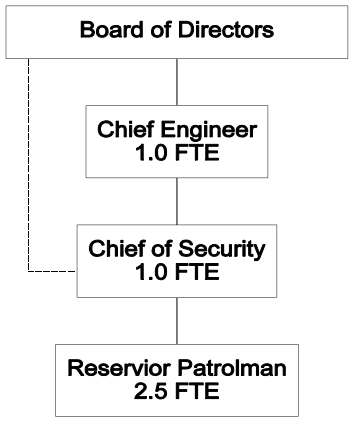
The Security Division (SD) is responsible for protecting the water supply, facilities and staff at MVSD. SD staff is able to patrol MVSD properties about 100 hours per week. MVSD's Meander Reservoir and watershed are somewhat unique in that no public access or recreational uses are allowed, which permits the SD force to concentrate on controlling trespassing and other potential security threats. Occasional additional duties include protecting Board of Directors'(BOD) meetings, conducting tours of MVSD for the public, and patrolling the watershed after a complaint about a potential pollution source. SD conducts patrols by way of boat, truck, and on foot. The areas that the SD is responsible for protecting include the following:

- 5,807 acres of land owned by MVSD;
- Treatment plant consisting of 16 acres;
- Dam and spillway;
- Reservoir area consisting of 40 shoreline miles and 2,010 acres of water surface;
- 35 miles of fence-line and property perimeter surrounded by 13 miles of public roads; and
- 22 miles of pipeline,161 acres of corridors and 3 remote facilities.

Organizational Chart

Chart 7-1 provides an overview of the organizational structure and staffing of the SD.

Chart 7-1: Security Division Organization



As shown in **Chart 7-1**, the SD is led by the chief of security, who reports to the chief engineer. The security staff consists of two full-time and one part-time reservoir patrolmen. The chief of security is responsible for the direct supervision of all reservoir patrolmen, scheduling the patrols of district property, coordinating with courts on criminal cases, testing and inspecting MVSD alarm systems, and miscellaneous tasks as assigned.

The reservoir patrolmen maintain the security of the district's property by securing gates and inspecting all buildings and land. Each reservoir patrolman is a state certified peace officer, who may carry a firearm, issue citations, and make arrests. State certification is issued through local law enforcement officials where the necessary training is conducted at an Ohio Peace Officer Training Commission (OPOTC) sanctioned training academy.

Summary of Operations

SD is primarily responsible for monitoring MVSD property and ensuring it is safe from acts of terrorism, trespassing, theft and vandalism. These functions are performed on a routine basis by the reservoir patrolmen. The reservoir patrolmen utilize a boat to patrol nearly 40 miles of shoreline and a vehicle to patrol the land. Walking patrols are conducted infrequently and typically only around buildings.

Security patrols are not provided 24-hours a day and seven days a week, but about 100 hours per week. Patrols are primarily performed by the reservoir patrolmen with occasional patrol hours contributed by the chief of security. Specific patrol times and routes are determined by the chief of security. Division assignments and locations of patrols vary according to seasonal needs and ability to access patrol routes.

Performance Measures

The following performance measures were used to analyze MVSD's security function:

- Assess security policies, procedures, and workload;
- Evaluate current staffing levels;
- Analyze leave and overtime usage;
- Assess security scheduling program; and
- Assess technology use.

Findings / Commendations / Recommendations

Policies, Procedures, and Workload Management

F7.1 Security expectations are not well defined by the Board of Directors (BOD), thereby making it difficult to determine if SD operations are appropriate. The BOD has not established formal goals, objectives or expectations for security priorities or coverage. Currently, security coverage is provided about 100 hours per week. The chief of security uses his judgement to determine patrol schedules and has identified the reservoir and dam areas as top priorities for patrols, which is reflected in the hours spent patrolling each area (see **F7.15**).

F7.2 MVSD does not have a security policy or plan that guides the use of technology (see **organizational management** section for more detail on technology planning). Although proposals for technological applications have been made in the past, no significant improvements have been put in place. However, in November 2001, the BOD passed a resolution to spend nearly $50,000 to purchase security equipment (for more details see the **technology** subsection). Decisions about what technology to acquire should be made based upon clear security goals and objectives and an approved security plan. Although the SD may need technology or equipment, the SD currently has no significant capital improvements associated with it, nor are any anticipated in the near future.

F7.3 There is no common standard for determining necessary security coverage. Instead, coverage is determined based upon the unique needs of each entity. According to the American Water Works Association (AWWA), there are no current benchmarks for utilities regarding security. Other reservoir and treatment plant operators tailor security coverage to their needs. Additionally, many other operations have public access and recreational components that significantly increase the need for security. Typically, those entities that have recreational components have "rangers" that perform both security patrols and enforce rules and laws relevant to the recreational activities going on. According to the chief of security, the number of trespassing incidents at MVSD have remained level or decreased over the past several years. If the reservoir was opened to public use, SD's workload would increase significantly.

F7.4 SD lacks consistent and comprehensive security policies and procedures to guide its activities, prioritize workload demand, or direct non-security staff regarding security issues. No formal security goals and expectations exist and few security-related policies and practices are integrated into the other MVSD division daily operations. Proper policies and procedures are essential managerial tools used to assess workload demands, guide and prioritize utilization of limited resources, facilitate communication between all levels of the organization, provide a safe working environment, and ensure proper accountability. The policies and procedures utilized to identify and respond to an organization's responsibilities are particularly critical for operating efficiently and effectively. The lack of adequate

security policies and procedures puts MVSD facilities and employees at risk and limits the ability of SD to provide effective security for MVSD.

F7.5 MVSD lacks a security plan that identifies, prioritizes, and outlines strategies for mitigating various risks to MVSD. Risk management is generally described as a systematic and analytical process to consider the threat against assets, individuals, and critical functions and to identify actions to reduce risks and mitigate consequences of any incidents. While all risk cannot be eliminated, protection from known or potential threats can reduce it. According to the General Accounting Office, good risk management includes at least three elements:

- **Threat assessment**: Identifies and evaluates threats based on various factors, as well as the potential lethality of an attack.

- **Vulnerability assessment**: Identifies weaknesses that may be exploited by terrorists and recommends options to eliminate or mitigate those weaknesses.

- **Criticality assessment**: Identifies and evaluates assets based on the importance of their function, the group of people at risk, and the significance of a structure. Criticality assessments are important because they provide a basis for prioritizing which assets and structures require higher level of protection from an attack.

After threat, vulnerability, and criticality assessments have been completed and evaluated, key actions plans should be developed to mitigate potential threats. Threat assessments alone are insufficient to support the key judgements and decisions that must be made to most effectively utilize resources and protect the most critical and vulnerable system components. Threat assessments in conjunction with vulnerability and criticality assessments can help the BOD and managers make better decisions about necessary security levels and activities.

R7.1 The BOD should contract with a security specialist to assess the security risks at all MVSD properties including threat, vulnerability and criticality assessments. The BOD and Chief of security should use the results of the assessment to develop MVSD strategic goals and objectives to make decisions about BOD expectations and necessary security coverage, methods, and technology to meet those expectations. The BOD expectations and strategic security objectives should guide the development of appropriate policies and procedures for the SD and the responsibilities of other MVSD divisions in regards to security.

The security specialist should recommend standards, operating procedures and methodologies, and resources to address MVSD security risks, including appropriate use of technology, staffing levels, the feasability of outsourcing any activities, and costs. Ideally, the firm consulted with should specialize in water systems and only offer consulting services, as firms that also sell equipment or protection services, may provide a less objective assessment. A comprehensive customized assessment of MVSD's security needs and development of strategies to meet those needs will help the BOD make better management decisions, more efficiently utilize security resources, and provide more

effective security protection. This should result in more effective and efficient security at MVSD.

Financial Implication: The cost of contracting for a risk assessment could vary widely depending on the firm used and the scope of the request, but could be about $20,000. One private security consultant estimated that it could perform the assessment, produce a report, and provide a follow-up meeting in a few months at a cost between $15,000 and $25,000. Certain state, local, or federal law enforcement agencies, such as a county emergency management agency, may be able to provide assistance with security assessments or planning for little or no cost.

F7.6 An immediate and higher concern exists today than existed just a few months ago to increase the protection of water supply and treatment plants from acts of terrorism. The AWWA and the Federal Bureau of Investigation (FBI) have issued straightforward, commonsense, and mostly low cost recommendations for actions that should be taken immediately to increase security and reduce threats from terrorism. These recommendations include the following:

Guard Against Unplanned Physical Intrusion

- Lock all doors and set alarms.
- Limit access to facilities and control access to water supply reservoirs.
- Secure access points to the water distribution system.
- Increase lighting in parking lots, treatment bays, and other areas with limited staffing.
- Control access to computer networks and control systems, and change the passwords frequently.
- Do not leave keys in equipment or vehicles at any time.

Make Security a Priority For Employees

- Conduct background security checks on employees at hiring and periodically thereafter.
- Develop a security program with written plans and train employees frequently.
- Ensure all employees are aware of communications protocols with relevant law enforcement, public health, environmental protection, and emergency response organizations.
- Ensure that employees are fully aware of the importance of vigilance and the seriousness of breaches in security.
- Vary the timing of operational procedures.
- Change pass codes and ensure keys and access cards are returned after an employee separates from service.
- Provide staff with training and checklists on how to handle a threat if it is called in.

Coordinate Actions for Effective Emergency Response

- Develop clear protocols and chains-of-command for reporting and responding to threats.
- Review existing emergency response plans, and ensure they are current and relevant (see **R5.6**)
- Ensure key personnel have access to crucial telephone numbers and contact information at all times.
- Develop close relationships with local law enforcement agencies.
- Report to county or State health officials any illness among the utility's customers that might be associated with water supplies.
- Report criminal threats, suspicious behavior, or attacks on water utilities immediately to law enforcement officials and the relevant field office of the FBI.

Invest in Security and Infrastructure Improvements

- Assess the vulnerability of source water protection areas, drinking water treatment plants, distribution networks, and other key infrastructure elements.
- Move as quickly as possible with the most obvious and cost-effective physical improvements, such as tamper-proofing manhole covers, fire hydrants and valve boxes.

R7.2 The chief of security should review the above AWWA and FBI recommendations and develop and implement an action plan to address any issue in the recommendations that is not currently being addressed by MVSD. Many of the recommendations, such as coordinating with local law enforcement authorities, may be in place, but should be reassessed to determine if current activities are adequate.

Most of the recommendations require an organization-wide approach to implement and should require little or no capital expenditures. Many of the recommendations involve educating staff or merely re-emphasizing certain common sense ideas, possibly through informational materials. MVSD should begin the recommended assessment of vulnerability of source water protection areas, water treatment plant, distribution networks and other key infrastructure elements. This does not eliminate the need for the comprehensive assessment and planning recommended in **R7.1**.

The chief of security should report to the BOD on his action plan for addressing the AWWA recommendations and periodically report on implementation progress over the next several months. The BOD should provide feedback on the plan, and a mutually agreed upon plan should be formally approved by the BOD, along with the necessary resources to implement the plan. Except for immediate dangers, MVSD should avoid making any major purchases to address the security recommendations until after the comprehensive assessment and planning recommended in **R7.1**. is completed.

Financial Implication: Costs for implementing this recommendation could vary depending upon the steps taken by MVSD to address them. However, costs could be minimal as most of the action items involve clarifying policies and procedures and educating staff, which could largely be done within current staff and activities or could be addressed through low-cost solutions.

Staffing and Training

F7.7 Appropriate staffing levels must be provided to satisfactorily meet the expectations of management and workload demands. The BOD has not officially set a standard for security coverage making coverage a default function of the staffing levels provided. Staffing levels are less than in the past and the level of patrols is therefore less, but may be adequate depending upon desired security coverage. Also, strategic use of technology could provide additional security without adding staff.

F7.8 An internal staffing study, conducted by MVSD in September 1997, did not recommend an increase beyond the then staff of three FTEs, consisting of the chief of security, one full-time patrolman, and two part-time patrolmen. A staffing study done by Burgess-Niple (B-N), in March 1998, recommended a total of six staff members including the Chief of security, three full-time and two part-time patrolmen. B-N's explanation was that additional staff would reduce the time that the water system was not protected. However, B-N did not identify an appropriate standard of protection or rationale for that recommended staffing level.

F7.9 Staffing levels are adequate to patrol MVSD property about 100 hours per week. Utilizing the Gortz breakdown of time demands and applying the Michigan Parks System benchmarks of security operating standards, a demand for patrolmen providing 50 percent coverage can be estimated at 2.8 staff positions. Currently budgeted and filled positions are at 2.5 patrolmen with the chief of security providing occasional patrol hours. Therefore, current staffing levels are considered the minimum needed to continue patrolling about 100 hours per week. Approximately five FTE security personnel would be needed to have at least one person patrolling MVSD 24-hours a day and seven days a week.

F7.10 An examination of SD sick leave and overtime usage, show no unusual patterns or indicators of abuse by SD staff. Patrolmen occasionally earn overtime or otherwise work extra hours assisting other MVSD divisions, outside of regular patrol activities. However, the time spent working overtime is minimal. For example, overtime worked by all the patrolmen for the three and a half year time period beginning calendar year 1998 amounted to only 29 hours or an average of 8 hours per year.

R7.3 The BOD should staff the SD based upon the standards and goals for security coverage established as a result of the assessment and planning recommended in **R7.1**. Completing

the security risk assessment and developing a security plan will identify the staffing levels needed to accomplish MVSD's strategic security goals and objectives. MVSD should examine the possibility of using technology to accomplish security goals, instead of adding staff (**R7.8**). Incorporating a comprehensive security plan into the overall strategic plan recommended in **R2.2** will help ensure an effective integration of security issues in all related operations.

F7.11 Other than general touring of the facilities prior to or immediately after being hired, training for reservoir patrolmen is limited to fire arms qualification and procedures associated with the re-certification required of certified peace officers. SD staff members have met the annual firearms' qualification requirements. No other regular ongoing training is required or provided on a consistent basis. The State of Ohio does not legally mandate any additional training beyond initial peace officer basic training and annual firearms re-certification. However, it is good practice for security personnel to develop, hone, and refresh their skills through regular training.

The OPOTC offers numerous training classes for peace officers. According to the OPOTC, it does not have a recommended standard for continuing education training nor is there is a nationally recognized standard. Thirty-two states do require their peace officers to obtain a minimum number of hours of continuing education each year. The nationwide average requirement is about 18 hours every year, with some states requiring as few as 8 hours per year and some requiring as many as 40 hours per year.

R7.4 MVSD should develop and implement a formal in-service training program for its patrolmen, as a part of the overall training program suggested in **R3.10**, including a minimum number of hours of in-service training each year. MVSD should base training requirements on what would be necessary to effectively accomplish its strategic security goals and objectives. To minimize costs, MVSD should require staff to take advantage of training courses offered by government agencies, such as OPOTC or local police departments, to meet any training requirement.

For example, the OPOTC offers courses on writing grants, incident management, report writing, background and internal investigations, drug identification, patrolling, dignitary protection, defensive tactics, and emergency response, all of which could benefit MVSD security staff. Implementing a formal training requirement should help improve the skills and knowledge of security staff, thereby improving their ability to protect MVSD personnel and property. Also, this should help protect MVSD from liability regarding actions taken by security personnel, particularly when apprehending or confronting individuals illegally on MVSD property.

Financial Implication: OPOTC charges $35 for a full-day class and has three regional centers near MVSD where staff could take courses without overnight travel. The total cost

of this recommendation could be about $2,200 per year, assuming all patrolmen and the chief of security were required to obtain 18 hours of in-service training per year.

Planning and Scheduling

F7.12 There are typically two midnight shifts, seven afternoon shifts and six day shifts per week. At least one full patrol of the reservoir property is made each day. Patrols are made by boat, truck and, occasionally, on foot around buildings. Patrol time is documented by daily time sheets which include entries as to how much time was spent at each patrol location. Compilation of patrol reports for management review was not being performed until recently.

F7.13 The BOD has not clearly defined security expectations or desired security level to guide patrol activities. With the necessary resources and clear BOD expectations in place, the chief of security can optimally assign patrol routes, prioritize locations to be covered and otherwise manage SD to meet BOD policy (see **R7.1** for detail on developing BOD expectations). The level of security to be provided dictates the overall scheduling program. The level of security to be provided is a management standard that would typically be determined by the BOD, with input from management, along with the necessary resources to meet that standard.

F7.14 SD applies highest priority coverage to the water supply, dam and spillway facilities with a secondary concern for other facilities and staff. **Table 7-1** shows patrol hours by area for 2000.

Table 7-1: Patrol Hours by Location, 2000

Location	Patrolled Hours in 2000	Percentage
Reservoir Perimeter	1,144	28.14%
Reservoir Area	1,099	27.03%
Dam Area	605	14.88%
Plant Area	600	14.76%
Bridges	420	10.33%
Youngstown Pipeline	81	1.99%
Niles Pipeline	53	1.30%
Berlin Pump Station	51	1.25%
Berlin Pipeline	8	0.20%
Niles Standpipe	3	0.07%
Youngstown Reservoir	2	0.05%
Total	**4,066**	**100%**

Source: MVSD

As can be seen in **Table 7-1**, the reservoir perimeter and reservoir area are the two most patrolled areas with the dam and plant areas next. About 15 percent of patrol time is spent

in the plant and dam area. There may not be adequate coverage of the plant area considering access to plant facilities is not currently limited during the day through locked and controlled gates. The plant area seems particularly important since there are many areas that could be key targets for terrorists, vandals, or disgruntled employees. For example, finished water is pumped from within the plant facilities. Also located in the plant and dam area are hazardous chemicals, the dam, and most staff.

Remote facilities and corridors receive minimal coverage. The Youngstown reservoir was patrolled a total of 2 hours, the Niles standpipe a total of 3 hours and the Berlin pipeline a total of 8 hours in 2000. The time spent at some of the remote facilities suggests inadequate coverage. The remote facilities and corridors receive some additional attention because they are also visited by field maintenance staff who can coordinate with security if something unusual is seen. Local law enforcement officials also provide some degree of coverage for facilities located in their jurisdictions.

R7.5 The chief of security should routinely review aggregations of patrol records and take supervisory actions to ensure that all facilities receive appropriate coverage and patrol time is maximized. Such data review will give the chief of security information to help identify possible weaknesses and make adjustments as appropriate to meet BOD policy. Using data in conjunction with a formal BOD security plan of strategic goals and standards should enable the chief of security to allocate resources more appropriately and effectively. The chief of security should regularly, at least quarterly, report to the BOD on security issues and the attainment of strategic security goals to ensure the Board is kept adequately informed so that it can effectively assess the performance of the SD and address security issues in a timely fashion.

Use of Technology

F7.15 The appropriate use of technology can increase the effectiveness of existing staff, decrease the need for additional staff, and otherwise increase the level of security provided. There are numerous technologies that can be employed to improve security, including cameras, remote-access gate controls, alarms, electronic locks, swipe cards, and motion sensors. The one-time initial costs of technological applications are typically off-set by increased performance, and cost avoidance of additional staff. Operating and training costs associated with the type of applications anticipated for security purposes are typically low.

For example, the Akron Water Department uses technology to improve its security. Akron use four surveillance cameras to monitor its facility. These cameras are monitored by operators from a central control room. This use of technology and operators enables Akron to increase security coverage at is facility without additional staffing. Other facilities commonly use cameras, gate controls, and other technology to improve security.

The SD makes minimal use of technology. Each patrolman carries a pager, a radio and a cell phone. The radio system has a single channel for MVSD internal communications only. There are no applications of security cameras, sound or motion detectors, or other remote sensing devices. Perimeter entry gates are not controlled by pass cards or other identification devices. Individual buildings have alarm systems which are stand-alone and not tied to a central location. Buildings containing dangerous materials do not have controlled access.

F7.16 In 1995, the chief of security outlined a general program of technology applications and received a supplier's estimate for basic pieces of equipment. The program apparently included security cameras, monitors, and controlled gates and doors to selected locations but documents detailing the plan are no longer available. Although not recreated in detail, the chief of security, has estimated that an updated version of the 1995 program would cost approximately $175,000. However, on November 6, 2001, the BOD passed a resolution seeking the Court of Jurisdiction's approval to spend $48,500 to purchase security equipment, which includes some aspects of the program recommended by the Chief of security, without seeking competitive bids. The Court of Jurisdiction approved the request. In general, the security purchase resolution passed by the BOD appears intended to limit access to MVSD facilities and improve monitoring capabilities through the use of cameras, employee identification badges, and other technology.

R7.6 The BOD should implement new technologies for security in keeping with BOD policies and decisions arising from the comprehensive security assessment and planning recommended in **R7.1**. At a minimum, MVSD should employ technology to control access to MVSD grounds and facilities only to authorized personnel, particularly controlling access to hazardous chemicals and sensitive plant areas. Effective use of technology should enable MVSD to improve security coverage, while minimizing costs, particularly the need to hire additional staff. MVSD should complete the assessment and develop BOD expectations, as outlined in **R7.1**, prior to making any major technology purchases.

Summary of Financial Implications

The following table summarizes performance audit recommendations within this section that contain financial implications that could be reasonably estimated and quantified. Detailed information concerning the financial implications, including assumptions, is contained within the specific findings and recommendations.

Recommendation	Estimated Implementation Cost (Annual)	Estimated Implementation Cost (One-Time)
R7.1: Contract for a security and risk assessment		$20,000
R7.4: Require continuing education for security staff	$2,200	
Total	**$2,200**	**$20,000**

While the cost of a security risk assessment should be about $20,000, MVSD would also incur costs to implement any plan arising from the assessment. The actual implementation cost could vary significantly, depending on the result of the assessment, but could be about $175,000.

Conclusion

Lack of guidance from the BOD, in the form of a strategic plan and goals, makes it difficult to assess the adequacy of security activities at MVSD. Therefore, it is critical for the BOD to contract for a security risk assessment and security plan that can be used to help develop strategic goals, objectives, and activities for security at MVSD. MVSD security plan should include strategies for improving its ability to limit access to the plant grounds and facilities and steps to address immediate issues identified by AWWA and the FBI. MVSD should also attempt to identify where technology can be employed to address identified security risks without having to add staff.

Within the current resources and staffing provided, the SD seems to be providing minimal security coverage. Security policies and procedures should be more formalized and activities better coordinated with other divisions, so that all employees are contributing to security at MVSD. MVSD should also increase training requirements for security staff to ensure that their skills remain sharp and that they are developing professionally. Effective training can help improve staff performance and provide liability protection.

Finally, MVSD needs to improve overall planning and accountability for security at MVSD. This will require BOD and SD involvement in strategic and capital improvement planning, and the creation of more effective budgeting processes (see **financial planning** and **operations** section) The BOD should clearly enumerate security expectations, measures, goals, and the resources needed to meet those expectations. This also means regular reporting by the chief of security to the BOD regarding security activities, needs, and achievement of strategic goals and objectives. Ultimately, the BOD is accountable for security at MVSD and must provide adequate guidance and oversight to ensure security responsibilities at MVSD are carried out appropriately, effectively, and efficiently.