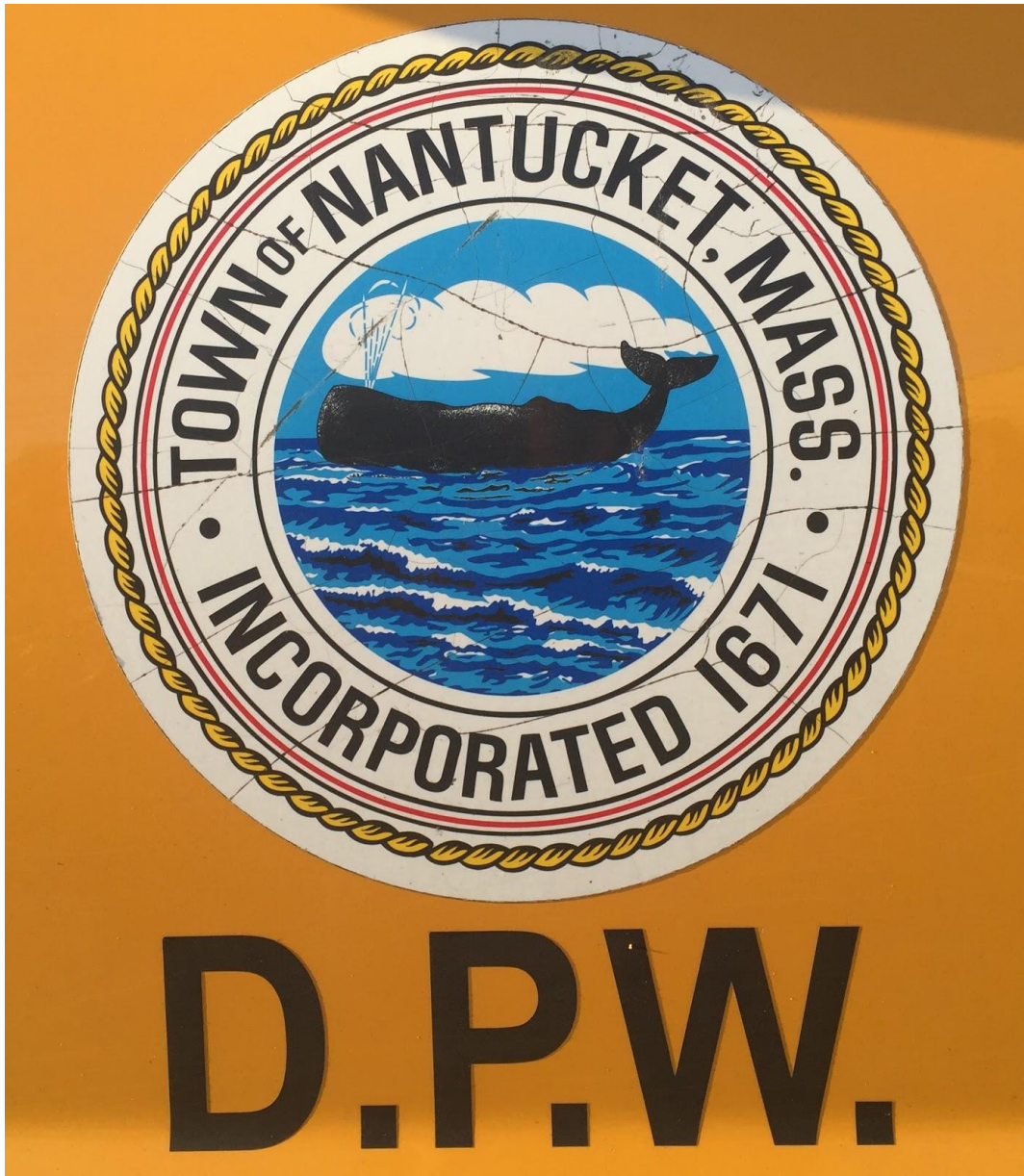


An Assessment of DPW Organization and Operations



by
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Abstract

The Nantucket Department of Public Works (DPW) has undergone substantial change in the past decade and faces increasing demands. Our goal was to evaluate how well the current structure and functions of the DPW meet the needs of the island. We created a departmental profile, analyzed employee and stakeholder perceptions, and benchmarked the department against similar departments in other communities. We concluded the DPW needs reorganization and additional funding and staffing to better meet the demands of the island. We recommend that the DPW invests in additional staffing, technology, and equipment, provide incentives for training, develop programs to improve its image, and enhance all record keeping.

Acknowledgments

We would like to sincerely thank our advisors, Dominic Golding and Reinhold Ludwig. They both continued to support our project and give helpful guidance for the different challenges we faced throughout the project. They also provided us with advice for our surveys and report which helped us put our results and thoughts into written words.

We would also like to thank our sponsors, Gregg Tivnan and Kara Buzanoski, for their continued assistance and advice to the group. They both spent an enormous amount of time helping out our project during their busy work days by answering our plethora of requests and questions. Their expertise taught us a lot about town government and public works. Without the help of Mr. Tivnan and Ms. Buzanoski our project would have not been a success.

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We would like to thank the six towns who responded to our benchmarking matrix. With their data we were able to compare functions of the DPW and further support data gathered in our surveys and interviews.

Lastly, we would like to thank ReMain Nantucket for providing a workspace for us. This space gave us adequate workspace to work together and the ability to practice our presentations. Without this space, collaboration would have been difficult to achieve which would have greatly affected our project results.

Executive Summary

Like other towns in Massachusetts, Nantucket is under increasing pressure to cut costs while delivering better and/or more services. Nantucket also struggles with many distinct challenges. As a tourist destination, the year round population of 10,399 swells to well over 65,000 in the summer, placing tremendous strain on island resources. Due to its location, Nantucket cannot rely on mutual aid from neighbors, but must maintain a more extensive inventory of equipment to cover all eventualities.

With these challenges in mind, the goal of our project was to evaluate how well the current structure and functions of Nantucket's Department of Public Works (DPW) meet the needs of the island. We started by creating a departmental profile which assessed the department's services, personnel, communication, technology, equipment, and data collection methods. We surveyed twelve Town Cabinet members and twenty-five DPW employees and examined various internal records. Furthermore, we interviewed two members of the Town Cabinet, five DPW employees, and one retired DPW employee to clarify survey data and to accumulate further information about the department. The two surveys also helped our team to assess the perceived opinions of the Board of Selectmen (BOS), Town Administration, and public through the Town Cabinet and the DPW employees. Lastly, we compared specific functions of Nantucket's DPW to six other Massachusetts communities.

Findings, Conclusions, and Recommendations

We concluded that the DPW is well managed and advances in a positive direction, however many challenges remain. We focus our recommendations in five areas: personnel, reorganization, support and education, technology and equipment, and data collection.

Personnel

Based on our interviews, surveys, and benchmarking exercises, we conclude that the DPW is presently understaffed and the employees are overworked due to a failure to add staff commensurate with the addition of new departmental responsibilities. Hiring staff is difficult

because living expenses, especially housing costs, are very high and employment at the DPW is not perceived as glamorous or attractive. We recommend that the DPW:

- Hires additional general laborers, a mechanic, and a plumber;
- Explore the option of hiring off island laborers until the town can devise a longer term solution to the housing needs of town employees; and
- Offer new incentives for training.

Reorganization

Between our surveys and interviews, we concluded that Nantucket's DPW is in need of better organization. The DPW employees we interviewed indicated that wastewater should not be part of the DPW. Cabinet survey respondents indicated Parks and Recreation should not be services of the DPW, while half agreed Facilities should also be moved out. We recommend:

- Wastewater becomes its own department within the next year;
- Parks and Recreation becomes its own department within the next two to three years;
- Facilities becomes its own department as soon as the current division expands its staffing and range of services; and
- Creating a Public Works Cabinet, headed by the DPW director, which would include the DPW and these three new divisions.

Support and Education

We found that DPW employees feel disrespected and under-appreciated by the Board of Selectmen, Town Administration, and the public. We recommend the DPW reaches out to the public and improve support by:

- Creating a support group called Friends of the Island to promote the development of a departmental support network;
- Increasing participation in the State's Senior Tax Work-off Program;
- Creating a civics class which teaches the public about the DPW; and
- Involving the DPW in the School to Work program as part of a two week rotating schedule visiting multiple departments.

Technology and Equipment

We found that technology could be used more effectively throughout all of the DPW. To operate more effectively, the DPW should improve the technology and equipment it provides to its employees. We recommend:

- Purchasing fleet management software prior to the 2018 acceptance of central fleet roles; and
- Equipping vehicles with an iPad or Toughbook, and radios coupled with an external loudspeaker.

Data Collection

In our research, quantitative data was difficult to obtain due to ineffective data collection methods. Records were often incomplete, non-existent, or not in an electronic format. These records would be useful in expanding on our findings and data collection in an effort to identify the best areas for improvement. We recommend:

- The DPW continues to implement data collection tools to assist in departmental evaluations, and staffing and budgetary justifications.

Authorship

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Abstract	SH, BS	EM	SH, EM, BS
Acknowledgements	SH, BS	EM	SH, EM, BS
Executive Summary	SH, EM, BS	-	SH, EM, BS
Introduction	BS	SH, EM	SH, EM, BS
Literature Review			
Introduction	BS	SH, EM	SH, EM, BS
Measuring Performance	SH	EM, BS	SH, EM, BS
Evaluating External Reports on DPWs	SH, EM, BS	-	SH, EM, BS
Nantucket's DPW	EM	SH, BS	SH, EM, BS
Summary	BS	SH, EM	SH, EM, BS
Methodology			
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Objective #1 Departmental Profile	SH, BS	EM	SH, EM, BS
Objective #2 Employee and Cabinet Opinions	EM	SH, BS	SH, EM, BS
Objective #3 Evaluation of Selected Communities	SH	EM, BS	SH, EM, BS
Objective #4 Final Recommendations	BS	SH, EM	SH, EM, BS
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Departmental Profile	EM, BS	SH	SH, EM, BS
Perceptions	SH, EM	BS	SH, EM, BS
Benchmarking	SH	EM, BS	SH, EM, BS
Conclusions and Recommendations			
Conclusions	EM, BS	SH	SH, EM, BS
Recommendation #1 Personnel	SH	EM, BS	SH, EM, BS
Recommendation #2 Technology and Equipment	SH, BS	EM	SH, EM, BS
Recommendation #3 Reorganization	EM	SH, BS	SH, EM, BS
Recommendation #4 Support and Public Outreach	BS	SH, EM	SH, EM, BS
Recommendation #5 Data Collection	EM, BS	SH	SH, EM, BS
Future Work	SH, BS	EM	SH, EM, BS
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1.0 Introduction

Towns in Massachusetts are looking for ways to more effectively deliver services and are under pressure to reduce costs while delivering better and/or more services. According to the National Performance Management Advisory Commission (2010), “At no time in modern history have state, local, and provincial governments been under greater pressure to provide results that matter to the public, often within severe resource constraints” (p. 1). To meet these demands, many cities and towns are reevaluating their agencies to determine if their resources are appropriately allocated in order to deliver the services which their citizens desire. Nantucket is no exception. In addition to the challenges many towns face, Nantucket struggles with many unique challenges arising from the distinct history and geography of the island community. The island is a tourist destination which causes the year round population of 10,399 to swell to well over 65,000 in the summer. This cyclic annual population growth places strain on the resources of the island. As an island thirty miles off of the coast of Cape Cod and ten miles from its nearest neighbor, Martha’s Vineyard, Nantucket cannot rely on mutual aid from neighbors as many towns do on the mainland. This is exacerbated during storms, when mutual aid might be most needed, but cannot be delivered since ferry and airport services may close. Thus, Nantucket must maintain a more extensive set of equipment than mainland towns in order to cover all eventualities. The town also has to provide many additional services which many non-island communities do not, such as three harbor facilities, town pier, beach maintenance, wastewater treatment facilities, a landfill and recycling center, a municipal nursing home, and an airport. As an island, the town must import all of its goods and many services which results in higher prices. With these challenges in mind, our overall goal was to evaluate how well the current structure and functions of Nantucket’s DPW meet the needs of the island. To do this, we created a departmental profile, with a historical narrative, which assessed the opinions of the Town Cabinet and the DPW employees, and compared specific DPW functions to other DPWs. By looking at available documents, we were able to create a profile for the DPW which include budget, staffing, responsibilities, and organization with a fifteen year historical comparison of staffing and budget, and employee and the Town Cabinet’s perception. The perceptions and suggestions of the DPW also aided us in making our recommendations. With the metrics collected from other towns, we

compared Nantucket's DPW to other DPWs staffing and services. Finally, we recommended ways to improve the department's staffing, operations, and organization.

2.0 Literature Review

Government agencies at the local, state, and federal level are under constant pressure to find ways to improve services while at the same time cutting costs, and there have been numerous efforts to streamline government operations in various ways since 1993 when Vice President Al Gore headed up the National Partnership for Reinventing Government (Kamensky, 2001). As a result of these efforts, government agencies have adopted some of the techniques and approaches used in business, including the use of performance measures or indicators. In this background section, we briefly review some examples of how performance measures have been defined and applied in government in general. In the second part of this section, we review performance evaluations of the department of public works in three Massachusetts towns (Andover, Falmouth, and Saugus) before we describe the current structure and previous evaluation of the Nantucket Department of Public Works.

2.1 Measuring Performance

Government agencies conduct performance assessments or audits periodically to determine how well they are meeting their performance targets and other organizational objectives. Performance audits use a variety of ‘indicators’ to assess performance (“Performance Audits and Performance Reporting,” 2015). For example, Fairfax County (2007) has identified five indicators (input, output, efficiency, service quality, and outcome) in the “Family of Measures” it uses to assess performance. Inputs are resources used to produce an output. As can be seen in Table 1, some common inputs are the money budgeted or spent on an output, or the number of hours needed to achieve the output. Outputs are normally action-based, and quantifiable. Outputs measured vary depending upon the industry or organization, but some very common ones are number of units produced, purchase orders issued, sales per quarter, among other examples. The efficiency is calculated by looking at the number of inputs used per output. A common example of efficiency in industry would be money spent per unit produced. A governmental example of efficient work would be costs for fixing one mile of road. Service quality is also important. Service quality refers to the degree of satisfaction customers or residents have with a service, which is related to how accurately and quickly the service is delivered. According to Fairfax County (2007) outcomes are the consequences associated with a program or service and are the reasons why a

program is instituted. This means what is the overall benefit for the people the project or service effects. These five indicators are crucial components in measuring performance and are similar to measures used in other government agency performance evaluations, such as those conducted in Texas (State of Texas, 2012).

Table 1. Family of Measures (Fairfax County, 2007)

Terminology	Definition	Examples
Input	Value of resources used to produce an output.	<ul style="list-style-type: none"> • Dollars budgeted/spent • Staff hours used
Output	Quantity or number of units produced. Outputs are activity-oriented, measurable, and usually under managerial control.	<ul style="list-style-type: none"> • Eligibility interviews conducted • Library books checked out • Children immunized • Prisoners boarded • Purchase orders issued • Patients transported
Efficiency	Inputs used per unit of output (or outputs per input).	<ul style="list-style-type: none"> • Cost per appraisal • Plans reviewed per reviewer
Service Quality	Degree to which customers are <u>satisfied</u> with a program, or how <u>accurately</u> or <u>timely</u> a service is provided.	<ul style="list-style-type: none"> • Percent of respondents satisfied with service • Error rate per data entry operator • Frequency of repeat repairs • Average days to address a facility work order
Outcome	Qualitative consequences associated with a program/service, i.e., the ultimate benefit to the customer. External forces can sometimes limit managerial control; however, managers are still responsible for outcomes associated with their programs. Outcome focuses on the ultimate "why" of providing a service.	<ul style="list-style-type: none"> • Reduction in fire deaths/injuries • Percent of job trainees who hold a job for more than six months • Percent of juveniles not reconvicted within 12 months • Adoption/redemption rate of impounded animals

As part of its efforts to measure ongoing agency performance, Fairfax County (Fairfax County 2007) uses a set of benchmarks, objectives, and goals (Figure 1). A goal needs to contain “at least one output, efficiency, service quality, and outcome indicator” which may lead to a measurable outcome (Fairfax County, 2007). The basic foundations for a goal are benchmarks. Benchmarks, such as time until project completion, under/over budget, or total amount of material used, are easily measured targets for performance. Several benchmarks can be compiled into the next component of a goal: objectives. Multiple objectives, such as finishing a section of

road, can be created as guidance to a singular goal. After a goal is met, a report can be generated which can then be used to see how the project overall went, in other words, how they performed.

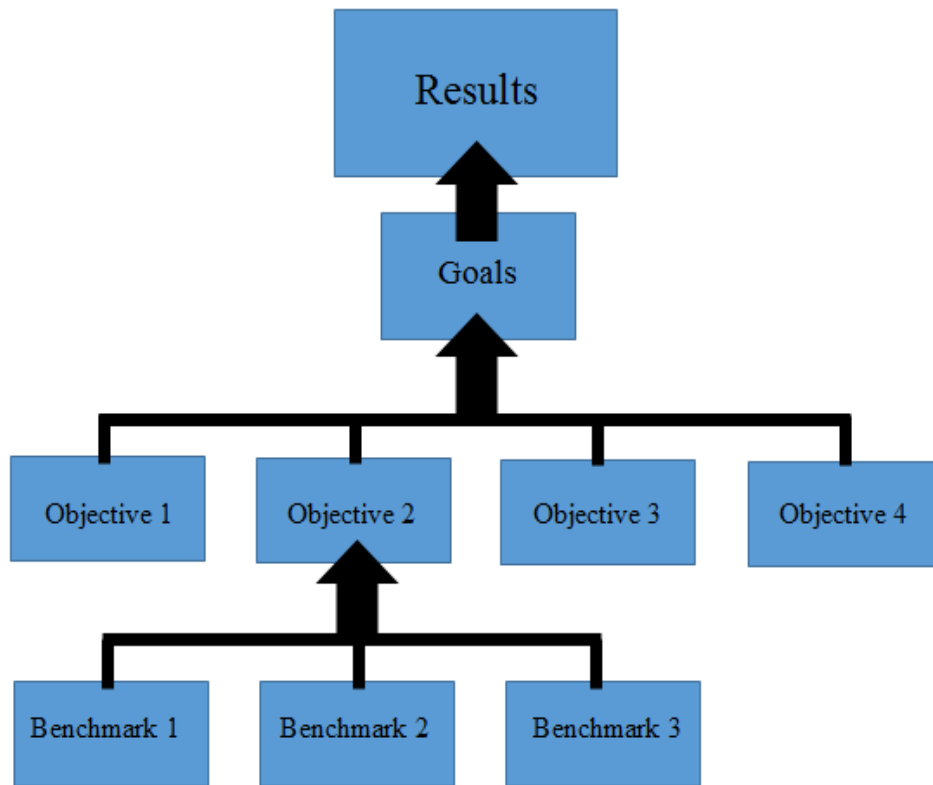


Figure 1. Goals Flowchart

The State of Texas (2012) notes that a report should be completed after each goal is met. Success or failure is important to note in these reports to find where the department needs to improve. Performance assessments using benchmarks may also be used to compare one agency against another to identify best practices and argue for more material or manpower. In the next subsection we review performance assessments conducted in three towns in Massachusetts.

2.2 Evaluating External Reports on DPWs

To better understand how to assess a DPW, our team analyzed reports from three Massachusetts towns: Andover, Falmouth, and Saugus. These towns are not directly comparable with Nantucket in terms of size and functions, but the assessments illustrate what kinds of data and metrics are

typically used to benchmark public works departments. We were unable to find similar reports on towns that might be considered more comparable with Nantucket in terms of size, seasonal population, and so forth.

2.2.1 Andover

In 2011, Andover, MA contracted with the Matrix Consulting Group to conduct a performance assessment of its Department of Public Works. The Matrix Consulting Group identified three areas where the town could improve its performance: management systems, preventative maintenance, and outsourcing. The Matrix Consulting Group (hereafter called Matrix) noted that the Andover DPW faces challenges in “using their resources more efficiently and effectively, and more importantly, to redirect resources and invest in maintenance and preservation of the Town’s assets” (Matrix Consulting Group, 2011, p. 4). Matrix concluded (Matrix Consulting Group, 2011, p. 4) the Andover DPW could substantially enhance its productivity by: i) laying a foundation for a standardized approach to work management and for data accumulation, ii) creating a formal work plan and schedule, and iii) forming clear goals, objectives, performance measures, and reporting systems.

Outsourcing is sometimes the best option for some of the tasks undertaken by town departments. The Matrix Group (2011) noted multiple cases where Andover, MA could gain by outsourcing the services they currently provide such as mowing, cemetery maintenance, and street sweeping. Matrix suggests services that currently create a financial loss and services that were previously provided efficiently and effectively by the private sector as candidates for outsourcing (Matrix Consulting Group, 2011, p. 78).

The Matrix Group recommended that the town focus more effort on preventative maintenance. Not only would the maintenance be appealing to the public in the cases of parks, buildings, transportation infrastructure, and water distribution, but it would also reduce the costs of long-term maintenance and rehabilitation (Matrix Consulting Group, 2011, p. 5). Matrix suggested that Andover develop a strategic plan to ensure that preventative maintenance was conducted systematically.

The Matrix Group also identified various metrics which measured performance and allowed for comparison with other communities. These metrics include work activity and units to measure the activity. Examples included pothole patching with units of tons of asphalt, base repair in square yards, and catch basin cleaning in number of catch basins (Matrix Consulting Group, 2011, p. 26). The Matrix Group also recommends comparing expected and actual time taken to complete individual projects as a measure of performance. Planned versus actual measurements can also be applied to many other aspects of projects such as cost or distance plowed (Matrix Consulting Group, 2011, p. 31-32). Many of the metrics suggested in these earlier sections of the Matrix reports are simple, but these simpler metrics can be used to derive more complicated comparisons such as cost per curb mile swept, as illustrated in Table 2.

Table 2. Cost per Curb Mile Swept (Matrix Consulting Group, 2011, p. 87)

Element	Number
Curb Miles Swept (Annual)	1,224
Number of Sweepers	2
Hourly Rate of Equipment Operators (including salary and 40% benefits)	\$32.22
Hours of Sweeping (Annual)	1,600
Total Personal Costs of Sweeping	\$51,547.64
Cost of Elgin Pelican Sweepers (2)	\$100,000
Economic Life Cycle of Sweeper	7
Total Depreciation Cost of Sweepers	\$14,285.71
Fuel (at 3 miles per gallon, and \$3.75 per gallon)	\$1,530.00
Insurance on Sweepers	\$1,964.00
Maintenance Cost (at \$50 per hour and 160 hours per sweeper)	\$16,000.00
Total Annual Costs	\$85,327.35
Cost per Curb Mile	\$69.71

However, the report notes that there could be error in this calculation as it is unknown if all 1,224 curb miles are swept, if overtime is used, or if a contractor may be more efficient (p. 87). The street sweeping may lend itself to outsourcing because of more integrated management, higher efficiencies due to standardization and fewer resources used for vehicle maintenance. The Matrix Group (2011) further states:

In the Southern California study, 20 sample cities were examined: 10 that used municipal workers and 10 that used private firms. One important reason for the greater efficiency in contractor operations was that, on average, contractors

cleaned 6 curb miles more per 8-hour shift, a difference of 27%. If this experience could be replicated in Andover then, assuming a 10% profit margin for a private contractor, the efficiencies gained could result in an overall cost savings. (p. 88 - 89)

Several different factors can affect both time and cost efficiency which leads to outsourcing being an improvement compared to town run operations. These factors can fulfill some of the privatization/outsourcing indicators mentioned in the Collins Report (2013) on Saugus (p. 95).

2.2.2 Falmouth

The Matrix Consulting Group also evaluated the operational, organizational and management practices of the DPW in Falmouth, MA (Matrix Consulting Group, 2007). They noted several performance issues, including: management problems, departmental inefficiencies, limited use of technology in maintenance records and management purposes, and inadequate personnel and financial risk management practices. The report noted “none of the Divisions have created specific benchmarks against which to measure performance, service level objectives, etc.” (p. 109).

The Matrix Group found that the management of the Falmouth DPW was lacking in several areas. Their department did not use performance measures, communication and coordination among divisions was poor, and there was limited sharing of resources and personnel. Not surprisingly, therefore, Matrix recommended that “The Department should communicate [better] and use performance measurement data for decision making and accountability reporting” (Matrix Consulting Group, 2007, p. 119) to provide ongoing feedback and enhance project management. Each division should collect data on performance to provide a baseline on how they perform and have associated goals and objectives for meeting targets they set (p. 118). Matrix recommended “The Department of Public Works should develop a clearly written five year strategic plan that provides goals, objectives and performance measures” (p. 115).

While the Falmouth DPW did utilize Geographical Information System (GIS) and supervisory control and data acquisition (SCADA) systems, Matrix concluded that these systems could be

used much more effectively to automate maintenance scheduling and to assist tracking projects, productivity, repair work, and performance (Matrix Consulting Group, 2007, p. 113). The Matrix Group recommended using commercially available software for maintenance management that can track assets, projects completed and in progress, and generate results and data about the system to find issues and generate performance measurements (p. 138). Finally, Matrix recommended the DPW should further develop its safety plans and contingency plans to reduce risks to personnel (p. 155). These safety plans help to ensure that workers create and maintain a safe working environment not only for themselves but also the public who may be nearby. The risk management plan should also document any uncertainties, which may positively or negatively affect the project and identify how to deal with them in a contingency plan. This would resolve unexpected issues more quickly and reduce delays in project completion.

The Matrix Group (2007) collected data and developed metrics to compare Andover with Worcester, MA, Easton, MA, and North Kingstown, RI, with regards to street maintenance, fleet services, water services, and wastewater services. Table 3 shows that Falmouth and North Kingstown are able to maintain thirteen miles of road per member of staff, but Easton and Worcester are able to maintain many more miles of road per staff member. There may be some valid reasons for the dramatic differences in performance, but the data suggest Falmouth should examine practices in Easton and Worcester to see how they might improve their own performance. The metrics for street sweeping show similarly large discrepancies in performance. Falmouth averages four curb miles per sweeper, whereas Worcester averages eighteen miles per sweeper (p. 67).

Table 3. Street Maintenance Metrics (Matrix Consulting Group, 2007, p. 66)

City	No. of Staff	No. of Miles	Miles per Staff
Easton	9	288	32
Falmouth	18	250	13
North Kingstown	16	210	13
Worcester	25	883	35

By contrast, Falmouth performs somewhat better in fleet operation. Table 4 shows that Falmouth was able to maintain and operate 39 vehicles per full time equivalent (FTE), which is substantially better than North Kingstown and Worcester, but not as good as Easton.

Table 4. Number of Fleet Units per Staff Member (Matrix Consulting Group, 2007, p. 68)

City	No. of Staff	Fleet Size	Units per FTE
Easton	2	136	68
Falmouth	3	118	39
North Kingstown	3	60	20
Worcester	21	523	25

The Matrix Consulting Group (2007) found Falmouth’s fleet services to be similar to other towns and cities, except it does not charge other departments for providing them with its services (p. 69). By comparing Falmouth to the services provided by other DPWs, the department can support the argument of requesting more street maintenance staffing. This is due to the fact that the ratio of staffing to miles of roads is low compared to other towns and cities. These comparisons are also used in the Matrix Group report on Andover (2011) in which high costs per square foot serves as an indicator of low performance. The indicators serve as warnings that Falmouth should allocate resources towards the improvement of its DPW.

2.2.3 Saugus

The Collins Center for Public Management at the University of Massachusetts – Boston (hereafter cited as Collins Report 2013) conducted a similar performance assessment of the Saugus Public Works Department (PWD) in 2013. This assessment evaluated the PWD’s current operations and management and made recommendations on how the department could improve. There were many areas of concern discovered by the Collins Center team. One primary area of concern was the lack of a work order or tracking system. More specifically, a system in which work is requested and distributed to the appropriate foreman was the current system. This system had a lot of flaws in keeping track of work completed and the number of employees and resources needed to complete the work. To address this concern, the Collins team recommended that the department create a work tracking form which would include information about where

the work was done, how long it took, what equipment was used, which employees worked on the project, and a description of the work completed (Collins Report, 2013).

Another issue pointed out by the Collins team was a lack of a computerized tracking system. The above system was described for paper tracking. The Collins team recommended that the paper system be used at first because, “The Saugus Public Works Department has never had an automated work management system in which crew members were required to play major roles in formally reporting their work activities” (Collins Report, 2013, p. 11). They did recommend that the computer system be purchased and installed, because it would provide very valuable data as it became more used. The computer tracking system recommended was a Computerized Maintenance Management System (CMMS). This system can track the information in the above paper system as well as “define appropriate service levels that are achievable with a given number of labor hours, and at a defined level of productivity” (Collins Report, 2013, p. 11).

The Collins Report (2013) suggests that along with a computerized tracking system, a manual tracking system be implemented with a paper form to help create additional records and further better access to information and statistics regarding departmental performance. This also becomes useful in the future when analyzing departmental operations.

The report notes that the department should better record and track its projects and maintenance work. This serves to record staff hours and time spent on tasks to further develop performance measures. Some of the units of measure in Table 5 offer several sample units specific to certain tasks such as how many roads have been repaired, how many feet of water or sewers lines have been replaced, and how many yards or tons of material have been used. This system can then be used to complement the CMMS to provide redundancy and allow for easier tracking of projects and their results along with analyzing the results. Table 5 is very similar to the one in the Andover, MA, Report (Matrix Consulting Group, 2011) as these measures are common in the industry.

Table 5. Units of Measurement for Work Activities (Matrix Consulting Group, 2011, p.11)

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

Table 6 shows that the numbers of highway staff needed to maintain the roads varies substantially among towns, ranging from 60 miles/FTE in Saugus to 4 miles/FTE in Newton. Many factors may explain why these ratios vary so dramatically, including the density of traffic, complexity of the road network, and quality of the roads, but on the basis of these data the Collins Report (2013) concluded that Saugus should hire two additional workers for the highway department immediately (p. 43).

Table 6. Center Line Miles to Full Time Employee Ratio (The Collins Report, 2013, p. 43)

Municipality	Center Line Miles	Highway FTE	Ratio
Arlington	100	15	6.7 to 1
Belmont	83	6.1	13.6 to 1
Canton	103	10	10.3 to 1
Dedham	117	20	5.9 to 1
Newton	275	69	4.0 to 1
Saugus	120	2	60.0 to 1
Waltham	162	19	8.5 to 1
Watertown	74	6	12.3 to 1
Winchester	93	13	7.2 to 1

The Collins report utilized a scoring method to determine if a service should be outsourced. The Collins report suggested that the higher the score, the greater the potential of the service for privatization, but there is no specific score threshold (p. 95). The report examined the following indicators: the priority level of the service, the availability of the service in the private sector, the legality, the political opposition, the ability to track the performance of the contractor using performance measures, the risk and impact, the cost, and confidentiality.

The Collins report also recommended that the Town of Saugus create an asset management plan. Asset management plans are used to help in making decisions about the condition and performance of assets with the long term goal of preservation and renewal of the assets (Collins Report, 2013, p 14). There are many key questions to ask when constructing one of these plans, such as:

- What assets are there and where are they?
- What condition is the asset in and what is its remaining service life?

According to the report, these plans are very valuable in improving the efficiency and effectiveness of existing operations. This is due to assessing the value of each asset the town owns and the placing focus on the projects which will have the maximum benefit (Collins Report, 2013, p 13-14).

2.3 Nantucket's DPW

According to Gregg Tivnan, Nantucket's Assistant Town Manager, the DPW provides a wide array of services on the island and is broad in both its scope and mission (G. Tivnan, personal communication, September 4, 2015). The population flux throughout the year stretches the resources of the DPW especially in more populous months. Currently the DPW employs 28 people with 13 additional seasonal workers budgeted. The DPW seeks to provide many services to Nantucket's citizens and help ensure public safety as embodied by its mission statement:

The mission of the Nantucket Department of Public Works is to provide public safety and to provide and maintain public services necessary for the economy,

growth, and quality of life for the citizens and visitors to Nantucket. (Public Works, 2015)

The services the DPW provides are both typical of other DPW's and atypical at the same time due to Nantucket's location as an island community. These atypical functions include: support for Nantucket's nursing home, airport, town trees and parks, playing fields, beaches, and snow and ice removal (Public Works, 2015). This is all managed under the DPW's current structure.

2.3.1 Departmental Structure

Kara Buzanoski, the director of the DPW since 2011, oversees the town engineer, central fleet manager, facilities manager, operations manager and the chief plant operator who are the heads of internal DPW divisions. The organization of the department has been evolving over the past few years. Figure 2 shows the organizational structure prior to 2014. Figure 3 shows that the department added positions of Public Facilities Manager, Facilities Foreman, Operations Manager, and Town Engineer (in red) in FY 2014 as well as a Surveyor, Central Fleet Manager, and Fleet Mechanic in FY 2015. Though budgeted, the department has not filled the new Central Fleet Manager position (K. Buzanoski, personal communication, October 28, 2015).

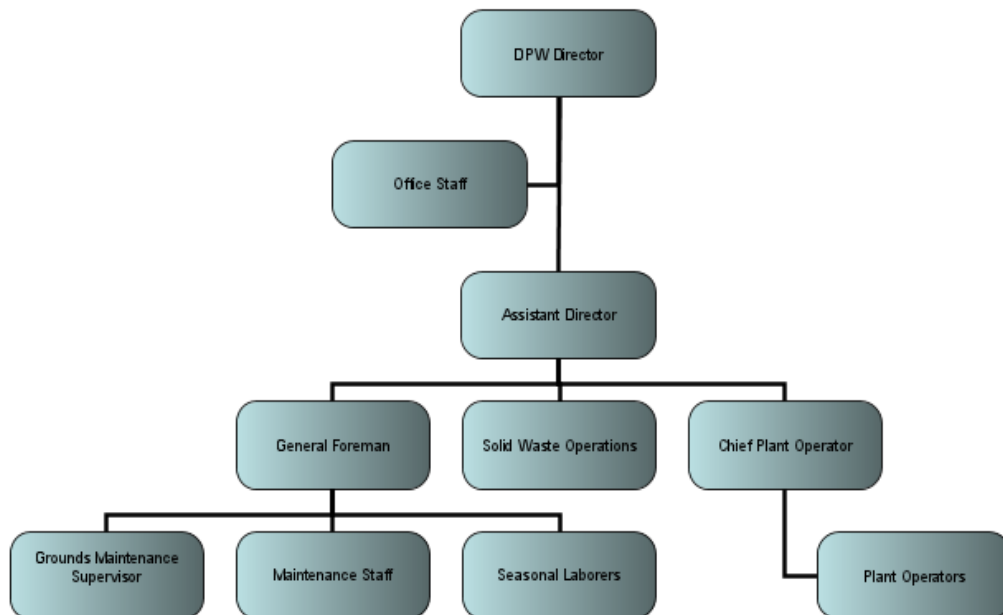


Figure 2. Nantucket's DPW Organization Chart Before FY 2014

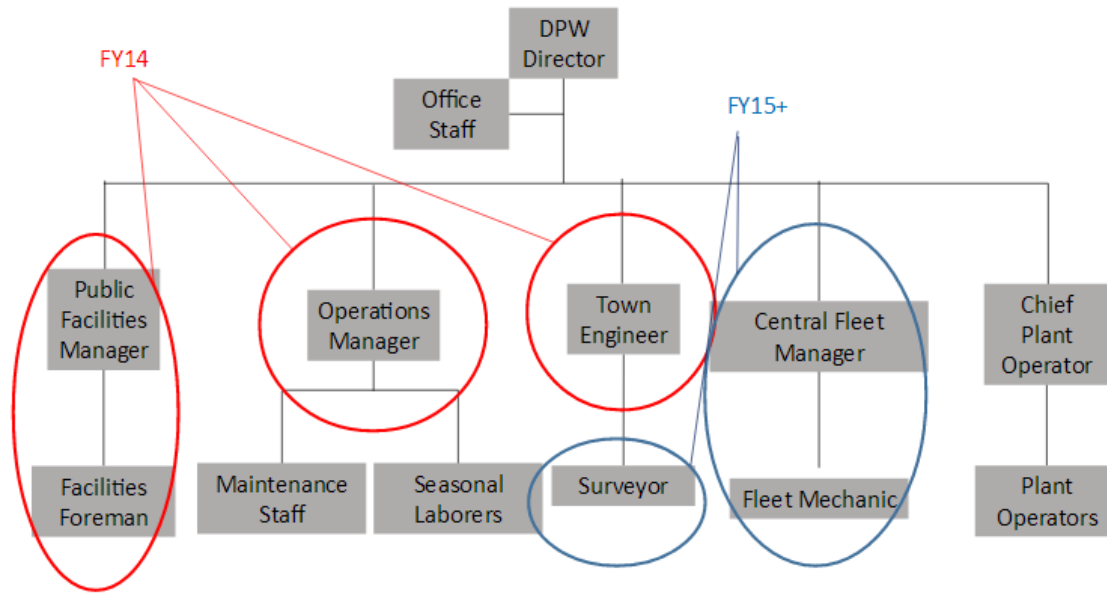


Figure 3. Nantucket's DPW Organization Chart as of FY 2015

For FY 2015 the revised DPW budget stands at \$2,590,103.20 which is up from \$2,485,204 in FY 2014, a 4.2% increase. The budget has been increasing in size over the past fifteen years, as seen in Figure 4. The budget data were obtained from *Article 8 Historical Information 2001 to 2014* (2012), *FY 2015 Budget Projection – Maintenance* (2013), and *FY 2016 Budget Projection – Maintenance* (2014) and are adjusted for inflation. While the budget has been increasing over time, the buying power has remained relatively constant. This constant buying power has not allowed the department to expand to deal with the enlarged demands being placed upon them by an increasing seasonal population, which has increased 44% in the last five years, as indicated by Gregg Tivnan (personal communication, September 4, 2015).

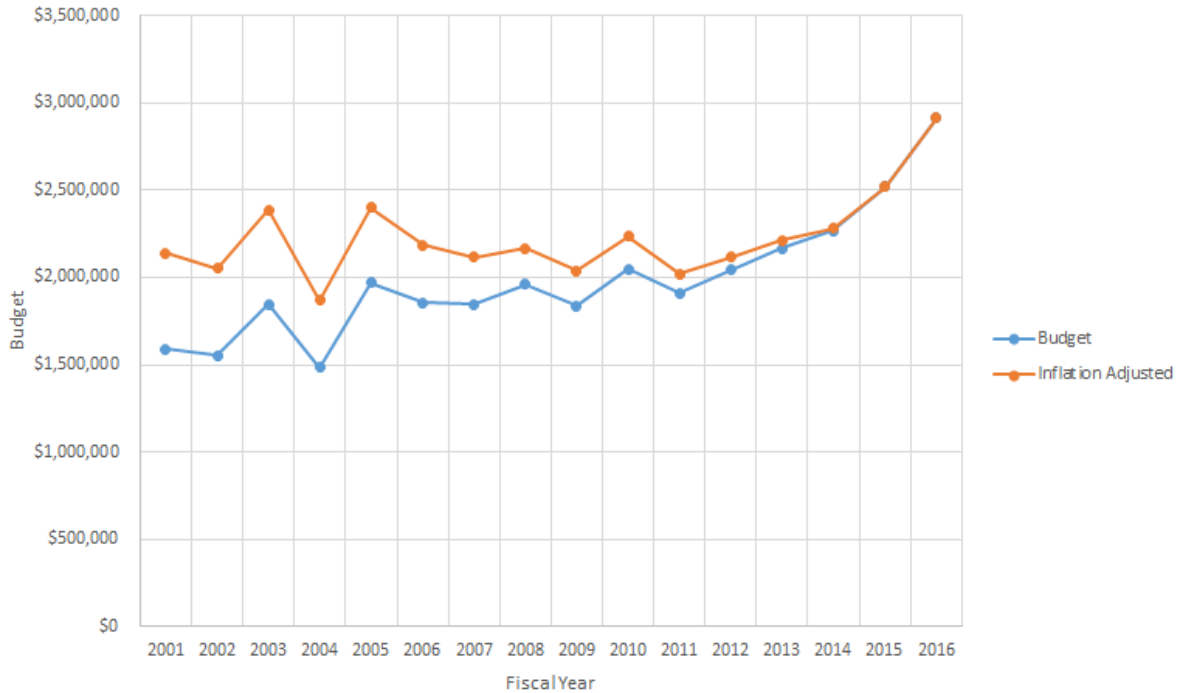


Figure 4. DPW Budget from FY 2001 to FY 2016

2.3.2 Current Challenges

The department faces many challenges owing to numerous causes. Seasonal population increases, lack of funding, insufficient manpower, and low public perception are all factors resulting in the strain on the department’s ability to maintain public safety.

One primary factor contributing to the strain on department resources is the summer population increase of approximately 525%. The summer season is the primary working season for the DPW and is the only time outdoor construction is permitted and maintenance work can be completed.

Insufficient manpower during the summer is a significant issue as many positions for seasonal workers go unfilled in addition to low and mid-level permanent positions in the DPW. In the Town of Nantucket Town Manager Organizational Study (2014), the Executive Suite notes that due to the islands location, retaining skilled personnel is challenging:

During discussions with Town officials it was evident that Nantucket's physical location is a significant asset, yet...concerns were also expressed that the Town's employees, because of the Town's remote physical location, may not [be the] best people for the job. (p. 10)

This results in full time employees working more hours in the summer to make up for the lack of manpower. The issue partly stems from the fact that all DPW workers must live on Nantucket itself since a commute to work is not feasible on a daily basis. To try and compensate for the lack of manpower for seasonal workers, the pay has been raised (G. Tivnan, personal communication, September 4, 2015). Unfortunately, these high paying seasonal positions have not resulted in additional workers. In an attempt to attract professionals, the DPW has considered raising full time employee compensation packages. This solution would likely require additional funding for the DPW, which year-round residents may not support.

Due to the fact that Nantucket is an island, mutual aid or the sharing of resources between towns is extremely difficult, forcing the DPW to own any equipment they may need, even if they infrequently utilize it. This further raises equipment and maintenance costs compared to towns on the mainland which may be able to forgo such equipment and rely on other towns for mutual aid (K. Buzanoski, personal communication, September 4, 2015).

2.3.3 Previous Evaluations

The Mercer Group's (2009) departmental evaluation of the Nantucket DPW provided a good benchmark for our research and a historical check against current day standards. Through the use of five surveys, the consultants solicited DPW employee opinions regarding values, physical resources, human resource practices, and organizational culture and climate. In 2009, they concluded that "Compared to other Mercer clients, Mercer's management model, and industry-standard best practices, the Nantucket Department of Public Works is relatively well-managed, relatively cost-efficient, and effective in meeting most performance expectations" (Mercer Group, 2009, p. 9). The report identified several departmental strengths including the range and quality of the services the DPW provides, the department's problem-solving ability, and its responsiveness to customers. The Mercer Group found that on the whole "[the] Nantucket DPW

compares favorably to...other recent public works clients [locally and nationally]” (Mercer Group, 2009, p. 13).

Unfortunately, weaknesses still existed. The Mercer Group (2009) found that the DPW’s facilities and use of technology were rated below average. Typical to DPW trends in general, the Mercer Group noted through interviews that the DPW employees are not well respected or supported by town officials and managers. In addition, the DPW still had challenges to overcome. Specifically, the report noted that the DPW was not receiving all the funds they needed due to the poor economy of the time. Since the assessment took place over six years ago, our team examined the issues raised by the Mercer Group (2009) in an effort to see if any of the changes have been implemented, or if new issues have arisen. The Mercer Group also pointed out that the DPW employees often resist change (p. 13). We focused on the management and operations evaluation for this study, specifically its findings and widespread surveys (refer to Appendix A to view one of the surveys they used). The report raised some concerns about the structure of the DPW. According to the Mercer Group (2009), “the DPW management team is not as cohesive as it needs to be to effectively run the department” (p. 10). The report also notes that the small size of the DPW limits its ability to measure resources and other performance metrics (Mercer Group, 2009, p. 10). It was pointed out that the DPW does not have a strong formal strategic plan that matches with the town’s Community Comprehensive Plan and the Board of Selectmen’s strategies. Lastly, Hunt et al. (2010) recommended having an engineering division, as did the Mercer Group, which Nantucket’s DPW incorporated into its organization. Moreover, the Mercer Group (2009) noticed that the DPW “lacks a formal Training and Safety Program” (p. 56). As Hunt et al. (2010) mentions, training is essential in making personnel performance to meet standards required to perform jobs effectively, efficiently, and safely.

Nantucket has since addressed some of these challenges. Primarily the DPW implemented a computerized work order system through which all jobs are entered. These jobs may originate from within the DPW, or may be based on the complaints made by the public. Public complaints can be submitted through another technological program, an app called “SeeClickFix.” The app resulted in many work orders and complaints which, even after being completed, could be

reopened. This feature of reopening work orders caused a strain on the department's resources and the subscription was dropped. There were approximately 2,000 work orders completed from complaints in the last year, which considerably strained the department's resources (K. Buzanoski, personal communication, November 3, 2015).

2.4 Summary

Our review of the literature reveals that government agencies are trying to improve their delivery of services and reduce costs by adopting performance management techniques from the private sector. These techniques entail the use of performance measures, indicators, and benchmarks. Performance assessments reveal that the public works departments in a sample of three towns in Massachusetts could improve their performance substantially if they put in place better management practices, such as the use of:

- Clear management objectives and measurable performance indicators;
- Updated technology to track work orders, project progress, and various performance measures;
- Enhanced methods and channels of communication within and between departments; and
- Strategic plans to guide priorities in achieving goals and objectives.

With these ideas in mind, we evaluated the Nantucket DPW to determine if it is structured appropriately, if resources are allocated effectively to meet the needs of the island, and how it compares to DPWs in other communities. We discuss how we conducted this assessment in the next section.

3.0 Methodology

The goal of our project was to evaluate how well the current structure and functions of the Nantucket DPW meet the needs of the island. To accomplish this, we:

1. Created a departmental profile, with a historical narrative, which characterizes the DPW's staffing, organization, and responsibilities;
2. Assessed the opinions of DPW employees and selected town officials regarding the current organization, functions, and performance of the DPW;
3. Developed and applied a set of metrics to evaluate the performance of similar functions in other selected communities; and
4. Recommended how DPW operations, staffing, and resources might be better organized and managed to meet the needs of Nantucket.

3.1 Objective #1: Created a Departmental Profile with Historical Narrative

Building on the assessment conducted by the Mercer Group, Inc. in 2009, we conducted additional background research on Nantucket's DPW and interviewed key personnel to develop a detailed profile of the current departmental responsibilities, staffing, organization, services delivered, and tasks performed by employees. The departmental profile was compared to other DPWs as a basis for identifying areas of operational improvement.

In order to accomplish Objective #1, we built upon our literature review, surveyed the employees of the DPW, and interviewed one retired and five current employees, discussed further in Objective #2. For our research, we drew upon sources recommended by our sponsor liaisons Gregg Tivnan, Assistant Town Manager, and Kara Buzanoski, Director of the Department of Public Works. In addition to examining records, we conducted site visits and tours of key DPW facilities such as the landfill and recycling facility, the main wastewater treatment facility, and the DPW headquarters. Following the distribution of surveys to DPW employees, discussed in Objective #2, we interviewed DPW employees to gain a better understanding of the day to day activities and basic tasks as well as the specific challenges which they believe their department faces. Also, we discussed the staffing, structure, and organization of the DPW. These interviews and surveys helped us to better understand the challenges that Nantucket's DPW faces, how the

DPW historically has addressed those challenges, and what organizational changes might be appropriate to relieve staffing pressures.

We also analyzed historical data to compare Nantucket's DPW to itself over the last fifteen years to determine the causes of the pressure on the department. We selected several indicators including historical budget and staffing records, man hours worked, and seasonal population trends. This historical comparison tracks progress or regress in services rendered to the public and enabled us to determine if the department has been keeping a proportional relationship between services, and the budget and staffing.

Data for the aforementioned indicators were collected from various sources including the Town of Nantucket's webpage, Mr. Tivnan, Ms. Buzanoski, and seven interviewees. We organized the information into several spreadsheets and graphed the comparisons to discover trends which we could further analyze. Specifically, we analyzed staffing, budgetary, and service trends.

3.2 Objective #2: Assess Opinions of DPW Employees and Town Cabinet Members

Through interviews and surveys, we were able to assess the opinions of the Town Cabinet members and the employees of the DPW regarding their perceptions of the responsibilities, performance, staffing, and organization of the DPW.

We surveyed twenty-five DPW year-round employees, laborers and office staff, excluding the wastewater division, to determine their opinions about the staffing, structure, and functions of the DPW, and to identify ways the department could improve. We reviewed the surveys used previously by the Mercer Group and devised our own survey questions while the survey instrument was refined in consultation with Mr. Tivnan, Ms. Buzanoski, and our WPI faculty advisors. We pre-tested the draft survey instrument with Mr. Tivnan and Ms. Buzanoski and revised it based on the feedback received. Ms. Buzanoski decided the best distribution method would be to use paper surveys which would be given out at the end of the work day while the employees were clocking out. Our team was present during the distribution to ensure it was administered anonymously, and to briefly discuss any additional concerns or comments from the

employees. Upon collecting the surveys, we recorded the percentages of the responses to the questions. We also investigated general trends in their written comments in an effort to gauge perceptions about the department. The survey for the employees can be seen in Appendix B. After review, we followed up with employees to discuss the themes found in the survey results, seen in Appendix C. The general script used in these follow ups can be seen in Appendix D.

We surveyed members of the Town Cabinet to gather opinions about the role and performance of the DPW. After constructive feedback from our sponsors and advisors on our original list of questions, we created an electronic survey on Google Forms. Mr. Tivnan distributed our survey to the cabinet members, as seen in Appendix E, via email on the behalf of the Town Manager to increase the response rate. The team followed up with two cabinet members to clarify and collect further information based on the themes of the twelve survey responses, seen in Appendix F. Our general questions to the two cabinet members are seen in Appendix G. Unless we were provided with explicit permission, the responses to our follow-up questions remained anonymous. Those who allowed the team to quote them were given the right to review their quotation prior to publication. The information was synthesized by comparing trends in responses that are noted in our findings section.

3.3 Objective #3: Evaluation of Selected Communities

To compare Nantucket's DPW to other DPWs, our team developed a survey instrument, in the form of a matrix, to be sent to selected towns in Massachusetts (seen in Appendix H). The matrix was developed over several iterations by analyzing previous DPW evaluations, discussed in the Literature Review, and through consultations with our sponsor liaisons and advisors. The functions listed in the matrix were determined by our sponsor liaisons, after we developed a list of services the DPW provided. These were either key functions to the DPW or functions where the DPW has the most trouble or interest in improving. From this list, Ms. Buzanoski was able to identify the most likely available data to increase our response rate. The surveyed cities and towns were selected from conversations in which our sponsors mentioned several of the communities; they were also selected based on their location, Cape Cod and Martha's Vineyard. The sample size of twenty-six towns allowed for sufficient amounts of comparable data to be

recorded for each function. The survey was sent out by Ms. Buzanoski, Director of Public Works and sponsor liaison, to provide a better response rate due to the position she holds in the DPW. To incentivize completion of the survey, each respondent was promised access to the final results.

The survey data contained the number of full time equivalent (FTE) staffing assigned to specific functions. We calculated the amount of a variable for which each FTE staff was responsible. For example, the miles of road maintained per FTE staff. We then compared Nantucket to these metrics to determine similarities and areas for improvement. For example, if Nantucket's metric exceeds the average, an increase in staffing may be required. Similarly, if the metric is significantly below the average (e.g. Nantucket has more FTEs per mile of road than other towns), there is an indication that the DPW maybe be overstaffed for that function. Other indicators affected the metrics that were not part of the matrix. These were obtained by following up with the six respondent towns. By analyzing these comparisons, we were able to benchmark Nantucket's DPW against other DPWs.

3.4 Objective #4: Final Recommendations

Based upon our research, we developed a list of recommendations for the Town of Nantucket's DPW. We were able to identify trends in the DPW employee and the Town Cabinet survey and interview responses which led us to formulate our conclusions and recommendations. After compiling the data from other towns into several tables, we were able to benchmark Nantucket against other DPWs. The trends in our survey results, follow up interviews, and the benchmarking exercise were integral in reaching our recommendations. The data which supports these recommendations can be found in the following section.

4.0 Findings

After conducting our surveys and interviews as described in our methodology, we examined areas such as services, personnel, communication, and equipment and analyzed their operations and organization. We also evaluated the perceptions of the DPW employees regarding the Board of Selectmen, Town Administration, and the public. We then used our benchmarking exercise to further support our analysis of DPW operations.

4.1 Departmental Profile

The departmental profile characterizes how the DPW has grown and changed over time. It also includes a discussion on how services and other stressors have historically increased. Trends in staffing and the associated issues are also analyzed. Communication issues are then discussed followed by technology and equipment. The final component of the profile is related to data collection.

4.1.1 Departmental Growth

Over the past fifteen years, there has been a significant increase in service demands on the DPW. The rising population and a relatively stagnant budget have created substantial stress on the department. Figure 5 shows the seasonal population has grown substantially over the past fifteen years while the DPW budget has only begun to rise within the past two years. This leaves the DPW with an insufficient budget to fund operations related to the rising service demands and catch up with a backlog of work and infrastructure repair. It should be noted that seasonal population data is difficult to determine and all of our data comes from estimates made in news articles, however our sponsors indicated that they look accurate.

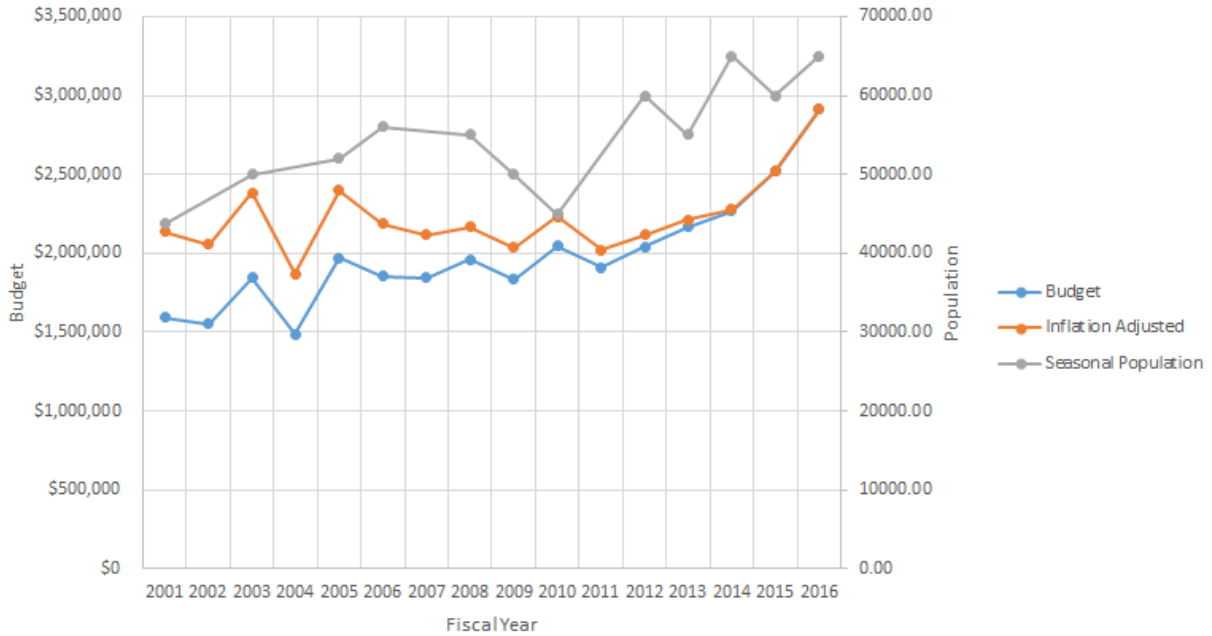


Figure 5. Change in Seasonal Population and DPW Budget

Howard/Stein-Hudson Associates, Inc. and RKG Associates, Inc., 2000, Anne E. Dunning Doctoral Student , 2002, Shelley Christiansen, 2007, New England Development, 2015, NEFSC, 2008, Housing Production Plan (HPP) for Nantucket in Accordance with 760 CMR 56.03(4), 2009, Tom Moroney, 2011, Peter Brannen, 2012, Ack Town, 2013, Jacobs Engineering In Association With Robin Lee Monroe & Associates, 2014, Gregg Tivnan, 2015

In 2007, the DPW expanded the Surfside Wastewater Treatment Plant to help accommodate the higher service demands (K. Buzanoski, personal communication, October 30, 2015). This led to the hiring of several new wastewater division workers. According to *Personnel Historical Information 2001 to 2014* (2012), the wastewater division went from zero to nine employees from FY 2007 to FY 2008. By increasing the division size, the DPW director now has more personnel reporting to her and larger projects to manage as the Town of Nantucket continues to grow.

In FY 2012, the town consolidated departments resulting in the DPW taking the responsibilities of the now dissolved Parks and Recreation Department. The DPW is now tasked with maintaining all the parks, playing fields, and town-owned beaches, and organizing the recreational programs. While adding these obligations to the department, the DPW only acquired one additional staff member, the former Parks and Recreation director, who has since retired,

while the separate department had four full time, two part time, and up to four seasonal employees. Some of the recreation programs have been contracted out to private entities while others are run by different town departments.

In addition, the DPW manages the landfill and solid waste disposal. These are currently contracted out and funded separately from the DPW general fund, but still falls under the DPW's purview (K. Buzanoski, personal communication, October 30, 2015). This means that the DPW still must provide some oversight of the contractors and monitor the facilities, which adds to the DPW director's workload (L. Gibson, personal communication, December 4, 2015).

After the Mercer Group study in 2009, several new positions were added to help with the DPW director's workload, as seen in the organization chart in Figure 3. Several new positions were added including the Facilities Manager and Foreman, Operations Manager, Town Engineer, Surveyor, Central Fleet Manager, and Fleet Mechanic. Currently the position of the Central Fleet Manager is vacant, however, while the rest of the positions have been filled. These positions were created in response to growing service demands on the DPW as they began new services that they either: i) did not do previously but are within their domain, ii) adopted from other departments, or iii) expanded on, like the addition of the Sconset Wastewater Treatment Facility, adoption of private roads, or construction of new bike paths. While these positions have been created, the three workers within the facilities department are not enough to keep up with demand as many of the town's buildings are old and have numerous issues (L. Kester, personal communication, December 1, 2015). The DPW fleet services not only maintain the DPW fleet but also the fleets of most other departments, overwhelming the two mechanics of which one is the mechanic foreman (G. Chatti, personal communication, December 2, 2015).

The DPW does not consistently track work orders or timesheets electronically, making it difficult to assess time spent on different tasks. However, in 2012 and 2013, DPW employees filled out task codes on their timesheets, which were then manually converted to electronic form by senior workers from the Senior Tax Work-off Program, showing how much time each employee spent on different tasks throughout each year. Figure 6 and Figure 7 show the proportion of total man-

hours spent by DPW employees on different tasks in 2012 and 2013. The biggest task in 2012 was road maintenance at 32% while in 2013 it was 41%. From 2012 to 2013, the time spent on road maintenance, parks and building maintenance increased while the time spent on all the other tasks decreased. The data which composed the pie charts can be found in Appendix I.

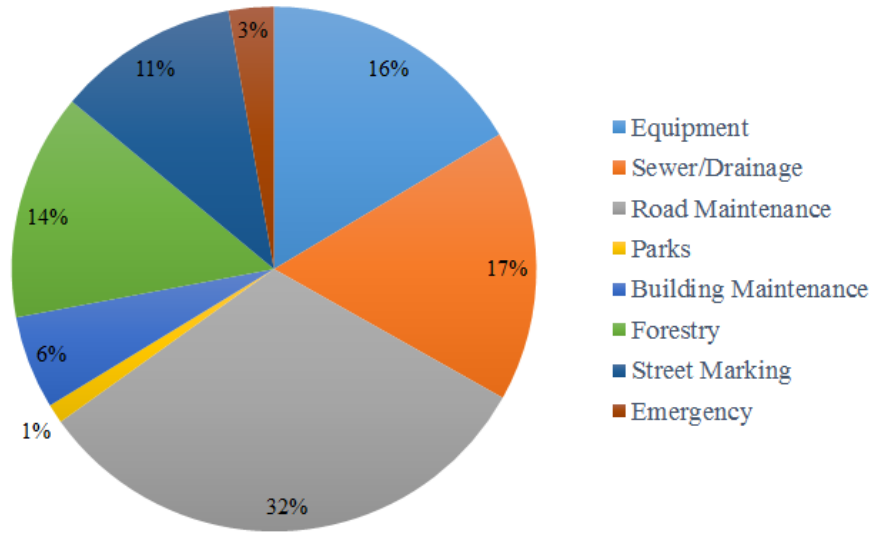


Figure 6. DPW Task Distribution in 2012 via Timesheets

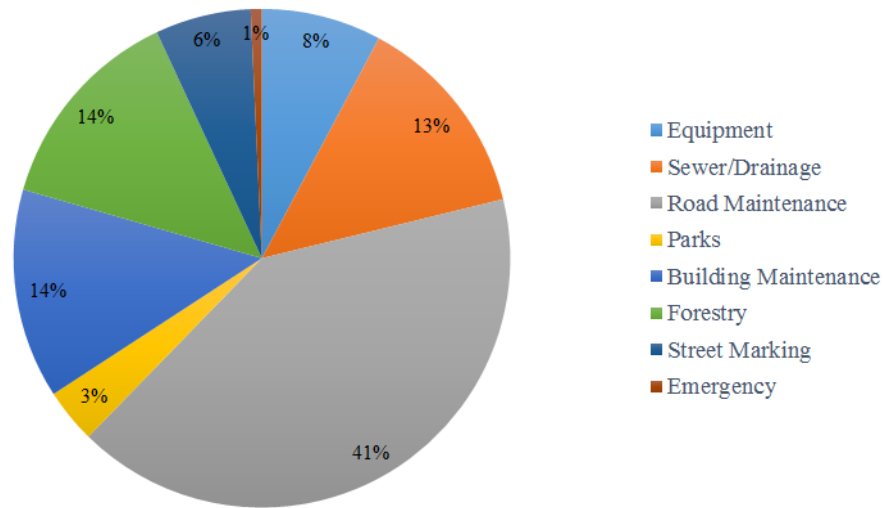


Figure 7. DPW Task Distribution in 2013 via Timesheets

4.1.2 Staffing Trends and Issues

The problems of increasing services are exacerbated by the lack of staffing increases. As seen in Figure 8, the seasonal population of the island has been increasing, while the staffing of the

DPW has been relatively static which suggests that the DPW's workload is also increasing. The number of hours the DPW spent performing services increased in 2013 to 26,873 hours from 23,604.75 hours in 2012. This comparison does have some limitations as we could only obtain the total hours worked for these two years and it is dependent on how accurately the employees filled out their timesheets. Even with these limitations, the quantitative data confirms what almost all of our interviews and surveys revealed, the DPW staff's workload is increasing without staffing increases.

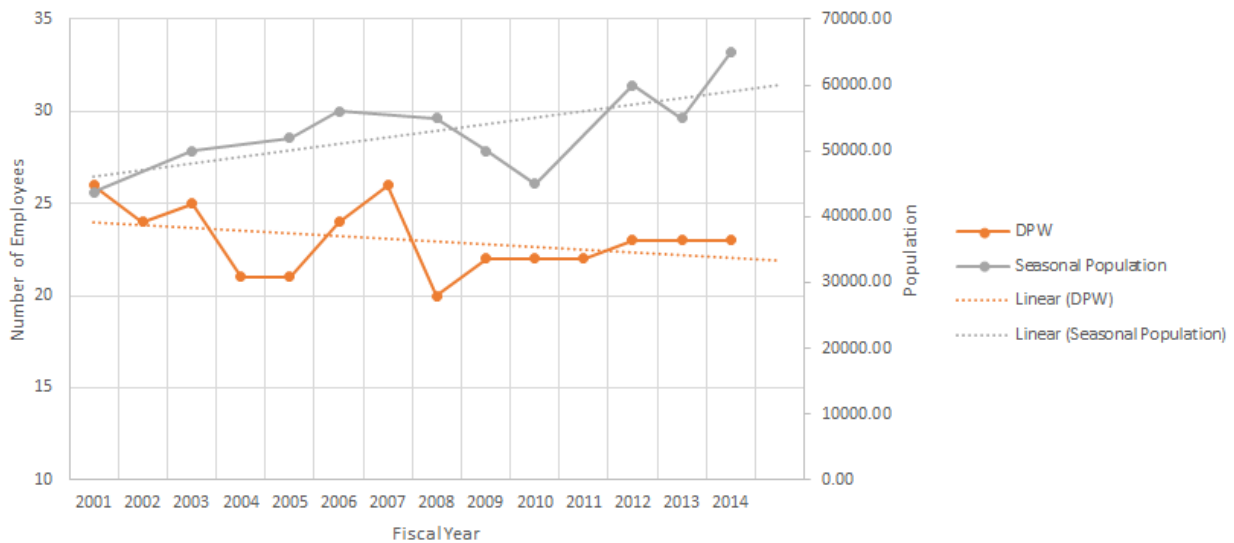


Figure 8. DPW Employee Count versus Season Population from FY 2001 to FY 2014

One may think this is an easy problem to solve and just state that the department needs to hire more staff, but a major problem is finding qualified staff. For many DPW positions, various licenses are required for a person to utilize the equipment and complete the jobs safely. For example, a commercial driver's license (CDL) is needed to operate the large plow trucks. To operate the heavy machinery, a hoisting license is required. Finding personnel with these qualifications who are willing to work for the DPW is challenging. There are two ways to find qualified personnel: attracting them from the mainland, or training existing employees. However, there are associated complications with both options.

There are many challenges with attracting off island personnel. As town leadership has pointed out, it is often the non-glamorous nature of the work. One solution they have suggested to

attract these qualified people is increased pay and benefits packages. According to Gregg Tivnan and Libby Gibson, Town Manager, one can make a very good wage in the private sector with these skills, which implies the town needs to offer very competitive pay packages (personal communications, December 4 and 5, 2015). The compensation for work must also be high to match the cost of living on the island and be competitive with the private sector.

The tourist economy also results in a lack of affordable housing for employees (RKG Associates, 2015). Even if the town can attract qualified personnel, there are difficulties in finding affordable housing. This problem is not exclusive to the DPW. Libby Gibson (personal communication, December 4, 2013), emphasized how challenging it is to find housing, even for management level positions in other departments. For example, the town only managed to find suitable housing for the new human resources and public health directors by happenstance.

One proposed solution to the housing problem would be “day boating”, or commuting to the island every day. However, the cost of commuting by ferry annually is estimated to be \$15,000-\$20,000 per employee (L. Gibson, personal communication, December 4, 2015). The cost of this alone appears prohibitive, either the Town or the employee would have to pay for this. Another issue with commuting is weather as ferries can be cancelled resulting in the employee not being able to report to work, or having to stay on the island overnight. This is especially problematic for a DPW employee considering the role the DPW takes in weather emergency response, and that the DPW does not have a place to house off-island employees in advance of a storm. Living off island also limits availability to be on call for an emergency.

With all the problems of ‘day boating,’ several interviewees suggested that the town provide housing for the employees. The town does own some housing, but not enough. Due to state regulations, the DPW provides housing for wastewater employees. The housing is only provided until the employees can afford their own housing. If the town could provide more housing for its employees, more people may apply for the jobs.

The second way to obtain qualified staff is to train the current staff to the desired level. As revealed in some of our interviews and surveys with DPW employees, some of the staff members do not wish to be trained to operate the heavy machinery, or to drive the larger trucks. These employees are satisfied with their current position and responsibilities. There are no easy fixes to this problem, however, there are incentives to encourage people to take on more training and seek additional qualifications and certification, such as offering higher pay, bonuses, and titles, but these still may not be effective.

A possible solution to obtaining qualified personnel is to hire people who wish to receive training. There are still many associated problems with this solution as well. The above discussion on housing and pay still applies to these hires as well. Hiring inexperienced people who wish to learn have other associated problems, primarily time. It takes time to train someone up to the level needed to operate the machinery independently. Just passing the tests to get licenses can take months or even a year to accomplish. The DPW operations manager, Richard Moore (personal communication, December 2, 2015), stated, “Just having the license doesn’t mean you are a qualified operator. It takes time to train a person on how to properly use the machinery.” It can take two to four years from hiring a person with minimal skills and experience to having a full time operator who knows how to properly operate the machinery.

It cannot be guaranteed that the new hires would even want to be trained. One way, which has precedent in the department, is to have training as a condition of employment. There are multiple ways the condition for employment could be phrased. The wastewater treatment facility uses this type of process, and the operators at the plant are required by law to be certified, whereas DPW employees are not. At the wastewater facility, if employees do not obtain certification in an appropriate timeframe, they will be let go. The immediate termination suggested by this process could be problematic due to the limited applicant pool. This process could be modified to be the employee has two years in which to obtain a certification, such as a CDL or hoisters license, after which they can be terminated if a qualified candidate is available for hire before they obtain the license. The other option is to give new incentives for receiving training and licenses. Ms. Buzanoski (personal communication, December 8, 2015) indicates the employees are highly

motivated by bonuses and vacation time. Upon the completion of training and licensing programs, the employee would receive a bonus or vacation time. To place any type of condition for hire into the contract would require union approval, which seems unlikely (G. Tivnan, personal communication, December 3, 2015).

4.1.3 Communication Issues in the DPW

In our surveys and interviews, we found that communication, including the involved equipment, within the department is not optimal. Survey respondents noted that they feel as if there is a lack of communication from upper management to the workers, and a lack of employee feedback. To dispatch daily tasks, the manager and their foremen will usually meet every morning and discuss the day's tasks. This information will then be passed to the general workers from the foremen who will oversee the day to day operations of the working crew. Interviewees mentioned that they conduct weekly meetings with their foremen or working crews, but not on a regular schedule as it rarely is a priority. Employees indicated that increased communication from management would help improve employee morale as well.

John Smith, retired DPW Operations Manager, indicated that, previously, there were two-way Motorola radios in the DPW trucks that enabled management to reach the working crews (personal communication, November 20, 2015). This system was replaced with cell phones when each employee was provided with a work phone. However, they do not always answer the phones when called. Mr. Moore (personal communication, December 2, 2015) indicated that installing radios in the trucks with a loudspeaker on the outside would help communications and provide a backup method to reach working crews. A secondary method of communications also increases worker safety in the field. This is especially true when an accident occurs in an area without cellular coverage, as the employee can still ask for assistance.

4.1.4 Technology and Equipment

We found that though there is an electronic work order system, PeopleGIS, tasks are still distributed in paper form. Employees do not have access to the electronic work orders when in the field meaning they must carry paper copies which reduce the efficiency of the electronic

system through missing or incomplete data. While management has been given iPads, which could be used for mobile work order system usage, there are no such methods for the working crews. Equipping each truck with a mobile iPad would allow employees to electronically complete work orders, and see new ones as they are created or assigned without having to return to the central office. These iPads can also be GPS enabled allowing for the trucks to be tracked by their supervisors, to watch truck routes in a snowstorm, and to have locations of employees in the event of an emergency (R. Moore, personal communication, December 2, 2015).

Fleet management software can also be connected to the trucks to allow the mechanics to remotely diagnose the trucks as needed. This would promote faster vehicle repair turnaround time as real time preventative maintenance updates can be provided. The mechanic can also better schedule maintenance. Lastly, the software would indicate specifications for each piece of equipment that would indicate any necessary parts to be ordered ahead of time to be ready for the maintenance.

The team found that the DPW's situation with equipment and vehicles has improved in the past few years, but can still use much improvement. Ten to fifteen years ago, the DPW made its own equipment from discarded items. This meant that the DPW had to spend extra time building and maintaining its own equipment, which decreased the time it had to perform actual services (J. Smith, personal communication, November 20, 2015). The equipment is generally old and has endured significant wear and tear, as seen in Figures 9 and 10. Germano Chatti, Mechanic Foreman, mentioned that some vehicles have performed 100,000 miles of plowing alone, not including other daily usage (personal communication, December 2, 2015). With the new DPW administration, a mechanic was hired, and the garage was outfitted with some new tools to reduce equipment and vehicle downtime.



Figure 9. Worn Down DPW Vehicle



Figure 10. DPW Truck in Poor Shape

Much remains to be done to modernize fleet services at DPW. Currently the mechanics have to bring a large number of personal tools that the DPW should already possess. The garage also does not have enough storage space for tools and spare parts. With a larger storage space, more spare parts can be kept which would improve turnaround time as the mechanic would not need to wait for parts to be delivered. There is also only a single lift in the garage meaning the mechanics can only work on a single vehicle at a time when a lift is needed. Access for air hoses and fluids

is poor, with wall mounted air hoses rather than pull down systems from the ceiling and a separate room for fluids. A ceiling mounted fluid piping system over each bay with air hoses would allow for the mechanic to pull down a fluid “gun” to service vehicles, especially the larger ones (G. Chatti, personal communication, December 4, 2015).

There is only a single mechanic and a mechanic foreman in fleet services. This greatly increases the risk of accidents and liability. The garage also needs the tools and personnel to repair and maintain vehicles from other town departments as the DPW moves into a central fleet role, and these tools and parts will contribute to the needs of storage space (G. Chatti, personal communication, December 2, 2015). Figures 11 and 12 show the lack of storage space with regards to tools as the garage only has four rolling tool boxes for mobile storage. This helps to protect equipment, prevent it from being misplaced, and allow for less down time from tool retrieval. The street sweeper in Figure 11 serves as an example of the limited storage, because it must be kept indoors when not in use since the vehicle could break from freezing.



Figure 11. View of the DPW Mechanics Shop



Figure 12. DPW Mechanics Shop – Showing Lack of Tool and Hardware Storage

Many of the buildings are in poor condition due to age and lack of maintenance (J. Smith, personal communication, November 20, 2015). This contributes to reduced efficiency of the workers (G. Chatti, personal communication, December 2, 2015). The general garage is in exceptionally poor shape and is significantly degrading. Insufficient storage space inside for vehicles and equipment means that they accumulate damage faster outside with the salt air.¹ The location of the main DPW office is in Madaket, which is far from most of the locations the DPW needs to serve. The crews must drive back and forth if they need any new supplies, potentially across the island. With a satellite location providing salt storage space, the crews could reduce the amount of time they spend driving in the winter storms. The shorter distance to the salt shed means crews do not have to return to Madaket if they are in Sconset, and can return to plowing quicker (R. Moore, personal communication, November 2, 2015).

4.1.5 Data Collection

In our research, quantitative data, such as DPW staffing, work orders, and timesheets, were difficult to obtain. This problem can be traced back to data collection methods at the DPW as for

¹ The Town is currently in the design phase of a new general garage.

years the department used paper data collection methods or did not collect any data at all. This meant that records were often incomplete or non-existent. From 2012 through 2014, paper timesheets were collected which tracked employee time spent on tasks. As mentioned above this data was compiled by senior citizens in the Senior Tax Work-off Program. The data was also incomplete due to employees not remembering every task performed during the day and the amount of time they needed to complete each task. The DPW is moving towards computerized records and methods of data collection, however. This includes the purchase of PeopleGIS which will record work orders and make the filing of them electronic. Unfortunately, employees still have to bring paper work orders to the work site, limiting the effectiveness of the system as they do not have access to the electronic work order while in the field. There is also no electronic system for fleet management to centralize all the vehicle records and software meaning that paper files and multiple computer systems must be used. In addition, there are no electronic timesheets or work codes for the timesheets. Therefore it was impossible to cross reference work orders and timesheets; however, this could be done if work order numbers were recorded on timesheets.

4.2 Perceptions of the DPW

Through surveys and interviews, we are able to discern how DPW employees believe they and their department are perceived by others in town, and to identify ways that the image of the DPW might be improved. Among laborers and office staff, 52% believe that the DPW is not well regarded by the Board of Selectmen (BOS), and 80% of the office staff holds this view point. Some employees commented saying that the DPW is treated as the “red-headed step child,” meaning they are treated worse than the other departments. To get more information on this we asked our interviewees why the BOS is perceived to not like the DPW. One interviewee mentioned that the DPW hardly ever receives positive recognition. Another furthered this stating the DPW only receives recognition in unusual situations, such as after extreme weather events. A third interviewee indicated that members of the BOS often uses derisory or negative phrases and words to describe DPW staff, such as “lazy” or “stupid,” rather than giving praise or constructive criticism. Overall, the DPW employees believe they and their department are not well respected by the BOS.

Similarly, 57% of DPW laborers and office staff believe that they are not well regarded by Town Administration in general, while 80% of the DPW office staff believe that the DPW is not well regarded by the Town Administration. One survey respondent suggested that, like the BOS, Town Administration always emphasizes the shortcomings rather than the successes of the department. An interviewee suggests this perception could be due to the ease of recognizing “the bad” compared to “the good.” Both interviewees and survey respondents also said that this could be due to their views of previous DPW administrations. When we discussed this with Mr. Tivnan, he suggested that since the BOS is in charge of Town Administration, they tend to often get grouped in with the BOS by the DPW employees. However, Mr. Tivnan says that Town Administration does their best to support all the departments (G. Tivnan, personal communication, December 3, 2015).

In the survey to the Town Cabinet, we asked about how they think the Nantucket residents view the DPW on a scale of one, very negatively, to five, very positively. Many of our twelve respondents believe the DPW is perceived negatively by town residents (the average rating was 2.58). A greater majority, 67%, of DPW employees indicated that they believe the residents have negative views towards the DPW. Several surveys indicated that many residents are very supportive of the work DPW does and will stop to talk to and thank employees while they are out working. By the same token, others stop to criticize them in an unproductive manner. Overall, town cabinet members indicate residents have a generally negative opinion of the DPW.

The Town Cabinet was also asked on the survey how they feel about key functions remaining with the DPW or being moved to another department or being outsourced. Figure 13 shows the data from the cabinet survey regarding if park, playing field, and public facility maintenance should stay with the DPW. Fifty percent of the respondents indicated that facilities maintenance should stay with the DPW. However, the majority of respondents thought park and playing field maintenance should be moved elsewhere which includes outsourcing and moving the responsibilities to another department.

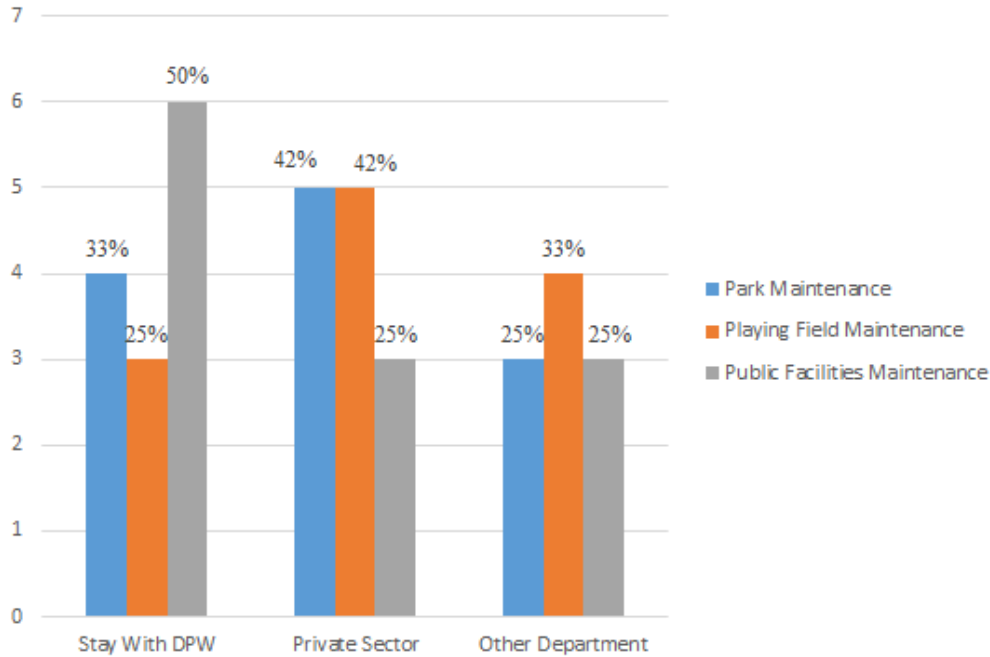


Figure 13. Town Cabinet Survey Results on Key Function Reorganization

In addition to these changes, an educational program has been proposed as a method to inform the public about town government, including the DPW. The members of the Senior Tax Work-off Program indicated that they did not understand all the tremendous challenges the department faces on a regular basis until they participated in the program. Town Administration believes that with such an education program, those who participate will have an elevated perception of the DPW, and be more appreciative and understanding (G. Tivnan, personal communication, December 3, 2015).

An important part of improving perceptions, is visibly documenting that work is completed. Ms. Gibson (personal communication, December 4, 2015) indicated that the DPW is doing more visible projects in which “before” and “after” photos are shared on social media to show the good work done by the DPW. Though this is helpful, Ms. Gibson also indicated that the “before” photos are often forgotten, which limits the impact of presenting images of the DPW’s good work. According to Ms. Buzanoski (personal communication, September 4, 2015), the DPW has been doing better with its public relations, but it is still a work in progress.

Lastly, Mr. Tivnan (personal communication, December 3, 2015) indicated that there is a School to Work program which currently consists of high school students who go out to a single town department to learn more about their operations over the course of time. The DPW is part of this program, however no interest has been received. Most of the students go to departments like fire and police for this program. Ms. Gibson (personal communication, December 4, 2015) was unaware of this program, but believes that the more glorified departments – fire, police, natural resources – would be more appealing to students. She also believes this program could be important to the high school students as a few of them could end up in the DPW. Though the DPW is part of this youth education program, students do not currently learn more about the DPW since they do not have to go to all of the departments.

4.3 Benchmarking

We were able to compare Nantucket's DPW to other DPWs, or equivalent divisions, in six Massachusetts towns (Boxford, Chatham, Provincetown, Wellesley, Edgartown, and West Tisbury). The towns had populations ranging from 2,874 people to 29,090. The budgets also vary from \$1.4 million to over \$11 million. Towns like Edgartown and West Tisbury also do not have a Department of Public Works, but rather a highway department and a parks department. None of these towns provide all the same services as Nantucket, thus are not directly comparable across the board, so we focused our comparisons on functions. A complete summary of the data from the benchmarking exercise can be seen in Appendix J.

The first comparison is of population to DPW full time equivalents (FTEs), which is a forty hour work week per person equivalency, as seen in Table 7. The four DPWs for which we have data had an average of one FTE for every 374.38 people in the town based on off-season population, compared with 577.72 for Nantucket. However, it should be noted that the range of services each town provides is different, so staffing levels will change. Also, the data we have may be inclusive of management personnel. Based on these data and the range of services Nantucket provides, Nantucket's DPW would require the addition of seven to nine FTEs, laborers, to be closer to the average of the other towns.

Table 7. Comparison of Population to DPW FTEs

	Population	DPW FTEs	Population per FTE
Boxford	8,162	9	906.89
Chatham	6,131	25	245.24
Provincetown	2,966	30	98.87
Wellesley	29,090	118	246.53
Average			374.38
Nantucket	10,399	18	577.72

The three seasonal communities, Chatham, Edgartown, and Provincetown, seen in Table 8 are found on Cape Cod or Martha’s Vineyard. Table 9 and Figure 14 show that Nantucket is understaffed in both the summer and winter months. In the winter, Nantucket’s population per FTE is at 577.7 which is above the seasonal town average of 318.4, indicating it is understaffed. Additionally, Nantucket is understaffed in the summer season being 54% over the average. Nantucket would have to hire additional year-round and seasonal employees to keep up with their summer population.

Table 8. Comparison of Seasonal Population to Summer Staff

	Year-round Population	Seasonal Population	No. of FTEs	No. of Seasonal Employees	Seasonal Population per Summer and Year-round Employee
Chatham	6,131	32,000	25	17	761.90
Edgartown*	4,278	25,000	7	1	3,125.00
Provincetown	2,966	60,000	30	21	1,176.47
Average					1,687.79
Nantucket	10,399	65,000	18	7	2,600.00

*Note: Edgartown, MA does not have a Department of Public Works

Table 9. Comparing Population to FTEs

	Winter (Population per FTE)	Summer (Population per FTE)	Increase in Population per FTE
Chatham	245.24	761.905	211%
Edgartown	611.143	3125	411%
Provincetown	98.8667	1176.47	1090%
Average	318.417	1687.79	571%
Nantucket	577.722	2600	350%

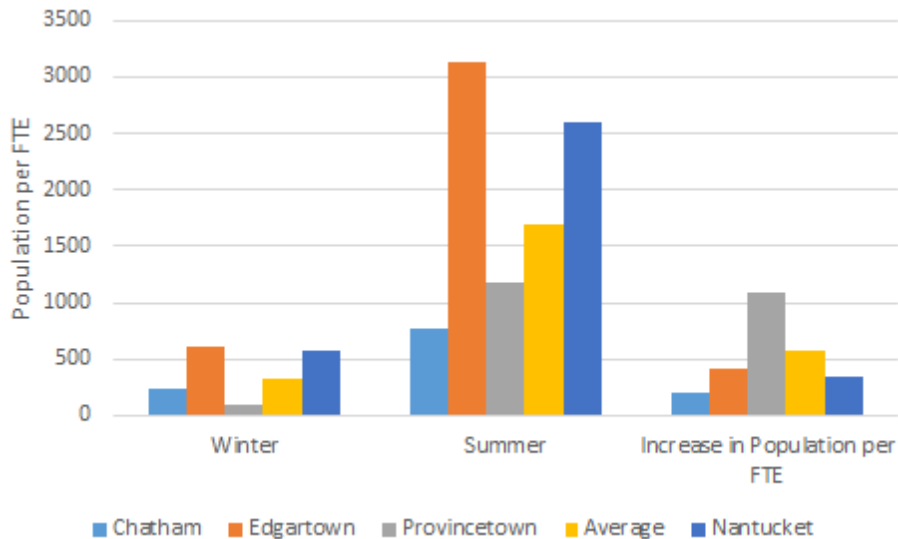


Figure 14. Comparing Populations to FTEs

A general function of any public works department is highway maintenance. In Table 9, Nantucket is compared to several other towns in terms of their highway division size and their miles of public road. The average department, according to our imperfect data, has a FTE for every 9.13 miles of road. Nantucket appears to be well staffed; however, unlike other towns Nantucket does not have a clear highway division, but an operations division instead. Though Nantucket indicates 18 FTEs for highway operations, this is just the pool of employees from which they can pull. As seen in Figures 6 and 7, approximately 40% of the general laborer's time

is spent on road maintenance, therefore 7.2 FTEs are used for road maintenance on Nantucket. This number may not be accurate to today's staffing, because it was extrapolated from 2012 and 2013 data. Using this number, the miles of road per FTE for Nantucket increases to 13.53 which is above the average for other towns. If Nantucket had 11 FTEs dedicated to a highway division, they would meet the other towns' average.

Table 10. Comparison of Miles of Road to Highway FTEs

	Miles of Road	FTEs	Miles of Road per FTE
Boxford	99.72	7	14.25
Chatham	70	5	14.00
Edgartown	53.38	7	7.63
Provincetown	32.84	8	4.11
Wellesley	129.97	23	5.65
Average			9.13
Nantucket	97.4	18	5.41

Though the highway department may appear to be well staffed, Nantucket is severely understaffed when it comes to snow plowing. Table 10 indicates Nantucket plows 97.4 miles of road with 10 vehicles. Each vehicle, on average, will have to plow 9.74 miles of road. This number is over three times larger than the average of the six towns. Nantucket does not have enough equipment to plow the roads at similar levels as other towns and their contractors. The DPW would need 32 vehicles each responsible for 3 miles of road to meet the averages. However, five of the six towns are able to use contractors to assist in plowing campaigns; Nantucket does not have this luxury. The addition of 22 vehicles is unrealistic, but the DPW can boost its efficiency by adding a few additional vehicles to its fleet to get closer to the calculated average. The addition would possibly require more staffing who has appropriate training, like CDLs, to ensure no vehicles are left unused.

Table 11. Comparison of Miles of Road to Plows

	Public Miles of Road	Number of DPW Plows	Number of Contractor Plows	Miles per Plow Vehicle (Contractor and DPW)
Boxford	99.72	7	28	2.85
Chatham	70	15	13	2.50
Edgartown	53.38	7	2	5.93
Provincetown	32.84	10	0	3.28
Wellesley	129.97	35	10	2.89
West Tisbury	13	0	15	0.87
Average				3.01
Nantucket	97.4	10	0	9.74

Beach maintenance is another problem Nantucket’s DPW faces. Currently, there is no dedicated employee to maintain the town-owned beaches. As seen in Table 11, the average miles of beach per FTE is 1.88 compared to the 1.67 miles per FTE on Nantucket. It should be noted that in season, Nantucket’s Marine Department assists in beach maintenance as the DPW cannot handle it on its own. While other towns, like Chatham and West Tisbury, receive seasonal help, Nantucket is left with no change in staffing.

Table 12. Comparison of Miles of Beach to FTEs

	Miles of Beaches	FTEs	What Department is Responsible?	Miles per FTE
Chatham	0.5	.5	DPW?	1
Edgartown	3	1	Parks	3
Provincetown	3	1	DPW	3
Wellesley	0.5	1	DPW	0.5
West Tisbury	1	Seasonal Lifeguards	Parks	-
Average				1.88
Nantucket	1.67	1	DPW	1.67

Another problem that Nantucket faces is the collection of public waste bins. Nantucket averages just over 83 waste bins per FTE, close to the average of the other towns, seen in Table 12. However, in season, waste bins are collected more than once a day without reinforcement. Chatham empties their waste bins three times more often in season than out of season with assistance from one additional employee. Each Chatham FTE, in season, is responsible for 183 bins. In Nantucket, waste bins are collected twice a day in season, so a total of 500 waste bins must be emptied with occasional seasonal help giving 166 bins to each employee. Though Nantucket appears to perform at the same level as other towns, its work load is increased with very little help. Additional staffing could be used to assist in reducing the load on the current employees.

Table 13. Comparison of Public Waste Bins to FTEs

	Waste Bins	FTEs	Bins per FTE
Boxford	8	1	8
Chatham	122	1	122
Edgartown	45	2	22.5
Provincetown	126	3	42
Wellesley	300	1.66	180.72
Average			75.04
Nantucket	250	3	83.33

One of the services Nantucket’s DPW has been given is the maintenance of parks and fields. Table 13 shows that the DPW has two FTEs who are each responsible for 5.5 recreational facilities which include tennis courts, playing fields, and skate parks, but not as their primary responsibilities. The two FTEs are pulled around to work on different tasks in the department and cannot spend all their time on these facilities like the employees in Wellesley. Nantucket does not have sufficient FTEs for these recreational facilities as compared to the average of 10.09, or average of 6.96 without the extreme of Wellesley. This comparison does not take into account the size, usage, and maintenance level of the parks, along with secondary responsibilities like community programming.

Table 14. Comparison of Recreation Facilities to FTEs

	No. of Tennis Courts	No. of Skate Parks	No. of other facilities	FTEs	What Department is Responsible?	Facilities per FTE
Boxford	3	0	10	2	DPW	6.5
Chatham	11	1	14	3	Parks	8.67
Provincetown	3	1	7.5	1.5	DPW and Recreation	7.67
Wellesley	16	0	97	5	DPW	22.6
West Tisbury	1	0	9	2	Parks	5.00
Average						10.09
Nantucket	6	1	4	2	DPW	5.50

Towns often have agreements with one another to share resources, like equipment, and sometimes personnel. Only 17% of towns have an official mutual aid agreement. However, verbal agreements do exist, and are more common. For example, West Tisbury indicated that other towns on Martha’s Vineyard will help them when needed. Though unofficial, these towns have the ability to call for help and typically receive aid. Nantucket’s location does not allow for this luxury. Nantucket should have sufficient staffing and resources to be able to complete all their advertised services as they can’t rely on others for assistance.

5.0 Conclusions and Recommendations

Based upon our findings, we conclude that the DPW is now well managed and making progress in improving staffing, organization, and performance. Nevertheless, many challenges remain and the department needs continued support from Town Administration and the public. Moving forward, the department should spin off secondary DPW services through a reorganization and concentrate on core DPW functions while focusing on fleet services, hiring qualified personnel, and technology and equipment upgrades. The DPW needs more time, resources, and staffing to reach the desired goal of performing maintenance on a more preventive than reactionary level.

After interviewing and surveying DPW employees – management and laborers – and the town cabinet we determined that the Department of Public Works is understaffed and the employees are overworked. These conclusions were supported by benchmarking Nantucket with other communities' information. In addition to being understaffed, the employee's pay is insufficient to cover the cost of living on the island, especially the high costs of housing.

In our surveys, we discussed technology in different contexts. Taking each into consideration, we interviewed several DPW employees asking more detailed questions about their use of technology. We found that technology could be used more effectively throughout all of the DPW, and more technology and software could be provided to the employees.

Between our surveys and interviews with DPW management, we concluded that the acquisition of several new responsibilities, such as parks and recreation and facilities maintenance, has caused Nantucket's DPW to become unwieldy in its complexity and organization. The accumulation of these responsibilities has not been matched with staffing increases.

In spite of recent changes and improvements in efficiency and service delivery, the DPW still has an 'image problem' and is apparently perceived negatively by many residents and officials in town. This affects not only morale within the department, but also its ability to hire qualified, dedicated staff.

After examining DPW records, we concluded that the DPW has inadequate data collection tools and procedures. We found a lack of detailed records, including timesheets and work orders. DPW management stated that they have very few historical records and have limited means to create aforementioned records going forwards. Management explained that employees would often forget to fill out a work order for every task completed due to the sheer number of tasks completed in a day. Such records, however, would be useful in tracking performance and composing arguments for budgets and resource allocation.

5.1 Recommendations

After analyzing our findings, we arrived at several recommendations for the Town of Nantucket and the Nantucket Department of Public Works. Our recommendations are organized into five categories:

1. Personnel
2. Technology and Equipment
3. Reorganization
4. Support and Education
5. Data Collection

5.1.1 Personnel

In any organization, the people and their knowledge are the greatest assets in operations. The following recommendations are in regards to staffing and advancing their knowledge and skillsets.

Staffing

We recommend that staffing is initially increased by posting jobs for laborers off island with their travel to the island paid for by the town until laborers can live on the island. Additionally, we recommend the DPW create temporary living arrangements for these employees at the DPW to be available for use during emergencies to provide a quicker response time. As these positions will likely fill more quickly, the DPW should be able to receive more immediate support. The DPW should also work with the Town of Nantucket to provide initially

discounted, town-owned housing arrangements for employees, and then assist them in finding affordable housing after their initial living arrangements expire. This increase in staffing will help the DPW move employees into more proactive jobs reducing the tendency of reactionary jobs allowing for work to be more predictable. **We also recommend that at least one additional mechanic is hired.** An additional mechanic would make the workshop safer and help limit liability, reduce the amount of work placed on each of the current mechanics, and allow maintenance jobs to still occur when an employee is on vacation or sick. **We recommend hiring a plumber for the facilities division.** This would create more independence from contractors and allow for quicker response times for high priority tasks.

Training

We recommend that the DPW provides more incentives for employees to receive training and licensing. Employees should be provided with a bonus, either pay or extra vacation time, for each training program they complete or license they receive. The operations manager would have more crew and project flexibility with better trained employees. It would also help compensate for the lack of employees until more can be hired. We also recommend that anyone who works with facilities receives basic electrical, plumbing, and asbestos training. This basic knowledge will direct the focus of the contracted plumber and electrician to more advanced projects, and allow for more independency.

5.1.2 Technology and Equipment

We recommend that the DPW purchase fleet management software prior to the 2018 acceptance of central fleet roles. This would allow for better record keeping, and access to necessary information for job completion.

We also recommend the work order system to be organized by the DPW division that will complete the job, then by the location of the job. The location will indicate to division management who to send to different tasks to reduce transit times. With the new PeopleGIS system, we recommend every road vehicle eventually be equipped with an iPad or Toughbook. This would permit employees to receive work order updates and emails throughout the day,

while also providing a GPS to track the vehicles. By having iPads or computer access on the road, employees can better respond to emergencies and unexpected situations to act more quickly. **In addition to iPads or Toughbooks, we recommend vehicles also be equipped with advanced communications systems.** The use of radios coupled with an external vehicle loudspeaker will allow for quick communication releases and ensure contact is available throughout the island. The radios will enable the operations manager and foremen the ability to reach employees when cellular coverage is limited, and cellphones are not being answered. It also provides a backup communications system and, especially in a storm, it can reduce risks and increase efficiency.

We recommend the DPW incrementally replaces equipment on a five year cycle. There should also be a new capital line item to allow for tool and shop equipment upgrades and facility upkeep, so the mechanics do not have to bring their own tools to work. When equipment is replaced it should be from as few manufacturers as possible to reduce the cost of the multiple diagnostic systems and the inventory of spare parts. An update to the mechanic's shop should be in the plans to build the DPW's central garage to create more storage for spare parts and tools, and to modernize it. The shop needs an update in its equipment to keep up with technology and the changes manufacturers make. Computers should also be installed at each station to streamline diagnosis and include the information of each piece of equipment.

5.1.3 Reorganization

We recommend that the DPW spin off three divisions into new departments: Wastewater, Parks and Recreation, and Facilities. By spinning off these divisions, the DPW will be able to concentrate on the core functions of a standard DPW. In spinning off the separate departments, a new cabinet should be formed: the Public Works Cabinet. The DPW director would serve as the head of the cabinet and report to the town manager. The Wastewater, Parks and Recreation, and Facilities directors would report to the Public Works Cabinet Director (Figure 15).

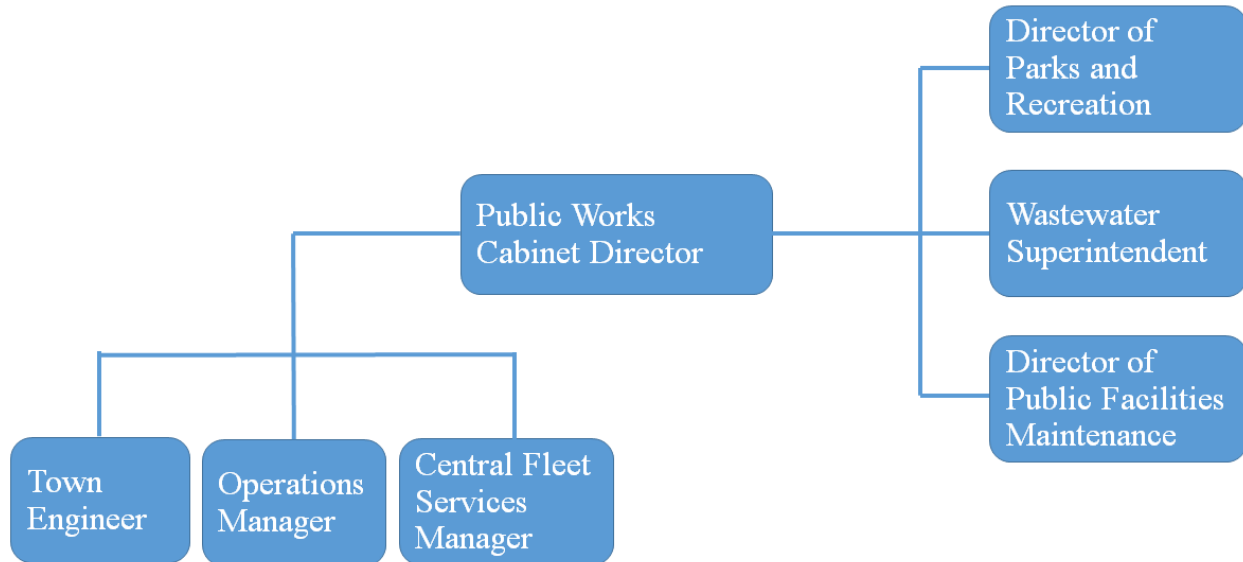


Figure 15. Proposed Reorganization

The wastewater division should be spun off first from the DPW. Since the wastewater division is already funded separately with an enterprise fund, it is the easiest division to separate from the DPW. A Wastewater Superintendent should supervise the new department. The current staffing levels of the division appear to be adequate and do not require any changes, nor would they affect the DPW operations. The two departments could still retain a close working relationship and share resources. The spin off should occur within one or two years.

Parks and Recreation should be spun off next and preferably within two years. This division was historically its own department and separating it would reduce the DPW's workload. Several new full time staff should be hired for the new department including a director, assistant, and general laborer. These additional staff would bring the department to its pre-merger staffing levels. In addition, five part time employees and seven seasonal laborers should be hired to help cope during the busy summer months. The new Parks and Recreation Department should have a landscaper on contract to assist with the work until appropriate staffing levels have been achieved. Parks and Recreation will likely find filling these positions straightforward, since such positions are typically considered more appealing by new hires than similar positions at the DPW. People also would be more attracted to a director level position in the Parks and

Recreation Department rather than a manager position under the DPW. Since the consolidation of the departments, new playing fields have been opened necessitating a higher staffing level and more focus than in the past.

The facilities division should be separated only after the acquisition of additional staffing. Ideally, the new department should consist of a director, administrative assistant, working foreman, plumber, carpenter, electrician, HVAC technician and a general laborer. At minimum, it would need a director, administrative assistant, working foreman, carpenter, general laborer, and plumber prior to separating from the DPW. The Facilities Department will initially need support from the DPW, but will become independent. Ideally, a location closer to downtown for the new department would be preferred, but is not a necessary component. The spin off should occur sooner rather than later, but would be contingent on the facilities department first hiring a plumber.

5.1.4 Support and Education

Several municipal departments (e.g., the Nantucket Police Department and Nantucket Fire Department) have their own support groups; but the DPW does not.

We recommend that the DPW creates a support group called Friends of the Island. This group would allow individuals and organizations to donate additional funds for projects such as maintaining parks and beaches or for employee enrichment. The support group members could also volunteer their time to assist in employee comfort. This may not be easy and is not a high priority, but it may help increase funds for new equipment, enhance employee morale, and build a better image of and appreciation for the DPW.

We recommend the DPW continues its participation in the State's Senior Tax Work-off Program. This is a valuable opportunity for members of the public to learn about what the DPW does and the wide scope of its activities. It is very important to educate the public; this can go a long way to fostering goodwill in the community for the department.

Another method is the creation of a DPW civics class which teaches the public about what the DPW does on a daily basis, the type of jobs and challenges they face, and introduce the public to DPW workers and equipment. This education may also help to reduce the amount of complaints to the DPW and help citizens realize how much is done for them and be more receptive of future budgetary increases, especially for the DPW.

We recommend that the Town Administration works with the Nantucket High School to develop the School to Work program on a rotating schedule in which students work with the Police, Fire, Natural Resources, and Public Works departments in two week intervals.

Participation in the School to Work program would allow students to observe the wide range of tasks and skills in the DPW and encourage them to consider the DPW as a possible employment option in the future. The DPW should also visit middle and high school students on a career day, if it exists, to inform students not in the School to Work Program of opportunities within the DPW. The Director of Public Works should work with the school's guidance department to help point students to a career path with the DPW, if deemed suitable for the student. Students who participate in the School to Work Program could receive a contract signing bonus providing an incentive to participate and creating a possible pipeline for future DPW employees.

5.1.5 Data Collection

We recommend that the DPW continue to implement data collection tools to assist in departmental evaluation. The data collection tools will allow the DPW to collect information on its staffing and time needs. It will also allow for the tracking of DPW tasks over a larger time frame to monitor and document performance. These data will provide evidence to support future staffing and budgetary decisions as needed and increase employee accountability. A data collection tool will also enable the employees to record what they do on a daily basis along with their associated work orders. These records should all be computerized and cross referenced to timesheets and work orders electronically in order for the department to more easily track and assign workers and projects. The data will give the department the ability to see long term departmental trends with work and make worker allocation more efficient and effective.

5.2 Future Work

Due to our limited time frame, all aspects of the project could not be addressed and there are tasks which should be completed in the future. Given additional time, we would have gathered more perceptions of the DPW. The opinions of both the public and the Board of Selectmen would have been very valuable. The Town Cabinet provided important information in our surveys; however, we wish we could have interviewed more than two of the twelve respondents. Obtaining additional metrics from more towns is also a goal we wish we had time to pursue. This data could have allowed for a more accurate comparison among DPWs, and possibly the beginnings of a best practice guide for DPW operations.

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Appendices

Appendix A – Mercer Group Sample Survey

III. ORGANIZATIONAL CLIMATE SURVEY

SA - Strongly Agree D – Disagree	A – Agree SD - Strongly Disagree	U – Undecided
1.	Most people understand the goals of our department.	SA A U D SD
2.	We have regular meetings in our department where everyone is encouraged to discuss work-related problems.	SA A U D SD
3.	My supervisor lets people know what is going on, which helps everyone do a better job.	SA A U D SD
4.	There are many ways we could be more productive and efficient, but very few people in the department seem to care.	SA A U D SD
5.	The people in my work group are encouraged to work together as a team.	SA A U D SD
6.	Changes in procedures and work methods are easy to get approved in this department.	SA A U D SD
7.	Quite often, people in our department have to do more than is necessary because the work has not been planned properly.	SA A U D SD
8.	My supervisor believes that the ideas of the people who do the work are important to long-range plans.	SA A U D SD
9.	In order for me to advance in my career, I'll have to seek opportunities in another organization or department.	SA A U D SD
10.	Most employees in this department know what they are expected to do and produce quality work, even if it takes a little more time.	SA A U D SD
11.	If my supervisor would only stop looking over my shoulder, I could get a lot more work done.	SA A U D SD
12.	In comparison with other people I know who do similar work, I'm not paid nearly enough.	SA A U D SD
13.	The people in my work group understand how the goals of our group fit into the goals of the department.	SA A U D SD

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| 14. | In our department, we have good ways for dealing with little problems before they become big ones. | SA A U D SD |
| 15. | The information and/or direction we get from other departments is often incorrect, causing us to have to do the work over or correct it. | SA A U D SD |
| 16. | My supervisor encourages us to find ways to do things better. | SA A U D SD |
| 17. | It seems that many of the people that I work with are more concerned about getting recognition for themselves than working together as a group. | SA A U D SD |
| 18. | My supervisor actively seeks out new ideas and approaches for doing things. | SA A U D SD |
| 19. | As a general rule, the equipment, tools, and supplies that are needed to do our work are available when we need them. | SA A U D SD |
| 20. | Lots of times, my supervisor isn't included in important decisions, and he/she finds out about changes after the decision has already been made. | SA A U D SD |
| 21. | In our department, promotions are usually given to the people who deserve them, regardless of how long they've been here. | SA A U D SD |
| 22. | Most employees in this department take a lot of pride in what they do and usually try a little harder to produce quality. | SA A U D SD |
| 23. | My supervisor is someone I can go to when I need help or have a problem. | SA A U D SD |
| 24. | It seems that some people in this department get paid more than they deserve, while others get paid less. | SA A U D SD |
| 25. | Sometimes it seems like one group is going in one direction, and the other groups in the opposite direction. | SA A U D SD |
| 26. | In our work group, we don't hide our problems, we get them out in the open and solve them. | SA A U D SD |
| 27. | The information I need to do my job is readily available in my department through my supervisor. | SA A U D SD |

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| 28. | As long as my job gets done, nobody seems to care how much it costs. | SA A U D SD |
| 29. | The people in this department are willing to help each other out when the need arises without worrying about what job they're assigned to or what group they work for. | SA A U D SD |
| 30. | When the need for change is obvious, my supervisor responds quickly and implements the required change. | SA A U D SD |
| 31. | Generally speaking, the department gets a good day's work from everyone. | SA A U D SD |
| 32. | My supervisor often makes and implements decisions without first discussing them with the people who have to carry them out. | SA A U D SD |
| 33. | It seems like we're always bringing in outsiders to fill positions when we have plenty of qualified people right in the department. | SA A U D SD |
| 34. | We spend a lot of time trying to improve our services | SA A U D SD |
| 35. | My supervisor evaluates people fairly and on the basis of their performance, rather than "playing favorites." | SA A U D SD |
| 36. | Most people in this department believe that our benefit package is fair and better than plans in comparable communities. | SA A U D SD |
| 37. | The goals of the department have very little to do with the work that I and others in my group do every day. | SA A U D SD |
| 38. | My supervisor doesn't want to hear about problems. He/she pretends they don't exist. | SA A U D SD |
| 39. | The people with whom I work are familiar with the department's policies and procedures. | SA A U D SD |
| 40. | We are often striving to improve service in this department. | SA A U D SD |
| 41. | There is a lot of jealousy and bickering among people in my work group. | SA A U D SD |
| 42. | The department has established ways of doing things, and any suggestions on how to do things differently are usually rejected. | SA A U D SD |

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| 43. | The equipment and/or tools that we have in our group make the job easier and the department more efficient. | SA A U D SD |
| 44. | When new procedures or policies are being developed, my supervisor often asks for input from employees. | SA A U D SD |
| 45. | Our department plans for the future by preparing people for future positions through training and education. | SA A U D SD |
| 46. | In our department, the emphasis is on quantity, not quality. | SA A U D SD |
| 47. | My supervisor tries to be "one of the guys/girls" instead of maintaining the distance necessary to effectively lead employees. | SA A U D SD |
| 48. | Most people in the department would agree that our system for determining pay grades is fair and equitable. | SA A U D SD |
| 49. | The goals of our work group and our department are periodically reviewed and discussed with all employees. | SA A U D SD |
| 50. | Many times, we have to create a crisis in order to get anyone to pay attention to our problems. | SA A U D SD |
| 51. | Most of the information I get about what the department is doing comes from the "grapevine." | SA A U D SD |
| 52. | Everyone in my work group understands the importance of providing good service. | SA A U D SD |
| 53. | When conflicts arise in our work group or between our group and another, they are usually handled in a timely and constructive way. | SA A U D SD |
| 54. | It's too hard to get things changed in this department, most people have just learned to accept things the way they are. | SA A U D SD |
| 55. | Some people in the department have to work harder than others because some people don't have enough work assigned to them. | SA A U D SD |
| 56. | In our department, employees are encouraged to be open about their opinions and feelings about work-related problems. | SA A U D SD |
| 57. | Getting ahead in our department is based more on your performance than who you know. | SA A U D SD |

Appendix B – DPW Employee Survey

Internal Employee Survey

We are a team of students from Worcester Polytechnic Institute working with the Nantucket Town Manager’s Office to assess the operational organization and practices of the Nantucket Department of Public Works. The purpose of this of this survey is to determine the employee perception of the DPW and to identify any suggestions the employees may have in improving services. Responses to the survey will be kept **anonymous**. The survey results and our project findings will be available on the Town of Nantucket’s website in our final report on the DPW. We would like to thank you in advance for participating in this survey.

Instructions: Please indicate whether you agree with the following statement. Remember, your responses will be anonymous, so please be honest.

Yes No 1. The DPW is adequately staffed.

Yes No 2. DPW facilities are adequate to provide the services required by the town.

Yes No 3. DPW staff are encouraged to discuss work-related problems, make suggestions, or offer ideas for improvement.

Yes No 4. There are many ways we could be more productive and efficient. Please explain your answer below.

Yes No 5. Changes in procedures and work methods are well received by the staff.

Yes No 6. Quite often, people in our department have to do more than what is necessary. Please explain your answer below.

Yes No 7. The supervisors believe that staff input and ideas are important to long range planning.

Yes No 8. In general, we have the equipment, tools, and supplies needed to do our work.

Yes No 9. Most employees in this department take a lot of pride in what they do and usually try their hardest to produce quality services.

Yes No 10. Our department trains me for any jobs I will have to perform.

Yes No 11. Some people in the department have to work harder than others. Please explain your answer below.

Yes No 12. The DPW is well regarded by the Board of Selectmen. (Please explain below.)

Yes No 13. The DPW is well regarded by the general public. (Please explain below.)

Yes No 14. The DPW is well regarded by Town Administration. (Please explain below)

Please provide any additional comments or explanations below. If you have further comments, please email TMO@wpi.edu, or call/text Sean Hathaway, team member, at [REDACTED]. Remember, your responses to the survey and any comments you send us will remain anonymous.

Comments:

Appendix C – DPW Employee Survey Responses

	Laborer		Office Staff		Total Percentage	
	Yes	No	Yes	No	Yes	No
1. The DPW is adequately staffed.	31.60%	68.40%	0.00%	100%	24.00%	76.00%
2. DPW facilities are adequate to provide the services required by the town.	36.80%	63.20%	0.00%	100%	29.17%	70.83%
3. DPW staff are encouraged to discuss work-related problems, make suggestions, or offer ideas for improvement	63.20%	36.80%	83.30%	16.70%	68.00%	32.00%
4. There are many ways we could be more productive and efficient.	81.30%	18.70%	100%	0.00%	85.71%	14.29%
5. Changes in procedures and work methods are well received by the staff.	66.70%	33.30%	33.30%	66.70%	58.33%	41.67%
6. Quite often, people in our department have to do more than what is necessary.	50.00%	50.00%	100%	0.00%	60.87%	39.13%
7. The supervisors believe that staff input and ideas are important to long range planning.	47.40%	52.60%	83.30%	16.70%	56.00%	44.00%
8. In general, we have the equipment, tools, and supplies to do our work.	31.60%	68.40%	33.30%	66.70%	29.17%	70.83%
9. Most employees in this department take a lot of pride in what they do and usually try their hardest to produce quality services.	75.00%	25.00%	66.70%	33.30%	72.73%	27.27%
10. Our department trains me for jobs I will have to perform.	58.80%	41.20%	33.30%	66.70%	52.17%	47.83%
11. Some people in the department have to work harder than others.	55.60%	44.40%	50.00%	50.00%	54.17%	45.83%
12. The DPW is well regarded by the Board of Selectmen.	55.60%	44.40%	20.00%	80.00%	47.83%	52.17%
13. The DPW is well regarded by the general public.	37.50%	62.50%	16.70%	83.30%	33.00%	67.00%
14. The DPW is well regarded by Town Administration.	52.90%	47.10%	20.00%	80.00%	43.48%	56.52%

Appendix D – General Interview Script for Internal DPW Survey Follow-up

We are a team of students from Worcester Polytechnic Institute working with the Nantucket Town Manager's Office to assess the operations, organization, and practices in the Nantucket Department of Public Works. We would like to thank you for agreeing to participate in this interview, which should take approximately 30 minutes. We would remind you that the interview is entirely voluntary and you may stop the interview at any time or refuse to answer any question. We will be taking notes. We would like to quote you by name in our report with your approval. We will give you an opportunity to review any quotations we use in advance of publication. If you prefer, we can quote you anonymously instead. Can we begin?

1. How long have you been with the DPW? Can you describe your time at the DPW?
2. Why do you think that nearly 40 % of your employees feel that management does not communicate well? Do you have any suggestions on how to improve the communications gap?
3. What communication systems do you have for reaching employees in the field? Radios, cell phones? What types of radios or cell phones? Is there any communication device you wish that you had to reach employees more easily?
4. Does the department use texting for worker communication? If so, how do you feel it is working? Can workers be effectively directed through text or are verbal instructions faster and easier? Are there people wasting time on smartphones instead of working?
5. About one half of DPW employees feel that "The supervisors believe that staff input and ideas are important to long range planning," is not a true statement. What are your thoughts on this? Do you think this leads back to the perceived communication disconnect?
6. Some surveys mention that the amount of work one does is related to their time in the department (ex. The longer the time in their position, the less they have to do.). What are your thoughts on this, and do you feel this is true?
7. Multiple surveys make mention that board of selectmen has an unfavorable view of the DPW. How do you feel about this assessment and what are your thoughts on it?

8. The general trend among DPW employees is that the department is understaffed. How much more staffing do you think is required to reach an adequate staffing level, and in what areas? What is your reasoning for this? How would more staffing be used?
9. More training is a constant theme. What type of training do you think would be necessary? How often do you think training could occur? Would the time commitment for training be worth stressing the department more in the short term in terms of resources and keeping personnel from doing work in the field?
10. How often do you feel DPW employees are asked to drop the task they are doing to go fulfill a request for another department or private citizen?
11. How is coverage for vacationing staff handled within the department?
12. How is work distributed for the day's tasks? Do you feel it is effective or allows for employee feedback?

Appendix E – Nantucket Town Cabinet Survey

Cabinet Survey

We are a team of students from Worcester Polytechnic Institute working with the Nantucket Town Manager's Office to assess the operational organization and practices of the Nantucket Department of Public Works. The purpose of this of this survey is to determine your perception of the DPW. The results of the survey will be confidential and we will ask your permission to directly quote your responses in our report. If you allow us to quote you, you will be given the right to review the information to ensure we are quoting you correctly. The survey results will be available in our project report which will be available on the Town of Nantucket's website. We would like to thank you in advance for participating in this survey.

1. What is your name and the department which you represent?

2. How often does your department call on the DPW for assistance?

- Daily
- 1-2 times a week
- Monthly
- Yearly
- Never

If none of the provided responses above apply, please explain below.

3. If any, what services do you request from the DPW?

4. Please rate the DPW's provision of services on the following terms.

Efficiency

1 2 3 4 5

Very Inefficient Very Efficient

Reliability

1 2 3 4 5

Very Unreliable Very Reliable

Responsiveness

1 2 3 4 5

Very Tardy Very Timely

Service Quality

1 2 3 4 5

Poor Quality High Quality

5. Please rate the challenges that will be faced by the DPW in the future in the following areas:

Staffing

1 2 3 4 5

Not a Challenge Huge Challenge

Road Maintenance

1 2 3 4 5

Not a Challenge Huge Challenge

Trash Collection

1 2 3 4 5

Not a Challenge Huge Challenge

Emergency Preparedness

1 2 3 4 5

Not a Challenge Huge Challenge

6. In your opinion, how do you think residents view the DPW overall?

1 2 3 4 5

Very Negatively Very Positively

7. Do you believe the role of the DPW has changed substantially over the past 15 years?

Yes

No

If so, how has it changed?

8. Please rate how well the DPW performs in the following areas:

Line Painting

1 2 3 4 5

Very Poorly Very Well

Pothole Management

1 2 3 4 5

Very Poorly Very Well

Public Outreach

1 2 3 4 5

Very Poorly Very Well

Encroachments

1 2 3 4 5

Very Poorly Very Well

Tree Maintenance

1 2 3 4 5

Very Poorly Very Well

Paving

1 2 3 4 5

Very Poorly Very Well

Beach Cleaning

1 2 3 4 5

Very Poorly Very Well

Stormwater Management

1 2 3 4 5

Very Poorly Very Well

Emergency Preparedness

1 2 3 4 5

Very Poorly Very Well

Facility Maintenance

1 2 3 4 5

Very Poorly Very Well

9. Do you feel the DPW is appropriately staffed?

- Yes
- No

Please explain your answer.

10. The following indicate some of the key functions currently performed by the DPW. Please indicate which the DPW should continue to perform and which could be performed by other town departments or private contractors in the future.

	Stay with DPW	Move to Other Department	Move to Private Sector
Public Trash Collection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stormwater Management (drains, pipe lines)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wastewater Management (treatment, pump stations, pipe lines)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beach Maintenance (raking, trash collection)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Line Painting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Road Maintenance (paving, potholes, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Roadside Cleaning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Roadside Mowing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fleet Services (vehicle/equipment repair)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tree Maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Park Maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Playing Field Maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public Facilities Maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. What do you think Kara Buzanoski, Director of the DPW, needs for her department to be more successful?

12. What are the most important factors that would help improve DPW staff recruitment and retention (year-round and seasonal)?

Additional Comments

Please provide any additional comments you may have.

Appendix F – Nantucket Town Cabinet Survey Results

Service	Percentage "Stay With DPW"	Percentage "Move to Private Sector"	Percentage "Move to Other Department"
Public Trash Collection	50.00%	50.00%	0.00%
Stormwater Management	83.33%	8.33%	8.33%
Wastewater Management	91.67%	0.00%	8.33%
Beach Maintenance	58.33%	8.33%	33.33%
Line Painting	75.00%	25.00%	0.00%
Roadside Mowing	50.00%	50.00%	0.00%
Roadside Maintenance	100.00%	0.00%	0.00%
Roadside Cleaning	83.33%	16.67%	0.00%
Fleet Services	91.67%	8.33%	0.00%
Tree Maintenance	91.67%	8.33%	0.00%
Park Maintenance	33.33%	41.67%	25.00%
Playing Field Maintenance	25.00%	41.67%	33.33%
Public Facilities Maintenance	50.00%	25.00%	25.00%

	Percentage Yes	Percentage No
Staffed Appropriately	0.00%	100.00%

Perceptions	Average
Efficiency	3.17
Reliability	3.58
Responsiveness	3.42
Service Quality	3.25
Staffing	4.08
Public Perception	2.58

Service	Average
Line Painting	3.67
Pothole Maintenance	3.42
Public Outreach	2.92
Encroachments	2.82
Tree Maintenance	4.17
Paving	3.58
Beach Cleaning	3.33

Appendix G – Interview Script for Nantucket Town Cabinet Survey Follow-up

We are a team of students from Worcester Polytechnic Institute working with the Nantucket Town Manager’s Office to assess the operational organization and practices in the Nantucket Department of Public Works. We would like to thank you for agreeing to participate in this interview, which should take approximately 30 minutes. We would remind you that the interview is entirely voluntary and you may stop the interview at any time or refuse to answer any question. We will be taking notes. We would like to quote you by name in our report with your approval. We will give you an opportunity to review any quotations we use in advance of publication. If you prefer, we can quote you anonymously instead. Can we begin?

1. According to the survey, on average, the DPW is viewed less than favorably by residents. Why do you think this is so? Do you believe it has to do with the relatively low score on public outreach?
2. All though there was a unanimous consensus that the DPW is overworked and understaffed, the majority of services the team asked about were told to stay with the DPW. Why do you think the majority of respondents thought this?
3. Only park, playing field, and facilities maintenance did not have a majority saying that these services should stay with the DPW. How open do you think the town would be to outsourcing these? Is there money in the budget to do this? Would this be a viable way to alleviate some pressure from the DPW?
4. There is an overwhelming consensus that the DPW needs additional resources. How willing would the public to increase the budget to allow for these resources? Would public outreach assist in convincing the public that help is needed? Do you have any suggestions on how to inform the public of the plight of the DPW?
5. An interviewee suggested that the town build a “man camp” and allow for people to take the ferry each day to work to allow for people to not live on island. The man camp could be used as a base for keeping employees on island during a storm or as a weekday housing option so that employees can have their house on the mainland and not have to commute on the ferry every day. How open is the town to doing this type of option? Do

you believe that this is economically feasible for the town? Would this be an economically feasible solution for employees?

6. Would implementing a homegrown program at the high school be beneficial to attracting employees? This would mean adding a vocational program to the schools that could help train future DPW employees. This would also give a practical skill set for many students who do not plan on college education. Would the schools be open to doing this type of program?
7. There were comments about the DPW being a top heavy. Do you believe this is true? Would middle management assistance help or hinder the DPW? Would more low level employees be a better investment of money?

Appendix I – Task Tracking

Code Category	Codes	2012		2013		
		Hours Worked	Percentage	Hours Worked	Percentage	General Percentage
Equipment	A-1 Equipment Repair and Maintenance	3,873.75	16.40%	2,098.50	7.80%	7.80%
	B-1 Mosquito Ditch Maintenance	33	0.10%	4	0.00%	0.00%
Sewer/Drainage	C-1 Sewers	2,368.50	10.00%	2,506.25	9.30%	13.40%
	C-2 Drains	1,574.50	6.70%	1,090.50	4.10%	
Road Maintenance	D-1 Sweeping	70.75	0.30%	125.5	0.50%	41.10%
	D-2 Grading	308	1.30%	138	0.50%	
	D-3 Winter Operations	476.5	2.00%	2,548.50	9.50%	
	D-4 Trash Pickup	1,915.00	8.10%	2,955.00	11.00%	
	D-5 State Road Maintenance	96.5	0.40%	35	0.10%	
	D-6 Brush Cutting	794	3.40%	172	0.60%	
	D-7 Mowing	641.5	2.70%	1,225.50	4.60%	
	D-8 Other	3,229.00	13.70%	3,847.50	14.30%	
Parks	E-1 Mowing	255	1.10%	942.75	3.50%	3.50%
	E-2 Beach	24	0.10%	5	0.00%	
Building Maintenance	F-1 Building Maintenance	1,355.00	5.70%	3,656.25	13.60%	13.60%
Forestry	G-1 Tree Maintenance	3,293.75	14.00%	3,633.75	13.60%	13.60%
	H-1 Signs	1,703.75	7.20%	1,507.00	5.60%	6.20%
Street Marking	H-2 White Paint	667.75	2.80%	164	0.60%	
	H-3 Yellow Paint	243.5	1.00%	0	0.00%	
	H-4 NRTA	25	0.10%	4	0.00%	
	I-1 Call in	23	0.10%	12	0.00%	
Emergency	O- Other note	633	2.70%	46	0.20%	0.70%
	OT	0	0.00%	136	0.50%	
	Total	23,604.75		26,873.00		

Appendix J – Survey Matrix Compiled Results from Other Towns

Town/City in Massachusetts	Boxford	Chatham	Edgartown	Provincetown	Ware	West Tisbury	Minimum	Average	Maximum	Number of
Year-Round Population	8,162	6,131	4,278	2,966	29,090	2,874				10,399
Seasonal Population	-	32,000	25,000	60,000	-	unknown				65,000
Total All-Towns Public Works Budget	\$1,400,000.00	\$4,100,000.00	-	\$3,312,085.00	\$11,199,188.00	-				\$2,913,176.00
Highway Operation Budget	\$1,100,000.00	\$453,000.00	\$825,650.00	\$583,982.00	\$1,605,914.00	\$241,267.85				-
Total Number of FTEs	9	25	7	30	118	2				18 employees
Total Number of Seasonal Employees	4	17	1	21	6	0				7
Highway										
Total Miles of Road	99.72	70	53.38	32.84	129.97	13				97.4
Total Miles of Sidewalks	1	10	4	10	118	-				-
Total Miles of Bike Paths	-	3.5	14	1.3	-	-				32.88
Total Highway Employees	7	5	7	8	23	-				18
Miles of Road per FTE	14.25	14.00	7.63	4.11	5.65	-	4.11	9.13	14.25	5.41
Paving (miles per FTE)	2.85	4.67	7.63	3.28	2.2	-	2.2	4.126	7.63	9.74
Paving (miles per vehicle)	2.85	2.5	5.93	3.28	3.61	0.87	0.87	3.173333333	5.93	9.74
	80% Contract	46% Contract	22% Contract			All Contract				
Beaches										
Public Beach Maintenance (miles per FTE)	-	1	3	3	0.5	seasonal	0.5	1.875	3	1.67
Public Buildings										
DPW Janitorial Crew (sq ft per FTE)	-	6,000.00	-	16,666.67	51,455.00	-	6,000.00	24,707.22	51,455.00	-
Trash Collection										
Curbside - DPW (tons per FTE)	-	-	-	700	-	-	700	700	700	-
Curbside - Outsource (tons)	-	5400	-	-	9000	-	5400	7200	9000	-
Bins on Public Property - DPW (bins/FTE)	8	122	22.5	42	180.72	2	2	62.87	180.72	83.33
Bins on Public Property - Outsource (bins per FTE)	-	-	-	-	-	-	0	#DIV/0!	0	-
Recreational Facility Maintenance	DPW	Parks	Parks	DPW and Rec Dept	DPW	Parks				DPW
Tennis Courts (facilities per FTE)	0.667	3.67	5 courts - seasonal	0.5	3.2	1	0.5	1.8074	3.67	3
Skate Parks (facilities per FTE)	-	0.5	1 park - seasonal	0.5	-	-	0.5	0.5	0.5	0.5
Other	3.33 sportsplay grounds per FTE	4.67 sportsplay ground per FTE	3 sportsplay grounds - seasonal maintenance only	5 sportsplay grounds per FTE	19.4 sportsplay grounds per FTE	4.5 sportsplay grounds per FTE				2 sportsplay grounds per FTE
Mutual Aid										
Mutual Aid Agreement	N	N	N	N	Y	N		Yes	No	N
Other										
Standard Departmental Operating Manual/Procedures	N	N	N	Y	Y	N		33.3%	66.7%	N
Employee Handbook	Y	Y	Y	Y	Y	Y		100.0%	0.0%	Y
Published Vehicle Maintenance Plan/Schedule	N	N	N	N	Y	N		16.7%	83.3%	N
5 to 10 Year Vehicle Plan	Y	N	Y	Y	Y	N		66.7%	33.3%	Y
Long-Term Capital and/or Budgeting Maintenance Plan	Y	N	Y	Y	Y	Y		83.3%	16.7%	Y