CDM Camp Dresser & McKee

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Report

Cities of Lewiston and Auburn, Maine

Water and Sewer Utilities Consolidation Study

June, 1997

Camp Dresser & McKee
Ten Cambridge Center
Cambridge, Massachusetts 02142

CDM Camp Dresser & McKee Inc.

consulting engineering construction operations

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50th 1947-1997 Anniversary

June 10, 1997

Mr. Christopher Branch
Director
Lewiston Department of Public Works
100 Willow Street
Lewiston, Maine 04240

Mr. Normand Lamie
General Manager
Auburn Water and Sewerage District
268 Court Street
Auburn, Maine 04210

Subject: Consolidation Report

Dear Messrs. Branch and Lamie:

Enclosed is our report evaluating the advantages and disadvantages of consolidating water and sewer operations serving the two cities, including the Lewiston Water Division, Lewiston Sewer Division, Auburn Water District, Auburn Sewerage District, Lewiston Auburn Water Pollution Control Authority (LAWPCA), and the Lake Auburn Watershed Protection Authority. The primary goal of this study has been to identify opportunities for increasing service levels and/or reducing costs both in the short-term and the long-term.

We look forward to discussing the report with you and to making a presentation to the cities. Once again, we would like to thank you and your staffs for the constructive, thoughtful manner in which they have participated in this study. This study has truly been a collaborative effort involving management, staff and consultant. Without the participation of you and your staffs, this study would not have been possible.

Very truly yours,

CAMP DRESSER & McKEE Inc.

John F. Donovan
Client Officer

Joseph T. Ridge
Project Manager

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Executive Summary

This report evaluates the advantages and disadvantages of consolidating the six water and sewer organizations serving Lewiston and Auburn, Maine: the Lewiston Water Division, Lewiston Sewer Division, Auburn Water District, Auburn Sewerage District, Lewiston Auburn Water Pollution Control Authority (LAWPCA), and the Lake Auburn Watershed Protection Authority. The primary goal of this study has been to identify methods by which the two cities could improve service levels and/or reduce costs both in the short-term and the long-term. In preparing our report, we have focused on three institutional structures for evaluating future water and sewer service:

- **Continue with Present Operations:** Continue to provide such service through the six entities presently charged with providing these services. Under this "base case" condition, each entity will be required to meet the service needs within its jurisdictional area as the demand for and requirements of such service change over time.

- **Full Consolidation:** Create a single autonomous entity to provide the required services. In this case, as service demands and requirements change over time, the new entity will be able to take steps necessary to accommodate such shifts.

- **Interim Consolidation Steps:** Implement a number of interim steps that are designed to reduce expenses or improve service levels on a more limited basis.

Cost estimates included herein are approximate and intended to illustrate the order of magnitude increases or decreases that are likely. Actual cost changes will depend on the timing of implementation, detailed decisions on labor classifications and grades, and other changes in the communities cost of service that are beyond the scope of this analysis.

Key conclusions of our report are:

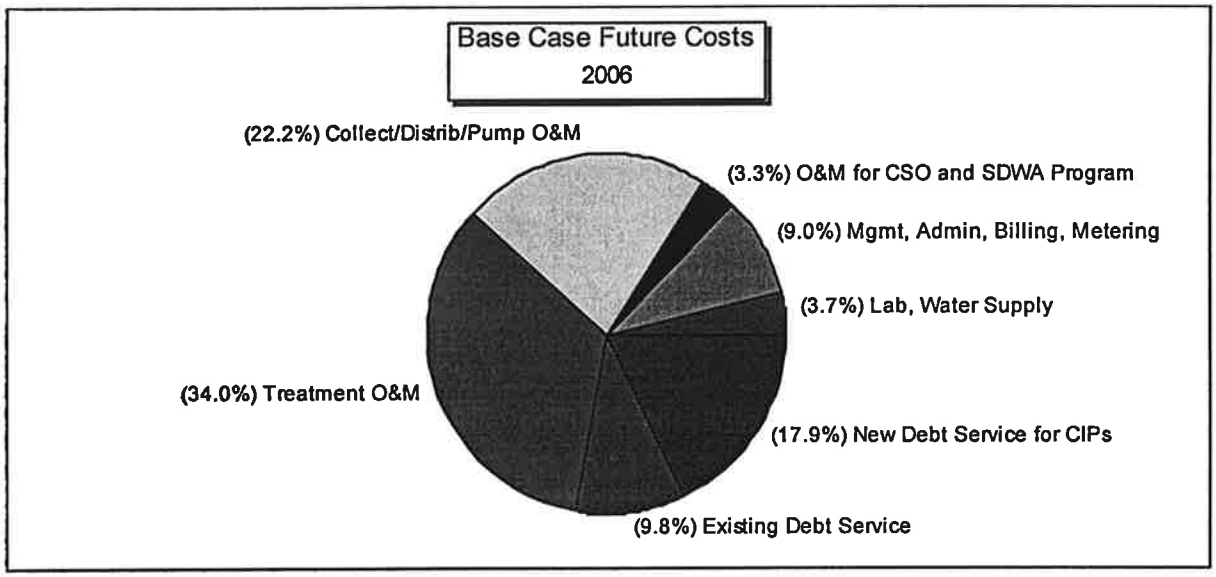
The two cities have already undertaken significant efforts to provide the highest level of service at the lowest possible costs. The creation and successful operation of the LAWPCA and the Lake Auburn Watershed Protection Commission are evidence of this. The cities took a proactive stance when faced with major problems and regionalized services to gain scale economies and to eliminate potentially redundant capital and operating expenses.

Future water and sewer utility costs are anticipated to increase significantly, as the two cities begin implementing the U.S. Environmental Protection Agency (EPA) mandated Combined Sewer Overflow (CSO) long-term abatement programs. By 2006, the CSO program will add approximately $2.3 million in O&M and debt service costs to the annual cost of sewer service for the two cities and LAWPCA. This represents a 25 percent increase over the current cost of sewer service. Any form of consolidation will not generate savings large enough to offset this major capital program. Furthermore, consolidation will not significantly modify the anticipated cost of compliance.

Further, within each of the individual entities, the operations of the respective departments are relatively efficient. The total costs of providing water service in the cities are among the lowest when compared to regional peer utilities, despite the fact that both communities are required to invest substantial sums in rehabilitating aging infrastructure. The cities have organized and trained their staffs to minimize costs. Cross training and multiple job responsibilities are a hallmark of the

staffs across all entities. None of the entities are subject to restrictive work rules limiting efficiency and artificially inflating costs. Auburn and Lewiston are focusing significant attention on rehabilitating their water and sewer infrastructure, which will improve the quality of service by reducing main breaks and unaccounted for water. Changes in institutional structure will not reduce the amount of such work or enable the communities to utilize presently under used capacity. This limits the savings potentially available from consolidation.

The two preceding conclusions limit the potential savings available from any form of consolidation. In 2006, we project that over 50 percent of the cost of providing water and sewer service will be accounted for by debt service for required capital improvements and for the cost of maintaining and repairing the existing collection and distribution network. When the costs of wastewater treatment



(LAWPCA) and watershed protection (the Commission) are factored in, the total amount accounted for represents 87 percent of projected expenses. This leaves less than 13 percent of the budget or approximately $2 million where savings may be achieved.

Finally, we believe that the Interim Consolidation Steps approach appears to make the most sense and this is based on a number of conclusions reached during this study. Specifically, we have concluded that:

- *The two cities have undertaken a number of consolidation efforts and are already benefiting from these efficiencies.* This includes the creation of LAWPCA and the Commission, as well as the joint intake project and the plans to share a common disinfection facility. The creation of LAWPCA ensured that the two cities minimized the cost of treatment through the construction of a single treatment plant rather than two. Similarly, the Commission's activities will help ensure compliance with the filtration waiver requirements saving approximately $30 million in capital costs and significant operating costs as well. These previous steps have limited the potential savings that could accrue from full consolidation.

- *The Auburn Water District and Lewiston Water Division are generally efficient operations when compared to other comparable water operations.* Most importantly, the field and operational staff

are effectively meeting their responsibilities, are operating at or near capacity, and there are limited opportunities for increases in efficiency or reduced costs from meshing the staffs together. Most of the attention of these staff are in maintaining and improving relatively old distribution systems. Merging the entities will not change the demands for these services or enable excess capacity to be utilized.

- *Full consolidation will have limited impact on the capital improvement programs presently being implemented by the entities.* These capital programs are designed to meet the renewal and replacement needs of an aging infrastructure and to comply with additional regulatory mandates, such as CSO abatement and control. These needs will not change materially as a result of full consolidation. Conversely, full consolidation will not increase the regulatory mandates formally imposed upon the two cities, so that the quantifiable impact of consolidation in this regard is limited.

- *Following from the preceding points, the financial gains potentially available from full consolidation are limited.* We estimate that full consolidation will reduce the future (2006) cost of service by approximately $340,000, whereas interim steps could achieve approximately a $310,000 reduction in that year. Full consolidation would require more significant transition costs than interim steps and not provide a significant financial benefit.

- *The functional areas or activities susceptible to improved efficiencies and/or reduced costs do not require full consolidation to achieve these objectives.* Interim steps can effectively attain the necessary savings or service improvements, especially given the high level of cooperation that exists currently among the entities. This is not to say there will be not be costs or obstacles, but the ability to affect such changes is much more localized with interim steps than would be the case with full consolidation. This path for increasing efficiency while reducing costs and/or service levels is also a less risky route than seeking full consolidation. The communities will be able to test the benefits of a proposed step and determine whether the resulting changes are what was expected and worth the effort. To the extent that the communities are dissatisfied with the outcome, then it is a less onerous task to undo the implementation of a particular interim step, than it would be to undo full consolidation. With full consolidation, from a practical standpoint, it may be impossible to revert back to a lower level of integration.

- *There are significant costs to be incurred in seeking full consolidation, many of which are not susceptible to translation and summary in qualitative terms.* However, the communities would be required to undertake a significant political and managerial effort to implement a fully consolidated utility. This would require a number of efforts including, but not limited to, protecting existing legislative powers the communities presently have, obtaining sufficient authority to operate as a single entity, transferring all permits, etc. to the new entity, and, most importantly, working with the affected workers and labor unions to affect the change.

Our recommended Interim Consolidation Steps are as follows:

- Formally merge the water quality laboratories.

- Create a sewer maintenance CSO staff within LAWPCA.

- Hire (or identify an existing staff person) and train a single person to be primarily responsible for maintenance of instrumentation and control system.

- Seek joint inventory/warehousing.
- Gradually merge certain customer service and metering activities.

The cities must assess each recommendation individually as well as collectively, weigh the impacts and benefits, and determine the most appropriate implementation plan. We have provided a recommended implementation plan in Section 6, and encourage the cities to consider variations on that plan to most effectively meet their needs. If the cities elect to pursue full consolidation, they must assess whether the risks and resources required to obtain full consolidation are worth the effort given the many competing demands for limited managerial time. The cities may elect to phase out certain positions, through attrition, or reclassification as the entities develop formal CSO monitoring programs and automation over time.

Section 1
Introduction

1.1 Background and Purpose

In January 1996, the Auburn Water and Sewerage Districts in concert with the Lewiston Department of Public Works Water and Sewer Divisions commissioned a study to evaluate the feasibility of consolidating some or all of the existing water and sewer operations serving the two cities. This study is one of several being undertaken by the two cities to evaluate the advantages and disadvantages of consolidating other municipal services. The goal of all such studies is to improve the quality of municipal services and/or reduce costs.

With Auburn's population of 24,310 (1990 census) and Lewiston's population of 39,760, and their geographic proximity on either side of the Androscoggin River, combined water and sewer operations appear to be a cost effective solution to the existing operations. Within each city, however, it is important to point out that key aspects of water and sewer service have already been regionalized. There are already two entities formally established which serve both cities: the Lewiston Auburn Water Pollution Control Authority (LAWPCA), responsible for the treatment and discharge of wastewater from the two cities; and the Lake Auburn Watershed Protection Commission (The Commission) responsible for protection of the Lake Auburn watershed. In addition, there are less formal cooperative efforts, such as a new joint raw water intake in Lake Auburn serving both cities.

This study involves six organizations serving or potentially serving water and sewer service to customers in the two cities: Auburn Water District, Auburn Sewerage District, Lewiston Department of Public Works Water Division, Lewiston Department of Public Works Sewer Division, LAWPCA and The Commission. The study provides descriptions of the current operations and budgets of the six organizations, the benefits and barriers to full consolidation, potential interim steps for partial consolidation, the results of a benchmarking evaluation, and recommendations for consolidation opportunities.

1.2 Approach

The approach to this study was unique, in that it was important to develop an understanding of the six existing organizations (entities), their concerns, issues and levels of efficiency--data that could not be found in publicly available literature--but only through interviews with the people that comprise the organizations. As such, numerous interviews were held with managers and staffs. In addition, two workshops were held, and a staff questionnaire/survey was conducted.

1.2.1 Questionnaire

The staff questionnaire was designed to obtain the staff's perspective on the level of service provided by each of the organizations and the opportunities for improvement. A copy of the questionnaire is included in Appendix A. Of the 80 questionnaires mailed out to all employees, 28 were returned, representing a 35% response rate. Questionnaires representing all organizations, and a cross section of staff were returned. Responses were varied, ranging from people airing generalized concerns, to specific suggestions for improvement opportunities.

1.2.2 Functional Budgeting

A spreadsheet forecasting model was developed that includes all costs of all the entities on a *functional* basis. Towards that end, current operating and capital budgets were acquired, converted from current line item structure to a functional structure. Each entity developed their own functional budgets, based on the following guidelines. The total functional costs for any one entity should equal the total operating budget (unless costs that should be reflected are not currently in that budget). For example, if the entity uses staff from a city legal department for the entity's legal issues, the staff hours and other direct costs would ideally be accounted for in the *Legal* functional category.

Staff were apportioned among the various functions. Labor costs include direct (usage) and associated indirect (benefits, retirement, insurance, etc.). The functional categories were defined by eight categories. For each category, the cost and number of staff, or full time equivalent (FTE) employees was included.

- **Management**

  Includes the direct management personnel (director/superintendent), plus any direct clerical and/or support staff that is exclusively for management personnel, plus any associated office expenses.

- **Administrative Support Functions**

Purchasing	Personnel and supplies involved or allocated to the purchasing of goods and services.
Legal	Internal or external costs associated with any legal assistance.
Audit/Accounting	Personnel, supplies and/or outside services involved or allocated to the auditing and/or accounting functions.
Personnel	Personnel and supplies involved or allocated to the administration and human resource administrative function.
Clerical	Personnel and supplies involved or allocated to clerical support for administrative functions.

- **Billing/Collection/Customer Service**

  All billing and revenue collection functions including, but not limited to meter reading costs, the posting of bills, computer support, costs such as postage and forms, customer service and education programs, collection of revenues, customer shut-off/turn-on costs, etc.

- **Metering**

  Includes all costs associated with furnishing and installing meters, meter testing and service repairs.

- **Laboratory**

  Includes all costs associated with each laboratory. If certain laboratory services are contracted, they were identified as contract services within this function.

- **Collection, Distribution and Pumping Operation and Maintenance**

  Includes all costs associated with the maintenance, repair, annual construction or reconstruction, cleaning and lining, and other costs associated with water transmission and distribution lines plus sewer collection and intercepting pipes. It also includes the costs associated with water pumping facilities and wastewater pumping facilities.

- **Treatment Operation and Maintenance**

  Wastewater Treatment — Includes the costs of LAWPCA that are not included in any of the above categories.

  Water Treatment — Includes costs associated with chlorination, fluoridation, corrosion control, etc.

- **Water Supply**

  Includes costs of the Lake Auburn Watershed Protection Commission not included in any of the above categories.

Each of the eight functional categories were then subdivided into twelve line items to permit evaluations of what expenditures were for and to ensure consistency with each organization's line item budget. The line item descriptions follow:

- *Wages and Salaries* - Includes all direct compensation for full time and part time employees.
- *Overtime* - Includes funds for overtime related to operations, emergencies and training.
- *Fringe Benefits* - Includes funds for health and dental insurance, unemployment compensation, Medicare and overtime meals.
- *Workers Compensation* - Includes funds for medical payments and settlements of compensation claims.
- *Chemicals* - Includes funds for chemicals used in water and wastewater treatment, such as chlorine, sodium hypochlorite, and potassium permanganate.
- *Utilities* - Includes funds for electricity, fossil fuels, and other utilities.
- *Maintenance* - Includes purchasing materials and services for the maintenance of plants, machinery, water and sewer pipelines, grounds and buildings.

- *Training and Meetings* - Includes staff training, meetings and professional seminars.
- *Professional Services* - Includes outside consultants; engineering and construction services; laboratory and testing contracts; computer system consultants; and legal and audit services.
- *Other Materials* - Includes office materials, equipment, postage, laboratory supplies, vehicles, work clothes, and computer hardware and software.
- *Other Services* - Includes space leasing, health and safety initiatives and any other items not otherwise covered.
- *Debt Service* - Include debt service for each fiscal year. Includes all available debt service schedules.

1.2.3 Workshops

Workshops with staff, managers and others were an important element of our analysis to develop an understanding of the potential advantages and the significant obstacles. The first workshop was designed to identify and evaluate interim opportunities for cooperation/consolidation of activities among the six organizations using input from a cross section of staff from all six organizations. There were 27 participants representing all staff levels from all six organizations; senior management was excluded to facilitate participation. Facilitators from Camp Dresser & McKee (CDM) led the discussion by brainstorming with the full group, raising the following questions:

- Why the interest in consolidation?
- What are some possible opportunities?
- If these happened, what would be the benefits? (eg. cost savings, freeing resources for others, etc.)
- What are possible drawbacks?

The group was then broken up into smaller groups, and each group was tasked with additional questions:

- What are the most likely opportunities for consolidation within our specific function?
- How will it effect our function (both benefits and problems)?

Meeting notes from Workshop 1 are included in Appendix B. The workshop provided valuable insight to the existing operations of the six organizations.

The opportunities for improving service levels identified in the process were subsequently tested and evaluated by CDM, with significant assistance from senior management. The potential financial consequences were assessed using the spreadsheet model based on the entities' functional budgets.

The second workshop was designed to identify and evaluate consolidation issues for a selection of the consolidation opportunities developed in Workshop 1. Participants included: two Auburn trustees, two Lewiston City councillors, Lewiston Assistant City Manager, Auburn Assistant City Manager, six people from Workshop 1, and the management of the six organizations. The format of Workshop 2 was a general brainstorming session, with the entire group present for the full session. CDM facilitated this discussion by raising issues and potential obstacles to consolidation, as identified in Workshop 1. Meeting notes from Workshop 2 are included Appendix C. The workshop provided valuable insight to the perspectives of the organization's directors, and the intricacies of implementation.

1.2.4 Benchmarking

A key issue for this study is the current level of efficiency of the various entities. To assess that, we benchmarked Lewiston and Auburn water utilities to several regional water utilities. The purpose of benchmarking is to develop basic system and operational data for similar water and wastewater utilities to assess the relative efficiency of operations, and examine performance levels. Two primary sources of data were used to establish these benchmarks:

- *AWWA Waterstats, 1996 Water Utility Survey.* Excerpts from surveys completed by Lewiston Water Division, Auburn Water District, Bangor Water District, Portland Water District, Kennebunk, Kennebunkport and Wells Water District all in Maine, and Pennichuck Water Works in Nashua, NH.

- *Annual Reports to the Public Utilities Commission (PUC) of the State of Maine for the year ended December 31, 1995.* Excerpts from PUC reports of Auburn, Lewiston, Kennebec, Bangor, Portland, Consumers Maine (Camden-Rockland, Freeport, Greenville, Kezar Falls), Maine and Manchester, New Hampshire PUC report.

Relevant data was extracted from these two sources not only to compare the size and types of operations of these utilities, but also to evaluate efficiency ratios. Some ratios used for evaluation include:

- Transmission and distribution operation and maintenance expenses per mile of pipe
- Customer accounts and administrative expenses per customer account
- Total operation and maintenance expenses per customer account

1.2.5 Summary

The purpose of this study is to evaluate the feasibility of consolidating some or all of the existing water and sewer operations within the two cities. The process for collecting data for this evaluation included a staff survey, staff interviews, workshops and a benchmarking survey.

The analysis of consolidation alternatives includes the development of a financial model for testing alternatives and determining if cost savings could be realized. Cost estimates included herein are approximate and intended to illustrate the order of magnitude increases or decreases that are likely. Actual cost changes will depend on the timing of implementation, detailed decisions on labor classifications and grades, and other changes in the communities cost of service that are beyond the scope of this analysis. Data, analyses and recommendations for consolidation are presented in the sections as follows:

Section 2	Current Organization, Operations and Budget
Section 3	Benchmarking
Section 4	Full Consolidation
Section 5	Interim Consolidation Steps
Section 6	Recommended Implementation Plan

Section 2
Current Organization, Operations and Budget

2.1 Introduction

To evaluate potential consolidation opportunities, it is important to understand how each entity currently operates, whether or not staffing is sufficient, what the current and potential future operating budgets are, what the proposed capital improvement programs for each entity may be, and where cost savings could potentially be realized through consolidation. This current cost structure is then projected into the future to define the baseline cost of service.

As previously described, the data collection process for this evaluation included a staff survey, staff interviews, workshops and a benchmarking survey. In addition, numerous data was collected from each entity including Public Utilities Commission (PUC) reports, Capital Improvement Plans (CIP), organizational charts, operating budgets and the developed functional budgets, inventory reports and watershed progress reports. The following sections describe the current operations of each entity.

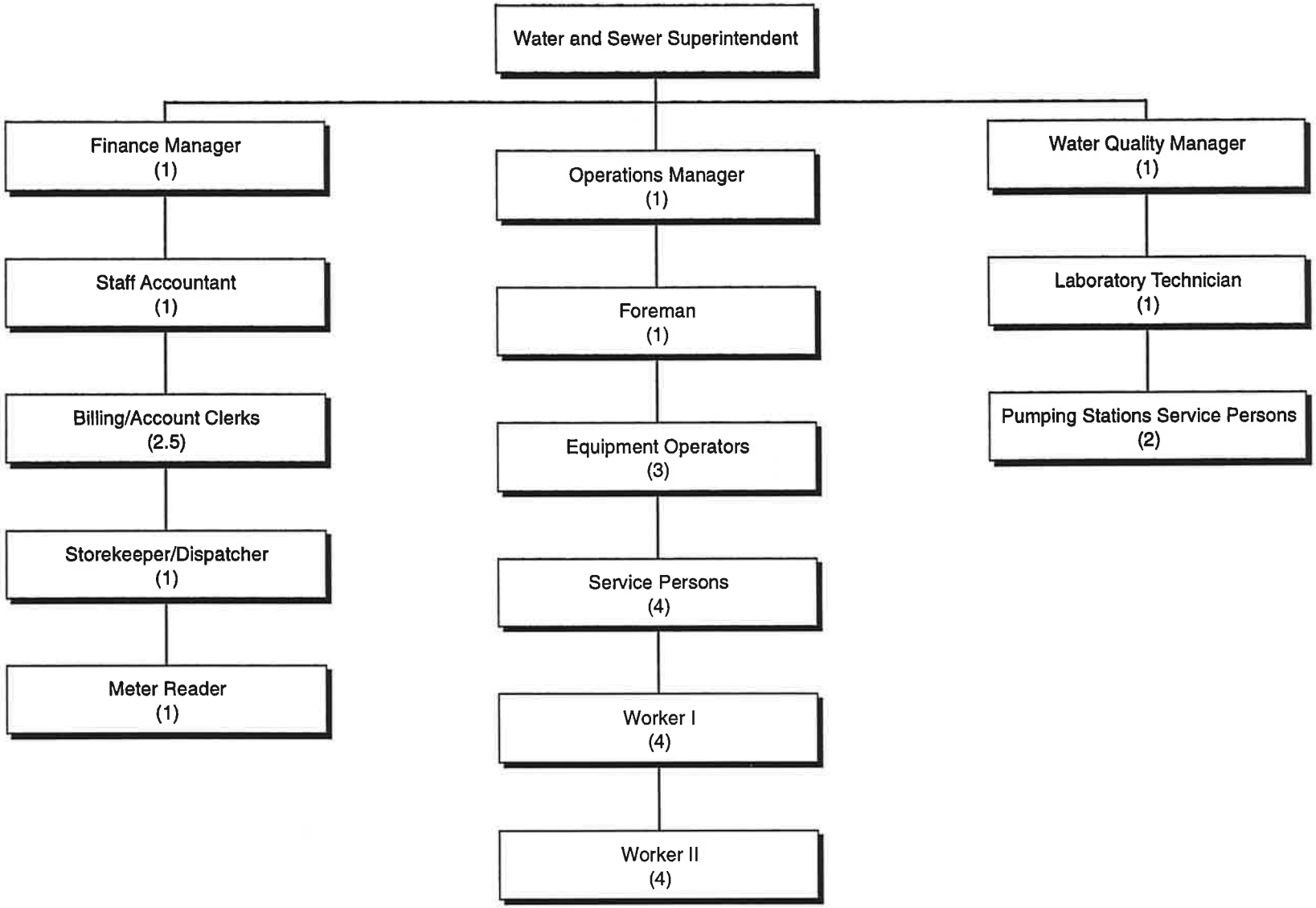
2.2 Lewiston Water and Sewer Divisions

The Lewiston Water Division (LWD) and Lewiston Sewer Division (LSD) are divisions of the City of Lewiston Department of Public Works (LDPW) in the City of Lewiston. As such, some of the support services required for the LWD and LSD are performed by Lewiston city staff and/or LDPW staff rather than from within the divisions. This includes, for example, legal services, computer support, treasury, human resources, public information, engineering support and accounting support. The following sections describe the current operations of the LWD and LSD.

2.2.1 Organization

While the LWD and LSD are separate cost centers within the LDPW, they operate as a single entity. Division budgeting is separate, but resources are shared between the two divisions. Figure 2-1 shows the current organizational chart for the LWD and LSD. As shown, there are three primary branches: administration (finance, accounting, etc.), field operations (workers, equipment operators, etc.), and water quality (lab). There are 28.5 total approved positions for 1996, down from 30 in 1995. Due to attrition and holding delays in filling vacant positions, there are currently 26.5 people employed by LWD and LSD. Two full-time approved positions are vacant; the Water Quality Manager and the Finance Manager positions. General position descriptions are provided in Table 2-1. Position descriptions are described in a general format for the ease of comparison to similar positions in Auburn, in Section 2.3 of this report.

Lewiston staff and field crew are members of several unions with collective bargaining agreements with the city. Management positions (supervisor and managers) are not unionized.



Lewiston and Auburn Consolidation Study

Figure 2-1
Lewiston Water and Sewer Divisions Organization Chart

Table 2-1
LWD and LSD General Position Descriptions

Position	General Description	Notes
Water and Sewer Superintendent	responsible for all operations of water and sewer divisions including all regulatory, fiscal and organizational components of supplying safe drinking water and collecting wastewater for treatment	one position reports to DPW Director
Administration		
Finance Manager	develops budgets for water and sewer divisions, monitors cash flows, determines debt needs	one position (vacant)
Staff Accountant	manages all accounting functions for water and sewer divisions including accounts payable and receivables	one position
Billing/Account Clerks	sends and collects all water and sewer bills	two positions
Account Clerk	assists with sending and collecting water and sewer bills	one half-time position
Storekeeper/ Dispatcher	maintains inventory for water and sewer divisions	one position
Meter Reader	reads, reports, repairs and installs on water meters	one position
Field		
Operations Manager	assists superintendent, dispatches field crews	one position
Foreman	oversees field crews	one position
Equipment Operators	operates all public works equipment and vehicles, perform a wide variety of maintenance and construction tasks	three positions
Service Persons	field crew leaders, maintain water distribution and sewer collection systems	four positions
Worker I	field crew leaders, maintain water distribution and sewer collection systems	four positions
Worker II	field crew, maintain water distribution and sewer collection systems	four positions
Water Quality		
Water Quality Manager	responsible for all drinking water quality regulatory compliance, testing, chemical additions, notifications	one position (vacant)
Laboratory Technician	assists in all lab work for drinking water quality	one position
Pumping Stations Service Persons	field crew, maintain all water and sewer pump stations	two positions
Total		**28.5 positions**

2.2.2 Water Operations

The LWD is responsible for supplying safe drinking water to about 35,800 people in the City of Lewiston. The 1995 average day demand was approximately 4.9 million gallons per day (mgd). The LWD source of supply is Lake Auburn, a 9 billion gallon surface water source, with a safe yield of 17 mgd. The Lake Auburn watershed is 17.7 square miles and is managed by the Commission, an entity established in 1993 by means of an Interlocal Agreement between the two cities and four towns which make up the watershed. The LWD was granted an exception to the Surface Water Treatment Rule (SWTR) of the Safe Drinking Water Act (SDWA) in 1993 which authorizes the city to distribute unfiltered water from Lake Auburn in the system. Construction was recently completed (December 1996) on a joint, deep water intake for the withdrawal of raw water from Lake Auburn for Lewiston and Auburn. This single withdrawal replaces the former two separate shallow water intakes. The former Lewiston intake will remain in place as a backup. After water is withdrawn through the joint intake into a wet well in the Auburn pump station located on the Lake Auburn shoreline, a Lewiston pipe splits off and connects to the Main Street pump station in Lewiston. A disinfection station just downstream of this split provides chlorination; fluoride is also added along with sodium silicate for corrosion control.

The LWD serves customers through over 150 miles of transmission and distribution mains. The LWD must operate and maintain all of the system components to ensure that quality drinking water reaches customers. This includes regular operation and maintenance activities, as well as strategically identified capital improvement projects. It is LWD's policy and preference to use its field crews to perform most of the capital improvement projects which has implications for the allocation of staff time and overtime expenditures during construction season. Details on the LWD and LSD Capital Improvement Program (CIP) are provided in Section 2.8.2, Additional Program Requirements. Table 2-2 provides an inventory of the LWD water system components.

Table 2-2
LWD System Components

Function	Components
Treatment	disinfection facility located at Lake Auburn
Transmission	0.6 miles of 36-inch diameter pipe 2.5 miles of 24-inch diameter pipe
Distribution	164 miles of pipe varying from 1 to 24-inch diameter
Pump Stations	1-10.8 mgd capacity and 1-6.6 mgd capacity
Meters	9,950 meters

Field Operations

LWD currently operates with 13 field personnel, assigned on an as-needed basis to maintain the water transmission and distribution system. There are 17 authorized field positions; of these, two people are on disability leave and two people are on light duty status. Their responsibilities

currently include repair of main breaks, leak detection and repair, installation of replacement water mains, cleaning and lining of water mains, new service installation and existing service replacement and flushing.

In 1996, LWD staff worked 7,749 hours of overtime according to the overtime log. Examination of the distribution of these hours shows that the majority (75%) were during the May to October construction season when capital improvement projects are undertaken. During that six month period, field crews generally worked 16 hours of overtime, per person, per week. Overtime hours during the remainder of the year are attributed to stand-by or emergency calls, and snow plow assistance.

From the functional budget for LWD, the 1996 overtime expense for Distribution and Pumping Operation and Maintenance (O&M) category was $31,963. This would account for much of the overtime hours; additional dollars associated with overtime would be part of capital costs.

Capital improvement water projects proposed for FY 1997 include over 5,000 feet of water main replacement, 3,000 feet of cleaning and lining, 100 hydrants need to be flow tested, hydrants need to be painted and numbered, and other related projects.

Through discussions with the field staff, management staff and review of the overtime logs, work schedules and annual budgets, it is apparent that the LWD is operating near full-capacity and is potentially understaffed to carry out their existing annual assignments.

Laboratory

LWD is set up to operate with one laboratory technician and one Water Quality Manager. The Water Quality Manager position is currently vacant. LWD has elected to hold off on replacement of that position pending the results of this study. Currently, the AWD Water Quality Manager supervises both Auburn and Lewiston's labs to ensure continued lab certification for Lewiston. In the absence of this ad hoc solution, the LWD would be required to contract out all laboratory services. This solution is temporary, however, and has overloaded the AWD Water Quality Manager.

Meter Reading

LWD currently operates with one meter reader and one meter repair staff person. Approximately two-thirds of Lewiston's water meters can be read from outside. The remaining third requires entering each residence to read the meter. LWD currently does not have an automatic data collector. The meter reader utilizes an electronic meter reader (for the outside meters), manually transcribes the data into a log book, and the data is then manually input into a computer. Meters are read on a rotating schedule; each meter is read every three months.

Inventory

The LWD and LSD currently stock and maintain inventory at a central city warehouse. One position (Storekeeper/Dispatcher) is dedicated to this assignment. The current inventory value is approximately $150,000.

From 1987 to 1993, water related inventory materials were purchased by the LWD and AWD by way of an annual joint materials bid. This cooperative relationship in materials purchases resulted in reduced cost of inventory for both Lewiston and Auburn. In 1993, both LWD and AWD secured a "just in time (JIT)" inventory system. LWD utilized this system for only one year; the city then required a full procurement process each year thereafter to ensure competitive prices.

Administration

The LWD and LSD business office includes the Staff Accountant, two Billing and Account Clerks, and a half-time Account Clerk. These three and a half positions are responsible for issuing and collecting water and sewer bills. The business office is supplemented, as appropriate, by city services. The city offices that fill the gaps on other functions include finance (auditing), treasurer (bonding), purchasing, DPW (payroll, engineering and instrumentation), data processing (customer billing and accounting), and personnel (new hires, policies, grievances). Water bills are sent out on a rotating basis; each customer receives four bills per year.

2.2.3 Sewer Operations

The LSD is responsible for ensuring that wastewater is collected and transported to the LAWPCA for treatment and discharge. The system includes approximately 155 miles of sewer pipe, 11 sewage pump stations and two inverted siphons. In addition, LSD is responsible for 36 combined sewer overflows (CSO) under the Clean Water Act (CWA) National Pollution Discharge Elimination System (NPDES). Additional information on the LSD CSO program is provided in Section 2.8.2, Additional Program Requirements.

In 1996, there were no field staff dedicated exclusively to the maintenance of the sewer collection system. There are 17 authorized field positions; thirteen are dedicated to water projects, two people are on disability leave and two people are on light duty status. However, with the completion of the Clean Water Act Master Plan (completed, July 1996) to address the impacts of combined sewer overflows on receiving waters, and with the 1996 purchase of a new sewer jetter truck, LSD intends to designate a field crew dedicated exclusively to sewer maintenance projects in 1997.

Currently, field staff are assigned as needed to sewer emergency maintenance and repair projects. Their responsibilities include: sewer cleaning and flushing, sewer line replacements, cross connection detection and repair, repair of collapsed sewers and related projects. Included in 1997 will be a monitoring program of the city's 36 CSO discharges and a systematic preventative maintenance program necessary to minimize CSO events.

Through discussions with the field staff, management staff and review of the work schedules and annual budgets, it is apparent that the more immediate needs of the water system have taken precedence over sewer maintenance activities and that there are insufficient staff and equipment to simultaneously address both. With the designation of a field crew exclusively dedicated to sewer projects for 1997, the sewer system will be given greater attention. It is clear, however, that at current staffing levels, this will cause delays in the completion of lowest priority water projects.

2.3 Auburn Water and Sewerage Districts

The Auburn Water District (AWD) and Auburn Sewerage District (ASD) are separate utilities, established by charters in 1923 and 1917, respectively. The following sections describe the current operations of the AWD and ASD.

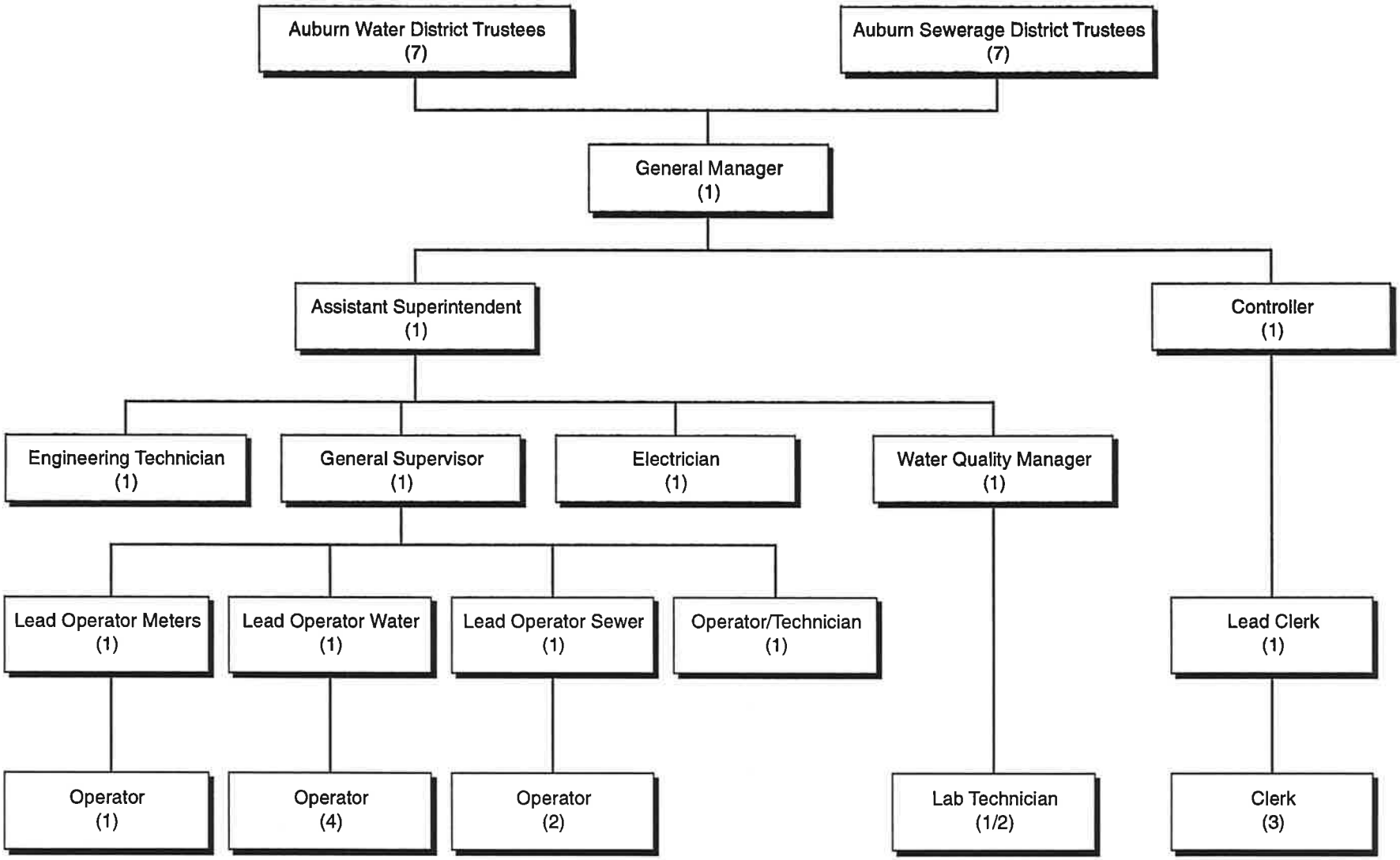
2.3.1 Organization

The AWD and ASD are separately established districts, each with seven person Board of Trustees appointed to three year terms by the City of Auburn Board of Mayor and Council, and operate under the direction of a single General Manager. District budgeting is separate, but resources are shared between the two districts. Figure 2-2 shows the current organizational chart for the AWD and ASD. As shown, there are two primary branches: engineering (operators, engineers, etc.), and administration (clerks). There are 22.5 total approved positions for 1996; none are union positions. There are currently 21 people employed by AWD and ASD; the Assistant Superintendent and half-time Laboratory Technician positions are vacant pending the outcome of this report. General position descriptions are provided in Table 2-3. Position descriptions are described in a general format for the ease of comparison to similar positions in Lewiston, in Section 2.2 of this report.

2.3.2 Water Operations

The AWD is responsible for supplying safe drinking water to about 20,600 people in the City of Auburn. The 1995 average day demand was approximately 2.9 mgd. The AWD source of supply is Lake Auburn, a 9 billion gallon surface water source, with a safe yield of 17 million gallons per day (mgd). The Lake Auburn watershed is 17.7 square miles and is managed by the Lake Auburn Watershed Protection Commission, an entity established in 1993 by means of an Interlocal Agreement between the two cities and four towns which make up the watershed. The AWD was granted an exception to the Surface Water Treatment Rule (SWTR) of the Safe Drinking Water Act (SDWA) in 1993 authorizing the AWD to use Lake Auburn as a public water supply without filtration. Construction was recently completed (December 1996) on a joint, deep water intake for the withdrawal of raw water from Lake Auburn for Lewiston and Auburn. This single withdrawal replaces the former two separate shallow water intakes. The former Lewiston intake will remain in place as a backup. After water is withdrawn through the joint intake into a wet well in the Auburn pump station located on the Lake Auburn shoreline, chlorine and fluoride are added to the raw water, and the pH is adjusted using caustic soda.

The AWD serves customers through over 130 miles of transmission and distribution mains. The AWD must operate and maintain all of the system components to ensure that quality drinking water reaches customers. This includes regular operation and maintenance activities, as well as strategically identified capital improvement projects. Details on the AWD and ASD Capital Improvement Program (CIP) is provided in Section 2.8.2, Additional Program Requirements. Table 2-4 provides an inventory of the AWD water system components.



Lewiston and Auburn Consolidation Study

Figure 2-2
Auburn Water and Sewerage Districts
Organization Chart

Table 2-3
AWD and ASD General Position Descriptions

Position	General Description	Notes (all non-union)
General Manager	responsible for all operations of water and sewerage districts including all regulatory, fiscal and organizational components of supplying safe drinking water and collecting wastewater for treatment; serves on the LAWPCA Board of Directors	one position reports to AWD and ASD Trustees
Administration		
Controller	develops budgets, monitors cash flows, determines debt needs, manages accounting functions including general ledger for both districts	one position
Lead Clerk	manages billing functions and accounts receivables for both districts	one positions
Clerk	manages accounts payable, inventory records, payroll, collection of past due accounts, sewer liens and assessments	three positions
Operations		
Assistant Superintendent	deputy manager of operations; assists General Manager, responsible for engineering and purchasing, manages watershed protection efforts	one position (vacant)
Engineering Technician	assists Assistant Superintendent, manages trench restoration efforts, maintains all water and sewer records, drafts construction drawings, performs general supervision functions in Assistant Superintendent's absence	one position
General Supervisor	prioritizes and designates work assignments, manages safety and training program, manages all field workloads, resolves customer complaints	one position
Electrician	responsible for all electrical and mechanical maintenance of all District facilities including instrumentation and chemical feed equipment	one position
Lead Operator Water	maintain water transmission and distribution systems, disinfection	one position
Operator	field crew, maintain water transmission and distribution systems, disinfection	four positions
Operator /Technician	maintain water services and public fire hydrants, and provides Dig-Safe locates	one position
Lead Operator Sewer	maintain sewer collection system	one position
Operator	field crew, sewer collection system	two positions
Lead Operator, Meters	maintain meters	one position
Operator	field crew, meters	one position
Water Quality Manager	responsible for all drinking water quality regulatory compliance, testing, chemical additions, notifications	one position
Laboratory Technician	assists in all lab work for drinking water quality	one half-time position (vacant)
Total		**22.5 positions***

*Not including summer staff which adds up to three positions

Table 2-4
AWD System Components

Function	Components
Treatment	disinfection facility located at Lake Auburn
Transmission	9 miles of pipe varying from 10 to 30-inch
Distribution	123 miles of pipe varying in diameter
Pump Station	1-6 mgd capacity
Meters	6,077 meters

Field Operations

AWD currently operates with 9 and a half full-time field personnel (includes half of the electrician's time), assigned on an as-needed basis to maintain the water transmission and distribution system. Their responsibilities currently include repair of main breaks, leak detection and repair, some installation of replacement water mains, some cleaning and lining of water mains, new service installation and existing service replacement, flushing, and maintenance of the pump station, chemical feed equipment and instrumentation.

In 1996, AWD staff worked 2,965 hours of overtime according to the overtime log. Eighteen percent of this time, or approximately 500 hours, was overtime of the Water Quality Manager (see next section). The remaining time, 2,430 hours, was spent by field crews. This is considerably less than the overtime worked by LWD field staff. It is AWD's policy and preference to contract out most of the capital improvement work.

Laboratory

AWD is set up to operate with a Water Quality Manager, and one half-time Laboratory Technician. However, the Technician position is currently vacant pending the results of this study, and the Manager is essentially half-time. The Manager is currently filling in as a temporary Water Quality Manager in Lewiston, since that position was vacated during 1996 and is not yet filled. This solution is temporary, however, and has overloaded the Water Quality Manager.

Meter Reading

AWD currently operates with one part-time meter reader and one meter repair person. All of Auburn's water meters utilize data collection electronic meter reading technology which eliminates the manual numerical transposition of meter reads. Currently, Auburn's read from an outside connection downloads the meter data directly into the hand held device which automatically

downloads the data to the office computer. No transcribing of data is required. AWD has recently initiated the radio-read technology for new or replacement meters for large industrial and commercial customers. The District's goal is to move towards monthly billing for all industrial and commercial accounts and large multi-family residential customers. Meters are read on a rotating basis; each meter is read every three months.

Inventory

From 1987 to 1993, water related inventory materials were purchased by the LWD and AWD by way of an annual joint materials bid. This cooperative relationship in materials purchases resulted in reduced cost of inventory for both Lewiston and Auburn. In 1993, AWD and LWD secured a "just in time (JIT)" inventory system. This inventory method is currently used in private industry and has distinct advantages such as (1) a reliable means of providing crews with needed materials for emergencies in two hours or less, (2) reduced inventory levels, (3) reliable and efficient means of monitoring and re-stocking inventory that is used by crews back to the pre-established minimums, (4) competitively priced quality materials, and (5) a reliable electronic data management information system which allows access to information on vendor inventory levels. AWD has remained with this inventory system and uses E.J. Prescott in Gardiner, Maine as their JIT inventory supplier. Auburn reported a positive experience with this inventory system; they always receive parts when needed so that the upfront increased cost associated with this method is offset by improved field efficiencies and lower carrying costs. Since the implementation of JIT inventory, AWD has reduced inventory levels from $125,000 to under $50,000.

Administration

The AWD and ASD business office includes one Lead Clerk and three Clerks. These four positions are responsible for issuing and collecting water and sewer bills, responding to customer inquiries, maintaining the general ledger, and additional functions such as purchasing and payroll. Water bills are sent out on a rotating basis, with each customer receiving four bills each year.

2.3.3 Sewer Operations

The ASD is responsible for ensuring that wastewater is collected and transported to LAWPCA for treatment and discharge. The ASD system consists of approximately 125 miles of sewer collection pipe (approximately 30 percent of which is a combined system), 23 sewage lift stations, 12 inverted siphons and eight combined sewer overflows (CSOs) permitted under the Clean Water Act (CWA) National Pollution Discharge Elimination System (NPDES). Details on the ASD CSO program are provided in Section 2.8.2, Additional Program Requirements.

Approximately eight full-time employees are employed by ASD. Three and a half of these employees are directly involved in sewer system maintenance. During normal working hours, sewer system O&M is provided by a staff of three full-time people and an electrician who works for the ASD on a half-time basis. Night and weekend staffing is provided by a rotating three-person on call emergency duty crew. With the completion of the Clean Water Act Master Plan (completed, July 1996) to address the impacts of combined sewer overflows on area receiving waters, their responsibilities will be increasing, as the ASD complies with the National CSO Policy requirements, including implementation of the nine minimum controls and best management program efforts.

Currently, field staff are assigned as needed to sewer maintenance projects. Their responsibilities currently include: sewer cleaning and flushing, sewer line replacements, repair of failed sewer lines, cross connection monitoring and correction, and related projects. Included in 1997 will be a monitoring program of the city's eight CSO discharges.

From the functional budget for ASD, the 1996 Collection System O&M overtime expense was negligible at $1,656. In addition, $10,000 was spent on Other Services in this category, representing work that was contracted out because of insufficient time or the lack of proper equipment.

ASD will undertake the CSO monitoring and sewer maintenance program in early 1997, consistent with the National CSO policy.

2.4 Summary of Lewiston and Auburn Water and Sewerage Operations

Operations between the two cities can be directly compared. Table 2-5 shows some basic characteristics of each system.

Table 2-5
Basic Characteristics of Systems

	Lewiston	Auburn
Population served by water *	35,800	20,600
Average 1995 day water demand (mgd)	4.9	2.9
Total water and sewer staff (not including summer staff)	28.5	22.5
Total 1996 water and sewer O&M budget (not including capital expenses)	$4,113,977	$3,226,138
Miles of water pipe responsible for	168	132
Miles of sewer pipe responsible for	155	125
Water pump stations	2	1
Sewerage pump stations	11	23
Number of total field staff	17	9.5
Number of CSOs	36	8
Union field staff	yes	no

* Approximately 90% of Lewiston's and 85% of Auburn's city populations

2.5 Lewiston Auburn Water Pollution Control Authority (LAWPCA)

The Lewiston Auburn Water Pollution Control Authority (LAWPCA) was established through an act of legislature in 1967. LAWPCA is responsible for the operation and maintenance of the Lewiston Auburn Water Pollution Control Facility (LAWPCF). The facility serves a sewered population of 54,800 with an average flow of 9.4 mgd; design flow is 14.2 mgd.

2.5.1 Organization

The LAWPCA staffing will be modified as a result of LAWPCA's proposed automation plan. For purposes of this report, we have assumed that the automation program will be completed by 1998. Figure 2-3 shows the proposed organizational chart. As shown, there are two primary branches: Operations (under the Assistant Superintendent) and Water Quality (lab and pre-treatment). The Board of Directors consists of seven members including three representatives from Lewiston (including the Director of the Lewiston DPW); three representatives from Auburn (including the District Manager of the Auburn Sewerage District and the president of the Auburn Sewerage District Trustees); plus one additional Lewiston or Auburn member (every three years, the alternative city is represented). There are currently a total of 24.6 staff , this is expected to decrease to 20 when the new instrumentation and control system becomes operational. In addition to treating the wastewater from the two cities, the facility also accepts septic waste from 17 towns. The 1996 operating budget for LAWPCA is $3,911,564 (including capital costs). The operating budget is comprised of revenues received from ASD (38%), LSD (54%) and other sources (8%). (Other revenue sources are from the sale of compost and fees associated with septic waste.)

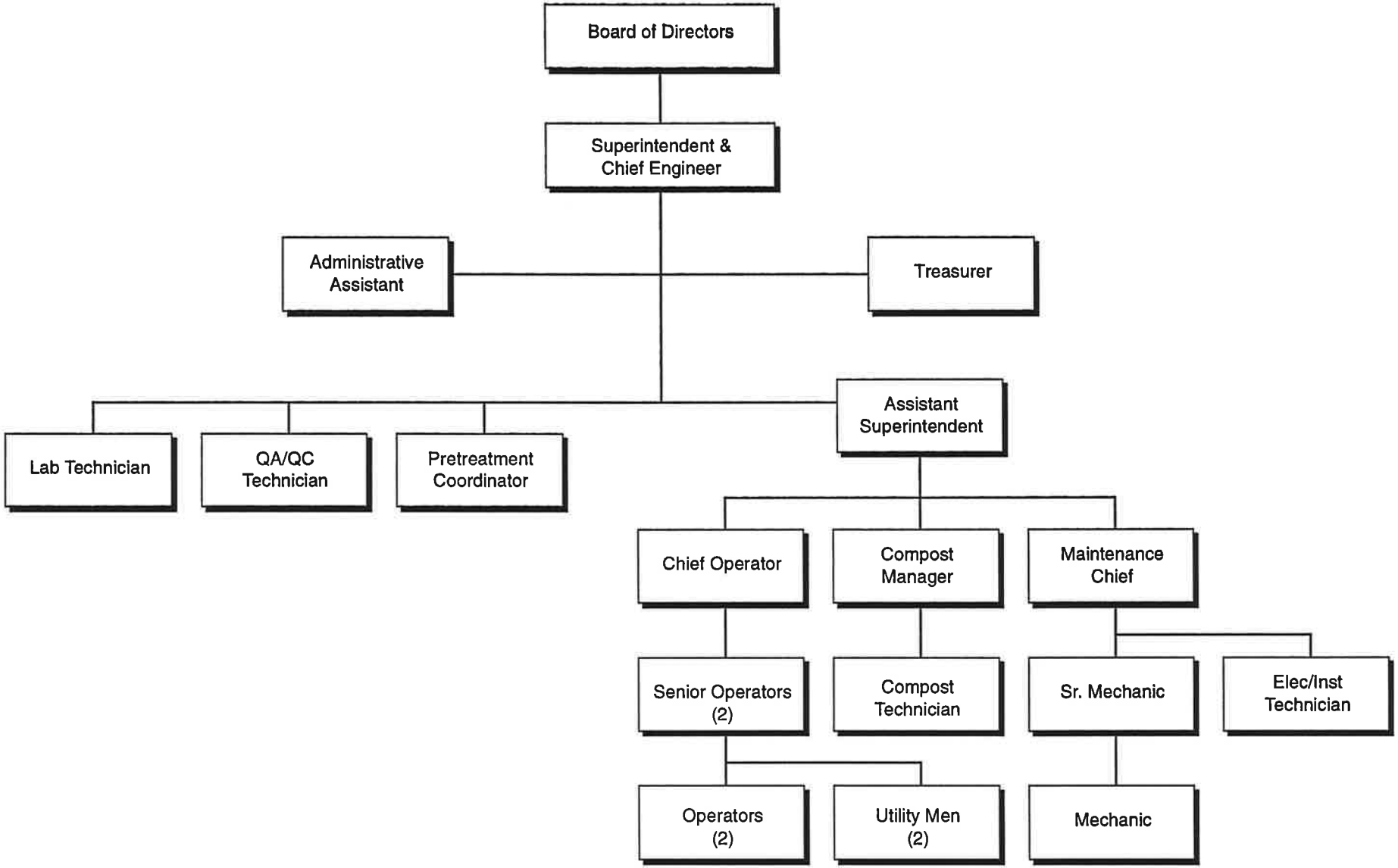
2.6 Lake Auburn Watershed Protection Commission (The Commission)

The Lake Auburn Watershed Protection Commission was established in 1993 by means of an Interlocal Agreement between the two cities and four towns which make up the watershed. The Commission is administered by a Joint Board composed of eight members; three members each appointed by the Trustees of the AWD and the Lewiston City Council, one member appointed by the Turner Board of Selectmen and one member from the Androscoggin Valley Council of Governments. The Commission is charged with protecting the watershed to Lake Auburn to protect and maintain the present quality and volume of potable water supplied from the Lake Auburn Watershed. The Commission met seven times in 1996; the 1996 operating budget was $178,000 which is funded entirely by the AWD (50%) and LWD (50%).

2.7 Existing Cooperative Efforts

Lewiston and Auburn currently provide certain water and sewer services with some coordinated, or consolidated functions. Major functional areas have been consolidated as evidenced by LAWPCA and the Lake Auburn Watershed Protection Commission. In addition, the physical proximity of the two cities, and close working relationships have resulted in some informal coordinated and consolidated efforts. Many of these coordinated functions are due to the efforts of the current Lewiston Superintendent and Auburn District Manager, and are not documented as formal procedures or agreements. In order to ensure the perpetuity of desired and/or sensible coordinated efforts, formal documentation of these efforts should be considered. Existing coordinated or consolidated functions are as follows:

- **Watershed Protection:** The Lake Auburn watershed is managed by the Lake Auburn Watershed Protection Commission, established in 1993 by means of an Interlocal Agreement between the two cities and four towns which make up the watershed. In response to the SDWA requirements, and in an effort to ensure that the waiver from filtration be continued into the future, the Lake Auburn Watershed Protection Commission annually reports on their efforts to the Maine Drinking Water Program, Division of Health Engineering.



Lewiston and Auburn Consolidation Study

Figure 2-3
LAWPCA
Organization Chart

- **New Joint Raw Water Intake:** This recently completed project constructed a new joint, deeper raw water intake to replace the two existing shallow water intakes. AWD and LWD will jointly operate this intake. The former Lewiston intake will remain in place as a backup.

- **Chemical Feed Facilities:** Improvements are underway at Lake Auburn which will provide for joint chemical storage and feed facilities for both utilities. Chlorine, fluoride, and corrosion control inhibitors from common storage will be introduced into the water within Auburn's wet well. Each utility will be financially responsible for its metered share of the chemicals.

- **Common Materials and Services Purchases:** The utilities jointly solicit bids for certain materials and services such as treatment chemicals and annual trench pavement restoration contract. Engineering services such as the lead and copper study, the surface water treatment/exemption from filtration study, and the CSO Clean Water Act master plan report have been also jointly solicited.

2.8 Expenses of All Organizations

In order to develop a comparison of budgets across the six organizations, and to compare with other utilities through the benchmarking process, budgets from each of the organizations were re-compiled from their existing formats into *functional budgets*. Functional budgets are designed to represent the functions of the staff and the costs associated with particular functions. With functional budgeting, the manager's salary may be divided into how many hours are allocated to treatment, system operation and maintenance, etc. The following categories were selected for functional budgeting:

- Management
- Administrative Support Functions (purchasing, legal, audit/accounting, personnel, clerical)
- Billing/Collection/Customer Service
- Metering
- Laboratory (water, wastewater)
- Collection/Distribution and Pumping Operation and Maintenance
- Treatment Operation and Maintenance
- Water Supply

Each of these categories was further subdivided to show costs associated with: wages and salaries, fringe benefits, worker's compensation, chemicals, utilities, maintenance, training and meetings, building rent, professional services, other materials, other services, debt service.

2.8.1 Current

Current expenses for each of the six organizations were re-organized into functional budgets and are presented in Table 2-6. These budgets include O&M expenses and debt service for 1996.

2.8.2 Additional Program Requirements

Public water supplies and wastewater discharges are regulated by the Environmental Protection Agency (EPA), and by the State of Maine. In particular, two federal laws and associated state regulations have a significant impact on the operations and future plans of the six organizations:

- Safe Drinking Water Act (SDWA); and
- Clean Water Act (CWA) Combined Sewer Overflow (CSO) Policy.

Table 2-6
Functional Budgets

	Lewiston Water	Lewiston Sewer	Auburn Water	Auburn Sewerage	LAWPCA	The Commission
Management	$56,105	$40,867	$77,329	$64,389	$189,323	$7,500
Administrative Support	51,896	50,442	86,857	86,883	103,045	3,500
Billing/Collect/Cust Serv	92,989	75,747	80,629	52,275		
Metering	41,000		50,064			
Laboratory	75,988		58,083		181,802	
Collect/Dist/Pump O&M	1,837,652	652,046	1,179,201	832,863		
Treatment O&M	92,707	2,174,112[2]	112,078	1,510,174[2]	3,437,394	
Water Supply	89,000[1]		127,533[3]	7,118		167,000
Total	**$2,337,337**	**$2,993,214**	**$1,771,774**	**$2,553,702**	**$3,911,564[4]**	**$178,000[5]**

1. Paid to the Commission for watershed protection
2. Part of this amount ($2,110,348, LSD and $1,470,000 ASD) paid to LAWPCA for wastewater treatment
3. Part of this amount ($89,000) is paid to the Commission for watershed protection
4. LAWPCA budget includes revenues received from LSD ($2,110,348) and ASD ($1,470,000)
5. The Commission budget is entirely comprised of revenues received from LWD ($89,000) and AWD ($89,000)

These regulations, their corresponding impacts on the six organizations, and the organizations plans for compliance are described in the following sections. These "programs" greatly impact the future plans for operations and future budgets of the six organizations.

Requirements of the SDWA

On August 6, 1996, the Safe Drinking Water Act (SDWA) Amendments of 1996 were signed into law, reforming the federal drinking water standards. This marks the first modification and reauthorization of the SDWA since June 1986, when the SDWA was amended to strengthen drinking water quality standards and to achieve a higher degree of protection against potential waterborne public health threats. The 1996 Amendments will require public water suppliers to focus on preventing and treating the most harmful pollutants in drinking water. For the first time, public water suppliers will be required to notify the public of any violations of water standards within 24 hours and inform consumers annually about the quality of their drinking water and its sources.

Pursuant to the SDWA Amendments of 1986, the EPA issued a series of rules to implement the Act. The Surface Water Treatment Rule (SWTR), promulgated in 1989, specifies the conditions under which filtration of surface water supplies is required and mandates the use of more potent disinfection techniques. The Lead and Copper Rule, promulgated in 1991, requires treatment

actions to reduce the water's corrosivity if excessive levels of lead or copper are detected at consumer's taps. The EPA issued the Disinfectants and Disinfectants By-Products Rule (D/DBP Rule) and the Enhanced Surface Water Treatment Rule (ESWTR) in draft form in June 1994. These rules are scheduled to be promulgated in 2000. The D/DBP Rule will limit the concentration of certain chemicals of concern which form when water is disinfected. The EPA, in the proposed ESWTR, is considering revisions to the SWTR which would require that surface water systems with proven quality source waters treat microbiological contaminants to levels below that currently required by the SWTR. The EPA is also considering requiring that surface water systems treat for *cryptosporidium.*

The Information Collection Rule (ICR) was promulgated on May 1, 1996. It requires some surface water systems to collect additional data on the occurrence, treatment, and characterization of disinfectants, disinfection by-products, and microorganisms. Ultimately, EPA will set enforceable limits for various disinfectant and disinfectant by-products and microorganisms in the D/DBP Rule and ESWTR using the collected data.

Impacts of the SDWA on Lewiston and Auburn

The SWTR dictates that public surface water supplies must be filtered unless an "exception" is granted, based upon specified criteria. *In June of 1993, the Auburn Water District and the City of Lewiston each received an Exception to Filtration waiver under the SWTR.* If the waiver had not been received, the two cities faced a total capital improvement of up to $30 million for filtration facilities. The waiver has specific conditions which must be met to maintain the waiver, and avoid filtration including:

- Implementation of the Modified Restricted Area around the intake as proposed (complete);
- Modifications to existing disinfection facilities to provide redundancy (complete);
- The extension of the intake into deeper waters (complete); and
- Water quality monitoring and watershed control activities as outlined in the filtration avoidance application (ongoing).

In response to these requirements, and in an effort to ensure that the waiver from filtration is maintained into the future, the Lake Auburn Watershed Protection Commission annually reports on their efforts to the Maine Drinking Water Program, Division of Health Engineering. In addition, the Auburn Water District and Lewiston Water Division have developed Capital Improvement Programs (CIPs) for Consent Order compliance and watershed protection. Further, construction was recently completed on the joint, deep water intake in Lake Auburn.

Requirements of the Combined Sewer Overflow (CSO) Control Policy

On April 11, 1994, the EPA issued the National CSO Control Policy. The Policy establishes a consistent national approach for controlling discharges from combined sewer systems to the Nation's waters through the National Pollution Discharge Elimination System (NPDES) permit program. EPA's CSO Policy encourages appropriate parties to engage in a comprehensive and coordinated planning effort to achieve cost effective CSO controls that ultimately complies with the

requirements of the Clean Water Act (CWA). The roles and responsibilities of affected parties include implementation of Nine Minimum Control Measures, and the development and implementation of a Long-Term Control Plan. The Nine Minimum Controls (NMC) include:

1. proper operation and maintenance,
2. maximum use of collection system for storage,
3. review of pretreatment requirements,
4. maximization of flow to the publicly owned treatment works (POTW) for treatment,
5. prohibition of CSOs during dry weather,
6. control of solid and floatable materials,
7. pollution prevention,
8. public notification,
9. monitoring of CSO impacts and efficacy of controls.

The Long-Term Control Plan includes:

1. characterization, monitoring and modeling,
2. public participation and agency interaction,
3. consideration of sensitive areas,
4. evaluation of alternatives,
5. cost/performance considerations,
6. operational plan,
7. maximizing treatment at the POTW,
8. implementation schedules,
9. post-construction compliance monitoring program.

Impacts of the CSO Control Policy on Lewiston and Auburn

In 1992, the City of Lewiston and the Auburn Sewerage District jointly initiated preparation of the Clean Water Act Master Plan to address the impacts of CSOs to area receiving water. The "Clean Water Act Master Plan, Draft Report to the Auburn Sewerage District and City of Lewiston", July 1, 1996 by Metcalf and Eddy presents a comprehensive evaluation of the CSO issues in both communities. The recommended plan for each city provides a framework for CSO control efforts in accordance the EPA CSO Policy.

There are eight CSOs in Auburn, 36 in Lewiston, and one from LAWPCA. During storm events, the CSOs can discharge untreated wastewater to the Androscoggin and Little Androscoggin Rivers, and several smaller brooks in Lewiston.

Recommended actions for controlling CSO discharges in Auburn include: implement a Best Management Practices (BMP) program, implement sewer separation of 1,200 acres of combined sewer area over a 20 year period, and implement a compliance monitoring program. Implementation of this plan will eliminate five CSOs permanently. For purposes of our evaluation, we include the capital and operational costs of Auburn's CSO program within the ASD's future cost of service. We are aware that certain separation work may be undertaken by another city department, rather than ASD.

Recommended actions for controlling CSO discharges in Lewiston include: implement a BMP program, implement sewer separation of 1,300 acres of combined sewer area over a 20 year period, and implement a compliance monitoring program. Implementation of this plan will eliminate 19 CSOs permanently.

Recommended actions for controlling the one CSO discharge at LAWPCA include: implement a BMP program, conduct future evaluation of the need for additional facilities once separation is implemented in Auburn and Lewiston, and implement a compliance monitoring program.

All aspects of the BMP programs are recommended to be implemented as early as possible to minimize pollutant loads to the area receiving waters in the short-term. The appropriate regulatory agencies have not yet approved these plans. EPA's deadline for implementation of the Nine Minimum Controls with supporting documentation, as stated in both the CSO Policy and the draft NPDES permits, is January 1, 1997. The ASD and LSD have filed compliance reports to meet this deadline. Once implemented, the BMP program will be an ongoing effort that should be evaluated periodically to monitor overall effectiveness and to identify areas for improvement. Compliance with the NMC and the National CSO program will require each City to proactively:

1. monitor CSO; the efficiency of controls and water quality impacts,
2. control solids and floatable discharges,
3. maintain and operate the sewer system,
4. maximize the potential for storage in the collection system and maximize the volume of wastewater that is treated.

2.8.3 Future

Future costs of the six organizations will be heavily influenced by implementation of the CSO Master Plan, continued compliance with the requirements of the SDWA, and planned system upgrades identified in each CIP. Although it is uncertain when individual capital improvements will be implemented, it is apparent that some operating costs associated with these programs, particularly with the CSO plan, are immediate. In order to project potential future costs of the six organizations, a spreadsheet model was developed.

Spreadsheet Model

The spreadsheet model was developed using Lotus 123 for Windows. The model is set up to provide cost projections for each organization based on the input data and required assumptions. Output from the model indicates:

- potential future operating costs for each organization through 2006 if all CSO programs and identified CIPs implemented
- potential future operating costs of the six organizations combined through 2006

Input requirements include:

- existing operating expenses (from functional budgets)
- existing debt service schedules for outstanding debt

- proposed CSO program operations and maintenance expenses and capital improvements
- proposed Capital Improvement Programs (CIP)
- assumption of operating expenses inflation rate
- assumption on schedule for CIPs
- assumptions on terms and interest rates of future bond issues

Capital Improvement Programs (CIPs)

Sources of information for proposed capital improvements for the six organizations are as follows:

- Lewiston Capital Improvement Program (LCIP), FY 1997 through 2001
- EPA Needs Survey for Auburn Water District, February 1995
- Clean Water Act Master Plan, Draft Report to the Auburn Sewerage District and City of Lewiston, July 1, 1996
- A Comparison of Annual Costs for Capital Projects vs. Annual Operations Cost Savings at the LAWPCA by CMR December 3, 1996.

The LCIP for water projects (not including a potential filtration plant or ozone disinfection facility) is approximately $19.8 million and includes items such as distribution system improvements. The LCIP for sewer projects, including CSO improvements as recommended in the Master Plan, is approximately $28.7 million. The LCIP also indicates future operating costs, and identifies a schedule for improvements through the year 2001. After 2001, assumptions were made on capital expenditures and operating costs. The Master Plan also indicates future operating costs, and identifies a schedule for improvements through 2017.

The proposed AWD CIP (not including a potential filtration plant or ozone disinfection facility) is approximately $15.2 million and includes items such as distribution system improvements. The proposed ASD CIP, which is entirely CSO improvements as recommended in the Master Plan, is approximately $18.8 million. Future operating costs for water projects were not available and were therefore approximated. The Master Plan indicates future operating costs for the CSO program, and identifies a schedule for improvements through 2017.

The proposed LAWPCA CIP is approximately $1.6 million for CSO improvement. In addition, other projects (including the proposed plan for automation); will require a $3.5 million bond issue scheduled for fall, 1997. The Master Plan indicates future operating costs for the CSO program, and identifies a schedule for improvements through 2017.

Proposed capital improvement programs through FY 2001 for Lewiston, Auburn and LAWPCA are shown in Tables 2-7, 2-8 and 2-9, respectively.

Assumptions

All existing operating costs were assumed to escalate at a rate of 3.5 percent per year. In addition, all new operating costs identified in the LCIP and CSO Master Plan were included in the projections.

Table 2-7
Lewiston CIP

		Total CIP	Total CIP Estimated for 1996, Forward	Total Expected Bond Issues Through 2001	Total Expected O&M Expenses Through 2001	Remaining CIP After 2001
Lewiston						
(1) Water						
W-1	Land Acquistion (Watershed Control Program)	1,500,000	1,500,000	0	250,000	1,250,000
W-2	Intake Extension	1,000,000	100,000	0	0	100,000
W-3	Lead and Copper: pH Adjustments, Chloramines	100,000	100,000	100,000	0	0
W-4	Crowley Road Asbestos Waterline Replace	100,000	100,000	100,000	0	0
W-5	Ozone Disinfection Plant (LWD share)	3,000,000	3,000,000	0	0	3,000,000
W-6	Alum Treatment for Lake Auburn (LWD share)	125,000	125,000	0	0	125,000
W-7	Dredging "The Basin" Lake Auburn	500,000	500,000	0	0	500,000
W-8	Lewiston - Auburn Filtration Plant (LWD share)	12,000,000	12,000,000	0	0	12,000,000
W-9	Small Main Replacement	9,000,000	9,000,000	500,000	500,000	8,000,000
W-10	Cleaning/Lining of Exist Lg Diam Distrib Lines	2,000,000	2,000,000	0	400,000	1,600,000
W-11	Distribution Network Improvements	500,000	500,000	0	0	500,000
W-12	High Service Area Reservoir	1,000,000	1,000,000	1,000,000	0	0
W-13	Transmission Main Upgrading	2,000,000	2,000,000	200,000	0	1,800,000
W-14	Dual River Crossing on Longley Bridge	300,000	300,000	0	0	300,000
W-15	Transmission Main - Clean and Cement Line	400,000	400,000	300,000	0	100,000
W-16	Replace Bridge Cross- Lincoln Street	90,000	90,000	0	60,000	30,000
W-17	Sabattus Rd - Central to Orange Main Replac	150,000	150,000	150,000	0	0
W-18	Meter Replacement Program	600,000	600,000	0	250,000	350,000
W-19	Equipment Replacement Program - Water	472,000	457,000	0	240,000	217,000
	Subtotal Lewiston Water CIP	34,837,000	33,922,000	2,350,000	1,700,000	29,872,000
	Subtot Lewiston Water CIP w/out Filtration, Ozone	**19,837,000**	**18,922,000**	**2,350,000**	**1,700,000**	**14,872,000**
(1) Sewer						
S-1	Rehabilitation of Old Sanitary Sewer Mains	400,000	400,000	0	400,000	0
S-2	Sabattus Road Sewer Replacements	290,000	290,000	290,000	0	0
S-3	Equipment Replacement Program-Sewer	55,000	55,000	0	55,000	0
S-4	Stetson Road Area Sanitary Sewers	1,000,000	1,000,000	0	0	1,000,000
S-5	48" Sewer Rehab Lisbon to Androscog Riv	435,000	435,000	435,000	0	0
	Subtotal Lewiston Sewer CIP	2,180,000	2,180,000	725,000	455,000	1,000,000
(3) CSO						
BMP	Proper collection system O&M	175,000	175,000	0	175,000	0
Progrm	Maximize use of existing system for storage and tmt					
	- Remove control plates and/or raise diversion weir	16,000	16,000	16,000	0	0
	- Increase size of outlet sewers to major interceptor	620,000	620,000	496,000	0	124,000
	Solids and floatables materials control	102,000	102,000	81,600	0	20,400
	Public education program	52,500	52,500	0	37,500	15,000
100% Control						
Sewer	Contract No. 1-6, CSO No. 005, Cros X9, 10, 18	7,720,000	7,720,000	5,790,000	0	1,930,000
Separt	Contract No. 7-8, CSO No. 015, Cros X6, 14, 16	2,380,000	2,380,000	0	0	2,380,000
	Contract 9-13,CSO No. 017-018, X1,3,4,5,7,8	6,980,000	6,980,000	0	0	6,980,000
	Contract Nos. 14-17, CSO No. 012	4,820,000	4,820,000	0	0	4,820,000
	Contract No. 18, Cros X17	1,740,000	1,740,000	0	0	1,740,000
	Contract No. 19, CSO 004, 011	1,830,000	1,830,000	0	0	1,830,000
Compliance						
Monitor	Seasonal monitoring of CSO flows	75,000	75,000	0	75,000	0
Progrm	Periodic water quality monitoring *	5,000	5,000	0	5,000	0
	Periodic sampling of CSO discharges *	6,000	6,000	0	6,000	0
	Subtotal Lewiston CSO CIP	26,521,500	26,521,500	6,383,600	298,500	19,839,400
	Subtotal Lewiston CSO + Sewer CIP	**28,701,500**	**28,701,500**	**7,108,600**	**753,500**	**20,839,400**

* annualized costs for water quality monitoring and CSO sampling programs conducted once every two years

(1) Info from Lewiston Capital Improvement Program FY97
(2) Info from EPA Needs Survey for the Auburn Water District, Feb 1, 1995
(3) Info from Clean Water Act Master Plan, Vol I , to Auburn Sewerage District and City of Lewiston, M&E, July 1, 1996

Note: Total CIP includes all capital and operating costs, broken out as shown
Note: All info on LCIP after 2001 is assumed; all info on Auburn bond schedule is assumed and operating costs assumed

Table 2-8
Auburn CIP

		Total CIP	Total CIP Estimated for 1996, Forward	Total Expected Bond Issues Through 2001	Total Expected O&M Expenses Through 2001	Remaining CIP After 2001
Auburn						
Water (2)						
	Intake Extension	400,000	400,000	0	0	0
	Corrosion Control	12,000	12,000	0	12,000	0
	Land Acquisition	2,000,000	2,000,000	0	250,000	1,750,000
	Pumps and Telemetry	550,000	550,000	440,000	0	110,000
	Distribution Improvements	3,840,000	3,840,000	1,536,000	0	2,304,000
	Transmission Main	3,754,000	3,754,000	1,501,600	0	2,252,400
	Storage	1,500,000	1,500,000	0	0	1,500,000
	High Service Improvements	500,000	500,000	0	0	500,000
	Distribution Improvement Future	2,636,000	2,636,000	1,054,400	0	1,581,600
	Ozone Disinfection	5,400,000	5,400,000	0	0	5,400,000
	Filtration (future)	12,000,000	12,000,000	0	0	12,000,000
	Subtotal Auburn Water CIP	32,592,000	32,592,000	4,532,000	262,000	27,798,000
	Subtot Auburn Water CIP w/out Filtration, Ozone	**15,192,000**	**15,192,000**	**4,532,000**	**262,000**	**10,398,000**
CSO (3)						
BMP	Proper collection system O&M	175,000	175,000	0	175,000	0
Progrm	Maximize use of exist system for storage and tmt					
	- Remove siphon stop logs	1,000	1,000	1,000	0	0
	- Raise diversion weir elevations	3,000	3,000	3,000	0	0
	- Remove sand/grit from major interceptors	451,000	451,000	276,000	175,000	0
	Solids and floatable materials control	48,000	48,000	48,000	0	0
	Public education program	37,500	37,500	0	37,500	0
100%Control						
Sewer	Contract 1, CSO No. 003	1,000,000	1,000,000	1,000,000	0	0
Separt	Contract 2, CSO No. 008	1,940,000	1,940,000	1,940,000	0	0
	Contract 3, CSO No. 009	1,370,000	1,370,000	685,000	0	685,000
	Contract 4, Pettengill Park Cross Connection	2,380,000	2,380,000	0	0	2,380,000
	Contracts 5 and 6, CSO No. 004	5,000,000	5,000,000	0	0	5,000,000
	Contracts 7 and 8, CSO No. 006	3,190,000	3,190,000	0	0	3,190,000
	Contracts 9 and 10, CSO Nos. 002 and 005	3,160,000	3,160,000	0	0	3,160,000
Compliance						
Monitor	Seasonal monitoring of CSO flows	75,000	75,000	0	75,000	0
Progrm	Periodic water quality monitoring *	5,000	5,000	0	5,000	0
	Periodic sampling of CSO discharges *	6,000	6,000	0	6,000	0
	Subtotal Auburn CSO CIP	**18,841,500**	**18,841,500**	**3,953,000**	**473,500**	**14,415,000**

* annualized costs for water quality monitoring and CSO sampling programs conducted once every two years

(1) Info from Lewiston Capital Improvement Program FY97
(2) Info from EPA Needs Survey for the Auburn Water District, Feb 1, 1995
(3) Info from Clean Water Act Master Plan, Vol I , to Auburn Sewerage District and City of Lewiston, M&E, July 1, 1996

Note: Total CIP includes all capital and operating costs, broken out as shown
Note: All info on LCIP after 2001 is assumed; all info on Auburn bond schedule is assumed and operating costs assumed

Table 2-9
LAWPCA CIP

	Total CIP	Total CIP Estimated for 1996, Forward	Total Expected Bond Issues Through 2001	Total Expected O&M Expenses Through 2001	Remaining CIP After 2001
LAWPCA					
Projects (4)					
Sludge dewatering project*	2,500,000				
Compost facility construction*	7,000,000				
Bar screen replacement*	265,000				
Return activated sludge chlorination*	8,500				
Backflow preventer installation*	5,100				
Aeration replacement project*	257,314				
Chlorine contact chamber drain*	33,000				
Raw sewage pump motors and controls	251,000				
Phase one facilitiles improvements/SCADA systems	2,600,000				
Total to Be Bonded in 1997/1998	3,500,000	3,500,000	3,500,000		
**Note, project has been bonded or paid for from operations*					
CSO (3)					
BMP High flow management plan					
Progrm - Provide internal baffling in settling tanks	1,068,000	1,068,000	1,038,000	30,000	0
- Incorporate use of secondary bypass	100,000	100,000	70,000	30,000	0
- Evaluate existing chlor sys with bypass	3,000	3,000	3,000	0	0
- Rebuild influent pumps (in O&M budget)	0		0	0	0
- Develop high flow SOP	25,000	25,000	0	25,000	0
Solids and floatable materials control	3,000	3,000	3,000	0	0
Eliminate septage addition during wet weath	400,000	400,000	335,000	65,000	0
Re-evaluate need for CSO facilities at LAWPCA (n/a)	0		0	0	0
			0	0	0
Compliance			0	0	0
Monitor Samp and monit of CSO second bypass flows	15,000	15,000	0	15,000	0
Progrm Periodic water quality monitoring	0	0	0	0	0
Periodic samp of CSO and plant flows for tox *	3,000	3,000	0	3,000	0
Subtotal LAWPCA CSO CIP	1,617,000	1,617,000	1,449,000	168,000	0
Subtotal LAWPCA Projects + CSO CIP	**5,117,000**	**5,117,000**	**4,949,000**	**168,000**	**0**

(1) Info from Lewiston Capital Improvement Program FY97 (through FY2001 only)
(2) Info from EPA Needs Survey for the Auburn Water District, Feb 1, 1995 (no schedule included)
(3) Info from Clean Water Act Master Plan, Vol I , to Auburn Sewerage District and City of Lewiston, M&E, July 1, 1996 (through 2006)
(4) Info from A Comparison of Annual Costs for Capital Projects vs Annual Operations Cost Savings at the LAWPCA, by CMR 12/3/96

Note: Total CIP includes all capital and operating costs, broken out as shown
Note: All info on LCIP after 2001 is assumed; all info on Auburn bond schedule is assumed and operating costs assumed

All capital improvement projects were assumed to be financed through bond issues. Annual debt service for each organization's future bond issues were estimated to have a 30 year term, and a 7 % interest rate.

Projected Costs

Costs for each organization will escalate by implementation of the CSO Master Plan, continued compliance with the requirements of the SDWA, and planned system upgrades identified in each CIP.

2.8.4 Base Case

A "base case" was developed to compare the impacts of alternative consolidation approaches to what future costs of service will be assuming no institutional changes are made. The primary premise of this base case is that each entity would continue to operate as it presently does. That is, the Lewiston Water Division and the Lewiston Sewer Division would continue to be within the Lewiston Department of Public Works; LAWPCA and the Commission would continue to be quasi-independent entities providing a specific function; and the Auburn Water and Sewerage Districts would continue to operate as an independently chartered but jointly operated entity serving the City of Auburn.

The starting point for this base case is to determine the current cost of service eliminating all double counting. The double counted costs include:

- Watershed protection expenditures through the Commission budget of $178,000 (1996); and
- Wastewater treatment expenses through LAWPCA totaling approximately $3.6 million in 1996.

These costs are reflected as expenses in the respective Auburn and Lewiston budgets, as well as showing up in the LAWPCA and Commission budgets. Since the expenses in the Auburn and Lewiston budgets are pass-throughs to LAWPCA and the Commission, ratepayers only incur the cost once and these costs should only be counted once in determining the future total cost of service.

To build the future costs of the base case scenario, there are several adjustments to the cost of water and sewer service presently provided. First, all Capital Improvement Programs (CIP) previously described are included. In addition, all known and recommended staff changes required for future operations are included. Specifically, staff changes and other cost of future service items are as follows:

- Staffing vacancies for required positions are assumed to be filled. Thus, Auburn is assumed to hire an Assistant Superintendent and a half-time Laboratory Technician. Similarly, Lewiston is assumed to hire a Finance Manager (or the equivalent in city services or vendor contracts) and a Water Quality Manager. These are positions we believe the respective entities must fill to fulfill current service and regulatory requirements. This adds a total of 3.5 positions to restore to the approved 1996 levels of 22.5 in Auburn and 28.5 in Lewiston.

- Additional operational requirements arising from new or increased regulatory mandates are assumed to be met from additional hiring and outside services. We are assuming that these requirements are met by new resources, rather than reducing the level of service presently being provided. For example, the Auburn Sewerage District is assumed to supplement its sewer crews with one full time person to assist with BMPs, dedicate at least one-half of the Assistant Superintendent's time to CSO related monitoring and evaluation, and increase reliance on outside service contracts to undertake major cleaning projects. In Lewiston, the CSO program is believed to require two full-time field staff to operate the sewer jetter, undertake other sewer maintenance activities and one full-time manager to monitor/evaluate the impacts of the CSO program.

  As previously described, ASD currently has staff dedicated to sewer maintenance and could meet the CSO BMP requirements with the addition of one field person, and supplement with contract services when required. In addition, the management of Auburn's eight CSO's could be accommodated by dedicating up to half of the Assistant Superintendent's time to this program to undertake data analysis and water quality monitoring. LSD, on the other hand, does not currently have staff exclusively dedicated to sewer maintenance and as such, would need two new field staff to not only meet CSO BMP requirements, but also to implement a sewer preventative maintenance program. With Lewiston's 36 CSO's, the time required to collect and analyze required data will be significantly larger, necessitating a full-time manager.

  This adds a total of four new staff dedicated to sewer and CSO maintenance (three staff in Lewiston plus one in Auburn), plus additional outside services in Auburn, as required.

- Planned reductions in LAWPCA staff resulting from the improvements in instrumentation and control systems are factored in. This results in a LAWPCA staff of 20 people.

- Addition of one new instrumentation and control (I&C) position for Auburn and Lewiston to share, or the equivalent in vendor contracts to meet the maintenance needs associated with plans to increase the sophistication of the I&C systems for the pump stations, distribution system and collection system. In addition, it is estimated that each city will need I&C maintenance contracts, estimated at an annual cost of $25,000 each.

With the addition of these items, the projected base case costs increase slightly compared to the present cost of service. Obviously, if reductions at LAWPCA were not anticipated, the increase in the combined cost of service would be significantly greater. This base case becomes the scenario that future consolidation opportunities are compared against.

Table 2-10 shows the Base Case Staffing, and Table 2-11 shows the Base Case Projected Costs including CSO and SDWA Programs.

Figure 2-4 shows the break-out of the year 2001 costs for this base case. Costs are estimated to total $12.6 million in 2001. It is clear from this figure that some of these costs are essentially fixed and will not be materially affected through any form of consolidation. Existing debt service represents 15% of the base case; new debt service associated with the proposed CIPs represents another 11%; and treatment O&M costs, which are primarily LAWPCA's costs represent 34%. In addition,

Figure 2-4
Base Case Costs, 2001

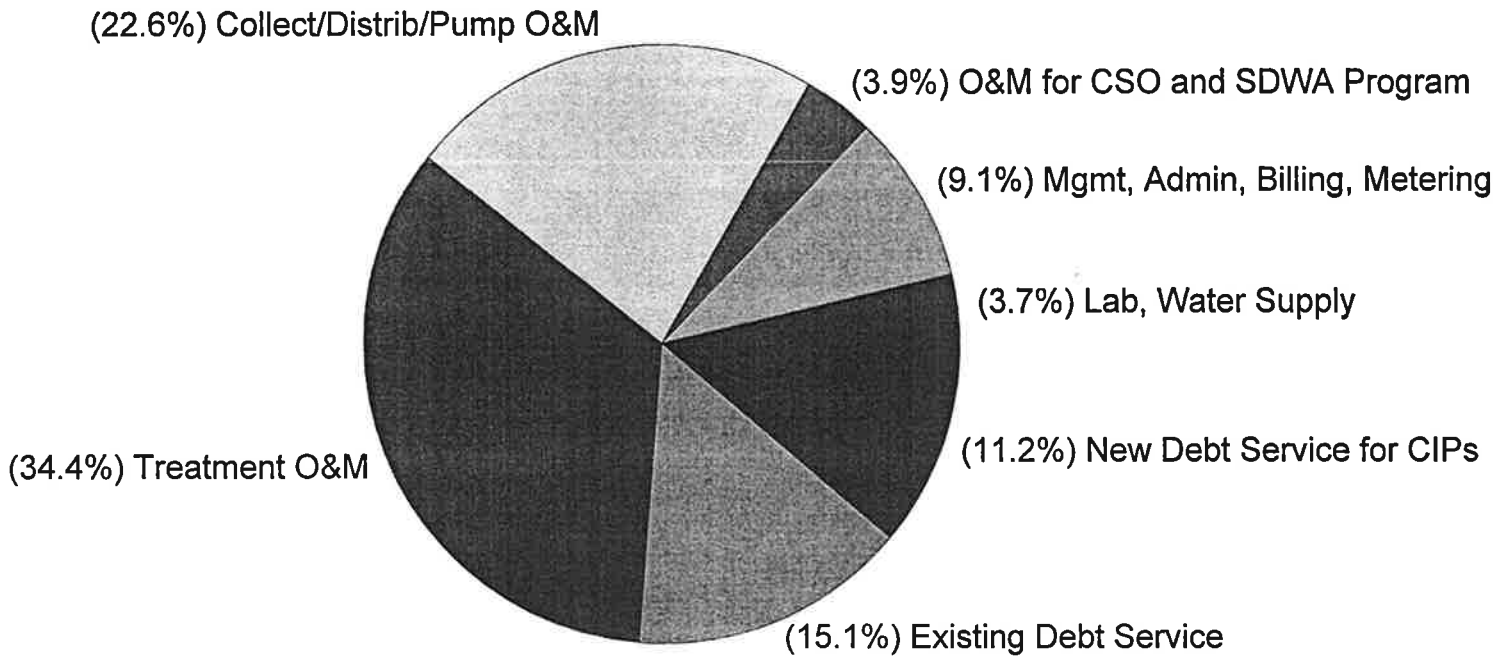


Table 2-10
Base Case Staffing

Current Staff Levels		
Auburn	22.5	approved
	21	filled
Lewiston	28.5	approved
	26.5	filled
LAWPCA	25	filled
Total Approved Positions	**76**	
Total Filled Positions	**72.5**	
Adjustments		
Fill existing vacancies	1.5	Auburn
	2	Lewiston
LAWPCA Staff Reductions	(5)	
Add I&C Staff	1	shared by Lewiston and Auburn
Add CSO positions	1	Auburn
	3	Lewiston
Net adjustments	3.5	new staff
Total Filled Positions	**76**	

Table 2-11
Base Case Projected Costs Including CSO and SDWA Programs
(in 000's)

	1996	2001	2006
Lewiston Water	$2,337	$3,009	$3,320
Lewiston Sewer	$2,993	$4,096	$4,987
Lewiston Revenue Requirement	**$5,330**	**$7,105**	**$8,307**
Auburn Water	$1,772	$2,364	$3,113
Auburn Sewer	$2,554	$3,147	$3,756
Auburn Revenue Requirement	$4,326	$5,511	$6,869
Combined Current Water and Sewer Revenue Requirement	*$9,656*	*$12,616*	*$15,176*
Adjustments to Current Water and Sewer Revenue Requirement			
Existing Vacancies Filled	$135	$160	$190
Increased CSO Maintenance/Monitoring Staff	$150	$178	$212
LAWPCA Staff Reductions	$0	($175)	($208)
Lewiston and Auburn I&C Staff	$0	$45	$53
I&C Maintenance Contract Services	$0	$50	$59
Auburn Contract Services for CSO	$30	$36	$42
Subtotal Adjustments	*$315*	*$294*	*$349*
Base Case Revenue Requirement	**$9,971**	**$12,910**	**$15,525**

collection, distribution and pumping represents 23 percent of total costs. Without reducing current production levels, there is little opportunity to reduce this cost. These fixed or tightly budgeted costs total 83%; leaving only 17% of the budget for areas where potential cost savings may be realized.

The projected adjusted base case revenue requirement is projected to increase significantly between 1996, the base year, and 2006. The average annual rate of increase is approximately five percent per year reflecting primarily the capital costs associated with implementing the CSO program and water distribution system improvements.

Section 3
Benchmarking

3.1 Introduction

Benchmarking is a process used to compare the efficiency of operations across similar organizations. It has been used in both the public and private sectors to examine operations, costs and performance of similar or exemplary companies and/or utilities and to subsequently incorporate "best of group" practices as a means of improving efficiency. Benchmarking activities can range from data gathering and metric comparisons ("where am I, compared to my peers"), to complete implementation of new policies and procedures by applying the processes and procedures extracted from other entities.

For this evaluation, the benchmarking process was designed to gather basic system and operational data for several water utilities; to assess the relative efficiency of operations and to examine performance levels. Our primary interest was in assessing the relative cost efficiency of water operations. Previous studies have evaluated LAWPCA which have led to the automation planning effort presently underway at LAWPCA.

3.2 Data Sources

Data for benchmarking was extracted from existing sources. This was deemed to be the most cost-effective method of obtaining the pertinent data. The available data was therefore collected from two primary sources:

- Public Utilities Commission (PUC) Annual Reports to the Maine and New Hampshire PUCs
- American Water Works Association (AWWA) Water Stats Water Utility Database 1996 Water Utility Survey, mailed to an extensive list of water suppliers by AWWA.

Both of these data sources are for water utilities; information was not explicitly collected for sewer utilities. The October 1994 Woodard & Curran "Benchmarking Report for Lewiston-Auburn Water Pollution Control Authority" addresses many of the issues and performance measures associated with wastewater treatment. The sewer operation and maintenance activities of the LSD and the ASD were therefore not included in this evaluation.

The PUC reports collected for 1995 include:

- Auburn Water District, Auburn, ME
- Lewiston Water Division, Lewiston, ME
- Kennebec Water District, Waterville, ME
- Bangor Water District, Bangor, ME
- Portland Water District, Portland, ME
- Consumers Maine Water Company (CMWC, includes Camden-Rockland, Freeport, Greenville, Kezar Falls)
- Manchester Water Works, Manchester, NH

The AWWA water surveys collected directly from the utilities include:

- Auburn Water District, Auburn, ME
- Lewiston Water Division, Lewiston, ME
- Portland Water District, Portland, ME
- Bangor Water District, Bangor, ME
- Kennebunk, Kennebunkport and Wells (KKW) Water District, Kennebunk, ME
- Pennichuck Water Works, Nashua, NH

From the available data, comparisons could be made across utilities in several general categories: overall utility profiles, customer service and associated costs and transmission and distribution systems and the associated operation and maintenance costs. Since data was collected from two discrete sources, not all information is available for each utility and data is not necessarily consistent between the sources. Tables and graphs included in this section include all the information that is available in a particular category.

3.3 Utility Profiles

Table 3-1 shows an overall comparison of the utilities, relative to the size of LWD and AWD.

Table 3-1
General Comparison of Water Utilities

	Auburn	Lewiston	Portland	Bangor	Pennichuck	CMWC[1]	Manchester, NH
Utility ownership	public	public	public	public	private	private	public
Population served (retail)	20,000	40,000	170,000	30,000	89,000	varies	100,000
Population served (wholesale)	0	0	1,000	33,000	26,000	varies	17,000
Size of service area (sq miles)	30	20	140	36	30	varies	35
Average day production (mgd, 1995)	2.9	4.9	22	5	12.7	varies	12.5
Total miles of pipe in ground	132	168	840	161	380	varies	450
Total number of customer accounts	6,166	9,169	44,429	10,615	21,071	varies	25,000
Total Operating Expenses (1995)[2]	$1,065,703	$1,256,764	$8,400,677	$1,779,419	$2,995,000	varies	$5,831,519

[1] CMWC data varies by individual water supply company
[2] From PUC reports if available, supplemented with AWWA survey

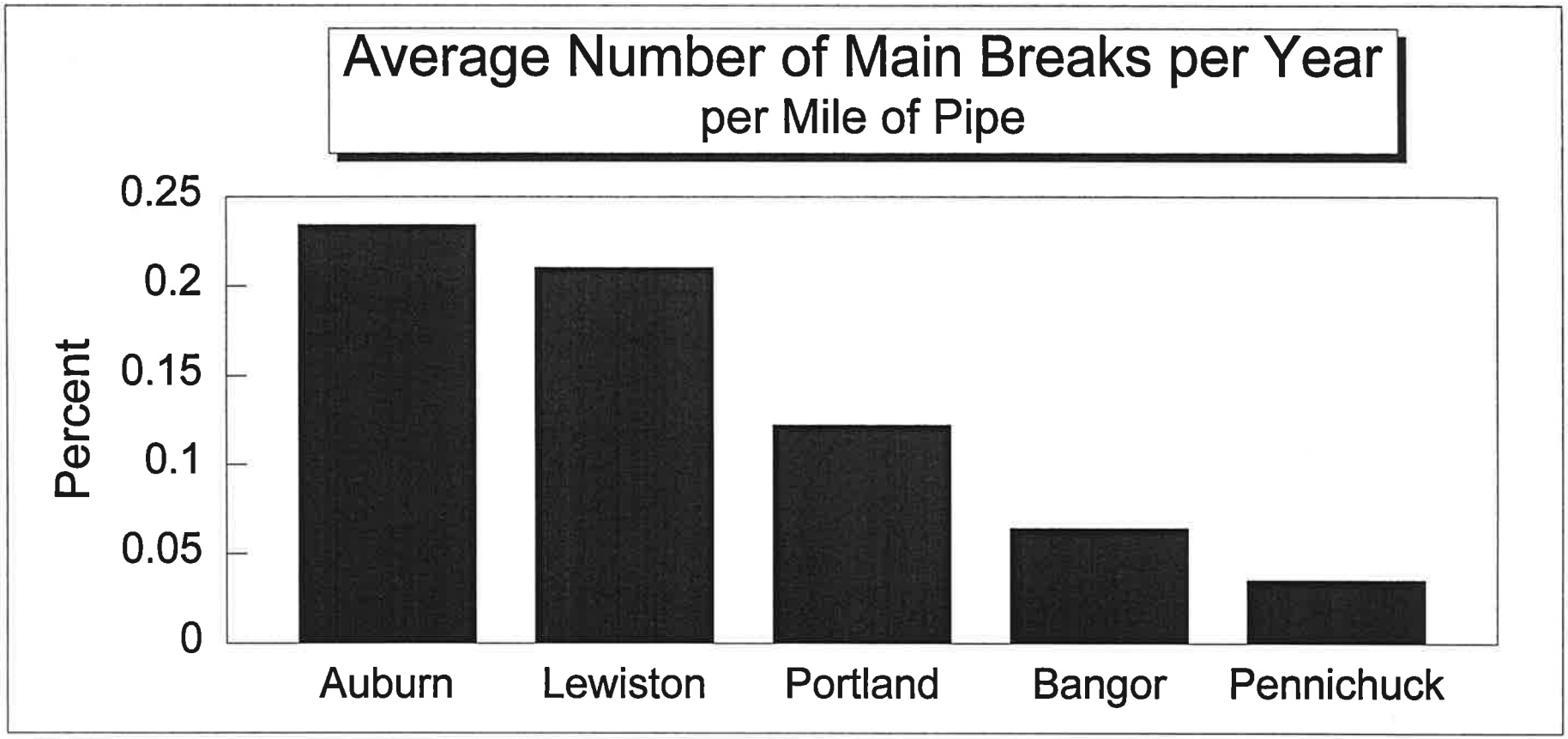
3.4 Utility Comparisons

The utilities are initially compared based on their population served, number of customers served and average day production (mgd). Portland is the size leader in all categories serving a population of over 150,000; over 40,000 customers and producing over 20 mgd. Lewiston and Auburn are near the smallest in terms of number of customers and retail population served. Utilities near the same size (in terms of number of customers and retail population served) include Bangor, Kennebec, Camden and Freeport. Several utilities provide wholesale as well as retail service. This generally reduces the operating costs per employees or per million gallons relative to pure retail systems such as Lewiston and Auburn.

Two parameters obtained from this survey support the heavy emphasis on the investments being made by Lewiston and Auburn in upgrading the distribution system. Of the major utilities, included in the analysis, Lewiston and Auburn have the largest number of main breaks per mile (see Figure 3-1). Similarly, the two cities are among the highest in terms of unaccounted for water. Lewiston's unaccounted for water ratio is approximately 33 percent and Auburn's is approximately 23 percent. The weighted average among all entities is less than 16 percent. The need to focus attention on main breaks and the related problem of unaccounted for water suggests that the two cities' costs will be high relative to peer utilities that do not have the same problems associated with aging infrastructure.

The PUC reports provided a breakdown of operations cost by category, which allowed for an examination of how each utility spends their budget and the relative efficiencies. Customer accounts and administrative costs per customer is shown in Figure 3-2. This graph shows that Auburn and Lewiston are the least costly of all the utilities, spending the smallest amount of all the utilities examined in dollars per customer. While some of this may reflect differences in reporting procedures, it clearly demonstrates that Lewiston and Auburn are quite efficient in providing customer billing and administration services. In addition, the total O&M expenses per customer (Figure 3-3) also place Auburn and Lewiston in the most efficient category as each of their total O&M expenses per customer are the lowest of all utilities. Figure 3-3 underscores the fact that Auburn and Lewiston have successfully kept the cost of water service relatively low. A key factor in this has been obtaining and maintaining the filtration waiver. The other utilities have higher costs in part because of the need to operate, maintain and pay debt service on filtration plants.

Meters read per person per day is another efficiency measure shown in Figure 3-4. Auburn and Lewiston are not as efficient as the larger utilities (Portland and Pennichuck), but comparable and slightly more efficient than a similarly sized utility, Bangor. The two communities read approximately 150 meters per reader per day. Efficiency in this category is largely dependent on whether or not meters are read outside, with automatic readers. The data suggests that the larger utilities are based entirely on outside reads, and may rely on radio reads for certain customers. However, if Lewiston and Auburn could obtain productivity rates comparable to Portland and Pennichuck at 300 reads per person per day, a single meter reader could easily meet the needs of both cities. At a rate of 225 reads per day (a 50 percent increase in efficiency), 1.2 readers could easily meet the needs of both cities.



CDM Camp Dresser & McKee

Figure 3-1 Average Number of Main Breaks per Year per Mile of Pipe

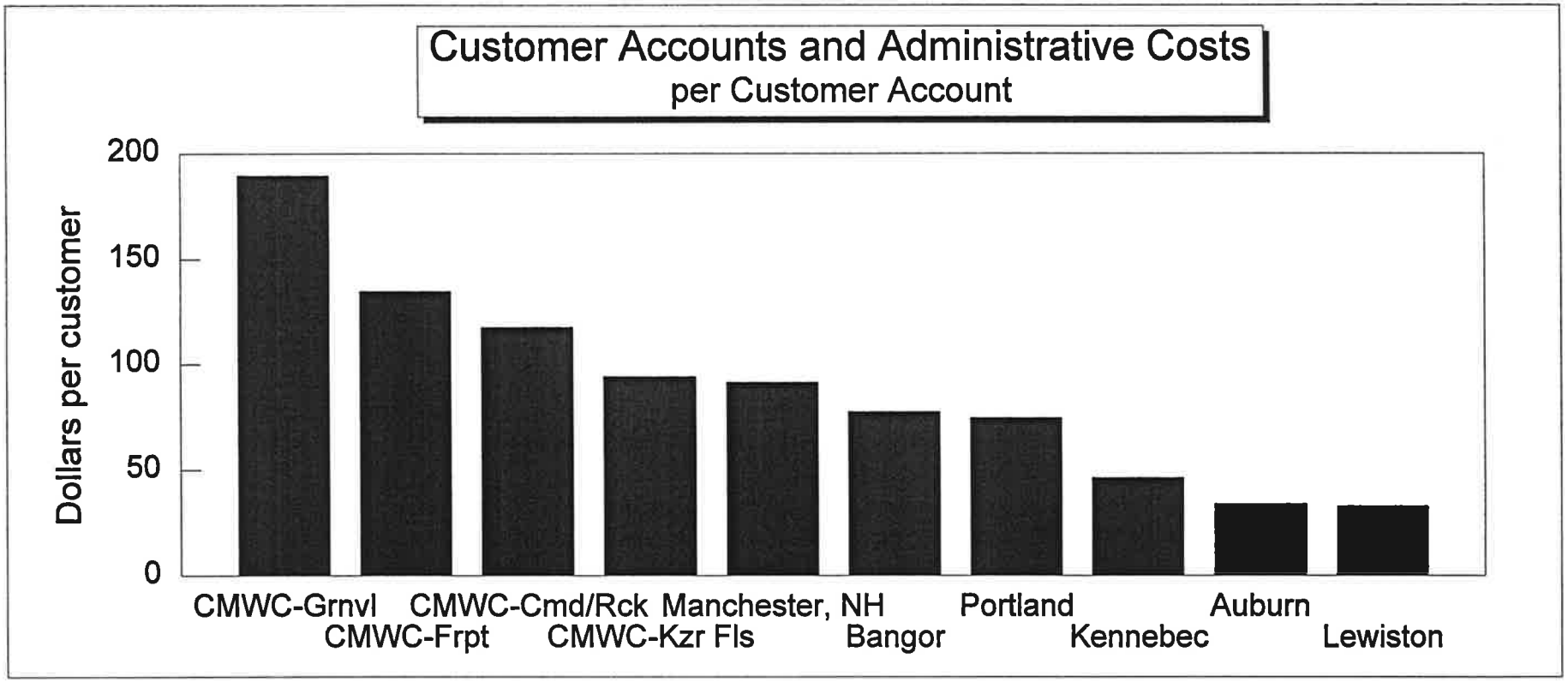


Figure 3-2 Customer Accounts and Administrative Costs per Customer

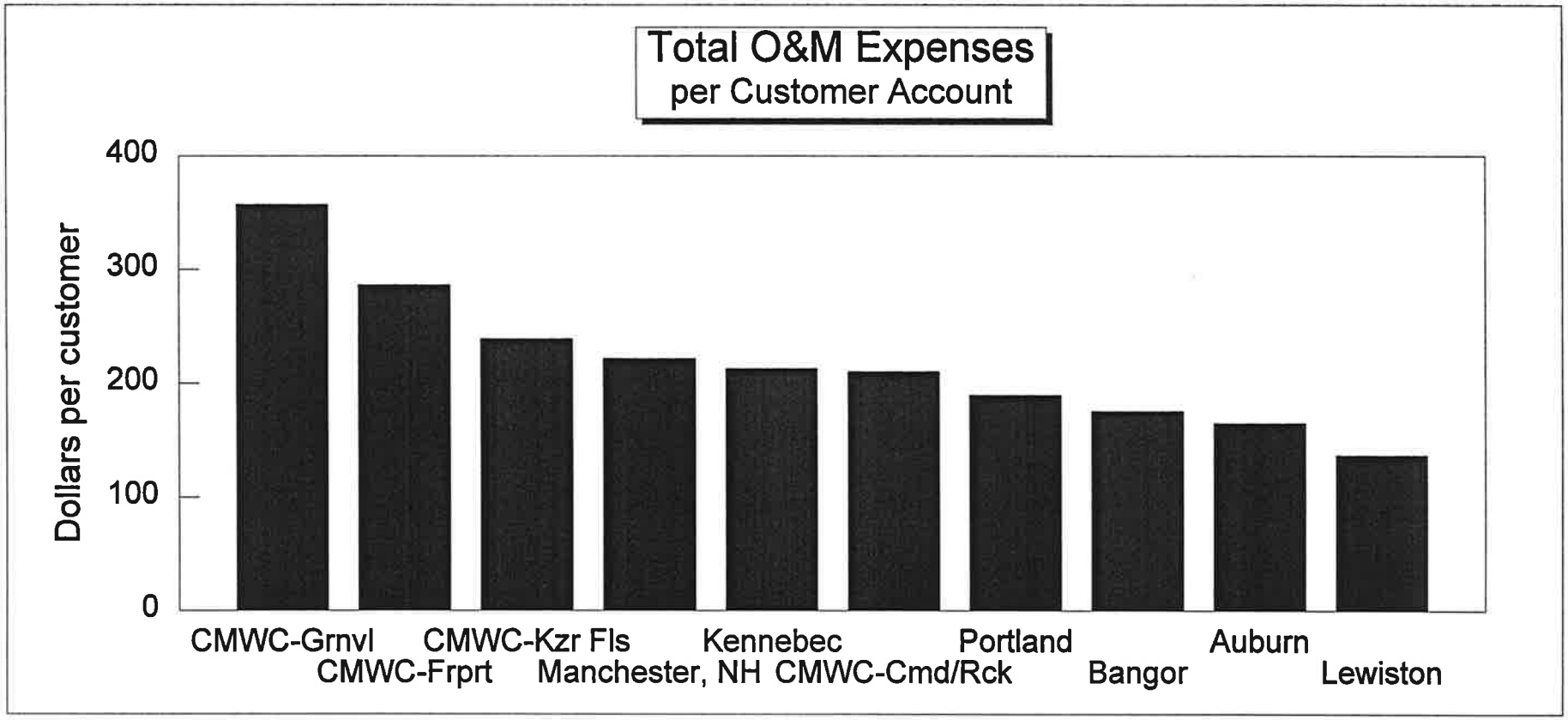


Figure 3-3 Total O&M Expense per Customer Account

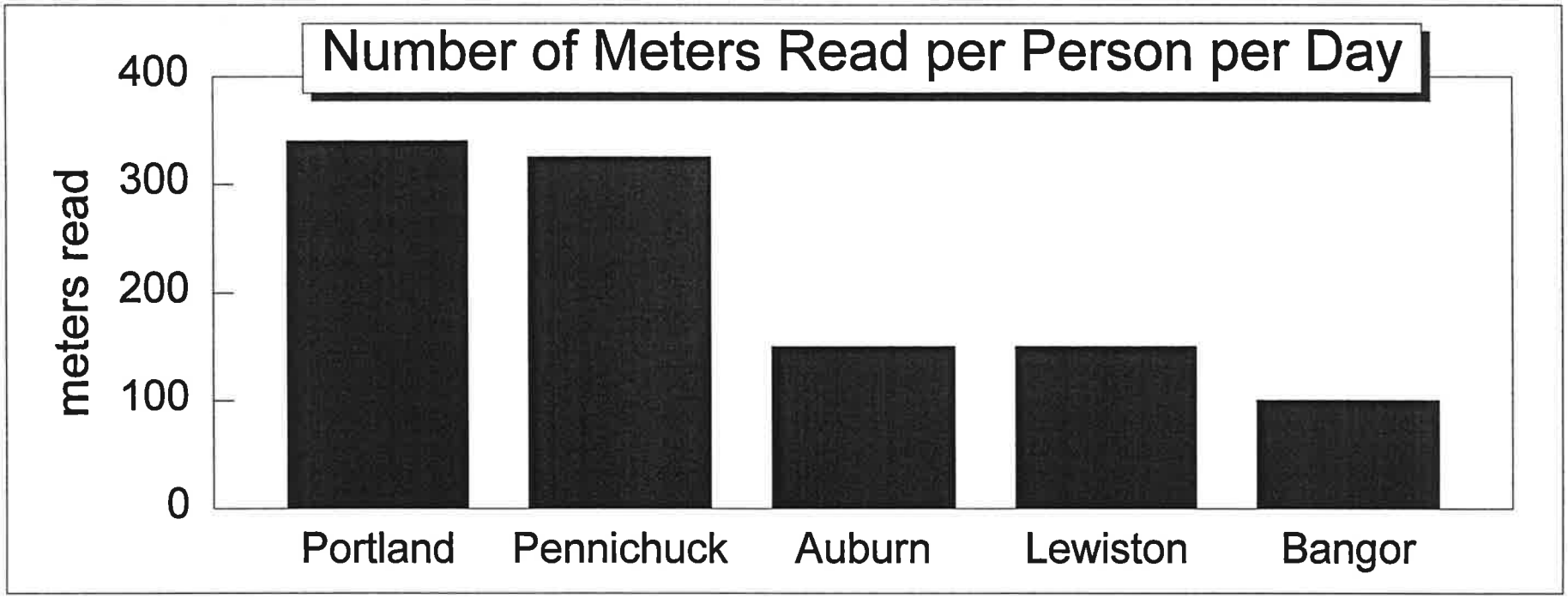


Figure 3-4 Number of Meter Reads per Person per Day

Lewiston and Auburn show relatively high transmission and distribution O&M expenses per mile of pipe, as compared with other utilities (Figure 3-5). Actual dollars for Lewiston and Auburn are around $4,000 per mile of pipe. This confirms that Auburn and Lewiston's relatively older infrastructure requires additional operation and maintenance costs.

3.5 Summary

Based on this benchmarking comparison, Lewiston and Auburn are relatively efficient, low-cost operations despite the need to invest resources in upgrading existing infrastructure. The communities are within 10 percent of the average for large utilities in terms of total costs per million gallons produced and non-filtration operation and maintenance costs per million gallons produced. We believe these are the two most relevant parameters of efficiency given the operations of Lewiston and Auburn. Taking into account the fact that the other major utilities have substantial wholesale and industrial customers reducing the costs per million gallons and Lewiston and Auburn are investing significant resources to correct deficiencies evidenced by main break and unaccounted-for water data, we believe that being within 10 percent of the group means speaks highly of Lewiston and Auburn's relative efficiency.

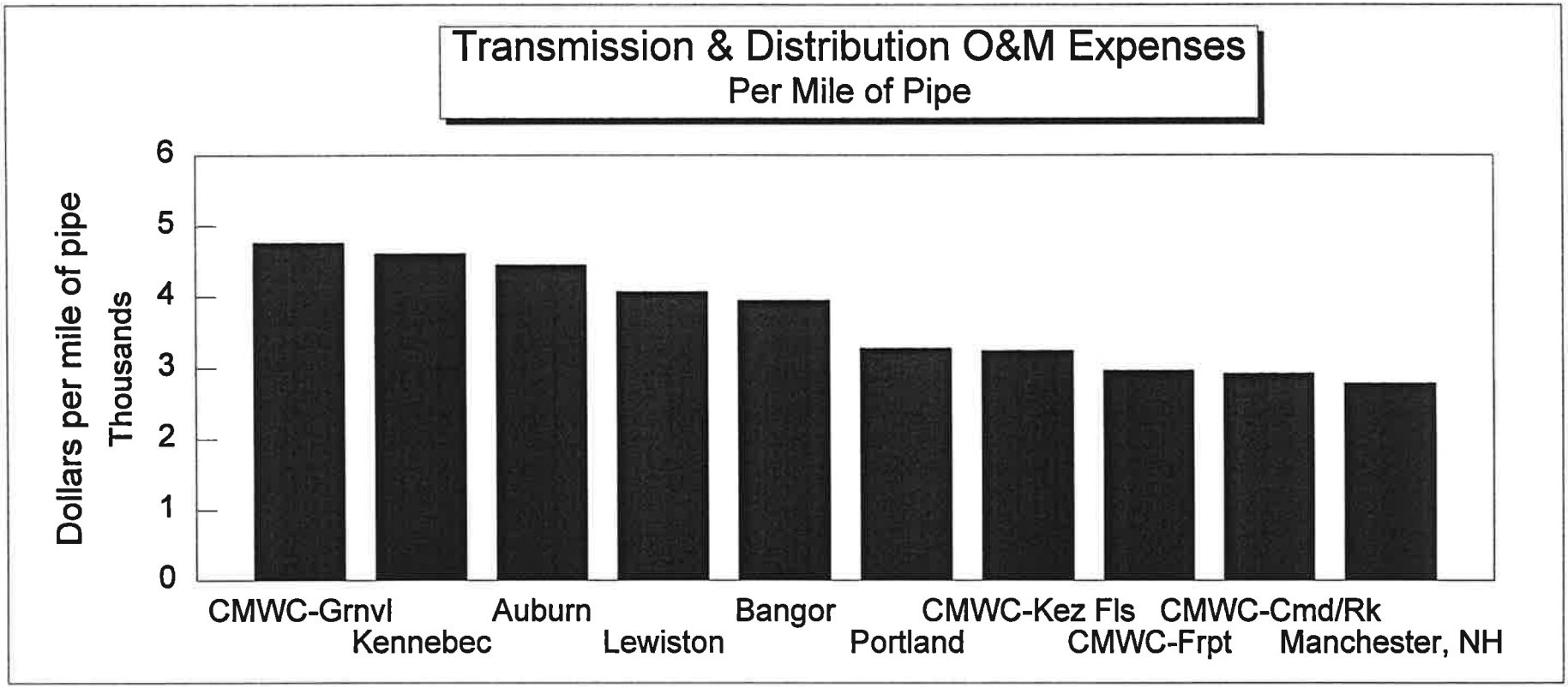


Figure 3-5 Transmission & Distribution O&M Expenses per Mile of Pipe

Section 4
Full Consolidation

4.1 Concept

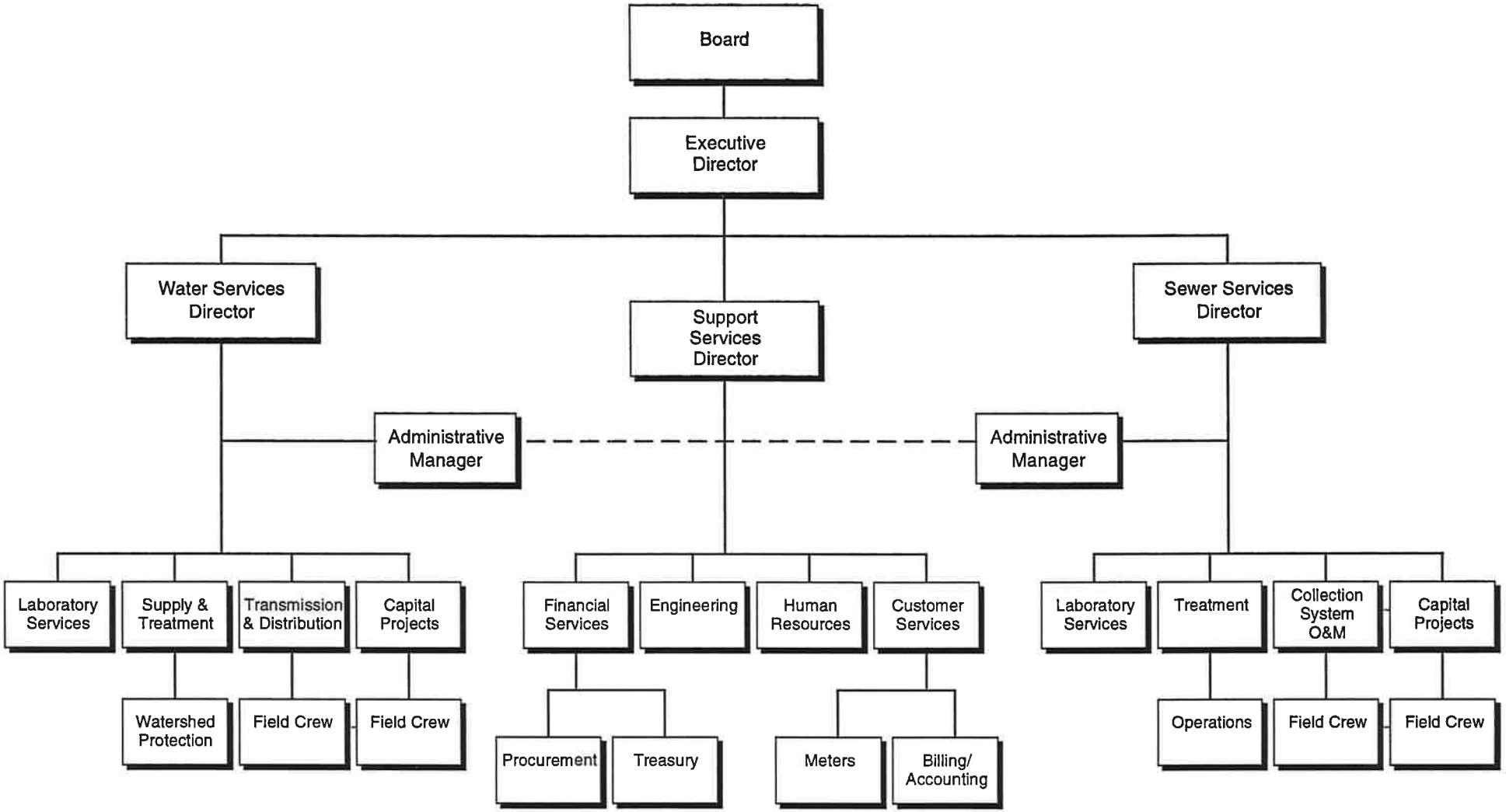
Under a fully consolidated water and sewer utility for Lewiston and Auburn, all water and sewer service within the two cities would be provided by a centralized utility, similar to the Portland Water District in Portland, ME or the Lynn Water and Sewer Commission in Lynn, MA. To create a fully consolidated organization, it would be necessary to merge the operations of all six entities, eliminate redundant operation, ensure compliance with all regulatory programs, provide a comprehensive overhead structure, and to seek potential areas for cost savings. We believe that the full consolidation of the six entities would be a major undertaking requiring consideration of factors such as physical space, labor and human resources issues, and transitional costs, as well as significant legal efforts to transfer assets and liabilities of the various entities, modify state charter and local ordinances, and obtain necessary legal modifications. The second workshop was designed to identify full consolidation implementation issues. Results and findings are included herein, in Section 4.4.

The purpose of this section is to describe the potential structure of a fully consolidated organization and to assess the advantages and disadvantages of such an entity. This addresses both quantifiable factors, such as cost, and non-quantifiable factors, such as addressing labor related issues.

4.2 Full Consolidation Organization

Full consolidation of the six organizations would result in a single entity responsible for providing all water and sewer services in the two cities. This would include the water supply, treatment, distribution of water to all customers currently or potentially served by the two cities and; the collection, treatment and disposal of all wastewater from all customers currently or potentially served by the two cities. In addition, the new entity would be responsible for related business operations including customer billing and collection, customer service, and internal administrative functions such as human resources, auditing, legal, and payroll, and overall management.

Figure 4-1 shows one potential organizational chart for a consolidated organization. This organizational chart is illustrative since there are numerous permutations and combinations that would be feasible and effective. This organization chart identifies the types of service changes that would result from full consolidation. Under this hypothetical structure, there would be three primary branches: Waterworks, Sewerage and Support Services. The Waterworks branch would be further subdivided into: Laboratory Services, Supply and Treatment (includes watershed protection, chemical additions), Transmission and Distribution (responsible for operation and maintenance of mains, pump stations) and Capital Projects (water main replacements, etc.). The Sewerage branch would be further subdivided into: Laboratory Services, Collection Operation and Maintenance (including all sewer and CSO maintenance, CSO monitoring requirements), Treatment (responsible for treatment and discharge) and Capital Projects (sewer separation, etc.). The Support Services branch would be further subdivided into: Finance, Engineering, Customer Services, and Human Resources. This branch would be responsible for all billing, collections, customer service,



Lewiston and Auburn Consolidation Study

Figure 4-1
Example Organizational Chart of a Consolidated Organization

metering, purchases, inventory, bond issues, rates, budgets, legal, procurement, human resources and related clerical and administrative functions.

Full consolidation of the six entities would initially result in some redundancies. To streamline operations and reduce costs, organizational modifications would be required. In addition, cost savings could be realized by streamlining purchasing and inventory. Start-up or transition costs would be required to implement consolidation. The following items describe the costs and savings associated with full consolidation. In all cases, costs associated with labor include wages, salaries and benefits.

- **Transition Costs:** Full consolidation was assumed to occur in 1998. Transition costs for implementation were estimated for 1996, 1997 and 1998 at $250,000, $200,000 and $150,000, respectively. Transition costs would cover implementation items such as computer costs, creating consistent systems between existing administrative staff departments, training and other miscellaneous items.

- **Management:** Within a fully consolidated operation, the number of senior managers could be reduced. Presently, Auburn has a General Manager and an Assistant Superintendent position, Lewiston has a DPW Director and a Superintendent, and LAWPCA has a Superintendent and an Assistant Superintendent. Based on comparisons to fully consolidated entities of approximately the same size, it appears that the number of senior managers could be reduced to four positions. This reduction in senior managers would reduce wage related costs by approximately $90,000.

- **Administration:** Currently, the six entities have approximately four positions devoted primarily to internal administration, such as accounting, treasurer, and human resources (the Controller and Lead Clerk from Auburn, and the Finance Manager and Staff Accountant from Lewiston). However, this is probably understated from the actual level of services being provided and directly paid for. For example, in Lewiston, human resource functions and others are performed by the city of Lewiston rather than staff assigned to the LWD and LSD. In addition, in Auburn, many of these functions are performed by management and clerical staff as an adjunct to other job functions. With a fully consolidated, autonomous entity, there would be a need to develop a full fledged administrative support group, or to purchase the equivalent level of services from outside service providers. To provide the necessary financial, human resources, information services and facilities management support will require approximately six staff as compared to the current level of four. These six positions might correspond to the following boxes in Figure 4-1: Support Services Director, two Administrative Managers, Financial Services positions and Human Resources. The two additional positions would increase wage-related expenses by approximately $70,000.

- **Billing and Customer Service:** The AWD and ASD business office has one Lead Clerk and three Clerks responsible for issuing and collecting water and sewer bills and customer service; the LWD and LSD business office has a Staff Accountant, two Billing and Account Clerks and a half-time Account Clerk responsible for issuing and collecting water and sewer bills. With a fully consolidated entity operating on one computer system, approximately six staff would be required thereby resulting in a reduction of one and a half positions. The capital costs

associated with purchasing and developing a central system, and converting existing billing operations are difficult to quantify and therefore not included. The reduction in staff would reduce wage related costs by approximately $30,000.

- **Field Crews:** We are assuming that the consolidated entity will continue to provide the same level of service as is provided by the existing entities presently. We do not believe that the merging of the field crews will create the opportunity to reduce expenses by cutting staff or significantly increasing the quantity of work performed. The field crews in both cities are operating near capacity and by all indications, the needs of the distribution and collection system will require the same level of attention as is currently being provided.

- **CSO Program:** To meet the recently increased federal mandate regarding CSOs, we believe that an increase in the size of field crews by three to address the requirements of the CSO program. This staffing increase will enable the consolidated entity to increase sewer maintenance activities and more closely monitor and evaluate CSO activity. This essentially assumes one supervisor and two field crew personnel. This addition of three staff is from current staffing levels. Section 2.8.4 described an addition of four staff, required if each City continues operations independent from one another. Under a full consolidation scenario, four staff would not be required; three would be sufficient. This translates to a cost increase of $155,000 over the existing situation, or a reduction of $35,000 from the base case.

- **LAWPCA:** LAWPCA staff will be reduced by approximately five consistent with the present automation efforts at the treatment plant. This will reduce wage related expenses by approximately $175,000. There may also be a change in treatment plant operating costs reflecting better control of utility and chemical consumption and the maintenance costs of the control system. However, it is not possible to accurately assess the magnitude of these cost changes at this time.

- **Inventory:** With a fully consolidated entity, only one inventory system would be required. By combined the volume of items being purchases, an estimated three percent could be saved, which translates to approximately $17,000 in annual purchases. In addition, inventory consolidation would eliminate the need to devote a staff person to storeroom work and allow that position to be devoted to more critical areas. Specifically, the Lewiston Storekeeper/Dispatcher position could be converted into an engineering position. There will be an estimated $10,000 cost increase from this conversion.

- **Engineering:** With a fully consolidated entity, the new entity will be responsible for all required engineering and engineering support for capital projects and maintaining the systems. This will also include activities such as maintaining record drawings, managing and updating the Geographic Information Systems (GIS), and creating a common GIS. Currently, those functions are performed by senior managers in addition to their management responsibilities, several engineering technicians, and the Lewiston DPW engineering department. Only one or two staff are presently dedicated to this function. We believe that a full-time engineering staff of approximately three will be required for a fully consolidated entity. This is estimated to be met by the Engineering Technician from Auburn, approximately half of Auburn's Assistant Superintendent's time, and by converting the Lewiston Storekeeper/Dispatcher position into an engineering position. As previously stated, there will be an estimated $10,000 cost increase from this conversion.

- **Laboratory:** With a consolidated entity, only one water quality laboratory would be required. Physically, the laboratory would be located at the existing Lewiston water laboratory location. Staffing at the laboratory would consist of a Laboratory Director (Water Quality Manager) and two Laboratory Technicians. This translates to retaining one Water Quality Manager position, downgrading the other (vacant) Manager position to a Technician and eliminating the half time Technician position. These changes would result in approximately $30,000 in wage related savings. With a combined physical facility and staff, all supplies and equipment would be procured under a single procurement. This would reduce the unit costs for purchases, estimated at three percent. This would translate to a savings in purchases of under $2,000 annually.

- **Meters:** Presently four staff are devoted to meter repair and reading, two for each city. Based on the benchmarking data provided by the cities, currently the readers read on average 150 meters per day per reader. At a rate of 150 reads per reader per day, two full-time readers could cover the reading needs of both cities. With one additional person to focus on repairing meters and supplementing readers, a consolidated entity could reduced the staffing for this function. If efforts were made to increase productivity by standardizing equipment, installing all outside read meters, and possibly review reading routes, it may be possible to increase productivity rates to as high as 250 reads per day. At that level of output, it may be possible to handle all meter read/repair work with only two staff, a full-time reader and a meter repair person that also reads half time. This reduction in meter staff would reduce wage related costs by approximately $45,000.

- **Instrumentation and Control:** Under a fully consolidated entity, one staff person currently within LAWPCA could be assigned responsibility for all instrumentation and control. This would result in wage related savings of $45,000 as the one staff hired by Lewiston and Auburn under the base case would not be required. In addition, only one I&C service contract would be needed resulting in a $25,000 savings.

Table 4-1 shows a full consolidation staffing summary and Table 4-2 shows potential future costs of full consolidation.

4.3 Benefits of Full Consolidation

The establishment of a single consolidated entity would likely lead to a number of potential efficiencies and financial benefits to the two cities:

- **Staff requirements:** There would be the opportunity to reduce staff levels in certain functions, primarily management, CSO compliance/sewer preventative maintenance, and meter reading and repair and add administrative staff. This would reduce the future cost of service by approximately $150,000 per year.

- **Greater staff specialization:** The larger organization will provide the opportunity for increased staff specialization which in turn will allow for specialized functions conducted in-house rather than relying on outside vendors. The prime example of this is the need for specialized maintenance associated with the increasingly more complex level of instrumentation and control (I&C). With a consolidated entity, the I&C maintenance person

Table 4-1
Full Consolidation Staffing Summary

Total Base Case Positions*		
Base Case Total Filled Positions	*76*	
Full Consolidation Changes		
Reduce managers	(2)	
Add administration staff	2	
Modify CSO staff	(1)	
Reduce billing staff	(1.5)	
Reduce meter staff	(2)	
Reduce I&C staff	(1)	
Modify laboratory staff	(0.5)	
Net Change	(6)	
Total Filled Positions	**70**	

*As described in Section 2.8.4.

Table 4-2
Potential Future Costs of Full Consolidation (in 000's)

	1998	2001	2006
Base Case Revenue Requirement	**$11,587**	**$12,910**	**$15,525**
Reduce managers	(90)	(100)	(119)
Add administrative staff	70	78	92
Reduce billing staff	(30)	(33)	(39)
Modify CSO staff	(35)	(39)	(46)
Convert one position to engineering	10	11	13
Reduce meter staff	(45)	(50)	(59)
Modify laboratory staff	(30)	(33)	(39)
Reduce I&C staff	0	(45)	(53)
Reduce I&C maintenance contracts	0	(25)	(30)
Reduce Auburn contract services	(30)	(33)	(39)
Savings realized from joint purchases	(17)	(20)	(24)
Transition costs	150	0	0
Net Full Consolidation Savings or Costs	*(48)*	*(289)*	*(344)*
Full Consolidation Revenue Requirement	**$11,539**	**$12,621**	**$15,181**

anticipated to be established at LAWPCA can meet the needs of the pump stations in the water distribution and sewer collection systems. Reducing outside services associated with I&C maintenance contracts should reduce future expenses by approximately $25,000 per year. Similarly, there will be an ability to meet additional sewer maintenance requirements through specialized trained staff. Managers would be freed up to focus on longer-term strategic issues rather than the most current crisis. Similarly, certain operating staff will become more adept at particular activities, and the overall workload associated with that will be such that full-time attention will be required. In part, this will happen with the sewer maintenance crews dedicated to CSO maintenance related activities.

- **Economies of scale in purchasing and reduction of duplicate equipment:** The individual entities each purchase many of the same materials ranging from office supplies, to treatment chemicals, to field equipment (e.g. sewer flushers, tapping machines, specialized pipe cutting equipment) and supplies to laboratory analytical services, common engineering records and facilities management. In many cases, combining such purchases will result in larger volume purchases reducing the unit price. Such price discounts will not be significant, but will likely range from three to five percent of the items purchased. An estimated three percent of materials, or $17,000 in annual materials purchased costs was assumed. In certain other cases, financial auditing services, the costs savings will be more significant. (The cost for doing an audit for a $15,000,000 organization is not double that of a $7,500,000 organization. The cost savings would likely be in the range of 30 to 40 percent, however, in the overall cost of service auditing services are a minor item.)

- **Consistency Just-in-Time (JIT) inventory operation:** This inventory method is currently used in private industry and has distinct advantages such as (1) a reliable means of providing crews with needed materials for emergencies in two hours or less, (2) reduced inventory levels, (3) reliable and efficient means of monitoring and re-stocking inventory that is used by crews back to the pre-established minimums, (4) competitively priced quality materials, and (5) a reliable electronic data management information system which allows access to information on vendor inventory levels.

- **Consistency of operations between the two cities:** The broader depth of staffing combined with the need to develop consistent standard operating procedures would enable the consolidated entity to provide a more consistent level of service over the course of the year. With the larger staff, more people are available to fill in and back up other staff positions during heavy vacation periods. Similarly, the adverse service impacts resulting from emergency occurrences that can significantly disrupt existing operations presently, will be dampened. More staff will be available to resolve the emergency and more staff will be available to maintain ongoing operations activities.

- **Improved communications through consistency with computer hardware and software purchases.** Currently, there is no consistency between the types of computer hardware or software owned by each organization. If data is transferred from one organization to another, it oftentimes cannot be transferred electronically but needs to be re-entered by hand to a different computer with a different software package. Full consolidation would require a phasing in of system-wide computer hardware and software for improved communications

across functions. This will enable the utility to respond more quickly when crises arise and evaluate problems in more depth, since a larger quantity of data will be available given the common platforms.

- **Consistency with meter reading, and potential cost savings in the long term.** Auburn uses a data collector electronic meter reading device which allows for automatic meter reads and downloading of data. Lewiston does not have a data collector and therefore must manually transcribe the data into a data log, then enter that data by hand into a computer. With a $15,000 investment in a data collector, Lewiston could expedite the meter read process and realize a labor cost savings as well as consistency with Auburn's practices. Alternatively, Auburn may be able to read Lewiston's meters with some equipment upgrades. Future plans for both cities include radio reads. Radio reads are considerably quicker than outside reads, and both cities could be accomplished by one meter reader.

4.4 Full Consolidation Implementation Issues

Full consolidation will enable the two cities to reduce costs, while maintaining or improving service levels. However, the benefits of consolidation must be balanced against the real costs and risks of such an effort. Many of the implementation issues associated with full consolidation are not easily quantified and their relative importance is a subjective evaluation. Based on our evaluation of the cities' situation and the workshops held with the staff and various impacted entities, we have identified the following implementation issues. Based on our understanding of the situation, none of these issues are insurmountable, but will require a certain expenditure of political, social and management capital.

Key implementation issues are areas of concern that require consideration include the following:

- **Watershed protection:** Currently, both cities hold waivers from filtration for their Lake Auburn source water, Lake Auburn. Maintaining these waivers from filtration are imperative to avoid capital expenditures of as much as $30 million. A critical element in successfully maintaining the waivers is the authority granted to the Auburn Water District Trustees by the State of Maine found within the District's Charter. A number of these provisions, which restrict the use of Lake Auburn have become controversial in recent years. Full consolidation of the six organizations would require re-opening the charter to transfer the key powers presently granted the Auburn Water Trustees and the new entity. The Cities could not entirely control what other modifications the legislature would make to the amended charter. There is a risk that key elements of the charter would be modified, eroding the ability of the entity to protect the watershed and thus threaten the ability to maintain the filtration waivers.

- **Developing and obtaining approval of appropriate authorizing legislation:** Each community would likely be required to approve a home rule petition requesting the state legislature to enact legislation authorizing the establishment of a single entity. A large number of local ordinances would require modification, and a number of state statutes as well. This will require a political/lobbying effort both at the local and state level. Without a concerted coordinated effort, the two cites could end up with legislation that does not fully address their needs.

- **Labor transition issues:** In general, the City of Lewiston staff is unionized and the Auburn staff are not unionized. Based on the questionnaires received from the staff and discussions during the workshops, each staff appears to be quite comfortable with that condition. Full consolidation will require moving to a fully unionized or fully non-unionized operation. A significant political effort will be required to overcome the staff's objections. Based on our interaction with the staff, movement in either direction will be very traumatic for the impacted staff and will require significant management oversight to address and resolve the uncertainties. Staff morale will be adversely impacted during the transition period at a minimum and lengthy negotiations should be anticipated.

- **Regulatory agency approval:** The responsibility for permits and environmental compliance would be shifted from the existing entities to the newly consolidated utility. This will necessarily require affirmative approval from the appropriate regulatory agencies. This will involve some time, as the agencies will seek assurances that the new entity has the capability and the authority to ensure compliance with the permits. While there is no reason to expect the regulatory agencies to object, it does provide the opportunity for them to seek some additional level of compliance under the rewritten permits.

- **Bond financing:** The two cities presently have significant debt outstanding related to previous capital improvements. A fully consolidated entity would likely retain responsibility for servicing that debt and would also require authority to issue debt on its own accord. Two issues are raised. First, based on the experience of other newly established entities, the costs associated with such bond issues will likely be higher than presently incurred of the existing entities. A newly formed revenue bond entity given the higher risk and lack of operating experience typically pays an interest penalty when entering the market. The new entity will also incur financing start-up costs (bond resolution, etc.) that can be significant. Second, the newly created entity in consultation with the two cities would need to develop a new rate and credit structure for the existing debt. To the extent that there are different debt loads between the existing agencies, the new entity would be faced with either administering two rate systems (one for Lewiston customers and one for Auburn) or shifting pre-existing costs between the two customer classes. Either approach creates implementation concerns.

- **Regulatory requirements and oversight:** Current environmental regulations would not subject the consolidated entity to a higher level of regulatory compliance. (Technically, the two communities together would have a population exceeding 50,000 accelerating the date of compliance with the Clean Water Act stormwater regulations. However, the stormwater regulations are in a state of abeyance and the 50,000 population level refers to population served by separate storm sewers. Given the prevalence of combined sewers, it would be many years before the two cities would reach the 50,000 level as defined in the stormwater regulations.) However, the larger size of the entity would likely cause the regulatory agencies to more closely scrutinize compliance. If compliance problems were experienced, the regulatory agencies would be more likely to take enforcement actions.

- **Loss of control:** A major issue for the City of Lewiston will be the loss of direct control over its system if it were transferred to an autonomous entity. Auburn would not be facing this issue in exactly the same way, since water and sewer service are provided through an independent district, however, the consolidated entity will have a broader focus. Residents and policy makers are frequently concerned about the lack of direct political oversight with an

independent authority, which it is often alleged that the independent authority will be less responsive to public concerns on issues ranging from rates to customer complaints, to working with neighborhoods affected by major construction programs. The City of Lewiston and, to a lesser extent, the City of Auburn, would be reducing their direct ability to direct and attract economic development. The fully consolidated entity would develop its own set of priorities on what capital improvements to undertake and what is the relative priority between line extension and rehabilitating existing lines, as an example. Lewiston would be ceding control over rate setting, as well.

- **Physical facilities and equipment:** Currently, the LSD and LWD are located within the LDPW building. The AWD and ASD are located in one building in Auburn. If full consolidation were to occur, it would be preferable to be located in one building. If the LWD, AWD, ASD, and LSD were not combined into one space, it is likely that operations would essentially continue as they have been. A physical change might be required to ensure a fully consolidated authority, requiring significant capital expenditures and ongoing rental payments.

- **Additional costs:** While cost savings may result after full consolidation is implemented, additional costs may be incurred during the transition period to full consolidation. Incurred costs will likely include: computer hardware and software purchases and training, physical space rearranging or relocating, transfers of costs between cities as equipment is shared and staff trained. There will also be a period of operating inefficiency as the entities are pulled together and develop new operating procedures and reporting mechanisms.

4.5 Full Consolidation Summary

Based on our evaluation, full consolidation will reduce the costs of water and sewer service in the two cities from the base case. Several factors contribute to the magnitude of the savings:

- A large proportion of current and future cost is related to paying off debt required to fund capital improvements including the CSO control program. Organizational structure will not significantly alter these improvement programs, since consolidation will not eliminate redundant infrastructure or reduce the number of CSOs requiring abatement.

- Over 22 percent of the current cost of service is related to the costs of maintaining and upgrading the cities' collection and distribution systems. Consolidation will not reduce the feet of pipe to be maintained. Furthermore, the staffs with responsibility for this function are operating near capacity. Full consolidation will not result in some significant economies enabling the field work productivity rate to increase dramatically. Consolidation would create some efficiencies by getting better use out of capital equipment.

- Major capital facilities that are typically the sources of major savings from consolidation (treatment plants and major pump stations) are already shared between the two cities. As the cities have found, it is much cheaper to build and operate one treatment plant to meet the needs of two communities, then it is to construct and operate separate facilities. Lewiston and Auburn and the ratepayers are already benefitting significantly from previous decisions in this regard, which reduces the available benefits from full consolidation.

The full consolidation scenario represents a cost savings over the adjusted base case, described in Section 2. Consistent with the description of staffing levels provided in Section 4.2, Table 4-2 shows the full consolidation cost reductions. By reducing staff in the areas of management, billing, metering and CSO maintenance; increasing administrative staff, and allowing for some adjustments and transitional costs, the net result is an initial (1998) savings of $48,000 followed by consecutive years of decreased costs projected to saving approximately $343,700 in 2006. It is important to recall Figure 2-4 which shows the break-out of a combined entity budget. The only functional components with the potential for reductions are Management Billing, Administration and Metering, O&M for CSO and SDWA programs, and lab/water supply which collectively represent only 17 percent of total 2001 costs.

The preceding discussion in this section indicates the benefits of full consolidation in terms of reduced costs of service. However, there are some very significant institutional, political, legal and organization implementation issues facing the cities with full consolidation. CDM's experience with other public utilities considering major re-structuring or changes as comprehensive as this consolidation is that they are facing a major crisis in operations, compliance and/or there is sufficient redundancy or inefficiency in the current situation to offer the possibility of at least 15 to 20 percent cost reductions. This clearly is not the case in Lewiston and Auburn. The utilities are well managed, with good regulatory compliance records, and the communities have already taken proactive steps to eliminate major redundancies.

While there is room for improvements, there are no major redundancies or inefficiencies among the agencies that would result in major economic improvements from full consolidation. Also, there currently are many examples of cooperative efforts between the two cities in their water and wastewater services that improve services to the combined Lewiston and Auburn customer population. Full consolidation will not eliminate the need to operate and maintain an aging infrastructure system, which represents 45 percent of the total cost and 70 percent of the non-treatment cost. Labor is the major expense item within this category and there is no excess labor that would cause productivity rates to increase an costs to decline. While full consolidation is still an option, it may not offer a level of savings commensurate to the level of effort required to make it happen. A more productive approach would be to target specific opportunities for more formal cooperation in certain program areas, especially in meeting new CSO and SDWA requirements that effect both cities. Recommendations for interim consolidation steps are discussed in the next section.

Section 5
Interim Consolidation Steps

5.1 Introduction

While consolidation of water, sewer and wastewater services is one possible option, it is by no means the only choice for the two cities. As described in the previous section, full consolidation of all organizations is possible but must be seen as a long term effort. This study was designed to also identify actions that could be taken in the short term to reduce the costs of providing water and wastewater services to the ratepayers of Auburn and Lewiston and/or increase the quality of these services. These short term options are referred to as "interim" consolidation steps because they can be seen as short term organizational solutions to what may or may not result in full consolidation in the long term. They focus on cooperative efforts that provide a benefit to both cities by taking advantage of the additional resources, volume of work and expertise that consolidation of functions provides. These steps can be taken as pre-cursor actions to full consolidation or as stand alone actions to improve operational efficiencies, if the cities decide not to pursue full consolidation.

The recommendations for interim steps are based on the experience of CDM with other water, sewer and wastewater utilities, benchmarking data, and information gathered in discussions with managers and staff in all the current organizations. In particular, Workshop 1 included staff from Lewiston, Auburn and LAWPCA and provided many useful suggestions for cooperative efforts. After this workshop, a large array of options was evaluated and reduced to a "short list" which was reviewed by representatives of Lewiston, Auburn and LAWPCA. Based on this process, seven major interim steps were selected as most feasible and beneficial. These are:

- Sewer Preventative Maintenance and CSO Best Management Practices
- SDWA/Watershed Protection
- Business Office Functions
- Water Laboratory Facilities
- SCADA/Instrumentation Maintenance
- Joint Inventory Control and Warehouse Systems
- Hazardous Materials Response Teams

Each of these interim steps is described in more detail in this section. It is important to note that these steps are not presented in any particular order of priority. Each can be implemented on its own and show short term benefits although some have some longer lead time than others, and the first two are related to new program requirements and are therefore less "optional". Taken together, these interim steps provide a major portion of the cost savings derived from full consolidation. Staff support and buy-in will require sufficient education and communication and has therefore been included as a requirement and objective.

5.2 Interim Steps

5.2.1 Sewer Preventative Maintenance and CSO Best Management Practices

Both cities face a major capital program to comply with the National CSO policy, where over some period the combined systems will be replaced with a separated "two-pipe" system. In addition, the two cities must develop and implement a program to comply with EPA's nine minimum controls. These nine minimum controls are best management practices intended to minimize the likelihood of overflows. Major elements of the nine minimum controls includes maximizing storage in the collection system, maximizing the volume of flow receiving treatment and instituting a sewer preventative maintenance program. The CSO policy also requires the two cities to collect and evaluate monitoring data characterizing CSO events. At a minimum, this will require developing data that correlates overflows with rain events of various magnitudes. This will eventually enable the cities to predict overflows based on weather forecasts and to implement operating procedures that will minimize the severity of any resulting overflows.

To ensure compliance with the nine minimum controls, the cities will be required to dedicate two or three staff to the program, including a manager capable of evaluating the monitoring data. There are also certain capital investments required, primarily related to equipment, such as cleaner and flusher equipment and TV inspection equipment. Both cities have taken steps to meet these capital requirements. The Auburn Sewerage District presently owns a small trailer mounted cleaner flusher that is capable of removing small sewer line obstructions. The Lewiston Sewer Division recently purchased a $160,000 sewer jetter that is a quite effective element of a sewer maintenance program. The jetter requires a specialized crew of two that are trained to operate the equipment. A fully trained crew can clean approximately 3,000 to 5,000 feet of sewer lines per week.

The additional regulatory requirements associated with the CSO nine minimum controls dovetails with the need to increase maintenance activities in the sewer system. Both cities acknowledge that sewer preventative maintenance has been among the lowest priorities. Compliance with National CSO Policy requirements will require a higher level of attention being provided to sewer maintenance. Sewer preventative maintenance activities typically include flushing out sewer lines to clear obstructions and remove accumulated grit, TV inspections to identify structural weaknesses, and cleaning catch basins. In the two cities, sewer maintenance is generally only undertaken, when a collector sewer or interceptor collapses or breaks and emergency repairs are required. Such emergency repairs typically cost five times as much as repair work undertaken on a systematic basis.

Proposed Interim Step

We recommend that the two cities jointly develop a three person group (one two-person field crew and one manager) dedicated to sewer maintenance and compliance with the CSO nine minimum controls. (This is the same recommendation as under full consolidation, and a reduction of one person from the base case.) Available data suggests that after an initial start-up period, one field crew should be sufficient to meet the needs of both cities. Once the initial sweep of the cities is completed and the available data evaluated, the jetter would be scheduled such to meet the high need areas of the system more frequently than those that do not appear to be accumulating grit, etc. A key element of this proposal is assigning Lewiston's sewer jetter equipment to the sewer maintenance crew on a full-time basis.

Several institutional arrangements are possible for the dedicated sewer maintenance crew. However, the most sensible appears to be: designate the sewer maintenance crew as LAWPCA employees. Since an important element of the national CSO policy is to maximize the flows that receive treatment, integrating the sewer maintenance crew into the treatment operation is logical. This will enable the two cities and LAWPCA to take operational steps that maximize flows to the treatment, which will reduce the adverse environmental impact of untreated overflows discharging to the river.

Transferring the responsibility for the CSO and sewer system maintenance will raise a number of institutional issues that must be addressed in the course of developing the necessary intermunicipal agreements. A key issue is cost sharing. Under the current procedures, each city is assessed a share of LAWPCA costs based on flows. This cost allocation methodology is not appropriate for the CSO/sewer maintenance activities. A more equitable system will be to charge each city based on its actual use of the service. As an example, if the CSO crew spends 65 percent of its time in Auburn, Auburn would be charged 65 percent of the cost. There is a risk in such a work-order type system that LAWPCA will not be fully reimbursed for the costs of the CSO maintenance work. This can be dealt with in a number of ways. The two cities could share equally the cost of the crew for the first year. The allocations in subsequent years could then be set based on the allocation of time in the preceding year. Alternatively, the two cities could, prior to the start of each fiscal year, negotiate for the share of time to be used in a fiscal year, with the bidding/negotiating process requiring the cities to allocate 100 percent of the available time. Cost penalties could then be built into the allocation formula for over/under utilizing crew time.

Since LAWPCA employees are unionized, all sewer maintenance staff would also be unionized.

There are longer term issues to be considered in the creation of this three person group. One of the key responsibilities of the manager of this group is to evaluate monitoring data to assess the impact of ongoing improvements and identify where maintenance activities should be targeted. This person will also develop significant insights into the necessity and appropriate sequencing of various long-term control projects as water quality changes over time reflecting enhanced operation and maintenance, the initial separation projects and other factors beyond the control of the Auburn Sewerage District and the Lewiston Sewer Division. As the communities plan their capital improvement programs, the CSO manager should be an integral part of that planning process to guide the cities to undertake those projects that are most beneficial and cost effective.

As these events unfold, the most cost-effective sequencing of projects may change. From a regional perspective, it may be that modifying the long-term control plan can achieve a higher level of environmental compliance at a lesser cost. However, that resequencing of projects could shift the burden of CSO compliance between the two cities. At a gross extreme, it could be determined that the best regional solution would be to implement all of the projects from one city first. This type of burden shifting clearly has significant implications. We believe that while this may be beneficial, it could ultimately lead to transferring all responsibilities for wastewater collection to LAWPCA or a successor agency. However, at this time it would be premature to begin contemplation of that, since the driving force behind it would be alternative means of complying with the long-term requirements of the CSO policy. Until capital projects are completed and evaluated, it is not possible to assess whether a watershed approach would result in significant burden shifts.

This recommendation of a three person group translates to a savings of one field person (from the base case), or approximately $35,000, by utilizing a three-person group serving both cities rather

than maintaining separate city operations. In addition, this operation would reduce some of Auburn's future contracted services by approximately $30,000 (assuming an average of 200 hours per year at $150 per hour) and free up some of the Assistant Superindent's time.

5.2.2 SDWA/Watershed Management

One of the key environmental challenges facing the two cities is maintaining the waiver from filtration presently held by each city. These waivers enable the cities to avoid the construction of a major water filtration facility with a total cost of nearly $30 million. The cities have taken important steps towards that end, including:

- Creating the Lake Auburn Watershed Protection Commission to provide a vehicle for purchasing key parcels of land as a tool for safeguarding water quality
- Monitoring and patrolling Lake Auburn to minimize inappropriate activities
- Collecting and testing all required water samples
- Developing the new joint intake pipe to improve the quality of water being brought into the system, while renovating a critical element of the cities' infrastructure
- Planning for a joint chemical feed facility to help ensure the quality of the water delivered throughout the system and improve operational efficiency.

To date, and with the obvious exception of the land purchases through the Commission, these efforts have been on an ad hoc basis. A significant amount of work has been accomplished and these efforts should not be discounted. However, given the importance of the waivers, we believe that it is important to institutionalize these efforts and ensure they survive changes in management and shifting political priorities.

Proposed Interim Step

The two cities should designate a single team with responsibility for compliance with and adherence to the waiver requirements. Presently, the monitoring and water quality related work required by the waiver is handled by the senior managers of the two cities and the senior laboratory staff. As part of the proposed consolidation of the laboratory operations, it may be appropriate to assign waiver responsibility to the laboratory staff and expand it to a water quality group serving both cities.

Given the present method of meeting these responsibilities the potential savings are difficult to quantify. There will clearly be a freeing up some of the senior water manager's time for compliance analysis and problem solving which will enable them to focus attention on other issues. A more systematic approach to this will provide a higher level of assurances that the filtration waiver is maintained, which is of significant value to the communities. If responsibility for more of the SDWA compliance is directed to central water labs, then it will be necessary to augment lab staffs by approximately one person. Part-time summer help will still be required to police Lake Auburn during that time period.

5.2.3 Laboratories

There are currently three separate laboratories and related staffs operating in the two cities. The Auburn Water District, the Lewiston Water Division and LAWPCA each operate and maintain a separate laboratory. The full costs of operating the laboratories is approximately $180,000 and a total of seven positions are assigned to lab-related functions. Three staff are assigned to the LAWPCA laboratory. For the water quality laboratories a total of four positions are assigned to the laboratory, however, presently two are unfilled. In addition, temporary summer help supplements the staff during the busy summer months.

The LAWPCA laboratory performs process related testing for the wastewater treatment plant, some permit required testing, oversees testing that is contracted out, and manages LAWPCA's industrial pre-treatment program. Under LAWPCA's NPDES permit, testing is required for TSS, BOD, coliform, and pH from both the discharge and the LAWPCA's CSO. Discharge testing is done in-house for BOD, TSS, and pH, with metals testing contracted out. Sludge related testing is performed in-house and contracted out. The total annual cost of this outside testing is approximately $7,000. For the industrial pre-treatment program, LAWPCA staff monitor company compliance, review test results, and identify illegal discharges. For liability and enforcement reasons, testing is contracted out with outside commercial laboratories. This has an annual cost of approximately $9,000.

The water labs perform similar functions and are responsible for undertaking all required SDWA sampling. This ranges from raw water quality to distribution system assessments to assessing water quality at the tap for lead and copper. Raw water sampling includes sampling and testing for nutrients and pH in the lake and several tributaries on a monthly basis, except when the Lake is iced over. Laboratory staff also do sanitary surveys to insure septic systems have not failed, and if so to report to local health department. Distribution system testing is required under the SDWA and requires testing for bacteria, pH, chloride, nitrates and nitrites; testing is performed in-house. Testing samples for other parameters including inorganics, herbicides, and asbestos for are sent to commercial laboratories. Finally, both cities are required to test lead and copper, which requires obtaining samples at the tap, and sending them to an outside certified laboratory. With corrosion control, additional testing will be required. Total annual cost for the outside testing is approximately $5,000 each.

In another example of the high level of cooperation that exists between the two cities, the two water quality labs have been sharing a water quality manager since May 1996. Under the applicable state regulations, to maintain certification every water quality laboratory must have on staff a certified laboratory director. Such certification requires an appropriate bachelor of science degree (biology, microbiology or chemistry), a Class IV operator license and a minimum of one year of experience. In May 1996, when Lewiston's certified director resigned, the Auburn Water District accepted responsibility for both laboratories. This has enabled Lewiston's laboratory to remain open and likely reduced costs for Lewiston; without AWD assistance, it would have been forced to contract for all required laboratory services.

Proposed Interim Step

On its face, operating three independent laboratories appears to be inefficient and an obvious consolidation target. However, there are currently valid reasons to segregate the water facilities from the wastewater laboratory. The physical sizes of the available facilities are limiting.

Obviously, coliform bacteria are one of the primary contaminants that the water laboratories are testing for, since presence of these in the water system represents a major health risk. Such bacteria are very common in the wastewater laboratory, if the two functional laboratories were merged, there would be a high risk that water quality samples would be contaminated by the wastewater samples given the very limited physical facilities. Certification requirements also differ between the two facilities.

While merging wastewater and water laboratories does not appear to make sense, formally combining the two water laboratories is feasible and sensible. Since May 1996, and other times in the past, the two facilities have operated under the guidance of a single water quality manager. That manager oversees and ensures the quality of the testing regime in both cities. However, presently, the manager splits his time between two physical facilities and other extraneous duties.

Under this interim step, we would propose the following:

- Physically, the laboratory would be located at the existing Lewiston water laboratory location. This is a physically larger facility which is able to accommodate the combined staffs. This laboratory would be designated as the certified laboratory facility.

- Staffing at the laboratory would consist of a Laboratory Director (Water Quality Manager) and two Laboratory Technicians. Currently, there are two Water Quality Manager positions (Lewiston's is vacant), and one and a half Technician positions (Auburn's half-time position is vacant). The proposal is to essentially retain one water quality manager, downgrade the other (vacant) manager position to a Technician, retain the existing Technician and eliminate the half time Technician position. The new Laboratory Director's responsibilities would be very similar to current Water Quality Manager responsibilities. The Technicians would be responsible for all routine sample collection and testing under the guidance of the Director. The major change from present operating procedures is that the Technicians would not be restricted to a single city. With the additional responsibilities during the summer months, laboratory staff would likely be supplemented by summer assistance.

- With a combined physical facility and staff, all supplies and equipment would be procured under a single procurement. This will reduce the unit costs for purchases given the larger volumes.

- As occurs in other situations within the two cities, the staff will account for their time and resources, which will be charged back to the two cities.

The most difficult issue to be resolved is which organization the water quality staff will be assigned to. Two basic options appear to exist. The first is to include the laboratory staff within the LWD, since that is where the optimum physical facility exists. Alternatively, the laboratory staff could be assigned to the Commission which has some generic responsibility for water quality. The fundamental question to be resolved is what safeguards are required to ensure that each city receives the service it requires. From the perspective of the staff, the question is who do they report to and respond to. Either organizational location will require the development of a formal procedures document setting forth:

- Cost allocation procedures
- Staff assessment and review
- Reporting chain of command
- Emergency response procedures

Primary benefits of this consolidation will include:

- Reduced labor costs with savings of approximately $20,000 resulting from converting a water quality manager position to a technical staff position, and another $10,000 in savings by eliminating a half-time position.

- Reduced purchases costs given the higher volume of purchases, approximately three percent or a total of less than $2,000.

- Improved service levels, given the better coverage allowing the director to focus efforts on diagnosing and correcting quality problems. In addition, there will be redundancy and deeper staff levels to meet the needs of the system during emergencies and to accommodate staff vacations and illnesses.

5.2.4 Business and Customer Service Function

The City of Lewiston and the Auburn Water District both perform the very important business functions of:

- Installing and reading customer meters

- Based on meter data preparing customer bills for water and sewer services as well as certain special services

- Responding to customer questions regarding bills and making adjustments, as appropriate

- Maintaining customer billing and accounting records

The Auburn Water District employs three staff for billing and customer service; one for accounting; and two for meter reads, open/shuts and customer leak detection inspections. In Lewiston, some of these duties are assumed by other city staff. The Auburn Water District and its staff are responsible for the entire chain of events that result in customers paying for water and sewer service. This includes reading meters, preparing bills, issuing bills, responding to customer questions, accounting and maintaining accounting records and collecting amounts owed. The City of Lewiston has a centralized computer system that handles all city billing, among other items. The Lewiston Water Division enters into the billing system the appropriate consumption data; separate staff within the city then assume the responsibility for the physical production of the bills and maintaining the billing system data base. Certain other functions such as collections, customer accounting and treasury are partially or fully handled by other city staff. The Lewiston Water and Sewer Divisions may pay for these services through interfund charges, however, the staff requirements for the Water and Sewer Divisions are less, given that they have partial use of specialized staff within the city's structure.

The two cities have a large staff performing these functions given the total number of accounts that are handled. For comparison,

- The City of New Bedford (MA) handle all water and sewer billing and customer service for nearly 35,000 customers with a staff of three readers and four billing clerks.
- The Kent County Water Authority (RI) handles all customer services and billing for 24,000 accounts with an assigned staff of five people.
- The Bristol County Water Authority (RI) handles 15,000 accounts with three clerical staff and two meter readers.

Each of those examples, represents a system that operates within a single organizational structure incorporating a single billing and computer system. Generally, each system relies on a single meter reading device or process, although several have a combination of outside read and manual read meters. Since each involves a single utility, the computer system, billing software, and collections process are already consistent. In contrast, the billing and customer accounting systems operated by the AWD and the LWD are quite different and have been developed over time to meet the needs of the respective utilities. The two systems have been developed to meet internal needs and the ability to easily interface with the water utility across the river has not been one of the development objectives.

We believe that over the long-term, savings can be created by taking steps to merge the business and customer service operations (including meter reading) of the two water departments. Full consolidation would permit a reduction of two clerical positions and a meter reading/repair position. This would ultimately result in a reduction in personnel time devoted to this activity and would likely reduce the costs of certain outside services (such as the unit costs of meters, meter reading devices, and hardware and software upgrades). There are some significant institutional issues to be addressed in this as well. The LWD receives services and support from the larger and more specialized city staff. The cost of these services is likely significantly less than what it would cost to identify and obtain them from an outside service vendor. In the long-term, there may be a creative solution to this where the City of Lewiston provides certain support services to the LWD and the AWD related to customer service and billing. In addition, meter reading and billing is a function that is amenable to outsourcing. In the western United States, especially California, this function is commonly performed by private companies under contract to municipalities. Customer service issues may be retained by the municipality or by the private company. A number of companies in New England have discussed providing such services for municipalities. One company is presently quoting a rate of $1.50 per bill issued for meter reading and billing with a productivity level of 350 reads per day per reader.

Proposed Interim Step

Over the long-term, we believe that the two cities will be able to affect a reduction in utility costs, without compromising customer service by moving to a consolidated customer service and billing department. The responsibilities of this department would include:

- Meter reading and repair (meter installation would remain the responsibility of the two separate utilities).

- Preparing customer bills (taking whatever steps would be required to convert the metered consumption data to bills. Physical preparation of the bills might be outside this group's responsibilities, especially if the City of Lewiston, the AWD or some outside service provider could most cost-effectively produce the bills).

- Responding to customer inquiries regarding billing and services, taking appropriate action (e.g., adjusting the bill or forwarding a service problem inquiry to the repair crews for action).

- Tracking customer receivables and taking action as appropriate (sending out collection notices, forwarding service termination work-orders, etc.).

We believe that the responsibilities of this customer service group could be met with an interim office staff of six persons and an interim meter reading crew of three, including repair. This reduces labor expenses by approximately $50,000 from the base case condition; miscellaneous expenses should decline by a minimal amount as well. However, as a prerequisite it will be necessary to begin increasing the operational compatibility of the relevant systems. This will include, but is not necessarily limited to:

- Jointly selecting and procuring a water meter and a meter reading device for use by both utilities. The use of a single standard will slightly reduce the unit costs of purchasing, but enable meter read crews to perform their duties on either side of the river, improving productivity rates.

- Over a several year timeframe begin to move the billing and customer relations staff to a common hardware and software program. Customer service staff must have the ability to quickly access customer records including consumption patterns, payment records and service complaints. Each water utility may retain their respective billing databases, but the two utilities will need to identify and begin implementation of a common user interface. Ideally, the user interface should look identical, whether a customer is an Auburn or Lewiston customer. This should not be a significant problem, since both billing databases retain and include comparable information. The interface would access two separate databases and bring the information forward. The phase-in period could be used to fine-tune the user interface and train the staff in its use.

5.2.5 Instrumentation and Control Systems

The sophistication of the instrumentation and control systems used to manage the facilities operated by the respective entities is, consistent with industry practice, increasing. This is especially true at LAWPCA, which is undertaking a major project to install a new generation SCADA (Supervisory Control and Data Acquisition) system. The water and sewer departments will over time replace existing mechanical and manual pump station control systems with comparable remote electronic systems.

These systems will represent significant capital investments, which will have a positive impact on operating costs. This is clearly illustrated with the LAWPCA project, where it is anticipated that the SCADA system when fully operational will enable LAWPCA to reduce the number of facility operators by five. With the greater reliance on automated control systems, there will be increased need to ensure the effective operation of these systems. The entities have three options for maintenance and repair of the automated systems:

- Rely totally on outside service providers to maintain and repair the systems. In the case of a failure, the outside contractor will need to move staff on site and diagnose and correct the problem. System vendors and outside contractors provide this service on a retainer basis, with an upper contract limit.

- Each entity could identify and train a staff person to be the primary maintenance and repair person for their system. That is, Lewiston would have a single person, Auburn would have person and LAWPCA would have a person. This would provide some redundancy and staff back-up so that in the event of a failure multiple staff would be immediately available on site to address the problem. Outside vendors would still provide ultimate back-up for unusual problems that would be beyond the capacity of local staff to address. Since the workload for a single entity, like the City of Lewiston or the Auburn Water and Sewerage District, is unlikely to demand this person's skills on a full-time basis this person would likely be required to perform some other job function as well.

- Identify a single person from among the three entities to be the primary instrumentation and control maintenance person. This person would be responsible for all instrumentation and control systems across the three entities, as these systems are developed and brought on-line. Back-up and redundancy could be obtained through an outside service provider contract. However, it may prove to be cost-effective to seek a second person with capabilities in this area to serve as back-up and handle vacation periods etc.

Proposed Interim Site

We propose that a single person be given responsibility for maintenance and primary repair of all instrumentation and control systems. This person could be an existing LAWPCA employee, thereby translating to a reduction of one I&C staff from the base case. This results in wage related savings of $45,000. As a prerequisite, steps should be taken as systems are procured to make them as similar as possible. This will allow the selected person to have the maximum opportunity to understand and master the systems. Back-up and redundancy should be obtained through an outside service provider contract. As in the full consolidation case, this would result in savings of $25,000 from the base case, as one service contract could be shared. However, it may prove to be cost-effective to seek a second person with capabilities in this area to serve as back-up and handle vacation periods etc.

The selected person should most likely be an employee of LAWPCA. LAWPCA will likely be the major demander of this service and the site of the most work. In addition, an existing mechanism works by which LAWPCA charges the two cities for services received. The costs of this person could be included in LAWPCA's budget and allocated to the two cities based on the current allocation methodology. Services provided specifically for one community (e.g., repair work at a Lewiston pump station) would be charged directly to that city.

It is difficult to project the savings associated with this interim step, since it is a function that is not presently required. LAWPCA's SCADA system is not yet in place and the two cities are presently developing and upgrading their control systems. Neither Lewiston or Auburn are likely to require such a person on a full-time basis, so that they would be required to have one person partially assigned to this function or would need to rely completely on an outside contractor. More importantly, the proposed interim step should improve service levels, with a person on-site to immediately diagnose and address problems, rather than waiting for an out-of-town vendor to get

staff to the site. A single person serving all three entities will be able to devote their full attention to learning and mastering the technology, which will enable them to increase their effectiveness and ability to correct problems.

5.2.6 Inventory

The field crews in Lewiston and Auburn presently use many of the same materials to perform their work. However, as described previously, two different inventory systems are relied upon. Until 1993, the two cities jointly procured inventory and materials. Auburn has adopted a system that relies totally on an outside vendor to provide all necessary materials on a just-in-time basis. Certain common materials are kept in stock by the vendor at appropriate levels. The supplier guarantees to provide all necessary materials within 24 hours of a request. In contrast, Lewiston maintains its own inventory store with materials at stated minimum levels. Outside vendors are utilized to replenish inventory, when stocks fall below minimum levels and to provide unusual or special order items.

It is difficult to directly compare the costs of the two systems. A cost comparison of unit prices in 1995, reveals that Auburn's prices for the JIT inventory management system was an average of 1.5% above Lewiston's bid prices. In return, it has eliminated the need to stock and manage a storehouse. To date, vendor performance has been acceptable, with all required parts and materials provided in line with the requirements of the contract. Lewiston pays a lower unit cost for each item purchased. However, Lewiston is required to maintain a storehouse which has an inventory of approximately $150,000 in parts. The LWD pays one staff person to manage the storehouse. Based on our interviews with staff and management, the lack of an adequate computerized inventory system results in relative frequent shortages of key items delaying or disrupting construction schedules. Related problems exist with the parts procured from the vendor. There are time delays in obtaining the materials which can disrupt the construction schedules and lead to inefficiencies in the field. This is especially problematic when field crews are conducting emergency repairs when time is of the essence.

Proposed Interim Step

The Auburn Water and Sewerage Districts and the Lewiston Water and Sewer Divisions should jointly procure inventory for the many common items that are required. By combining the volume of items being purchased, this should result in some savings (up to 5 percent) on the unit cost of items required. Based on the experience to date, it appears that the two cities should procure their inventory using the just-in-time inventory system used by Auburn. This would enable Lewiston to reduce the inventory held in its warehouse freeing up some working capital. More importantly, such a move would eliminate the need to devote a staff person to storeroom work and allow those resources to be devoted to more critical work areas requiring attention. Specifically, the Lewiston Storekeeper/Dispatcher position would no longer be required thereby resulting in a savings of approximately $25,000.

5.2.7 Hazardous Materials Response Teams

Given the types of chemicals handled and used by the Auburn Water District, the Lewiston Water Department, and the LAWPCA, each is required to staff, train and outfit a hazardous waste response team.

Hazardous Materials Response Teams

We believe one of the least controversial interim steps is to begin the process of creating a mixed entity hazardous material response team. Presently, the AWD, the LWD and LAWPCA are required to staff and outfit these teams. The expense associated with the teams is not significant reflecting the costs of the equipment, training for the staff, and diverting staff time from other activities. This appears to present an opportunity for inter-entity cooperation at the staff level, which will not create a confrontation over labor issues and labor organization. The impacted entities will gain since the number of staff hours devoted to training and lost for other functions will be spread over the three entities reducing the per entity costs. As an example, if a full response team consists of six people, the three affected entities might designate four staff each, creating a labor pool of 12 people so that sufficient overlap and redundancy exists. But, each entity is has reduced its "out-of-pocket" staff contribution by one-third. Each entity will still incur the costs of outfitting the teams, however. There will also be the need to ensure a cross-entity communication system (possibly as simple as a common set of beepers) to enable contacting the members of the team in case of an event requiring their attention. It will also be necessary to coordinate the scheduling of team members across the entities to ensure 24 hour, seven day a week coverage.

5.2.8 Labor

The primary human resource issue to overcome in considering consolidation of work between the two cities is the fundamental difference between workforces in Auburn and Lewiston, that is the Lewiston workforce is unionized and Auburn's is not. The fundamental question is whether or not it is worth the time and effort to resolve the complex political, legal, contractual, institutional and personal issues involved in combining union and non-union workers under a single management structure or into multi-jurisdiction units. This question needs to be dealt with for any interim steps as much as for full consolidation, although full consolidation would be more comprehensive and challenging because of the broader impact of such a decision.

This is further complicated for the City of Lewiston in that Lewiston DPW employees representation is split between two unions, although this is a comparatively minor consideration. The agreements between the city and the American Federation of State, County and Municipal Employees (AFSCME Council #93, Local 1458-00) and the Maine State Employees Union are generally very similar. Most of the major benefit provisions are the same. Both emphasize the importance of seniority in promotions, transfers, decreases in force, layoffs, and recall, although the Maine State Employees Association contract has seniority as the prime factor. While the two contracts cover different positions, the basic wage structure and step increases are the same. The difficulty for the city could occur if recommendations on consolidation impact one Lewiston union more than the other to a significant degree. It is likely, that strong positions would be taken about unfair treatment and labor practices.

Lewiston and Auburn have a recent productive experience in this situation through the consolidation of emergency dispatcher services for the two cities. Representatives of both cities felt the dispatcher resolution established some valuable precedents and that the difficulties in combining portions or all of the workforces should not be seen as a barrier to consolidation.

Based on this guidance and our evaluation of the various water, sewer and wastewater operations, we are not recommending that union and non-union workforces or functions be combined or consolidated as part of the interim steps. We do see opportunities for closer, or even centralized, coordination of similar functions in both cities, and the sharing of similar work and equipment as

described earlier in this section. However, the situation with Lewiston and Auburn does not have the potential economic benefits or organizational pressures to overcome the union-related barriers.

Our recommendation is based on the absence of compelling reasons and driving forces that are needed to make the necessary changes and accommodations happen. We know, and have been involved with other municipalities that have pursued ending, or drastically changing union agreements. In these cases, there is a strong economic incentive in the form of significantly reduced labor costs (by 30% or more) and a history of poor productivity or adversarial labor/management relations (or both).

This is not the case in Lewiston and Auburn. The common activities with major labor costs, i.e., field work and maintenance, are not redundant even though the same type of work is done on both sides of the river. The need for this work is not redundant and can not be reduced by combining crews or functions. The study shows that there is sufficient work to justify current staffing and, in fact, there is additional important and required field and maintenance work that is not possible to do now because of limited resources. In the case of the consolidated dispatcher operations, technology greatly expanded the coverage area and made it possible for a single dispatcher or small crew to cover a wide area. In water and sewer work, field crews must physically be in the field. The level of work depends on the size of the collection and distribution system, and the number of customers. These variables will not change through consolidation. Even in the area of customer billing, collections and customer relations, the majority of staff work is in face-to-face or personal phone contacts with customers. Consolidation does not decrease the number of customers or their expectations for personal service. We believe that major, significant labor cost savings are not likely for Lewiston and Auburn through water and sewer service consolidations.

In addition, we found no evidence of major problems with performance in either the union or non-union workforce. While there is always room for improvement, the Lewiston and Auburn entities appear to be well run, with good leadership and management skills, and motivated customer service employees. Compared to other similar and larger organizations, we do not find any critical performance problems that would drive major changes in structure or management approach.

The same is true regarding management/labor relations. While an adversarial approach may be taken sometimes, the more prevalent state is one of "professional labor relations" with both sides working to build more constructive working relationships. Adding to the generally positive labor/management environment (an probably because of it), Lewiston water and sewer operations are not burdened with overly restrictive work rules, rigid positions against flexibility, and task ownership. Both work crews and office staff have a "lets get the job done" attitude and a strong sense of customer service.

Proposed Interim Step

While no major remedial action is called for in the area of labor/management or employee relations, we recommend the senior management of Lewiston and Auburn entities plan some face-to-face communication with both union and non-union employees about the emerging "system-wide" approach to water, sewer and wastewater services in both cities. The objective is to build more common ground interests among all the staff so individual efforts are aligned with the overall objectives of the two cities.

The recommendations of this study would be a logical opportunity to call a meeting and deliver this message. The message needs to clarify the intent about full consolidation and then to focus on "how we are going to work smarter by stronger linkages between all the entities." We recommend starting with a joint meeting with key managers and employees from both cities. This could be followed up later as part of regular staff meeting in each group. We also recommend that union business agents be invited to the meeting so they fully understand the future direction, and are aware of who to contact with questions or further discussions.

5.3 Cost Savings

Table 5-1 shows the Interim Consolidation Steps Staffing Summary and Table 5-2 the Potential Future Costs with Interim Steps. Clearly, the cost savings will have an individual impact on each entity, but have been shown against the combined entity base case for illustration. These steps result in an initial (1998) savings of $171,000 over the base case, and up to $308,700 savings in 2006. With interim steps as described, cost benefits and efficiencies can be gained without the barriers and potential obstacles with full consolidation.

Table 5-1
Interim Consolidation Steps Staffing Summary

Total Base Case Positions*		
Base Case Total Filled Positions	*76*	
Interim Consolidation Changes		
Modify CSO staff	(1)	
Reduce storekeeper/dispatcher	(1)	
Modify laboratory staff	(0.5)	
Reduce I&C staff	(1)	
Reduce billing staff	(1.5)	
Reduce meter staff	(1)	
Net Change	(6)	
Total Filled Positions	**70**	

* As described in Section 2.8.4.

Table 5-2
Potential Future Costs with Interim Steps
(in 000's)

	1998	2001	2006
Base Case Revenue Requirement	**$11,587**	**$12,910**	**$15,525**
Reduce CSO staff	(35)	(39)	(46)
Modify laboratory staff	(30)	(33)	(40)
Reduce billing staff	(30)	(33)	(39)
Reduce Auburn CSO contracted services	(30)	(33)	(39)
Reduce meter staff	(20)	(22)	(26)
Reduce I&C maintenance service contracts	(25)	(28)	(33)
Reduce I&C staff	0	(45)	(53)
Savings realized by joint purchases (lab only)	(1)	(1)	(2)
Reduce storekeeper/dispatcher	(25)	(28)	(33)
Net change for interim steps	*(171)*	*(260)*	*(309)*
Interim Steps Revenue Requirement	**11,416**	**12,650**	**15,216**

Section 6
Recommended Implementation Plan

6.1 Conclusions

We have evaluated three alternative institutional structures for delivering water and sewer service to the residents and businesses of Lewiston and Auburn:

- **Continue with Present Operations:** Continue to provide service through the six entities (Auburn Water District, Auburn Sewerage District, Lewiston Water Division, Lewiston Sewer Division, Lewiston Auburn Water Pollution Control Authority, and the Lake Auburn Watershed Protection Commission) presently charged with providing these services. Under this base condition, each entity will be required to meet the service needs within its jurisdictional area as the demand for and requirements of such service change over time. This will require staff additions, as described in Section 2 as the adjusted base case with required staff changes. (Future costs of the individuals entities were presented in Section 2).

- **Full Consolidation:** Create a single autonomous entity to provide the required services. In this case, as service demands and requirements change over time, the new entity will be able to take steps necessary to accommodate such shifts. (Future costs of full consolidation were presented in Section 4).

- **Interim Steps to Consolidation:** Implement a number of interim steps that are designed to reduce expenses or improve service levels on a more limited basis. (Future costs of interim consolidation were presented in Section 5).

Based on our analysis, we believe that the third approach appears to make the most sense and this is based on a number of conclusions reached during this study. Specifically, we have concluded that:

- The two cities have undertaken a number of consolidation efforts and are already benefiting from these efficiencies. This includes the creation of LAWPCA and the Commission, as well as the joint intake project and the plans to share a common disinfection facility. The creation of LAWPCA ensured that the two cities minimized the cost of treatment through the construction of a single treatment plant rather than two. Similarly, the Commission's activities will help ensure compliance with the filtration waiver requirements saving approximately $30 million in capital costs and significant operating costs as well. These previous steps have limited the potential savings that could accrue from full consolidation.

- Forty-five percent of the current cost of water and sewer service is for operation and maintenance of the distribution and collection system. These systems are relatively old and require a significant investment, given the frequency of main breaks and the level of unaccounted water. Full consolidation will not reduce the size of these systems or the amount of maintenance required to ensure adequate operations. Full consolidation will also not increase the capacity of the crews that perform this work, since field crews on both sides of the river are working at a high utilization level. Thus, full consolidation is unlikely to cause a reduction in the quantity of work to be performed within this function or the productivity of

the staff performing the work. Marginal decreases in costs may be incurred due to lower unit costs for certain materials and contracted services.

- The Auburn Water District, and Lewiston Water Division are generally efficient operations when compared to other comparable water operations. Most importantly, the field and operational staff are effectively meeting their responsibilities, are operating at or near capacity, and there are limited opportunities for increases in efficiency or reduced costs from merging the staffs together.

- Full consolidation will have limited impact on the capital improvement programs presently being implemented by the various entities. These programs are designed to meet the renewal and replacement needs of an aging infrastructure and to comply with additional regulatory mandates, such as CSO abatement and control. These needs will not change materially as a result of full consolidation. Conversely, full consolidation will not increase the regulatory mandates formally imposed upon the two cities, so that the quantifiable impact of consolidation in this regard is limited.

- Following from the preceding points, the financial gains potentially available from full consolidation are limited. Approximately 80 percent of the annual costs of providing water and sewer service are related to the capital programs presently being paid for (existing debt service) or to be implemented in the future and the field and operational work where there are very limited opportunities to reduce costs while maintaining service levels. Figure 6-1 compares the projected cost of water and sewer service over the next 10 years under the three alternatives. As can be seen, the potential differences between the high and low case in the future are less than five percent.

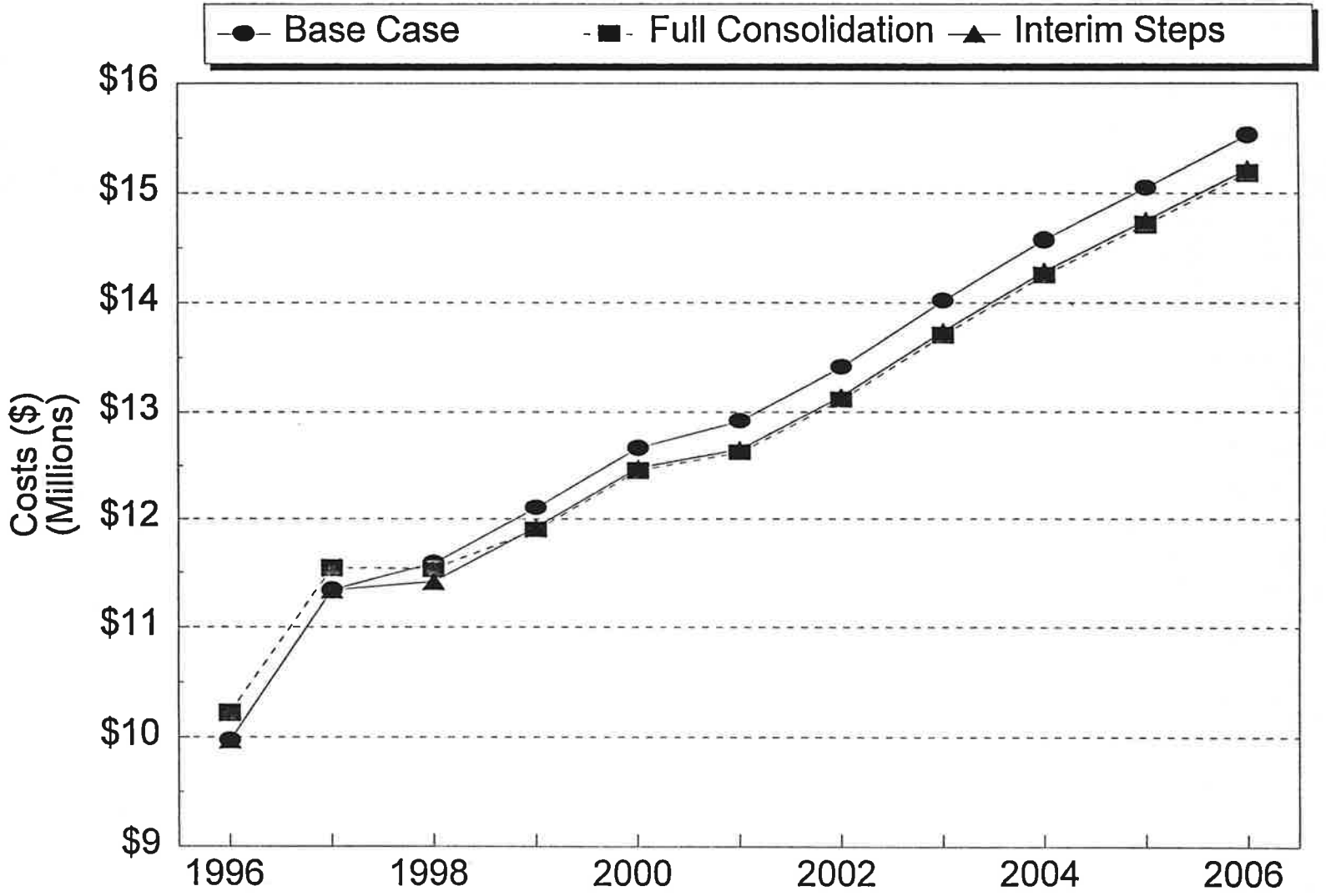
- The functional areas susceptible to improved efficiencies and/or reduced costs do not require full consolidation to achieve these objectives. Interim steps can effectively attain the necessary savings or service improvements, especially given the high level of cooperation that exists currently among the entities. This is not to say there will be not be costs or obstacles, but the ability to affect such changes is much more localized with interim steps than would be the case with full consolidation.

- There are significant costs to be incurred in seeking full consolidation, many of which are not easily quantifiable. However, the communities would be required to undertake a significant political and managerial effort to implement a fully consolidated utility. This would require a number of efforts including, but not limited to, protecting existing legislative powers the communities presently have, obtaining sufficient authority to operate as a single entity, transferring all permits, etc. to the new entity, and, most importantly, working with the affected workers and labor unions to affect the change.

Obviously, the communities must assess what the real non-quantifiable costs of this effort would likely be given the need to obtain state legislative approvals on other issues and to work with employee groups on a variety of issues. However, it appears to us that the communities can obtain a significant share of the potential financial savings available from full consolidation, with a significantly lower implementation cost, through undertaking the interim steps we have discussed in Section 5. This path for increasing efficiency while reducing costs and/or service levels is also a

Figure 6-1

Comparison of Future Costs



less risky route than seeking full consolidation. The communities will be able to test the benefits of a proposed step and determine whether the resulting changes are what was expected and worth the effort. To the extent that the communities are dissatisfied with the outcome, then it is a less onerous task to undo the implementation of a particular interim step, than it would be to undo full consolidation. With full consolidation, from a practical standpoint, it may be impossible to revert back to a lower level of integration.

We have concluded that a gradual movement towards full consolidation through interim steps is a sounder approach. The balance of this section describes our recommended implementation plan.

6.2 Proposed Interim Step Implementation Schedule

We propose a three to five year schedule to implement the interim consolidation steps. The extended implementation schedule is intended to enable the cities to proceed with consolidation on a deliberate schedule, which will permit easing through various implementation hindrances. Given that there is no overriding crisis dictating the consolidation, such an extended schedule will enable the cities to take these interim steps and adjust them based on evolving economic, institutional and political needs. The range of time proposed in this schedule will allow the two cities ample time to adjust to a proposed change and assess the efficacy of the recommended change before proceeding further. In some cases, this may only take a matter of weeks or months, in others, the evaluation/testing time may be significantly longer.

Year 1

Consolidation Prerequisites

There are a large number of steps that the two cities should begin taking to ease consolidation in the future. These primarily involve jointly procuring, or setting common standards, for a wide range of services and equipment. This will include computers and software, field materials, instrumentation and control systems, water meter and meter reading devices, and laboratory materials and testing services. The cities should evaluate the types of investments that will enable them to link overlapping services. For example, both communities read meters. Consideration should be given to procuring similar equipment, so that a single meter reading crew could read meters on either side of the river. Similarly, as billing hardware and software is upgraded, consideration should be given to converting both systems to a similar configuration. This would facilitate the possible development of a joint customer service operation.

Water Quality Laboratory Consolidation and Water Quality Staff

As soon as practicable, the cities should begin taking steps to consolidate the operations of the water quality laboratory. This will require:

- Developing a memorandum of understanding setting forth the institutional structure of the joint laboratory, including duties, reporting requirements, and cost allocation methodologies.

- Transferring staff to the joint laboratory, which likely will require transferring Auburn staff to the City of Lewiston. Begin the process of hiring one to fully staff the larger water quality laboratory operation. This will enable the water laboratory manager to be less responsible for the conduct of routine sampling and testing activities and and allow for focusing on problems

that arise and for focusing attention on the range of activities that must be undertaken to ensure the quality of water delivered to the residents of Lewiston and Auburn. This will also include monitoring activities and steps that will be required to ensure maintenance of the filtration waiver. The Water Quality Manager's ability to focus on these larger efforts will relieve the senior managers in Lewiston and Auburn of some of the day-to-day concern over these issues.

- Relocate existing Auburn laboratory facilities into the Lewiston laboratory facility and begin.

Hazardous Materials Response Teams

We believe one of the least controversial interim steps is to begin the process of creating a mixed entity hazardous material response team. Presently, the AWD, the LWD and LAWPCA are required to staff and outfit these teams. The expense associated with the teams is not significant reflecting the costs of the equipment, training for the staff, and diverting staff time from other activities. This appears to present an opportunity for inter-entity cooperation at the staff level, which will not create a confrontation over labor issues and labor organization. The impacted entities will gain since the number of staff hours devoted to training and lost for other functions will be spread over the three entities reducing the per entity costs. As an example, if a full response team consists of six people, the three affected entities might designate four staff each, creating a labor pool of 12 people so that sufficient overlap and redundancy exists. But, each entity is has reduced its "out-of-pocket" staff contribution by one-third. Each entity will still incur the costs of outfitting the teams, however. There will also be the need to ensure a cross-entity communication system (possibly as simple as a common set of beepers) to enable contacting the members of the team in case of an event requiring their attention. It will also be necessary to coordinate the scheduling of team members across the entities to ensure 24 hour, seven day a week coverage.

Year 2

Sewer Preventative Maintenance Crew

Given the size of the CSO program potentially facing the two communities, this interim step should be a high priority. The ability to demonstrate compliance with the best management practices requirements of the National CSO policy and closely monitoring CSO activity may result in lower capital requirements in the future. As communities have actively operated and maintained their sewer system in light of CSO abatement needs, communities have found that the frequency and severity of CSOs can be reduced without full implementation of CSO long-term control plans. This effectively enables the community to reduce planned CSO capital expenditures.

However, there will be significant lead time required to implement the step. In preparation for the creation and staffing of this team the following steps will be required:

- An inter-entity memorandum of understanding needs to be developed and executed. This will include defining the responsibilities of the crew, developing management and reporting mechanisms, cost allocation procedures and staff requirements. This will also involve creating a work order system at LAWPCA to ensure that Auburn and Lewiston are charged directly for the services received. Given the current LAWPCA funding system, it may be that time is tracked over the course of a year and then a reconciliation takes place at the end of the year.

- Review this concept of a joint maintenance crew with the EPA and Maine Department of Environmental Protection (DEP) regulatory agencies. Lewiston and Auburn should seek and obtain some positive indication from these regulatory agencies that the proposed approach is an acceptable method of complying with the CSO policy. While we are confident that this will be the case, the failure to obtain regulatory agency approval in advance could be detrimental. It may be prudent to reflect this proposed approach in any ongoing reporting required regarding CSO control measures being implemented and the effectiveness to date.

- Adjust the LAWPCA budget to reflect the additional staff positions and responsibilities and begin the process of staffing the new positions. (Recommend one CSO coordinator, and two field personnel.)

- Transfer the necessary equipment (including all sewer jetters) to LAWPCA's control under the terms of the inter-entity memorandum of understanding.

- Begin operations of the joint maintenance crew.

Joint Inventory Control

Joint inventory control and management will require the two cities to jointly develop a procurement document and seek a vendor. Given the past cooperation over inventory systems, this should not be a major undertaking. However, the two communities should commit to this effort for a set period of time, as an example three years. This will provide a sufficient operating history to fully evaluate the merits of this approach compared to the present method of supplying inventory.

From the present time moving forward to the selection of a vendor, the cities should develop a more detailed understanding of the efficacy of their present inventory system. This will include tracking such things as: the unit costs of items purchased, occurrences of items being out-of-stock, the amount of time spent monitoring and controlling the inventory stock, instances when the inability to obtain a part delayed a construction project and the time of any such delay, additional costs incurred for emergency delivery of parts. Presently, the cities do not have sufficient data to assess the secondary impacts of their current inventory system in terms of work time lost, excess inventory levels and monitoring time. We believe that by developing a more systematic evaluation of the total costs of their present inventory system, the value of alternative systems will be more easily evaluated.

Year 3

Instrumentation and Control Maintenance Staff

The sophistication of the instrumentation and control systems utilized by the various entities will be increasing over time. The most dramatic changes will occur at LAWPCA with the eventual installation of a new SCADA system to improve process control and reduce the costs associated with process control. LAWPCA is already committed to designating a person to be the primary instrumentation and control maintenance person. As this person becomes familiar with and begins to master LAWPCA's systems, that person should gradually be trained to maintain and repair the systems controlling the operations of the pump stations and chemical feed facility. The efficacy of this effort will be significantly increased if LAWPCA, Auburn and Lewiston actively coordinate the

design and specification of control systems to ensure a high level of similarity. To the extent feasible, the designated maintenance person should be involved as early as possible in all such planning and implementation decisions. In preparation for this effort,

- A memorandum of understanding should be prepared detailing the responsibilities of this person, setting forth a chain of command, and a cost allocation method. Some type of work order system will be necessary to charge the various entities directly for the time that service is provided.

- Identify and designate the appropriate staff person to perform the function. If the person is not presently employed by LAWPCA, it will be necessary to transfer the person to LAWPCA. Following the selection of the person, opportunities should be identified to provide this person with suitable technical training.

- The entities should collectively evaluate their present instrumentation systems and develop a common understanding of their plans to upgrade and or replace such systems. To the extent, such efforts are to be undertaken in a similar time frame, we would recommend that the entities jointly procure the required systems. This should slightly reduce the cost of the purchased systems, but will also ensure that the systems are as similar as feasible.

- The designated staff person should begin to maintain and repair new systems as they are brought on line or existing systems as maintenance is required.

Business Offices and Operations

In many ways, this may be the most difficult interim step to implement because these operations are so central to the functioning of the water and sewer operations. However, we believe that there are several alternative paths. The starting point would be the prerequisites previously discussed in this section. We would then suggest that the communities develop a single team of meter repair and readers, since we believe that with the appropriate investment in technology a team of two people (one person primarily responsible for reading and the second with responsibilities for repair and reading) could complete all reading and repair work.

Two alternatives exist for this meter team. The cities could jointly out source this to a vendor and seek to obtain the lowest cost vendor in that way. With outsourcing, companies would provide a price per read. Based on current market conditions, that price would be approximately $1 per read or approximately $60,000 per year. Alternatively, the two departments could merge their existing meter read staffs. This would free up two staff to perform other functions, or reduce the overall level of staffing. (This could be accomplished most likely through attrition, but might require the development of some type of severance package.) Negotiations will be required with the affected staff and the Lewiston labor unions to ensure that this is accomplished without significant labor unrest.

Following resolution of meter repair and reading, we believe the communities should begin consideration of joint billing with actual billing preparation, printing and mailing handled by a single staff. This would involve transferring meter read data into a billing data base, performing

exception testing to identify problem reads (too low, too high), determining where re-reads or manual reads are necessary and then approving the final bill runs. Bills can then be printed and mailed. To accomplish this, a number of items must be undertaken.

- A common billing platform must be developed that will use essentially the same data format and data tests to generate exception reports. If the staff can be linked to two billing databases, then all that would be necessary is to develop a common set of operating procedures and exception reports.

- Select a designated staff consisting of 2 to 3 clerks to be cross-trained on the billing system or system(s) so that they understand the operations of each system. Link the designated clerks to the billing systems.

- Both communities are on quarterly billing cycles with different numbers of meter runs within each read cycle. It will be necessary to coordinate and adjust these cycles to ensure that the workload for the clerks is smooth over the course of a quarter and the year.

- Develop a method of transferring the billing information to a printing vendor. Most utilities prepare a master tape that drives a billing run.

- Identify the most cost-effective method of actually printing the bills. Assuming access to computer/printer time is not limiting, we would anticipate that the City of Lewiston might be the most cost-effective printing vendor, although private vendors, the Auburn Water District or even other utilities such as Central Maine Power are also reasonable candidates.

We anticipate that it will take six to nine months to go through this process. We would recommend that the communities pilot test it for at least two full billing cycles to make sure that bills are being prepared in an accurate and timely manner. If this generates positive results, then the next step would be to consider establishing a single customer service office where all customer billing inquiries are directed, customers could pay their bills over the counter, and service complaints taken and referred to the appropriate department.

Appendix A
Questionnaire

Lewiston and Auburn, Maine Consolidation Study

Staff Questionnaire
August 1996

In order to evaluate the level of service provided by each of the organizations and to examine opportunities for improvement, we are requesting input and ideas from the staff of all six organizations: Lewiston Water Division, Lewiston Sewer Division, Auburn Water District, Auburn Sewer District, Lewiston Auburn Water Pollution Control Authority (LAWPCA), Lake Auburn Watershed Commission. Please take the time to express your ideas by filling out this questionnaire.

1. Which organization do you work for?

_____Lewiston Water Division
_____Lewiston Sewer Division
_____Auburn Water Department
_____Auburn Sewer Department
_____Lake Auburn Watershed Commission
_____LAWPCA

2. Do you have access to adequate resources to get your job done? If not, what types of resources would help you do your job more effectively (i.e. additional staff, equipment)?

3. What would you recommend to improve operations and increase efficiency in your organization?

4. If the Lewiston Water Division and the Auburn Water Department and the Lake Auburn Watershed Commission were consolidated into a Lewiston-Auburn Water Department:

4a. What would you see as the advantages of such a consolidation?

4b. What would you see as the disadvantages of such a consolidation?

4c. Would consolidation cause customer service to improve or decline? Why?

4d. What obstacles would exist to such a consolidation?

5. If the Lewiston Sewer Division and the Auburn Sewer Department and LAWPCA were

consolidated into a Lewiston-Auburn Wastewater Department:

5a. What would you see as the advantages of such a consolidation?

5b. What would you see as the disadvantages of such a consolidation?

5c. Would consolidation cause customer service to improve or decline? Why?

5d. What obstacles would exist to such a consolidation?

6. Please use this space to express any ideas for improvement, concerns about consolidation, or

other information that would be useful to this analysis.

7. Please check off all areas that directly apply to your job:

____ Watershed
____ Water maintenance
____ Water meters
____ Chemical feed facility
____ Water laboratory analysis and sampling
____ Management of water system
____ Sewer collection maintenance
____ Wastewater treatment plant operations
____ Wastewater treatment plant maintenance
____ Wastewater treatment plant laboratory analysis and sampling
____ Wastewater treatment plant sludge disposal and composting
____ Wastewater treatment plant management
____ Wastewater treatment plant collection management
____ Business office

9. How many years of experience do you have?

10. Estimate what percentage of time you spend on the following general activities in a typical week:

____ Management
____ Business office
____ Installation of new pipes, equipment, meters, etc.
____ Emergency repairs: main breaks, cave-ins, equipment breakdowns, etc.
____ Routine maintenance: hydrant painting, raising utilities, equipment repair, fix curb boxes, transfers services, etc.
____ Preventive maintenance: hydrant flushing, sewer flushing, scheduled equipment servicing, etc.
____ Routine operations: oversee treatment process, give locates, maintain chemicals, maintain/check pumping stations, etc.
____ Other_____
100% Total

Appendix B
Workshop 1

Summary of Workshop 1
on
Lewiston & Auburn, Maine Cooperation and Consolidation Study

Staff Workshop on Cooperation and Consolidation Opportunities
Friday, September 27, 1996
8:00 AM to 11:30 AM
Location: Lewiston Department of Public Works

Purpose

To identify and evaluate interim opportunities for cooperation/consolidation of activities among LAWPCA, Auburn Water District, Auburn Sewer District, Lewiston Water Division, Lewiston Sewer Division, and Auburn Watershed Commission, using input from a cross section of staff from all six organizations.

Participants

Camp Dresser & McKee Inc. (CDM): CDM is an environmental consulting firm headquartered in Cambridge, Massachusetts hired to evaluate cooperation and consolidation opportunities for the six organizations. Three people from CDM facilitated the workshop: Joseph Ridge, Peter Fairchild, and Hilary Thomas.

Lewiston and Auburn: Supervisors and staff representing various functions within each organization. Attached is the list of participants.

Summary

Norm Lamie and Chris Branch opened the session by stressing the importance of the study and the interest in having input from the staff. They stated that no decisions have been made about consolidation and that Camp Dresser and McKee Inc. (CDM) was hired to conduct a study and make recommendations. After the opening welcome and comments, Norm and Chris left the workshop to encourage more open exchange of ideas, and returned at the end of the morning to receive a summary presentation.

Joe Ridge, Project Manager from CDM gave a brief overview of the project tasks and current status. During the last few months, CDM, Lewiston and Auburn have been working together to

develop "functional budgets" for the individual organizations. This process involves collecting the actual operational budgets of each organization, defining generic functional categories (such as Management, Metering, etc.), and reallocating the actual budgets to form functional budgets. The purpose of this exercise is so that an "apples to apples" comparison of costs can be made between organizations, rather than "apples to oranges". We now have an understanding of specific costs in each organization, and can look at whether or not costs are comparable or cost savings can be realized.

Hilary Thomas, CDM, provided an update on the questionnaire sent to all employees. Of the 80 questionnaires mailed out to all employees, 28 were returned, representing a 35% success rate. Questionnaires were received from the two cities and LAWPCA, thereby representing a good cross section from all staff. Responses were varied, ranging from people airing concerns, to specific suggestions for improvement options. Some of the most detailed responses were received from people that had worked at one time or another for another of the six organizations. We have not completed evaluating the questionnaires, and are still accepting any late arrivals.

Workshop Session 1: Peter Fairchild, CDM led the discussion with initial comments on change. People generally react to change with the following emotions, usually starting at (1) and progressing through to (4). The charge to the participants was to set aside the tendency to deny or resist changes, and at least during the workshop, explore the possibilities.

(1) Deny	(4) Commit
(2) Resist	(3) Explore

The intent of Session one is to receive input and feedback from the staff to three basic questions: Why is there interest now in consolidation? What are the possible benefits? What are some possible opportunities? Comments and suggestions from participants are summarized below:

Why the interest?

- Economy--in general
- Save money for the ratepayers
- Potentially lower rates
- Political interests (such as the Lewiston & Auburn Task Force)
- Potential to increase revenues
- The concept of downsizing (currently, some jobs are left unfilled, people are working longer hours, no new people have come into the organizations recently)
- Keeping up with technology changes
- Advantages for funds and grants to larger, more comprehensive agencies

What are the possible benefits?

- Improve customer service
- More efficient management
- Can support expensive equipment and services better with a larger user base
- Chance to improve public perception about the job being done now
- Access to additional resources.
- Ability to do things that cannot be done now:
  - preventive maintenance
  - more efficient procurement of equipment and supplies
  - single emergency response team
  - could work more in watershed and on water quality issues
  - could work more on cross connections
  - develop a more proficient and more specialized staff
- More education, new skills, different hats
- Personal growth, benefits, money

What are some possible opportunities? (The responses to this question were categorized by the functional categories being used in the study for comparison of costs among organizations.)

Management

- Management training
- Single point for decisions (clearer direction)
- More efficient use of supervisors time--instead of doing paperwork they could be out supervising
- Too many chiefs as it is
- LAWPCA is already consolidated--but maybe could consolidate with the sewer departments

Lab

- Single lab manager position would save money
- Water and sewer labs should be kept separate
- Could consolidate chemical supplies and equipment (so there would be bigger purchasing power), and bidding
- One database to see big picture for all results--would help to track problems through the system
- One quality control manager as well as lab manager to overlook contract lab services

Crews

- Could be large enough to develop specialized crews (eg. 2 pipe laying crews, 2 maintenance crews, 2 service crews)
- Materials are not always available when needed; could use a better inventory control system

Administration and Support

- Better purchasing procedures
  - sources
  - procedures
  - red tape
- Consolidation of purchasing functions (LAWPCA is currently autonomous)
- Inventory and supplies system is inadequate
- Computers are old and unreliable
- Each office has different technology (hardware, software); could use consistency, one accounting software package
- Could combine human resource functions to administer benefits, payroll, etc.
- Marketing/sales efforts could be combined
- Could use single safety director

Legal

- Could use a dedicated lawyer with environmental expertise
- Lewiston receives help from City (but not environmental lawyers)

Metering and Billing

- Billing cycles are quarterly, but preparation of bills is different (Lewiston prepares bills weekly, Auburn prepares bills monthly)
- No sewer meters (although some industries have them)
- Auburn is mostly automated, Lewiston is about 50% automated
- Lewiston has both Neptune and Rockwell meters, Auburn has all Rockwell

Collection/Distribution/Pumping Operation and Maintenance

- Could have one CSO team for sampling (both Lewiston & Auburn will need to address this)
- Pump stations on both sides are similar (Auburn has 23, Lewiston has 12); could develop same maintenance procedures; could have 2 person crew to do pump station maintenance year round
- Pumping and chemical feed already consolidated; share purchases such as chlorine
- Auburn is currently evaluating combining their alarm system with SCADA
- Potential for common SCADA system

- Train in-house for SCADA, instrumentation, electronics
- Specialized, professional crews will mean increased staff

Treatment Operation and Maintenance

- Lewiston & Auburn water treatment will be combined in three months, when the common intake is complete, and will be using same wet well and disinfection facility
- Jointly maintain two waivers from filtration
- Snowplowing/sanding
- Use LAWPCA compost for backfill
- Combine equipment for confined space entry

Workshop Session 2: For this session, the participants were grouped into three groups by common or similar functions, as follows:

- Service Groups: Lab, Business Office, Technical, Supervisory
- Collection & Distribution O&M: Treatment Operations, Treatment Maintenance, Meter Repairs, Pump Station/Instrumentation
- Field Crews: Distribution Crews, Collection Crews, Meter Reads

These groups individually extended the Session 1 discussion to further examine opportunities for consolidation within their functional areas.

The Service Groups confirmed the potential areas for further examination as stated in management, lab, administrative and support, legal and metering and billing opportunities described above.

The Collection and Treatment O&M Group reviewed the previous discussion and recommended the following as the most likely areas for further study:

1. Combining purchases, especially chemicals and supplies.
2. Look at common or very similar pieces of equipment (eg. pumps, valves) and consolidate maintenance and repairs.
3. Consider common repair shop.
4. Consolidate snow plowing, other similar activities.
5. Explore the common and expanding need for electronics and instrumentation, especially for software and systems expertise.
6. Look at consolidating emergency response/confined space entry/chemical spill teams (not equipment).
7. Use LAWPCA compost system-wide.
8. Several issues and concerns were raised:

-Can you successfully reduce round the clock coverage at LAWPCA?
-Can you free up resources to do other tasks? (Need much more preventive maintenance of pump stations.)
-What about differences in ways different entities do things- this is a barrier to flexibility in work assignments.

The Field Crew Group: This group reinforced the current situation; limited resources with little or no slack time (summer construction plus numerous breaks in the winter). Also, there are major difficulties in combining union and non-union work crews. The group identified several options for improving customer services that should be considered: more utilization of the VacHaul truck, possibility of TV inspection vehicle and more uniform SOPs.

The morning was completed with the return of Chris Crovo and Norm Lamie, and Myron Eames for summary of the workshop sessions and discussion. It was agreed that all staff would receive these workshop meeting notes, and that a second workshop would be scheduled during October or November to further discuss cooperation and consolidation opportunities. Further, CDM provided the mailing address and telephone numbers for all staff to send in further comments if they choose to do so.

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Appendix C
Workshop 2

Lewiston & Auburn, Maine Consolidation Study
Workshop 2: Obstacles to Consolidation
November 13, 1996
Meeting Notes

1. *Watershed Protection:* The importance of the protection for the filtration waivers was discussed. Filtration waiver loss translates to a $30 million expenditure. Two areas of desired change in the current charter were indicated: territory (city corporate limits, South Auburn is not included) and representation (allow for appointments from Lewiston City Council). Consolidation would re-open charter and changes would be made through an act of legislature. Note that it would put other items in the charter at risk for change.

2. *Political Issues:* Lewiston councilor said the twin cities are blessed with cooperation between the two councils. Politics are not an obstacle to consolidation. Tax dollars can be saved through combined efficiencies; need to prove to public we are seeking to improve efficiencies.

3. *Labor Issues:* Converting all staff to either union or non-union is not an insurmountable problem. This was accomplished with the consolidation of 911: 911 now operates as a stand alone entity, converted all to one union (Auburn was non-union, 2 other unions were involved), took 2 years in negotiations, staff was reduced from 20s down to 13, staff knew it was coming, it proved a significant cost savings, job classifications were homogeneous (unlike water and sewer), now improved operations, police and fire are cross trained, spent money on computer system but were going to replace equipment anyway. Current situation more complex because of different job classifications. Labor issues as insurmountable, as long as crew members are not cut.

4. *Loss of Control:* If there was a single entity, each city would only have half the representation and would forfeit some direct control.

5. *Bonding Issues:* Lewiston current bonds water and sewer improvements as part of City package, which are backed by City's $56 million budget. Auburn uses revenue bonds, and have received a good rating when going through Main Bond Bank. Some confusion on whether or not Lewiston's GO bonds are backed by the City. Apparently, the water and sewer bonds get same rate as City, so must be backed by City's GO credit. They may be double-backed bonds. Lewiston's required rates increases have been sold to the City Council by explaining that without them, they would run a deficit.

6. *Increased Responsibilities:* Responsibilities of the entities have increased over time due to regulations. This is difficult given the pressure to hold down rates. It's always a balance to meet these conflicting needs.

7. *Formalization of Consolidation:* Findings of the L/A Together Process indicated that cannot rely on personalities for cooperation, and that the procedures need to be formalized for longer term effectiveness. Consider written agreements.

8. *Programs:* There is not yet a formal agreement for the (under construction) joint intake and (proposed) chemical feed facilities. The stormwater management approach is different in each city. All CSOs will eventually be separated, which will create a need for storm drain maintenance. This will create a problem for each City where there are limited resources. Concern that if City's systems are combined, it may trigger additional NPDES regulations (which are based on population).

9. *Timing:* How soon consolidation might occur?; it could be a long time to go to full consolidation.

10. *Interim Steps, Sewer Preventive Maintenance:* Sewer preventive maintenance is the lowest priority in both cities. With proposed CSO BMPs and 9 minimum controls, attention will be required as cities will need to consistently sample and monitor. CDM proposed creating a joint sewer management team, that would be operated out of LAWPCA, which would be headed by a CSO coordinator for the two cities, which would retain control of the VacHaul for dispatching. Concerns and issues raised included:

    - Lewiston spent $160K on VacHaul and would want reimbursement if turned equipment over to LAWPCA.

    - Auburn currently has a small trailer-mounted cleaner/flusher, and periodically contracts out for VacHaul. Both this equipment and the VacHaul could be used by staff for sewer maintenance.

    - Need a clear definition and understanding of CSO goals in each community. Need understanding of where the regulations are heading.

    - Need consistent policies and procedures between cities.

    - Don't rule out contracting out for some services, if appropriate.

    - Other sewer maintenance areas include TV inspection and main lining.

    - Ok to handle a specialized unit, but that the sewer and highway departments are more suited to do pipe installation; capital work should therefore stay with them.

    - Currently, Auburn has 3 people dedicated to sewer, Lewiston has none dedicated. Lewiston plans to dedicate 2 people to sewer next year, and will consequently give up some water projects.

- Note that efficiency can be achieved, even without cost savings. If dedicating people to sewer maintenance ensures that CWA requirements will be met, this is efficient and while does not directly translate to cost savings (no loss of staff), it may indirectly translate to cost savings (no fines for NPDES violations).

11. *Interim Steps, Meter Reading and Billing:* It is clear that there are significant differences in how billing is done between 2 cities. In Lewiston, there are 3.5 staff in the business office (4.5 if inventory is included) for billing. The city offices fill the gap on other functions such as auditing (city finance), bonding (treasurer), purchasing (purchasing), payroll (public works). In Auburn, 4 people handle all these functions. If functions combined, there would be a learning curve. City councilors say that is acceptable. Do not want to sacrifice customer service. City councilors inquired about meters: are they the same between the 2 cities, if not, why not, can they be the same? Auburn changed out the entire system (1987) to all remote reads. They are converting some meter reading to radio reads. Auburn uses all Rockwell meters. Lewiston has about 2/3 remote reads; of those, some are Rockwell and some are Neptune. They have a reader that can read both Rockwell and Neptune. (Auburn's reader can probably only read Rockwell). The previous council in Lewiston encouraged meter replacements to go to the lowest bid--resulting in using more than one kind of meter. It would cost to convert all to Rockwell. If convert both cities to radio reads, only 1 meter reader would be required (radio reads are the quickest, followed by remote, followed by in-house reads).

12. *Interim Steps, Inventory Consolidation:* Currently, Auburn uses a just-in-time (JIT) inventory system. This means 24 hour service, they can minimize their required inventory, and they are guaranteed the parts they need (within few hours) because their supplier has an extensive database. Lewiston currently carries inventory they don't need, because it takes 10 days to restock items. If in the middle of a job, they cannot wait 10 days to receive a part and therefore must make sure they have sufficient supplies on hand. Inventory requirements do not overlap with LAWPCA.

13. *Interim Steps, SCADA and Electronic Support*: Auburn's equipment is 20+ years old, and they plan to upgrade to SCADA. Lewiston currently contracts out instrumentation and repairs to the tune of $12K per year.

14. *Interim Steps, Lab Consolidation*: Combining water and sewer labs seems unlikely because of (1) different certification requirements, and (2) perception of testing water near wastewater; however this shouldn't be ruled out for the long term. It seems reasonable to combine the water labs together.

Where do we go from here? Need to complete the benchmarking. Need to write a report which includes a map of interim steps, and the merits to full consolidation. Two cities are ahead of the game compared to other utilities around the country. Councilors stressed that we need to keep the momentum going, formalize agreements where appropriate, and be clear on goals including a

vision statement.

From Flip Charts

General comments:

- If you are already cooperating, should document it.
- If we find areas for consolidation, cities will be supportive of these efforts (if we can prove it)
- Is there cost advantages to consolidating CSO program (advantages to both cities)?
- If so, could combine entities and charge both cities for service (like ASD and AWD)
- Both cities need to back up bonds (eg watershed association)
- Need to charge out services-not a single fund-differences in systems
- How significant are the systems and system requirements

Union vs. Non-Union Issues

- Similar issues with all
- Stand alone entity, 30% staff reduction
- Union staffed (representation changed)
- Must deal with union issue (but it is not an obstacle)
- One homogeneous job classification
- Police and fire consolidated into one (4 into 1); contact Dennis Jean for more details
- Picks up coverage at night and weekends for DPW

General comments

- If a combined entity, what are City Council's reaction to appointing board members to multi-jurisdiction board?
- Auburn has an independent board now (AWD and ASD)--has common members on both boards, City Council rarely gets involved
- May be some advantage in consolidating bonding for bond rating (take advantage of city rates)
- In Lewiston, city council sets rate increases and tax increases
- Currently city cooperating is high, both councils support cooperation
- New program requirements: SDWA, CSO, watershed management
- "These challenges are part of the mix, these are challenges to the management of these agencies"
- More efforts in consolidation will help minimize increases in costs and staffing (eg common water intake). There is currently a high level of trust on day to day working level but may need to have some level of formality to protect the cooperation in event of future political priorities and philosophies.

Stormwater management programs (CWA)

- Auburn comments: As CSO programs are implemented, means more and more storm drains to maintain (by the City of Auburn, subject to limited resources)
- Lewiston comments: CSO paid by taxes (this is changing in Auburn too). If consolidated and exceeds 50,000 populations, new requirements come into play
- Lewiston comments: More coordinators of storm sewer work (with more resources)
- Auburn comments: Little coordination of storm sewer work between sewer and city
- How soon do we need to show results? And how can we get some more immediate results? Build on strengths of individual entities (and charge out for these services, if applicable)

Interim Steps

- Sewer Preventive Maintenance: Currently a low priority. Needs are increasing. Option: Joint CSO Authority.
  - Joint CSO Operation: Operationally similar to LAWPCA. Could be run from LAWPCA. Manage VacHaul equipment utilization. Single CSO coordinator position. Consolidate pump station maintenance and repair. Consider: clear understanding of CSO program goals in both cities (esp in Auburn). Both sides have policies and procedures, need to be consistent, if not the same. Don't rule out contract operations for some of the new work.
  - Concerns include: LAWPCA not set up to deal with piping and physical installation of sewers, ok for maintenance, including pump stations. Crews are utilized fully now, adding more sewer work won't solve the problem of insufficient staff. There currently are not enough people to do the sewer work that is supposed to happen 1/1/97. May build up a cadre of skilled "sewer people" who can fill in on sewer work in both cities. Compare extra costs for consolidated new activities vs. costs for both cities doing new work on their own.
- Billing/meter readings/collections: Computer system could handle a variety of billing cycles, reading inputs.
  - Difficult to maintain high level of customer service (will still need to maintain current level of customer service).
  - What about uniform metering and meter reading? (radio reads may allow for more consolidation)
  - Consolidated common inventories need to be developed.
- SCADA and Instrumentation Support
  - Specialize need common to both cities--need dedicated specialist
  - Auburn considering upgrading to SCADA system--who will support it? What common software? Should it be a common system or two compatible systems?
- Common HazMat Crew:
  - To extent possible, have a single crew, trained on all the sites in the L/A area. Have common equipment where possible.

Need to present ways to keep the positive cooperating going. Maintain gains in customer service, efficiency and costs.