THE EDWARD J. COLLINS, JR.
CENTER FOR PUBLIC MANAGEMENT

MCCORMACK GRADUATE SCHOOL
OF POLICY AND GLOBAL STUDIES

University of Massachusetts Boston
100 Morrissey Boulevard
Boston, MA 02125-3393
P: 617.287.4824
www.collinscenter.umb.edu

Management Assessment of the Public Works Department

TOWN OF MARSHFIELD, MASSACHUSETTS

FEBRUARY 2013

UMASS BOSTON

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A. INTRODUCTION AND EXECUTIVE SUMMARY

This report presents the results of the management assessment of the Marshfield Public Works Department conducted by the University of Massachusetts Boston's Edward J. Collins, Jr. Center for Public Management ("the Center").

This first Section introduces the analysis – outlining principal objectives and how the analysis was conducted – and presents an Executive Summary.

1. AUDIT SCOPE AND OBJECTIVES.

The project team conducted a comprehensive organizational and management analysis of the Department's existing operations, service levels, infrastructure management, organizational structures, and staffing levels. The analysis was fact-based and included all aspects of service provision by the Department. The analysis focused on:

- Organizational structure, including the division of labor, manager/supervisor spans of control, and potential for consolidation of currently-separate functions;
- Effectiveness of staffing levels including, but not be limited to, staff assignments, workload, training, and cost-effectiveness of service levels and service delivery; and
- Benchmarks and other objective indicators of program effectiveness.

The approach of the project team in meeting this scope is described below.

- Developed an understanding of the key issues impacting the Public Works Department. The Center conducted interviews with Public Works Department management and staff, as well as with the Town Administrator and staff in other Town departments. Interviews focused on goals and objectives, management systems, the use of technology, the levels of service provided by the Department, the resources available to provide those services, etc.
- Developed a descriptive profile of the Public Works Department. The Center conducted interviews with Departmental managers and staff to document the current organization of services, the structure and functions of the Department, budgets, workload data, management systems, inventory of the infrastructure, etc.
- Compared Public Works Department programs and practices to 'best management practices.' The best management practices included the American Public Works

Association's, *Public Works Management Practices Manual*, standards developed by the American Water Works Association, and the experience of the project team.

- Evaluated the staffing, organizational structure, and service levels in the Public Works Department. This included interviews with key staff to develop an understanding of the current service delivery model, evaluation of the adequacy of current service levels, work practices, work planning and scheduling systems, productivity and staffing levels, the plan of organization, and asset management.

The objective of this assessment was to identify opportunities for improvement in the operational, organizational and economic efficiencies of the Department, and to identify practicable opportunities for enhancing the quality of its and services.

2. THE PUBLIC WORKS DEPARTMENT FOLLOWS NUMBER OF BEST PRACTICES.

An organizational and management analysis by its nature focuses on opportunities for improvement. However, there are a number of strengths in the Public Works Department. Examples of these strengths are portrayed below.

- The Equipment Maintenance Division employs a preventive maintenance program that appears to be administered in accordance with the prescribed schedule.

- The Town has replaced its distribution infrastructure in an exemplary manner. The Water Division experienced only four water main break last year, which is well below the expected frequency for a system with over 200 linear miles of line.

- The Water Division is replacing its water meters with meters that can be read and recorded remotely.

- The Department has recently purchased a bucket truck that will allow it to trim trees at heights not previously possible with in-house personnel.

- The Recycling Unit employs a number of best practices related to disseminating information, programmatic initiatives, and the utility of its website.

These strengths provide a sound basis for further enhancements.

3. IMPROVEMENT OPPORTUNITIES.

The assessment of the Public Works Department identified many recommendations for improvement that the Center believes should provide the basis for positive change in the coming years. These recommendations fall into four major improvement areas including:

1. Management systems;

2. Preventive maintenance;

3. Organizational transition; and

4. Cost effective service delivery.

Each of these major points in the improvement agenda are briefly summarized below.

(1) Management Systems

The driving forces behind any high-performing organization are clear direction and the management systems that communicate and translate policy into action. The Public Works Department has experienced a high degree of top-level management turnover in the past several years, and this has not fostered either clear and consistent direction or any commitment to management systems. The current Department Superintendent has some experience in the use of automated management systems and has made it clear that these will be installed in the near future. Generally, however, at the current time managers and supervisors have little information available through automated and summarized means with which to make key service delivery and budgetary decisions.

The Public Works Department faces a number of challenges in using its resources more efficiently and effectively, and more importantly, in redirecting resources and investing in maintenance and preservation of the Town's assets. The Department is limited in its ability to address these challenges as a result of the lack of management systems and, in some cases, the lack of functional expertise in critical areas, which the project team addresses in this report.

The management of the Public Works Department needs to enhance the management systems within each of its respective divisions through such steps as:

- Investing in a new, standardized computerized maintenance management system (CMMS) to lay the foundation for a standardized approach to work management and for data accumulation. The Superintendent has indicated that a CMMS will be purchased and installed; however, this had not been effected during the time of the project team's on site work.

- Developing formal work planning and scheduling systems;

- Developing comprehensive goals, objectives, performance measures and reporting systems.

The Public Works Department should employ these management systems to make its respective divisions places where performance is centered around goals that serve to drive their operations.

(2) Preventive Maintenance of the Infrastructure

Marshfield taxpayers have a significant investment in buildings, parks equipment, streets, sidewalks, traffic signals, water and wastewater utilities, collection systems and distribution systems, as well as stormwater collection systems, sea walls, and other structures. Preserving these assets prolongs their useful lives and reduces their long-term maintenance and rehabilitation costs. This is the primary objective of preventive maintenance.

The lack of a comprehensive work order management system prohibits the determination as to whether the Public Works Department is preventively maintaining the Town's infrastructure on a comprehensive basis. So, for example, although it is reported that the collection system has been video-recorded to some degree to determine the degree of infiltration and intrusion, there is no documentation of the precise locations, and there is no plan of action for the inspection of the rest of the system on any systematic basis. Further, there is no record of manhole inspections, gate valve exercising, or other preventive maintenance activities.

The Department should pursue a comprehensive effort to ensure the efficient and effective preventive maintenance of those assets assigned to its respective divisions. This includes such efforts as:

- Developing and implementing strategies for the preventive maintenance of the Town's street system, and expansion of the non-structural overlays such as chip seal;

- Developing and implementing strategies for the preventive maintenance system of the Town's water distribution systems, including valve exercising, fire hydrant maintenance, etc.;

- Investigating opportunities to outsource certain maintenance functions and activities that may be more cost-effectively provided by private contractors.

Preventive maintenance improves an asset's operating efficiency, prevents premature replacement, and avoids interruptions in service for residents. Preventive maintenance reduces long-term costs by maximizing the operating capacities of an asset, minimizing downtime, and

avoiding breakdowns that would otherwise lead to higher repair costs later.

The effective preventive maintenance of these assets must be an essential goal of the Public Works Department – one that is utilized to judge the effectiveness of the Department's management.

(3) Organizational Effectiveness

Optimizing organizational structure is imperative in ensuring cost-effective, efficient, and effective services. A well-designed structure minimizes reporting levels, enhances communications, eliminates duplication and inter-divisional hand-offs, and even reduces cost. The project team has analyzed the organizational structure of the Department, as well as the intra-divisional structures, and has made recommendations in this report that consolidate administrative functions in order to maximize efficiencies and to reduce the overlap of functions.

(4) Cost-Effective Service Delivery

The Public Works Department faces a number of challenges, including fiscal limitations and aging infrastructure. An effective response of the Department to these challenges requires that it transform how it conducts business by installing accountability systems for managers and supervisors, and by reengineering work processes.

The Public Works Department should reduce costs and increase productivity, performance, and service levels by redesigning and reengineering the way some services are delivered. This could entail certain steps, including the following:

- Selective use of contracting out services to evaluate opportunities to reduce costs while maintaining adequate levels of service;

- Ensuring that department managers have access to timely financial data to enable them to manage the budgets for which they have been given responsibility.

The Public Works Department should take steps to assure that it effectively utilizes existing resources, and looks for opportunities to leverage external resources such as private service providers to ensure maximum value and benefit to Town residents.

4. EXECUTIVE SUMMARY

The Center has prepared the following summary of the recommendations and their fiscal impacts contained in the report.

Page	Recommendation	Time Frame	Revenue Increase	Cost Increase	Cost Reduction	Capital Outlay
MANAGEMENT SYSTEMS						
15	The Department should commit to the development of an asset inventory. This inventory should define the asset, its value, its location, its maintenance frequency, its maintenance services, and the individual or division that is responsible and accountable for its maintenance and repair.	12-18 months	NA	NA	NA	NA
17	The Department should invest in a new computerized maintenance management system to develop an annual work program and scheduling plan.	12-18 months	NA	NA	NA	$25,000+
18	The Department should develop a comprehensive set of work activities performed by each division.	12-18 months	NA	NA	NA	NA
19	The Department, in conjunction with the Board and Town Administrator, should define the service levels that are appropriate to be accomplished.	FY14	NA	NA	NA	NA
21	The Department should develop performance standards which outline, for each major activity, the methods of accomplishment, crew sizes, levels of service, the probable materials needed, and the expected average daily production levels to be achieved.	July 2013 to December 2013 (and ongoing)	NA	NA	NA	NA

Page	Recommendation	Time Frame	Revenue Increase	Cost Increase	Cost Reduction	Capital Outlay
25	The Department should develop a formal work planning and scheduling system.	July 2013 to December 2013 (and ongoing)	NA	NA	NA	NA
27	The Department should generate a monthly performance report comparing planned versus actual performance and costs.	Begin FY14 and ongoing	NA	NA	NA	NA
ORGANIZATIONAL STRUCTURE						
33	The Town should create the position of Business Manager to manage the administrative, clerical, and financial aspects of Public Works.	FY14	NA	NA	NA	NA
34	The Department should identify the training needed by administrative and clerical staff, and should seek out opportunities for these employees to attend these courses.	Immediate	NA	NA	NA	NA
35	The Town should convert the position of Secretary in the Public Works Department, which is currently a member of the bargaining unit, to the position of Confidential Secretary that is outside the bargaining unit.	FY14	NA	NA	NA	NA

Page	Recommendation	Time Frame	Revenue Increase	Cost Increase	Cost Reduction	Capital Outlay
36	The Town should consider "insourcing" the provision of facilities management services under the management of the Public Works Department.	FY14	NA	NA	NA	NA
39	The Department should enhance the managerial capabilities currently present at the Parsonage Street garage. This should optimally be achieved through the physical transfer of the Superintendent to that location.	12-18 months	NA	NA	NA	NA
OPERATIONS						
41	The Town should fund the replacement of its fleet on a more timely basis, as the age of the heavy equipment fleet is approaching high levels, and, likely, the expenditures for maintenance and repair are as well.	FY14 and ongoing	NA	NA	NA	NA
42	The Department should investigate the feasibility and cost associated with purchasing and installing a newer version of the automated fuel dispensing system. This system should facilitate the analysis of vehicle and equipment utilization for all units in the fleet.	FY14	NA	NA	NA	$50,000+ Plus any warranties purchased

Page	Recommendation	Time Frame	Revenue Increase	Cost Increase	Cost Reduction	Capital Outlay
43	The Department should implement a more rigorous accounting for vehicle and equipment parts inventory through an automated system that is linked to the Town's accounting software. This system will not only be beneficial in facilitating financial reconciliations of inventory costs and volumes, but will also allow greater management of the parts by identifying high and low-turnover items.	Immediate	NA	NA	NA	Unknown. Investigate whether this capability exists in current financial system
46	The Department should acquire and implement a formal pavement management software system.	12-18 months	NA	$0.09 to $0.12 per yard of pavement	NA	NA
49	The Department should investigate the availability and interest of private cemetery operators in the region in assuming responsibility for operating the seven cemeteries in the Town.	Fall-Winter 2013	NA	NA	TBD. Currently operate at loss of $40,000	NA

Page	Recommendation	Time Frame	Revenue Increase	Cost Increase	Cost Reduction	Capital Outlay
50	The Department should consider outsourcing the street sweeping function.	FY14	NA	NA	TBD. Possibly as much as $35,000	NA
52	The Department should significantly enhance the rules and regulations as they relate to pricing, burial procedures, allowable vegetation and decorations, monuments, and many other pertinent details of the Town's cemeteries.	Prior to FY14	NA	NA	NA	NA
52	The Water Division should eliminate or transfer one Meter Technician position in the short term.	FY14	NA	NA	$59,400	NA
53	The Department should transfer the position of Dispatcher from the office at Parsonage Street into the field.	Immediate	NA	NA	NA	$600-$800 for laptop or tablet for geo-coding assets
54	The Department should implement a fee for inspecting the Town's commercial backflow devices.	FY14	$13,000	NA	NA	NA

Page	Recommendation	Time Frame	Revenue Increase	Cost Increase	Cost Reduction	Capital Outlay
55	The Department should institute a standardized safety training program.	FY14	NA	NA	NA Potential cost avoidance related to injuries	NA
56	The Town should review the uses of the funds collected from the sale of beach stickers, and allocate a portion of these revenues to abate some portion of the expenses related to the Public Works Department's collection and disposal of debris on the beach areas.	FY14	NA	NA	NA	NA
OTHER ISSUES						
58	The Department should institute a formal employee performance appraisal system that evaluates performance in relation to a standardized and consistent set of evaluative criteria.	18-24 months	NA	NA	NA	NA
61	The Department should enhance its divisional web pages to provide more information to users.	12-18 months	NA	NA	NA	NA

Page	Recommendation	Time Frame	Revenue Increase	Cost Increase	Cost Reduction	Capital Outlay
63	The Town should consider whether the current form and scope of the Board of Public Works are appropriate. This should be accomplished during the next comprehensive review of the Town Charter.	Next Charter Review	NA	NA	NA	NA

B. MANAGEMENT SYSTEMS

Management accountability is the expectation that managers are responsible for the quality and timeliness of program performance, increasing productivity, controlling costs, mitigating adverse aspects of agency operations, and assuring that programs are managed with integrity and in compliance with applicable laws.

This section evaluates the management systems and practices within the Department, as well as the management systems infrastructure required to ensure that managers can monitor and report their status and progress against accepted measures of accountability. This includes goals, objectives, and performance measures, and it includes a communication plan designed to inform and engage Town management, staff, and Selectmen.

1. THE PUBLIC WORKS DEPARTMENT SHOULD DEVELOP ASSET INVENTORIES FOR THE ASSETS ASSIGNED TO IT FOR MAINTENANCE AND REPAIR.

Interviews conducted by the project team indicated that although managers and supervisors generally knew the types and volumes of their assigned assets (e.g., numbers of vehicles maintained, number of linear miles of roadway, distribution line, collection lines, pump stations, etc.), there is little recording of some of the substructure (number of gate valves, number of manholes, catch basins, etc.), and no recording of the associated spatial data.

The Public Works Department should develop a comprehensive inventory of its assets. To do this, the Department should identify who will collect the data, and how it will be obtained. Further, there must be a recognition on the parts of managers and supervisors of the usefulness of the data, and that it will be used to aid managers and supervisors in their work. The data should initially be used to develop a preventive maintenance program, which the divisions of the Department have not performed, for the most part, for several years. Interviews indicate that staff believe that corrective actions consume almost all available time; however, the Department should begin to focus more attention on preventive maintenance activities since these will decrease the time allocated to corrective actions over time. In this regard, the Water Division has been fortunate to have replaced much of its infrastructure in recent years; however, not all infrastructure for which other divisions are responsible has been replaced in such a timely manner.

There are many public works organizations in the State and, in fact, across the country, that are in far worse situations than the Marshfield DPW in terms of staffing levels, as recent economic conditions have forced many departments to leave vacant positions unfilled, and even to eliminate staff. Although Marshfield has seen some reductions in Operations in recent years, the overall staffing contingent of the Department is the same today as it was in 2002. Therefore, staffing levels are not the issue when determining whether to make the commitment to documenting asset locations, developing a preventive maintenance program

for these assets, and documenting the maintenance that has been performed. The real impetus for this change must come from managers and supervisors who must, themselves, recognize the managerial and planning benefits of such a system, and make a commitment to instituting the proper rigor and discipline among field staff members to effectuate it. This commitment should precede the purchase and installation of any computerized maintenance management system (CMMS), as the accuracy and usefulness of any data entered into such a system is a direct reflection of the commitment of the personnel involved in its application.

An asset management policy is the starting point for unifying asset management practices across the Department. Without this, alignment and consistent management control is not possible. The Department should develop formal, written policies and procedures regarding asset management that are related to clear goals, objectives, and measures of performance. These should define organizational roles and responsibilities in the implementation of the asset management policy and procedure.

Before beginning the initial asset inventory, the DPW should install and familiarize all data personnel who will be involved in data entry with the software and hardware tools, the required data, and data collection and entry procedures. Training could be provided to all team members. Since the initial inventory will involve manual data collection, the Department could develop electronic forms to gather the information in the field.

Further, the DPW should conduct a pilot program to ensure the asset inventory data collection meets needs and expectations. The assets selected for the pilot program should be limited in size. Once pilot program data are in the system, both the data and the process could be reviewed and quality controlled. Based upon the findings of the pilot project, the Department could revisit the timeframe for collecting the asset inventory data.

Recommendation: Commit to the development of an asset inventory. This inventory should define the asset, its value, its location, its maintenance frequency, its maintenance services, and the individual or division that is responsible and accountable for its maintenance and repair. Further, this inventory system should be accompanied by a system of policies and procedures that define not only the maintenance processes involved in ensuring that its optimum life cycle is achieved, but the labor, materials, and equipment required for accomplishing each maintenance task. This particular element of the recommendation will be addressed in Section 5, below.

2. THE PUBLIC WORKS DEPARTMENT SHOULD INVEST IN A NEW COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM (CMMS).

The Marshfield DPW does not currently have a functioning CMMS. The Wastewater Division does possess the Hach Wymms CMMS that was purchased several years ago; however, even this system is not functioning in that Division, as it is not populated with the inventory of major maintenance systems at the plant and outlying structures.

There are many benefits of a CMMS. These include not just the obvious benefit of tracking and justifying the dates, employees, locations and descriptions of work performed, but they also can be used to define appropriate service levels that are achievable with a given number of labor hours, and at a defined level of productivity. The benefits of increased productivity are that the same work levels may be accomplished at less cost, or more work will be accomplished for the same cost, with work quality remaining constant.

The benefits of effective service-level control are not so obvious. Maintenance managers typically think in terms of increased performance, without considering the impacts on the quantities of work accomplished. For example, if the Department's productivity related to asphalt patching is doubled, should twice as much asphalt patching be performed, or should the resources be utilized to accomplish other required services? In other words, increased productivity is less meaningful if the effort has not been made to identify how much work needs to be performed, and to control that level of service.

The Public Works Department should utilize the maintenance management system to enable the identification of the services provided (e.g., gate valve exercising), the levels of service (e.g., gates are exercised biannually), the outputs of each of these services (e.g., the number of gate valves exercised and the percentage of the total system that this represents), and the cost of those services in terms of the total cost and the cost per unit of output.

This maintenance management system should be a standard one, and one that is utilized within each division of the Department that is responsible for maintaining infrastructure. The components of a successful maintenance management system include the following:

- The number and type of maintenance features (physical assets), and the condition of these features, should be documented. These are major factors in determining the types and amounts of work needed.

- Maintenance management is based upon work activities. Work activities should be defined for the significant maintenance work that is performed. Definitions should include an activity code, title, description, work unit, and inventory unit. Such complete descriptions of activities are referred to as Activity Guidelines and provide standards of performance for individuals and crews by setting forth the quality and quantity of

results anticipated from each activity.

- An annual work program and budget should be prepared. The activity-based work program and budget represent the products of the planning process and summarize the kinds and amounts of work planned, the productivity of the work force, and the costs of the planned work. It also provides the basis for managing the annual work effort.

- An annual work calendar should be prepared showing the monthly distribution of planned maintenance activities. Labor, equipment, and material resource requirements needed to accomplish the planned workload should also be identified.

- Work scheduling procedures should be developed. The preparation of annual, seasonal, and short-term schedules, as well as daily plans, can provide guidance in achieving annual work program goals.

- Reports that will show work accomplishment and cost data, and a comparison of planned and actual work program accomplishment, should be prepared. These should comprise a primary piece of the monthly work report provided by the Department Superintendent to the Board and to the Town Administrator.

- Linking a database and geographic information systems (GIS) provides more options to analyze asset information.

    - A GIS can display asset symbols on a map with links to their corresponding database records. The GIS provides the ability to analyze data based on geographic information, allowing patterns to emerge on a map that may not be as obvious in rows and columns of data.

    - Asset information can be shared in a visual format that is often better understood by others, including the Board of Selectmen and the public.

    - Finding an asset's location is faster and easier with the help of a map.

The steps that need to be accomplished before the automated maintenance management system can be effectively utilized are described in the following sub-sections.

Recommendation: The Department should invest in a new computerized maintenance management system to develop an annual work program and scheduling plan. This CMMS should be the primary vehicle by which the Department reports on work activity and the productivity of the resources utilized in accomplishing work in accordance with the work plan. An added benefit of the system would be its compatibility with the Town's payroll system, which will, in the future, potentially allow for the direct entry of tasks and labor

hours directly into the system in order to monitor and report the tasks in which the Department is expending its time.

3. THE DEPARTMENT SHOULD DEVELOP AN INVENTORY OF WORK ACTIVITIES IT PERFORMS IN THE MAINTENANCE OF ITS INFRASTRUCTURE.

The Superintendent, managers, and supervisors in the Public Works Department should define the work activities performed by their crews, including those that consume the majority of staff work hours and all forms of leave. In other words, all staff hours for each employee's year of work should be included within the system. The work activities need to be carefully defined to assure that the same terminology is used for the work performed by staff, so that the same activity is recorded the same way, and in the same category, each time it is performed. Each of these work activities should define the unit of measure. Examples of work activities and units of measure are provided below.

Work Activity	Unit of Measure
Pothole patching	Tons of asphalt
Base repair	Square yards
Skin patching	Square yards
Catch basin cleaning	Number of catch basins
Sewer televising	Linear feet
Vehicle Maintenance	Preventive labor hours, unscheduled labor hours

Some divisions of the Department currently at least capture the fundamental elements of a particular task in manually-completed work sheets. However, the project team recommends going another set of steps in these divisions to ensure that the work activities used are comprehensive and meaningful in terms of their usefulness in management decision-making. Further, the data collected on these manual sheets should be entered into a CMMS.

Recommendation: Develop a comprehensive set of work activities performed by each division in the Public Works Department.

4. DEFINE THE LEVELS OF SERVICE TO BE PROVIDED.

It is common in Public Works operations to assume that the unpredictability of work and work locations makes annual planning infeasible or, at best, a widely varying target. While the basic "unpredictability" assumption is true, it does not negate the value of planning efforts related to historically-probable events. The project team has noted the fact that activities *are* being accomplished in the field, and are generally being accomplished in a low-cost manner. However, there are at least three concerns regarding the accomplished work that the project team noted during the conduct of the study. These include the following:

- With relatively few exceptions, the activities performed the DPW appear to be performed almost solely in reaction to requests for services. The Equipment Maintenance section preventively maintains vehicles and equipment, and the Water Division reports that it exercises gates as it can; however, there is largely no orientation toward proactive maintenance of the infrastructure.

- Managers have not actively sought information which would enable them to anticipate workloads, location and timing of services, and staffing needs for the various crews under their supervision.

- Managers in some operational areas lack the functional expertise required to act in the capacity of directing field operations, and some who possess field expertise are not experienced managers.

Although each of the above issues present separate problems, they are related insofar as the lack of historical workload measurement data prevents the establishment of meaningful targeted service levels for the Department. In order to define what impacts resource additions or reductions will have upon work output and service levels, it is imperative to possess the data that will facilitate the analysis.

Levels of service should vary depending on the type of infrastructure and intensity of use. For the purposes of maintenance management, service levels must be specific. Examples of specific service-level standards in parks maintenance might include the following:

- Turf area to be mowed weekly during dry season – grass height 2".

- Fertilization of the turf area should be completed with a balanced fertilizer such as 16-6-8 annually once during the summer.

- Turf aeration should be completed during the spring while the grounds are still soft from winter moisture.

- Swings and play equipment shall be inspected on a weekly basis and serviced if required.

Some judgment will be needed in applying the standards, but they should provide specific and useful guidelines in terms of what maintenance should be performed and what maintenance can be deferred. These standards are useful in determining the amount of work needed to attain desired levels of service. In some cases, these standards will also need to be expressed quantitatively as well.

Recommendation: The Department, in conjunction with the Board and the Town Administrator, should define the service levels that are appropriate to be accomplished.

5. THE DEPARTMENT SHOULD DEVELOP PERFORMANCE STANDARDS.

The next step in deploying a maintenance management system is to define the work to be done. The work must be identified in terms that are measurable and that can be related to resource requirements on a consistent basis. The work activities should be identified by name (such as pothole patching). These specific work activities account for most of the annual workload – typically 85% to 90%. The remaining 10% to 15% of the workload is usually comprised of relatively minor activities that can be grouped as "miscellaneous." Examples will depend on the specific work types of the Department, but may include seldom-performed activities such as fence installation or repair, transporting items between buildings, etc.

A standard should be developed to define a level of service for a specific activity. That is, the standard is used to define the amount of work that needs to be done to provide the desired level of service. These are established largely on the basis of experience; however, best practices in the industry can be utilized as guides as well. Once established, a value can be used as a standard and may be adjusted upward or downward to raise or lower the level of service for, for example, pothole patching.

These standards are used to define the best way to accomplish each activity. The optimum crew size and equipment complements are specified, along with the major materials needed and the preferred procedure for doing the work. Also, the expected amount of work to be accomplished each day is specified, based on using the standard over a period of time under average conditions. With a total of 73 employees, Marshfield's Public Works Department is relatively small, and it is more the rule than the exception that the work of a specific crew is interrupted to respond to either an emergency or to an activity with a higher importance. Therefore, it may be more meaningful for the Department to express expected work outputs not on a daily basis, but on a half-day, or even hourly, basis. Whatever output basis is selected, each standard should include at least six components:

- A brief description of the specific work involved – the work that is to be performed by the crew;
- The frequency with which the work should be performed (or the level of service) and the criteria for scheduling the work;
- The crew size required for the job;
- The equipment, material, and tools needed;
- The performance expectations for each job or average daily productivity; and
- The recommended procedures for completing the job.

A sample performance standard for cleaning culverts and pipes is presented in the exhibit on the following page.

Recommendation: Once all activities have been defined, performance standards should be defined, which outline, for each major activity, the methods of accomplishment, crew sizes, levels of service, the probable materials needed, and the expected average daily production levels to be achieved. A sample of such a performance standard has been provided.

Example of a Performance Standard
EXHIBIT

SAMPLE PERFORMANCE STANDARD FOR THE OPERATIONS DIVISION

<table>
<tr><td>Activity No.:

S-001</td><td>Activity Name:

Gravel Replacement</td></tr>
<tr><td colspan="2">Description and Purpose:
Blading and compacting gravel roads to restore cross section and grade, with the addition of crushed or screened rock to fill low spots and replace lost material.</td></tr>
<tr><td colspan="2">Schedule

Perform on areas with severe potholes, washboard, rutting, raveling (loss of fines), or base rock showing. This typically should occur during months of relatively calm and cool weather, such as March, April, September, October.</td></tr>
<tr><td>Authorized by:

Superintendent</td><td>Level of Service:

Ensure smooth transportation over gravel roads. Should perform once per three months, or as significant wash-outs occur.</td></tr>
<tr><td>Crew Sizes:

1 MEO 3
1 MEO 2

Equipment:

1 Grader
1 Pickup
3 Dump Truck
1 Street Roller
1 Water Truck
1 Loader</td><td>Work Method:

1. Regraveling is performed when planned
2. Perform on roads which have lost a considerable amount of gravel
3. Place safety sign as necessary
4. Water road throughout operation
5. Blade surface material from road edges to center
6. Spread gravel along center
7. Blade and smooth to proper crown and grade
8. Compact surface and remove signs</td></tr>
<tr><td>Material:

150 cubic yards of 5/8” crushed gravel</td><td>Average Daily Production

150 cubic yards</td></tr>
</table>

6. DEVELOP A FORMAL WORK PLANNING AND SCHEDULING SYSTEM.

This task involves the development of a formal work scheduling system, the objective of which is to ensure that the planned amount of work is done. After the annual work program is approved, division supervisors must have a simple method of authorizing and scheduling work to ensure that the work program is carried out as planned. Usually, monthly schedules are prepared, using the annual work calendar as a guide. To the extent possible, the planned work should be carried out and every effort should be made to stay on schedule.

If activities such as storm damage repairs and cleanup, snow removal, etc., are greater than planned, the work program will have to be adjusted or additional funds will be requested to complete the planned work.

A sample annual work program for the Operations Division is presented in the exhibit on the following page.

The project team examined the work activity reporting forms that each of the operating divisions utilizes currently. (For illustration, three of these are provided in Appendix D of this report.) While each does, in fact, capture the basic elements of the work (e.g., date, crew member, activity, location), they do not capture labor hours or materials and equipment used, and they are not input into an electronic work order reporting system to summarize the types of activities and the time expended on the various sub-elements of the jobs. Further, the activities are simply described in free-form text, leaving open the possibility that the same activity could be described differently depending upon either the day or the individual assigning the work.

The only automated system by which work is received and reported in the Department resides in the Highway garage, where the Dispatcher receives calls either requesting work or reporting problems. These requests may be received from the public, from internal Town departments, or even by the division performing the work. The Dispatcher receives the call, logs the request/problem in the "Work Request" (see Appendix C), and completes some of the forms as the work is called in as being completed. The Dispatcher reports that these forms are completed most consistently for Water Division work, but seldom for Highway Division work. In no case is the work summarized in any meaningful way in order to determine where crews are expending time.

Exhibit

Sample Annual Work Program for the Operations Division

	Labor Days		Amount of Work		Total Cost		Productivity	
Work Activity	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
Gravel Replacement	55	61	8,250 cubic yards	9,113 cubic yards	$1,230,000	$1,333,440	150 cubic yards per day	149.3 cubic yards per day
Culvert Cleaning	62	55	1,240 culverts	1,266 culverts	$18,848	$16,720	20 culverts per day	23 culverts per day

This exhibit is only an example and is not based on actual data from the Town.

In short, the data that are being recorded are sufficient only to record the completion of an event, and the likely location of a specific crew member on a particular day. Each division should begin the accumulation of the major work activities performed and should begin to categorize these to facilitate analysis. The project team has provided a sample of these work activities for the Streets Division on the next page. This sample is not intended to be a full listing of the activities performed by the Highways section, but rather is provided in order to facilitate the process of determining the types of activities each division should be developing, and at what level of detail.

Although the presence of a manual work activity system such as is present in the Public Works Department's component divisions currently is an excellent step, none of the data are being used to define the desired levels of service that *should* be provided.

Recommendation: The Department of Public Works should develop a formal work planning and scheduling system.

Exhibit

LIST OF MAINTENANCE ACTIVITIES FOR STREETS DIVISION

Work Inventory

4002.100 Street Maintenance

Code	Activity Description	Unit of Work	Unit of Inventory
.111	Gravel replacement	Cubic Yards	Road mile
.112	Pothole repair	Tons	Paved road mile
.113	Crack sealing	Hours	Paved road mile
.114	Blade patching	Tons	Paved road mile
.115	Seal coating	Tons	Paved road mile
.116	Shoulder maintenance	Shoulder miles	Shoulder mile
.117	Shoulder repair	Cubic Yards	Shoulder mile

4002.200 Drainage

Code	Activity Description	Unit of Work	Unit of Inventory
.211	Ditching with grader	Ditch mile	Ditch mile
.212	Ditching with ditcher	Ditch foot	Ditch mile
.213	Culvert cleaning	Culverts	Culverts
.214	Culvert repair/replace	Linear feet	Culverts

4002.300 Structures

Code	Activity Description	Unit of Work	Unit of Inventory
.311	Bridge maintenance	Hours	Bridges
.312	Bridge repair	Hours	Bridges

4002.400 Traffic

Code	Activity Description	Unit of Work	Unit of Inventory
.411	Sidewalk maintenance	Hours	Sidewalk segments
.412	Special purpose paths	Hours	Paths
.413	Sign maintenance	Signs	Signs
.414	Guardrail maint/repair	Linear feet	Road miles
.415	Snow/ice control	Hours	Road miles

7. A MONTHLY PERFORMANCE REPORT SHOULD BE GENERATED COMPARING PLANNED VERSUS ACTUAL PERFORMANCE AND COSTS.

This last step of the planning and work programming initiative involves the development of a work reporting system. Manual daily production activity reporting sheets are being used in the component divisions of DPW to track labor, locations, and dates for maintenance activities. These log sheets should be standardized among all divisions, as there are multiple forms utilized currently. This will become a relatively important facet of operations as the Department makes the transition to a common CMMS, as the standardized form will facilitate input by clerical staff. The Superintendent and division managers and supervisors should promptly review these work reports to ensure that they were completed properly and to determine if the performance standards were substantially followed, and to make a determination as to the reasonableness of the units of measure accomplished during the day. Significant variations should be followed up to determine the cause and, if necessary, take corrective action.

A system should be developed to summarize the daily work reports on a monthly basis to produce performance measurement reports. The Superintendent should be required to provide a monthly status report to the Town Administrator and Board of Public Works, which should be more than a simple statement of the work that was accomplished. It should reflect not only this, but also the efficiency and effectiveness of the resources utilized, and the degree to which the actual performance met the objectives stated in the monthly plan. For example, the performance measurement data generated by this report could include:

- A comparison of planned versus actual staff hours per work activity for the previous month and year-to-date for each work activity;
- A comparison of actual versus planned work output (e.g., numbers of vehicles scheduled for preventive maintenance vs. the number entering the garage for PM within 48 hours of schedule) per month and year-to-date for each work activity;
- A unit cost analysis that compares the planned versus actual unit costs for each work activity per month and year-to-date; and
- A comparison of actual productivity (work output per staff hour) versus the expected productivity as stated in the performance standards.

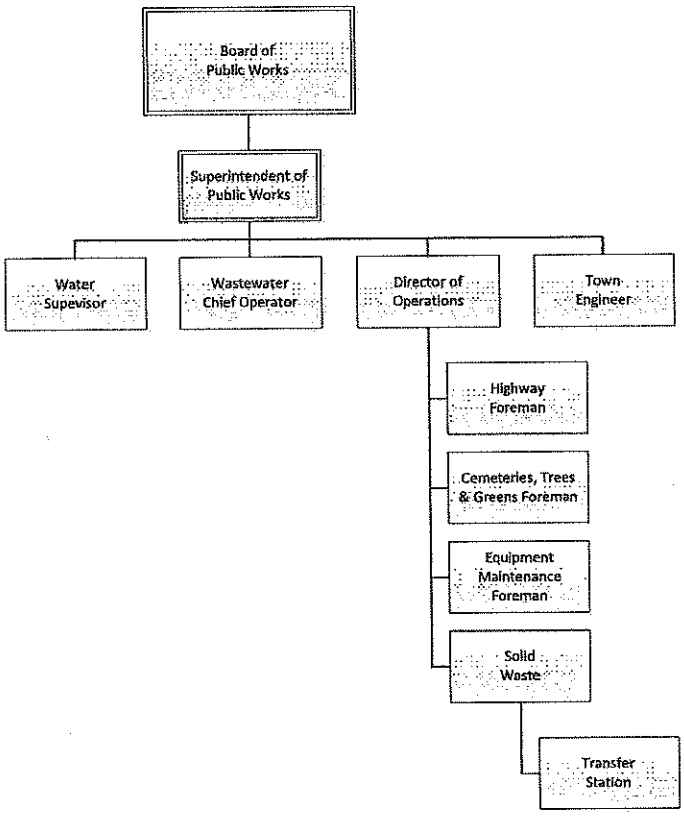
Recommendation: The Public Works Department should generate a monthly performance report comparing planned versus actual performance and costs. The intent of the monthly performance report is to report actual accomplishments against

the annual work plan. This report should provide the basis for both directors' monthly performance reports to the Town Administrator and Board of Public Works.

C. ORGANIZATIONAL STRUCTURE

This section of the report analyzes the organizational structure of the Department of Public Works. The section begins with a review of the current organizational structure.

The Department of Public Works is organized along the following functional lines of supervisory and reporting authority.



A more detailed organizational chart with respect to each position type is provided in the descriptive profile, as an attachment to this report. In addition to the divisional structures presented above, the Department has several administrative and clerical employees distributed throughout its component divisions. Given that all but two of these administrative and clerical employees are physically located at Town Hall on the second floor, the presentation of the various organizational structures provided in the descriptive profile perhaps provides the reader with an inaccurate perception of the proximity of these employees to the field staff to whom they provide support. The table below presents the clerical and administrative staff, and their locations, in the Department.

Position	Location
Department Secretary	Town Hall
Payroll Technician	Town Hall
Engineering Administrative Clerk	Town Hall
Recycling Coordinator (effectively ½ time clerical)	Town Hall
Water Administrative Clerk (2)	Town Hall
Wastewater Administrative Clerk	Wastewater Treatment Plant
Highway Secretary	Highway Barn
Total Administrative and Clerical Positions	**7.5 Full Time Equivalent (FTE)**

Therefore, as can be seen from the above table, there are eight administrative and clerical employees in the Department (effectively 7.5 FTE of clerical and administrative support), of which six (6) are physically stationed at Town Hall. In addition to these 7.5 FTEs, the Department currently has a Dispatcher at the Highway Barn. Although this employee is performing clerical duties related to receiving phone requests for work, the position itself is not classified as clerical. This position's duties will be addressed in a later section of the report.

The 7.5 administrative and clerical positions in the Department support a field and technical staff of 65.5 employees, including the Superintendent. This equates to a ratio of 8.7 field staff to one administrative and clerical position in the Department.

There is no "correct" ratio of administrative support staff to technical and operational staff. These ratios are dependent upon such factors as geographical dispersion of staff supported, workload reporting requirements, public interaction, maturity of the maintenance and financial reporting systems, and others. However, in the experience of the project team, "typical" support staff ratios vary between 1:9 to 1:25 or more for small to medium sized infrastructure maintenance organizations. This places the Marshfield Public Works Department slightly below to the lower end of the typical range. However, the ratios do vary according to the physical location of the clerical staff. Although the numbers of clerical and administrative staff are relatively high, in the project team's estimation, there are other factors that are impacting this ratio that, if addressed properly, could lower the ratios over time. These include the following:

- **The administrative and clerical staff do not utilize automated systems to any significant degree.** The project team's observations of the work methods in the Department indicate a very high level of reliance on manual systems and processes. It is unlikely that any single one of these is, in itself, responsible for the relatively high number of clerical and administrative staff; however, the cumulative effect is, in all probability, very large. Time and attendance data are transmitted manually from the field staff, are manually totaled, and are manually transmitted to the Accounting Department. Further, engineering drawings are

all manually filed, with no electronic scanning utilized. As has been noted above, to the extent that work activities are recorded at all, they too utilize manual systems. Even purchase requests and purchase orders are manual processes.

- **There has been little training of the clerical and administrative staff in automated systems.** This is an issue that will be addressed later in the report; however, it is clear from interviews within and outside the Department that the DPW staff has received effectively no training in even the basic elements of automated accounting systems, payroll, or purchase order processing. Further, even training in basic electronic spreadsheet creation and techniques has not been provided to the staff.

- **The allocation of duties among administrative and clerical staff is not optimal.** There are several clerical employees in the Department who process invoices and interact with the Town's Accounting Division for payments. On the other hand, there are relatively few clerical employees who are trained to process payroll in a back-up capacity.

- **The administrative and clerical staff do not work effectively as a unit.** It is unique in the project team's experience to raise inter-personal dysfunction as an issue in a report; however, it must be noted here, as it is clearly an impediment to efficient operations in the Public Works Department. In fact, this situation reached such a critical juncture during the course of the study that an outside consultant was engaged specifically to address the dysfunction and to make recommendations to abate it.

Addressing any one of the above points is unlikely to reduce the number of required administrative and clerical staff in the DPW. However, as was noted, the cumulative effect of the inefficiencies in the office is that the performance of work has taken on a "silo" effect, whereby, for instance, one administrative employee is responsible for processing Water invoices, another processes Solid Waste and Recycling invoices, another processes Cemetery, Highway and Parks invoices, and yet another processes all others. The project team noted in an interview that the Town's Accounting Department sometimes cannot recall which employee to contact for which set of invoices submitted for payment.

Underlying all issues, however, is the dysfunction of the interpersonal relationships in the Office. As was noted, this issue had risen to a level during the project of needing to be addressed by an outside consultant. The Center project team defers to the recommendations made by that consultant to rectify the issue; however, the project team strongly recommends that it be addressed in whatever manner is deemed appropriate by the Town. From organizational and operational efficiency standpoints, which are the bases upon which this study is focused, the issue represents an

impediment that must be removed. Simply introducing technological advances, proper training, and reallocating work activities among the existing staff is, in the project team's view, unlikely to result in the needed efficiencies without a much stronger commitment on the parts of the administrative staff to foster a greater level of teamwork.

The project team has noted that the number of administrative and clerical staff in the Department currently are sufficient, if not more than sufficient, in terms of overall numbers to support the technical and field staff. The team has also noted, however, that there are impediments to reducing staff at the current time, and the project team provides recommendations to address these issues in the pages that follow. Nevertheless, it is recommended that the Department assess its ability to reallocate duties and responsibilities among remaining staff as vacancies occur. The overall objective should be to consolidate administrative duties, and to target a staffing ratio in the range of one administrative/clerical employee per 15 to 20 technical and field employees.

The following sections address these issues and provide recommendations to create a stronger and more efficient administrative organization, with the underlying assumption being that these interpersonal issues can be successfully addressed.

1. THE DEPARTMENT SHOULD CONSOLIDATE CLERICAL AND ADMINISTRATIVE FUNCTIONS UNDER THE DIRECTION OF A NEWLY-CREATED POSITION OF BUSINESS MANAGER.

The project team has noted, above, the issues related to the lack of technology use, the fragmentation of duties, and even issues related to interpersonal communications within the administrative office of the DPW. These issues must be resolved in order for the Department to function at full efficiency and effectiveness.

The Superintendent of the Department has been in the position for less than two years and has focused to a large degree on operational considerations. Prior to the current Superintendent's tenure, the position of Superintendent had been occupied by a number of incumbents over the past several years, which has resulted in a lack of continuity and consistent direction for the administrative staff. This has undoubtedly contributed, at least partially, to the current problems noted above.

There are several factors unique to the situation in the Marshfield DPW that mitigate in favor of a consolidation of the administrative functions under a unified organizational structure. However, even in the absence of these factors, there are compelling reasons for the Department to consider this consolidation, and these are based upon commonly-accepted principles of organizational design that relate to the efficient use of resources, and the facilitation of communication and coordination. For this reason, the project

team recommends that the Department consolidate all administrative and clerical positions under the direction of a newly-created position of Business Manager. This position should be responsible for the allocation of duties to specific employees after an assessment of their individual strengths. This allocation of duties should also include a designation of a back-up employee, or employees, for each function. Given the importance, and the time-critical nature, of the payroll function, however, it is recommended that all administrative and clerical employees be cross-trained in this important function.

In addition to the assignment of primary duties to specific employees, the position of Business Manager will also be critical in balancing the workloads of the administrative staff on a daily and ongoing basis. It is likely, for example, that workloads related to Recycling Center sticker sales, procurement of supplies and services, filing of engineering drawings, and other routine functions will occur evenly and within predictable time periods. Currently, due to the "siloed" nature of work responsibilities in the office, when workloads decrease during certain periods of the day, week, or even seasons, the staff are not reallocated to maximize productivity. The Business Manager will be responsible for recognizing these periods, and even anticipating their occurrence, and reallocating staff based on their areas of trained expertise. These reallocations of duties may require bargaining with the union, however they are necessary to attain the efficiencies that are required.

Recommendation: Create the position of Business Manager in the Department of Public Works. This position will be responsible for assigning clerical and administrative duties to the staff, and for allocating the work based on workload demands. The position of Business Manager does not currently exist within the Town's classification structure. However, based on a cursory review of existing classifications and their perceived similarities in complexity, difficulty, and responsibility to the duties recommended by the project team for the position of Business Manager, it is likely that it would have a compensation level of about $94,500, including an estimate of $70,000 in direct salary and $24,500 in fringe benefits.

2. THE ADMINISTRATIVE STAFF SHOULD BE PROVIDED TRAINING IN SEVERAL FUNCTIONAL AREAS.

Interviews with the administrative and clerical staff indicate that there has been no training provided in many years. This was also apparent both in the project team's observations and in interviews outside the Department.

The Town does not have a centralized Human Resources Department. Organizations that do have such a centralized organization typically give the Department the

responsibility for surveying for training opportunities that would benefit specific employees, and for tracking and reporting the accomplishment of the training. So, to some extent, it is understandable that the clerical and administrative staff in DPW have not received extensive training.

Notwithstanding the absence of a centralized Human Resources Department in the Town, it is clear that the staff require, and should seek out opportunities for, specific training in such areas as the use of the Town's procurement software, principles of customer service, and the creation, use, and maintenance of electronic spreadsheets. There are undoubtedly others, and these should be identified by the Superintendent and the new Business Manager, and should also be solicited from the employees themselves.

The Town Accountant's office noted that there are various times within the year that the vendor for the Town's procurement software (SoftRight) provides free training seminars. It is strongly recommended that the DPW identify the best candidates to attend this training. Further, all employees should be required to complete customer service training, as well as spreadsheet use.

Recommendation: Identify the training needed by administrative and clerical staff, and seek out opportunities for these employees to attend these courses. The project team has identified several specific areas of noted deficiencies; however, it is also recommended that the Department take the intuitive to identify others as well.

3. THE DEPARTMENT SHOULD CREATE THE POSITION OF CONFIDENTIAL SECRETARY TO THE SUPERINTENDENT.

The DPW Superintendent is currently the only position within the Department of Public Works that is not a member of one of the two collective bargaining organizations of the Department. This creates a situation in which written correspondence from the Superintendent with individuals and organizations outside the Department of Public Works must be physically generated by employees who are members of a bargaining unit. In many cases, the correspondence is of a sensitive nature that may involve personal or disciplinary issues related to a Department employee. This may place the administrative employee creating and reading the correspondence in the sensitive position of either withholding information from a fellow union member, or violating the confidence of the Superintendent.

The project team recommends that the Department create a position of Confidential Secretary, and that the current position of Secretary be converted to this position. This will allow for the creation of sensitive professional correspondence from the Superintendent by an employee who is not a member of a bargaining unit.

Recommendation: Convert the position of Secretary, which is currently a member of the bargaining unit, to the position of Confidential Secretary that is outside the bargaining unit.

4. THE TOWN SHOULD CONSIDER CONSOLIDATING FACILITIES MANAGEMENT OPERATIONS UNDER THE DEPARTMENT OF PUBLIC WORKS.

The scope of this study did not include an analysis of any facet of facilities management. However, during interviews, it was reported that this is a stand-alone department reporting to the Town Administrator. It is reportedly staffed with a single employee.

The existence of a facilities maintenance and management function with a single employee almost certainly means that it is being performed through the services of a contractors, or set of contractors, with the departmental employee overseeing the administration of the terms of the contracts, and perhaps the quality of service provided as well. Further, although the project team was not engaged to verify the observation, it typically means that services are performed almost exclusively in reaction to daily needs, rather than in accordance with a pre-planned preventive maintenance (PM) program for each of the major maintenance pieces of equipment.

The most important reason for a PM program is reduced costs as seen in the following ways:

- Reduced production downtime, resulting in fewer machine breakdowns.
- Better conservation of assets and increased life expectancy of assets, thereby eliminating premature replacement of machinery and equipment.
- Reduced overtime costs and more economical use of maintenance workers due to working on a scheduled basis instead of an emergency basis to repair failures.
- Timely, routine repairs circumvent fewer large-scale repairs.
- Reduced cost of repairs by reducing secondary failures. When parts fail in service, they usually damage other parts.
- Identification of equipment with excessive maintenance costs, indicating the need for corrective maintenance, operator training, or replacement of obsolete equipment. Improved safety and quality conditions.

It is possible to outsource all emergency repairs, as well as preventive maintenance. However, one of the primary advantages of outsourcing any function is that costs may be reduced. If contractors are performing the level of PM that is required, as well as the emergency repairs to Town equipment, it is likely that contractors will be present at one or more Town facilities for significant parts of each day, thereby negating the benefit of reduced cost of the service.

Another benefit of outsourcing a service is that the Town's existing personnel do not have the required expertise to perform a function. This is almost surely the case currently in Marshfield, and this may be a real impediment depending upon the ability of the Town to hire facilities maintenance staff in the current environment. Facilities maintenance is a skilled profession, and one that the Public Works Department cannot currently accept.

There are benefits to "insourcing" the facilities maintenance and management function, however. Assuming that the Town can hire staff to perform this function, the administrative structure is already in place to support it, with management budgeting, procurement, payroll, personnel, information technology support, legal, and other services. The project team has identified the deficiencies in the Public Works Department as they regard preventive maintenance initiatives, and these must be overcome before assigning it another critical function. However, the continued outsourcing of the facilities maintenance function, in absence of a well-managed PM program, will have long-term effects on the Town's facilities.

Recommendation: The project team was not engaged to analyze the facilities maintenance function in the Town; however, it should consider "insourcing" this service under the management of the Public Works Department. This organizational move should not be attempted until preventive maintenance programs are instituted in the DPW in its existing divisions.

5. THE PUBLIC WORKS DEPARTMENT MANAGEMENT SHOULD CONSIDER PHYSICALLY RELOCATING TO THE HIGHWAY DIVISION COMPLEX ON PARSONAGE STREET.

The Public Works Department is comprised of multiple functions being performed at several locations. The Wastewater Treatment Plant is, naturally, located at a dedicated and separate site, as is the Transfer Station. The Operations and Water Treatment and Maintenance Divisions, however, are located in a facility on Parsonage Street, with the Engineering Division and DPW Department management located on the second floor of Town Hall.

Interviews and observations indicate that there is sometimes a "disconnect" in the communications, and, importantly, the understanding of the functions, activities and workload volumes handled by the field services crews at the Parsonage Street site by Department management, although the Superintendent does make a commendable effort to visit the site on a routine basis. It is true that in recent years there has been a proliferation in the number of new communication technologies available to bridge physical distances; however, research has shown that "collaboration at a distance

remains substantially harder to accomplish than collaboration when members of a work group are collocated. For example, communication is typically less frequent, characterized by longer lags between messages, and more effortful."[1] Further, the research also shows that the "real time nature of face-to-face conversation improves the prospects for repairing misunderstandings and other problems. Because speakers have moment-by-moment evidence of what addressees understand and accept, they can repair problems immediately, often in mid-utterance. The more quickly a problem is repaired, the less costly it is likely to be." [2]

Interviews with Department management indicate that there are advantages to being in Town Hall, as there are sometimes occasions to communicate with the Town Administrator, as well as others in the facility, and, for the same reasons as have been noted above, the proximity of Public Works managers in Town Hall to these employees is valuable as well.

The project team's observations indicate that the lack of strong Departmental management at the Parsonage Street complex not only is inhibiting communications and understanding of the work performed, but is resulting in certain cases in lack of leadership, and runs the risk of longer-term demoralization of the work crews. The Parsonage Street complex does not have a great amount of space, in fact, and might need to be renovated to some degree to accommodate the presence of another employee. The project team has made a recommendation to remove the current Dispatcher position from the central office on Parsonage Street and place this employee in the field. This would open up some amount of space in the facility; however, as this project is not focused on the optimum use of space, the Department may need to pursue further study into the best accommodation of the Superintendent.

Recommendation: The Department Superintendent should consider relocating to the Parsonage Street Highway complex in order to facilitate communications with staff, and to provide a stronger management presence in the Operations Division.

6. THE DEPARTMENT SHOULD REDESIGN THE POSITION OF DIRECTOR OF OPERATIONS.

Reporting to the Public Works Superintendent, the position of Director of Operations directs the units of the Transfer Station; Cemeteries, Trees, and Greens; Equipment Maintenance; and Highway. In addition to the line reporting of these units, the Director of Operations also has the responsibility for supervising and directing the daily activities of the Administrative Assistant located at the Parsonage Street garage.

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[1] Understanding Effects of Proximity on Collaboration: Implications for Technologies to Support Remote Collaborative Work. Robert E. Kraut, Susan R. Fussell, Susan E. Brennan, and Jane Siegel.
[2] Ibid

The current configuration of the Department's organizational structure results in a span of control for the Director of Operations of only four Foremen and one administrative position. This is somewhat below the typical span of control for positions not responsible for direct oversight of field operations; however, in the case of the Marshfield DPW, with the Superintendent physically separated from the core operations of the Department, the position of Director of Operations is a needed one.

The responsibilities of the Director of Operations should include the daily planning and scheduling of work in each of the three units, the provision of required materials and resources for the units, the assessment of resource productivity, and the remediation of any noted deficiencies in the accomplishment of work. Interviews and observations indicate, however, that the Director is engaged predominantly in cemetery administration, sales, and customer service. This situation has resulted in the four Foremen planning and directing their own work.

The position of Director of Operations should not be expected to perform direct work in the four disciplines for which it has responsibility; however, there are many planning and administrative needs within each of these units that are not being fulfilled, and the fulfillment of these needs should not be delegated to employees at the level of Foreman. The project team has noted elsewhere in this report the lack of planning of work, the projection of required staffing and materials, and, importantly, the lack of any reporting of work accomplishment and the efficiency with which this work is accomplished. These roles are core responsibilities of any manager, and roles that are effectively either unfilled, or are being inadequately filled by the Foremen themselves.

The project team has, elsewhere in this report, recommended that the DPW consider the physical transfer of the Superintendent from the office in Town Hall to the Parsonage Street garage in order to provide better communication and oversight of the functions being performed from that location. The presence of the Town Engineer would be sufficient to fill the daily managerial role of the Superintendent at Town Hall; however, the project team has also made a recommendation to create the position of Business Manager to oversee the activities of the clerical and administrative staff, providing an even greater managerial presence there. The continued presence of the Superintendent would appear to be superfluous under these conditions.

The issue of whether the position of Director of Operations is effectively managing the activities of the four units under its direction should be viewed separately form the issue of whether the position is a required one. The former issue is one that should be addressed managerially by the Superintendent through a formal performance appraisal. The project team has noted the current deficiencies and has provided recommendations related to instituting effective management techniques and principles elsewhere in this report, particularly in the section on Management Systems.

The issue of whether the position is needed is one that will depend upon the Department's decision regarding the physical placement of the Department Superintendent. The Director of Operations has the responsibility for four distinct operations, with little similarity of function other than a partial overlap of duties in the Highway and Cemeteries, Trees, and Greens units. Therefore, these operational units require managerial oversight, and the project team has noted in this section some of the primary managerial duties that should be provided to these units, but are currently not being effectively delivered. The project team believes that the optimal physical arrangement is for the Superintendent to co-locate with the core operations at the Parsonage Street garage, making it possible to eliminate the position of Director of Operations.

Recommendation: The Department should enhance the managerial capabilities currently present at the Parsonage Street garage. The project team recommended above that the optimal condition would be for the Superintendent to physically relocate from Town Hall to the Parsonage Street garage. If the Department acts upon this recommendation, it will allow for the elimination of the position of Director of Operations, at a cost savings of $85,400 in salary, and about $30,000 in benefits, for a total of about $115,400. However, if the Department elects to keep the Superintendent at Town Hall, it is recommended that it provide intensive training to the incumbent Director of Operations in effective management, planning, scheduling, and reporting, and the project team has provided direction in these regards elsewhere in this report. After a sufficient period of time, the Superintendent should assess the incumbent's progress toward goals and objectives that have been, at least in part, based on the institution of the recommendations provided in this report.

D. OPERATIONS

This section of the report analyzes the operations of the Department of Public Works.

1. THE TOWN SHOULD INCREASE REPLACEMENT FUNDING FOR THE FLEET.

The project team analyzed the age of the vehicles and equipment maintained by the Department's Maintenance Mechanics and determined that they maintain a relatively old fleet. The project team placed all 133 vehicles and pieces of equipment maintained by the Operations Division's Equipment Maintenance Section into eight categories and determined the average age of the fleet for each of these categories. For purposes of classification, the following were used.

Category	Description	Number	Average Age
1	Sedan, Van	11	11.0
2	Heavy Van, Pickup	49	7.6
3	Patrol Unit	12	4.1
4	Heavy Equipment	29	10.7
5	Trailers	16	15.6
6	Pumps, Generators	5	16.0
7	Fire Apparatus	6	14.5
8	Ambulance	5	6.0
Total	**N/A**	**133**	**9.8**

As the table shows, the weighted average[3] age of the vehicles and equipment maintained by the mechanics at the shop is 9.8 years, suggesting a replacement cycle of about 19.6 years for the "average" unit in the fleet. Clearly, not all units in the fleet require the same replacement cycle. The economic life cycle of an administrative sedan or pickup truck is well below that of, for example, a front loader. Therefore, the "average" age of the fleet is meaningless as a composite number other than as a comparison to another benchmark, such as that of other municipal fleets with similar compositions. In the experience of the project team, a composite fleet age of almost 10 years is above this benchmark. However, even in examining specific categories of the fleet, it is clear that many vehicles and pieces of equipment are well beyond their economic lives and are almost certainly contributing to excessive expenditures for fleet repair and maintenance. For example, the typical economic life cycle for a pickup truck is approximately 7 years, suggesting that the average asset in this category should be about 3.5 years. Marshfield's average age of this class of unit is 7.6 years. The average ages of vehicles and equipment in the Police and Fire Departments raise similar concerns, although there are several newer patrol units and ambulances in the mix of units.

[3] The weighted average takes into account the numbers of units in each class. Therefore, the age of the 11 sedans in category 1 account for 8.3% (11/133) of the total average, and so on.

Although the project team does not possess the dollar value of vehicles and equipment replaced in recent years, a review of the current inventory suggests that 29 of the 111 (26.1%) rolling stock units has been replaced since 2009. A closer analysis of the replacements indicates that only three of the 29 (10.3%) pieces of heavy equipment has been replaced since 2009, and none of the 11 sedans. In fact, 13 of the 29 units that have been replaced in the past three years have been pickups, SUVs, and vans, which are transport vehicles.

The fleet maintained by the Equipment Maintenance section is not, in fact, an exceptionally old fleet in the project team's experience. However, the replacements have occurred unevenly and have apparently been weighted toward the transport vehicles, as opposed to the heavy equipment fleet, which is nearing 11 years of age, on average. These are typically units that present fewer options for working crews on those instances in which they are in the shop for repair, suggesting that there may be more of these instances in the future as this classification of equipment continues to age.

Recommendation: The Town should fund the replacement of its fleet on a more timely basis, as the age of the heavy equipment fleet is approaching high levels, and, likely, the expenditures for maintenance and repair are as well.

2. THE PUBLIC WORKS DEPARTMENT SHOULD BEGIN REQUIRING THE ENTRY OF ODOMETER READINGS AT THE FUEL DISPENSING PUMP AT THE HIGHWAY GARAGE.

The DPW has an older version of a GasBoy automated fuel dispensing pump on location at the Highway garage on Parsonage Street. This pump simply dispenses fuel to drivers who enter their department identification and does not require any input of the current odometer reading on the vehicle or piece of equipment. The project team was told that this feature is not possible on the model of the GasBoy pump at Parsonage Street.

The failure to require entry of odometer, or hour meter, readings means that the DPW cannot analyze the fuel efficiency of a particular unit, nor the degree of utilization of that unit over an extended period of time. There are clearly exceptions for specific pieces of specialized equipment, but generally a piece of rolling stock should meet minimum established utilization thresholds in order to justify their retention in the fleet. If specific units are failing to meet these thresholds over a period of several months, or even years, the Town should question the retention of these units, as they have both direct and indirect costs to license, insure, maintain and repair, and provide parts and fuel.

The project team cannot verify that the current GasBoy system is incapable of being programmed to accept odometer and hour meter readings, but interviews indicate that this is either not possible, or the system is so outdated that it would be impractical to invest the time and effort necessary to achieve this functionality. The project team does, however, strongly recommend that the Town investigate the feasibility of purchasing and installing an automated fuel dispensing system that is capable of this.

Interviews indicate that the Marshfield School Department is billed for the fuel that is dispensed at the Highway Garage, which is evidence that it is possible to identify users that dispense fuel from the GasBoy system. The project team also recommends that individual Town departments be billed for the fuel that they consume in the units that are allocated to them, as this provides a much more meaningful set of data relating to the total operational cost associate with these units. Currently, the fuel dispensed to these units is budgeted through the DPW. This method of budgeting fails to achieve any analytical purpose other than to facilitate an overall comparison of year-to-year expenditures, which could be achieved in any case if the fuel were budgeted at the departmental level. The project team's experience with other municipalities that budget for fuel at the departmental level is that these municipalities foster a more thorough analysis by each department manager regarding whether the projected expenditures related to a particular unit are worth the benefits gained.

Recommendation: Investigate the feasibility and cost associated with purchasing and installing a newer version of the automated fuel dispensing system. This system should possess the capability of accepting department and user identification, as well as the current odometer or hour meter reading of the unit. This will enable the DPW to analyze the fuel efficiency and utilization of each of the units in the fleet for which it is responsible for maintaining. A related recommendation is that all Town departments be billed for fuel usage by the units that they are allocated.

3. THE DEPARTMENT SHOULD INSTITUTE A MORE RIGOROUS SYSTEM OF CONTROLS OVER PARTS INVENTORIES.

The project team observed the parts inventory storage area for vehicle maintenance inventory at the Parsonage Street site and found that there is no physical restriction of access by any mechanic to this inventory. Further, there is effectively no restriction of access to the inventory by any employee or, in fact, any visitor to the facility.

As parts and supplies are received, they are generally stored in the inventory section of the facility, with copies of the purchase order and invoice placed in a file folder in the Foreman's office. There is, therefore, a record of receipt, as well as price paid for each of the items. As inventory is used, it is recorded on the work order, thus ensuring that a record of its use is documented. However, there is no ongoing reconciliation of parts

volumes or costs against financial records produced by the Town's Treasurer or Accountant.

The periodic reconciliation of parts volumes and costs is necessary to ensure that all parts disseminated from the garage are utilized for legitimate vehicle repair and maintenance purposes, with any discrepancies outside of pre-established tolerances adequately explained. Thus, it is beneficial to perform not only an annual reconciliation at the end of the fiscal year, but also a more frequent physical count, and even random sampling, of the inventory, in order to more accurately identify the time periods within which inconsistencies occurred.

The performance of a routine inventory count and reconciliation of costs can be facilitated by an automated inventory system that is linked to the Town's General Ledger system. This system could be made even more efficient by utilizing a bar coding system for all parts which facilitates entry into the inventory, dissemination from the inventory section, and minimizes data transcription errors that may occur in the recording of inventory transactions. The process would lso be made more efficient by placing responsibility for all parts transactions at the parts inventory section in a single employee, such as the Equipment Maintenance Foreman.

Recommendation: Begin the process of making physical counts of items in the parts inventory section of the Garage, and assigning probable costs to them. This typically results in the identification of obsolete items, and these should be sold for the best price that can be obtained for them. Beyond these recommendations, however, the DPW should investigate the costs associated with procuring an inventory module compatible with the Town's financial system in order to link the receipt and dissemination of inventory to and from inventory. This system will not only be beneficial in facilitating financial reconciliations of inventory costs and volumes, but will also allow greater management of the parts by identifying high and low-turnover items.

4. THE PUBLIC WORKS DEPARTMENT SHOULD ESTABLISH A PAVEMENT MANAGEMENT PROGRAM.

Streets represent the largest single capital investment for the Town of Marshfield. The Town has approximately 171 centerline miles of streets. Maintaining and operating these streets typically involves complex decisions about how and when to overlay or apply surface treatments such as seal coats to keep the street performing and operating costs at a reasonable level. Given the significant value of the Town's paved infrastructure, it is imperative that these be maintained and preserved in accordance with a defined schedule and regimen. Best practices in this area are to institute an objective system of pavement condition assessment to prioritize the maintenance and

repair of streets in order to ensure that all of the infrastructure meets at least minimum established standards. This is typically accomplished through a pavement management program.

There are many advantages to implementing a formal pavement management program over those of visually inspecting Town roadways. These include:

- Definition of pavement inventory and calculation of the Pavement Condition Index (PCI) and other distress indices;
- Accommodation of user-defined fields for customizing programs;
- Modeling of pavement condition deterioration;
- Analysis of pavement condition (past, present, and future);
- Estimation of funding needed to maintain pavements at a given condition level;
- Estimation of funding needed to eliminate the backlog of maintenance and repair in a specified number of years;
- Projection of consequences of pavement condition and a maintenance and repair backlog for a specified annual budget;
- Formulation of pavement maintenance and repair projects;
- Incorporation of graphics;
- Capability of storing photos and other images in the database; and
- Incorporation of GIS.

The project team understands the pressures of a limited budget in the Department; however, the advantages and relatively low cost of the software combine to make this acquisition cost effective.

The Town of Marshfield should develop a systematic approach to the identification of its needs for preventive maintenance. The Metropolitan Area Planning Council (MAPC)has completed a pavement management manual that should serve as a guide in the development of this systematic approach. This approach should be designed to enable the Town to utilize a systematic, objective, and consistent methodology to evaluate existing and future pavement condition of the Town's streets, and a means to help it manage its pavement maintenance expenditures cost-effectively.

A pavement management system consists of three major components:

- A system to regularly collect pavement condition data;
- A computer database to sort and store the collected data; and
- An analysis of repair or preservation strategies and suggestions of cost-effective approaches to maintain pavement conditions.

Implementation of the pavement management software will require the Town of Marshfield to take the following steps:

- **Data collection and pavement network definition**. This data collection would include the construction records for the street system. These data include the age, surfacing thicknesses, and surfacing types for all sections. Good age data are essential to the performance of computerized pavement management models that generally rely on age as the basis for performance prediction curves.

- **Pavement condition assessment.** This step involves visually inspecting the pavement based on set procedures to establish the pavement condition index for the pavement. This should be done once every three years, with 33% of the streets being evaluated each year.

- **Pavement condition prediction**. This step involves utilizing the pavement management software to calculate the current pavement condition as well as predicting what the future pavement condition will be through the use of a family of performance prediction curves.

- **Formulation of maintenance policies**. This step involves the development of treatment alternatives (e.g., chip seal, microsurfacing, overlay, etc.), and the development of "trigger scores" for each surface treatment alternative. A "trigger score" is the set of conditions as defined by the condition indices, the performance curves, and any other pertinent data items under which a particular treatment would be feasible. For example, streets with a pavement condition index of 40 or less (out of a possible 100) would be a "trigger score" for reconstruction.

- **Budget formulation and scenario development**. In this step, multiple budget and maintenance scenarios would be developed that would model the amount of money that can be spent in any particular year of the analysis and its impact on the pavement condition index. The model uses the allocated money to "optimize" the pavement condition index. That is, a single strategy is selected for

each of the analysis sections based on the overall benefit to the street system as a whole and on the available money.

The output from the pavement management software is a list of candidate streets with the appropriate surface treatment based on the input parameters, the input condition data, and the input budget. These candidate streets can be provided to the Treasurer as input to the five-year capital improvement program.

The pavement management system needs continual updating and improvement in the form of adjustments to the performance curves, updated treatment costs, and changes in the condition indices. In addition to the list of recommended candidate streets, recommendations must be made as to overall funding levels required to meet the pavement preservation goals of the Town. Running the model with a variety of budget scenarios would accomplish this.

The cost of publicly developed software approximates $0.09 to $0.12 per yard of pavement in the first year, with the cost dropping to about $0.07 to $0.10 in subsequent years.

Recommendation: The Public Works Department should acquire and implement a formal pavement management software system.

5. THE TOWN SHOULD CONSIDER OPPORTUNITIES TO OUTSOURCE CERTAIN SERVICES.

The Department of Public Works in Marshfield performs most of its services with departmental personnel. And, in fact, the Department has not suffered severe staffing eliminations and down-sizing to the degree that many other municipal public works departments have experienced in the past several years, making it feasible to perform many of the these services internally.

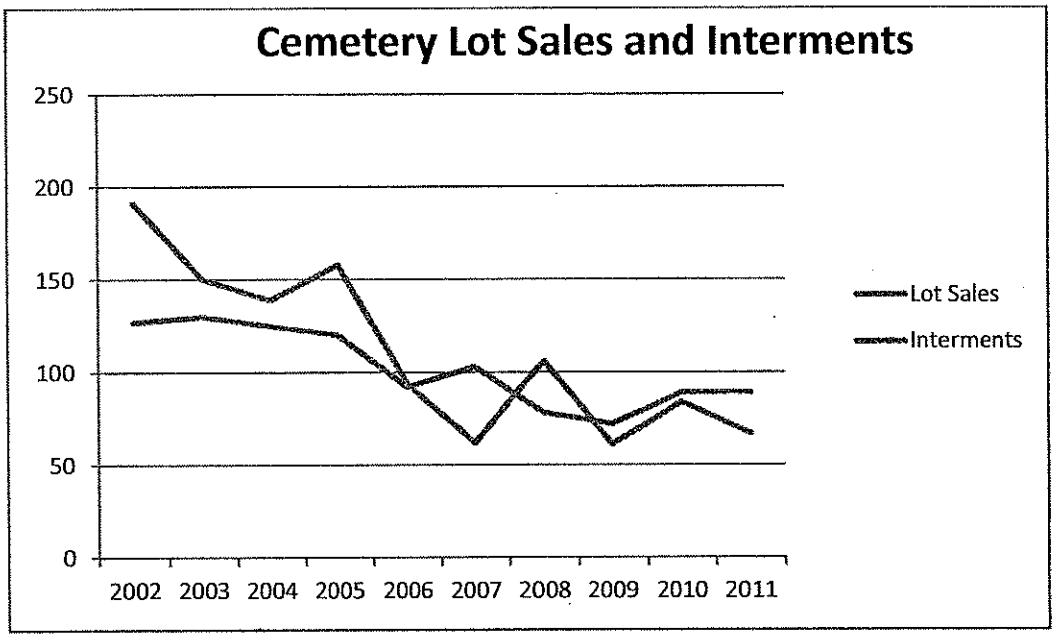
The project team does, however, believe that outsourcing certain services makes financial and operational sense under several conditions. Almost any departmental service may be outsourced, or privatized; however, the DPW should be, and has been, judicious in the decision-making process to do this. The project team has provided a sample scoring methodology in Appendix E to help in the determination as to whether a specific service is a good candidate for outsourcing. Ultimately, however, the decision should rest with the Superintendent, in concert with division managers as well as the Board of Public Works, Board of Selectmen, and Town Administrator. We have provided certain analyses in the sections below that provide specific examples of outsourcing feasibility, but more importantly, the analyses and the methodologies used here should

be a guide in analyzing all candidate services to ensure that the Town is receiving the greatest benefit at the most economical cost available.

(1) The Department Should Consider Outsourcing Cemetery Operations.

The Town of Marshfield maintains seven (7) cemeteries, four (4) of which are active, meaning burials are performed at these locations. There are about 70 developed acres at these cemeteries, which are maintained by two (2) Laborers and a Seasonal Worker. The salaries for these employees are approximately $62,250. In addition to the direct salaries, the Town pays fringe benefits for the two full-time employees which, at an assumed fringe benefits rate of 35% is an additional amount of about $20,000, for an approximate total of $82,250.[4] Additionally, the Cemeteries have operating expenses and also transfer in both personnel and equipment as workloads require throughout the year, and these expenditures are in addition to the dedicated salaries provided here.

The project team was able to obtain Cemeteries revenues for fiscal years 2010 and 2011, and these declined from $40,755 to $37,113 from year to year, a decline of about 9%. Additionally, lot sales and interments have declined as well from 2002 to 2011, as the graph below shows.



[4] The Town does not budget separately for Cemeteries, but rather these expenditures are combined with others in the "Cemeteries, Trees, and Greens" line item of the Public Works budget. Therefore, the project team has approximated the figures included in the text, based on employee salaries contained in the 2012 Annual Report.

As the graph shows, activity in both sales and burials is in a long-term decline, which is supported by the past two years of revenues.

Aside from any interest revenue from the Perpetual Care Fund, the Cemeteries are expending at least $40,000 to $45,000 more in salaries and benefits alone than are recovered through revenues, and as the graph shows, this gap is likely to widen in the future. And, as was described above, there are other salaries and benefits, as well as operating expenses associated with burials and maintenance of the grounds.

The Town of Marshfield's experience reflects trends seen nationally, with flat to declining revenues, and operational deficits at the local level. The total market for cemeteries and crematories services nation-wide was $2.957 billion in 2009, which is up slightly from previous years, but relatively unchanged when accounting for price escalation for services.

Metric	2004	2005	2006	2007	2008	2009
Market Size	$2.886 B	$2.823 B	$2.869 B	$2.951 B	$2.997 B	$2.957 B
Total Firms	4,516	4,414	4,349	4,307	4,230	4,180
Employees	38,051	36,416	35,417	35,099	34,893	34,112

As the table shows, the overall market size, measured in revenues, has increased slightly (2.5% in 5 years), but the total number of firms providing cemetery and cremation services has declined by 336, or 7.4% in the same 5-year period. Similarly, the total number of employees involved in these services has dropped steadily. These figures reflect the overall decline in mortality rates nation-wide, and may be representative of trends in Marshfield, which supports the Town's recent experience in sales and interments.

Although flat to declining sales are, in themselves, troubling for Marshfield, these trends are especially problematic when placed in light of the costs of operating the Town's cemeteries. Specifically, as noted above, it is conservatively estimated that the cemeteries operated at a $40,000 deficit last year, and is likely indicative of a longer-term trend, although the project team was unable to obtain historical figures further back than 2010.

The project team does not possess accurate estimates of potential savings, or abatement of losses, if the operation of the Cemeteries were privatized. However, private firms may possess greater marketing capabilities, abilities to share equipment, and may have other expertise that could result in at least a smaller annual loss for the Town. Further, it is likely that a private firm would have the resources to automate cemetery records both accurately and in a more defined schedule. Currently, the Cemetery records are almost entirely manual, and maintained by the Operations Manager, which is not an optimal use of time for a Manager in the Department. The project team therefore recommends that the Town investigate the availability and

interest of private firms in the assumption of responsibility for operating the seven cemeteries.

Recommendation: Investigate the availability and interest of private cemetery operators in the region in assuming responsibility for operating the seven cemeteries in the Town. If sufficient interest and availability exist, the Town should issue a Request for Proposals (RFP) to obtain quotes on the costs associated with transferring this responsibility to a private operator. At a minimum, the Public Works Department should investigate the financial feasibility of outsourcing the mowing, trimming, mulching and weeding of the cemeteries, as this is a relatively low-skilled and repetitive function, and one that does not occur in close proximity to most of the other work performed by Public Works crews.

6. THE DEPARTMENT SHOULD CONSIDER OUTSOURCING STREET SWEEPING OPERATIONS.

There are several reasons for a town to thoroughly sweep its streets on a routine basis, only some of which relate to aesthetics. One of the primary reasons is that there are federal and local mandates, including the Federal Clean Water Act, which require that the Town prevent pollution from entering local waters.

Additionally, street sweeping benefits the Town by collecting and removing debris (e.g., paper, leaves, and other objects) that collect in the gutters. This debris can block storm water inlets, causing localized flooding during heavy rains that can potentially pollute the local water system. An equally important, but less visible benefit is the removal of metal particles, oil, and other hazardous products left behind by passing and parked vehicles. Although virtually invisible, these particles can be extremely harmful to the environment.

The DPW does sweep its streets, of which there are an estimated 340 curb miles. Interviews indicate that there is a section near the beach, at Brant Rock, that contains about five (5) curb miles, and this is swept twice weekly, or the equivalent of about 520 total curb miles. All other areas of the Town, or about 335 curb miles, are reportedly swept once annually, for a total annual of about 855 curb miles.

Interviews with DPW personnel also indicated that the Town formerly had a contract with a private service provided to sweep the Town's streets for about $25,000. The project team was unable to verify this amount; however, if this figure is accurate, it would equate to about $39 per curb miles swept, which is, in the project team's experience, an exceptionally attractive price. Typically, this amount will be nearly twice this amount on a per-curb-mile basis.

Because the project team cannot verify the amount of the previous contract, the team cannot state that the Town could receive this price if it were to attempt to outsource street sweeping services today. However, it does serve to point out that this may be a service that should receive more analysis. The personnel costs alone would be well in excess of $48,000, including salaries and benefits, if the DPW allocated a full time equivalent employee to street sweeping. In addition to the personnel costs would be the equipment depreciation, maintenance, and fuel costs, which are substantial.

Recommendation: Consider the outsourcing of the street sweeping function. The project team could not verify the amount the Town reportedly paid to a contractor in a previous time period; however, if this amount was close to the $25,000 it was reported to be, this represents a very attractive price, given the number of miles swept and the frequency of sweeping that was reported to the project team. This price should be compared to the probable amount paid currently for street sweeping that is likely well above $60,000 annually, including salaries, benefits, equipment depreciation, maintenance, and fuel.

7. THE OPERATIONS DIVISION SHOULD SUBSTANTIALLY ENHANCE ITS CEMETERY RULES AND REGULATIONS, AND PLACE THESE ON ITS WEBSITE.

The Town's Cemetery "Rules/Regulations/Price Schedule," developed in 2002 and revised in March 2006, covers only the most minimal of issues related to the care and operations of its seven cemeteries. A copy of these rules and regulations is provided in Appendix F of this report.

As can be seen in the appendix, the rules and regulations cover the purchase of a cemetery lot, purchase and installation of monuments and stones, plants and shrubs, and certain prohibitions related to tree planting, floral baskets, etc. There are many categories of rules and regulations that should be developed by the Town, and placed on the DPW web site. These include the following:

- Price schedules for lots and cremations.
- Eligibility for burial. The current rules and regulations state that the purchaser must be a resident, and the first person buried in the lot must be a resident. However, there is no discussion of what constitutes residency, and no discussion on "grandfathering" of "residents" who have moved away from Marshfield for extended periods, but who desired to be buried in one of the Town's cemeteries.
- Minimum notice of time required prior to interments.

- A definition of any compulsory requirements related to the burial, such as concrete liners or vaults.

- A definition of allowable monument heights, flush marker dimensions, number of markers on each lot, etc.

- Prohibition of advertisements.

- Requirements for funeral processions, such as locations of entry and exit, responsibilities of funeral directors, the responsibilities of the Town, etc.

- Prohibitions of the scattering of ashes.

- Any price differentials related to services held on weekends, holidays, etc. Further, there is no definition of the normal operating hours of the cemeteries, and the allowable times for interments and services.

- Authority of the Town to prohibit services scheduled simultaneously in a single cemetery.

- Authority of the Town to prohibit monuments that are deemed to be objectionable. Further, there is no definition of the allowable composition and appearance of stones and monuments.

- Differential rules and regulations related to Memorial Day.

- Prohibition of certain types of plants and flowers.

- Allowable placement of plantings and flower relative to the headstone/monument.

There are many other potential items for inclusion in the Cemetery Rules and Regulations, and the intent is not to list them all here, but rather to point out the relatively minimalist nature of the Town's current Rules and Regulations, and the need to enhance these.

The Cemetery Rules and Regulations reside only in paper form and are not available on the DPW website. In fact, there is no description of any of the cemeteries themselves on the website. The project team recommends that the Cemeteries, Trees, and Greens Unit of the Operations Division be assigned the responsibility for developing much more descriptive and thorough rules and regulations, and placing these online so that all residents and funeral directors may be aware of the most pertinent details of burials and care at these cemeteries.

Recommendation: Significantly enhance the rules and regulations as they relate to pricing, burial procedures, allowable vegetation and decorations, monuments, and many other pertinent details of the Town's cemeteries. These should be placed on the DPW website, along with, at a minimum, descriptions of the cemeteries, their names and addresses, and possibly photographs of the cemeteries themselves, as well as their historic details.

8. THE WATER DIVISION SHOULD ELIMINATE A METER TECHNICIAN POSITION.

The Water Utility has a Meter Reading Unit that is comprised of three Meter Technicians. There are approximately 10,000 metered services in the Town, with each being billed bi-annually, equating to about 20,000 reads during the year, or about 1,666 per month. Therefore, each of the three Meter Technicians in the Water Division reads about 556 per month. It should be noted that this is only an average of the three meter reading personnel. Not all Meter Technicians focus on meter reading the majority of the time. One Meter Technician expends most available time performing inspections of backflow prevention devices. The other two change out meters and wires during much of their available time. However, the 556 average figure is low and indicates that there may be excess capacity in this area.

In the experience of the project team, a Meter Technician performing manual reads in a relatively densely populated setting, as is the case in Marshfield, should be able to accomplish between 4,500 and 5,000 reads per month.

The three Meter Technicians in the Water Division are achieving roughly one-third of the expected productivity of 4,500 to 5,000 reads per month, indicating a staffing surplus of at least one position, and perhaps two, particularly as the Division is making the transition to automated reading technology.

Recommendation: The Water Division should eliminate or transfer one Meter Technician position in the short term. If it can be assumed that the average salary is approximately $44,000 annually, with 35% added for benefits, the elimination of one position would result in a cost savings of about $59,400.

9. THE OPERATIONS DIVISION SHOULD ELIMINATE THE POSITION OF DISPATCHER AND TRANSFER THE POSITION TO A DIRECT SERVICE PROVIDER IN THE FIELD.

The position of Dispatcher currently receives calls from residents and other Town departments regarding complaints and requests for service. The position also monitors

the weather, answers the two-way radio, and fills out manual work orders in certain instances. The incumbent is located at the Parsonage Street garage.

Observations of the workflow at the Parsonage Street garage indicate that the volume of work does not warrant the presence of a dedicated employee to perform the duties that are currently required. Further, there is a full-time Administrative Assistant located in the office adjacent to the Dispatcher who is capable of answering calls, dispatching crews, and recording the work performed.

The project team has made a recommendation earlier in this report that the Department should begin the collection of asset inventories in the field of such structures as catch basins, manholes, outfalls, signs, and others. The project team recommends that the position of Dispatcher be eliminated and replaced by the position of Equipment Operator in order to both record asset inventories and to fill in as a functioning member of a field crew as absences occur or, in combination with the recommendation to eliminate or transfer a Water Meter Technician, be converted to one of the two members of a new catch basin cleaning crew. The incumbent should be equipped with a laptop computer or tablet that can record locations of inventory into a GIS while functioning in the field.

Recommendation: Transfer the position of Dispatcher from the office at Parsonage Street into the field. The position should primarily be responsible for the collection of information on field assets, but should fill in for absent field crew members as well. The position may be re-titled to Equipment Operator; however, the project team views this as a lateral transfer, with no change in total compensation. The position should be provided a laptop computer or tablet that may cost $600 to $800.

10. THE WATER DIVISION SHOULD IMPLEMENT A FEE FOR INSPECTING BACKFLOW DEVICES IN THE TOWN.

Backflow prevention devices are designed to protect drinking water from contaminated water due to backflow, which occurs when non-drinking water flows into drinking water. There are two types of backflow – backpressure and back-siphonage. Backpressure occurs when there is an increase in downward pressure that is greater than the upward pressure, and back-siphonage occurs when there is a strong drop in water pressure. The Town's Water Division inspects 195 different backflow prevention devices at commercial establishments for both types of backflow.

Interviews indicate that although the Water Division inspects all commercial devices, it charges no fee for this inspection. Depending upon the size of the device, the Water Division inspects each either once or twice annually. The project team could not obtain the precise numbers of devices that are inspected twice per year; however, if it can be

assumed that one-third of the 195 devices are inspected bi-annually, then there are about 260 inspections being performed each year by Water Division staff. Assuming that a fee of $50 could be implemented, this equates to $13,000 in revenue to the Town. The project team recommends that the Town implement such a fee and charge commercial establishments for the cost of the inspection.

Recommendation: Implement a fee for inspecting the Town's commercial backflow devices. Assuming a relatively modest fee of $50, and further assuming that 260 inspections are occurring each year, the implementation of the fee could result in $13,000 of additional revenue each year.

11. THE DEPARTMENT SHOULD IMPLEMENT A STANDARDIZED AND ROUTINE SAFETY PROGRAM.

Every employee and employer knows the value of safe workplace practices, but for these practices to be effectively implemented, they must be taught and, importantly, reinforced, through routine, repetitive, and standardized meetings, training sessions, and even simple reminders. The value of creating and nurturing a safe working environment is of paramount importance in itself. However, its value goes beyond safety and the obvious benefits of a reduction in the incidence of days lost due to injury. These benefits include greater morale, higher employee retention rates (and greater ability to attract workers), and a heightened sense of teamwork among workers.

The project team made a point to ask about workplace safety practices in each of the divisional interviews and most divisions reported that although safety has been periodically discussed, there has been no formal safety program, or even training, in several years.

There are many areas of safety that should be routinely covered. Most importantly, these should be conveyed for the benefit of employees, who represent the greatest expenditure by the Town. However, it is also important from a legal and liability standpoint that the Town administer and oversee proper safety procedures. The project team recommends that the DPW begin with the following safety topics, and expand them after completion to incorporate more detailed topics, and then to cycle through again in order to continually refresh employees on the importance of each.

- HAZ-COM RTK/Chemical Storage
- Proper Lifting Techniques/Ergonomics
- Bloodborne Pathogens/Slips and Falls/Miscellaneous Work Hazards
- Identifying Work Hazards and Correcting Unsafe Conditions
- Awareness and Conformance with the Emergency Plan, and Emergency Evacuation

- Emergency Spills
- Treating Sprains, Burns
- Choking Treatment
- Electrical Safety
- Ladder/Bucket Truck Safety
- Accident Investigation
- What to Do in Case of Fire, Earthquake, Power Failure, etc.
- Fork Truck Training/Hoisting
- Fire Extinguisher/ Fire Prevention and Awareness
- Confined Space Training/ Gas Meter Training
- Hazardous Waste Operations and Emergency Response Standards (HAZWOPER) Awareness

The Department should not only establish its own safety training agenda based on perceived deficits, but take attendance at themeetings it schedules as well.

The project team recommends that the Public Works Department adopt a safety program. There may be certain topics that are common to all divisions (e.g., bloodborne pathogens, slips and falls, etc.) that would allow for a Department-wide meeting. Others may be divisional-only as the topics are tailored to the specific work environments of each of the divisions.

Recommendation: Institute a standardized safety training program within the Department of Public Works.

12. THE DEPARTMENT SHOULD RECEIVE SOME PORTION OF THE FUNDS FROM THE SALE OF BEACH STICKERS TO OFFSET SOME OF THE COST OF DEBRIS REMOVAL BY DEPARTMENT STAFF.

The Department sells beach stickers to residents that permit them to drive their vehicles to the Town's beach areas. A review of the Town's Annual Report indicates that the revenue from these sales funds "part time salaries, supplies, other charges and expenses of the beach operations."

The project team's activities in this project did not encompass a review of the expenses related to beach operations, so it is possible that the uses for these revenues as stated in the Annual Report are consumed by providing these part time salaries, supplies and other charges. However, the project team did note that there is some significant amount of time expended by the Public Works administrative staff in the sale of the stickers, and the Operations staff expend a considerable amount of time collecting and disposing of debris on the beaches.

Recommendation: The Town should review the uses of the funds collected from the sale of beach stickers, and allocate a portion of these revenues to abate some portion of the expenses related to the Public Works Department's collection and disposal of debris on the beach areas.

E. OTHER ISSUES

As the project team progressed through the study, there were several issues that arose that, although not strictly categorized in any of the previous sections of the report, should nonetheless be addressed. These are presented here.

1. THE PUBLIC WORKS DEPARTMENT SHOULD INSTITUTE A SYSTEM OF PERFORMANCE APPRAISAL FOR EACH EMPLOYEE.

Interviews and observations by the project team during the course of this project indicate that, in many instances, employees are performing their work, not in accordance with a set of defined criteria and formal expectations, but rather in accordance with their individual determinations of their duties, responsibilities, and levels of service. To some degree, this is understandable, and may, in fact, be a reasoned response to the frequency with which the incumbents in the position of Superintendent have turned over. Indeed, in the absence of strong direction and consistent leadership, employees must develop systems for addressing the daily needs of residents and the employees they support.

There is currently no formal system of employee, supervisor, and manager performance appraisal in either the DPW or the Town, generally, nor was the project team engaged to institute a performance appraisal system for the Town. However, it is clear that there is a critical need to evaluate performance at all levels of the DPW organization, and the project team recommends that the Department engage in an effort to design a fair and standardized performance appraisal system that:

- Aligns individual employees' daily actions with strategic objectives;
- Provides visibility and clarifies accountability related to performance expectations;
- Documents individual performance to support career planning decisions;
- Establishes focus for skill development and learning activity choices; and
- Creates documentation for legal purposes, to support decisions, and reduce disputes.

The system should be designed with employee retention and satisfaction in mind, and should not be viewed as simply a method by which employees may be disciplined for sub-standard performance. Rather, the system should be designed to accomplish the following objectives:

- Deliver regular relevant job feedback;
- Set and communicate clear performance expectations;
- Identify organizational career paths for employees;

- Evaluate performance and delivering incentives in a fair and consistent manner;
- Provide appropriate learning and development opportunities; and
- Recognize and reward top performers.

The method by which these performance appraisals are delivered should be determined by the Department, the Board, and Town management, as should be the criteria upon which employees are evaluated. There are many appraisal tools available, each with its own set of evaluative criteria. The project team lists several critical criteria below:

- Knowledge of job
- Quantity of work
- Quality of work
- Initiative
- Enthusiasm
- Judgment
- Cooperation
- Attendance
- Relationships
- Coordination
- Safety

There are other, additional criteria that should apply to managers and supervisors. These relate to planning, organizing, staffing, controlling, delegating, decision-making, employee relations, and more.

The project team noted throughout the course of the project that, in the great majority of cases, the required work of each division of DPW is being accomplished. This section is not intended to be critical of the accomplishment of work, but rather that each employee should be managed, evaluated, supported, and trained in a consistent manner, and in accordance with an individualized plan for improvement based upon any performance issues that result from the formal appraisal process.

Recommendation: The Department should institute a formal employee performance appraisal system that evaluates performance in relation to a standardized and consistent set of evaluative criteria.

2. THE DEPARTMENT SHOULD ENHANCE THE FUNCTIONALITY OF ITS WEBSITE TO CONFORM TO BEST PRACTICES IN THE INDUSTRY.

In the not-too-distant past, the simple provision of a website of any description for a Public Works Department was considered a progressive and customer-oriented feature of government. Today, however, residents expect that their governments' websites will

be informative, interactive, and easily navigated. In fact, "web surfers" throughout the country and the world scan websites for information, and a well-designed website says much about a municipality, just as does a poorly-designed one.

The project team has made numerous visits to the Marshfield Public Works website throughout the course of this project, and there are several facets of its content and design that perhaps could be refined and enhanced to provide a more informative and useful experience for visitors, whether they are residents, other governmental entities, or simply interested viewers.

Darrell West, of the Brookings Institute, in his book, *Digital Government: Technology and Public Sector Performance*, describes four stages of government websites that progress from the "billboard style," that simply houses information, up to the "interactive democracy style," that offers residents services and a variety of ways to get in touch with public officials and to accomplish tasks. It is this latter style that West says that governments should aspire to in order to develop a more knowledgeable and empowered citizenry.

Although the Marshfield Public Works website is more than a simple "billboard" of information, it falls short of being truly interactive. Further, it does not provide certain information that the project team believes should be shared with visitors to the site. The project team noted several areas in which the divisional websites should be enhanced and has listed these in the table below.

Division	Comments
Cemeteries, Trees, and Greens (CTG)	Post Cemetery Rules and Regulations Although the Cemetery is limited in the amount of electronic data available for each grave, it should be a longer-term objective to provide an interactive site at which users may input the name of the deceased, and determine the exact location of the grave site. There is little information provided on the website about the Town's parks and athletic fields. The site does provide a simple listing of the parks for which it is responsible; however, the website should be significantly enhanced to provide a link to forms that provide locations, sizes, facilities and amenities available at each, facilities that may be rented (as well as fees), etc. There is only one sentence related to the Trees section of the CTG unit. The Unit should provide a link to the Town's tree ordinance, and a statement about the benefits of trees in public space.

Division	Comments
Highway	There is no information on the website relating to the primary activities of the Highway Unit of the Operations Division. Many residents may not know all the services that may be available, or to whom they should be reported. These may include relatively simple services such as pothole reporting and repair (as well as the time the citizen can expect to receive a response), dead animal pickup, paving and resurfacing plans and schedules, leaf disposal, graffiti removal, and other services. The site combines Highway and Equipment Maintenance, but does not provide any description of the latter. It would be helpful and informative to residents if the number and type of equipment were provided, as well as a statement of its commitment to preventive maintenance, its responsibility for the fueling station, and the amount dedicated to vehicle and equipment replacement over a period of time. The site has links to a list of drainage structure in the town, and a link to the Mass DOT. It also provides links to an outdated (2006) road improvement plan, and an outdated (2007) operational plan for the Unit. Further, even though the website does provide a short bit of information on snow removal regulations, best practices of well-managed Public Works operations are to provide snow removal routes, and explanations of when the Town plows snow, and when it may only apply sand.
Engineering	The Engineering Division has a relatively informative section on its website that describes its services. It also provides permit applications for trench permits.
Water Division	There is almost no information on this Division on the website, which could be significantly enhanced through the provision of a simplified description of the water treatment process, perhaps even including a schematic that describes, at a very high level, the locations of the Town's 16 wells and its water tanks. The site should also relate to readers that the Town provides water to the towns of Scituate, Duxbury and Pembroke. The site could also benefit from the inclusion of information on capital improvements, which have resulted in the replacement of all water line in the past 17 years. It should describe the backflow

Division	Comments
	prevention program description (as well as types of devices and how installed, and what to expect in an inspection), water rates, conservation measures, typical consumption rates for various family sizes, as well as the Town's initiative to replace all manually-read meters with radio-read meters, and the frequency of meter reading and billing.
Wastewater Division	There is almost no information on this Division's operations on the website. It provides only a brief sentence on the fact that the Division is responsible for the operation of the WWTF, pumping stations and the collection system. It also provides directions to the facility and business hours. The website could be significantly enhanced through the provision of a simplified description of the wastewater treatment process, perhaps even including a schematic that describes, at a very high level, the intake, screening and grit removal, aeration, sludge removal and processing, clarification, disinfection and return to the ocean. The site could also benefit from the inclusion of information on capital improvements (both recently completed, as well as planned, and the costs of each), the sewer televising program and its benefit, as well as other descriptive information.
Trash and Recycling	This Division's website is comprehensive and useful to residents. The project team offers no recommendations for improvement in this area.

Recommendation: Enhance the divisional web pages to provide more information to users.

3. THE TOWN SHOULD ASSESS THE FORM OF GOVERNANCE OF THE PUBLIC WORKS DEPARTMENT IN THE NEXT CHARTER REVIEW.

The Department of Public Works is governed by a three-member elected Board, with three-year overlapping terms. Its powers are generally described in the Town Charter, as being "responsible for organizing and administering the following functions: construction and maintenance, highways, water and sewer systems, tree care, and parks, including landscaping and ground maintenance of all town buildings and property, and such other public works and related functions as may from time to time be vested in it..." The Charter then describes the Board's authority in appointing the Department's Superintendent, as well as the position's qualifications, and the reporting on the operations of the Department required of the Superintendent.

The presence of elected Boards of Public Works in the Commonwealth is becoming increasingly rare. To the extent that these Boards exist, they tend to be advisory to the Board of Selectmen in policy matters. This is evident in the following table, which documents the form of governance of the public works functions of the Massachusetts towns with populations most similar to that of Marshfield.

Town	2008 Population	Elected DPW Board?	Comment
Belmont	23,291	No	Has 3-member advisory, all-volunteer Cemetery Commission, as well as a Traffic Advisory Committee appointed by the Board of Selectmen.
Yarmouth	23,778	No	All executive powers are vested in the Board of Selectmen.
Mansfield	23,969	No	The Board of Selectmen serves as the Public Works Commission and formulates policies.
Dedham	24,630	No	Has an elected Parks and Recreation Commission.
Wakefield	24,717	No	Has an Advisory Board of Public Works, which is a 3-member Board appointed by the Town Administrator, and approved by the Board of Selectmen.
Marshfield	**24,735**	**Yes**	**Has 3-member elected Board responsible for construction and maintenance, highways, water and sewer systems, tree care, parks, and other. Appoints the DPW Superintendent.**
Burlington	24,985	No	The Board of Selectmen serves as the Board of Public Works.
Bridgewater	25,774	No	
Milton	26,187	No	Has 5-member Cemetery Board elected by Town Meeting. Has 3-member elected Board of Parks Commissioners
Melrose	26,708	No	Town has a Cemetery Commission and Park Commission, as well as a Recycling Committee.
Danvers	26,762	No	

As the table shows, although there are a few towns with elected Boards, these do not have the broad scope of authority regarding operations and appointing authority as that of the Town of Marshfield. Rather, to the extent that towns such as Belmont, Dedham, Wakefield, Milton and Melrose have Boards, they are limited in scope to such functions as Cemeteries, Parks, Recycling, or Traffic. Most are advisory in nature, and are appointed by the Board of Selectmen or, as is the case in Wakefield, by the Town Administrator.

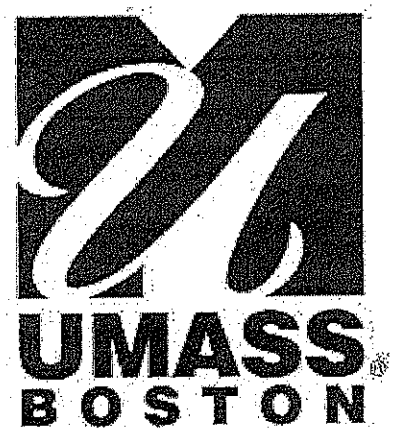
The Town of Marshfield last formally reviewed its Charter in 2003. It is common that municipalities conduct a comprehensive review of their charters every ten years. The project team recommends that the Town conduct such a review this year, and further, that it review the form of the Board of Public Works to determine if its scope of services and authority are appropriate, and whether it is appropriate to consider the transition to a membership that is appointed by the Board of Selectmen, as is the case in most Massachusetts towns of similar size, or, in fact, whether the Board is necessary going forward.

Recommendation: The Town should consider whether the current form and scope of the Board of Public Works are appropriate. The Town last comprehensively reviewed its Charter in 2003, and the project team recommends that it conduct another review this year. Whether or not the Town conducts a comprehensive review of its charter, the form of the Board of Public Works should be reviewed, and the Town should consider whether it is appropriate to make the transition to a Board membership that is appointed by the Board of Selectmen, or even to eliminate the Board entirely.

APPENDIX A
DESCRIPTIVE PROFILE OF THE PUBLIC WORKS DEPARTMENT

Descriptive Profile of the Public Works Department

TOWN OF MARSHFIELD, MASSACHUSETTS



100 Morrissey Boulevard
Boston, Massachusetts 02125-393
v.617.287.4824
f.617.287.5566

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DESCRIPTIVE PROFILE OF THE PUBLIC WORKS DEPARTMENT

The following pages provide a descriptive profile of the Public Works Department and its component divisions. The purpose of this descriptive profile is to document the project team's understanding of the Department's organization, allocation of staff by unit and function and principal assigned responsibilities of staff. Data contained in the profile were developed based on the work conducted by the project team over the past month, including:

- Interviews with management and staff in the Department.
- Collection of various data describing organization and staffing, workload and service levels as well as costs.
- Documentation of key practices as that relates to work planning and scheduling, policies and procedures, as well as work processes.

In this document, the structure of each division's descriptive profile is as follows:

- Organizational charts showing all staff positions by function and shift as appropriate and reporting relationships.
- Summary descriptions of key roles and responsibilities of staff. It should be clearly noted that responsibility descriptions are not intended to be at the "job description" level of detail. Rather, the descriptions are intended to provide the basic nature of each assigned position.
- Presentation of the FY11 and FY12 budgets.
- Summaries of key indices of workloads and service levels provided by each division.

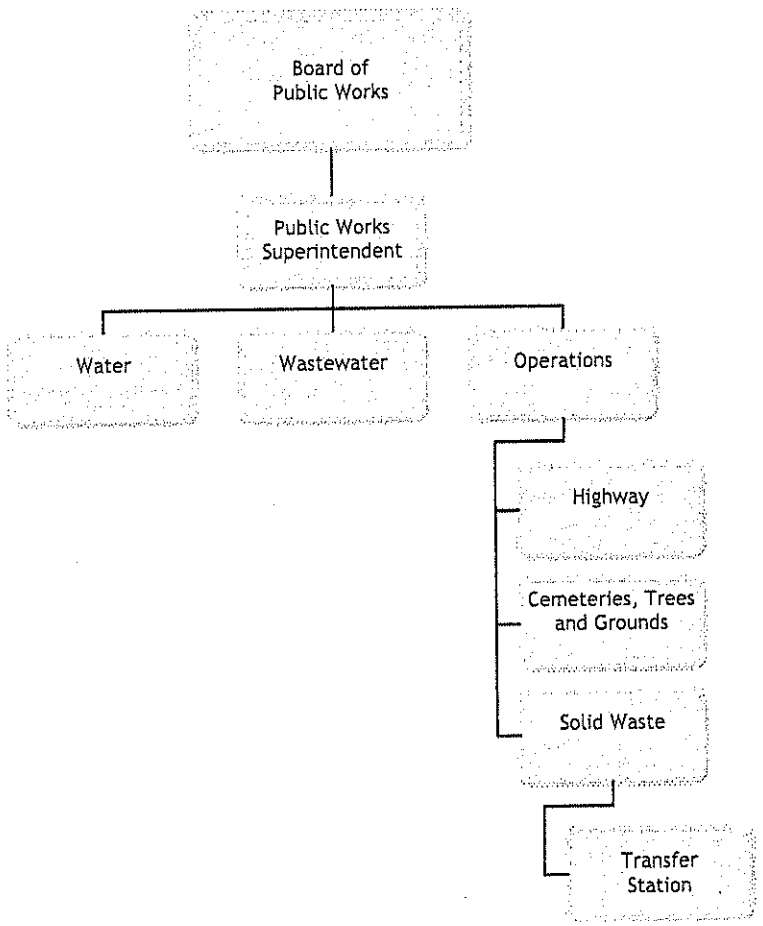
PUBLIC WORKS DEPARTMENT

The Department of Public Works (DPW) has broad responsibilities in the Town. Included are divisions dealing with finance and administration; engineering; street improvements; waste collection and disposal including recycling; street lighting; snow and ice removal; and park and cemetery maintenance.

In addition to the internal DPW divisions, the Water and Wastewater enterprise divisions report to the DPW Superintendent.

The following organization chart provides an overall depiction of the reporting relationships of the divisions of Public Works. Note that the chart depicts the organization as it was described to the project team, and is not offered as an official organizational structure.

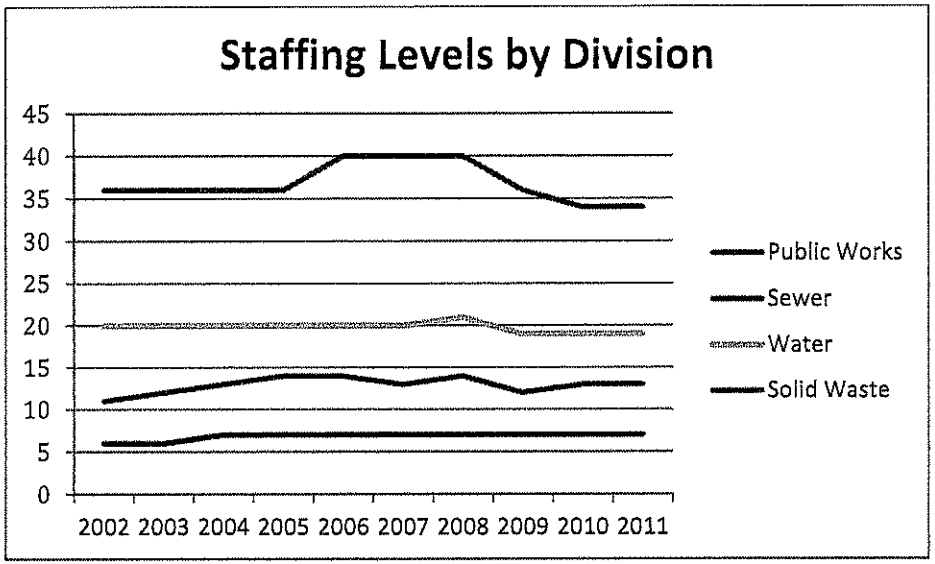
Detailed organization charts are provided within the divisional descriptive profiles that follow.



The following table provides the staffing levels of the DPW, by major division, from 2002 through 2011.

Department	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Public Works	36	36	36	36	40	40	40	36	34	34
Solid Waste	6	6	7	7	7	7	7	7	7	7
Water	20	20	20	20	20	20	21	19	19	19
Sewer	11	12	13	14	14	13	14	12	13	13
Total DPW	**73**	**74**	**76**	**77**	**81**	**80**	**82**	**74**	**73**	**73**

Staffing levels over the past ten years are illustrated in the chart below:



Highlights from a review of the above staffing table include the following:

- Although not broken out separately in the table, the Public Works Department line includes employees in Administration; Highway; Engineering; and Cemeteries, Trees and Greens. The largest of these divisions is the Highway Division, with 16 employees.

- The total number of employees (73) in the Department has remained the same from 2002 through 2011.

- The only department to have increased overall staffing in the past ten years is the Sewer Division, which has increased from 11 to 13, an 18.2% increase.

- Over this ten-year time period, the number of center line miles of roads has increased from 160 to 171 (increase of 6.9%); the number of sanitary sewer line miles has increased from 32 to 41 (28.1%); the number of hydrants increased from 1,323 to 1,399 (5.7%); the number of water main miles increase from 194 to 201 (3.6%); the number of pump stations increased from 15 to 16; and the number of wells increased from 16 to 17.

A summary profile of the Public Works Department is captured in the table below.

Item	Description
Governance	Three-member Board of Public Works, each elected for a three-year overlapping term. Its responsibilities include construction and maintenance, highways, water and sewer systems, tree care, and parks, including landscaping and ground maintenance of all town buildings and property, and other public works and related functions.
Management	Board of Public Works appoints a Superintendent for an initial three-year term, with annual subsequent appointments.
Budget	$3,198,813
Administrative Staff	9 (includes Dispatcher)
Technical and Field Staff	64
Technology in Use	SCADA (Water and Wastewater) Hach WIMS (Wastewater preventive maintenance and inventory system) Manual work order systems in place in field divisions GasBoy automated fuel dispensing system
Infrastructure Responsibilities	• 171 center line miles of paved surfaces • 60 linear miles of sidewalk • All Town parking lots

	• 140 vehicles, rolling stock and other pieces of equipment • 10 or 12 bridges • 201 linear miles of water distribution line • 42 linear miles of sewer collection line • 1,400 + hydrants • 4 water tanks • 16 pump stations (water) • 7 pump stations (sewer) • 2.1 MGD Wastewater Treatment Facility • 38 ball fields • 7 Cemeteries • Unknown number of street name and regulatory signs • One (1) Transfer station (charge $20 per resident vehicle for entry - $10 for senior residents)
Payroll period	• Once weekly
Collective Bargaining Units	• Supervisors, clerical personnel and Labor represented by same local AFSCME • Engineers covered under Personnel By-law • Superintendent not covered under collective bargaining

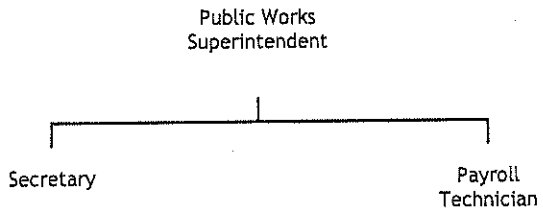
1. ADMINISTRATION

1. INTRODUCTION

Public Works' Administrative Division is responsible for all administrative and financial functions of the Department such as accounts payable and receivable, purchasing, payroll, permit sales, etc.

2. ORGANIZATION

The Administration Division is comprised of the Public Works Superintendent, a Secretary and a Payroll Technician. Public Works Administration's organizational structure is provided in the chart below.



3. STAFFING

In the table, which follows, a summary is provided of Public Works Administration staffing and key elements of responsibilities.

Division	Staffing by Classification		Key Elements of Staffing and Scheduling
Public Works Administration	Public Works Superintendent	1	• Provides the overall executive management and administration of divisions within the DPW. • Responsible for developing the overall priorities of the DPW, including the development of policies and procedures, performance goals and objectives, monitoring of budget, etc. • Prepares the operating budget and confers with Town Manager and Engineer on formulating the capital improvement program, and meets with division managers on a regular basis to discuss operations, issues, performance, etc. • Ensures that department operations conform with local, state, and federal government regulations, and other applicable rules and policies. • Meets with the public to discern needs, answer questions, receive comments and complaints, and to direct DPW resources to abate these concerns and complaints.
	Secretary	1	• Serves as primary assistant to the Superintendent, handling all correspondence, call screening, etc. • Serves as Secretary to the 3-member DPW Board, preparing agendas, minutes, assembling meeting packets, delivering to members • Processes invoices • Prepares all administrative work for the Cemeteries, Trees and Greens Division, preparing invoices for payment, selling lots, making deposits, preparing burial cards and lot owner cards, assisting customers in locating grave sites, lot numbers, etc. • Manages the Adopt-an-Island program • Answers phones, takes messages, disseminates general information to callers
	Payroll Technician	1	• Processes payroll input from component divisions and transmits to Town Payroll

4. Financial

The following table provides the actual budget for FY11 for the Department of Public Works.

Personnel	FY11 Budget	FY12 Budget
Salaries	$1,604,781	$1,815,051
Expenses	$588,658	$578,388
Snow and Ice	$375,000	$400,000
Automotive Fuel	$405,374	$405,374
Department Total	**$2,973,813**	**$3,198,813**

5. WORKLOAD

The following table provides selected workload information for the Administration Division.

Service	Workload
Payroll	• Once weekly for 73 staff members
Budget	• Department Superintendent oversees and is responsible for a total DPW budget of $3,198,813

2. ENGINEERING DIVISION

1. INTRODUCTION

The Engineering Division designs infrastructure improvement projects such as new water mains installations, cleaning and lining of water mains, storm drain system improvements, sanitary sewer system extensions, seawall repairs, roadway and intersection design, and other public works projects. The three professional staff members provide construction inspection of public works projects and subdivision developments. Land surveying is conducted to support town projects, requests from other town departments, and resident requests for street line location (on public ways). The Engineering division provides technical support to all Public Works divisions and town departments upon request. Projects are reviewed as part of Special Permit/Variance Applications, Subdivision Approval, and Building Permit applications. Building address numbers are assigned here, in coordination with the Assessor's Office, during the building permit process or as otherwise required.

The Engineering Division produces, updates and provides public access to the town atlas/assessors maps, plans of land, easement plans, taking plans, as-built sewer and drainage record plans, and various town maps (streets, zoning, voting precincts/districts, water distribution system, sanitary sewer collection system, storm drain system, etc.). The division is working with the town's Geographic Information System (GIS) Administrator in creating and updating GIS data layers and databases containing all of the same features shown on the town maps described above (see the town GIS web page for more information).

2. ORGANIZATION

The Engineering Division's organizational structure is portrayed in the organization chart below.

3. STAFFING

In the table, which follows, a summary is provided of the Engineering Division's staffing and key elements of responsibilities.

Division/Unit	Staffing by Classification		Key Elements of Staffing and Scheduling
Engineering Division	Chief Engineer	1	• Reviews and performs calculations on stormwater regulations. • Assigns and reviews the work of Project Engineers • Primary point of contact for public and for internal Town communications with Engineering • Licensed professional engineer
	Project Engineer (Civil)	1	• Coordinates paving program regarding schedules • Conducts on-site inspections of paving by contractors • Oversees engineering consultants performing design of roadway projects, roadway widening, signal timing, etc. Currently serving as project manager on Rte. 139 widening. • Generally oversees the construction of sea walls. • Reviews reports of bridge inspections, initiates repairs required by the State • Reviews subdivision plans for conformance to regulations
	Project Engineer (Environmental)	1	• Serves as Town environmental engineer • Serves as liaison with Corp of Engineers on sea walls, armoring beach with rocks, raising sea wall heights, etc. • Oversees catch basin cleaning disposal • Responds to oil spills • Custodian of the capped landfill, contracting for groundwater sampling, reporting to Board of Public Works • Contracts for the inspection of the transfer station
	Recycling Coordinator	1	• Deals with vendors who recycle at the Transfer Station • Follows trash trucks each day to ensure compliance with contract • Writes and submits a bi-weekly article on recycling and trash in the local paper • Makes presentations on local cable station on non-routine basis • Maintains the solid waste page of the DPW web site • Works with schools on recycling education and promotions • Serves as the recycling and trash enforcement officer; locates illegal dumps and conducts forensic analysis to determine who may be responsible • Implements new recycling programs and initiatives

			• Tracks PAYT bag sales at local stores • Coordinates the Earth Day program at schools as well as "America Recycles Day", at which magazines and phone books are collected and ice cream party is given to high-volume school • Oversees the clothing trailer and payments made to Town ($100 per ton collected) • Assists in Household Hazardous Waste collection day
	Administrative Clerk	1	• Sells transfer station tickets to residents throughout year, although the majority are sold in early months • Pays solid waste invoices for the Transfer Station • Develops and submits newspaper ads for Christmas tree pickup, Household Hazardous Waste Day, etc. • Sells compost bins • Enters sticker sales and purchase orders into computer • Takes calls related to missed trash pickups and forwards to Recycling Coordinator • Responsible for accounting and record-keeping related to funds collected at Transfer Station, wastes received and transferred • Prepares monthly report on budget and account status and submits to Supervisor

4. WORKLOAD

The following table provides selected workload information for the Engineering Division.

Service	Workload
Street Opening/Trench Permits	• Issued 240 in CY 2011
Environmental Assessments	• 2 in CY 2011
Plans Review	• 5 site plans, 4 sets of subdivision plans in CY 2011
Bridge Management	• "10 or 12" bridges in Town
Bid Specifications	• Developed specifications for 22 contracts

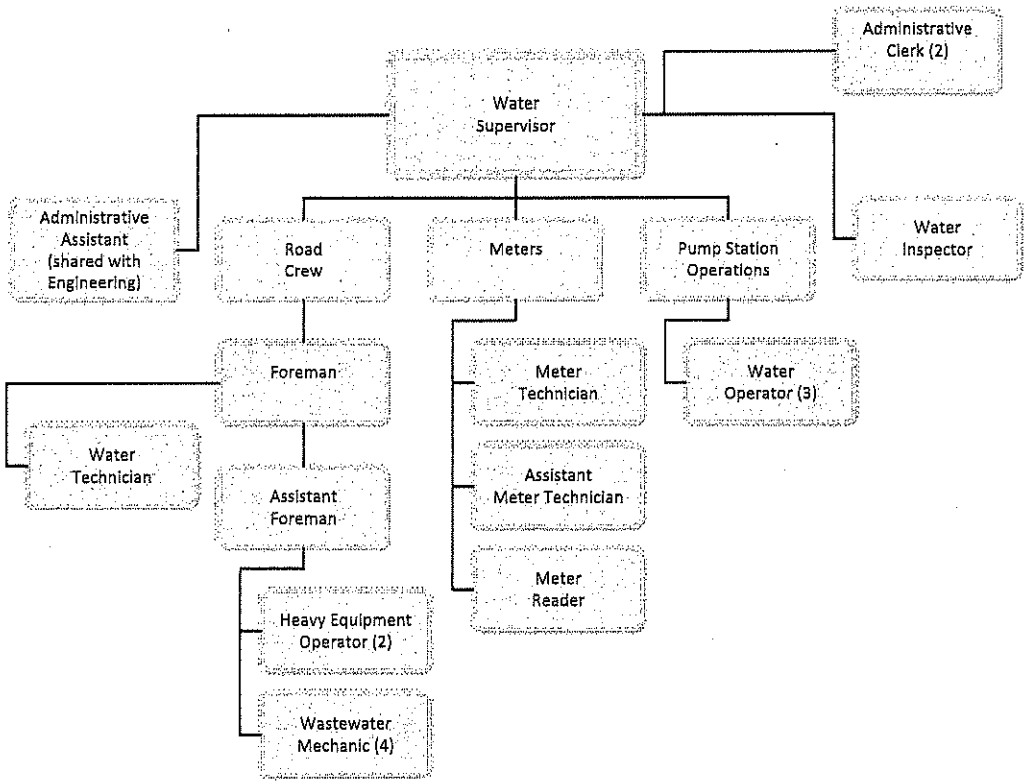
3. WATER DIVISION

1. INTRODUCTION

The Water Division provides safe, potable water to the citizens and businesses of the Town of Marshfield and surrounding communities of Duxbury, Scituate and Pembroke. It purifies approximately one billion gallons of water through a total of 9,966 services. The staff of the Division monitor daily water production, repair and maintain 202 linear miles of water main and 9,966 water service connections. The staff also inspects backflow devices, and bills for water, wastewater and trash.

2. ORGANIZATION

The Water Division's organizational structure is portrayed in the organization chart below.



3. STAFFING

In the table, which follows, a summary is provided of the Division's staffing and key elements of responsibilities.

Division	Staffing by Classification		Key Elements of Staffing and Scheduling
Water	Water Supervisor	1	• Oversees the operations of the Water Division, assigning work, developing budgets, developing policies and ensuring compliance, representing the division to the public

Division	Staffing by Classification		Key Elements of Staffing and Scheduling
			and in internal meetings and correspondence.. • Ensures that services are performed to customer satisfaction. • Ensures the timeliness of service provision. • Determines the needs for contract services and coordinates with contractors on timing and quality assurance.
Water	Administrative Assistant	1	• Prepares water/sewer and trash bills each month. Each of 6 precincts in the Town is billed bi-annually. • Receives billing complaints and handles as appropriate • Loads meter readings into meter reading guns • Investigates meter misreads • Handles bookkeeping for Water and Engineering Divisions, ensuring agreement with Accounting Department of the Town • Processes purchase orders for Engineering • Processes Chapter 90 funds for Engineering, copying invoices, sending to Engineering • Oversees the work of seniors who work in DPW under the tax abatement program. • Serves as backup for payroll processing as absences dictate
Water	Administrative Clerk	2	• One Clerk serve s as backup for water billing, completes financial statements, schedules on-call Water staff, types correspondences for water billings (e.g., letters to homeowners when access to home is needed, etc.), schedules final reads and inputs data. • One Clerk schedules backflow prevention device inspections, receives and initially reviews site plans submitted by the public, develops RFPs for engineering work, develops water connection fees.
Water	Water Inspector	1	• Inputs water tie-ins on manual cards • Serves as on-site construction inspector (currently on water tank replacement project)
Water	Water Technician	1	• Turns customer water on and off • Locates leaks • Locates water lines in response to customer requests prior to digging
Road Crew	Foreman Assistant Foreman	1 1	• The Foreman and Assistant Foreman work as members of two separate crews, comprised of themselves, 1 HEO and 2 Water Mechanics

Division	Staffing by Classification		Key Elements of Staffing and Scheduling
			• Receive work from the Supervisor, and assign work site tasks to individual members of their respective crews. • Oversee the work of the crew members and interact with contractors and the public at work sites. • Work of the crews includes replacement and repair of water lines, repair of shutoffs, repair of leaks, excavating of water and sewer lines, plowing of snow, digging of graves at cemetery
Road Crew	Heavy Equipment Operator (HEO)	2	• HEOs work primarily with backhoe on crew of 4. • Uses backhoe to gig water/sewer lines and trenches • Uses backhoe to dig graves at cemetery
Road Crew	Water Mechanic	4	• Performs manual labor at work sites. • Typically, there are 2 Water Mechanics on a crew.
Meters	Meter Technician Asst. Meter Technician Meter Reader	1	• Meter Technician primarily involved in conducting backflow testing. Also, replaces manual read meters with radio reads. • All staff read meters, test meters and make meter change-outs
Pump Stations	Operator	3	• One Operator works Tuesday through Saturday • One Operator works Sunday through Thursday • One Operator works Monday through Friday • Each Operator works from 7:00 am till 3:30 pm on assigned days. Schedule is designed to provide for coverage 7 days per week with at least one Operator • Operators add lime to the system each day to maintain proper pH and check and test pH on routine basis • Ensures proper functioning of pumps. Grease and maintain pumps • Sample water at least 60 times monthly and send samples to State-certified lab

4. WORKLOAD

The following table provides selected workload information for the Water Division.

Service	Workload
Infrastructure	• 201 linear miles of water line • 4 water tanks • Over 1,400 hydrants • "Thousands" of gate valves • 16 pump stations supply an average of 2.8 MGD (approx.. 2.5 MGD in winter, and 5.0 MGD in summer)
Repairs	• Repaired 4 main breaks in CY 2011 • Repaired 29 corporation leaks • Repaired 53 curb stops
Water Main Replacement	• Replaced 2,200 feet of water main in CY 2011 • Town has reportedly replaced all water line in past 17 years with ductile
Hydrants	• Added 3 hydrants in CY 2011 for a total of 1,399 currently • Repaired 19 hydrants in CY 2011 • Replaced 6 hydrants in CY 2011
Service Calls	• Made 1,421 service calls in CY 2011 • Made 38 emergency calls after hours

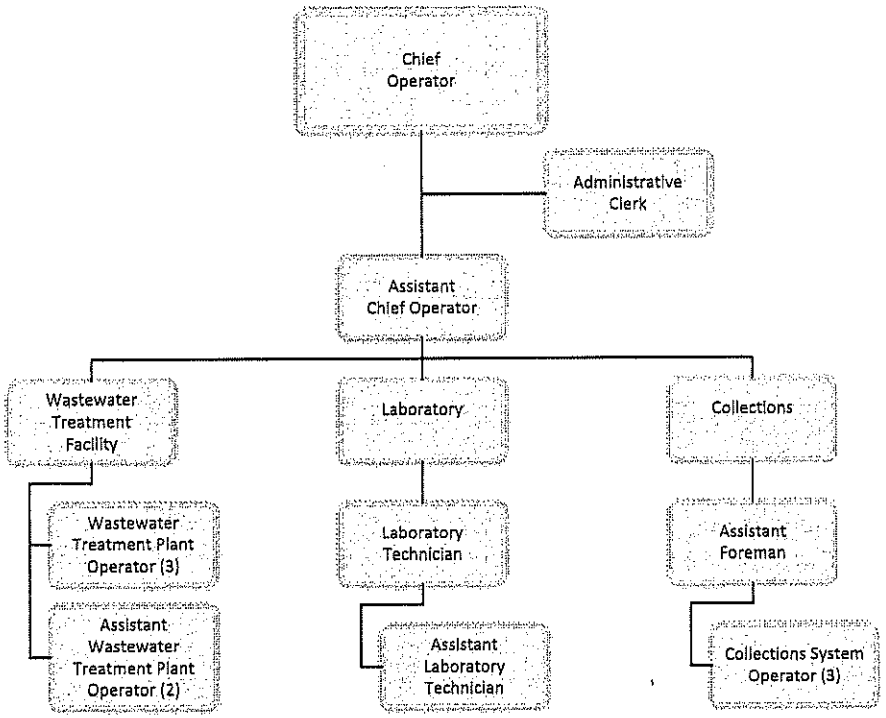
4. WASTEWATER DIVISION

1. INTRODUCTION

The Wastewater Division of Public Works is responsible for the operation and maintenance of the Town's 2.1 MGD Wastewater Treatment Facility (WWTF) built in 1978, remote pumping stations and 42 linear miles of sewer collection system.

2. ORGANIZATION

The Wastewater Division's organizational structure is portrayed in the organization chart below.



3. STAFFING

The following table provides a summary is provided of the Division's staffing and key elements of responsibilities.

Division	Staffing by Classification		Key Elements of Staffing and Scheduling
Wastewater Administration	Chief Operator	1	• Oversees the operations of the WWTF, assessing requirements for infrastructure and technology improvements, analyzing financials, determining appropriate service levels, administering discipline, etc. • Develops and transmits weekly activity list to Asst. Chief Operator • Ensures compliance with regulatory requirements. • Serves as the primary public interface of the WWTF. • Ensures that services are performed to customer satisfaction. • Ensures the timeliness of service provision. • Determines the needs for contract services and coordinates with contractors on timing and quality assurance.
Wastewater Administration	Administrative Clerk	1	• Answers phones • Communicates with Collection System Operators in the field • Retrieves sewer drawings for contractors • Prepares invoices for payables process • Receives checks from septage haulers • Orders parts and supplies • Updates destruction of applicable records • Schedules residuals haulers • Prepares time cards • Maintains personnel files, vendor license files • Tracks deposits (septage haulers, connection permits, etc.) • Tracks electrical invoices for Duxbury
Wastewater Administration	Assistant Chief Operator	1	• Coordinates the preventive maintenance program • Utilizes Chief Operator's weekly planned activities into daily activity list for transmittal to crews. • Orders parts for repairs and PM • Fills in for Chief Operator as absence requires

Division	Staffing by Classification		Key Elements of Staffing and Scheduling
Treatment Facility	Wastewater Treatment Plant Operator Asst. Wastewater Treatment Plant Operator	3 1	• Monitors the performance of all equipment, gauges and charts in the treatment plant and pump stations. • Records statistical data concerning plant operations.. • Maintains, operates, repairs and replaces equipment as necessary. • Operates, maintains, and repairs malfunctions at the wastewater treatment plant; repairs gauges, pumps, filters and other controls and equipment. • Maintains, modifies or repairs instrumentation and control equipment • Operates and maintains sewage pump stations. • Cleans wet wells and operates pumps and valves to control and adjust treatment process. • The WWTPOs rotate through shifts covering Saturday through Wednesday, 7:00 am to 3:30 pm, and from Monday through Friday, 7:00 am to 3:30 pm
Laboratory	Laboratory Technician	1	• Performs and oversees the performance of required tests in lab • Completes required reporting of tests
Laboratory	Assistant Laboratory Technician	1	• Conducts sampling • Runs most of the routine lab tests
Collections	Assistant Foreman	1	• Serves as crew leader in a crew. Depending upon availability, a crew is typically comprised of either the Asst. Foreman and a Collections System Operator, or 2 Collections Systems Operators. • Responsible for carrying out Asst, Chief Operator's daily activity plan in the field. • Serves as working member of field crew maintaining and repairing lines and pump stations.
Collections	Collections System Operator	3	• Under the direction of the Asst. Foreman, crew members maintain and repair pump stations and lines, televise lines, flush lines, etc.

4. WORKLOAD

The following table provides selected workload information for the Wastewater Division.

Service	Workload
Plant	• Maintain the WWTF with design capacity of 2.1 MGD • Primary and secondary treatment • Chlorine disinfection • Discharge into Ocean at a point approximately 3,000 feet from shoreline
Maintenance of Outlying (i.e.,non-plant) Structures	• 7 pump stations
Collection System Maintenance	• 42 linear miles of sewer line • Jet flush lines on a reported 3-5 year rotation, which equates to about 8 to 14 miles annually • Televised 2,060 linear feet of line in CY 2011. This equates to about 0.4 miles, or about 1% of the total system
Industrial Pre-treatment	• No IPT program
Safety Program	• WWTF personnel report that contractors have been previously hired to provide safety seminars on confined space, chainsaw safety, trench safety, etc., however there has been no meeting in the past year.
Sanitary Sewer Overflows (SSO)	• One recent SSO of approximately 5,000 gallons

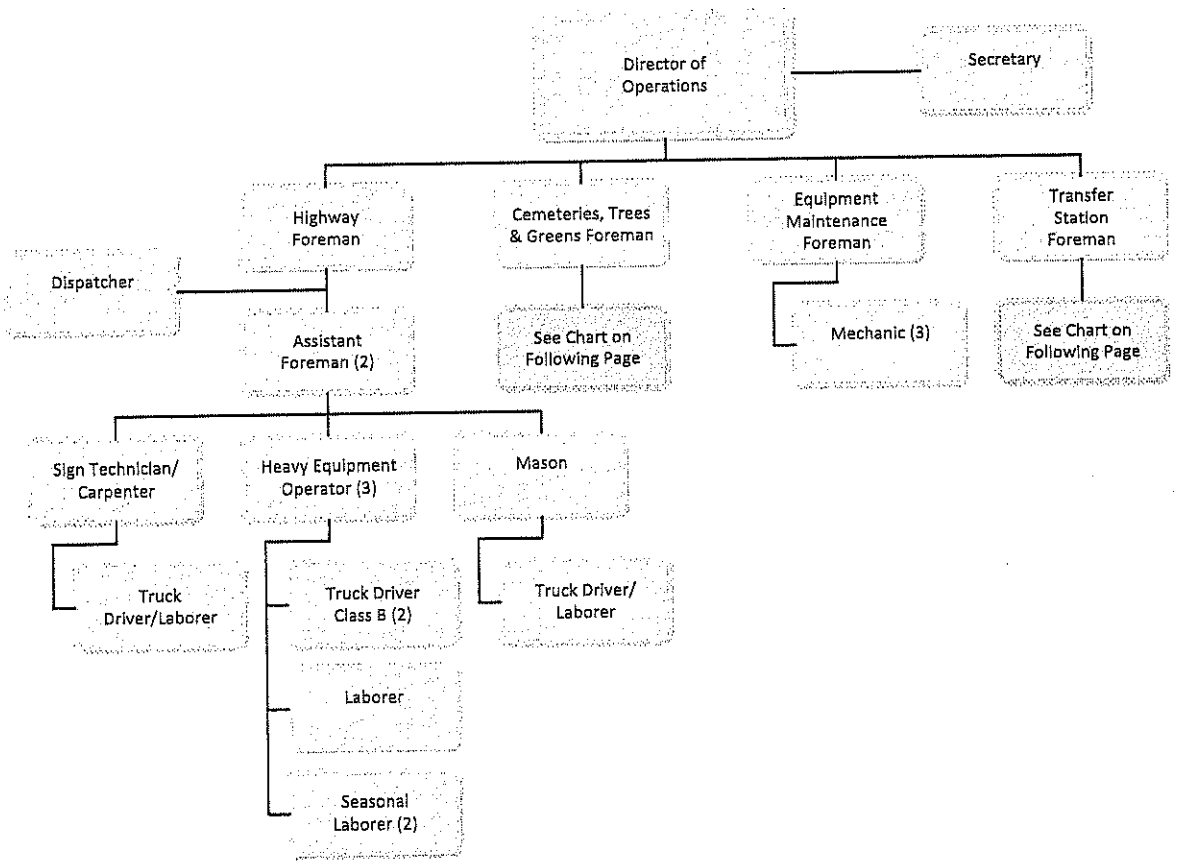
5. OPERATIONS DIVISION

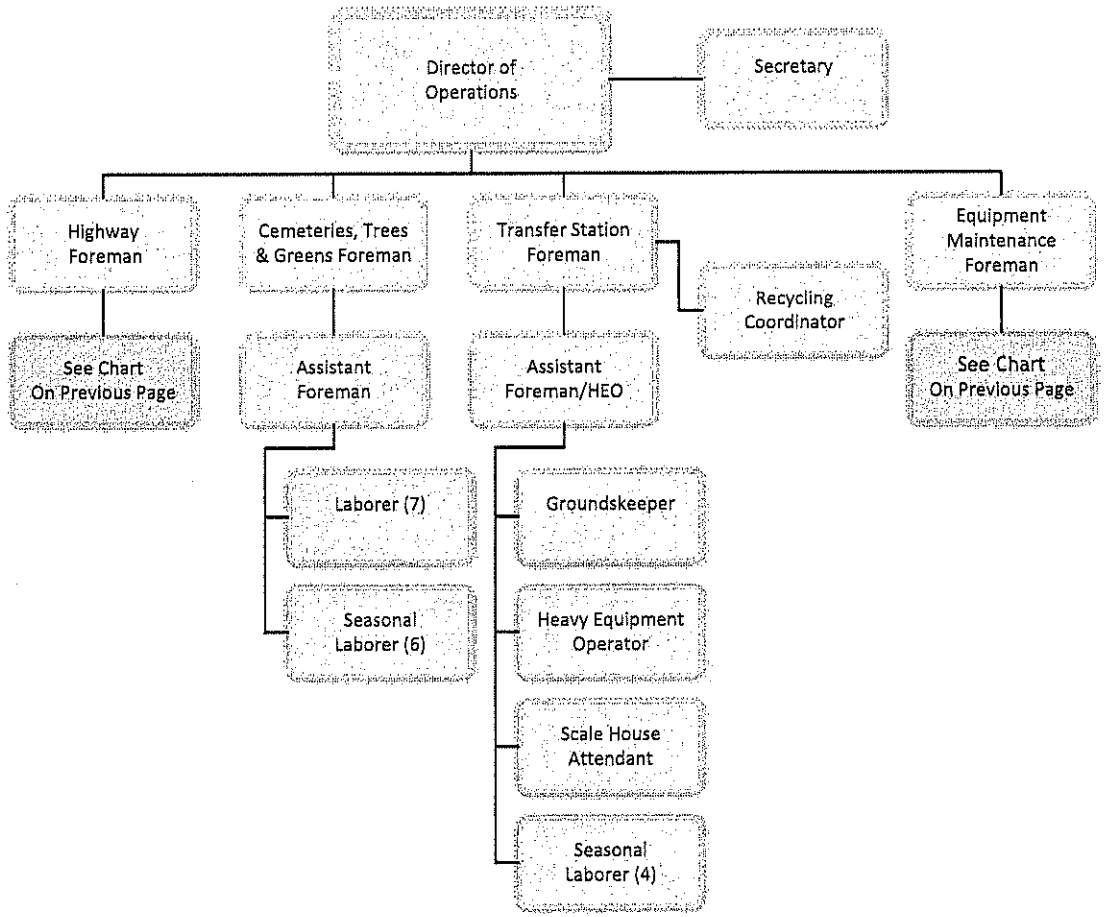
1. INTRODUCTION

The Operations Division of Public Works is comprised of the Highway; Cemetery, Trees and Greens; Solid Waste and Transfer Station; and Equipment Maintenance Units.

2. ORGANIZATION

The Operations Division's organizational structure is portrayed in the organization chart below.


Director of Operations
Secretary
Highway Foreman
Cemeteries, Trees & Greens Foreman
Equipment Maintenance Foreman
Transfer Station Foreman
Dispatcher
Assistant Foreman (2)
See Chart on Following Page
Mechanic (3)
See Chart on Following Page
Sign Technician/ Carpenter
Heavy Equipment Operator (3)
Mason
Truck Driver/Laborer
Truck Driver Class B (2)
Truck Driver/ Laborer
Laborer
Seasonal Laborer (2)



3. STAFFING

The following table provides a summary is provided of the Division's staffing and key elements of responsibilities.

Operations	Director	1	• Oversees the operations of the Highway; Cemetery, Trees and Greens; Solid Waste and Transfer Station; and Equipment Maintenance Units, assessing requirements for infrastructure and technology improvements, analyzing financials, determining appropriate service levels, administering discipline, etc. • Ensures compliance with Town specifications and regulations, as well compliance with state and federal requirements related to the operation of the transfer station. • Serves as the primary public interface of the Operations Division. • Ensures that services are performed to customer satisfaction. • Ensures the timeliness of service provision. • Determines the needs for contract services and coordinates with contractors on timing and quality assurance.
	Secretary	1	• Handles correspondence for the Highway; Cemetery, Trees and Greens; Solid Waste and Transfer Station; and Equipment Maintenance Units. • Processes payroll for the Operations Division units and transmits to DPW Administration. • Processes invoices for Highway; Cemetery, Trees and Greens; Solid Waste and Transfer Station; and Equipment Maintenance Units. • Fills in for Dispatcher, handling incoming calls from public. • Makes gas cards for new employees
Highway Unit	Highway Supervisor	1	• Oversees daily operation of Highway Division, supervises and assigns work. Oversees Asst. Foremen and all other working foremen in the Highway Unit. • Plans next day's projects and schedules, ensuring required equipment and materials are on hand..
	Assistant Foreman	2	• Working crew members, acting as crew leaders to assigned crew. • Responsible for making field changes as conditions require, or asks for guidance as necessary.
	Heavy Equipment Operator	3	• Utilizes front end loaders and excavators as members of crews performing streets and highways removal, replacement, maintenance or repair. • Uses clam truck to clean out catch basins in response to emergency backups.
	Truck Driver	2	• Serves as Laborer on assigned crew. • May drive 10-wheel or 6-wheel dump to haul materials such as brick, fill, etc. to and from work sites • Mixes cement, spreads gravel, maintains berms, sweeps sidewalks and roadways, clans drainage ditches, patches potholes, spreads loam, repairs seawall caps, cleans storm drains, repairs manholes, and other tasks. • Collects rubbish on beach

	Laborer	1	• Serves as Laborer on assigned crew using hand tools as required. • Mixes cement, spreads gravel, maintains berms, sweeps sidewalks and roadways, clans drainage ditches, patches potholes, spreads loam, repairs seawall caps, cleans storm drains, repairs manholes, and other tasks. • Collects rubbish on beach
	Seasonal Workers	2	• Works from June through August • Serves as Laborer on assigned crew using hand tools as required. • Mixes cement, spreads gravel, maintains berms, sweeps sidewalks and roadways, clans drainage ditches, patches potholes, spreads loam, repairs seawall caps, cleans storm drains, repairs manholes, and other tasks. • Collects rubbish on beach
	Sign Technician/Carpenter	1	• Checks signs for reflectivity • Repairs, replaces and installs signs as necessary • Creates forms for sidewalks and sea walls • Stripes crosswalks, stop bars, handicapped spaces and parking lots
	Truck Driver/Laborer	1	• Digs holes for signs • Assists with repair of water main breaks
	Mason	1	• Sets and checks forms holding concrete • Spreads, levels and smoothes concrete • Sets and lays brick
	Truck Drive/Laborer	1	• Hauls materials to and from work sites, working primarily with Mason.
	Dispatcher	1	• Receives calls from residents, Police, Fire, etc., and dispatches appropriate crew members to the site • Answers two-way radio • Monitors weather • Fills out work orders • Calls Dig Safe requests in
Cemeteries, Trees and Greens	Foreman	1	• Assigns work to crews and also serves as working crew member • Hauls brush to chipper • Assures safety on site • Reports work accomplished on Work Slips
	Assistant Foreman	1	• This is a new position that is currently vacant • Fills in for Foremen when that incumbent is absent • Works with 2 Laborers cutting, trimming trees and limbs • Uses bucket truck to accomplish work
			• Two (2) Laborers work with Asst. Foreman on tree trimming, pruning, cutting

	Laborer	5	• Others work on athletic fields and cemeteries, mowing, trimming, removing debris • Mows roadsides
	Seasonal Worker	6	• Works from June through August • Performs manual labor at cemeteries and athletic fields, mowing, trimming and removing debris • Mows roadsides • Pours foundations for graves, sets markers
Equipment Maintenance	Foreman	1	• Assigns work to Mechanics • Assures that repairs and maintenance are performed appropriately and in accordance with safety requirements and customer needs • Develops and implements preventive maintenance schedule and ensure compliance
	Mechanic	3	• Repairs and maintains vehicles, equipment and small engines both reactively and in the context of a preventive maintenance schedule. • Obtains necessary parts for repairs and maintenance • Diagnoses vehicle and equipment malfunctions using diagnostic equipment and experience in similar repairs.
Transfer Station	Foreman	1	• Works Mon-Fri from 8:00 am till 4:30 pm • Assigns work to transfer station staff • Possesses Class A license; moves 100 yard trailer within premises • Handles more complex questions, requests, and irate customers • Inspects trash on random basis monthly to determine the extent of recyclables contained in the trash • Inspects the landfill cap • Takes weekly temperatures of compost pile
	Assistant Foreman	1	• Works Mon-Fri from 8:00 am till 4:30 pm • Fills in for Foreman as necessary • Possesses Class A license; moves 100 yard trailer within premises • Performs grounds maintenance • Loads trash into trailers • Loads contractor demolition
	Groundskeeper	1	• Works Tue-Sat from 8:00 am till 4:30 pm • Cuts brush either by hand or with equipment at the transfer station • Picks up trash, glass on grounds • Runs compactor
	Heavy Equipment Operator	1	• Works Tue-Sat from 8:00 am till 4:30 pm • Pushes trash on tipping floor and at compactor • Turns compost piles

	Scale House Attendant	1	• Works Mon-Fri from 8:00 am till 4:30 pm • Handles requests and answers questions from visitors to the Transfer Station • Checks for permits on vehicles prior to admission to the transfer station • Weighs trash and takes checks for trash dumped at
	Seasonal Worker	4	• Works Mon-Fri from 8:00 am till 4:30 pm from June through August • Picks up roadside trash • Mows and removes weeds at landfill

4. WORKLOAD

The following table provides selected workload information for the Streets Division.

Service	Workload
Maintain Roads	• 171 center line miles • There are 12.5 maintenance staff members in the Highway Division maintaining these roads. This equates to about 13.7 miles per position.
Snow Removal	• Responsible for clearing 171 center line miles of roadway and 60 linear miles of sidewalk and Town parking lots. • In CY 2011, there were 6 sanding operations and 9 snowstorms, • Used 3,200 lbs of salt, 900 yards of sand in snow removal efforts in CY 2011 • Expended 3,643 hours of overtime in snow removal (at 1.5 times hourly pay, this equates to about 3.5 FTE (utilizing 1,650 available hours per FTE). • Contracted for 3,754 hours of contractor effort in snow removal.
Remove/Prune trees	• No data on number of trees in Town inventory • No data on numbers of trees pruned or removed
Traffic Signs and markings	• Used 315 gallons of paint to stripe traffic lines, parking lots, crosswalks, stop bars • Repaired and maintained 150 traffic signs • Replaced 400 street and regulation signs
Vehicle Maintenance and Repair	• Approximately 140 vehicles and pieces of equipment maintained and repaired for all Town Departments

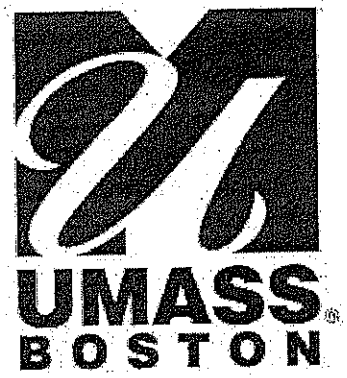
Service	Workload
	(excludes schools) with 1 Foreman and 3 Mechanics • This equates to an approximate vehicle to mechanic ratio of 35:1 • Utilize GasBoy automated fuel dispensing system
Solid waste and recycling program management	• Administered contract with private hauler (Waste Solutions, Inc.) which collected and disposed of 7,106 tons of solid waste in FY 2011, and 8,043 tons in FY 2010 (decrease of 11.6%) • Collected 2,955 tons of recyclables in FY 2011, and 3,105 tons in FY 2010 (4.8% decrease). • Holds an annual Household Hazardous Waste collection day, at which 299 cars were serviced in Sep., 2010.
Grounds and Field Maintenance	• Responsible for maintenance and interments at 5 major cemeteries and 38 ballfields at schools and recreational facilities. • Maintains the grounds at all Town playgrounds and parks, as well as grounds at the Fire stations, Police station, recreation center, Town Hall, school administration building, DPW garage, and Library (16 acres) • Mows 120 acres of school grounds on weekly basis • Responsible for mowing 180 acres on a weekly basis • Trim all headstones in cemeteries bi-annually • Poured 30 foundations at cemeteries • Held 89 interments in CY 2011 • Sold 67 cemetery lots in CY 2011
Catch Basin Cleaning	•

APPENDIX B

COMPARISON OF PUBLIC WORKS OPERATIONS TO BEST MANAGEMENT PRACTICES

Diagnostic Assessment of the Department of Public Works

TOWN OF MARSHFIELD, MASSACHUSETTS



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DIAGNOSTIC ASSESSMENT OF THE DEPARTMENT OF PUBLIC WORKS

Town of Marshfield, Massachusetts

While the management analysis for the Town of Marshfield's Department of Public Works is designed to provide an analysis of operations, organizational structure, and staffing, a comparison to 'best practices' represents an important step for the project team to report its preliminary findings and issues. In order to make the assessments of operational strengths and improvement opportunities, the project team developed a set of performance measures which we call "best management practices" against which to evaluate the Department and its component divisions. These performance measures comprise the main thrust of this diagnostic assessment.

The measures utilized have been derived from the project team's experience and represent the following ways to identify departmental strengths as well as improvement opportunities:

- Statements of "effective practices" based on the study team's experience in evaluating operations in other agencies or "industry standards" from other research organizations.
- Identification of whether and how the Department meet the performance targets.
- A brief description of potential alternatives to current practice.

1. OPERATIONS

1.A. CEMETERY, TREES AND GREENS MAINTENANCE

Performance Target	Strengths	Potential Improvements
Existence of regulations regarding unsightly decorations.		The Division has no published rules and regulations regarding unsightly decorations on graves.
Existence of regulations regarding length of time live decorations may remain at gravesites.		The Division has no published rules and regulations regarding how long live decorations may remain at gravesites.
Searches for grave sites may be accomplished through the Cemetery web site.		There is no interactive web site at which interested individuals may determine the locations of specific graves. This must be done either by searching the cemeteries themselves or by inquiring at the Public Works garage.
The Cemetery utilizes GIS to enter land information and spatial data for all grave sites.		The Cemetery Division does not utilize GIS to any degree.

Performance Target	Strengths	Potential Improvements
Staffing at the level of one FTE per 8 – 10 acres of developed turf at a B level of maintenance.		The Division reports that there are approximately 50 developed acres in Couch Cemetery; 7 in Cedar Grove; 5 each at Winslow and Hills; and 2 at the small historic cemetery, for a total of about 69 developed acres. This acreage is maintained by 3 Laborers and 6 seasonal Laborers who work 2 months of the year, equating to about 1.0 FTE of seasonal labor and 3.0 FTE during the year, for a total of 4.0 FTE. (There are an Asst. Foreman and 2 additional Laborers, however these are dedicated to tree trimming). However, the cemeteries are not the only acreage maintained on a regular basis by the division. There are an additional 100+ acres of playgrounds and athletic fields maintained as well, and the time expended in maintaining these fields cannot be segregated from the time expended in cemetery maintenance. The total of 4.0 FTE maintaining the approximate total of 170 acres equates to about 42.5 acres per FTE, which equates to far less than a B level of maintenance.
Formal maintenance management system in place for cemetery.		There is no formal maintenance management plan for cemetery maintenance. Work is assigned to the crews on an as-needed basis.
Tree trimming schedule exists for trees- 3 to 5 year cycle.	The Unit has recently purchased a bucket truck, and hired an Asst. Foreman who will lead a crew of two Laborers in trimming trees on a more routine basis than has been the case in recent years.	

Performance Target	Strengths	Potential Improvements
Existence of an inventory of all trees for which the Town is responsible, which includes location, age, type of tree and the maintenance cycle for each.		There is no inventory of town-owned trees.
Maintenance activities are documented in sufficient detail to allow managers the ability to analyze workloads and productivity of crew members.		Work is recorded on manual work order sheets, however, the data are not summarized in any detail that facilitates analysis by supervisors or managers.
Parks are being maintained in good condition.	The project team did not observe all parks maintained by the Division staff, however, the playing surfaces on the youth baseball complex appeared to be well maintained.	Areas outside the fences at the baseball fields had not been mowed or trimmed recently.

Performance Target	Strengths	Potential Improvements
A formal infrastructure preservation plan has been developed for parks.		There is no infrastructure maintenance plan in place that outlines frequencies for such major activities such as for trees and shrubs (with seasonal frequencies related to planting, fertilization, mulching, pest control, etc.); ground covers (with planting, weed control, pest control, trimming frequencies identified); ornamental grasses; lawn care (with mowing, aeration frequencies, de-thatching frequencies, etc., identified). The Parks, Trees and Greens Unit of the Operations Division has limited staff resources to accomplish most of these tasks. However, the Unit has also not developed a formalized plan to identify the tasks and frequencies of sub-tasks that need to be accomplished. This would assist in determining not only the longer-term activities required, but would also assist in quantifying the levels of service that are achievable with varying levels of staff members.
Web site provides residents with helpful information in user-friendly format		There is little information provided on the web site about the Town's parks. The site does note the areas that it maintains, including 7 parks and 32 ballfields, however the website should be significantly enhanced to provide a link to forms that provide locations, sizes, facilities and amenities available at each, facilities that may be rented (as well as fees), hours of operation, etc.

Performance Target	Strengths	Potential Improvements
Web site provides residents with helpful information in user-friendly format		There is no information on the DPW web site regarding the cemeteries in the Town, their locations, size, sales information, assistance with grave locations, etc.

1.B. VEHICLE MAINTENANCE

Performance Target	Strengths	Potential Improvements
Existence of centralized fleet management program for the City.	The Equipment Maintenance unit of the Operations Division maintains all units for the Town. This ensures the efficient use of vehicle maintenance staff and consolidates inventory.	
Existence of funded vehicle replacement program?		There is no vehicle replacement fund. Equipment replacement is accomplished on a year-to-year basis and occurs as funding is available.
Centralized and standardized system of identifying vehicles and equipment for replacement.		Each Town department makes its own decisions regarding which units should be replaced, determines its own specifications and required funding, and makes its own request for this funding. This method does not ensure that the equipment most needing replacement is removed from the fleet.
Existence of fleet management information system to monitor vehicle repair history, mechanic utilization, etc.?	The Equipment Maintenance Unit does record all maintenance, repairs and parts costs on a manual work order.	There is no automated vehicle maintenance information system.
Existence of automated fuel dispensing system?	The Town maintains a GasBoy pump at the Maintenance garage for all Town departments to use when fueling equipment. The department is identified at the pump by the user.	The GasBoy system is antiquated, and does not report fuel efficiency. Further, it is incapable of recording odometer readings, and cannot therefore report on vehicle and equipment utilization.

Performance Target	Strengths	Potential Improvements
Fleet Maintenance is organized and established as in Internal Service Fund, charging user departments for parts and services.		This is not the case. The Public Works Department's Equipment Maintenance unit provides its services through a General Fund appropriation, and departments do not budget for these services.
An effective preventive maintenance program is in place.	The Equipment Maintenance Unit has a PM program. The project team analyzed a sample of equipment to determine whether units enter the garage on a routine basis in accordance with the established schedule, and is satisfied that this is generally the case.	
An effective facility is available for Fleet Services that enhances their productivity.	There are sufficient numbers of bays in the garage to accomplish the required maintenance.	The garage was built in the 1970s. It lacks sufficient height to accommodate fire apparatus.
The size of the fleet and the vehicle equivalency units are balanced with the number of authorized staff.	The Equipment Maintenance Unit reportedly repairs and maintains about 133 vehicles and pieces of equipment, equating to 336 Vehicle Equivalent Units (VEU) with 3 Mechanics, and a Foreman on an as-needed basis. This equates to an approximate VEU to mechanic ratio of 112 : 1, which is generally in the acceptable range if the age and condition of the equipment are also acceptable. Typically, the ratio of VEUs to mechanics is between 90 and 110, however it is also true that the Foreman fills in as necessary, effectively lowering the range.	
Fleet maintenance staff are ASE certified.	Mechanics are all reportedly Emergency Equipment Technicians (EVTs), and also reportedly attend maintenance classes on a consistent basis.	Mechanics are not ASE certified

1.C. HIGHWAY MAINTENANCE

Performance Target	Strengths	Potential Improvements
Existence of formal work planning and scheduling system.		The Highways Units does not utilize a formal work planning and scheduling system.
An automated maintenance management system is utilized to track and report work output, service levels and productivity.		Although crews in the Unit record work on manual daily work sheets, these are not summarized in an automated maintenance management system in order to provide meaningful productivity reports for management use.
Staffing in the Division's street maintenance function approximates 10 to 12 center line miles of asphalt surfaces per Street maintenance worker.		The Highway Unit maintains 171 center line miles of paved surfaces, plus about 20 miles of unpaved surfaces, with 12.5 FTE, which equates to about 15.3 miles per Highway Unit staff member.
Potholes are patched promptly.	Potholes are reportedly patched promptly.	The Operations Division does not report the time between reported potholes and the response times to each.
Formal pavement management system in place.	The Unit reportedly drives each road segment and determines the locations that are in greatest need of resurfacing or reconstruction.	No formal pavement management system is in use.

Performance Target	Strengths	Potential Improvements
The Department resurfaces 5% to 8% of paved surfaces annually.	The project team does not possess data related to the number of miles of resurfacing for any annual time period.	The Department reports that the Town's contribution to resurfacing has been cut by about $250,000. Chapter 90 funds of about $750,000 are received annually, however. This amount, in the experience of the project team, would be sufficient to fund only between 1 and 2 miles of resurfacing, equating to less than 1% of the total on an annual basis.
Sidewalks are checked regularly for tripping hazards and the hazards eliminated.	The Mason reportedly checks this regularly.	
Major road repairs and reconstruction contracted out.	All road surfacing projects are outsourced, as is all catch basin cleaning.	
Evaluation of contracting conducted in street maintenance.	The Unit has contracted out the large majority of catch basin cleaning, center line and fog line striping, leaf collection and yard waste collection, sold waste and recycling collection.	
Periodic inspection of sign reflectivity.	This is reportedly done annually.	The Unit has no sign inventory that shows locations of signs, last date of replacement, last date of reflectivity check, and history of maintenance.
Annual painting of school cross walks, bi-annual painting of other cross walks. Legends painted on arterials every year, collectors at 18 mos., and residential at 2 years.	Center line and fog line striping are contracted out. The Unit reports that school cross walks are painted annually, and legends are painted as required.	

Performance Target	Strengths	Potential Improvements
Web site provides residents with helpful information in user-friendly format		The web site is not informative or interactive. It does not provide information to residents, or other visitors, relating to street closures, street resurfacing projects, nor ways of reporting needed work on roadways, It also does not provide a FAQ section.
Sweepers accomplish 28-32 curb miles swept per day on average.		
Catch basins are cleaned on a 2-year cycle.	Catch basin cleaning has been contracted out.	Catch basin cleaning was outsourced reportedly due to their poor condition.

1.D. RECYCLING

Performance Target	Strengths	Potential Improvements
An aggressive recycling rate goal has been set, with specific time frames for accomplishment of the goal.	The Division reports that it has a goal of 30% waste stream diversion rate.	
Waste reduction efforts have been focused on programs that educate businesses and residents.	The Recycling Coordinator publishes bi-weekly recycling articles in the local paper, maintains part of the DPW web site, develops and implements programs with schools, administers "America Recycles Day", and has made appearances on the local cable station (although not recently).	There are no proactive educational programs for businesses.
On-site waste assessments and technical assistance are offered to businesses to provide a service-oriented approach to waste reduction.		There is no targeted program to assess commercial waste to determine methods of reducing waste.
The Division has instituted a program to manage certain household hazardous wastes (HHW) and problem materials through recycling, diversion, reusing, reduction or proper disposal methods.	The Transfer Station is equipped to accept E-waste and scrap metal. The Coordinator also assists in the provision of a household hazardous waste day.	
Web site provides residents with helpful information in user-friendly format	The Trash and Recycling web page of the DPW site is informative and answers most questions residents may have regarding these services. This is the most informative of the DPW web pages and reflects a high degree of attention to resident needs.	

2. WATER

Performance Target	Strengths	Potential Improvements
Goals, objectives, and performance measures have been developed to provide a guide for decision-making, link actions to the broad goals of the Department Superintendent, Town Administrator and Board, and define what resources ought to be allocated to what utility services.	The Division reports various performance measures in the Town's Annual Report, including gallons of water pumped, average daily usage, leaks and curb stops repaired, hydrants added to the system, hydrants replaced and repaired, service calls made, etc.	Although the Division does report certain workload measures, they do not reflect the efficiency with which the work was performed. For instance, there were 29 corporation leaks repaired in CY 2011, however there is no context provided for the number, nor is there any indication of the personnel and material resources utilized in repairing these leaks.
Managers provide regular progress reports (e.g. monthly or quarterly) relative to individualized performance objectives.	Like all other divisions, the Water Division does report the work it performs, and highlights issues, problems and likely upcoming capital needs.	There are no periodic reports issued that would provide the Superintendent or the Board with any information with which to assess the efficiency of the use of personnel, equipment or materials.
The department maintains and publishes a clearly written, multi-year (five years at a minimum) strategic plan to provide vision and direction for the department's effort. The plan clearly delineates the department's goals, and objectives and strategies for achieving them.		The Water Division has no formal strategic plan. Although capital projects and other longer-range objectives are identified by the Division, it has not engaged in a SWOT analysis that may identify and address key issues (future water capacity needed, staffing levels to meet these requirements, regulatory compliance, etc.), develop a mission and long-term vision, develop strategies to address the vision, develop action plans for implementation, etc.

Performance Target	Strengths	Potential Improvements
A formal safety program is in place that includes training, guidance documents and operational procedures, all of which are prominently posted.		
An effective asset management system has been installed that includes an inventory of the infrastructure to be maintained with details (e.g., size) about components to be maintained and where the components are located, a computerized maintenance management system, condition assessments, maintenance and rehabilitation strategies, and sustainable funding levels for maintenance and rehabilitation for the pump stations.		Neither the Water Division, nor the DPW generally, have mapped the locations of its infrastructure in GIS. The Division has not defined the schedules and procedures for maintaining each asset, captured historic workloads for their maintenance, and defined the impacts on its infrastructure at various levels of staffing or capital dollar infusions.
An effective cross connection inspection program is in place.	There are 195 identified backflow prevention devices in commercial establishments that are inspected by the Division's Meter Technician either once or twice annually.	There is no charge for the inspection of a backflow prevention device.
Quality assurance and validation procedures for water sampling and testing have been installed and are utilized.	These are reportedly in place and are performed by the three Water Operators in the field.	The project team is not aware of any documented chain of custody procedures, and sample collection procedures.

Performance Target	Strengths	Potential Improvements
1% to 2% of water mains are replaced annually. This formal program is linked directly to a long-term capital and financial planning program to assure adequate funding.	Although the project team does not possess any definitive figures for the numbers of miles of actual replacement of distribution line by year, 100% of the system has reportedly been replaced with ductile pipe in the past 17 years. This is a particular strength of the Department, and has doubtless been at least partially responsible for the relatively few main breaks in the past several years.	
Distribution valves are exercised routinely.	Gate valves are reportedly exercised periodically, as time and employee availability permit.	There is no plan for exercising all valves in the system and there is also no inventory of gate valves, as interviews indicate only that there are "thousands". All gate valves should be located, with records of both planned and actual maintenance on each. Being able to locate and turn valves is critical, especially during instances of main breaks. It is worth noting here that there are relatively few main breaks in a typical year, however on those occasions of breaks, quick location and ease of closure will result in minimizing water loss, easier repairs and less property damage.
Water meter replacement is within 15 to 20 years and larger commercial meters are tested for registration accuracy in accordance with AWWA recommendations.	The Division has replaced approximately half of all water meters with radio read meters, which will facilitate the reading of these meters, and will result in greater accuracy and reliability.	
Water pump stations are checked weekly. Detailed PM of the pump stations is conducted in accordance with mfg. recommendations.	Pump stations are monitored daily.	

Performance Target	Strengths	Potential Improvements
Water storage tanks are inspected and cleaned no less than once every five years.	The project team could not determine this frequency during the time period of on site work.	
Fire hydrants are flushed annually.	This is conducted by the Fire Department, although the project team does not possess data to determine the frequency with which this occurs.	The Fire Department reportedly does not communicate to the DPW when the flushing will occur.
Water treatment staff hold appropriate certification.	This is reportedly the case.	
Existence of a formal maintenance management work planning and scheduling system.	The work of the Meter Reading sub-unit is programmed and can be scheduled in advance. There are also about 60 planned and scheduled water samples at various points in the distribution system.	Without a summarized detail listing of work accomplished, it is difficult to assess the degree to which the Water Division plans and schedules its work. However, it may be indicative of the nature of the work accomplished that almost all of the workload measures reported in the Annual Report are reactive in nature. These include repair of corporation leaks, hydrant repairs, emergency after-hours calls, curb stop repairs, etc.
An automated maintenance management system is utilized to track and report work output, service levels and productivity.	The Division does record all crew assignments each day on a daily work sheet. This sheet documents the name of the crew member, position grade, the vehicle number used in the work, and the description of the work assigned. The sheet also records the daily temperature, date, and the weather (clear, cloudy, etc.)	The Water Division has no automated information system that summarizes workloads, personnel and crews utilized on specific jobs, materials and equipment used, etc. The manual work sheet used each day is not summarized, and records only descriptions such as "Hydrants", "watermain", etc. without a description of what was actually accomplished. Further, the work record does not indicate the number of hours expended on each job, nor whether it was a continuation from the previous day or is to be continued on the following day.

Performance Target	Strengths	Potential Improvements
The Utility has automated meter reading (AMR) technology	The Division is making the transition to radio read technology, and is reportedly about halfway through the process of change outs.	
For manual read systems, meter reading staff read between 4,500 and 5,000 meters per month.		There are approximately 10,000 metered services in the Town, with each being billed bi-annually, equating to about 20,000 reads during the year, or about 1,666 per month. Therefore, each of the three Meter Readers reads about 556 per month. It should be noted that this is only an average of the three Meter Reading personnel. Not all focus on meter reading the majority of the time. One Meter Technician expends most available time performing inspections of backflow prevention devices. The other two change out meters and wires during much of their available time. However, the 556 average figure is low and indicates that there may be excess capacity in this area.
Periodically evaluate the feasibility of outsourcing certain functions.		There is little outsourcing in this Division.

Performance Target	Strengths	Potential Improvements
Web site provides residents with helpful information in user-friendly format		The web site could be significantly enhanced through the provision of a simplified description of the water distribution process, perhaps even including a schematic that describes, at a very high level a description of the sources, transmission lines, and other information. As the Town benefits from a water supply that is relatively free from contaminants, it may also describe this fact. Since the Town also provides water to Scituate, Duxbury and Pembroke, this should be described as well. The site could also benefit from the inclusion of information on capital improvements (both recently completed, as well as planned, and the costs of each), backflow prevention program description (as well as types of devices and how installed, and what to expect in an inspection), water rates, conservation measures, typical consumption rates for various family sizes, information on operational hours, what to do in cases of water odors or colored water, as well as others.

3. WASTEWATER

Performance Target	Strengths	Potential Improvements
Goals, objectives, and performance measures have been developed to provide a guide for decision-making, link actions to the broad goals of the Department Director, City Manager and Council, and define what resources ought to be allocated to what utility services.	The Division reports various performance measures in the Town's Annual Report, including feet of collection line jet cleaned, feet video inspected, total flow on a daily basis, etc.	Although the Division does report certain workload measures, they do not reflect the efficiency with which the work was performed. For instance, there were 55,223 linear feet jet cleaned in CY 2011, and 2,060 feet video inspected, however there is no indication as to the efficiency of the use of the personnel, material and equipment resources utilized to accomplish these workloads. Nor is there any indication of the work that may have been planned, but not accomplished.
Managers provide regular progress reports (e.g. monthly or quarterly) relative to individualized performance objectives.	The Wastewater Division is the only division in DPW utilizing any type of automated information system. This system (Hach WIMS) is currently utilized only for the input of treatment plant mechanical systems.	The Hach WIMS system is underutilized as an information system, and the Division is not currently utilizing the system to track preventive maintenance performed on the plant mechanical systems.
The department maintains and publishes a clearly written, multi-year (five years at a minimum) strategic plan to provide vision and direction for the department's effort. The plan clearly delineates the department's goals, and objectives and strategies for achieving them.		The Wastewater Division has no formal strategic plan. Although capital projects and other longer-range objectives are identified by the Division, it has not engaged in a SWOT analysis that may identify and address key issues (future wastewater capacity needed, staffing levels to meet these requirements, regulatory compliance, etc.), develop a mission and long-term vision, develop strategies to address the vision, develop action plans for implementation, etc.

Performance Target	Strengths	Potential Improvements
A formal safety program is in place that includes training, guidance documents and operational procedures, all of which are prominently posted.	The Division reports that it did at one time have regular meetings.	There have reportedly been no formal safety meetings in the past several years.
An effective asset management system has been installed that includes an inventory of the plant to be maintained with details (e.g., size) about components to be maintained and where the components are located, a computerized maintenance management system, condition assessments, maintenance and rehabilitation strategies, and sustainable funding levels for maintenance and rehabilitation for the plant.	As noted above, the Division has attempted in the past to input all plant and equipment into the Hach WIMS system.	Interviews indicate that time constraints have not allowed the completion of the input of plant and equipment inventory into the Hach WIMS system. The Division has not captured historic workloads for the maintenance of each piece of plant equipment or underground infrastructure, and defined the impacts on its infrastructure at various levels of staffing or capital dollar infusions.
1% to 2% of sewer mains are replaced annually. This formal program is linked directly to a long-term capital and financial planning program to assure adequate funding	The Division reports that 2,060 linear feet of collection line were lined with cast in place pipe. This equates to almost 1% of the 42 miles of line in the system.	
Wastewater pump stations are checked weekly. Detailed PM of the stations is conducted in accordance with mfg. recommendations.	The 7 pump stations are checked more than once weekly.	
Wastewater mains are cleaned on a three-year cycle.	Cleaning sewer lines on a three year cycle is optimum, however many municipalities are failing to accomplish this best practice level in the current economic climate.	The project team does not have data previous to CY 2011, however in that year, the Division reports that it jet cleaned 55,223 feet (10.46 miles), which is about 25%, or a rate of about once per four years.

Performance Target	Strengths	Potential Improvements
There is a wastewater main televising program (CCTV) based upon condition assessment information.	The project team has no data on the number of miles televised in previous years, however in CY 2011, there were 2,060 linear miles televised, which represents about 1% of the system. This is somewhat below recommended levels, however many municipalities are failing to meet this best practice in the current economic climate.	
An automated maintenance management system is utilized to track and report work output, service levels and productivity.	The Division does have the Hach WIMS system, and is the only division in DPW to possess such a system capable of recording work effort against the infrastructure maintained.	The Hach WIMS system is not currently being utilized to its capacity, and is not being used to program an effective preventive maintenance plan for plant equipment.
15% to 20% of the manholes are inspected annually		The project team has no data regarding the numbers of manholes in the system.
Periodically evaluates the feasibility of outsourcing certain functions.	Given that the Highway Division is responsible for catch basin cleaning and street sweeping, there are limited opportunities to outsource functions at the WWTF.	Has the Division analyzed opportunities to outsource jet flushing?

Performance Target	Strengths	Potential Improvements
Web site provides residents with helpful information in user-friendly format		The web site could be significantly enhanced through the provision of a simplified description of the wastewater treatment process, perhaps even including a schematic that describes, at a very high level, the intake, screening and grit removal, aeration, sludge removal and processing, clarification, disinfection and return to the ocean. The site could also benefit from the inclusion of information on capital improvements (both recently completed, as well as planned, and the costs of each), the sewer televising program and its benefits, street sweeping schedules and the benefits to the treatment process, (even though this function is provided by the Highway Division), as well as other descriptive information.

4. ENGINEERING

Performance Target	Strengths	Potential Improvements
A five-year capital improvement program has been developed and adopted by the Town Board.	The Engineering Division is involved in the development of the master plans for water and wastewater, which identifies capital projects on a 15-20 year horizon.	The Division is not involved in the development or monitoring of budgets for all capital projects in the Town. There is no master plan for highways or drainage, as is the case for water and wastewater.
Contractors are required to submit proof that their first level supervisors have been trained in work zone safety.	Contractors are required to provide certification as part of their bid packages that all employees working on a job have attended a 10-hour OSHA training course.	
A traffic control plan must be submitted for the issuance of street closure permits.	On State roads, contractors must submit a traffic control plan as part of the permit process. The Town's Safety Officer in the Police Department handles traffic control.	
Fees are charged for the issuance and inspection of street closure, excavation, and encroachment permits to fully recover the cost of administration	There is a $25 fee for a trench permit. Road opening permits are issued in the Highway Division. There is reportedly no fee associated with obtaining the permit, but there is a $5,000 bond required. Encroachment permits are issued by the Zoning Department.	

Performance Target	Strengths	Potential Improvements
Requests for street closure, excavation, or encroachment permits may be submitted by customers on-line or by fax.		All applications must be submitted in person.
Requirements for issuance of street closure, excavation, or encroachment permits are available at the Engineering Division's web site.	There are paper copies available in the office.	There are no requirements available on line for any permits.
Design and inspection staffing requirements have been identified for the all of the capital projects in the first year of the five-year capital improvement program.		There are no engineering staffing requirements identified in the master plans for water and sewer. There is no available capital improvement budget, however, the division indicates that there are no staffing requirements identified for any capital projects.
Staffing for design and inspection of capital projects is based upon cost of construction guidelines.		No staffing requirements have been identified. The American Society of Civil Engineers (ASCE) has developed broad guidelines for the staffing requirements associated with capital projects based upon the projected cost of construction. Staffing categories are for survey, design and inspection, and vary according to the type and complexity of the specific project.
A Gantt chart schedule been developed for capital improvement projects for the next two to three year period.	The Engineering Division reports that it relies upon contractors to submit their own schedules in their preferred software and format.	The Division does not regularly meet to discuss project status related to anticipated or reported delays, change orders, staffing conflicts, etc.
A cost accounting system is utilized to enable comparisons of planned versus actual staff hours for the design and inspection of capital projects.		The Division does not report or capture the time expended by Engineers on specific projects.

5. ADMINISTRATION

Performance Target	Strengths	Potential Improvements
Clerical and administrative functions are centralized in the Department, and workloads are balanced by a central authority		This is not the case. There is an Administrative Assistant at the WWTF, a Dispatcher and an Administrative Clerk at the Highway garage, one Administrative Assistant reporting directly to the Superintendent, and five other clerical staff located at Town Hall, reporting to either Engineering or to the Superintendent.
The payroll process is automated		The payroll process is completely manual on the DPW side. (See below for simplified description of the process).
Personnel and payroll systems are integrated.		There is no automated personnel system with which to integrate.
There is one accounts payable clerk for every 9,000 annual transactions.	The project team does not possess data to make this calculation.	

Performance Target	Strengths	Potential Improvements
Standardized forms are utilized for payroll input		Each of the divisions transmits time and attendance to the Payroll/Personnel Clerk in the central office. These forms capture basically the same information, but the process requires that the Clerk re-transcribe each of the faxed forms onto the "Master Payroll Attendance Worksheet". The worksheet is manually tabulated. Then the forms are transmitted to Town Payroll Department, which on Monday sends DPW a voucher that shows how much each DPW employee was paid. The DPW Payroll/Personnel Clerk then re-checks to ensure that all hours were paid for the time and categories reported to Town Payroll Department.
Support staff as a ratio to technical staff is in the range of 1:9 to 1:25, depending upon the degree of automated systems in use		There are nine (9) clerical and administrative staff members (including the Operations Dispatcher) supporting 64 field and technical employees. This equates to a ratio of 1 : 7.2.
The Division maintains a vendor file which reflects vendor histories,		The project team is unaware of vendor history files in the DPW or in and other Town Department supporting DPW.
Regular, ongoing financial reports are provided to divisional management and supervisors.		DPW Division managers do not receive regular financial reports from the administrative staff or from any other Town Department supporting DPW.
Clerical and administrative staff receive ongoing training in the use of necessary tools such as word processing, financial spreadsheets, customer		The project team is unaware of any previous training provided to clerical and administrative staff. The project team noted several cases for

service, etc.		which basic spreadsheet skill enhancements could simplify work processes and calculations.

APPENDIX C

SAMPLE WORK REQUEST

WORK REQUEST

ID 1004 Logged By CM

Date 8/1/2012 Time 10:00

Name Resident

Phone #

Other #

Address 1439 Ocean St.

Work Type B

B	Berm	R	Rubbish
D	Drainage	S	Shoreline
LS	Loam/Seed	SS	Street Sign
P	Paving	SW	Sweeping
PH	Pothole	SK	Sidewalk
PS	Plow/Sand	O	Other

Request

Can we smooth out berm. People have trouble getting in and out of his driveway.

Work Identified

Work Completed

Date Completed

APPENDIX D

WORK ACTIVITY REPORT SAMPLES

Date: Tue. 8-14-12

Town of Marshfield
Cemetery Trees and Greens

Weather / Temp CLEAR 85°

Employees	Veh #	Job Discription
Foremen		
Mike MoRAN	117	OVERSEEING VARIOUS CREWS
Project 1		
R. NiHiLL	151	MOW COUCH CEMETERY
J. DIXON	151	
P. GUIGLEY	TORO	MOW SO. RIVER TGRACE RYDER
Project 2		
R. RUSSO	33	DIG + POUR FOUNDATIONS COUCH
M. SMITH	33	
C. BRADLEY	160	CUTBACK + CHIP PURITAN ST.
~~J. [illegible]~~		
S. MALCOLM	180	
Project 3		
J. CUSICK	15	MOW + WHIP
W. MEECH	15	
B. STANLEY	114	BALL FIELD MAINT.
Project 4		
DAN JAROMA	164	TOWN HALL MHS GROUNDSKEEPING
Time Off	**What Type**	**Reason (Persoanl and Other) only**
C. MASKELL	SICK	

MARSHFIELD DEPARTMENT OF PUBLIC WORKS

DAILY REPORT

DATE: 10-13-2012

NAME OF FOREMAN: Steve Barber

JOB LOCATION: Summer St

TYPE OF JOB:

WEATHER: Clear

1. PROJECT: 8th wonder of the world

2. WORK COMPLETED: Installed 6 Gabion Dams

3. MATERIALS USED: 6 Damns 3yds RipRap
3yds 1½ stone 3yds 3/4 stone

4. REPORTS OR COMMENTS:

NAMES OF CREW	EQUIPMENT
C Davis	31
R Rossi	205
K Gaffney	120
D Rossi	162
S OConnel	82
Mike Saucea	120

[signature]

FORMAN'S SIGNATURE

WATER DEPARTMENT

NAME		VEH. NO	JOB DESCRIPTION
MARK MCLAREY	9	185	Foreman
TIM STEVENSON	7	168	Carlton Road-watermain
FRANK FORD	6	180	Main Street- Asphault + Loam
WILLIAM FOSDICK	6	123	Main Street - Asphault + Loam
JOSE' VEIGA	6	113	Calls
MIKE McKAY	4	168	Carlton Road - watermain
COLIN SULLIVAN	4	116	Main Street - Asphault + Loam
ROBERT SHANLEY	4	116	Main Street - Asphault + Loam
TONY VEIGA	4	188	Main Street - Asphault + Loam
LILA RAFFA	S	78	Hydrants
ROBIN DUROSS	S	78	Hydrants
			WEATHER: Clear
			TEMP: 80's
			DATE: 8-14-12

APPENDIX E

PRIVATIZATION FEASIBILITY SCORING METHODOLOGY

Scoring for Potential for Privatization for Public Works
Town of Marshfield

Note: Higher the score, the greater the potential for privatization; however, there is no threshold scoring at which privatization becomes a definitive opportunity.

Department: **Division:** **Service:** **Or Cross-Organizational Service:**

Issue	Response	Points
Is this a core Town service?		Yes=0 points No=10 points
Is this a core Departmental service?		Yes=0 No=10
Is this service available in the private sector? ▪ How many vendors provide this service? ▪ How would the Town replace a vendor, if performance required replacing the vendor? ▪ How much specialized professional or technical expertise would be required of vendors?		Yes=20 No=0 Many =10 Some=5 Easily=10 With difficulty=0 A lot=0 Some=5 None=10
What is the expected level of political opposition to any privatization effort? ▪ Has this service been successfully privatized by other cities? ▪ Has this service been privatized by the Town in the past and then brought back in-house? ▪ Have other cities in the area privatized this service and then resumed providing the service themselves?		High=0 Medium=10 Low=20 Yes=10 No=0 Yes=0 No=10 Yes=0 No=10
Are there legal barriers to privatization? ▪ What is the assessed difficulty of changing these legal barriers?		Yes=0 No=10 If yes, could add 5 if not difficult to

Issue	Response	Points
		change
Does this service have quantifiable and measurable performance measures?		Yes=10 No=0
▪ How difficult will it be to assess a contractor's performance?		Very=0 Somewhat=5 Not=10
▪ Would the Town be able to reward or penalize a contractor based on performance?		Yes=10 No=0
▪ What level of risk would be involved if a vendor did not perform?		Low to none=10 Some=5 High=0
▪ Is the Town able to transfer liability to the vendor for poor performance?		Yes=10 Maybe=5 No=0
What are the current costs of providing this service?		High=10 Medium=5 Low=0
▪ What percentage of these costs are fixed?		High=0 Medium=5 Low=10
▪ What percentage of these costs are variable?		High=10 Medium=5 Low=0
▪ How does Town cost compare with available information from possible vendors?		High=10 Approx Same=5 Low=0
▪ How difficult would contract monitoring be, if this service were to be privatized?		Difficult=0 Somewhat=5 Not Diff=10
▪ How difficult would constructing a performance contract be, if this service were to be privatized?		Difficult=0 Somewhat=5 Not Diff=10
▪ What are the estimated costs of contract development?		High=0 Medium=5

Issue	Response	Points
▪ What are the estimated costs of contract monitoring?		Low=10 High=0 Medium=5 Low=10
▪ What are the estimated costs of employee pay-offs, if this service were to be privatized?		High=0 Medium=5 Low=10
What are the potential impacts on Town employees?		
▪ How many employees are involved?		<10=10 10-50=5 >50+0
▪ Would/could the vendor be required to employ Town's staff?		Yes=10 No=0
▪ Would there by any cost impact for requiring the vendor to hire Town employees?		Yes=0 No=10
▪ How many jobs face possible elimination?		<10=10 10-50=5 >50=0
▪ What requirements will the Town pass on to the vendor, in the way of labor laws?		None=10 Some=5 All=0
▪ What is the financial impact of these labor law requirements?		High=0 Medium=5 Low=10
Are there unique capital or operating issues involved?		
▪ Are there unmet maintenance problems which contracting allows the Town to avoid?		Yes=10 No=0
▪ Are there unmet maintenance problems which the contractor would be required to resolve?		Yes=0 No=10
▪ Are there specialized equipment or supply needs which can be provided more economically by a vendor (due to economies of scale, large-scale procurement, etc.)?		Yes=0 No=10
Are there confidentiality issues involved?		

Issue	Response	Points
▪ Would the contractor need access to confidential information? ▪ Would the Town feel comfortable with contractor having such access?		Yes=0 No=10 Yes=10 No=0
Are other Town Departments paying for part of this service? ▪ If yes, would other departments be able to buy services from another vendor for the same or less than from the current Town department? ▪ Does a current Town department have excess Capacity? ▪ If yes, could that excess capacity be sold within the Town or to another governmental entity?		Yes=0 No=10 Yes=10 No=0 Yes=10 No=0 Yes=0 No=10
How comfortable does the Town feel about contracting this service?		Very=20 Somewhat=10 Not=0

Final Score:_____

Are there other issues which cannot be scored but which need to be considered in assessing this service for privatization potential?

RECOMMENDED ACTIONS:

APPENDIX F

CEMETERY RULES AND REGULATIONS

Town of Marshfield, MA

Department of Public Works

Rules/Regulations/Price Schedule

•

Town Cemeteries

Couch
Winslow
Two Mile
Old Chapel
Cedar Grove
Marshfield Hills
Center Marshfield

July 2002

Revised January 2005

Revised March 2006

(cemeteryhandoutrates07)

The Town of Marshfield has seven cemeteries. They are Couch, Winslow, Cedar Grove, Marshfield Hills, Two Mile, Center Marshfield, and Old Chapel. However, the only Town owned cemetery with lots available is the Couch Cemetery located off of Union Street.

Purchasing a Cemetery Lot

The purchaser must be a resident of the Town. The first person to be buried in the lot(s) must also be a resident of the Town.

All lots must be sold with Perpetual Care. The Perpetual Care fund is held in trust and invested as provided by law. The interest from this trust fund is used to care for the cemetery lots.

A cemetery lot can only be sold back to the Town for the original purchase price. It cannot be sold to a private party.

Monuments/Stones

The monument/stone for the grave lot(s) is purchased privately by the owner through a monument company. The monument company will provide the Town with the dimensions of the stone and also a sketch. The Town will then lay the foundation for the monument and will contact the monument company when the job is completed. The monument company will then deliver and set the monument. Foundations cannot be poured after November due to the temperature. The Town is not held responsible for any malicious damage to the monument/stone.

Plants and Shrubs

The Cemetery Division will maintain and preserve all landscaping features.

No glass receptacles of any kind are to be used to hold flowers. Glass receptacles may be used to hold the eternal light.

All plantings will be at the headstone. During the holiday seasons, all seasonal decorations must be removed within a reasonable length of time or they will be removed and disposed of by the Cemetery/Trees/Greens Division. Generally, one month after Christmas and two weeks after all other holidays.

Plantings: **ONE GRAVE LOT**

Bulbs may be planted in front of the headstone.
No shrubs or bushes allowed.

TWO OR MORE GRAVE LOTS

Arborvite, juniper, yews, and azaleas may be planted on either side of the stone. Bulbs would be in front with full height being no more than three feet.

All shrubs must be upright and not spreading. Approval of plantings, other than as listed, must be obtained from the Cemetery Supervisor.

Planting of trees is not allowed.

The Cemetery Division is not responsible for the care and/or preservation of any floral basket, frames, containers, etc. placed at the site during burial (interment) services or any other time during the year. They will be removed, at an appropriate time defined and at the supervision of the Cemetery Supervisor.