



# Information Technology Assessment for the



# Town of Burlington Massachusetts

**November 30, 2012**

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## **Executive Summary**

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This Information Technology Assessment (the IT Assessment) grew out of concerns which the Town of Burlington and Burlington School Department had with the organization and deployment of information technology (IT) (except school-related instructional/curriculum systems).

The first, recent action which Burlington had taken to address these issues was the reorganization of its Information Systems Advisory Committee (ISAC) in May, 2011. The ISAC was comprised of seven citizen-members with the Assistant Town Administrator serving as liaison to the Town government.

From the beginning of its work, the ISAC realized that the services of an independent consulting firm with particular expertise in IT in municipal government and school administration would be required for the Town to make the progress it sought in this direction. As a result, the Town obtained funds from town meeting in January, 2012 for this purpose. With this funding, Burlington issued an open, competitive Request for Proposal (RFP) for Municipal Government Information Technology Consulting Services on March 21, 2012 with proposals due April 11, 2012. Page 1 of the RFP described the objective of the IT Assessment as follows:

The overall goal of the project is to establish a baseline of all deployed hardware, software, services, networks and all other information technology assets and to provide the Town with a detailed organizational structure of IT (Information Technology) functions within the Town's overall governmental organization.

This complemented item 5 of the Board of Selectmen's Goals and Objectives 2011-2012, which read in part:

"The Board has set a goal of reviewing operational issues between the School Dept [sic] and the Town. We will work with the Schools this year to continue the dialogue on the newly configured combined IT Dept...."

Following the receipt and evaluation of proposals from consultants, Burlington selected Webb Consulting Services, LLC of Canton, Massachusetts to carry out the IT Assessment.

In looking at IT in Burlington, this IT Assessment takes a business-like approach and considers what any other high-performance organization with a \$107-million budget and 846 full- and part-time employees would need to do in order to survive and prosper in a competitive environment.

The ultimate goal of this IT Assessment, then, was to make a set of recommendations, phased for implementation by priority, which would both (a) position Burlington strategically to maintain and enhance its established, high quality of life and public services, and (b) constitute fiscally prudent investments for Burlington's future.

The findings and recommendations which this IT Assessment presents are derived from a comprehensive assessment of Burlington's *functional requirements* - what the Town does now or expects to be doing in the foreseeable future. One must look at the full range of Burlington's functions as a whole, not in separate parts. This view must be based on the concept of *functional integration* - how IT should be supporting the different things that Burlington does with respect to policy-making, management and operations.

Moreover, one needs to anticipate how Burlington's use of IT may change over time. Responsible policy-making, management and operations require that Burlington anticipate these changes as well as possible and organize the IT function to be flexible and adaptable to these changes.

In the course of this engagement, the consultants met on numerous occasions with various groups and individuals from every department in Burlington, interviewing 92 personnel in the Town and School Department as well as vendors currently or prospectively serving Burlington. This process resulted in full and frank discussion between the consultant and the Town, mainly through the ISAC. All aspects of this IT Assessment have been reviewed and discussed thoroughly with the ISAC as well as participating staff and officials.

Consistent with Burlington's RFP for this engagement, this IT Assessment organizes its 200 recommendations by priority into three phases:

- ***Urgent/Immediate***--those which are critical today and call for action by town meeting in January, 2013. These focus on four, basic organizational issues: (1) organizing the consolidated Town-School information Services (IS) Department; (2) establishing the position of Chief Information Officer (CIO), which has been common in business and government for many years but has never existed in Burlington; (3) establishing the position of Application Implementation Manager to have hands-on responsibility for business process improvement throughout the Town and Schools; and (4) implementing a top-quality Help Desk/Asset Management application so that Burlington can know for the very first time both what assets it has and how well its customers are being served.
- ***Phase I***--those actions on which Burlington should focus over the next two Fiscal Years 2014 and 2015 from July 1, 2013 through June 30, 2015. These are aimed at supporting core applications from Financial Management and Public Safety to Land Records and Payroll/Human Resources with no frills. Much of Phase I is a matter of catch up--getting Burlington to the point where other progressive local governments and school districts have been in their business functions and deployment of IT since the late 1980's.
- ***Phase II***--those actions which Burlington may wish consider, beginning in FY2016 (starting July 1, 2015), after it has been successful in meeting the goals and objectives of Phase I.

These priorities are influenced mainly by two factors: (1) risk and (2) impact. This is the main reason why Phase I includes such things as: (a) implementing key functions of Burlington's Integrated Financial

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Management System (IFMS) in order to achieve huge gains in efficiency and effectiveness throughout the Town and School Department by eliminating the enormous duplication of effort which now pervades both organizations; and (b) assuring that IT operations in such areas as Business Continuity/Disaster Recovery (BC/DR) meet appropriate standards.

About 40 per cent of these recommendations involve no appropriations of funds: they call for no-cost decisions involving policy or administration. Where this IT Assessment recommends new investment by Burlington, this should have immediate benefit to the staff's productivity and the quality of services delivered by Burlington to its residents and taxpayers.

Burlington now must emphasize *functional integration* in its approach to information technology. This should provide substantially greater support for decision-making in Burlington regarding policy, management and operations. Burlington now needs to leverage the sound technological base it has established, most significantly in the areas of application software and infrastructure, in order to achieve this higher level of integration.

This IT Assessment does not attempt to address every technology now on the market or which may become available in the future. Instead, it focuses on those information technologies which now or in the future should have the greatest benefit to Burlington's policy-making, management and operations.

Most important, Burlington has an exceptionally capable and dedicated group of employees throughout its various departments. The staff is doing their very best under frequently difficult circumstances resulting from an inadequate level of IT-based support. Nothing in this IT Assessment is intended in any way to be critical of the staff. Rather, this IT Assessment applauds their dedication to the Town and the high quality of their work. While Burlington has much to do in implementing the recommendations of this IT Assessment, Burlington's staff has shown a high level of interest in IT and in making the effort required to implement new and better systems.

It is important to make certain observations about the organization and scope of this IT Assessment.

- It recognizes the interdependence of the topics with which it is concerned. The major issues of organization, staffing, technology and financing are all closely interrelated: all share the same origin in scale.
- It concerns itself with function, not organizational unit. Thus, for example, it addresses the Financial Management function, not the offices of the Town Accountant, Treasurer/Collector or School Business Office.
- It applies wherever possible the widely recognized principle of *best practice*. This looks at how various aspects of IT in Burlington, from the training of its IT and end-user personnel to its deployment of applications and infrastructure, compare with the state of the art among comparable local governments and school districts in the United States. Among other things, this insight draws from: (1) the publications and information provided by such leading professional

organizations as the International City/County Management Association (ICMA); and (2) the combined experience of the consulting team in more than 180 public agencies in Massachusetts and across the United States.

- It applies the concept of *strategic positioning*. This means that Burlington should take actions in such areas as policy-making and procurement which establish the foundation for the Town to function both in the short and longer terms as a high-performance organization. Strategic positioning for Burlington also considers changes which may occur in its environment such as the impact of growth, changes in technology, or other statutory, regulatory or judicial factors. Strategic positioning is often characterized as “buy smart, not cheap.”
- While it speaks generally about IT in the Town and Schools, the Police Department differs quite dramatically in the extent and sophistication of its deployment of IT from all other Town offices. This is based both on: (1) its status as Burlington’s local law-enforcement agency, subject to specific regulation by the U.S. Government and the Commonwealth of Massachusetts in a way very different from any other Town department; and (2) its having its own dedicated IT personnel.
- It has not included vendor-related tasks such as the evaluation of a particular firm’s products or services. Where the consulting team has had interaction with current or prospective vendors, this has been for the purpose of determining costs, technical or functional issues related to a given vendor’s products or services, not due diligence.
- No mention of any vendor by Webb Consulting Services, LLC is intended or implied to create any endorsement or criticism.

This IT Assessment followed a careful, systematic approach in addressing the full scope of work of this engagement. Key tasks here included:

- Conducting a Project Organizational Conference with the ISAC on the evening of Monday, June 18, 2012, also attended by key personnel from the Town and School Department. This meeting was held to establish a common understanding of the specifics of the project plan and assure that all parties had clear agreement on the conduct of the project.
- Presenting a Project Workshop in two, identical sessions on the morning and afternoon of Thursday, July 12, 2012, attended by more than 50 Town and School personnel. These sessions were offered in order to engage the staff by having them understand why the IT Assessment was being done, how it would proceed, what their role in the process would be and how the IT Assessment might ultimately affect their work with the Town of Burlington. The Project Workshop sought to (1) establish a sense of common purpose and interdependence in the use of IT, (2) share a common base of knowledge about the current state of the art in IT in local government and education, and (3) spur thinking among Burlington’s staff about ways in which they could make more effective use of IT in their work.

- Reviewing various documents which provided background information related to the scope of the IT Assessment. This included such things as: (1) audits and management letters; (2) operating and capital budgets; (3) requests for funding related to IT; (4) detailed expenditure reports; (5) existing contracts with vendors of IT systems and services; (6) Burlington's position classification and compensation system with position specifications; (7) Town by-laws; (8) maps and schematics of Burlington's current networking infrastructure; and (9) internal documents in Burlington's files. These documents provided background which was important throughout the course of the IT Assessment.
- Distributing and explaining a set of seven inventory forms, given to each department as "home-work" at the Project Workshop and later reviewed during the departmental interviews. These inventory forms were a key part of the effort to meet the RFP's goal "...to establish a baseline of all deployed hardware, software, services, networks and all other information technology assets...."
- Interviewing 92 personnel from every office in the Town and School Department. These interviews used a standard approach and were critical to understanding: (1) the current state of deployment of IT in the Town and School Department; and (2) what ideas the staff had regarding opportunities for how the enhanced organization of the IT function in Burlington and better deployment of IT could support the goal of increasing the efficiency and effectiveness of policy-making, management and operations--public services--in Burlington.
- Providing a Bi-weekly Report to the ISAC and meeting bi-weekly with the ISAC to discuss the Bi-weekly Report and progress of the IT Assessment.
- Meeting with the ISAC on October 15, 2012 to review the initial draft of the IT Assessment, which had been provided to the ISAC one week earlier. This meeting provided an important opportunity for Webb Consulting Services to present the basis for the findings and recommendations of the IT Assessment and for the ISAC to provide input for incorporation into the final work product.
- Meeting with the ISAC on December 3, 2012 to review the revised draft of the IT Assessment.
- Finalizing the IT Assessment as a result of the December 3, 2012 review meeting and preparing it for final presentation.

This process resulted in full and frank discussion. All aspects of this IT Assessment have been reviewed and discussed thoroughly with the participants. As well, each of these tasks contributed significantly to the development of the IT Assessment.

Recommendations for funds are presented on the basis of a five-year lifecycle. This combines all costs for all recommendations into a single framework by phase, producing an average annual cost over five years.

In this way, Burlington can make well informed decisions regarding the fiscal impact of each prospective investment.

While this IT Assessment makes specific recommendations for funding, one is obliged to be conservative in expectations regarding the availability of funds from the U.S. Government, the Commonwealth or other sources. Burlington should make every possible effort to secure intergovernmental and extra-governmental funding while recognizing the well-known fiscal constraints facing the State and Federal governments.

This IT Assessment suggests a major transition from the current way that Burlington organizes and manages IT. This big change also presents significant challenges. For example:

- Burlington needs most urgently to (1) organize a new, combined Town-School Information Services Department and (2) recruit and select a new Chief Information Officer (CIO) as this Department's head. This person must have the rare combination of interpersonal and technical skills to shape the new Town-School department and be sure that it delivers high-quality services.
- The staff of the Town and School Department--Burlington's end-users--must be engaged formally in the management and deployment of IT in a way that they have never previously been. This should occur in an integrated, two-pronged approach: (1) having a Town- and School-wide end-user Information Services Committee, chaired by the CIO; and (2) having a set of specialized subcommittees in such areas as financial management and land records, which operate as part of the Information Services Committee. All of these groups should meet at least monthly for the next year or two with scheduled meetings, formal agendas and minutes.
- Burlington needs to be thinking in new and different ways about how it uses IT to identify the quantity and evaluate the quality of the services it delivers. Thus, this IT Assessment recommends, among other things, a Work Order-based environment to help quantify the number, type and cost of services Burlington provides.
- Business process improvement must be a major focus in offices throughout the Town and Schools. Implementing the recommendations of this IT Assessment will bring enormous changes in how almost every office in Burlington does its work on a daily basis. Gradual implementation of these changes, office by office, is required so that Burlington's personnel can adapt as easily and successfully as possible to new, different and better ways of doing their work.

To a large extent, having IT contribute well to the efficiency and effectiveness of public services in Burlington will depend on the interest, understanding and support of its key elected and appointed officials. They are the ones who ultimately must bring to the Town's voters at town meeting a clear sense of how IT should be supporting Burlington as part of a fiscally prudent approach to Town government.

### **KEY FINDINGS AND RECOMMENDATIONS OF THE IT ASSESSMENT**

The paragraphs which follow in this Executive Summary present key findings and recommendations of this IT Assessment.

1. Burlington must take four actions on an urgent basis at the January, 2013 town meeting, consistent with its position as a \$107-million corporation:
  - Establish the joint Town-School Information Services (IS) Department in order to achieve the high level of coordination of all IT-related resources which is now sorely lacking. The Town Administrator and Superintendent of Schools share ongoing responsibility for the management and operation of the IS Department.
  - Establish the position of Chief Information Officer (CIO) in order to provide leadership in all aspects of IT throughout Burlington. Today, without this position which is common in business and government, IT in Burlington is in serious disarray. There is very little direct responsibility, authority or accountability for any aspect of IT in Burlington.
  - Establish the position of Application Implementation Manager in order to provide a hands-on focus on (1) addressing business process improvement in all Town and School offices and (2) achieving success in implementing Burlington's full portfolio of Town and School applications. For example, the MUNIS Enterprise Resource Planning (ERP) system, the system the Town and Schools use for their financial management, has only been implemented to roughly 10 to 20 percent of its capabilities after 14 years in use. As a result, an extraordinary amount of duplication of effort and inefficiency exists in business processes throughout the Town and Schools.
  - Fund the procurement and implementation of a robust Help Desk/Asset Management application in order (1) to know in the first place what IT assets Burlington has and (2) to provide the ability which is now lacking, at least on the Town side, to manage and respond well to requests for service from users.
  
2. Users must be directly involved on an on-going basis through a new Information Services (IS) Committee with several subcommittees focused on particular areas such as Financial Management, Payroll/Human Resources and Land Records. The CIO and IS Department staff must work hand-in-glove with the IS Committee and its various subcommittees in order to be sure that issues are identified on a timely basis, coherent plans are developed, appropriate resources are applied and implementation proceeds successfully. The IS Committee and its subcommittees must keep formal agendas and minutes with monthly reports to the Town Administrator and Superintendent of Schools for subsequent transmittal to the Selectmen and School Committee.

3. Burlington needs to make several, highly focused investments in application software, including:
  - Completing the deployment of the MUNIS ERP portfolio with applications as basic as Requisitioning which are critical to gaining major Town- and School-wide efficiencies in financial management.
  - Providing for unified incident command in Public Safety by bringing the Fire Department onto the TriTech/IMC application system which Police has used since 2009.
  - Identifying a unified solution for Work/Service Management applications such as Work Orders, Inventory and Fleet Management. While Burlington's personnel in areas like Public Works and Recreation (among others) are all dedicated, capable and hard-working, Burlington today has no way to tell exactly in hard numbers what they do or how much it costs. And these functions involve millions of dollars in Town assets.
  - Establishing a fully integrated Land Records system to support the many agencies in Burlington who are involved in land-related information every day. These include such offices as Building, Conservation, Department of Public Works (DPW), Fire, Health, Planning, Police, Selectmen/Town Administrator and Zoning. Burlington has had one vendor's system since 1998 but today has only one Town office (the Building Department) with one license using this product.
  
4. Burlington today has no way of knowing readily exactly what it spends on IT. For example, while the Town's MIS budget shows expenditures of \$290,765 in FY2012, payments to vendors in this same period were \$1,314,946.94. This situation needs to be addressed by taking several, important actions, including:
  - Consolidating all Town and School expenditures for IT in the IS Department's budget.
  - Giving the CIO full authority, responsibility and accountability for managing the IT budget, including all procurement of IT-related resources.
  - Using the full capabilities of the Commonwealth's Uniform Massachusetts Accounting System (UMAS) in order to be able to budget and account for IT-related expenditures in detail.
  
5. Burlington should commit as policy to a level of effort for funding of IT.

For more than 10 years, progressive local governments (not including School functions) have been spending about 3 to 4 per cent of total budget on IT. The best estimate here is that Burlington currently spends about 1 per cent.

Implementing all of the Phase I recommendations of this IT Assessment would increase Burlington's non-School spending on IT to approximately 2 to 2.5 per cent, still well below the national norm of 3 to 4 per cent.

6. The IS Department's organization needs to be reshaped to reflect Burlington's new strategic direction in IT. This involves:
  - Clarifying the roles and responsibilities of several personnel.
  - Making related adjustments in classification and compensation of these positions.
  - Emphasizing the consultative role of the IS staff especially as this regards business process improvement.
  
7. Burlington's Payroll/Human Resources function, involving the combined total of almost 850 employees in the Town and School Department, needs to be reengineered completely, using the full capabilities of the MUNIS application portfolio.
  - The Payroll process needs to be decentralized as far as possible with full security to the source level in the Town department or division and the individual school or program in the School Department. This is something MUNIS users like Burlington have been doing for more than 25 years.
  - With this decentralization, Burlington should implement the full capabilities of MUNIS's integrated leave-accounting function within the normal weekly (Town) or biweekly (School) Payroll process. Burlington today has no good idea of its leave-related liabilities since leave taken or earned is never recorded as part of the regular Payroll process. These records are kept with enormous and unnecessary duplication of effort (1) by each user-agency in the Town either manually or in Excel and (2) manually by the School Business Office for all School personnel.
  - Implementation of integrated leave accounting will also facilitate other, important processes such as compliance with the Family and Medical Leave Act (FMLA).
  - Burlington should consider the use of daily Payroll processing in agencies like Police, Fire or DPW which are relatively large in their number of employees and tend to have more exception pays than other offices.
  
8. Training needs to be emphasized for both technical staff in the IS Department and end-users throughout the Town and School Department.
  - Training for technical staff should be funded at the best-practice norm of 2 per cent of IT budget. This recognizes the dynamic nature of IT in the 21<sup>st</sup> century and the need to keep the skills of the IS staff well honed at all times.
  - End-users generally have had either no training ever or training only at the time of the original implementation of their systems. In the case of MUNIS, for example, this goes back 14 years. End-users in various functions have little idea, through no fault of their own, of what the capabilities of their systems are and how they could do their work for the Town better, faster and easier.

- Burlington needs to fund refresher training for users of established products like MUNIS and IMC, and make sure that ample training is provided as new applications are added in various functions throughout the Town and Schools.
  - Where IT training ought to be an ongoing part of Burlington's work environment, the Town should develop a dedicated training facility. This may also be able to serve as an Emergency Operations Center (EOC) for the Town.
9. Burlington needs to be sure that its new Web site is evolving to meet its needs. Among other things, this should include:
- Looking to the Web Services Subcommittee of the IS Committee to provide ongoing advice regarding the deployment of the Web site.
  - Providing editable forms for customers in such areas as land use and various types of applications and permits.
  - Implementing a wide range of links as appropriate for various functions.
  - Comparing Burlington's Web site on a regular basis with those of other local governments regionally and nationally who are recognized for excellence in this area.
10. Geographic Information Systems (GIS) can have great value to many functions in Burlington, ranging from land use and public works to community services and public safety. At this time, Burlington has done little with GIS, having only a few single-user licenses scattered in a small number of agencies.
- Burlington should fund a GIS Master Plan in order to be sure that it has a sound, fiscally prudent roadmap for addressing this potentially significant function. While GIS can benefit Burlington in many ways, not having a clear plan can lead to the expenditure of relatively large sums with little benefit.
11. Burlington should implement Microsoft Exchange Server as the core of its office environment. There are two, main drivers in this recommendation:
- Burlington today has no coherent office-systems environment. Instead, users contend with a variety of products and versions which undercut effective communication and productivity.
  - Exchange Server is tightly integrated with MUNIS, which is a major Microsoft partner. This product is required to gain the productivity benefits which are at the core of the workflow system within MUNIS.
12. Outstanding issues persist with applications currently deployed in Burlington. These include:
- The Evergreen Library system, provided through the Merrimack Valley Library Consortium (MVLC).

- The IMC system in the Police Department.
- The RecTrac system in Recreation.
- MySeniorCenter in the Council on Aging.

The IS staff and personnel in these departments should work cooperatively with the respective vendors to resolve these issues fully and well.

13. While social media has an increasingly important role in local government and school administration, Burlington's ability to integrate social media into its environment is hampered by the overwhelming backlog of demands it has in other areas of IT as well as the limited number of IT staff.

14. Standards need to be established across-the-board for all IT resources.

Burlington today has no formal standards for any component of its IT environment outside of its Cisco network. This has led to issues both in support for the IS staff and productivity for end-users.

The IS Committee and CIO should take the lead in this process, incorporating an annual review of standards as part of the budgetary process.

15. Burlington needs to rationalize its management of hardware. This includes:

- Giving the CIO central authority over all hardware.
- Replacing 20 per cent of its hardware inventory every year as an integral part of the Town's Capital Improvement Program (CIP).
- Sharing hardware among agencies as far as possible.
- Avoiding the procurement of white-box hardware.

16. Burlington must address several fundamental issues in system management including:

- Having the CIO provide leadership in system management.
- Having the Information Systems Manager occupy a critical role in this function.
- Addressing urgent issues in backup.
- Updating the Business Continuity/Disaster Recovery (BC/DR) plan.
- Reviewing and revising the user-policy for IT.
- Addressing the use of uninterruptible power supplies (UPS).

17. Burlington's fiber-optic network is a very valuable asset which provides a solid foundation for sharing IT resources well into the future.

At the same time, Burlington needs to act prudently in assuring that network management and security are appropriate to its operating environment. This calls for a set of highly specialized studies regarding different aspects of the network.

As well, the changing face of education and local government will continue to place increasing demands on the network which Burlington's staff will need to monitor closely.

18. Burlington's telecommunications systems and networks need to be addressed in several ways, these include:

- Establish a plan to phase out the current Siemens HiCom systems in both the Town and School locations and replace with a Cisco IP telephony solution.
- Conduct a full billing audit of the network services provided by Verizon and re-configure these services as required to meet the current and future needs of the Town and Schools.
- Conduct a VoIP readiness assessment of the current data network within and between Town and School buildings.
- Conduct an audit of current 911 network services.
- Establish a comprehensive training plan with the implementation of new IP telephony systems.
- Identify internal IT staff to be trained in administration of the IP telephony system implemented.

19. All procurement of goods and services related to this IT Assessment must be carried out in conformity with Massachusetts General Laws (MGL) Chapter 30B, the Commonwealth's Uniform Procurement Act.

In the end, this IT Assessment tries to provide Burlington with a clear vision of how information technology could be serving the Town better, understanding where the greatest opportunities are for IT to help Burlington fulfill its goals and priorities.

The Chief Information Officer (CIO) occupies a unique and critical position in helping to assure that Burlington makes steady progress in IT both wisely and cautiously.

Implementing the recommendations of this IT Assessment will require the full commitment of personnel at all ranks throughout the Town and School Department. Burlington's Town Administrator, Superintendent of Schools, Board of Selectmen and School Committee, together with the ISAC and Ways and Means Committee, will need to provide both (a) funding on a fiscally prudent basis and (b) visible political leadership in this effort.

**Table 21: Implementation Plan by Phase: Cost and Non-Cost**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
<b>Urgent/Immediate Recommendations</b>					
1	3.C.1	Establish joint Town-School Information Services Dept.	N	\$0	\$0
2	3.C.2	Establish Chief Information Officer (CIO).	Y	\$7,500	\$112,000
3	3.C.2	Budget for benefits for CIO.	Y	\$0	\$39,200
4	3.C.3	Establish Application Implementation Manager.	Y	\$1,000	\$94,000
5	3.C.3	Budget for benefits for Application Implementation Manager.	Y	\$0	\$32,900
6	3.C.16	Implement Help Desk/Asset Management application.	Y	\$5,000	\$20,000
7		<b>TOTALS:</b>		<b>\$13,500</b>	<b>\$298,100</b>
<b>Phase I Recommendations Section Four: IT Organization</b>					
8	3.C.5	Reclassify Network Administrator's position.	Y	\$0	\$8,000
9	3.C.6	Reclassify System Administrator's position.	Y	\$0	\$13,000
10	3.C.7	Reclassify IT Support Administrator's position.	N	\$0	\$0
11	3.C.8	Return Information Systems Manager to titled duties.	N	\$0	\$0
12	3.C.9	IS staff as internal consultants with training.	Y	\$7,500	\$0
13	3.C.10	Organize IS Department to incorporate strategic direction.	N	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
14	3.C.11	Carry out IS classification and compensation study.	Y	\$10,000	\$0	\$2,000
15	3.C.12	Fund IS staff membership in professional associations.	Y	\$0	\$1,910	\$1,910
16	3.C.13	Train departmental wizards.	N	\$0	\$0	\$0
17	3.C.14	Establish user-driven committee structure.	N	\$0	\$0	\$0
18	3.C.15	Engage consultant to help launch of IS Committee & teams.	Y	\$18,000	\$0	\$3,600
19	3.C.17	Establish and maintain standards.	N	\$0	\$0	\$0
20	3.C.18.	Evaluate use of contracted services.	N	\$0	\$0	\$0
21	3.C.19	Hold hiring until CIO is on board.	N	\$0	\$0	\$0
22	3.C.20	Provide on-going training for IS professionals.	Y	\$0	\$8,000	\$8,000
23	3.C.21	Consider ramifications for staffing of strategic choices.	N	\$0	\$0	\$0
<b>Section Five: Application Systems and Business Process</b>						
<b>C-1. Financial Management</b>						
24	4.C.1	Invest effort and financial resources in application systems.	Y	Included	Included	Included
25	4.C.2	Evaluate appropriateness of cloud computing case-by-case.	N	\$0	\$0	\$0
26	4.C.3	Budget for server-based applications: sufficient funding.	N	\$0	\$0	\$0
27	4.C-1.1	Deploy MUNIS ERP system fully: efficiency & effectiveness.	Y	\$146,605	\$22,656	\$51,977
28	4.C-1.2	Procure site license: current & recommended MUNIS apps.	Y	\$11,500	\$4,600	\$6,900

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
29	4.C-1.3	Upgrade MUNIS server for more use and users.	Y			
30	4.C-1.4	Develop written plan: phased implementation, decentralization.	N	\$0	\$0	\$0
31	4.C-1.5	Implement encumbrance accounting: Req./PO system.	Y	Included	Included	Included
32	4.C-1.6	Undertake complete reengineering of Req./Purchasing & A/P.	N	\$0	\$0	\$0
33	4.C-1.7	Undertake complete reengineering of Accounts Payable.	N	\$0	\$0	\$0
34	4.C-1.8	Undertake complete reengineering of Cash Receipts.	Y	\$15,000	\$0	\$3,000
35	4.C-1.9	Provide 4 counter-top cash stations.	Y	\$19,860	\$0	\$3,972
36	4.C-1.10	Use MUNIS General Billing throughout the Town & Schools	Y	\$3,825	\$0	\$765
37	4.C-1.11	Merge all records for each vendor.	N	\$0	\$0	\$0
38	4.C-1.12	Provide 2 countertop cash stations for Treasurer/Collector.	Y	Included	Included	Included
39	4.C-1.13	Review the use of the MUNIS Budget Preparation system.	Y	\$3,825	\$0	\$765
40	4.C-1.14	End School duplication of year-end balances: MUNIS->Excel.:	N	\$0	\$0	\$0
41	4.C-1.15	Fund refresher training in current MUNIS applications.	Y	\$44,625	\$0	\$8,925
42	4.C-1.16	Eliminate all third-party financial software.	N	\$0	\$0	\$0
43	4.C-1.17	Halt photocopying and mailing of vendors' invoices.	N	\$0	\$0	\$0
44	4.C-1.18	Provide secure, read-only access to MUNIS Tax apps.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
45	4.C-1.19	Review with MUNIS all Water & Sewer processes.	Y	\$4,175	\$0	\$835
46	4.C-1.20	Review Retirement processes with MUNIS & auditor.	Y	\$10,000	\$0	\$2,000
47	4.C-1.21	Use colored envelopes and separate PO boxes for receivables.	N	\$0	\$0	\$0
48	4.C-1.22	Reconsider removing of retirees' records from MUNIS.	N	\$0	\$0	\$0
<b>C-2. Payroll/Human Resources</b>						
49	4.C-2.1	Decentralize Payroll as far as possible.	N	\$0	\$0	\$0
50	4.C-2.2.	Undertake complete reengineering of the Payroll process.	N	\$0	\$0	\$0
51	4.C-2.3	Use MUNIS integrated leave accounting in Payroll process.	N	\$0	\$0	\$0
52	4.C-2.6	Use MUNIS Payroll to manage compliance with FMLA.	N	\$0	\$0	\$0
53	4.C-2.9	Implement Tyler Reporting Services and Forms Processing.	Y	Included	Included	Included
54	4.C-2.10	Fund 3 days of refresher training in MUNIS Payroll/HR.	Y	\$3,825	\$0	\$765
55	4.C-2.11	Implement MUNIS position control.	N	\$0	\$0	\$0
<b>C-3. Public Safety</b>						
56	4.C-3.1	Implement full suite of IMC Police and Fire applications.	X	\$197,570	\$19,830	\$59,344
57	4.C-3.2	Implement PowerPhone CAD protocols: Police, Fire & EMD.	X	Included	Included	Included

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
58	4.C-3.3	Implement Police & Fire assets from other communities: CAD.	N	\$0	\$0	\$0
59	4.C-3.4	Implement GIS for Police and Fire as soon as possible.	Y	Included	Include	Included
60	4.C-3.5	Have IMC resolve persistent issues in the Police system.	N	\$0	\$0	\$0
61	4.C-3.6	Complete migration from QED to IMC.	N	\$0	\$0	\$0
62	4.C-3.7	Make full use of all modules previously licensed from IMC.	N	\$0	\$0	\$0
63	4.C-3.8	Implement Automatic Vehicle Location (AVL).	Y	Included	Include	Included
64	4.C-3.9	4 days of refresher training for IMC Police applications.	Y	\$12,000	\$0	\$2,400
65	4.C-3.10	Provide IT infrastructure for Emergency Operations Center.	Y	\$25,000	\$5,000	\$10,000
66	4.C-3.11	Wait for CIO before doing virtualization.	N	\$0	\$0	\$0
67	4.C-3.12	Encourage Police officers to do reports in vehicles.	N	\$0	\$0	\$0
68	4.C-3.13	Provide SMART Board in Police Roll Call Room.	Y	\$3,500	\$0	\$700
69	4.C-3.14	Implement Coplogic Web-based citizen reporting of incidents.	Y	Included	Include	Included
71	4.C-3.15	Decide about automation of Fire Inspections.	Y	Included	Include	Included
72	4.C-3.16	Maintain Fire training records in MUNIS or IMC.	N	\$0	\$0	\$0
73	4.C-3.17	Evaluate current Police server for Police and Fire.	Y	?	?	?
74	4.C-3.18	Explore school-security cameras linked to display in cruisers.	Y	?	?	?

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
75	4.C-3.19	Fix Police Microsoft Exchange-SharePoint integration issue.	Y	?	?	?
76	4.C-3.20	Eliminate unnecessary manual records.	N	\$0	\$0	\$0
77	4.C-3.10	Provide Police access to SharePoint outside Police Hq.	Y	?	?	?
<b>C-4. Land Records</b>						
78	4.C-4.1	Procure and implement enterprise Land Records system.	Y	\$150,000	\$25,000	\$55,000
79	4.C-4.2	Consider procurement with other municipalities or MAPC.	Y	Included	Include	Included
80	4.C-4.3	Leverage property-records repository in Patriot CAMA.	Y	\$1,000	\$0	\$200
81	4.C-4.4	Compare functionality, detail between Web & server CAMA.	N	\$0	\$0	\$0
82	4.C-4.5	Require as-built plans in industry-standard format.	Y	?	?	?
83	4.C-4.6	Review feasibility of GeoTMS to CAMA export.	N	\$0	\$0	\$0
84	4.C-4.7	Stop typing property transfers onto cards.	N	\$0	\$0	\$0
85	4.C-4.8	Have all Town offices use Patriot for abutters' lists.	N	\$0	\$0	\$0
86	4.C-4.9	Put all land-use forms in editable pdf on Web site.	N	\$0	\$0	\$0
87	4.C-4.10	Procure and implement app: 3-D modeling for Planning, etc.	Y	\$10,000	\$2,000	\$4,000
88	4.C-4.11	Decide about processing land payments in MUNIS or vendor.	N	\$0	\$0	\$0
89	4.C-4.12	Deploy Land Records system with mobile capabilities.	Y	Included	Include	Included

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
<b>C-5. Web Services</b>					
90	4.C-5.1	Enhance Web presence with new Revize application.	N	\$0	\$0
91	4.C-5.2	Provide editable forms on the Town's Web site.	N	\$0	\$0
92	4.C-5.3	Undertake comparison w/ leading local-government Web sites.	N	\$0	\$0
<b>C-6. Geographic Information Systems</b>					
93	4.C-6.1	Develop GIS Master Plan with consultant.	Y	\$50,000	\$0
<b>C-7. Work/Service Management</b>					
94	4.C-7.1	Implement integrated Work/Service Management application.	Y	\$125,000	\$20,000
95	4.C-7.2	Evaluate vendors' department- and division-level security.	Y	Included	Include
96	4.C-7.3	Reengineer Work/Service business processes w/new app.	N	\$0	\$0
97	4.C-7.4	Complete internal development of Highway "green book."	N	\$0	\$0
98	4.C-7.6	Assure appropriate documentation & support: SCADA system.	N	\$0	\$0
99	4.C-7.7	Provide tablets: Water and Wastewater personnel rounds.	Y	\$10,000	\$2,000
100	4.C-7.8	Provide access to SCADA system for staff at Mill Pond.	Y	?	?
101	4.C-7.9	Assure survivability of Cemetery records.	N	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average	
<b>C-8. Office Systems and Collaboration</b>						
102	4.C-8.1	Establish Microsoft Exchange Server as standard.	Y	\$70,439	\$2,500	\$16,588
103	4.C-8.2	Provide for migration from Office 2003 & 2007 to 2010.	Y	\$15,000	\$0	\$3,000
<b>C-9. Executive Administration and Records Management</b>						
104	4.C-9.1	Examine compliance with FTC Red Flags Rule.	N	\$0	\$0	\$0
105	4.C-9.2	Examine discovery under Federal Rules of Civil Procedure.	Y	?	?	?
106	4.C-9.5	Obtain 10 licenses for Adobe XI Pro.	Y	\$4,490	\$0	\$898
107	4.C-9.6	Implement indexing application for Town Archivist.	Y	\$1,000	\$200	\$400
108	4.C-9.7	Provide local and remote access to FaxPress.	Y	?	?	?
<b>C-10. Community Services</b>						
109	4.C-10.1	Address issues in Evergreen Library system.	N	\$0	\$0	\$0
110	4.C-10.2	Resolve issues with Library printers.	Y	\$2,500	\$500	\$1,000
111	4.C-10.3	Evaluate export of financial information: Evergreen->MUNIS.	N	\$0	\$0	\$0
112	4.C-10.4	Review further use of Connect-City reverse 9-1-1 for seniors.	N	\$0	\$0	\$0
113	4.C-10.5	Pursue enhanced use of MySeniorCenter.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
114	4.C-10.6	Implement hand-held scanning capabilities: MySeniorCenter.	Y	\$820	\$100	\$264
115	4.C-10.7	Procure tablets for Council on Aging home visits.	Y	\$10,000	\$200	\$2,200
116	4.C-10.8	Procure application for Burlington Community Life Center.	Y	\$10,000	\$2,000	\$4,000
117	4.C-10.9	Use MUNIS for Community Life Cash Receipts.	N	\$0	\$0	\$0
118	4.C-10.10	Add RecTrac modules for Recreation.	Y	\$11,760	\$2,148	\$4,500
119	4.C-10.11	Have Recreation decide re: Work/Service Mgt. Apps.	Y	Included	Included	Included
120	4.C-10.12.	Show availability of Recreation sites on Town Web site.	N	\$0	\$0	\$0
121	4.C-10.13	Undertake full review of cloud v. server for RecTrac.	N	\$0	\$0	\$0
122	4.C-10.14	Resolve issues in compatibility between PC's and RecTrac.	N	\$0	\$0	\$0
123	4.C-10.15	Have Recreation take full advantage of MUNIS financials.	N	\$0	\$0	\$0
<b>C-11. Other</b>						
124	4.C-11.1	Wait to address social media.	N	\$0	\$0	\$0
125	4.C-11.2	Engage expert in Microsoft Access.	Y	\$3,000	\$1,500	\$2,100
126	4.C-11.3	Reconsider OmniForm.	N	\$0	\$0	\$0
127	4.C-11.4	Consult with other leading users of COTS applications.	N	\$0	\$0	\$0
128	4.C-11.5	Establish a standard product for surveys.	Y	\$0	\$780	\$780

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
129	4.C-11.6	Examine mobile solutions as appropriate.	Y	Included	Included	Included
130	4.C-11.7	Establish a training facility.	Y	\$50,000	\$1,000	\$11,000
131	4.C-11.8	Budget for ongoing training of end-users: all depts & apps.	Y	0	\$32,500	\$32,500
132	4.C-11.10	Budget professional procurement & implementation services.	Y	\$50,000	\$0	\$10,000
<b>Section Five: Network and Infrastructure</b>						
133	5.C-1	Map the existing fiber-optic network.	Y	\$70,000	\$0	\$14,000
134	5.C-2	Evaluate backup generators at Police and Town Hall.	Y	\$8,000	\$0	\$1,600
135	5.C-3	Close ceiling tiles in the Town Hall data center.	N	\$0	\$0	\$0
136	5.C-4	Recable the Town Hall Annex.	Y	\$19,950	\$0	\$3,990
137	5.C-5	Remove I-NET cabling from various buildings.	Y	?	?	?
138	5.C-6	Assess wireless LAN connectivity	Y	\$8,000	\$0	\$1,600
139	5.C-7	Assess scalability of current network infrastructure.	Y	Included	Included	Included
140	5.C-8	Assess Open Standards in networking and infrastructure.	Y	Included	Included	Included
141	5.C-9	Assure reliability and availability of network infrastructure.	Y	Included	Included	Included
142	5.C-10	Evaluate modularity of current network infrastructure.	Y	Included	Included	Included
143	5.C-11	Evaluate current network-security capabilities.	Y	Included	Included	Included

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
144	5.C-12	Evaluate network-infrastructure performance.	Y	Included	Included	Included
145	5.C-13	Monitor Internet bandwidth.	N	\$0	\$0	\$0
<b>Section Six: Telephony and Telecommunications</b>						
146	6.C-1	Establish a plan to phase out the current Siemens HiCom systems in both the Town and School locations and replace with a Cisco IP telephony solution.	Y	\$1,410,000	\$84,600	\$366,600
147	6.C-2	Conduct a full billing audit of the network services provided by Verizon and re-configure these services as required to meet the current and future needs of the Town and Schools.	Y	\$7,800	\$0	\$1,560
148	6.C-3	Conduct a VoIP readiness assessment of the current data network within and between Town and School buildings.	Y	\$11,000	\$0	\$2,200
149	6.C-4	Conduct an audit of current 911 network services.	N	\$0	\$0	\$0
150	6.C-5	Establish a comprehensive training plan with the implementation of new IP telephony systems.	N	\$0	\$0	\$0
151	6.C-6	Identify internal IT staff to be trained in administration of the IP telephony system implemented.	N	\$0	\$0	\$0
<b>Section Seven: Hardware</b>						
152	7.C.1	Give CIO central authority over all hardware.	N	\$0	\$0	\$0
153	7.C.2	Have IS Committee & CIO work hand-in-glove w/hardware.	N	\$0	\$0	\$0
154	7.C.3	Establish standards for all hardware.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
155	7.C.4	Replace 20 per cent of hardware every year in CIP.	Y	Included	Included	Included
156	7.C.5	Put computer & printer in 2 Town & School meeting rooms.	Y	\$3,000	\$500	\$1,100
157	7.C.6	Include \$30,000 in FY2014 CIP for departmental hardware.	Y	\$30,000	\$0	\$6,000
158	7.C.7	Share hardware to the maximum extent possible.	N	\$0	\$0	\$0
159	7.C.8	Do not procure white-box hardware.	N	\$0	\$0	\$0
160	7.C.9	Dispose of excess hardware.	N	\$0	\$0	\$0
<b>Section Eight: System Management</b>						
161	8.C.1	Have the CIO provide leadership in system management.	N	\$0	\$0	\$0
162	8.C.2	Have the Information Systems Manager occupy critical role.	N	\$0	\$0	\$0
163	8.C.3	Address urgent and critical issues in backup.	Y	\$20,000	\$2,000	\$6,000
164	8.C.4	Update Business Continuity/Disaster Recovery (BC/DR) plan.	N	\$0	\$0	\$0
165	8.C.5	Assure system security for all systems at all levels.	N	\$0	\$0	\$0
166	8.C.6	Review and revise its user-policy for IT.	N	\$0	\$0	\$0
167	8.C.7	Have users exercise full responsibility in their respective roles.	N	\$0	\$0	\$0
168	8.C.8	Do a better job of documentation in system management.	N	\$0	\$0	\$0
169	8.C.9	Locate critical systems outside the High School.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
170	8.C.9	Locate critical systems outside the High School.	N	\$0	\$0	\$0
171	8.C.10	Undertake complete review of departmental architecture.	N	\$0	\$0	\$0
172	8.C.11	Address use of uninterruptible power supply (UPS) systems.	Y	\$1,000	\$0	\$200
173	8.C.12	Proceed cautiously in examining virtualization.	Y	?	?	?
174	8.C.13	Consider MUNIS OS/DBA service.	Y	\$0	\$14,260	\$14,260
<b>Section Nine: Financial Management of IT</b>						
175	9.C.1	Give CIO full responsibility for financial management of IT.	N	\$0	\$0	\$0
176	9.C.1	Put all IT expenditures in one budget.	N	\$0	\$0	\$0
177	9.C.1	Give CIO full responsibility for all procurement of IT.	N	\$0	\$0	\$0
178	9.C.2	Use full capabilities of UMAS accounting system for IT.	N	\$0	\$0	\$0
179	9.C.3	Commit to a specific level of effort for financial support of IT.	N	\$0	\$0	\$0
180	9.C.4	Refashion how CIP presents IT-related requests.	N	\$0	\$0	\$0
181	9.C.5	Establish replacement cycle for hardware as part of CIP.	Y	\$0	\$170,650	\$170,650
182	9.C.6	Establish replacement cycle for software as part of CIP.	Y	\$0	\$20,000	\$20,000
183	9.C.7	Evaluate possible buy-out of lease agreement for the IMC system.	Y	\$5,000	\$0	\$1,000

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
184	9.C.8	Avoid chargebacks to user-agencies.	N	\$0	\$0	\$0
<b>Section Ten: Summary of Recommendations</b>						
185	10.B.1	Have a clear sense of direct and indirect benefits from IT.	N	\$0	\$0	\$0
186	10.B.2	Establish specific criteria for evaluating IT requests.	N	\$0	\$0	\$0
187	10.B.3	Be aware of factors influencing IT implementation.	N	\$0	\$0	\$0
188	10.B.4	Apply strategic positioning in all IT decision-making.	N	\$0	\$0	\$0
189	10.C.1	Proceed in 3 phases in implementing recommendations.	N	\$0	\$0	\$0
190	10.C.2	Undertake formal planning and reporting on implementation.	N	\$0	\$0	\$0
200	10.C.3	Review all options for financing of recommendations.	N	\$0	\$0	\$0
201	10.C.4	Follow best practice in procurement of IT.	N	\$0	\$0	\$0
202	10.C.5	Undertake active monitoring and updating of system plans.	Y	\$0	\$5,000	\$5,000
203	10.C.6	Explore interlocal cooperation in IT.	N	\$0	\$0	\$0
204		<b>Phase I- Total Recommended</b>		<b>\$2,705,569</b>	<b>\$472,434</b>	<b>\$1,013,548</b>

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
<b>Less Funds Programmed or Appropriated</b>					
205	–MUNIS Upgrade from CIP FY2015.		\$150,000	\$0	\$30,000
206	–Replacement Operating Software from CIP FY2015.		\$100,000	\$0	\$20,000
207	–New GenX MS Office from CIP FY2014.		\$25,000	\$0	\$5,000
208	–Add Fiber Plant from CIP FY2015.		\$150,000	\$0	\$30,000
209	–Balance from IT Assessment Article 12, Jan. 23, 2012.		\$35,250	\$0	\$7,050
210	–Balance from GIS Article 27, May 16, 2011.		\$17,000	\$0	\$3,400
211	<b>Total Funds Programmed or Appropriated</b>		<b>\$477,250</b>	<b>\$0</b>	<b>\$95,450</b>
212	<b>Net New Phase I Funds Recommended</b>		<b>\$2,228,319</b>	<b>\$472,434</b>	<b>\$918,098</b>
<b>Phase II Recommendations</b>					
<b>C-2. Payroll/Human Resources</b>					
213	4.C-2.4 Consider deployment of MUNIS Employee Self-service.	Y	\$10,425	\$1,530	\$3,615
214	4.C-2.5 Examine integration of CATS Applicant Tracking w/MUNIS.	N	\$0	\$0	\$0
215	4.C-2.7 Review and revise all position specifications for IT KSA's.	N	\$0	\$0	\$0
216	4.C-2.8 Include IT in all employees' orientation.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average	
<b>C-7. Work/Service Management</b>						
217	4.C-7.5	Procure and implement Cemetery Division application.	Y	\$7,500	\$1,500	\$3,000
<b>C-9. Executive Administration and Records Management</b>						
218	4.C-9.3	Evaluate implementation of The Paperless Council.	Y	\$10,000	\$1,000	\$3,000
219	4.C-9.4	Procure and implement Electronic Content Mgt. System.	Y	\$120,000	\$15,000	\$39,000
<b>C-11. Other</b>						
220	4.C-11.9	Consider additional MUNIS applications.	Y	\$57,225	\$9,360	\$20,805
221		<b>Phase II - Total Recommended</b>		<b>\$205,150</b>	<b>\$28,390</b>	<b>\$69,420</b>
222		<b>Less Funds Programmed Or Appropriated</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
223		<b>Net New Phase II Funds Recommended</b>		<b>\$205,150</b>	<b>\$28,390</b>	<b>\$69,420</b>

## Section One Introduction

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This Information Technology Assessment (the IT Assessment) grew out of concerns which the Town of Burlington and the Burlington School Department had with the organization and deployment of information technology (IT) with the exception of school-related instructional/curriculum systems.

The first, recent action which Burlington had taken to address these issues was the reorganization of its Information Systems Advisory Committee (ISAC) in May, 2011. The ISAC was comprised of seven citizen-members with the Assistant Town Administrator serving as liaison to the Town government.

From the beginning of its work, the ISAC realized that the services of an independent consulting firm with particular expertise in IT within municipal government and school administration would be required for the Town to make the progress it sought in this direction. As a result, the Town obtained funds from town meeting in January, 2012 for this purpose. With this funding, Burlington issued an open, competitive Request for Proposal (RFP) for Municipal Government Information Technology Consulting Services on March 21, 2012 with proposals due April 11, 2012. Page 1 of the RFP described the objective of the IT Assessment as follows:

The overall goal of the project is to establish a baseline of all deployed hardware, software, services, networks and all other information technology assets and to provide the Town with a detailed organizational structure of IT (Information Technology) functions within the Town's overall governmental organization.

This complemented item 5 of the Board of Selectmen's Goals and Objectives 2011-2012, which read in part:

The Board has set a goal of reviewing operational issues between the School Dept [sic] and the Town. We will work with the Schools this year to continue the dialogue on the newly configured combined IT Dept...."

Following the receipt and evaluation of proposals from consultants, Burlington selected Webb Consulting Services, LLC of Canton, Massachusetts to carry out the IT Assessment.

In looking at IT in Burlington, this IT Assessment takes a business-like approach and considers what any other high-performance organization with a \$107-million budget and 846 full- and part-time employees would need to do in order to survive and prosper in a competitive environment.

The ultimate goal of this IT Assessment, then, was to make a set of recommendations, phased for implementation by priority, which would both (a) position Burlington strategically to maintain and enhance its established, high quality of life and public services, and (b) constitute fiscally prudent investments for Burlington's future.

The findings and recommendations which this IT Assessment presents are derived from a comprehensive assessment of Burlington's *functional requirements* - what the Town does now or expects to be doing in the foreseeable future. One must look at the full range of Burlington's functions as a whole, not in separate parts. This view must be based on the concept of *functional integration* - how IT should be supporting the different things that Burlington does with respect to policy-making, management and operations.

Moreover, one needs to anticipate how Burlington's use of IT may change over time. Responsible policy-making, management and operations require that Burlington anticipate these changes as well as possible and organize the IT function to be flexible and adaptable to these changes.

In the course of this engagement, the consultants met on numerous occasions with various groups and individuals from every department in Burlington, interviewing 92 personnel in the Town and School Department as well as vendors currently or prospectively serving Burlington. This process resulted in full and frank discussion between the consultant and the Town, mainly through the ISAC. All aspects of this IT Assessment have been reviewed and discussed thoroughly with the ISAC as well as participating staff and officials.

Consistent with Burlington's RFP for this engagement, this IT Assessment organizes its 200 recommendations by priority into three phases:

- **Urgent/Immediate**--those which are critical today and call for action by town meeting in January, 2013. These focus on four, basic organizational issues: (1) organizing the consolidated Town-School information Services (IS) Department; (2) establishing the position of Chief Information Officer (CIO), which has been common in business and government for many years but has never existed in Burlington; (3) establishing the position of Application Implementation Manager to have hands-on responsibility for business process improvement throughout the Town and Schools; and (4) implementing a top-quality Help Desk/Asset Management application so that Burlington can know for the very first time both what assets it has and how well its customers are being served.
- **Phase I**--those actions on which Burlington should focus over the next two Fiscal Years 2014 and 2015 from July 1, 2013 through June 30, 2015. These are aimed at supporting core applications from Financial Management and Public Safety to Land Records and Payroll/Human Resources with no frills. Much of Phase I is a matter of catch up--getting Burlington to the point where other progressive local governments and school districts have been in their business functions and deployment of IT since the late 1980's.
- **Phase II**--those actions which Burlington may wish consider, beginning in FY2016 (starting July 1, 2015), after it has been successful in meeting the goals and objectives of Phase I.

These priorities are influenced mainly by two factors: (1) risk and (2) impact. This is the main reason why Phase I includes such things as: (a) implementing key functions of Burlington's Integrated Financial

Management System (IFMS) in order to achieve huge gains in efficiency and effectiveness throughout the Town and School Department by eliminating the enormous duplication of effort which now pervades both organizations; and (b) assuring that IT operations in such areas as Business Continuity/Disaster Recovery (BC/DR) meet appropriate standards.

About 40% of these recommendations involve no appropriations of funds: they call for no-cost decisions involving policy or administration. Where this IT Assessment recommends new investment by Burlington, this should have immediate benefit to the staff's productivity and the quality of services delivered by Burlington to its residents and taxpayers.

Burlington now must emphasize *functional integration* in its approach to information technology. This should provide substantially greater support for decision-making in Burlington regarding policy, management and operations. Burlington now needs to leverage the sound technological base it has established, most significantly in the areas of application software and infrastructure, in order to achieve this higher level of integration.

This IT Assessment does not attempt to address every technology now on the market or which may become available in the future. Instead, it focuses on those information technologies which now or in the future should have the greatest benefit to Burlington's policy-making, management and operations.

Most important, Burlington has an exceptionally capable and dedicated group of employees throughout its various departments. The staff is doing their very best under frequently difficult circumstances resulting from an inadequate level of IT-based support. Nothing in this IT Assessment is intended in any way to be critical of the staff. Rather, this IT Assessment applauds their dedication to the Town and the high quality of their work. While Burlington has much to do in implementing the recommendations of this IT Assessment, Burlington's staff has shown a high level of interest in IT and in making the effort required to implement new and better systems.

It is important to make certain observations about the organization and scope of this IT Assessment.

- It recognizes the interdependence of the topics with which it is concerned. The major issues of organization, staffing, technology and financing are all closely interrelated: all share the same origin in scale.
- It concerns itself with function, not organizational unit. Thus, for example, it addresses the Financial Management function, not the offices of the Town Accountant, Treasurer/Collector or School Business Office.
- It applies wherever possible the widely recognized principle of *best practice*. This looks at how various aspects of IT in Burlington, from the training of its IT and end-user personnel to its deployment of applications and infrastructure, compare with the state of the art among comparable local governments and school districts in the United States. Among other things, this insight draws from: (1) the publications and information provided by such leading professional organizations as the International City/County Management Association (ICMA); and (2) the

combined experience of the consulting team in more than 180 public agencies in Massachusetts and across the United States.

- It applies the concept of *strategic positioning*. This means that Burlington should take actions in such areas as policy-making and procurement which establish the foundation for the Town to function both in the short and longer terms as a high-performance organization. Strategic positioning for Burlington also considers changes which may occur in its environment such as the impact of growth, changes in technology, or other statutory, regulatory or judicial factors. Strategic positioning is often characterized as “buy smart, not cheap.”
- While it speaks generally about IT in the Town and Schools, the Police Department differs quite dramatically in the extent and sophistication of its deployment of IT from all other Town offices. This is based both on: (1) its status as Burlington’s local law-enforcement agency, subject to specific regulation by the U.S. Government and the Commonwealth of Massachusetts in a way very different from any other Town department; and (2) its having its own dedicated IT personnel.
- It has not included vendor-related tasks such as the evaluation of a particular firm’s products or services. Where the consulting team has had interaction with current or prospective vendors, this has been for the purpose of determining costs, technical or functional issues related to a given vendor’s products or services, not due diligence.
- No mention of any vendor by Webb Consulting Services, LLC is intended or implied to create any endorsement or criticism.

This IT Assessment followed a careful, systematic approach in addressing the full scope of work of this engagement. Key tasks here included:

- Conducting a Project Organizational Conference with the ISAC on the evening of Monday, June 18, 2012, also attended by key personnel from the Town and School Department. This meeting was held to establish a common understanding of the specifics of the project plan and assure that all parties had clear agreement on the conduct of the project.
- Presenting a Project Workshop in two, identical sessions on the morning and afternoon of Thursday, July 12, 2012, attended by more than 50 Town and School personnel. These sessions were offered in order to engage the staff by having them understand why the IT Assessment was being done, how it would proceed, what their role in the process would be and how the IT Assessment might ultimately affect their work with the Town of Burlington. The Project Workshop sought to (1) establish a sense of common purpose and interdependence in the use of IT, (2) share a common base of knowledge about the current state of the art in IT in local government and education, and (3) spur thinking among Burlington’s staff about ways in which they could make more effective use of IT in their work.

- Reviewing various documents which provided background information related to the scope of the IT Assessment. This included such things as: (1) audits and management letters; (2) operating and capital budgets; (3) requests for funding related to IT; (4) detailed expenditure reports; (5) existing contracts with vendors of IT systems and services; (6) Burlington's position classification and compensation system with position specifications; (7) Town by-laws; (8) maps and schematics of Burlington's current networking infrastructure; and (9) internal documents in Burlington's files. These documents provided background which was important throughout the course of the IT Assessment.
- Distributing and explaining a set of seven inventory forms, given to each department as "home-work" at the Project Workshop and later reviewed during the departmental interviews. These inventory forms were a key part of the effort to meet the RFP's goal "...to establish a baseline of all deployed hardware, software, services, networks and all other information technology assets...."
- Interviewing 92 personnel from every office in the Town and School Department. These interviews used a standard approach and were critical to understanding: (1) the current state of deployment of IT in the Town and School Department; and (2) what ideas the staff had regarding opportunities for how the enhanced organization of the IT function in Burlington and better deployment of IT could support the goal of increasing the efficiency and effectiveness of policy-making, management and operations--public services--in Burlington.
- Providing a Bi-weekly Report to the ISAC and meeting bi-weekly with the ISAC to discuss the Bi-weekly Report and progress of the IT Assessment.
- Meeting with the ISAC on October 15, 2012 to review the initial draft of the IT Assessment, which had been provided to the ISAC one week earlier. This meeting provided an important opportunity for Webb Consulting Services to present the basis for the findings and recommendations of the IT Assessment and for the ISAC to provide input for incorporation into the final work product.
- Meeting with the ISAC on December 3, 2012 to review the revised draft of the IT Assessment.
- Finalizing the IT Assessment as a result of the December 3, 2012 review meeting and preparing it for final presentation.

This process resulted in full and frank discussion. All aspects of this IT Assessment have been reviewed and discussed thoroughly with the participants. As well, each of these tasks contributed significantly to the development of the IT Assessment.

Recommendations for funds are presented on the basis of a five-year lifecycle. This combines all costs for all recommendations into a single framework by phase, producing an average annual cost over five years.

In this way, Burlington can make well informed decisions regarding the fiscal impact of each prospective investment.

While this IT Assessment makes specific recommendations for funding, one is obliged to be conservative in expectations regarding the availability of funds from the U.S. Government, the Commonwealth or other sources. Burlington should make every possible effort to secure intergovernmental and extra-governmental funding while recognizing the well-known fiscal constraints facing the State and Federal governments.

This IT Assessment suggests a major transition from the current way that Burlington organizes and manages IT. This big change also presents significant challenges. For example:

- Burlington needs most urgently to (1) organize a new, combined Town-School Information Services Department and (2) recruit and select a new Chief Information Officer (CIO) as this Department's head. This person must have the rare combination of interpersonal and technical skills to shape the new Town-School department and be sure that it delivers high-quality services.
- The staff of the Town and School Department--Burlington's end-users--must be engaged formally in the management and deployment of IT in a way that they have never previously been. This should occur in an integrated, two-pronged approach: (1) having a Town- and School-wide end-user Information Services Committee, chaired by the CIO; and (2) having a set of specialized subcommittees in such areas as financial management and land records, which operate as part of the Information Services Committee. All of these groups should meet at least monthly for the next year or two with scheduled meetings, formal agendas and minutes.
- Burlington needs to be thinking in new and different ways about how it uses IT to identify the quantity and evaluate the quality of the services it delivers. Thus, this IT Assessment recommends, among other things, a Work Order-based environment to help quantify the number, type and cost of services Burlington provides.
- Business process improvement must be a major focus in offices throughout the Town and Schools. Implementing the recommendations of this IT Assessment will bring enormous changes in how almost every office in Burlington does its work on a daily basis. Gradual implementation of these changes, office by office, is required so that Burlington's personnel can adapt as easily and successfully as possible to new, different and better ways of doing their work.

To a large extent, having IT contribute well to the efficiency and effectiveness of public services in Burlington will depend on the interest, understanding and support of its key elected and appointed officials. They are the ones who ultimately must bring to the town's voters at town meeting a clear sense of how IT should be supporting Burlington as part of a fiscally prudent approach to town government.

This IT Assessment uses several acronyms for purposes of easy reference. These acronyms are included in Figure 1.

**Figure 1 – Common Acronyms**

<b>ASBO</b>	Association of School Business Officials International
<b>ASP</b>	Application Service Provider
<b>ASPA</b>	American Society for Public Administration
<b>AVL</b>	Automatic Vehicle Location
<b>BPI</b>	Business Process Improvement
<b>BPR</b>	Business Process Reengineering
<b>CAD</b>	Computer-aided Dispatch
<b>CAMA</b>	Computer-assisted Mass Appraisal
<b>CIC</b>	Commonwealth’s Community Innovation Challenge Grants
<b>CIP</b>	Capital Improvement Program
<b>COTS</b>	Commercial-off-the shelf Software
<b>DLS</b>	Massachusetts DOR, Division of Local Services
<b>DOR</b>	Massachusetts Department of Revenue
<b>EMD</b>	Emergency Medical Dispatch
<b>EMS</b>	Emergency Medical Services
<b>ERP</b>	Enterprise Resource Planning
<b>ESRI</b>	Environmental Sciences Research Institute
<b>FTE</b>	Full-Time-Equivalent Personnel
<b>FY</b>	Fiscal Year
<b>GASB</b>	Governmental Accounting Standards Board
<b>GFOA</b>	Government Finance Officers Association of the U. S. and Canada
<b>GIS</b>	Geographic Information Systems
<b>HR</b>	Human Resources
<b>IAAO</b>	International Association of Assessing Officers
<b>ICMA</b>	International City/County Management Association
<b>IFMS</b>	Integrated Financial Management System
<b>I-Net</b>	Institutional Network
<b>IP</b>	Internet Protocol
<b>IS</b>	Burlington’s Information Services Department
<b>ISAC</b>	Information Systems Advisory Committee
<b>IT</b>	Information Technology
<b>LAN</b>	Local Area Network
<b>MCT</b>	Mobile Computing Terminal
<b>MDF</b>	Main Distribution Frame
<b>MGL</b>	Massachusetts General Laws
<b>NIGP</b>	National Institute of Governmental Purchasing
<b>OA</b>	Office Automation
<b>PC</b>	Personal Computer

**Figure 1 – Common Acronyms (Cont.)**

<b>RFP</b>	Request for Proposals
<b>RMS</b>	Record Management Systems
<b>SaaS</b>	Software as a Service
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>UMAS</b>	Commonwealth Uniform Massachusetts Accounting System
<b>URISA</b>	Urban and Regional Information Systems Association
<b>VoIP</b>	Voice over Internet Protocol
<b>WiFi</b>	Wireless Fidelity

In the end, this IT Assessment tries to provide Burlington with a clear vision of how information technology could be serving the Town better, understanding where the greatest opportunities are for IT to help Burlington fulfill its goals and priorities.

All aspects of this IT Assessment have been reviewed and discussed thoroughly with the ISAC as Burlington's representative in this process.

Implementing the recommendations of this IT Assessment will require the full commitment of personnel at all ranks throughout the Town and School Department. Burlington's Town Administrator, Superintendent of Schools, Board of Selectmen and School Committee, together with the ISAC and Ways and Means Committee, will need to provide both (a) funding on a fiscally prudent basis and (b) visible political leadership in this effort.

## Section Two Overview

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### A. Characteristics of Information Technology in Local Government.

Local governments exhibit four significant characteristics in their use of information technology.

#### 1. Specialization.

The information-technology industry recognizes local government as a highly specialized, multi-billion-dollar *vertical market*. This acknowledges that there is a set of applications, such as Computer-assisted Mass Appraisal (CAMA) or Property Tax Billing and Collection, which are particular to local governments.

#### 2. Complexity.

The specialized applications of local governments are extremely complex. It is not unusual for any one of these applications - such as CAMA - to take many person-years for initial development and dozens of person-years for ongoing enhancement with new versions and releases.

#### 3. Integration.

Local-government offices are interdependent. Thus, they require *integration of information* to carry out their duties efficiently and effectively. This concept of *functional integration* is based on the notion of *transaction-oriented processing*: any data should need to be input only once at its source in order to update all associated records and files.

For example, a receipt which has been entered by the Town Clerk's Office should not need to be rekeyed by the Treasurer or Town Accountant. All subsequent processes should be completed by the computer, under appropriate security and with necessary procedural controls.

#### 4. Scale.

The computer-resource requirements of local governments tend to be more substantial than persons unfamiliar with this vertical market sometimes assume.

Burlington today, for example, has several hundred desktop workstations, laptops, printers, servers and other devices with an estimated replacement value of several hundred thousand dollars as well as hundreds of thousands of dollars in application software. Likewise, Burlington's fiber-optic network connects more than 20 buildings.

**B. What Do Local Governments Do With Information Technology?**

Local governments use information technology to support three major functions: policy-making, management and operations.

*Policy-making* includes the work of town meeting, the Board of Selectmen, School Committee and agencies of the Town, such as the Board of Health, which set direction or have statutory authority for decision-making pursuant to state or local law.

*Management* addresses the deployment of resources--human, fiscal, capital and informational--in support of the policies set by Burlington's policy-making agencies.

*Operations* includes the "hands-on" delivery of services, ranging from agencies which are highly visible such as Police, Fire, Schools and the Department of Public Works (DPW) to those like the Town Accountant's Office or School Business Office whose work tends not to be seen by the public except for contacts such as responding to telephone calls or emails from customers.

Policy-making, management and operations form the context for identifying the needs which drive decisions regarding the role of IT in Burlington. They constitute the "who, what, when, where, why and how" of choices regarding the role which information technology should play in the Town.

**C. Guiding Principles.**

Every organization faces the challenge of setting forth principles to guide its use of information technology.

This IT Assessment applies the principles which follow in its factfinding and formulation of recommendations. The consulting team presented these principles to the Town's staff at the Project Workshop and has emphasized them throughout the course of this engagement.

1. *Effective use of information technology is an absolute prerequisite to effective government in Burlington.* Effective use of information technology is necessary for the Town to know:

- How well it is doing in its delivery of each of its public services.
- Where and how it needs to improve.
- What it needs to change and why.

2. *Burlington should be managed as an integrated enterprise.* Decisions about IT need to occur in every case with a full view of all possible uses and consequences for the Town as a whole. At all times, the Town must take the broadest view possible of the potential, enterprise-wide use of each information technology. The recommendations which this IT Assessment makes later regarding the decentralization of Payroll input and invoice processing are outstanding examples where Burlington should put this principle into practice.

3. *Information should be available immediately to all users, wherever they may be in the Town government across organizational boundaries, when and how each end-user themselves may determine.* As it has for local governments and school districts nationally over the last 20 to 30 years, IT in the year 2012 emphasizes the need for each user to be able to make their own decisions about how they can best use IT-related resources in their work for the Town.
4. *Planning for and use of systems should be integrated among departments, based on transaction-driven processing.* This is both an organizational and technical issue, requiring (a) an active user-based organization and (b) applications which provide the highest possible degree of functionality and integration.
5. *Information systems should be under the corporate ownership of the Town rather than agency-level ownership.* Functional integration, as well as enterprise-wide planning for and deployment of information technology, require that the Town as a whole, through its user-based organization, guide information technology in Burlington.
6. *All systems must provide service-oriented responsiveness.* This varies according to the nature of the service. It may be sufficient for the Town Administrator to respond to a citizen's inquiry within 24 hours but Police and Fire need to be able to dispatch a call in less than a minute.
7. *Computing and communications resources should be managed through standards that are collaboratively developed.* Burlington can only reap the full extent of potential benefit from its investment in IT if it has taken this approach.

**D. The State and Federal Context.**

As a creature of the State, much of what Burlington does is a result of decisions of policy or administration made by the Commonwealth.

Similarly, as a participant in the American intergovernmental system, significant parts of Burlington's government are also subject to decisions by the United States Government.

This IT Assessment takes an *integrated* approach to the State and Federal context of IT in Burlington. Rather than having a separate chapter on this subject, the IT Assessment addresses connections with the State or Federal governments as they arise in each functional area of the Town.

As one example, the Commonwealth of Massachusetts has a pervasive role in the billing and collection of taxes and other receipts. Thus, this IT Assessment discusses in several places how the policies of the Commonwealth affect in various ways what Burlington does with respect to taxes and other receipts and how it does it.

## Section Three IT Organization

### Section Three: IT Organization Summary of Key Findings and Recommendations

1. Burlington needs to put in place a consolidated Town-School Information Services (IS) Department, reporting directly to the Superintendent of Schools and Town Administrator, in order to provide the depth, breadth and quality of IT-related services which Burlington requires as a \$107-million organization.
2. Burlington must establish the position of Chief Information Officer (CIO) on an emergency basis. The absence of this position has been the single biggest cause of the disarray in IT from which Burlington has suffered for many years.
3. Burlington needs to organize the IS Department in a way which reflects the Town's strategic direction with respect to IT.
4. Burlington should establish a user-based Information Services (IS) Committee, with subcommittees focused on specific functions such as financial management and land records, in order to provide an on-going forum for addressing issues in IT.
5. The position of Application Implementation Manager must be established as soon as possible in order to provide support for business process improvement throughout Burlington, using commercial-off-the-shelf (COTS) applications involving such critical functions as Town and School financial management.
6. Compensation for the positions of CIO and Application Implementation Manager must be established at competitive levels.
7. Burlington can only implement what it can staff; Burlington can't implement what it can't staff.
8. Burlington should reclassify and adjust the compensation of certain IT personnel, clarifying their respective roles and responsibilities in the new IS Department.
9. The IS Department's staff, especially the CIO and Application Implementation Manager working with the Budget Analyst in the Town Accountant's Office, should be active as internal consultants with the Town's departments, continuously striving to find more effective and efficient ways to do the Town's work with the enhanced support of IT.
10. Burlington must procure and implement a Help Desk/Asset Management application on an urgent basis as a necessary prerequisite to both (1) providing a continuously high level of service to the Town's users and (2) assuring that Burlington's millions of dollars in IT-related assets are maintained as effectively and efficiently as possible.

11. Burlington should provide on-going training of personnel at each site who can act as departmental “wizards”.
12. The use of contracted services may be appropriate in certain organizational functions related to IT such as the implementation and support of Geographic Information Systems (GIS). These decisions should be left for evaluation with the new CIO.
13. No new IT personnel should be hired until the new CIO is on board and can participate fully in the recruitment and selection of these positions.
14. Burlington’s Human Resources and Information Services Departments should cooperate in a complete reexamination of all IT positions including their position specification, classification and compensation. This should await the arrival of the CIO.
15. Establishing and maintaining standards for IT assets such as software and hardware should help greatly in enhancing the timeliness and quality of IT services and minimizing the time required of the IS Department’s staff.
16. Training must be provided on an on-going basis for all IT professionals. The generally accepted metric in IT is that this training should be budgeted at 2 per cent of IT operating budget annually.
17. Burlington must fund membership for its IT staff in leading professional organizations directly related to their responsibilities.
18. Strategic choices which Burlington makes regarding information technologies may have important ramifications for IT-related staffing.

#### A. OVERVIEW.

IT Organization refers to the kinds of IT personnel Burlington has working with the Town and Schools and how Burlington staffs and supervises this function.

This IT Assessment addresses the subject of IT organization near the beginning for a very basic reason: *until Burlington has established appropriate organization and staffing of its IT function, it will not be able to implement the numerous recommendations which this IT Assessment makes and, thus, enhance the quality of support which IT provides for Town and School services throughout Burlington.*

#### B. CURRENT STATUS.

Burlington today has a staff of 5.0 IT personnel in the Town and 4.50 in the Schools as presented in Table 1. Of the 5.0 Town IT personnel, only two are in fact available for general service.

- The Information Systems Manager has been detailed to the Department of Public Works (DPW) for the last two years to work exclusively on DPW-related projects, mainly the Supervisory Control and Data Acquisition (SCADA) system for the water and wastewater utilities, and does not have an office in the Town Hall with the other two Town IT staff.

- The Library position at 19 hours per week has been intended to be dedicated exclusively to servicing only the Library.
- The Police Department has one full-time, dedicated Police Technology Officer and 0.5 full-time-equivalent (FTE) other personnel. No other Town department has a similar, formal designation of full-time IT personnel.

At the same time, it is common for a Town department to have one person who acts as the informal “go to” in that department for matters related to IT. One good example is the Health Agent in the Board of Health.

The School Department also has the position of Director of Technology Integration. However, this has not been included here since it is dedicated completely to IT in school-related instructional/curriculum systems, specifically excluded in the scope of work of this IT Assessment.

Burlington today has no full-time supervision of its IT personnel either in the Town or Schools. The Assistant Town Administrator is the *de facto* supervisor of the Town's IT personnel but has very limited time to address this function among the many other duties he has. The School Director of Finance and Operations functions similarly and the Superintendent of Schools himself takes an active interest in IT, mainly on the instructional side which is not included in the scope of this IT Assessment.

IT does not appear as a recognized function or organizational entity anywhere on the Town’s Web site.

**Table 1: Current Town and School IT Staffing**

	<b>Position</b>	<b>FTE <sup>1</sup></b>
	<b>Town</b>	
1	Information Systems Manager	1.0
2	IT Support Administrator	1.0
3	Network/Repair Technician	1.0
4	Library Technical Support	0.5
5	Police	1.5
6	<b>Total-Town:</b>	<b>5.0</b>
	<b>Schools</b>	
7	Director of Technology Integration	1.0
8	System Administrator	1.0
9	Network Administrator	1.0
10	Network/Repair Technician	1.0
11	Clerk Typist	0.5
12	<b>Total-Schools:</b>	<b>4.5</b>
13	<b>Grand Total:</b>	<b>9.5</b>

<sup>1</sup>-Full-time Equivalent

### C. FINDINGS AND RECOMMENDATIONS.

This IT Assessment looks at IT organization with a direct view which applies to almost everything that Burlington does related to IT: ***Burlington can only implement what it can staff and Burlington can't implement what it can't staff.***

***1. Burlington should immediately establish a joint Town-School Information Services (IS) Department, reporting directly to the Superintendent of Schools and Town Administrator.***

IT is an enterprise-wide function which has enormous influence on the efficiency and effectiveness of almost all Town and School services.

Burlington can achieve high performance in its IT function and, thus, higher performance in other functions throughout the Town and Schools only by having the Town-School Information Services (IS) Department provide a single locus of accountability and responsibility for decision-making regarding the planning for and deployment of all IT-related resources, including personnel, funds, information and physical assets.

Local governments and school districts in Massachusetts and throughout the United States have had enterprise-wide, Town-School IT departments for more than 25 years. This model is long-established and well proven. The Town-School IS Department which this IT Assessment recommends provides unified, consistent direction in the deployment of IT which cannot exist otherwise. This recognizes that:

- Burlington's taxpayers fund this function for both the Town and Schools.
- The Town and Schools today share significant IT resources ranging from the MUNIS Enterprise Resource Planning (ERP) system which manages all Town and School finances to Burlington's fiber-optic network which connects all Town and School buildings.
- Burlington can achieve important synergies best by having the collective knowledge and expertise of all of its IT personnel coordinated as fully and well as possible. Ultimately this leads to enhanced quality and economy of service for all of Burlington's customers, both internal and external.

The need for this new organization has been evidenced by frequent comments from end-users throughout this IT Assessment. As summarized by one high-ranking Town official, "It's a broken system."

Implementing the new IS Department also involves having the Chief Information Officer (CIO) recommended in the next paragraph participate as a top-level manager in all related activities such as meetings of senior management of municipal departments with the Town Administrator and top School staff with the Superintendent. The IS Department can only maximize its effectiveness in serving Burlington if it is as knowledgeable as possible about the full range of issues in policy, management and operations which the Town and School Department face.

This IT Assessment recommends the name of Information *Services* Department in order to express unmistakably what the role of this Department is: to serve the broad range of customers it has both (1) internally among the appointed and elected officials as well as all of the staff of the Town and School Department and (2) externally among the public at large not only in Burlington and neighboring communities but also globally.

The leadership of the Town and School Department should consult with Town Counsel regarding what actions may need to be taken by town meeting, the Board of Selectmen, School Committee or otherwise to effect the Town-School Information Services Department.

- 2. Burlington needs to act on an urgent basis to establish the position of Chief information Officer (CIO). The absence of this position has been the single biggest cause of the disarray which exists today in IT in Burlington.***

No one in Burlington has the authority or responsibility to plan for and manage the deployment of IT on an enterprise-wide basis. In the interviews with user-departments for this IT Assessment, there was a clear recognition by Burlington's staff that the absence of the CIO's position has been the principal cause of the long-standing, deep-rooted and very serious issues related to IT with which Burlington has been contending for many years.

***No \$107 million private business with 850 employees which had to compete to survive would leave itself without a highly qualified individual in this position.***

As the CIO Sample Position Specification in Appendix A of this IT Assessment presents in its first section under Position Purpose, the CIO will fill several roles, ***all of which are now unfilled in Burlington and causing enormous problems throughout the enterprise:***

- Provides leadership and vision to both Town and School operations in the area of Information Technology.
- Leads and develops strategic information-technologies planning for the Town/Schools; provides direction to officials and departments in integrating and aligning technology with plan objectives.
- Plans, organizes, directs and evaluates the IT Department and its operations to ensure effective support for organizational objectives and efficient and effective implementation of initiatives.
- Guides departmental application services.
- Defines and coordinates the standards, directions, and policies for Information Technology.

The attached CIO Sample Position Specification is offered only as an example. Burlington will need to do a thorough review of this position, its classification and compensation before beginning the process of recruitment and selection.

The title of CIO has been used commonly in business and government for at least 10 years. It connotes the fact that this person functions at the Chief or “C” level as a member of the Town’s enterprise-wide leadership team. This title will also be important in recruiting top-flight candidates for this position.

Professionals with the broad range of knowledge, skill and ability required for this position are very rare. Thus, Burlington should expend the funds and effort necessary to recruit for this position on a national basis. As one example, this would include advertising this opportunity through leading professional organizations such as Government Management Information Sciences International (GMIS), the International City/County Management Association (ICMA), the Association of School Business Officials International (ASBO), the Urban and Regional Information Sciences Association (URISA) and the American Society for Public Administration (ASPA).

The cost of the search for this position, including professional assistance and advertising, is estimated at \$7,500.

**3. *The position of Application Implementation Manager must be established as soon as possible following the hiring of the CIO.***

Burlington requires an individual on its IT staff who has proven knowledge, skill and ability in the implementation and support of commercial-off-the-shelf (COTS) applications.

The Town today has no one on staff in its IT organization who has anything more than minimal knowledge of the functional capabilities of:

- The MUNIS Enterprise Resource Planning (ERP) system, which manages all of the financial management of the Town and School Department.
- The GeoTMS package now used only by the Building Department but which may have the potential for much broader, unifying deployment among multiple land-related agencies in Burlington.
- GIS, used minimally now but with significant potential for being applied in other areas of Town or School policy-making, management or operations such as Police and Fire.

Absent the capabilities which the Application Implementation Manager brings, Burlington has no way of knowing on an enterprise-wide basis:

- What application resources and related data and information it has.
- How these resources might be leveraged throughout the Town.
- Whether the respective vendors of these application systems are providing service and support consistent with highest and best industry-standard practice.

As this section discusses later, the Application Implementation Manager also fills an important role as an internal consultant to agencies throughout the Town and School Department. Traditionally, the IT industry has referred to this role as Business Analyst, one of the main responsibilities of which is to continuously try to find better ways for IT to support operating units of an organization in meeting their goals and objectives. Working closely with the new Budget Analyst in the Town Accountant's Office should provide an even higher level of effectiveness in the continuous effort to enhance Burlington's delivery of services.

As with the CIO's position, individuals with the set of knowledge, skill and ability which the Application Implementation Manager should have are very rare and can demand significant compensation. One of the main competitors for these talents is the community of COTS vendors themselves who can offer significant compensation. Thus, Burlington will need to fund the same kind of national recruitment for the Application Implementation Manager's position as this IT Assessment has recommended previously for the CIO's position.

This IT Assessment includes \$1,000 for advertising and other expenses in recruitment and selection.

***4. Compensation for the positions of CIO and Application Implementation Manager must be established at competitive levels.***

Individuals with the respective sets of knowledge, skill and ability required for these positions are very difficult to find.

Both of these positions are critical to Burlington's being able to move its deployment of IT forward to the point where it provides a high level of support for policy-making, management and operations.

As one example, in 2011 (FY2012) the Town of Andover established and filled the very same kind of joint Town-School CIO's position as this IT Assessment recommends. That position in Andover is paid \$113,464. The other best Town-School comparable in the immediate area is the Town of Arlington, where this position is paid \$110,191.

The CIO would be classified in Grade 18 of the Town's Administrative and Professional Compensation Plan which also includes the DPW Superintendent, Police Chief and Fire Chief.

The compensation of the Application Implementation Manager's position needs to look first at comparability with existing positions in the Town and School Department. The two closest of these positions are the Information Systems Manager in the Town and the Director of Technology Integration in the Schools. Table 2 presents the current salaries of these positions.

**Table 2: Current Burlington IT Senior Staff Salaries**

	<b>Position</b>	<b>Salary</b>
1	Information Systems Manager	\$90,963
2	Director of Technology Integration	\$93,801

Where the Application Implementation Manager must have knowledge, skill and ability at least equal to these existing positions in order to meet enterprise-wide responsibilities, this person's salary likewise should be at least equal. This would place the Application Implementation Manager around the upper end of Grade 16 of the Town's Administrative and Professional Compensation Plan which includes the Town Engineer among others.

- 5. The Network Administrator's position should be reclassified to the same level as the Application Implementation Manager and Information Systems Manager.*

This position involves highly sophisticated knowledge, skill and ability in managing and maintaining Burlington's enterprise-wide network and related infrastructure.

Current compensation for this position falls about \$8,000 below that of the Application Implementation Manager as recommended and what the Information Systems Manager currently receives as just seen in Table 2. The School Network Administrator in the Town of Andover, for example, has an annual salary of \$92,747.

Burlington should make this change as soon as possible.

- 6. The System Administrator's position should be reclassified to reflect its actual knowledge, skill and ability.*

Neither the current title nor the current compensation of this position reflects the knowledge, skill and abilities (KSA's) it involves and the work it encompasses.

A title like Technical Services Administrator would be closer to what this position actually encompasses. The largest part of its work is technical at a relatively high level. As well, in the alignment of the IS Department, this person would directly supervise three other technical positions--the IT Support Specialist (see the next paragraph) and the two Network/Repair Technicians.

More appropriate compensation would be about \$70,000 per year, an increase of roughly \$13,000.

7. *The IT Support Administrator's position should be reclassified to reflect its actual knowledge, skill and ability.*

The IT Support Administrator does little administration.

Instead, this position focuses on routine technical support which might typically be classified as an IT Support Specialist. This title reflects much more accurately what this position involves.

8. *The Information Systems Manager should return to the set of duties which this title was intended to encompass.*

The Information Systems Manager's current job description states as the definition of this position: "Administrative, technical and manual work in the planning, development, installation and maintenance of a broad range of Town information systems, including data processing, networks, telecommunication and broadcasting." Among other things, this includes carrying out system operations such as backups, hot and cold starts, diagnostics and trouble-shooting, loading of software patches and updates, installation of hardware, and coordination of hardware and software maintenance with vendors.

For the last two years, the Information Systems Manager has been detailed to the DPW, working on a variety of projects, most particularly the implementation and support of the DPW's SCADA system which is critical to the management and operation of its water and wastewater utilities. DPW states that this work for that Department is largely complete.

This IT Assessment later recommends significant changes in the landscape of server-based systems including among other things:

- Implementing and supporting the new Microsoft Exchange Server system with 100 users.
- Tripling from 32 to 99 the number of users of the MUNIS ERP system, which manages all of the financial management of the Town and School Department, and greatly heightening its level of use by its current users.
- Expanding the use of current systems like RecTrac in Recreation.
- Addressing the possible virtualization of the Town's systems.
- Adding new servers and systems potentially for applications like GIS and Land Records.

These duties, in addition to ongoing support of the SCADA system, reinforce a significant role for the Information Systems Manager.

9. *The IS Department's staff, especially the CIO and Application Implementation Manager, should be acting actively as internal consultants to the Town's departments.*

These personnel and everyone in the IS Department should be working with the Town's departments continuously as internal consultants to find better ways to do the Town's work with the enhanced support of IT.

However, before this can occur, the IS staff member responsible for each function of the Town government first must learn both (1) the details of each agency's operations and management and (2) the full portfolio of specialized applications which the respective agency may be using. This knowledge of the agency's specific applications is an absolute prerequisite to the IS staff member's understanding how IT may be able to be applied to meeting the agency's functional requirements.

A corollary to this new direction requires that the Town provide funds for the training and orientation of the IS staff to support this new strategic direction and its emphasis on business analysis.

As part of this effort, Burlington needs to reshape its IS organization with a much more direct focus on *business analysis*, using the new and improved technologies which this IT Assessment recommends. This new concentration on business analysis begins with the establishment of the Application Implementation Manager's position, moving the Town into the era of *strategic computing*, also tying directly to the organization, role and mission of the user-based functional teams discussed later in this section.

As one example, the CIO and Application Implementation Manager together should be meeting with each department each calendar quarter. The purpose of these meetings is to develop a consensus on a workplan for the coming period of time. Both parties would sign the workplan in the same way as an employee and a supervisor would co-sign an employee's periodic evaluation. This, then, provides a specific reference for determining how well IS has done in working with each department to meet their joint objectives.

In addition, the Budget Analyst in the Town Accountant's Office as well as the Assistant Town Administrator should be working hand-in-glove with the CIO and Application Implementation Manager in order to be sure that all efforts in Burlington to achieve greater economy and efficiency are coordinated as well as possible on a continuous basis.

This IT Assessment includes \$7,500 to support the training of the IS staff in business analysis and consultative skills.

***10. Burlington needs to organize the IS Department in a way which reflects the Town's strategic direction with respect to IT.***

This IT Assessment takes a comprehensive view of the present state and future direction of IT in Burlington. This has several aspects including among others:

- How Burlington's deployment of IT supports the Town's broader goals and objectives.
- How Burlington may be able to leverage the IT assets it has in place as it looks to enhancing the role of IT in supporting the Town's policy-making, management and operations.

- How decisions about server-based or cloud-based applications may affect the IS Department’s staffing and organization.

The IT staff in Burlington has been involved almost exclusively in technical support, not engaging in any significant way in business analysis or knowledgeable support of COTS applications. While good technical support will always be needed, this must be joined with functionally based knowledge, skill and ability, revolving mainly around COTS applications, to have Burlington move to higher plateaus in its deployment of IT.

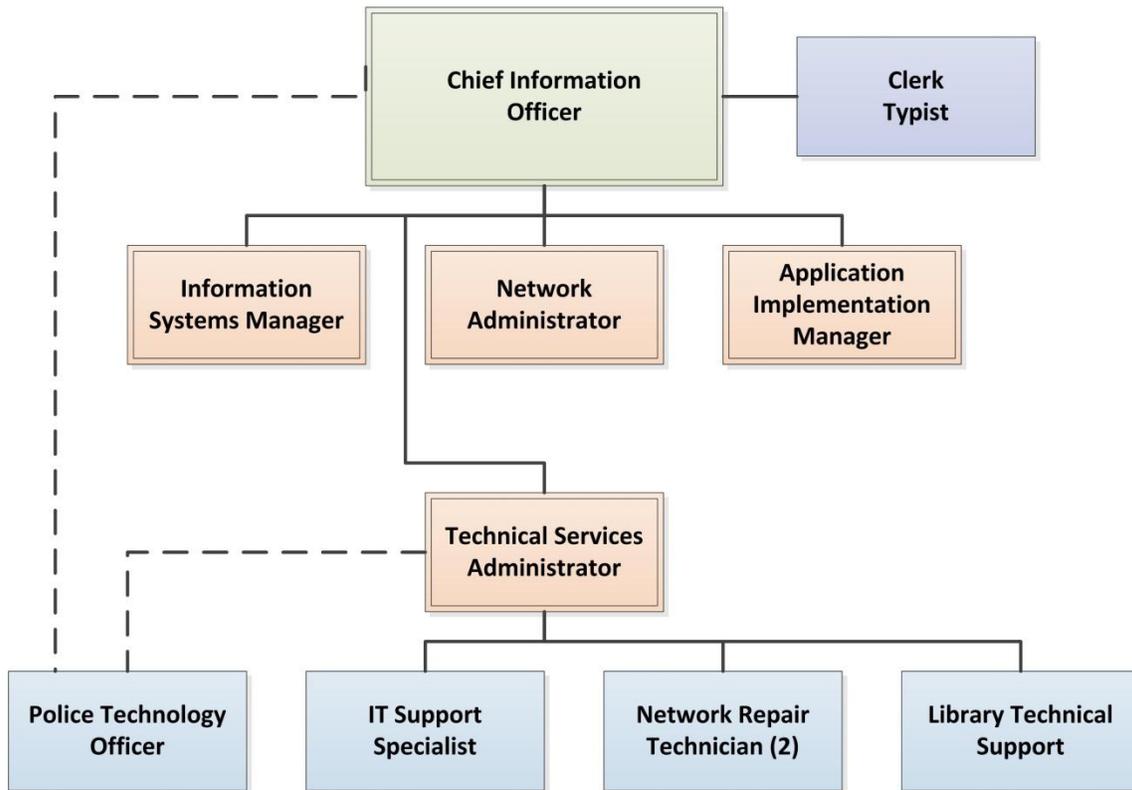
Table 3 presents the current and proposed staffing for IS. *This involves a net change of 2.0 authorized positions in IS from 8.50 to 10.50.* The recommended complement of staff should be much more capable of supporting the Town’s recommended strategic direction, scope and scale of operations. Changes in staffing may be summarized as follows:

- Establishing the position of Chief Information Officer (CIO).
- Establishing the position of Application Implementation Manager.
- Reclassifying the position of System Administrator to Technical Services Administrator.
- Clarifying the role of the Information Systems Manager.
- Reclassifying the position of IT Support Administrator to IT Support Specialist.

**Table 3: Current and Future Town and School IT Staffing**

	Old Position	Old FTE	New Position	New FTE
1	Not Applicable	---	Chief Information Officer (CIO)	1.0
2	Not Applicable	---	Application Implementation Mgr.	1.0
3	Information Systems Manager	1.0	Information Systems Manager	1.0
4	IT Support Administrator	1.0	IT Support Specialist	1.0
5	Network/Repair Technician	1.0	Network/Repair Technician	1.0
6	Library Technical Support	0.5	Library Technical Support	0.5
7	Police Technology Officer	1.0	Police Technology Officer	1.0
8	Police: Other	0.5	Police: Other	0.5
9	System Administrator	1.0	Technology Services Administrator	1.0
10	Network Administrator	1.0	Network Administrator	1.0
11	Network/Repair Technician	1.0	Network/Repair Technician	1.0
12	Clerk Typist	0.5	Clerk Typist	0.5
13	<b>Grand Total:</b>	<b>8.5</b>	<b>Grand Total:</b>	<b>10.5</b>

**Figure 2- Information Services Department Organizational Chart**



***11. Burlington’s Human Resources and Information Services Departments should cooperate in a complete reexamination of all IT positions including position specifications, classification and compensation.***

No comprehensive, formal, systematic review of classification and compensation for these positions has ever occurred. Instead, they have been addressed on a case-by-case basis.

Burlington needs to begin this process by being sure that the position specification (job description) for each position describes fully and accurately the knowledge, skill and ability (KSA’s) associated with each position, respectively, as this IT Assessment recommends. The position specification then becomes the primary basis for determining its title, classification and compensation.

IT personnel, unlike some other positions in the Town government, have knowledge and skill which is readily transferable to both for-profit and non-profit employers. This, then, gives them greater opportunities for mobility than many other municipal staff may have.

***The Town’s ability to recruit and retain a stable, highly qualified staff in IS is critical to its ability to meet the goals and objectives which this IT Assessment presents.*** By the same token,

not providing the full complement of the best available personnel in IS on a timely basis seriously undercuts the Town's efforts.

The scope of this IT Assessment has not included the analysis or evaluation of the compensation of the Town's IS personnel except in four specific cases. However, the difficulty which local governments and schools like Burlington have in recruiting and retaining qualified IS personnel is well known. This IT Assessment would be remiss were it not to emphasize the critical importance of this issue to the Town's successful implementation of this document's recommendations.

This review should await the arrival of the CIO in order for that person to participate fully as the Department head in this process.

This IT Assessment recommends funding an independent analysis of the classification and compensation of all IT positions at an estimated cost of \$10,000.

**12. *Burlington should fund membership of the CIO and Application Implementation Manager in professional organizations involved in key functions of local government, including partaking of training opportunities offered by these organizations.***

The Town's funding of membership and training of its staff in the IS Department now must change to reflect the strategy for staffing which this IT Assessment recommends.

The *functional* reorientation of these positions calls for a different kind of professional participation by and support for these personnel, consistent with their new role in the Town. This is necessary in order for them to be as effective as possible in meeting their responsibilities to the Town.

The CIO and Application Implementation Manager should participate actively as members in the International City/County Management Association (ICMA), the Association of School Business Officers International (ASBO) and the Government Finance Officers Association (GFOA). These are the three professional associations which would provide the broadest exposure to developments in school and municipal administration and, thus, the greatest value to Burlington. This includes taking advantage of the training opportunities which these organizations offer from time to time.

Membership for both of these persons in these three organizations would cost a total of \$1,910 per year.

**13. *Burlington should provide on-going training of personnel at each site who can act as departmental “wizards”.***

Many minor issues which arise day-to-day in the use of IT in municipal and school offices do not necessarily require the services of a highly trained IS staff person.

Instead, many of these needs for service can be met by personnel in the office itself. These personnel have been described in other local governments as “wizards”. They act as “first responders” in addressing end-users’ needs for IT-related support. This could range from “break and fix” problems with personal computers (PC’s) or printers to knowledge about the use of various application software or networking systems. This approach has two major benefits for the Town:

- a. It maximizes the productivity of end-users throughout the Town by providing them with the most timely, direct service possible. This reduces end-users’ downtime at the same time as it enhances their productivity and motivation by increasing their level of skill and sense of support from the Town in their work.
- b. It maximizes the productivity of the Town’s IS staff by significantly reducing help-desk calls and the related need for response by the IS staff. One city, for example, has estimated that its comparable “wizard” system has reduced help-desk calls by approximately 25 per cent.

In order for this approach to be productive, the departmental wizards need to have appropriate, on-going training which provides them with the knowledge and skill they need to fulfill this role.

Where Burlington’s wizards provide various services to end-users, it is important that they enter these services into the Town’s Help Desk/Asset Management system. This helps to assure that Burlington maintains the most complete information possible regarding its IT-related services, assets and costs.

**14. *Burlington needs to establish a user-driven committee structure for key functions throughout the Town.***

No standing, user-based organization of any kind exists today. As a result, there is no established forum for ongoing interaction in a group setting among users of IT in various offices.

This structure needs to be established and operate at two levels:

a. **The IS Committee.**

The Information Services (IS) Committee serves as the coordinating body for Burlington’s user-community, helping to address a broad range of issues related to information technology.

The membership of the Committee should include personnel from a wide range of the Town's departments and School offices who have a special interest in and commitment to the role of IT in their respective organizations. These personnel do not necessarily need to include department heads but could be managers, supervisors or support staff.

This group should meet monthly in order to provide a frequency which enables the Town to address IT on a timely and complete basis. In order for the Committee to be as effective and efficient as possible in its work for the Town, it should follow these practices and procedures:

- 1) The Assistant Town Administrator should serve as facilitator of the Committee.
- 2) The Committee should elect a chairperson who is not employed in the IS Department. This helps to emphasize the user-orientation of the Committee.
- 3) Each meeting should have a formal agenda, prepared and distributed by the Chairperson at least several days in advance to all members of the Committee, using the Town's Intranet or Web site.
- 4) The Committee's minutes should be posted for access by all members on the Town-wide system or Web site.
- 5) One member should be designated as the IS Committee's liaison to each functional Team (see the discussion on teams later in this section).
- 6) The liaisons to the teams should prepare a concise, written report on each team's activities in advance of each meeting of the IS Committee.
- 7) Each monthly meeting of the IS Committee should have a major theme. This could range from a presentation on the status of a major project (especially one with enterprise-wide ramifications) to a discussion of an emerging technology which the Town may wish to consider.
- 8) The CIO should be responsible for coordinating all activities related to the Committee and teams (see the following subsection) in conjunction with the Committee's chairperson.

**b. IS Teams.**

Burlington should organize teams as subcommittees of the IS Committee to address specific functions. The teams now become the driving force in the Town's progress in IT. Each team has specific tasks it needs to accomplish in order for its members to have better tools for meeting their own needs. The members of each team have a very specific self-interest.

The membership of the teams should include those people in each office who are most knowledgeable in each functional area. This might mean in the case of Public Works, for example, that one person would participate in the Financial Management Team and another in Land Records/GIS.

Standing teams should address the functions which follow and others which Burlington may determine from time to time may be helpful:

- Financial Management.
- Payroll/Human Resources.
- Land Records/GIS.
- Work/Service Management.
- Office Automation.
- Web Services/e-government.
- Networking and Communications.
- Customer Service/Help Desk.

The IS Committee and teams have several major responsibilities as Burlington moves ahead in these efforts.

- They provide a standing forum for discussion of issues related to the Town's use of information technology on an ongoing basis. The IS Committee and each team should meet at least monthly in order to provide for regular discussion of and action on these issues.
- They put in place the organization for implementing the recommendations of this IT Assessment.
- They are responsible for carrying out the annual, Town-wide review of system plans and, as part of that process, reviewing all budgetary requests related to information technology.

The new structure of teams will require a substantial investment of time by various personnel throughout Burlington. However, virtually all staff should benefit significantly from the clearer direction, closer coordination, expedited progress, and enhanced quality of the work environment and public services which ought to come from their effort through the teams.

**15. *Burlington should engage an experienced consultant to facilitate the launch of the IS Committee and teams.***

The Town has not had any significant experience with this kind of process-based effort.

Enlisting the services of an experienced consultant for the first three to six months should help substantially in maximizing the success of the teams and their beneficial impact on the Town.

The cost of these services would be \$18,000.

**16. *Burlington must procure and implement a Help Desk/Asset Management application on an urgent basis.***

This section on IT Organization includes the Help Desk/Asset Management application since having this application in place is a necessary prerequisite to: (1) enabling the IS Department's staff to achieve the highest possible level of service to their customers throughout Burlington; and (2) assuring that Burlington's millions of dollars in IT-related assets are maintained as effectively and efficiently as possible.

The Help Desk/Asset Management application is intended to provide an orderly means for the IS Department to receive, evaluate, rank and respond to calls from the Town's users for assistance with any aspect of their use of information technology. It is built around two sets of related information:

- The full inventory of all IT assets--whether hardware, software or infrastructure--and the device (e.g., PC, laptop or mobile) with which the software is associated. This includes the history of the device with such information as the vendor, date of purchase and cost of purchase.
- The complete record of servicing each asset including such things as the nature of the call for service, the IS staff person who was assigned to the service ticket, how long it took to complete the service and the cost of each service.

One of the keys here is that the Help Desk/Asset Management application enables the CIO to (1) keep track of the services the IS Department is delivering in response to requests from its customers and (2) evaluate these services in such important dimensions as timeliness and quality.

Having the ability to document the volume, nature and quality of services which the IS Department delivers to its customers is one of the fundamental ways in which the Help Desk/Asset Management application can be important in Burlington's consideration of funding and staffing of the IS Department. In the current absence of a Help Desk/Asset Management application, Burlington has no good idea of knowing with any reasonable level of precision what services of this kind it is delivering. The exception here is the School Department's use of Liberum Help Desk, a free, open-source product.

Help Desk/Asset Management applications are available from several established vendors both as server-based for hosting in Burlington or as cloud-based, accessible over the Internet and available to any authorized user. This IT Assessment recommends that Burlington proceed with the cloud-based application since it makes this application most easily available to users in Burlington's more than two dozen sites as well as mobile users.

Burlington's help-desk function should be organized as follows:

- The CIO should be responsible for oversight of the Help Desk function.
- The Town's users should enter service tickets on line, eliminating the need for anyone to staff a help desk and for end-users to search for IS staff by phone, pager or otherwise.
- The IS Committee and the CIO, with the IS staff, should establish formal policies regarding such things as priorities and response times among different types of calls.
- The IS staff should be responsible for completing their responses to all tickets.
- The departmental wizards should be responsible for completing their responses to all calls.
- The CIO should keep the Town Administrator and Superintendent of Schools informed of any exceptional situations regarding the deployment of IT anywhere in the Town or Schools which the Help Desk/Asset Management application may reveal.
- The CIO should provide a monthly, written report to the IS Committee regarding the IS Department's services as documented through the Help Desk/Asset Management application.

The main task which will be required at the beginning of the implementation of the Help Desk/Asset Management application is entering all information currently known about each IT-related asset which Burlington has. This IT Assessment has collected a substantial volume of data regarding these assets in Microsoft Excel; this should provide a good starting point.

Training will also be critical to the effective use of the Help Desk/Asset Management application. This must occur at two levels: (1) for the IS staff and (2) for Burlington's end-users. The departmental wizards whom this IT Assessment has discussed previously in this section should receive more advanced training than the typical end-user in order to facilitate their use of the Help Desk/Asset Management application.

Security is a fundamental concern with the deployment of the Help Desk/Asset Management application as it is with any other application in Burlington.

Once the Help Desk/Asset Management application is in production, the IS Department should provide each department head in Burlington with a copy of the monthly log of its own tickets; alternatively, the Help Desk/Asset Management application must be able to provide security by department to allow self-service by departmental personnel for this purpose. This will give each department head the information they need to review the kind and volume of calls which their department may be making and the IS Department's response. As the person responsible in the first instance for their department's use of IT, the department head should take direct charge of this review. Where issues may arise in their review, the department head should bring these to the attention of the CIO, functional teams or IS Committee as appropriate.

Once every year, the Town should administer an anonymous survey to evaluate users' satisfaction with the IS Department's services. This kind of survey must be constructed carefully and executed anonymously. Burlington may wish, for example, to consider having a local college class execute and analyze this survey in order to provide complete independence.

Following the completion of the survey and its analysis, the IS Committee should review its findings and make appropriate recommendations to the CIO, Town Administrator and Superintendent of Schools.

This IT Assessment recommends that Burlington procure a cloud-based Help Desk/Asset Management system at an estimated annual cost of \$20,000.

No decision on a Help Desk/Asset Management application should be made until the CIO is on board and able to participate fully.

***17. Establishing and maintaining standards should help greatly in enhancing the timeliness and quality of IT services and minimizing the time required of the IS Department's staff.***

Burlington today has no standards for hardware or software which have been formally adopted or maintained.

As a result, one finds multiple products from different vendors being used for the same function. For example, some departments have both Microsoft Office 2003 and 2007 and are unable, because of this situation, to exchange documents readily even among their own walls.

This also requires the staff in IS to remain knowledgeable about different versions, dissipating the efficiency of this valuable human resource.

Several factors have contributed to this situation.

- Burlington has had no CIO who could provide technical or business leadership on this issue.
- There has been no institutional process within the Town government to adopt or enforce standards.
- Burlington has not had a centralized IT budget or procurement policy.
- There has been an outstanding difference of opinion between the IT staff and user-departments about standards and the procurement of IT assets.

Burlington needs to take a few, key actions to address this situation.

- The IS Committee and the CIO should establish and annually revise the full range of IT standards. It is important to do this annually because of the dynamic nature of IT

generally and in the school-municipal marketplace in particular. This should be done as part of the budgetary process each fiscal year.

- Burlington should take whatever action, by town meeting or otherwise as Town Counsel may advise, to make the CIO the procuring authority for all IT-related goods and services for all agencies in Burlington.

**18. *The use of contracted services may be appropriate in certain organizational functions related to IT.***

One example is the implementation and support of Geographic Information Systems (GIS).

Some municipalities in Massachusetts and elsewhere have provided GIS services very effectively for many years by contract. The City of Revere, Massachusetts is one good example.

On the other hand, municipalities like the nearby Town of Reading have been successful in employing staff with this highly specialized knowledge, skill and ability on a part- or full-time basis.

In either case, Burlington will need to be very careful in identifying exactly what its goals and objectives are for GIS. This, then, will determine the exact kinds of professional services required and the cost of those services, whether provided by staff or contract. The GIS Master Plan, which this IT Assessment recommends later in Section Four, should help to provide more specific guidance.

GIS is used here only as an example but one which may have specific applicability to Burlington.

These decisions should be left for careful evaluation with the new CIO.

**19. *No new IT personnel should be hired until the new CIO is on board and can be a full participant in the recruitment and selection of these positions.***

While this IT Assessment recommends only one additional position (the Application Implementation Manager) beyond the CIO, it is fundamentally important to have this guideline in place.

**20. *Training must be provided on an on-going basis for all IT professionals.***

The generally accepted metric in IT is that training should be budgeted at 2 per cent of IT operating budget annually.

Where it is not known reliably today what Burlington spends for IT services, one can only make a reasonable guess at what the norm-based level of expenditure for training of the IS staff ought to

be. If, for example, total operating expenditures related to IT were found to be \$400,000 per year, this would suggest an annual investment in IS staff training of \$8,000 per year.

This metric is only a guide and Burlington may find that its spending on IS staff training may need to increase if, for example, it were to undertake: (1) the deployment of more applications on a greater, enterprise-level scale as this IT assessment suggests in Section Four for the MUNIS ERP system, Land Records and Work/Service Management; or (2) the broader utilization of an existing application system such as the IMC Public Safety applications.

**21. *Strategic choices which Burlington makes regarding information technologies may have important ramifications for IT-related staffing.***

Two contrasting examples illustrate this point.

First, if Burlington were to move MUNIS and other applications to a hosted environment--often known as Application Service Provider (ASP), Software as a Service (SaaS) or "cloud" services--this would reduce the amount of work for Burlington's IS staff in the technical support of these systems.

On the other hand, if Burlington were to make a major move to advance its deployment of GIS or mobile technologies supported by the IS staff, this would call for personnel with skill sets not currently found among the IS staff.

The key issue here is that Burlington needs to consider carefully the impact on staffing of whatever choices it may make related to IT. And this should be part of a longer-term, lifecycle evaluation of these options.

## Section Four

# Application Systems and Business Process

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<b>Section Four: Application Systems and Business Process Summary of Key Findings and Recommendations</b>
1. Serious limitations in the deployment of its current applications as well as the absence of other applications are having a huge, negative impact on efficiency and effectiveness of services throughout Burlington's Town government and School Department.
2. Burlington needs to go through a wholesale reengineering of business processes in almost all of its offices, once the required application systems have been procured and the Application Implementation Manager has been hired.
3. Burlington must make a set of clearly defined investments in high-quality application systems as a necessary prerequisite to achieving higher levels of efficiency and effectiveness in multiple Town and School offices.
4. Price is often a direct function of quality. Burlington should be evaluating its investments in application systems very carefully, recognizing that it will likely be living with these choices for at least 10 years. Among other things, this includes investing in training for end-users at an appropriate level both one-time and on an on-going basis.
5. The MUNIS Enterprise Resource Planning (ERP) system, which manages all Town and School finances, has only been deployed to approximately 10 to 20 per cent of its capabilities. This situation causes huge inefficiencies throughout the Town and School Department which will not change until full decentralization of business processes occurs with the support of the functional teams and Application Implementation Manager.
6. "Do it once" needs to be the motto of transaction processing and business process reengineering (BPR) in Burlington. MUNIS and other application systems are built on this secure, workflow-based model, which has been commonly implemented in the school and municipal arena for 25 years or longer.
7. Standards for all application systems in the Town and Schools need to be established by the Information Services Committee and enforced through the CIO's control of all IT-related procurements.
8. Burlington needs to invest immediately in upgrading its deployment of Microsoft Office to 2010 or as its various commercial-off-the-shelf (COTS) application-package vendors may support.
9. Burlington should evaluate its options for implementing an enterprise-wide Land Records application system.
10. Burlington should evaluate, on a case-by-case basis, its options for deploying applications using the Application Service Provider (ASP), Software as a Service (SaaS) or "cloud" models of having applications hosted outside of Burlington.

11. Burlington ought to be following highest and best practice in performance-based contracting for all application systems, including among other things “fly before you buy” standards which tie payment to the actual performance of the system in production.
12. Burlington needs to invest in an integrated suite of Work/Service Management applications including Work Orders, Inventory and Fleet Management to support its tens of millions of dollars of facilities, equipment and rolling stock. One or more of its current vendors may be seen as a first option.
13. The Town and Schools should continue to look for opportunities for sharing application systems as they have done for many years with MUNIS. Most immediately, this might include the SchoolDude portfolio of facilities and other related products.
14. Appropriate department- and division-level security needs to be a key part of Burlington’s evaluation of current or prospective vendors especially as this relates to Town-School sharing of application systems and decentralization of processes.
15. Burlington should expand its current deployment of the TriTech/IMC Police system by (1) adding additional modules of basic importance to the Police Department and (2) adding IMC’s Fire applications in order to achieve full unification of its Public Safety dispatching and records-management environment.
16. Burlington needs to coordinate efforts to be sure that its new Town Web site from Revize is meeting the needs of all offices.
17. While social media applications could have value, much higher priorities mean that Burlington will not have the organizational capacity to address these for approximately two years.

#### A. OVERVIEW.

Application Systems and Business Process refers to:

- The set of application software which is currently deployed or may be deployed in the future in the Town or School Department related to the scope of this IT Assessment. This recognizes that the quality of application software and its deployment can be either a help or a hindrance to Burlington’s achieving its institutional goals and objectives.
- How this application software could be used to enhance the efficiency and effectiveness of Burlington’s services. This is referred to generally in private- and public-sector organizations as business process improvement (BPI). It also frequently incorporates the word, reengineering, which addresses how business processes can be enhanced with the support of IT.

This section addresses a large number of issues subsumed under the original description of gap and opportunity analysis in the consulting RFP for this IT Assessment, particularly as these relate to BPI.

## B. CURRENT STATUS.

The current status of application systems and business process in Burlington may be summarized as follows and as discussed further later in this section.

- Burlington has applications from 38 different vendors as Table 4 shows.
- Business process has rarely been considered explicitly in the deployment of application systems.
- No standards have been established for application systems as common as Microsoft Office.
- Burlington has never had a clearly articulated strategy for the procurement or implementation of applications: decisions have tended to be made *ad hoc* or on a departmental level without any specific consideration of how an application might fit into meeting a broader, enterprise-wide set of needs.
- In the absence of a CIO, no one has ever had comprehensive authority and responsibility for planning, procuring and implementing application systems.
- Burlington has never had any staff specifically dedicated to the implementation and support of application software. As a result, most application systems now in place are deployed at a small fraction of their capabilities.
- Burlington has no staff capacity to focus on business process, as a result of which current business processes, especially in financial management and payroll, take almost no advantage of application systems now in place.
- Some departmental systems have been implemented successfully. Examples of these (not a complete list) include Patriot Properties in the Assessor's Office, Digital Health Department in the Board of Health, RecTrac in Recreation, GeoTMS (one seat) in Building and SchoolDude in the School Department.

Where a department is not listed in the following Table 4, it means that they have currently do not have any specialized application software for their function. Also, pursuant to State law and regulation, this list omits certain systems and services whose public disclosure could affect public safety.

**Table 4: Summary of Current Systems and Services**

Department/Function	Vendor/System	Application/Items
Accountant	Tyler Technologies/MUNIS	ERP Financial Management
	Asset Aide	Fixed Asset/GASB 34 Compliance
	Intuit	QuickBooks
Assessors	Patriot Properties AssessPro	Computer-Assisted Mass Appraisal (CAMA)
Board of Health	Garrison	Digital Health Department--Inspections
	Unknown	VacTrac Vaccine Records
	ESRI	ArcGIS
	Telexis	GroupReady Scheduling
	Microsoft	Visio
Building	Des Lauriers	GeoTMS Permits, Code Enforcement
Conservation	ESRI	ArcGIS
	Adobe	Creative Suite
Council on Aging	Myseniorcenter.com	Services for seniors
DPW/Engineering	Autodesk	AutoCAD
	Carlson	IntelliCAD
	ESRI	ArcGIS/ArcMap
	Homegrown	Plan Imaging
	Homegrown	Pavement Management
DPW/Water and Sewer	Neptune	Meter Reading
	Ambitec	CheckMate Backflow Prevention
DPW/Water Treatment	Intellution	SCADA
	SyTech	XL Explorer
Financial Management	Tyler Technologies/MUNIS	ERP Financial Management
	Intuit	QuickBooks
Fire	Vernon Software	Dispatching (CAD) and Records (RMS)
	OCI/AmbuPro EMS	Electronic Patient Care Reporting
Fuel Management	Danaher/Gilbarco Corporation	Gasboy
GIS	ESRI	Arc—Various
Human Resources	MUNIS	Payroll/Human Resources

**Table 4: Summary of Current Systems and Services (Cont.)**

Department/Function	Vendor/System	Application/Items
Human Resources	CATS Software	CATS Applicant Tracking
Library	Evergreen/Merrimack Valley	Library Management
	LibraryInsight	Library Management
	Informer Technologies	Clean Slate PC Management
Parks & Recreation	Vermont Software	RecTrac Recreation Management
Planning	ESRI	ArcView GIS
	Adobe	Dreamweaver
	Adobe	Creative Suite 3
	Roxio	Creator
Police	TriTech/IMC	Dispatching, Records, Mobile
	ESI Training	Range PRO Range Training
	Identix	Identix Fingerprinting
	Hunter	SmartShot Booking Images
Public Works	CheckMate	Backflow Prevention
	Intellution	SCADA
Schools	Tyler Technologies/MUNIS	Financial Management, Payroll
	SchoolDude	Facilities Maintenance, Help Desk
	Planware Systems	OnPass School Redistricting
Town Clerk	Microsoft Access	Records Management
	Commonwealth of Massachusetts	Voting, Vitals
Treasurer/Collector	MUNIS	Tax and Utility Billing and Collections
	Intuit	QuickBooks
	Century Bank	Lockbox
	Metropolitan Communications (MCC)	Online Payments
Veterans Services	Commonwealth of Massachusetts	Virtual Gateway
Visitors Bureau	Web Services	Various
Various	Microsoft	Office 2003
	OpenText	FaxPress Desktop FAXing
	Nuance	OmniForm
	Revize	Web Services

### C. FINDINGS AND RECOMMENDATIONS.

Each subsection in the balance of this Section Four C addresses a particular function such as Financial Management, Payroll/Human Resources or Land Records. Incorporated in each of these functions as appropriate is a specific discussion about business process improvement.

This approach recognizes that multiple Town and School offices are involved in almost all of these functions. As a result, this IT Assessment looks for common areas of need where specific actions by Burlington can (1) effect significant improvement in policy-making, management and operations or (2) eliminate or minimize risk.

The items which follow here provide an overview of the environment for application systems and business process in Burlington.

***1. After establishing the organizational prerequisites, Burlington must invest significant effort and financial resources in order for its application systems to have substantial impact on economy and efficiency in the Town and Schools.***

With a few significant exceptions, the deployment of application systems in Burlington has had a relatively minimal impact on enhancing business process.

The main reason for this is that Burlington has never had anyone in the Town or Schools with the full set of knowledge, skill and ability which the Application Implementation Manager recommended in the previous section of this IT Assessment on IT Organization would have.

In brief, Burlington has never had anyone whose job it was to make sure that its COTS applications worked well in a robust deployment.

After decades without appropriate support, Burlington now has about 20 years of catching up to do. This will involve:

- Licensing new modules from incumbent vendors like MUNIS, IMC, SchoolDude and Vermont Software (RecTrac) in order to provide a full set of capabilities in core functions like Financial Management and Public Safety.
- Licensing new application systems where Burlington has never had any-IT-based support for functions like Fleet Management.
- Training end-users in (1) the new modules recommended to be added to existing application systems and (2) the totally new products.
- Engaging professional consulting services from vendors like MUNIS as well as the Town's independent auditor in order to be sure that Burlington is proceeding appropriately on all fronts in its deployment of applications, especially as this relates to business process improvement, reengineering and legal compliance.

One cannot understate the level of effort which this will require on the part of the Town and Schools as well as the vendors.

**2. *Burlington needs to evaluate the appropriateness of cloud computing on a case-by-case basis.***

Cloud computing has advantages and disadvantages, based on the particular function being considered. Among other things, this can depend on technical factors, risk or cost-effectiveness. For example:

- While some Public Safety vendors offer cloud-based Computer-aided Dispatching/Record Management Systems (CAD/RMS), the nature of Public Safety suggests that it is imprudent for an agency in this domain to be left to rely on outside communications to continue its work especially in the case of conditions like a natural or man-made disaster.
- While MUNIS has offered hosted services for many years, the economics for Burlington are simply not tenable.
- Questions remain about the ability of some cloud-based vendors to integrate with third-party products in such areas as GIS.

Burlington should be careful about making decisions here which are driven by ideology, not fact, i.e., believing that cloud is always best or server-based solutions are always best.

**3. *Burlington should budget for new applications generally on the basis that they will be server-based.***

Budgeting for new applications in this way keeps Burlington's options open.

This recommendation makes no judgment about strategy. Instead, it is the only way that Burlington can assure itself that it has programmed sufficient funds to pursue different options without foreclosing any which may be appropriate.

### **C-1. FINANCIAL MANAGEMENT.**

**1. *Burlington must deploy the MUNIS ERP system fully as the linchpin of financial management in the Town and School Department in order to achieve much higher levels of efficiency and effectiveness throughout the enterprise.***

Burlington's deployment of the MUNIS Enterprise Resource Planning (ERP) system, which manages all Town and School finances, is about 25 years behind the times after having had this product for 14 years (since June, 1998). The Town currently has licensed from MUNIS the applications which are included in Table 5.

**Table 5: Current MUNIS Financial Applications**

	<b>Application</b>	<b>Annual Support</b>
1	Accounting, G/L, Budget, A/P	\$18,378.15
2	Purchase Orders	\$ 5,513.55
3	General Billing	\$ 2,297.40
4	Accounts Receivable	\$ 5,053.65
5	Payroll	\$ 3,790.50
6	Human Resources	\$ 2,641.80
7	Tax Billing	\$ 7,019.25
8	Tax Title	\$ 2,106.30
9	Motor Vehicle Excise Tax	\$ 2,106.30
10	Utility Billing	\$ 3,330.60
11	Utility Billing Interface	\$ 1,011.15
12	MUNIS Office	\$ 3,790.50
13	<b>TOTAL</b>	<b>\$57,039.15</b>

Burlington has deployed MUNIS to approximately 10 to 20 per cent of its capabilities. This continues to cause huge inefficiencies throughout the Town and School Department on a daily basis.

Burlington has not used MUNIS in any meaningful way to enhance efficiency or productivity, leaving an extraordinary amount of duplication and paper-pushing taking place unnecessarily throughout the Town and School Department. Examples follow.

- No decentralization of business process occurs anywhere in the Town or School Department. Work is done manually or by using Excel, Access or OmniForm at the department level; everything is then rekeyed another two or three times by the School Business Office or Treasurer/Collector's and Town Accountant's Offices.
- Almost every office keeps its own list of appropriations and expenditures on an invoice-by-invoice basis on Microsoft Excel or manually since it does not believe it can rely on the timeliness of processing by Town Hall.
- The Town makes almost no use of a purchase order-based encumbrance accounting system, beginning with departmental requisitions, which has been a cornerstone of municipal finance for more than 100 years.
- No school or school program has any access to MUNIS.

- The School Department makes no use of MUNIS’s extensive, secure workflow capabilities in procurement, instead relying on an archaic system of handwritten, five-part colored copies of purchase orders.
- Chronic issues of reconciliation persist between the Treasurer/Collector and Town Accountant which one simply should not see where a town has an integrated package like MUNIS; this situation has been the subject of comments from the Town’s independent auditor.
- Processing of Cash Receipts is done four times over since departments do not have secure, decentralized access to the MUNIS Cash Receipts subsystem and the Treasurer/Collector’s Office undertakes reprocessing multiple times with Excel, QuickBooks and MUNIS between the Collector’s side and the Treasurer’s side which is simply unnecessary. The same kind of model exists in the Schools.

The full deployment of MUNIS has the potential to eliminate all of these issues.

While Burlington has already licensed most of the core financial-related modules from MUNIS, it needs to add a limited number of applications for full deployment of the financial system. These include Requisitions, Treasury Management, Project and Grant Accounting, Tyler Cashiering, Tyler Reporting Services and Tyler Forms Processing. Table 6 gives the costs associated with these applications.

**Table 6: Additional MUNIS Financial Applications**

	<b>Application</b>	<b>One Time License</b>	<b>Start-up Training Install, etc.</b>	<b>Total One-Time</b>	<b>Annual Support</b>
1	Requisitions	\$ 15,300	\$ 5,200	\$ 20,500	\$ 3,060
2	Treasury Management	\$ 15,300	\$ 6,575	\$ 21,875	\$ 3,060
3	Project and Grant Accounting	\$ 16,380	\$ 7,850	\$ 24,230	\$ 3,276
4	Tyler Cashiering	\$ 28,800	\$ 6,375	\$ 35,175	\$ 5,760
5	Tyler Reporting Services	\$ 18,000	\$ 4,325	\$ 22,325	\$ 5,000
6	Tyler Forms Processing	\$ 8,100	\$14,400	\$ 22,500	\$ 2,500
7	<b>TOTAL</b>	<b>\$101,880</b>	<b>\$44,725</b>	<b>\$146,605</b>	<b>\$22,656</b>

**2. Burlington should procure a site license for current and recommended MUNIS applications.**

Burlington currently has licensed the MUNIS applications for a maximum of 32 concurrent users. MUNIS prices its financial applications based on a local government’s budget, its revenue applications based on number of parcels and its Payroll applications based on number of employees.

Two observations are important here.

- At the peak times of the day (typically around 10:00 A.M. and 2:00 P.M. in a municipal or school-administrative environment), about 29 personnel in Burlington are using MUNIS. This leaves three currently licensed seats available. Table 7 presents the detail for this estimate under the column headed “Max. Concurrent Now.”
- The strategic change to maximizing decentralization of business processes which this IT Assessment recommends strongly will more than triple the count of maximum concurrent users from 29 to 99. Table 7 shows current MUNIS users by Town and School office and the projected number at full decentralization of business process.

**Table 7: Additional MUNIS Financial Applications**

	<b>Department/Division</b>	<b>Total Users Now</b>	<b>Max. Concurrent Now</b>	<b>Total Users Future</b>	<b>Max. Concurrent Future</b>
1	Accounting	4	4	5	5
2	Assessor	4	2	4	2
3	Board of Health	0	0	5	2
4	Building	0	0	3	2
5	Burlington Community Life Center	0	0	2	2
6	Clerk	0	0	5	3
7	Conservation Commission	0	0	3	2
8	Council on Aging	0	0	3	2
9	DPW Administration	5	2	4	4
10	DPW Town Engineer	1	1	2	2
11	DPW Highway	1	1	2	2
12	DPW Water and Sewer	1	1	2	2
13	DPW Water Treatment Plant	0	0	2	2
14	DPW Central Maintenance	0	0	2	2
15	DPW Cemetery	0	0	2	2
16	Fire	0	0	1	1

**Table 7: Additional MUNIS Financial Applications (Cont.)**

	<b>Department/Division</b>	<b>Total Users Now</b>	<b>Max. Concurrent Now</b>	<b>Total Users Future</b>	<b>Max. Concurrent Future</b>
17	Human Resources	2	2	5	4
18	Library	2	2	3	3
19	Planning	0	0	4	2
20	Police	6	3	5	4
21	Recreation	2	1	8	5
22	Selectmen/Town Admin.	1	1	11	4
23	Treasurer/Collector	10	4	11	10
24	Veterans Services	0	0	2	1
25	Superintendent Schools	0	0	3	2
26	School Business and Facilities	6	5	8	6
27	High School	0	0	15	7
28	Other School Offices: 5	0	0	15	12
29	School IT	0	0	N/A	N/A
30	Town IT	0	0	N/A	N/A
31	IS Dept. Staff	N/A	N/A	2	2
32	<b>TOTALS:</b>	<b>45</b>	<b>29</b>	<b>139</b>	<b>99</b>

This IT Assessment recommends that Burlington procure a site license for MUNIS. This makes sense on two counts.

- Having the site license in place eliminates any concerns perpetually into the future that Burlington might confront limits with expanding its use of the MUNIS system.
- Financially, the site license is beneficial to the Town for two, related reasons.

First, the cost of the site license is very reasonable. MUNIS has provided a one-time cost of \$11,500 for Burlington to move all of its currently licensed applications as identified previously in Table 5 to a site license. There would also be an increase in annual support cost for this full set of applications of \$4,600.

The one-time cost of \$11,500 for the site license would be the equivalent of purchasing 38 additional seat licenses at \$300 each with the related increase in annual support of \$60 each. As new applications were added under the site-license model, Burlington would need to pay only the one-time license fee and usual annual-support cost for each of these additional applications in order to be covered by the site license.

Second, given the information just presented in Table 7, this IT Assessment projects a need for a total of 99 maximum concurrent seats. This is 67 more than the 32 currently licensed and 70 more than the 29 now estimated to be used at peak period in Burlington.

What this means is that acquiring the site license would be the most cost-effective solution for Burlington's use of MUNIS, once the total number of maximum concurrent users reaches 67 (the total of the current 29 maximum concurrent plus the new 38 from the \$11,500 site-licensing fee) or greater.

Here, with an estimated total of 99 maximum concurrent users at full deployment, the financial advantage to Burlington of acquiring the site license from MUNIS is obvious.

MUNIS has also indicated that the cost of the site license may be negotiable for Burlington as a long-time customer.

**3. *Burlington will need to upgrade the MUNIS server to accommodate the increased number of concurrent users.***

Burlington just purchased a new Dell P710 server to run the MUNIS applications in December, 2011.

In communication with MUNIS regarding the suitability of this server, their main comment was that, if they had known of the possibility of 100 concurrent users they would have specified two processors instead of one.

Table 8 shows the cost of upgrading the MUNIS server to accommodate this increased user-count.

**Table 8: MUNIS Server Upgrade**

	Description	One-Time Cost	Annual Support
1	Microsoft Server Operating System	\$ 7,850	\$0
2	SQL Server RDBMS	\$ 4,165	\$0
3	Tyler CALS	\$11,500	\$4,600
4	Server Processor Upgrade	\$ 600	\$0
5	Server Memory Upgrade	\$ 1,300	\$0
6	<b>TOTAL</b>	<b>\$25,415</b>	<b>\$4,600</b>

This assumes that all MUNIS users would already have Windows CALs (Client Access Licenses).

**4. *The Information Services Committee (the IS Committee) and its subcommittees should work with the CIO and Application Implementation Manager to develop a written plan for the phased implementation of secure decentralization with MUNIS throughout all business processes.***

While this secure decentralization has enormous potential benefit for enhancing efficiency and effectiveness throughout the Town and School Department, it must take place deliberately and with great care. Specifically, Burlington needs to:

- Have the CIO, Application Implementation Manager and IS Committee reach consensus on which processes to decentralize and in what order.

Here, Burlington may wish to begin with processes such as Accounts Receivable or Cash Receipts which ought to be easier than others to implement. Requisitioning, Purchasing and Accounts Payable might come next with Payroll last.

- Make sure that ample training of both IS staff and end-users is provided by MUNIS before the move to decentralization of each process begins.
- Begin the decentralization of each process with one department or school as a prototype. This prototype should run about two months or until all parties are fully satisfied that the decentralization of the process is operating flawlessly.
- Add one new department or school at a time every one to two months thereafter, again making sure that operations for each new office are flawless before adding the next.
- Have the IS staff and the cognizant subcommittee report monthly in writing to the full IS Committee regarding how each step in decentralization is proceeding

- Have the Town Administration and School Administration report as appropriate to the Board of Selectmen and School Committee.

5. *The Town should implement encumbrance accounting throughout all offices, using MUNIS's fully integrated and secure Requisition-based Purchase Order system.*

Encumbrance accounting has been an established national standard in local government in the United States for more than 100 years. The Burlington School Department has used purchase-order-based encumbrance accounting for many years.

The Town encumbers funds only for a small number of contracts and accounts, mainly in the Department of Public Works (DPW). In 2012, this is a head-shaking situation.

Requisition-based encumbrance accounting offers several, key advantages to Burlington. For example:

- The School Business Manager, Town Treasurer and Town Accountant now can focus on doing the work of pre-audit and reconciliation appropriate to their skills, not running keypunching shops.
- It should completely eliminate the possibility of overexpending accounts by not allowing any Town or School office to enter a requisition, PO or invoice which exceeds available funds.
- The Requisition system, in addition to checking on availability of funds, also checks to make sure that the vendor and account code are valid. This eliminates work for the Town Accountant later in the process.
- It reduces by 25 to 50 per cent the time that support staff and other personnel spend at the department or school level in preparing PO's or invoices manually and keeping duplicate ledgers of their transactions.
- Having the departments maintain these other records collectively costs Burlington hundreds of hours a year in loss of productive time.
- It helps to assure that all reports of financial information for the Town and Schools are as up-to-date as possible, reflecting all liabilities. This occurs since MUNIS uses a pre-encumbrance procedure (sometimes known as "shadow posting") to reflect the funds called for by Requisitions and PO's, subject to their subsequent approval.
- Implementing the Tyler Forms Processing application from MUNIS, which this IT Assessment recommends, eliminates the need for pre-printed forms since Tyler Forms Processing can generate these forms on a non-impact (e.g., laser) printer.

There is no good reason why Burlington should not have been using the MUNIS Requisition and Purchase Order (PO) system. Its absence has had several adverse consequences. For example:

- The Town carries the inherent risk of overexpending accounts, especially at the end of the fiscal year, because it does not know on a timely basis what financial obligations it has.

- Almost every Town office keeps an Excel spreadsheet or manual ledger of its appropriations and expenditures because this is the only way that it can have timely information about the status of its accounts, especially near the end of the fiscal year.
- Having departments maintain these other records costs Burlington collectively hundreds of hours a year in loss of productive time.

Establishing a lower limit for requiring PO's is a matter of policy for the Town. While the School Department requires a PO for every purchase beginning at the zero-dollar level with no exceptions, the more common limit in a municipality of Burlington's size would be around \$100 to \$500.

Burlington will need to license the Requisitions module from MUNIS. This has a total one-time cost of \$20,500 with \$3,060 in annual support, all of which is included above in Table 6, Additional MUNIS Financial Applications, at subsection C-1.1.

**6. *The School Department should undertake a complete reengineering of its Requisition/Purchasing/Accounts Payable process.***

While the School Department requires purchase orders for all purchases of any amount, the process itself makes little effective use of the MUNIS system.

- None of the six school offices or program directors has any access to MUNIS.
- The procurement process for the Schools begins with the School Business Office distributing five-part, pre-printed purchase-order forms to each school. Over the course of the year, this likely involves hundreds or more of these forms. This is an unnecessary expense and environmentally unsound.
- The staff in each school handwrites the required information on the PO form.
- The principal in each school or program director signs each form.
- The School Department's Director of Operations and Facilities handwrites his signature on each form.
- The support staff in the School Business Office separates the five copies of each PO and manually distributes them to the appropriate party for each copy.
- The support staff in the School Business Office keys into MUNIS all of the same information which the school-level personnel just wrote on the PO form.
- All invoices from vendors for all schools or programs are sent to the School Business Office.
- The receipt of the goods or services on the invoice is verified by the originator of the PO at the school or program level using the pink copy of the PO, which they then return to the School Business Office upon their verification of receipt.
- The School Business Office stamps each invoice with a red stamp and handwrites the invoice number while also creating a separate voucher for each invoice.
- The School Business Office enters all invoices in batches.
- The School Business Office makes three photocopies of every invoice and distributes them to the Town Hall, School Business Office, and Town Hall for mailing to the vendor with the check.

Using MUNIS fully and well could simplify this process dramatically, using the workflow capabilities within MUNIS to make it several times more efficient without any loss of security or integrity.

- Each school office and program would enter their requisitions directly into MUNIS. This would be much faster and easier than doing the work now required. It would also provide front-end edits on the availability of funds, qualification of vendor and existence of the account.
- The school principal or program director would approve the requisition electronically with no physical signature required.
- The five-part, pre-printed PO would disappear, replaced by a laser-generated form, using Tyler Forms Processing, combined with the ability of any interested and authorized party to make secure inquiry of the PO at any time.
- The School Department's Director of Operations and Facilities would approve PO's electronically.
- The support staff in the School Business Office would not have to do any data entry. Instead, they would pre-audit and, if necessary, correct any errors from the requisitions.
- The schools and program directors should be able to accept electronic invoices from vendors sent by email.
- Copies of vendors' invoices could be scanned and attached with the record of the purchase in the MUNIS system, making the three photocopies of every invoice unnecessary since any approver farther up the chain could always see the scan of the invoice.
- Where the School Department, like the Town, has monthly payments to the same vendor for such expenses as leases, rentals, utility or telecommunications bills, these should be set up as recurring invoices in the MUNIS system, requiring only a change in the specific amount for that month's invoice if this should apply.

As with other recommendations made in this subsection on Financial Management, these changes should begin with a prototype involving one school or program and then, upon complete success, moved one at a time to other schools and programs.

This IT Assessment appreciates how large a change this approach represents. However, the efficiencies and savings in forms, paper, environmental impact and staff work are enormous.

**7. *Burlington needs to undertake a complete reengineering of its Accounts Payable process.***

The current weekly Accounts Payable process makes no effective use of the MUNIS system and is full of unnecessary steps. It operates as follows.

- Invoices from vendors go to the Town department which purchased the goods or services.
- The department enters every invoice on an Excel spreadsheet known as a "recap".
- The department head signs the recap.
- The department sends the recap form to the Town Accountant's Office.
- The Town Accountant's Office reviews the recap.

- The Town Accountant's Office rekeys into MUNIS each of the individual invoices which the department just did on its Excel recap form.
- The department head signs the invoice-entry proof list, based on the Town Accountant's input of the invoices.

The School Department does its own entry of invoices in a similar way between individual schools and the School Business Office.

Almost every Town department now keeps its own ledger to record invoices either in Excel or by a handwritten record since there is reported to be a relatively substantial lag time between submittal of invoices and their payment at Town Hall. Having timely information about the status of accounts becomes especially critical at the end of each fiscal year.

With the implementation of the integrated Requisition/Purchasing/Accounts Payable system with MUNIS, this should boil down to two, core steps.

- The department enters its invoices directly into MUNIS. This takes advantage of the fact that the department's entry of the Requisition/PO at the front of this process will already have included all core information regarding the procurement of the invoiced goods or services.
- The Town Accountant's Office has no data entry to do, only the pre-audit on screen or on paper of the edit list of the batch of invoices submitted by the department.

As noted previously, MUNIS also does what it calls pre-encumbering or what is sometimes known as "shadow posting." This shows the unencumbered balance of an account as soon as the requisition, PO or invoice is entered by the department even though the given transaction may not have been posted finally by the Town Accountant. This helps each department to know exactly where its accounts stand at any time without having to resort to the Excel or handwritten records. Pre-encumbering in MUNIS addresses a persistent complaint among the Town's departments about the current lag time in seeing their transactions reflected timely in MUNIS, effectively requiring them to keep their separate records.

The MUNIS system offers important controls here such as not allowing an invoice to be paid which is more than an established dollar or percentage variance from the original PO, except with supervisory authorization. As well, the Accounts Payable function makes full use of the workflow capabilities in MUNIS from the time that the invoice is entered by the department; this helps to assure that the necessary personnel are checking and approving the work at every step before it goes to the next step.

**8. *Burlington must undertake a complete reengineering of its Cash Receipts process in the Town and Schools.***

Cash Receipts in the Town and Schools today makes no effective use of the MUNIS system.

Burlington already has licensed the MUNIS Accounts Receivable application, which includes Cash Receipts.

Non-tax cash receipts and receivables, also excluding water and sewer, generate about \$2.5-million per year for Burlington.

The current process may be characterized as follows.

- Each office handwrites or keys into Excel or OmniForm its own daily cash receipts.
- The same office then prepares a turnover sheet for the Treasurer's Office using a standard form in OmniForm.
- Between the Treasurer's Office and the Collector's Office, the same information is rekeyed typically three times.
- The Town Accountant's office then takes this same information and reviews it yet again.
- The School Department handles each cash receipt three times on its side before sending this information to the Town Hall on an Excel spreadsheet.

The current process is needlessly inefficient to an extraordinary degree and is causing audit comments and conflict among the offices most centrally involved.

Burlington should now use the MUNIS system exclusively for all aspects of this process, eliminating all use of OmniForm, Excel, Access or other third-party products. Key elements of this business process reengineering would include the following elements:

- The IS Department, in consultation with the department and the IS Committee and subcommittee, would set up affirmative security for each employee in each office who is involved in cash receipts. This security would limit each employee only to those specific types of cash receipts which their office handled and no others.
- Each Town or School office would enter all of its own cash receipts directly into the MUNIS Accounts Receivable application with no further entry needed by the School Business Office, Treasurer/Collector or Town Accountant except in the case of error by the source-level office.
- The department would do its regular, periodic turnover of cash receipts to the Treasurer's Office, which would be able to print out its own copy of the department's receipts for that same period.
- Neither the Treasurer's nor Collector's side of the Treasurer/Collector's Office would need to do any key entry except in the case of an error by the source-level department. As mentioned previously with respect to Requisitions, Purchasing and Accounts Payable, these central

Town financial offices would now be able to concentrate on the pre-auditing of these transactions, not having to reenter anything.

- Any office could get information on the status of any of its cash receipts at any time without having to make any query of the Treasurer or Town Accountant.

Implementing this process will require that Burlington invest in the services of its independent auditor and MUNIS in order to be sure that the new, enterprise-wide system, when implemented, provides a state-of-the-art solution for Burlington and meets highest and best practice in this function.

This IT Assessment recommends that Burlington fund this process in the amount of \$15,000.

**9. *Countertop cash-drawer workstations, hand-held scanners and receipting/validating printers should be provided for the Treasurer/Collector's Office and other offices which have a substantial volume of receipts in dollars or number of transactions.***

The use of these cash stations, scanners and printers provides important benefits for Burlington.

- Each tax or utility payment can be received by scanning the line on the bill with the hand-held scanner, eliminating the need to key in information about the specifics of each payment.
- It enables the transaction to be processed in one step without any subsequent back-office reprocessing by the department itself, the Treasurer/Collector and Town Accountant.
- It provides enhanced security for all parties by having a separate numerical sequence for each type of receipt.
- It generates a printed receipt, using a receipting/validating printer attached to the cash station. This eliminates the need, for example, in the Treasurer/Collector's Office to stamp and handwrite payment information on the stub for each transaction.
- It provides enhanced functionality, for example enabling a taxpayer to pay for multiple parcels or different types of liabilities in one transaction.

This IT Assessment sees the deployment of a total of four cash stations and printers, including two in the Treasurer/Collector's Office, one in the Town Clerk's Office and one in Building. In FY2012, the Building Department had net cash receipts of \$1,116,302.15 and the Town Clerk of \$280,093.28.

MUNIS has stated a cost of \$4,715 for each combination of cash station, hand-held scanner and printer. The total one-time cost of \$19,860 here includes \$18,860 for the four cash stations plus \$1,000 for installation by MUNIS. There is no annual support for the cash stations.

**10. *Burlington should be using the MUNIS General Billing application throughout the Town and Schools.***

General Billing has been licensed but never deployed anywhere in Burlington. It is intended by MUNIS to be used for any goods or services Burlington provides for which the Town issues an invoice. While MUNIS has another product it calls Accounts Receivable, that product in fact is intended to be used for cash receipts which have not been invoiced by the Town.

Thus, where Burlington has already paid for the license for General Billing and is now paying for annual support, the only expense related to its implementation is three days of training at \$1,275 per day for a total of \$3,825.

Burlington has several business processes where the General Billing application could be of significant benefit. Examples follow.

- The Police Department has the largest dollar volume of departmental receivables (excluding taxes and utilities), relating mainly to paid details, which amounted to billings of \$1,792,251.63 in FY2012.
- The Selectmen/Town Administrator's Office also has receivables for such things as alcoholic-beverage and common-victuallers' licenses as well as cell-tower rentals.
- The Treasurer/Collector's Office could be using General Billing for both one-time and recurring receivables such as retirees' direct pays for health insurance. This also helps to make sure that no person who ought to be paying for benefits is omitted accidentally.
- The School Department could be using General Billing for building rentals where it now maintains this information in Excel.

Use of the MUNIS General Billing application also should enhance security for all parties by having a separate numerical sequence for each type of receivable.

General Billing also assists in enforcing segregation of duties. The same office which sends the invoice should not be collecting the money as in the case of paid details in the Police Department.

In the case of the Police Department, the personnel authorized there would enter the information on the paid detail and the requesting party would then make payment to the Treasurer's Office. The security in the system would enable the authorized Police personnel to examine this activity in detail and run delinquent reports at any time.

One of the key features of the MUNIS General Billing application is its ability to set individual charge codes for different rates of pay. Thus, for example, where rates for paid details in the Police Department vary by day of week and type of detail, these can be built into the charge codes and then automatically calculated by the MUNIS system as part of the invoice, once the hours worked for each individual detail are entered.

More complete use of the MUNIS General Billing application would also help to assure the integrity of this process. In the case of Common Victuallers' licenses, for example, there is no invoice prepared for the license or its renewal and no reliable record of its payment or amount. The turnover from the Selectmen/Town Administrator's Office to the Treasurer occurs with scant documentation. Somewhat similarly, the turnover of Cemetery receipts from DPW Administration to the Treasurer is done only as a total without any detail.

The key to Burlington's getting the greatest value possible from its widespread implementation of the MUNIS General Billing application is the full reengineering of the related business processes in each office.

***11. Burlington should merge all records for each vendor.***

Each vendor should have only one master record. This is not limiting to the Town in any way since MUNIS allows 99 remittance addresses for each vendor.

As one example, research in the course of this IT Assessment found that Verizon had 14 different vendor records and Dell had six.

MUNIS has a merge function which should facilitate this process.

***12. Two cash-drawer stations with receipting/validating printers should be placed on the counter of the Treasurer/Collector's Office.***

This practice has been common in Massachusetts and around the United States for 25 years or longer.

The benefit of this is that the entire transaction can be completed very quickly with the customer at the counter, eliminating any subsequent back-office reprocessing as now occurs. Further, because the system identifies each transaction with a sequential number, security is enhanced.

Currently, the payor's tax bill (for example) is taken by the staff at the counter and stamped, the payment is received and placed in a drawer under the counter and then the payment is entered to the account later by the staff in the back office. Every transaction, thus, is handled twice.

The cost of these two MUNIS cash stations with hand-held scanners and printers was included previously under item 8 of this subsection C-1.

***13. Burlington should review the use of the MUNIS Budget Preparation system.***

Burlington has had the Budget Preparation application from MUNIS since it first licensed the MUNIS system 14 years ago. Thus, there would be no cost to implement this application except for an estimated three days of training at \$1,275 per day or a total of \$3,825.

Preparation of the Town and School budgets now takes place by means of a series of Excel spreadsheets.

Burlington should explore the use of the MUNIS Budget Preparation system with other leading MUNIS users whether in Massachusetts or other states.

This system has several advantages.

- All data which the Budget Preparation system shows is completely up-to-date and fully integrated with all other financial subsystems. Thus, when the Board of Selectmen, School Committee, Ways and Means or any department looks at a budget document, they know that the information they are seeing is absolutely current.
- MUNIS can store multiple concurrent scenarios for the development of each year's budget. These might be based, for example, on different percentage increases in the coming year's budget or different estimates of revenues such as State aid.
- This process should provide end-users with much better information, enabling them for example to recommend their own priorities among various requests.
- It automatically moves the budget from stage to stage (e.g., from department's request to Town Administrator's recommendation, to Selectmen's recommendation to Ways and Means recommendation to final vote of town meeting) with all related information visible at all times. This culminates in an automatic roll-forward at the beginning of each fiscal year which eliminates all of the work that the Town Accountant's Office and School Business Office now do in opening each new fiscal year.
- It is no extra work for the Town or School Department since personnel in these agencies are both ultimately entering all line-item budgets into MUNIS anyway to open each new fiscal year. In fact, eliminating the current Excel-based process in the Town and Schools is really a displacement of effort and also ought to save substantial time in the budgeting process for all personnel involved both at the central and departmental or school levels.

Where each department today begins this secure process by using its own budget worksheet on the MUNIS system, this is no additional work for the departments.

***14. The School Department does not need to recreate year-end balances from MUNIS in Excel.***

The support staff in the School Business Office now rekeys all of these year-end balances into Excel.

This information is already in MUNIS and can be exported directly from MUNIS to Excel. Further, the procurement of the Tyler Reporting Services product from MUNIS would give the Schools enhanced capability in reporting, including the modification of MUNIS's standard reports.

There is no need for this process to continue, once the personnel in the School Business Office have been trained in this procedure.

***15. Training will be a key component in Burlington's enhanced use of the MUNIS system.***

No one in Burlington can remember the last time the Town provided any training for end-users in MUNIS in the 14 years since its initial implementation in 1998.

As a result, users have little if any familiarity with such basic elements of MUNIS as the dozens or hundreds of standard reports it offers.

Training will be critical in moving forward to elevate the value of the MUNIS deployment to Burlington.

This IT Assessment recommends that the Town fund training in MUNIS applications already licensed at a total of \$44,625. This is based on the following estimate of 35 days needed by application at a cost of \$1,275 per day.

**Table 9: Recommended Training for Current MUNIS Training**

	<b>Application</b>	<b>Days</b>	<b>Cost @ \$1,275</b>
1	Accounting, G/L, Budget, A/P	10	\$12,750
2	Purchase Orders	2	\$ 2,550
3	General Billing	4	\$ 5,100
4	Accounts Receivable	4	\$ 5,100
5	Payroll	6	\$ 7,650
6	Human Resources	3	\$ 3,825
7	Tax Billing	1	\$ 1,275
8	Tax Title	1	\$ 1,275
9	Motor Vehicle Excise Tax	1	\$ 1,275
10	Utility Billing	1	\$ 1,275
11	Utility Billing Interface	0	\$0
12	MUNIS Office	2	\$ 2,550
13	<b>TOTAL:</b>	<b>35</b>	<b>\$44,625</b>

**16. All use of third-party products such as Excel, Access, OmniForm or QuickBooks for financial management should be eliminated.**

These products are now used extensively both in the Town’s central financial offices as well as Town departments. This has resulted mainly from the combination of:

- A lack of access to MUNIS.
- A lack of training in MUNIS products now available.
- A lack of someone like the Application Implementation Manager to assure the highest possible level of implementation and value from the MUNIS system.

This IT Assessment understands very clearly that the Town and School staff in many cases has had no other way to get their work done, given the conditions just noted.

However, as Burlington now advances substantially in its deployment of MUNIS, there is simply no need for the other products.

***17. Burlington should immediately halt the practice of making photocopies of all vendors' invoices and mailing them back to the vendor with the payment.***

The stub of the vendor check specifies the individual or multiple invoices to which a payment by the Town applies. The practice of making these copies is an anachronism and huge waste of time and expense to the Town.

***18. Burlington ought to give various departments secure, read-only access to the MUNIS Tax Billing and Collection application in order to check for outstanding liabilities to the Town.***

Several office in the Town, including among others the Selectmen/Town Administrator and Building, need to know in advance of processing applications for building permits or licenses whether the applicant has any outstanding liabilities to the Town.

Municipalities in Massachusetts and elsewhere have provided this secure read-only access to offices like building departments and municipal administrators for more than 25 years.

Providing this secure, read-only access is the fastest and easiest way for these offices to carry out their responsibilities pursuant to Town policy.

***19. Burlington should work with MUNIS to review all processes related to Water and Sewer Billing and Collection.***

Interviews during this IT Assessment revealed limited knowledge of the capabilities of this application on the part of the Town's staff. This is no fault of these personnel; rather, they have never been provided with any training within recent memory.

As one example, the staff in DPW compiles a report in Microsoft Access for the purpose of exception reporting of Water and Sewer accounts. This report should be completely unnecessary since it can be done readily with standard reports in MUNIS or with the Tyler Reporting Services application which this IT Assessment recommends. Another example is the use of OmniForm to do final bills for Water and Sewer which is an off-the-shelf capability in MUNIS.

In addition to the DPW's staff, this review should include the Town's Application Implementation Manager as well as key personnel from DPW Administration, the DPW Water and Sewer Division, the Treasurer/Collector's Office and Town Accountant's Office.

This kind of consulting from MUNIS has a cost of \$1,375 per day. This IT Assessment recommends three days of this consulting for a total of \$4,125.

**20. *Burlington should review with MUNIS and the Town's independent auditor more expeditious ways of managing its Retirement processes.***

The processing of Retirement records and benefits takes Burlington an extraordinary amount of time for a town of its size. As one example, a change in a retiree's address now has to be made in three different places.

Burlington should engage the professional services of its independent auditor and MUNIS together to examine this function on a highly targeted basis and find a better way to manage its processes and recordkeeping. Engaging both of these parties would presumably have the advantage of bringing to Burlington personnel who are expert both in the details of (1) the capabilities of the MUNIS system and (2) retirement in Massachusetts. As one example, Burlington should see whether it could use the recurring functions in MUNIS General Billing or Accounts Receivable to expedite these processes.

This IT Assessment recommends engaging these services of MUNIS and the independent auditor for a total cost of \$10,000.

**21. *Burlington should consider using return envelopes of different colors and separate PO boxes for different receivables.***

Burlington now includes a return envelope with each of its major receivables for taxes and utilities, all of which now go to the same Post Office box.

Using envelopes of different colors and separate mail boxes should make the identification and processing of each receivable faster and easier. This should apply to real property, personal property, motor vehicle excise, and water and sewer bills.

**22. *Burlington should reconsider its current practice of removing retirees' records from the MUNIS system.***

It is not clear why this is being done, especially since (1) MUNIS has the ability to identify an employee's status and (2) storage space is insignificant.

Burlington should consult with MUNIS and leading MUNIS users in evaluating this practice.

## **C-2. PAYROLL/HUMAN RESOURCES**

Payroll is now performed on the MUNIS system (with some significant limitations as this subsection discusses) with paychecks issued weekly for the Town and bi-weekly for the Schools.

### **1. *Burlington should decentralize Payroll as far as possible.***

The previous section of this IT Assessment discussed decentralization of business processes involved in financial management at great length. Everything said there applies in the same way to Payroll.

### **2. *Burlington needs to undertake a complete reengineering of the Payroll process.***

This process today is unnecessarily paper-driven in a way that does nothing to enhance control, security or efficiency.

This reengineering has several, important preconditions.

- It needs to be based on the decentralization of Payroll as just noted.
- The Payroll/Human Resources Subcommittee needs to have a central role in this effort, working closely with the Treasurer, Town Accountant, Human Resources Director, School Business Official and Application Implementation Manager, documenting their work in writing.
- It needs to incorporate all related products from MUNIS which this IT Assessment recommends.
- All participants need to have refresher training in the current MUNIS Payroll and Human Resources products as well as full training in the new products before this effort begins.

As one example, Burlington uses what it calls a Salary Rate Adjustment Form for changes in employees' pay in the course of the year. The data on this form is reprocessed multiple times in an archaic process, most steps of which should be completely unnecessary.

- The originating department handwrites the information related to the employee and requested changes on the Salary Rate Adjustment Form, which uses the OmniForm product.
- The Town Administrator's staff cuts the form in half with a scissors.
- The Town Administrator's staff handwrites the information regarding the change onto a separate 8 ½" by 11" 20-pound "Employee Record."
- The Town Administrator signs the form.
- The Town Administrator's staff makes three photocopies of the form for the Town Administrator, Treasurer and Town Accountant.
- The Treasurer's Office uses its copy of the form to make the related changes in the MUNIS Payroll system.

This process should be reduced to three steps:

- The originating department's preparing the form on line, using the Tyler Forms Processing product from MUNIS.
- The Town Administrator's reviewing and signing the form.
- The data entry from the form directly into MUNIS by the authorized staff member.

MUNIS can keep a rather complete, detailed history for every employee. As a result, Burlington should implement a date-forward policy, beginning for example on January 1, 2014. This would use MUNIS to maintain all employee history without reference to the "Employee Record" except as needed for historical reasons.

Where this process applies to every Town employee every year, its consequences are not trivial.

Reengineering the Payroll process for the Town and Schools will be a major effort. However, its long-term benefits ought to be huge.

As this IT Assessment observed previously, Burlington should gain experience with reengineering other, less complicated processes before undertaking the reengineering of Payroll.

**3. *Burlington ought to be using integrated leave accounting in MUNIS as part of its regular Payroll processing.***

Leave accounting refers to maintaining an on-going record of the days of each type of leave--such as sick, vacation, personal or bereavement--which each employee earns or uses in each pay period.

Leave accounting in Burlington today is a black hole.

- Burlington has no idea what the total picture of leaves and the related financial liabilities is.
- This lack of factual knowledge makes it impossible for the Town to conform on anything better than a guesstimate with national standards for governmental accounting issued by the Governmental Accounting Standards Board (GASB) in its Statement No. 45 (known as GASB 45), *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*.
- Huge duplication in recordkeeping regarding leaves takes place throughout Burlington. This begins with each department's maintaining an Excel spreadsheet or handwritten log of leaves for itself and then sending this same information to the Treasurer's Office for subsequent processing. The School Department, for example, keeps a handwritten calendar book with a separate sheet for each of its more than 600 employees which it needs to update in handwriting for each employee who takes leave in every pay period.
- Leaves taken are never keyed into the MUNIS Payroll system, using that system's easy-to-use exception-pay capabilities. All pay, regardless of reason, is recorded as standard pay, with no pay identified as pay for any kind of leave. The only exceptions here are overtime or special pays. As this IT Assessment observes later in this subsection, Burlington's not using

integrated leave accounting in MUNIS has other adverse impacts such as complicating recordkeeping for (and potentially compliance with) the Family and Medical Leave Act (FMLA).

Towns and school districts like Burlington have been using MUNIS's exception-pay process with integrated leave accounting for 25 years or longer.

The use of integrated leave accounting will eliminate the need which almost every department now has to keep its own Excel spreadsheet or handwritten ledger of leaves and attendance for every employee. In the new scenario, each authorized manager or supervisor in a department would have full, secure access to all leave and attendance records for each employee in that department but could see nothing for any other department.

Other benefits will accrue to Burlington from implementing integrated leave accounting. These include such things as (1) being able to link directly the name of the substitute teacher to the regular teacher whose leave required the hiring of the substitute for that day or (2) specifying the day of the week when a leave was taken.

**4. *Burlington ought to consider the deployment of MUNIS's Employee Self-Service product.***

This application enables an individual employee to query their own pay and leave records on a secure basis from work or home. It shows information such as earnings for the year and all leave balances.

In addition to providing a boost to employee morale, this application also has the potential to reduce to a large extent calls which employees now make to the Town and School payroll staff or their own department's support staff regarding this information.

The estimated cost of providing this application for Burlington is \$10,425 one-time (including \$7,650 for the one-time license fee and \$2,775 for startup costs such as training and installation) and \$1,530 for annual support. Alternatively, MUNIS could host Employee Self Service at a one-time cost of \$4,275 with an annual cost of \$4,250.

**5. *Burlington should examine the integration of data from the Human Resources (HR) Department's CATS applicant-tracking system with the MUNIS Payroll/HR system.***

The CATS application is reported to be working very well for Burlington in its use for recruitment of all Town and School positions. It has been used by the Town for three years and the Schools for one year.

There may be substantial data which CATS collects that could reduce the data-entry which otherwise would need to be done to build records for employees in the MUNIS Payroll/HR system. This could potentially make use of the flexibility of the MUNIS import utility in determining exactly which data would come from CATS to MUNIS.

The HR Director should explore this with the Application Implementation Manager, the Treasurer's Office, the Payroll/HR Subcommittee and MUNIS.

- 6. Burlington could be using the capabilities in the MUNIS Payroll system to track and manage leave taken by employees under the Family and Medical Leave Act (FMLA).***

MUNIS has the ability to manage this process well.

However, implementing these capabilities related to FMLA requires first that Burlington begin to use the exception-pay process in the MUNIS Payroll system for processing of all payrolls.

Until this should occur, Burlington would not be able to use MUNIS to help manage its FMLA compliance.

- 7. Burlington needs to review and, if necessary, revise its position specifications to include IT-related knowledge, skill and ability as appropriate to each position.***

This IT Assessment shows how pervasive IT is and will become in positions throughout Burlington.

Sound practice calls for Burlington to review whether or how position specifications (job descriptions) include IT-related knowledge, skill and ability. Among other things, this then provides the legal basis for testing and evaluation of applicants' IT-related knowledge, skill and ability during the selection process.

- 8. Burlington ought to include IT as part of every employee's orientation at the time of hiring.***

Where IT more and more is an essential part of how each employee does their work for the Town and Schools, the orientation program should incorporate an introduction to the IT environment in which the employee will be involved.

The HR Director should develop this program with the IS Committee, CIO, Application Implementation Manager and Assistant Town Administrator.

- 9. The MUNIS Tyler Reporting Services and Tyler Forms Processing applications can have special value to the Payroll/Human Resources function in Burlington.***

Tyler Reporting Services enables Burlington to author its own *ad hoc* reports from time to time as may be needed. These reports may then be stored for future use, with the end-user able to change parameters such as the date-range to which the report applies.

Tyler Forms Processing enables Burlington to develop specialized forms which take advantage of such features as merge capabilities with the specified MUNIS database.

Both of these applications can be used by anyone authorized in any Town or School office with appropriate security.

Where Burlington's Payroll/Human Resources environment involves a relatively substantial amount of reporting and analysis, these products ought to be especially helpful to the Town and School staff in these areas.

The main prerequisites here are (1) familiarizing end-users with the availability and capabilities of these products and (2) having the Application Implementation Manager develop a high level of facility with these products.

The costs related to these products were previously identified in Table 6, Additional MUNIS Financial Applications, in subsection C-1.1.

***10. Burlington ought to budget three days of time for refresher training in Payroll/HR from MUNIS.***

No training in these functions has occurred at any time in recent memory.

While Burlington's staff is doing the best they can to learn and use the system, they are not familiar with the broader range of features in the MUNIS Payroll/HR system that could be helpful to them. In the same way as this IT Assessment discusses the use of FMLA in the preceding item 6 of this subsection C-2 and position control in item 11 next to support the Payroll/HR function, there is also a range of reports which are essentially unfamiliar and could greatly reduce the effort involved in such time-consuming tasks as preparing EEO-4 and EEO-5 reports for the Town and Schools.

This IT Assessment recommends that Burlington provide \$3,825 for this refresher training (three days at \$1,275 per day).

***11. Burlington should be using position control as incorporated in the MUNIS system.***

Position control enables Burlington to specify exactly how many full-time-equivalent personnel are budgeted for each position in the Town and Schools. It can be an important way of making sure that budgeted positions are not exceeded for any reason. Once the number of authorized personnel for each position is entered into the system, it would only need to be changed as this number may change from fiscal year to fiscal year.

There is no reason for Burlington not to be using position control as other municipalities and schools in Massachusetts and across the United States have been doing for more than 25 years.

Burlington has already licensed and is paying for the MUNIS Human Resources Management application which includes position control, among other things, and is tightly integrated with the MUNIS Payroll system. Thus, there should be no direct cost to implement this function. The only indirect cost would be the labor associated with building the position-control tables, which ought to be able to be done in a few days at most for both the Town and the Schools.

### C-3. PUBLIC SAFETY

#### 1. *Burlington should be making full use of the IMC application suite in the Police and Fire Departments.*

A local-government public-safety environment has three, core elements:

- Computer-aided Dispatching (CAD).
- Records Management System (RMS).
- Mobile Computing.

In order to function optimally, these should all integrate related technologies, such as Geographic Information Systems (GIS), and share a single-vendor platform.

Burlington's current environment in public-safety systems may be summarized as follows:

- The Police Department makes limited use of the IMC CAD, RMS and Mobile applications, which it has had since 2009. It has licensed but not implemented some IMC applications and has not to date licensed or implemented others which could be beneficial. In addition, it has several applications for specialized functions such as Range PRO from IES Interactive Training for interactive use-of-force and firearms training.
- The Fire Department uses the CAD and RMS applications from Vernon Software which it has had for about 12 to 14 years.
- Potentially significant technologies such as GIS have not been implemented in Police or Fire.

The driving concept in public-safety systems, especially since 9/11, has been unification of command. This means that agencies involved in responding to a public-safety incident have the highest possible level of coordination of resources (including information) and, thus, the most effective response possible.

By definition, having major agencies like Burlington Police and Burlington Fire using two, different computer-based systems cannot achieve this best practice.

This IT Assessment, then, recommends that Burlington proceed with the procurement and implementation of the following applications in the IMC portfolio for Police and Fire:

**Table 10: IMC New Applications**

	Description	License One-Time	No. of Conc. Seats	Training Days	Training Sessions	Total Training Days	Total Training Cost	Total One-Time Cost	Total Annual Cost
<b>POLICE</b>									
1	PowerPhone Police	\$ 1,500	3	0	0	0	\$0	\$ 1,500	\$ 270
2	PowerPhone Server	\$ 2,000	N/A	N/A	N/A	N/A	\$0	\$ 2,000	\$ 360
3	CopLogic Web Reporting	\$ 2,500	N/A	N/A	N/A	N/A	\$0	\$ 2,500	\$ 450
4	Quest Contact Manager	\$ 500	N/A	1	1	1	\$ 1,200	\$ 1,700	\$ 90
5	Google Maps	\$ 7,500	N/A	1	1	1	\$ 1,200	\$ 8,700	\$ 1,350
6	Gang Module	\$ 5,000	N/A	1	1	1	\$ 1,200	\$ 6,200	\$ 900
7	AVL Server	\$ 4,000	N/A	2	1	2	\$ 2,400	\$ 6,400	\$ 720
8	AVL Clients	\$ 4,250	17	0	0	0	\$0	\$ 4,250	\$ 765
9	Paging Server	\$ 2,000	1	0	1	0	\$0	\$ 2,000	\$ 360
10	Paging Seats	\$ 1,500	3	0	0	0	\$0	\$ 1,500	\$ 270
11	CopLink (State CTRLD)	\$0	N/A	0	0	0	\$0	\$0	\$0
12	MUNIS Payroll/HR Interface	\$ 5,000	N/A	1	1	1	\$ 1,200	\$ 6,200	\$ 900
13	<b>Police Sub-Total:</b>	<b>\$ 37,750</b>				<b>6</b>	<b>\$ 7,200</b>	<b>\$ 42,950</b>	<b>\$ 6,435</b>
<b>FIRE</b>									
14	Fire Records Server	\$ 2,000	1	4	1	4	\$ 4,800	\$ 6,800	\$ 360
15	Fire Records Client	\$ 16,000	16	1	8	8	\$ 9,600	\$25,600	\$ 2,880
16	CAD Server Fire/EMS	\$ 2,000	1	2	1	2	\$ 2,400	\$ 4,400	\$ 360
17	Fire CAD Client	\$ 9,000	3	1	4	4	\$ 4,800	\$13,800	\$ 1,620

**Table 10: IMC New Applications (Cont.)**

	Description	License One-Time	No. of Conc. Seats	Training Days	Training Sessions	Total Training Days	Total Training Cost	Total One-Time Cost	Total Annual Cost
	<b>FIRE (Cont.)</b>								
18	Fire Query & Reporting	\$ 4,000	8	1	1	1	\$ 1,200	\$ 5,200	\$ 720
19	Attendance	\$ 3,000	1	1	2	2	\$ 2,400	\$ 5,400	\$ 540
20	Vehicle Maintenance	\$ 1,000	1	1	1	1	\$ 1,200	\$ 2,200	\$ 180
21	Fire Messaging Switch	\$ 2,000	N/A	0	0	0	\$0	\$ 2,000	\$ 360
22	Fire Wireless Clients	\$ 15,000	12	1	6	6	\$ 7,200	\$ 22,200	\$ 2,700
23	Fire AVL Clients	\$ 3,000	12	0	0	0	\$0	\$ 3,000	\$ 540
24	Fire Admin. Server	\$ 1,000	1	0	0	0	\$0	\$ 1,000	\$ 180
25	Fire Admin. Client	\$ 3,000	6	2	1	2	\$ 2,400	\$ 5,400	\$ 540
26	CAD:3rd Party XML	\$ 7,500	1	0	0	0	\$0	\$ 7,500	\$ 1,350
27	PowerPhone Fire	\$ 1,500	3	0	0	0	\$0	\$ 1,500	\$ 270
28	PowerPhone EMD	\$ 1,500	3	0	0	0	\$0	\$ 1,500	\$ 270
29	Pervasive Database	\$ 2,100	20	0	0	0	\$0	\$ 2,100	\$ 525
30	Project Management	\$ 7,500	N/A	N/A	N/A	N/A	N/A	\$ 7,500	N/A
31	Go Live Assistance: 3 Days	\$ 4,500	N/A	N/A	N/A	N/A	N/A	\$ 4,500	N/A
32	Data Conversion	\$ 33,020	N/A	N/A	N/A	N/A	N/A	\$ 33,020	N/A
33	<b>Fire Sub-Total:</b>	<b>\$118,620</b>				<b>30</b>	<b>\$ 36,000</b>	<b>\$154,620</b>	<b>\$ 13,395</b>
34	<b>Police Sub-Total:</b>	<b>\$ 37,750</b>				<b>6</b>	<b>\$ 7,200</b>	<b>\$ 42,950</b>	<b>\$ 6,435</b>
35	<b>5% Contingency:</b>	<b>\$ 7,719</b>				<b>2</b>	<b>\$ 2,160</b>	<b>\$ 9,879</b>	<b>\$ 992</b>
36	<b>GRAND TOTAL:</b>	<b>\$162,089</b>				<b>38</b>	<b>\$ 43,200</b>	<b>\$197,570</b>	<b>\$ 19,830</b>

The implementation of these applications will provide Burlington with a totally unified environment for its public-safety systems and information management. This includes providing mobile capabilities to 12 of the Fire Department's vehicles, which now have no mobile, comparable with the 13 that the Police Department already has. The Fire Department has four ML900 Rugged Notebooks which it received about six to eight years ago from MetroFire, an association of 34 metropolitan Boston fire departments that provides coordination of mutual aid response to improve the effectiveness of fire services. These mobile computing terminals (MCT's) were installed in Fire vehicles but have never been used. Given their age and discontinued status from Motorola, Burlington will need to evaluate these MCT's with IMC and see whether they could or should be used now and into the future.

Total one-time cost of implementing this full suite of applications is \$197,570 with annual support of \$19,830.

2. ***Burlington should procure and implement the PowerPhone CAD-protocol applications for Police, Fire and Emergency Medical Dispatch (EMD).***

PowerPhone provides the Police or Fire dispatcher with an extensive set of expert-developed, nationally recognized protocols to follow in a specific kind of incident. As one example, the Commonwealth of Massachusetts State 911 Department itself offers training in the PowerPhone Emergency Medical Dispatch (EMD) system to local agencies like Burlington.

The key here is that IMC has integrated its CAD application with PowerPhone so that there is an automatic link to the specified protocol as soon as the dispatcher enters the type of incident, e.g., domestic or armed assault. The dispatcher does not need to search for the needed protocol since the IMC system's integration has PowerPhone automatically display that specified protocol on a monitor to the dispatcher.

While there are no guarantees, having a system like PowerPhone may also help in mitigating damages in the case of litigation involving the Town's response to an incident.

The cost of PowerPhone integrated with IMC for Police, Fire and EMD was included in the previous item 1, Table 10.

3. ***Burlington's CAD system should incorporate Police and Fire assets from nearby communities who respond to incidents with Burlington Police and Fire.***

This practice enhances the dispatching process by providing immediate knowledge to Burlington's dispatchers of such assets as vehicles or personnel from other agencies which may be responding, or available to respond, to incidents in Burlington. The Town of Natick has implemented this practice with IMC CAD very successfully.

Burlington Fire, for example, has reported Billerica, Woburn, Bedford, Lexington and Wilmington as its most common mutual-aid agencies. Their personnel and rolling stock for both Police and Fire ought to be incorporated into the IMC CAD system.

4. ***Burlington should implement GIS for Police and Fire as soon as possible.***

GIS is an essential element in public-safety systems. It makes two, critical contributions to the effectiveness of public safety generally:

- Through its integration with Police and Fire CAD, it supports Burlington's having the most well informed and timely response possible to incidents. This occurs through providing information such as pipe sizes for water flow and the location by street address of the nearest hydrant to a fire.
- It provides the most complete and flexible analysis of Police and Fire activity. This looks at parameters such as neighborhood or precinct, joining these with others like time of day or day of week. Absent this capability, analysis of Police and Fire activity is much more time-consuming and potentially inaccurate.

The main issue regarding GIS in Public Safety today is that Burlington has only minimal GIS information available. The Town, as this IT Assessment discusses later in subsection C-6, needs to make some basic decisions about how far and how quickly it wishes to proceed in developing GIS.

GIS in IMC's environment has two aspects.

- IMC's recently released Google Maps product makes use of Google Maps API for Business to link a wide range of information to a particular location. This ranges from previous incidents and best routes for units being dispatched to analysis of activity.
- It is tightly integrated with the ESRI GIS which offers the potential to link up to 22 layers in the local or networked environment and as many as six layers in the Mobile environment. This provides a very different complement of enhanced capabilities when compared with the Google Maps product.

The budget for additional IMC products in Table 10 includes Google Maps. However, integration with ESRI's Arc GIS products will need to await the GIS Master Plan which this IT Assessment recommends later in subsection C-6 and then the Town's decisions about what to implement and when.

5. ***Burlington should act forthwith to have IMC resolve persistent issues in the Police system.***

Police personnel, from the Police Chief through the ranks, report issues of reliability and functionality with the system which have not been observed with other IMC users and which simply should not exist.

Most troubling are the reports from these Police personnel that IMC has not responded timely or well to these issues, beginning with that firm's senior management.

This IT Assessment recommends that IMC's most senior management come to Burlington at no cost to the Town and map out a specific plan for IMC to clear the slate of all outstanding issues forthwith, also at no cost.

**6. *Burlington should complete the migration of all functions from the previous QED Police system to IMC or MUNIS.***

As one example, the Police Department continues to use the QED system for recording time off and leave. Burlington has two options here.

- It can use the already licensed IMC Police Administration application to enter time off and leave for each employee. IMC can then export this information to the MUNIS Payroll application, using an established export/import function between the two products.
- The Police Department can enter this information directly into the MUNIS system, using the secure decentralized workflow capabilities in the MUNIS Payroll application.

The Application Implementation Manager should review this situation with the Police Department, Treasurer and Town Accountant in order to determine which of these options (or others) may work best here.

**7. *The Police Department should make sure that it is making full use of all modules previously licensed from IMC.***

This IT Assessment found that the Police Department has at least one major module which has already been licensed but is not being used to the fullest.

Burlington should review this situation regarding all licensed modules with IMC in order to make sure that the Department is getting full value from the system.

**8. *Burlington ought to consider implementing Automatic Vehicle Location (AVL) with the IMC system.***

While AVL has sometimes been a subject of controversy in the past, its role in promoting the safety of officers and optimal response to calls for service is now beyond dispute.

IMC offers an AVL application for a one-time cost of \$4,000 for the AVL switch, with annual support of \$720 per year, plus a one-time cost \$250 per client. Assuming 13 clients (the number of cars now equipped with mobile capabilities in the Police Department), this would add \$3,250 for clients or a total one-time cost of \$7,250.

**9. *Burlington should purchase 10 days of refresher training from IMC for the Police Department.***

Police personnel themselves suggested that this training could be very helpful to them in their daily use of the IMC system.

It is common in a law-enforcement agency like Burlington Police to find that sworn and civilian personnel can benefit greatly from this refresher training after not having had any training since the system's initial implementation more than three years ago. This can help familiarize personnel with capabilities of the products originally licensed as well as new features and functions of those applications which may have been added in new versions and releases over the last three years.

IMC provides this training at its offices in Marlborough, Massachusetts at a cost of \$1,200 for a class of not more than 12 personnel. Thus, the total cost for these 10 days would be \$12,000.

**10. *Burlington should establish an Emergency Operations Center (EOC) and provide the IT infrastructure to support this function.***

Burlington today does not have an EOC. This kind of facility is intended to provide exclusive attention to the management of and response to man-made or natural disasters. An EOC differs fundamentally from public-safety dispatching since the latter continues to be responsible for the full gamut of calls for service which may arise for the Town as a whole, not just the man-made or natural disaster for which the EOC has been activated.

The establishment of an EOC is clearly a matter of policy for the Town to determine through its policy-making process.

Having said that, an EOC for a town of Burlington's size and complexion should be able to support at least five positions plus related support facilities. Likewise, Burlington's EOC should be located at a substantial distance from the Town's complex around Center Street in case a disaster should occur in that area. This would mean, for example, that the EOC should not be located in the Police headquarters, Fire headquarters or Town Hall.

Elsewhere, this IT Assessment discusses the possibility of having the recommended training facility also serve as Burlington's EOC. One important advantage to this approach is that a substantial part of the IT infrastructure could be shared by both functions, saving the cost of what would be involved in duplicating this infrastructure in two different locations.

This IT Assessment recommends that Burlington provide \$25,000 one-time and \$5,000 per year for the IT associated with an EOC.

***11. The Police Department should not proceed with virtualization until the CIO is on board and participating in this decision.***

Burlington needs to address virtualization for Police--and Public Safety as a whole--as part of a Town-wide strategy, not as a single department. Virtualization is also technically challenging.

Before undertaking this evaluation, Burlington should get written assurance from IMC that its system supports virtualization completely. This should include a specific statement regarding the virtualization products which IMC requires or supports.

***12. Police officers should be encouraged to complete their incident reports in their vehicles.***

Although IMC Mobile is deployed in all cruisers, the Police Department states that officers continue to do most of their incident reports at the Police headquarters.

Having officers complete their reports in their cruisers at the time of the incident, or as soon thereafter as possible, accomplishes two, important goals.

- It keeps the officer on duty in their patrol sector as long as possible, maximizing their ability to respond to new calls for service and minimizing their response time.
- It keeps the freshest recollection of the facts of the incident in their mind without any unnecessary delay in completing the report. This is also enhanced by the integration of CAD information into the incident report in the IMC system.

Each officer must decide at the time whether completing a specific report in the cruiser would have an adverse impact on their safety and situational awareness at that moment.

The Police Department may wish to begin this transition with a prototype group, perhaps beginning with the daytime tour when assistance is available from the Police Department's IT personnel.

***13. A SMART Board should be provided in the Police Roll Call Room.***

Equipping the Roll Call room with a SMART Board would enable the Burlington Police Department to make the best possible use of IT both at roll call and for training purposes otherwise.

The estimated cost of a SMART Board is \$3,500 one-time with no specific cost per year for support.

***14. The Police Department should implement a product like Coplogic's DeskOfficer Online Reporting for citizens' reporting of possible incidents.***

This kind of product enables the public to submit information related to law enforcement through the Internet to the Police Department. A designated Police officer then manages the intake and processing of this information.

Products like this are becoming more and more widespread around the United States, having proven their value in law enforcement.

Funds for the procurement and implementation of this kind of product at \$2,500 one-time and \$500 per year are included in item 1, Table 10 of this subsection.

**15. *Burlington Fire will need to make a strategic decision regarding how it wishes to automate its Fire inspections.***

The Fire Prevention Bureau currently keeps an Excel spreadsheet for records of Fire inspections, complemented by a manual log book. Fire Prevention has no access to any other inspections-related activity involving any other office in Burlington, such as Building, and the same is true for other inspections-related agencies regarding the Fire Department's activities here.

The decision about choosing a strategic direction for automation of Fire inspections should be coordinated closely with the CIO, Application Implementation Manager, IS Committee and its Land Records Subcommittee. The Fire Department has two choices here:

- Use the IMC Fire Inspections subsystem within the Fire Records application.
- Use the Land Records application discussed next in subsection C-4 of this IT Assessment on Land Records.

Each of these options has advantages and disadvantages which will need to be weighed carefully.

This is an important decision for Burlington since the extent of sharing of information among these related agencies inevitably advances the efficiency and effectiveness of their work individually and collectively. This is especially true, given the nature and extent of Burlington's non-residential development.

Funds for proceeding with the IMC application are included in item 1 of this subsection 3; funds for using the enterprise-wide Land Records application are incorporated there.

**16. *Training records for Police and Fire should be maintained either in MUNIS or IMC.***

The Fire Department's training records, for example, are now maintained on an Excel spreadsheet.

Meeting all requirements for training for different certifications is especially critical in Public Safety. A good system of this kind should be able to store all of the courses required to achieve or maintain a given certification and then record all courses completed by an individual, the score or grade attained, the required date for recertification and similarly important information.

The Police and Fire Departments should evaluate these options with the HR Director, CIO and Application Implementation Manager and then report their recommendation to the IS Committee.

***17. The ability of the current IMC server to host all Police and Fire applications which this IT Assessment recommends should be evaluated.***

The current server is a single-processor Dell PowerEdge 2950, purchased in 2008.

While IMC has stated its assurance that the current Police server can handle this additional load without contention, delay or interference, the Police Department has questioned this advice.

IMC, Police and Fire will need to work together with the IS Department's staff to determine the appropriateness of the current server for this role.

***18. Burlington should continue its exploration of having security cameras at various schools linked to mobile displays in Police vehicles.***

School and Police personnel have begun to explore how this might be accomplished.

This is an important effort which Burlington should support.

Given the substantial uncertainty regarding the exact nature of this implementation, no funds are specified here.

***19. The Police Department's hosted Microsoft Exchange is not communicating with its SharePoint service.***

Police should address this with its Departmental, personnel, IS staff and vendors. The Police Department reports that Microsoft itself has not been able to provide a solution here.

***20. All unnecessary manual records should be eliminated.***

As one example, the Fire Dispatcher now keeps a manual log of all dispatches.

While this may be understandable under current circumstances, it is completely unnecessary with the IMC system.

This recommendation is consistent with the emphasis of this IT Assessment on business process improvement.

***20. Police personnel need to be able to access their SharePoint system off duty.***

While Police Officers can access SharePoint on duty from their office or vehicle, they would like to be able to access SharePoint off-duty, e.g., from their homes.

The Police Department should work with the IS staff and the vendor to address this issue.

## C-4. LAND RECORDS

### 1. *Burlington should procure and implement a fully integrated solution to meet the needs of its land-related agencies.*

Land Records includes all contacts which Burlington has with a parcel of real property or any people related to it such as the owner, contractors or architects. This is one of the more far-reaching of Burlington's functions including multiple agencies throughout the Town such as:

- Board of Health.
- Board of Selectmen/Town Administrator.
- Building.
- Conservation.
- DPW.
- Fire.
- Planning.
- Police.
- Zoning Board of Appeals.

Burlington today has two COTS applications which address land records:

- The Board of Health uses the Digital Health Department (DHD) application from Garrison Enterprises to manage its food inspections. It has been using this package since 2010. Except for IMC in the Police Department and Pavement Management in DPW/Engineering, this is the only application in Burlington which has implemented mobile capabilities.
- Building uses the GeoTMS application from Des Lauriers Government Solutions, which it first implemented in November, 1998 and which had a major upgrade in 2011. While GeoTMS was originally procured with the idea that it would support multiple land-records agencies--Burlington paid for licenses for Building Permits, Building Code Enforcement, Conservation Inland/Wetland, Planning and Public Viewer, it now runs only on a single-user license in Building. The main reason for this appears to have been the lack of any staff in the Town's IT function, similar to the Application Implementation Manager's position which this IT Assessment recommends, who could provide the necessary leadership and expertise in the implementation and support of this product.

With only one license in active use with GeoTMS, Burlington has not made the same kind of strategic commitment with this product as it has with MUNIS or IMC.

The current lack of a Land Records application system is causing huge and unnecessary inefficiencies in the land-related agencies. Planning, for example, keep an Excel spreadsheet to record applications for permits but then also maintains a log in Microsoft Access with applications to the Planning Board.

And, given this environment, no other agency has any immediate knowledge of these applications. The Board of Health, similarly, maintains records of its permits in Excel.

As with the procurement of any other application system, Burlington will need to make sure that it has done a complete needs assessment and followed best practice in the procurement and implementation of this product. Three of the capabilities (among others) which should be closely examined here are (1) flexibility in customizing business rules for different land-related processes, (2) mobile services and (3) department-level security.

Procuring and implementing the Land Records application should also help greatly in facilitating interagency coordination by making the latest and best information on any parcel or person available on a secure basis to any authorized employee or board, committee or commission member.

Land Records is an active and highly competitive marketplace with several regional and national vendors.

Different pricing models are also found in the Land Records marketplace.

- Tier 1 (industry-leading) vendors in the local-government marketplace have a general lower limit in their sales and marketing of roughly 100,000 in population or about \$250,000 in one-time investment.
- Mid-range vendors like MUNIS have a one-time cost in the range of approximately \$25,000 to \$100,000.
- Des Lauriers, the vendor of GeoTMS, uses a percentage-of-fees approach without a specific annual cost. Its percentage as quoted for Burlington would be 3 per cent. With the Building Department alone, not including other related agencies, having had annual receipts of \$1,206,141.16 in FY2012, this would translate into a fee of \$36,184.23 per year. Des Lauriers notes that this cost could be paid by a surcharge from the applicant, not out of appropriated funds from the Town. (Burlington should verify the legal basis for this surcharge.)
- Sharing the procurement and, thus, one-time and potentially annual costs of a new Land Records system with one or more other municipalities or other agencies, as item 2 next discusses, could reduce Burlington's outlay significantly. Potentially this may enable Burlington to afford a better mid-range or Tier 1 product than it could afford by itself.

The most recent change in the Land Records environment in Massachusetts has been the award, concurrent with this IT Assessment, of a major contract for the Cape Cod Commission to one of the leading Tier 1 vendors in North America. Supported by a Community Innovation Challenge (CIC) grant from the Commonwealth's Executive Office for Administration and Finance, this may be helpful in making this high level of product available to towns like Burlington on a much more affordable basis.

This IT Assessment recommends that Burlington fund the procurement of the new Land Records system in the sum of \$150,000 with annual support of \$25,000. This keeps Burlington's options open.

- 2. Burlington may wish to consider a cooperative procurement with one or more other municipalities or through the Metropolitan Area Planning Council (MAPC).***

Sharing the cost of procurement and implementation with other municipalities may make it possible for Burlington to afford a Tier I solution which it might not otherwise be able to afford by itself.

More and more of this kind of regional sharing for Land Records is occurring around the United States, including the effort on Cape Cod just mentioned.

- 3. Burlington should leverage the property-records repository in the Patriot Properties CAMA system as far as possible.***

The Board of Assessors is the legal custodian of property records in Burlington pursuant to the Massachusetts General Laws.

The Patriot Properties Computer-assisted Mass Appraisal (CAMA) system which the Assessors use actively and maintain has rich detail on all land and improvements in Burlington.

The Town should look to the Patriot system whenever there is an opportunity or need for land- or building-related records anywhere in Burlington. This begins with using the CAMA system to populate the new Land Records system, if it should be a vendor other than GeoTMS, or to further populate the GeoTMS system, if Burlington should make the decision to stay with that product. An extraction from Patriot to other products can be done easily and quickly.

The goal here is to have the broadest sharing of the most current information possible regarding land and buildings in Burlington without having to duplicate this data.

Patriot has stated that it would not charge Burlington anything to extend this read-only access to as many as five other users. It has also stated that the only additional potential cost would be \$150 per seat for additional seats for Microsoft SQL Server (note that these same prospective Patriot CAMA users may already have seats for Microsoft SQL Server for their accessing the MUNIS system).

- 4. Burlington should evaluate the differences in (1) functionality and (2) detail on land and buildings offered by (a) the Web site and (b) the CAMA system itself so that personnel in various offices can make full use of the CAMA information.***

Only the Assessors can change parcel-related information under their jurisdiction.

At the same time, many other Town agencies could benefit from having secure, read-only access to this information.

In addition to using this information on a day-to-day basis to support the work of other land-related offices, a major benefit to Burlington overall which occurs here is what is often described as “washing” of information. This refers to the use of data by multiple people in different positions in the Town government who then can examine the accuracy of data in the normal course of their work. For example, the CAMA record may show an unfinished basement but the Building Inspector may find a finished basement: this is found money for the Town of Burlington on a recurring basis.

One key differentiator here is the ability of the land-related agencies to ask questions about land and buildings. While the Web-based version of the Patriot CAMA system offers a good view of the data related to each parcel, only by using the Report Generator built into Patriot's server-based product can Burlington's agencies ask the “how many” or “what kind” questions to analyze information about land and buildings in the Town.

The Assessor and Application Implementation Manager should work with the Land Records Subcommittee and Patriot Properties to do a detailed analysis of the differences between the public-facing Web system and the server-based environment.

**5. *Burlington should require as-built plans in an industry-standard electronic format.***

As-built plans tell various authorized personnel the details of a structure. This can be perhaps most important to the Fire Department both in pre-planning and incident response but can also have significant value for various Town agencies including among others Police, Building, Planning and DPW.

From the point of view of the owner, architect or developer, this requirement would have no extra cost since these professionals are already commonly using products like AutoCAD for this purpose internally and would need only to provide an electronic copy to the Town for its use on a multi-user basis.

The Engineering Division in DPW is currently scanning all original subdivision plans but these do not constitute as-builts and do not show the details of the buildings. These subdivision documents are available on the Town's network to other departments; the extent to which other departments know about this accessibility and use them actively is not clear.

This approach would also enable various agencies in Burlington to accept plans and designs in preliminary status for joint review and comment by multiple offices in the Town.

Software of this kind has been used for this purpose by local governments in the United States for more than 15 years.

As this IT Assessment is being written, the Planning Board is changing its regulations to require this kind of submission.

Engineering is the only agency in Burlington which has been using a product of this kind. It has had AutoCAD for several years but is now evaluating Carlson IntelliCAD from Carlson Software. At the time of this IT Assessment, no final decision had been made.

Ideally, it would be possible to coordinate Engineering's decision-making here regarding the choice of a product with participation by other agencies who might be users of this same application as a Town-wide user-committee.

Training is critical to Burlington's efficient and effective use of this kind of product. Given the relatively significant number of agencies and personnel who may be interested in using this product, Burlington will need to make a fairly significant investment in one-time and ongoing training in order for them to achieve and maintain an appropriate level of proficiency. This would be true with any product of this kind which Burlington might procure.

In terms of agencies outside of Engineering, Burlington may wish to make use of a cloud service for this purpose, at least initially. Autodesk 360 is one example of this kind of cloud-based service.

Town Counsel should be consulted regarding the best way to implement this requirement.

The main cost here for the Town would be the procurement and implementation of multi-user AutoCAD, estimated at \$46,800 for 12 concurrent seats and related annual support of \$4,580.

**6. *Burlington should see whether it would be feasible to import data related to building permits from the GeoTMS system to the CAMA system.***

This import may have the ability to eliminate all or most of the work which the staff in the Assessors' office now has to do in key-entering this data from forms provided by the Building Department.

**7. *The Assessors do not need to continue to use a typewriter to type the history of property transfers onto a card.***

This is an anachronistic practice which does not need to be continued.

Beginning at a certain date, all transfers should be entered only into the Patriot system. The current cards should be maintained strictly as an archival record.

**8. *All Town offices who have a need should be using the Patriot system to generate abutters' lists.***

The Patriot system has a very easy-to-use procedure for generating these lists, based on a user-specified distance from the subject-parcel. This includes producing labels for notification of abutters.

It is not clear whether various Town offices which have a need to send notices to abutters are aware of this functionality.

**9. *All forms related to land use and building in Burlington should be available on the Town's Web site in editable Word or pdf format.***

As one example, the Building Department alone today has 21 forms on its Web page in pdf, but not editable by the customer. Altogether, Burlington likely has several dozen forms among these agencies.

As Burlington evaluates new application systems for Land Records, it may find that some vendors have ways of integrating the customer's data entry with these forms to the application system itself.

The basic fact here is that, for those customers who are comfortable using the editable application forms, this represents both a convenience to them and a benefit to the Town.

**10. *Burlington ought to explore the procurement and implementation of an application which supports 3-D design and modeling for Planning and other offices.***

This application would enable Burlington, mainly through the Planning Board, to simulate different scenarios regarding development whether by the Town or private parties. Burlington today has no software like this.

Software of this kind has been used by local governments in the United States for more than 25 years. The City of Portland, Maine, for example, in the 1980's used an application of this kind, developed by the University of Pennsylvania, to evaluate the visual impact of proposals for office towers in its Central Business District (CBD).

This software gives an objective, three-dimensional view of plans, offering multiple scenarios, and could benefit Burlington and the Planning Board immediately in their development of the Town Center plan among other things.

Burlington should fund \$10,000 for this application one-time and \$2,000 for annual support.

**11. *Burlington will need to decide whether to process payments to Building and other land-related agencies on MUNIS or on the system from the Land Records vendor.***

This may be a vendor-specific decision. For example, GeoTMS charges its customers like Burlington, based on a percentage of cash receipts. Other vendors who use a more traditional business model may be indifferent regarding the choice the Town may wish to make here.

This decision should be reviewed with Burlington's key land-use and financial officers as well as the CIO, Application Implementation Manager and selected vendor.

***12. The deployment of the Land Records system needs to emphasize mobile capabilities.***

Mobile capabilities should be a key criterion in the evaluation of Burlington's options regarding the new Land Records system. These capabilities range from (1) the functional limitations which the mobile environment may have compared with the office environment to (2) the ease with which the mobile devices can manage data either by secure communication from the field to the Land Records system or by downloading and uploading of data. They are critical in determining how efficiently and effectively Burlington's staff in these agencies can work.

Burlington will need to educate itself well in order to make prudent and insightful decisions here.

The Town will also need to recognize the value of the investment it makes here.

### **C-5. WEB SERVICES**

***1. Burlington should continue its efforts to enhance its Web presence with the new Revize Web application.***

The Revize system was going "live" at the same time as this IT Assessment was being drafted.

The Town Clerk is formally designated as Burlington's Webmaster.

Consistent with the recommendations which this IT Assessment makes with other application systems, Burlington should have a formal Web Services user-committee as a subcommittee of the IS Committee to work with the Town Clerk in her capacity as Webmaster. This organization should help to assure that the Revize system meets the needs of the broad user-community in Burlington on an on-going basis. The Town Clerk has already organized this kind of committee on an informal basis.

Users in interviews as part of this IT Assessment expressed three, major concerns which have been discussed with the Town Clerk:

- Whether and how they will be able to manage the content of their own departmental Web pages.
- How links from the Revize Web site will be able to support functionality which is important to the departments.
- Whether they could work on the Revize Web site remotely.

The Town Clerk was receptive to these comments and was beginning to address them in the course of this IT Assessment.

This IT Assessment recommends funding an additional \$2,000 per year to enable Burlington to increase its key staff users from 10 to 20.

**2. *The Town's Web site should provide editable forms for a variety of purposes.***

Having these editable forms on local-government Web sites has become more and more common over the last several years.

While building-related forms are often the most commonly available in this format, Burlington could also be using this for other functions such as its General License Application in the Selectmen/Town Administrator's Office.

Burlington may need to address this with Revize to see how this might be done best in their system.

**3. *Burlington should undertake a regular review of Web sites of other local governments recognized for excellence in this area.***

Independent organizations interested in local government and IT, such as the Center for Digital Government, do annual reviews of outstanding local-government Web sites by population size.

As part of this review they publish the criteria they use in making this evaluation.

Burlington should not be limited by population size in this comparison: good ideas can come from anywhere.

With the newness of the Revize system to Burlington, this is an ideal time to begin this comparative review with the user-group which the Town Clerk has convened in her capacity as Webmaster.

## **C-6. GEOGRAPHIC INFORMATION SYSTEMS (GIS)**

**1. *Burlington needs to engage an independent consultant with significant municipal experience to help the Town develop a GIS Master Plan and make basic decisions about how it wishes to proceed with GIS.***

GIS ties together geography and attributes of people, places and things. For example it can show:

- What Police activity took place in a certain part of Town.
- Where building-code violations occurred.
- What the characteristics of the water-distribution system are as this supports the DPW, Fire, Planning and other agencies.
- Where seniors or other populations live in the Town, especially people with disabilities.

GIS first began to be used in local governments in the United States in the 1970's and has an established national and international user-community coordinated mainly through its leading professional organization, the Urban and Regional Information Systems Association, known as

URISA. Other professional organizations, such as the International Association of Assessing Officers (IAAO), also cooperate closely with URISA in various ways.

GIS is potentially one of the more difficult, costly and valuable enterprise-level applications in a local government. Depending on what it may wish to do, a town like Burlington could spend anywhere from \$100,000 to \$500,000 over five years on the procurement and implementation of GIS. Also, as noted previously in Section Three of this IT Assessment on IT Organization, Burlington has the choice of developing and maintaining its GIS system by staff, contract or a combination.

The current situation with respect to GIS in Burlington may be characterized as follows.

- Burlington has never had a GIS plan or made any deliberate, coordinated decisions about GIS.
- Burlington has little in the way of GIS applications in place. Offices have standalone versions of the Arc family of products authored by Environmental Sciences Research Institute (ESRI), the dominant vendor in GIS nationally and the *de facto* standard in governmental GIS in Massachusetts.
  - Engineering has two seats for ArcGIS and uses mainly ArcGIS's ArcMap and ArcEdit functions.
  - Conservation has two licensed seats for ArcView 10.1, obtained through the Commonwealth's Office of Geographic Information (MassGIS).
  - Planning has three seats for ArcGIS 10.
  - The Board of Health uses ArcGIS 9.3, mainly with the ArcMap function.
- Some hardware which would be specifically useful for GIS is already in place. Most noteworthy are the Canon iPF755 36" large-format color plotter and the Ricoh W3600 in Engineering, both of which are already networked. Various color laser printers in different offices would also be helpful.

In summary, what has occurred thus far in GIS in Burlington has been piecemeal with no specific coordination.

Departments who are or could be key users of GIS include:

- Assessors.
- Board of Health.
- Building.
- Conservation.
- DPW/Engineering.
- Fire.
- Planning.
- Police.
- Selectmen/Town Administrator.
- Town Clerk.
- Zoning Board of Appeals.

Burlington's Web site should also be an important means of offering GIS-related information to the public on such subjects as Town services, wetlands, floodplains, public safety or planning issues.

This IT Assessment recommends that Burlington fund a GIS Master Plan by an independent consultant specializing in municipal GIS. The estimated cost of this effort is \$50,000. Also, there is a balance of \$17,500 in Article 27 of the May 16, 2011 Town Meeting, Electronic and Digital Mapping/Information Update, from the original appropriation of \$20,000. This balance should be able to be applied to the cost of the GIS Master Plan.

This is a fiscally prudent expenditure for two reasons.

- It responds to basic, day-to-day needs of multiple Town offices.
- It puts in place a comprehensive, cost-effective plan. Otherwise, Burlington could expend substantial sums--well into six figures--with disappointment in the results.

There is a set of firms in New England and elsewhere who specialize in helping municipalities like Burlington develop GIS master plans. The best of these firms can bring broad and deep experience to serve the Town well here.

## **C-7. WORK/SERVICE MANAGEMENT**

### **1. *Burlington needs to implement an integrated Work/Service Management application system.***

Work/Service Management refers to the set of applications which includes:

- Work Orders.
- Inventory.
- Fleet Management.
- Facilities Maintenance.

The physical assets which are affected by these functions have a replacement value approaching \$200,000,000. This would include such things as Police vehicles, Fire apparatus and DPW trucks and equipment. As one example, Burlington states a replacement cost of \$7,063,505 for its 158 vehicles for all departments and an insured value of \$166,291,037 for its Town and School buildings.

Among these functions, it is most common in the local-government marketplace to find vendors who have good products for Work Orders and Inventory. However, it is less common to find that these same vendors have a Fleet Management or Facilities Maintenance application of similar quality.

The Town government has no suitable, computer-based tools for managing these functions and related services in such areas as the DPW and Recreation Maintenance. Excel is used in various places, such as in the Fire Department for Fleet Management, but reflects only the absence of a more appropriate product for these functions. This situation is different in the School Department which has

implemented the SchoolDude application in the last year as a condition of State funding of its School building projects, mainly for the purpose of managing the maintenance of its State-assisted school buildings.

The underlying significance of this situation is that the Town government has no ready means to identify (1) exactly what services of this kind it provides by type and number--for example, the number of trees removed from streets or potholes patched--or (2) how much these services cost Burlington to provide. This is a fundamental exposure in the current environment where citizens are increasingly demanding specific accountability from government.

This discussion also needs to take place in the context of Burlington's having a decentralized environment for responding to requests for services from the public. While some local governments have a central office which manages citizen services enterprise-wide as in the 311 model, Burlington's calls for service go (1) directly to the responsible department or (2) from the switchboard in the Selectmen/Town Administrator's Office to the responsible department.

Procurement and implementation of these four applicators is estimated to have a one-time cost of \$125,000 with annual support of \$20,000 per year.

**2. *Burlington must make sure that the Work/Service Management applications have division- and department-level security.***

This security is the same as what this IT Assessment has discussed previously with respect to Financial Management and Payroll/Human Resources. It is needed since many agencies may be making use of these applications. These range from multiple divisions of DPW to Recreation, Fire, the School Department and others.

This question of security may be found to be a key differentiator among potential vendors. Burlington should not assume that all prospective vendors have the same capability in this area.

Several of Burlington's current vendors offer Work/Service Management applications. These include MUNIS, RecTrac and SchoolDude. There are also other firms in the municipal space with application systems for Work/Service Management; Burlington should explore these as a benchmark.

Decisions about the procurement and implementation of the Work/Service Management system should follow highest and best practice, beginning with a detailed needs assessment and a full view of the marketplace, proceeding through the issuance of the RFP and careful evaluation of vendors' proposal, and concluding with a performance-based contract and pre-negotiated implementation plan.

**3. *Reengineering of business processes will be a key issue in the implementation of the Work/Service Management application system.***

The current Work/Service Management environment is characterized by:

- An absence of any manual or automated records in some offices.
- The use of handwritten records in others.
- The occasional use of Excel spreadsheets.

Thus, Burlington and its vendor-partner(s) will need to be prepared to do a large amount of business process reengineering in order to make sure that the Town is getting full value for this major investment. The Application Implementation Manager and Work/Service Subcommittee of the IS Committee must be a key part of this process.

At the same time, in their interviews for this IT Assessment, Burlington's personnel revealed openness to this kind of process and a willingness to make good use of the new system.

**4. *The Highway Division needs an on-line version of its street directory.***

The Highway Division's "green book" has organized Burlington into six zones and multiple lettered subzones mainly for the purpose of managing its own forces and contractors during snow plowing. This is a basic but very important part of the work the Highway Division does.

The Highway Division's Superintendent and support staff have emphasized how helpful it would be for them to have the green book on the system.

The staff of the IS Department ought to be able to accomplish the automation of this directory very quickly and easily.

**5. *Burlington should consider the procurement and implementation of a COTS application for its Cemetery Division.***

The Cemetery makes no effective use of IT in its operations.

Cemetery applications provide many capabilities including such things as the maintenance of various records and maps related to decedents and burial sites.

The main issue in implementing a Cemetery application is that this Division has a small staff who does not have the time it would take to maintain this application. The DPW Director, Work/Service Subcommittee and Application Implementation Manager should review this situation more closely.

Should Burlington decide to proceed with a Cemetery application, this should be done on a date-forward basis. In this approach, Burlington would maintain all of its historical records and use the new application beginning with a date in the future, e.g., July 1, 2014.

The estimated cost of the Cemetery application is \$7,500 one-time and \$1,500 per year for support.

**6. *Burlington needs to make sure that there is appropriate documentation of the SCADA system and provision for its ongoing support.***

SCADA is the acronym for Supervisory Control and Data Acquisition. It has a critical role in monitoring the operations and facilities related to Burlington's water distribution and wastewater systems.

Burlington has built its SCADA system internally over the last several years, relying on the Town's Information Systems Manager.

Given how critical the SCADA system is to public health and safety, it is imperative that Burlington have excellent documentation of the system, its programming and operation.

The CIO and IS staff should work with the DPW to make sure that the SCADA system meets these high standards.

**7. *Personnel in the Water and Wastewater operations should have tablets to facilitate their work in recording their daily rounds.***

These personnel occupy a critical role in assuring the continuous quality of these vital operations.

Today, this work is being done with handwritten round sheets. The obvious limitation here is that there is no ready way to analyze what they have recorded.

Tablets and appropriate software should be able to be purchased for a one-time cost of \$10,000 and an annual cost of \$2,000.

**8. *Access to the SCADA system is needed by personnel at Mill Pond.***

There is a continuing need for these personnel to monitor such critical data as chlorine usage and flows.

Burlington will need to hire a consultant to identify the best way to access the SCADA system from Mill Pond. The estimated cost of these services is \$3,000.

**9. *Burlington should act to assure the survivability of its Cemetery records.***

While some Cemetery records are maintained in the DPW's offices in the Town Hall Annex, others such as the burial book appear only to exist at the Cemetery offices. There is a fireproof safe at the Cemetery office where these records are kept.

The Town's Archivist and Application Implementation Manager ought to work with the DPW Administration and Cemetery Division in arriving at a written plan to assure that digital or paper copies are made of these irreplaceable records, whether maintained at the Town Hall Annex or the

Cemetery office. These copies then would need to be stored in a way which assures their survivability in the case of loss of or destruction of either or both of these locations.

### **C-8. OFFICE SYSTEMS AND COLLABORATION**

#### ***1. Burlington should establish Microsoft Exchange Server as its core Office Systems and Collaboration platform.***

Burlington is plagued by the lack of a universal environment for these functions, using a current release of these products.

Burlington's efficiency and effectiveness enterprise-wide are hampered every day by:

- The lack of a standard, installed product in currently supported version for functions as ubiquitous as Microsoft Office. While the Town today has Microsoft Office 2003 in place for approximately 90 per cent of its end-users, this is not a universal environment. Office 2003 is outdated and does not, for example, often enable the Town's staff to incorporate documents from outside parties using more current versions.
- The absence of a product like Microsoft Exchange Server to enhance collaboration in ways as basic as sharing of calendars.
- The absence of an Intranet using a product like Microsoft SharePoint to promote internal communication and information-sharing. As one good example, the Town had no good way to share the seven forms used for the inventories of IT assets in the course of this IT Assessment.

This IT Assessment recommends that Burlington establish Microsoft Exchange server as its enterprise-wide platform for office applications and collaboration. The main, controlling factor here is the very tight integration of MUNIS's workflow functionality with Microsoft Exchange. Where MUNIS Workflow is an absolutely critical part of enhancing efficiency and effectiveness in functions across Burlington, this becomes the most important consideration in Burlington's strategic decisions regarding this set of applications.

Implementing Microsoft Exchange Server, based on the Office Plus environment, has an estimated one-time cost of \$70,439 and annual support costs of \$2,500. This includes:

- 100 maximum concurrent seats for Microsoft Exchange Server.
- 100 maximum concurrent seats for Microsoft Office (options are given here for Office Standard or Office Plus).
- The server hardware configured to support these products and this user-count.

Table 11 presents the costs for the Exchange Server, showing the options for Office Standard or Office Plus.

**Table 11: Implementation of Exchange Server: 100 Maximum Concurrent Users**

	Description	Office Plus		Office Standard	
		One Time	Annual	One Time	Annual
1	MS Exchange Server Software	\$ 5,141	N/A	\$ 5,141	N/A
2	MS Office 2010 Plus	\$40,298	N/A	----	----
3	MS 2012 Office Standard	----	----	\$27,793	N/A
4	Server Hardware	\$25,000	\$2,500	\$25,000	\$2,500
5	<b>TOTAL:</b>	<b>\$70,439</b>	<b>\$2,500</b>	<b>\$57,934</b>	<b>\$2,500</b>

The exception to this recommendation is the School Department's use of Google Apps, which has been provided to approximately 3,000 users in the School Department and should continue to be used in the educational environment. The main change here will come for a limited number of School personnel - about 20 MUNIS users mainly among school-level staff, program directors and Central Office personnel - who will need access to Exchange Server as part of their use of MUNIS mainly in Financial Management and Payroll/HR.

The Information Systems Manager should be capable of undertaking the responsibility of administering the Exchange Server environment, with a second person on the IS staff trained as his backup.

- Burlington will need to pay special attention to the migration of files from its Office 2003 and Office 2007 environments to the new Office 2010 environment.*

This migration, especially from Office 2003, can be fraught with problems.

Burlington should budget \$15,000 for professional services to assist in this migration.

## **C-9. EXECUTIVE ADMINISTRATION AND RECORDS MANAGEMENT**

### **1. *Burlington needs to examine its policies and procedures for compliance with the FTC's Red Flags Rule.***

The Federal Trade Commission (FTC) several years ago promulgated what is known as the Red Flags Rule in order to protect against identity theft.

In a local government like Burlington, the Red Flags Rule applies mainly to utility operations like Water and Wastewater which defer payment for services on a recurring basis.

One of the fundamental requirements of the Red Flags Rule is that creditor--here, the Town--develop a written Identity Theft Program tailored to the needs of the municipality.

Burlington should consult with Town Counsel, its independent auditor, MUNIS and the DOR to determine exactly what it may need to do to address this issue. Where the Red Flags Rule affects every municipality which offers utility services like Burlington and has been in place for two years since June 1, 2010, what is required for compliance should be settled.

### **2. *Burlington needs to examine its policies and procedures for responding to discovery under the Federal Rules of Civil Procedure.***

This issue has created new demands on local governments over the last several years.

Most particularly, this regards how the Town maintains archives of its documents, emails and voice mails.

Burlington should address this issue with Town Counsel, who likely has faced this same query from many of its clients.

### **3. *Burlington should examine the value of moving preparations and results of meetings of its key elected and appointed boards, committees and commissions to a paperless environment.***

The International City/County Management Association (ICMA), the leading organization for professional local-government managers, has described this as "The Paperless Council."

The intent here is to provide members of the local governing body (here, the Board of Selectmen, although this could also include the School Committee or any other board, committee or commission) with copies of all of the same information they would normally receive before a regularly scheduled meeting but in electronic format. This eliminates, or at least minimizes, the many hours of work which the staff in the office spend in assembling the collective dozens or hundreds of pages of documents in binders for each member.

As part of this new environment, any authorized official should be able to access the system and this information from anywhere--home, office or while travelling--over the Internet on a secure basis.

What has been learned over the last 12 years or so since this movement began taking hold across the United States is that success depends on letting each member of the elected or appointed body make their own decision about whether they wish to have materials for meetings electronically or in the usual hard-copy format. If this is done as an all-or-nothing mandate or vote, typically it fails.

The Planning Board has been taking this kind of approach for several years, emailing most of the materials for its meetings in advance to the members.

Where local agencies have moved in this direction, all of the background materials for a meeting which are public record and not subject to confidentiality provisions of State law or otherwise are often posted on the agency's Web site. Clearly, this is a matter for determination of local policy by each board, committee or commission involved. Moving in the direction of The Paperless Council may also add to the sense of transparency and civic engagement which is a topic of much current interest in local government and school districts across the United States.

Burlington should fund this change for the Board of Selectmen and School Committee at \$10,000 one-time and \$100 per year for consumable supplies and repairs, intended to pay for a computer and printer which would be the property of the Town, used only for official business, and returned after the member leaves office.

**4. *Burlington ought to consider the implementation of an Electronic Content Management (ECM) system.***

This IT Assessment sees the implementation of an ECM as a Phase II priority since Burlington simply has too much to do in too many other functional areas.

ECM enables an organization like Burlington to manage a wide variety of documents on an enterprise-wide basis. It can be thought of as creating a large, secure, well organized and easily searchable electronic filing cabinet.

ECM has the advantage of providing secure access for any authorized user to any document without having to leave their chair. This, then, can lead to greater efficiency in the user's work and the opportunity for heightened collaboration by making it easier to access and share information.

An important lesson in the deployment of ECM in local governments has been the need to be very careful and deliberate in creating the original taxonomy of how documents are classified: once this taxonomy has been established, changing it and reclassifying documents previously entered into the system is next to impossible.

The ECM can have great value to Burlington but also requires a relatively substantial effort in its implementation and support by the IS Department's staff. This would likely amount to at least 0.50 FTE during implementation and 0.25 to 0.50 FTE on an on-going basis.

The estimated cost of an ECM is \$120,000 one-time and \$15,000 for annual support.

**5. *Burlington should obtain 10 licenses for Adobe XI Pro.***

Adobe XI Pro provides Burlington with the ability, among other things, to create editable forms. This application could be valuable both in enabling the Town's staff to develop these forms for use on the Town's Web site, as this IT Assessment discusses later in this section, as well as for internal purposes.

A small number of offices, including HR and Planning, are now using previous versions of this product.

Licenses for Adobe XI Pro are \$449.00 each or \$4,490 for 10.

**6. *Burlington should procure or develop an indexing application for the Town Archivist.***

Burlington has an extraordinary resource in its Town archives, administered by a professional Town Archivist.

The Archivist has noted the specific need for an application to index the entire collection in the Town archives.

The Town should search for this application in the commercial marketplace, through the Society of American Archivists or be open to custom development in Microsoft Access. Access would be preferred in this case in order not to diversify the technical expanse of Burlington's application environment more than necessary.

The estimated cost provided by the Town Clerk for this application is \$1,000 one-time and \$200 in annual support.

**7. *The Town should provide FaxPress with both local and remote access to all end-users who have a need for this product.***

Personnel have reported the inability to have remote access to FaxPress.

This issue should be addressed with the IS staff.

## C-10. COMMUNITY SERVICES

This subsection addresses the following agencies:

- Parks and Recreation.
- Library.
- Council on Aging.
- Veterans Services.
- Community Life.

**1. *The Library needs to be working closely with the IS Department's staff in addressing issues in the Evergreen library application system which Burlington uses as a member of the Merrimack Valley Library Consortium (MVLC).***

The Library reports continuing issues with the Evergreen system.

Evergreen is a fairly new and small open-source system, having (as its Web site states) been initiated by the Georgia Public Library System in 2006 and today having only nine active committers (a committer, as defined by Wikipedia, "...is an individual who is able to modify the source code of a particular piece of open-source software.").

The Library has been trying its best to address the issues with Evergreen and MVLC by itself but has not requested technical assistance from Burlington's IT professionals. As a corollary, the person selected for the new 19-hour position might not have the level of knowledge and skill to provide this representation, either.

Once the CIO is on board, the Library should reach out now to Burlington's senior technical personnel. Together, they should undertake an initial diagnosis of the issues with Evergreen locally and, depending on the results, meet then with the MVLC and its management, technology staff and technology-user committee.

**2. *The Library has particular issues related to printers which ought to be addressed.***

The Library as an agency in Burlington has some issues related to printers which are unique and others which may be more broadly applicable to the Town. These include the need for:

- Wireless printing for patrons.
- Networked printing for staff and patrons.
- Paying after printing for patrons.
- Printing from laptops for patrons.

Standards is one of the basic issues here. Addressing the Library's printing needs should involve products which Burlington's IS Committee and CIO together establish as standards. This, then, gives the Library the highest possible level of support.

This IT Assessment recommends funding of \$2,500 one-time and \$500 per year to address these issues.

- 3. Burlington should see whether there is any financial information from the Evergreen system which can or should be uploaded to the MUNIS system.***

This issue should be explored by the Library in cooperation with the Town Accountant, Application Implementation Manager and MVLC.

The goal here is to see what data entry into the MUNIS system might be eliminated by being able to extract information from the Evergreen system and import it electronically into the MUNIS system. This is the same model as discussed previously in subsection C-2, Payroll/Human Resources, involving an extract from the CATS applicant-tracking system to the MUNIS Payroll/HR system.

- 4. Burlington should review how it might be able to use the Connect-City product to serve seniors more effectively.***

Burlington has had the Connect-City application from Blackboard Connect for several years.

This is a “reverse 9-1-1” system which can call out to designated populations with emergency notices.

With 5,000 seniors, Connect-City may be able to serve Burlington more effectively for this population and others. This issue should be examined by the staff of the IS Department and Burlington’s Community Services agencies, with a report to the IS Committee.

- 5. Burlington needs to work with MySeniorCenter to see what can be done with respect to (1) identifying seniors with handicaps or disabilities and (2) generating ad hoc reports.***

The staff of the Council on Aging and the Application Implementation Manager should work closely with MySeniorCenter to define (1) what capabilities the product has in these areas and (2) what enhancements related to these functions may be part of its product plans.

- 6. Burlington should support the procurement and implementation of handheld-scanning capabilities with MySeniorCenter.***

Using these handheld-scanning capabilities would help the Council on Aging to have more accurate records and counts of participation by seniors in various activities. The scanner uses an individual’s ID card for this purpose.

The estimated cost of this capability is \$820 one-time and \$100 for annual support.

**7. *Burlington should consider the procurement and implementation of tablets to assist staff of the Council on Aging in home visits.***

Tablet technology has been used by social-service agencies in the United States for more than five years.

It can help greatly in providing information and services to seniors more efficiently and effectively. One example is in completing forms for financial assistance.

The Council on Aging should work with the IS Department and Application Implementation Manager in pursuing this possibility with MySeniorCenter or otherwise.

This IT Assessment recommends funding of \$1,000 one-time and \$200 per year for the implementation of tablets.

**8. *Burlington should fund the procurement of an application to help Community Life manage its services.***

Community Life provides services to approximately 400 residents of Burlington per year with a caseload of roughly 65 to 85 at any given time.

Today, it has no good way to manage its records. At the same time, the marketplace has applications specially developed for professional practices of this kind.

This application should be able to manage several functions which are essential parts of Community Life's operations. As examples, these include:

- Client records, which are now maintained on 4" x 6" cards and in Excel.
- Caseload/productivity, including such things as the number of hours of direct services actually delivered to Burlington's residents.
- A central calendar for appointments.

Security is a major concern here, given the confidentiality of these records by law and otherwise. The COTS application itself must provide appropriate security and Burlington must deploy this application in a way which meets all appropriate needs for security.

This IT Assessment recommends \$10,000 one-time and \$2,000 in annual support for this kind of application.

**9. Community Life should review the use of MUNIS to manage its cash receipts.**

This is strictly a paper-based process today.

Community Life, like other agencies in Burlington, should be able to enter these receipts directly into MUNIS, following the same model described earlier in Subsection C-1 on Financial Management.

Again, confidentiality involving such things as the identity of the payor or individual being provided services is a special concern with the processing of cash receipts for Community Life.

**10. Recreation could make good use of other modules in RecTrac.**

As with other incumbent vendors like MUNIS and IMC, RecTrac also offers applications which could be helpful to Burlington in supporting the role and mission of Recreation in the Town. These include the following:

**Table 12: RecTrac Additional Applications**

	<b>Application Description</b>	<b>One-Time Cost</b>	<b>Annual Cost</b>
1	Pass Management Photo	\$2,450	\$440
2	League Scheduling	\$1,950	\$350
3	WebTrac Pass/ID Card Registrations	\$750	\$150
4	WebTrac League Scheduling	\$750	\$150
5	Mobile WebTrac	\$1,950	\$350
6	Mobile RecTrac	\$1,950	\$350
7	Progress OpenEdge Software	\$1,960	\$358
8	<b>TOTALS</b>	<b>\$11,760</b>	<b>\$2,148</b>

All of these applications address core functions of best practice in Recreation.

**11. Recreation will need to make a decision about which Work/Service Management application to use.**

RecTrac has its own MainTrac application which addresses this function. It should have the advantage over other options (such as MUNIS, SchoolDude or another third-party product) of having the closest possible functional integration with the rest of the RecTrac application system.

Recreation should participate fully in the evaluation of potential Work/Service Management application solutions with the Application Implementation Manager and Work/Service Subcommittee.

Funds for the procurement of the Work/Service Management application are included in Subsection C-7, item 1.

***12. Recreation would like to put the availability of facilities on the Town's Web site.***

Recreation has regular inquiries on this subject from the public which now can only be answered by taking the time of the Recreation staff.

Information regarding the availability of facilities comes from the RecTrac system. Thus, Burlington will need to work with the Town's Webmaster, IS staff, RecTrac and Revize to see how this might be able to be done.

***13. Burlington should undertake a complete review of moving RecTrac from its current server-based environment to a hosted environment.***

RecTrac is available on a Software as-a-Service (SaaS) or hosted model.

As with MUNIS, moving RecTrac to a SaaS model is a complex decision which needs to consider such issues as customer service, functionality and lifecycle cost. For example:

- How might the license fees already paid by Burlington be applied to its costs for implementing and supporting the SaaS model?
- What would be the value of the Recreation staff's being able to access RecTrac over the Internet outside the office?

Burlington will need to involve various parties in this process including most particularly Recreation, the CIO and the Application Implementation Manager.

***14. Issues in compatibility between Recreation's office PC's and RecTrac need to be resolved.***

Recreation's personnel report the persistence of these issues with no apparent cause or resolution.

Burlington needs to assign its best technical personnel to work with RecTrac and resolve this situation as soon as possible.

***15. Recreation can take especially significant advantage of the capabilities of the MUNIS Financial Management system.***

Recreation does an enormous amount of handwritten work to manage its finances, all of which could be eliminated with the enhanced deployment of the MUNIS system, including appropriate training.

As one example, Recreation keeps both a journal book and a separate General Ledger book to maintain information on its finances. This requires an extraordinary amount of time and effort.

This recommendation is in no way a criticism of Recreation or its personnel. Instead, it reflects the extraordinary need which Recreation - and most other Town and School offices - has to be able to use the full capabilities of MUNIS in making their work for the Town better, faster and easier.

### **C-11. OTHER**

This subsection addresses functions not otherwise included in the previous subsections of this IT Assessment.

- 1. While social-media applications could have significant value, much higher priorities mean that Burlington will not have the organizational capacity to address these for approximately one to two years.*

Social media are changing municipal government and school administration in significant ways. This ranges in its breadth of functions from public works and public safety to citizen participation.

The IS Department as well as other Town and School offices will also need to have staff to process the input and output related to social media. This is a new subsystem for most of Burlington which will not run by itself. Social media has a specific cost in FTE's who must be paid directly or indirectly for doing the work which social media create.

Part of the decision about implementing social media is political: does the Town's elected and appointed leadership feel public pressure to enhance the role of social media in the Town and Schools more quickly?

Otherwise, this IT Assessment recommends that further development of social media as a part of the world of IT in Burlington be postponed until the large number of more pressing enhancements to IT, business process and services have been implemented successfully.

- 2. Burlington should identify an individual or business with expert knowledge of Microsoft Access to provide technical support on an as-needed basis.*

This recommendation assumes that this skill does not exist among the staff of the IS Department.

Several offices in Burlington have specialized applications written in Microsoft Access which likely will continue to be used regularly with no obvious substitute. Among others, these include:

- The Town Clerk's Office which uses a broad range of these applications for several key functions from Voter Registration to archival indices.
- The Selectmen/Town Administrator's Office which uses this application to manage alcoholic-beverage licenses and renewals.

- The Board of Health, whose VacTrac application is written in Access 97, is no longer supported by the vendor and will not run on newer PC operating systems.

As one example of the need for this support, an interview in the course of this IT Assessment showed a key application in the Town Clerk's Office which was not updating any data elements at the time of data entry. This is the kind of error which would require a highly skilled Microsoft Access expert to solve. In another case, the processing of Alcoholic Beverage licenses was requiring a nearly duplicate set of full data entry to a separate Microsoft Excel spreadsheet since it had not been possible to enhance the Access application to include certain additional data elements.

Burlington should fund these services at \$3,000 one-time to address the accumulation of outstanding issues with Access applications and \$1,500 per year thereafter for services as may be needed.

**3. *Burlington needs to reconsider its deployment of OmniForm since that product is no longer supported under Windows 7 by its vendor.***

The Web site for this product states that its vendor, Nuance, does not support this product at OmniForm Filler 5.5.

Where Burlington now uses this product as OmniForm 5.0, this will require appropriate changes in the Town's applications environment.

**4. *Burlington should be aggressive in consulting with leading users of its COTS applications among other local governments and school districts in order to stay abreast of best practice and innovation in the deployment of these applications.***

Other user-organizations can be a very valuable source of real-world knowledge regarding the deployment of COTS applications and how to get the greatest value possible from them.

Through interaction at meetings of user-groups and in other ways, Burlington should come to know who these leading users are and in what particular applications they may have special expertise. User-organizations usually are very willing to share their knowledge and experience with their peers.

In the last several years, Burlington has participated in local user-group meetings but not in any national conferences. Police attended local user-group meetings for IMC in 2010 and 2011 but not yet in 2012 and has not attended any of TriTech/IMC's national conferences including one in the last few years in Boston. These should be viewed as mandatory events and funded fully by the Town: attending these events can make a huge difference in the quality of deployment of COTS products and the value Burlington gets from them.

**5. *Burlington should establish a standard product for various surveys.***

This request came originally from the Human Resources Department.

Having a standard product for surveys could have fairly broad applicability in the Town and Schools in two areas among others:

- Surveying customers in such areas as applicants for residential or commercial building permits to determine their level of satisfaction with the service they received. This has been done for many years by nationally recognized leaders in citizen services like the City of Sunnyvale, California. One key to this kind of survey is having it use the already existing database of all customers who applied for a given service like a building permit in a given year from the GeoTMS system, for example.
- Surveying employees of the Town and Schools regarding issues which may arise from time to time, beginning for example with their satisfaction with the recruitment and selection process or services of the IS Department.

Standardizing on a product for surveys has the same value to Burlington as other IT-based standards: it enables both the IS Department's staff and the user-community to develop the highest possible level of expertise in the support and use of these products. Potential products here may include, among others, Google Forms or SurveyMonkey.

Decisions regarding the procurement and implementation of a survey product should await the CIO and Application Support Manager.

This IT Assessment recommends that Burlington fund the use of a robust product like SurveyMonkey's top-tier Platinum plan at a cost of \$780 per year.

**6. *Burlington ought to be examining mobile solutions as appropriate.***

A small number of Town offices has had a successful experience with mobile computing. These include:

- Engineering which has used ESRI's ArcPAD in the field for evaluating streets related to Pavement Management.
- The Board of Health, which has equipped its inspectors with mobile computers and printers for food inspections using the Digital Health Department application.
- Police which has used IMC Mobile in 13 of its vehicles.

These applications have been discussed in greater detail in the subsections related to their respective functions elsewhere in this IT Assessment.

The broader and deeper deployment of mobile computing could prove helpful to many personnel in Burlington including but limited to the Town Administrator and Assistant Town Administrator, Superintendent of Schools, DPW, Fire and similar agencies with regular outside responsibilities. This can apply to personnel at all levels.

Mobile computing is transforming work for local government and education. Burlington, through its IS Committee, subcommittees and IS staff, needs to keep keenly aware of how the continuing evolution of mobile computing may benefit the Town.

Funding for the deployment of mobile computing has been included in the recommendations for various functions where this may apply.

**7. *Burlington should establish a training facility which can be used by Town and School personnel on a regular basis.***

End-user training needs to become a regular part of how Burlington addresses IT. Indeed, several departments stated directly that they had either never had any training in any of the applications they use or had not had training since the application was first implemented a decade or longer ago.

This training facility should be established with 12 positions, which is the maximum number of students who can be trained well in these kinds of applications in one group.

As well, it may be possible to have the training facility also serve as the Town's Emergency Operations Center (EOC), which this IT Assessment addresses elsewhere. The EOC could then use the IT resources already in place to meet its own special needs.

A classroom or other school facility does not suit this purpose well since these rooms are usually only available after regular school hours, which does not fit the schedule of most Town and School personnel.

Given the need for refresher training in current applications as well as the vast expansion of Burlington's overall application portfolio, the need to have this facility dedicated to training for the next several years is clear.

This IT Assessment recommends that Burlington fund the IT-related infrastructure for the training facility in the amount of \$50,000 one-time and \$1,000 annually for miscellaneous costs. This specifically excludes any site preparation or construction-related costs.

**8. *Burlington needs to have an annual budget for ongoing training of end-users.***

After end-users have trained initially in an application, Burlington should be making fiscally prudent annual investments in their ongoing training. This helps Burlington to get the greatest value from the application as it evolves over time and as the Town's needs and business processes may change.

As an example of current costs for COTS applications, training for MUNIS is \$1,275 per day and IMC \$1,200 per day. These tend to be market costs.

This IT Assessment recommends that Burlington fund this on-going end-user training in the amount of \$32,500. This would include 12 days at \$1,275 each for a total of \$25,500 plus another \$7,000 for participation in regional and national user-group conferences. This level of funding should also provide for training from year to year in applications such as Microsoft Office, which may be able to be done by School personnel or firms in the Burlington area specializing in training for these horizontal products.

**9. *Burlington should consider additional MUNIS applications in Phase II.***

MUNIS has offered two applications which are not of particularly high priority but which Burlington may wish to consider in Phase II.

- Tyler Citizen Self Service enables residents to view or pay any bill processed through MUNIS including taxes, utilities, business licenses and animal licenses. Citizens can also use this product to request services. It has a one-time cost of \$21,075 and an annual-support cost of \$3,960.
- Tyler Content Manager establishes a secure, enterprise-wide repository--an electronic filing system--which can manage such things as documents, various Microsoft file formats and other scanned images. Whenever Burlington may consider this product, it should be compared with the Electronic Content Management (ECM) system discussed in subsection C-9, item 4 in order to see which may be the better choice for Burlington. Tyler Content Manager has a one-time cost of \$36,150 and an annual-support cost of \$5,400.

While each of these applications could provide some benefit to Burlington, relatively they merit only a Phase II priority.

**10. *Burlington should budget for independent professional services in the procurement and implementation of new application systems.***

Burlington faces serious challenges in proceeding with the procurement and implementation of the various application systems which this IT Assessment recommends. These challenges include:

- Carrying out a detailed needs assessment.
- Drafting a Request for Proposals (RFP).
- Drafting a performance-based vendor-contract.
- Identifying prospective vendors.
- Evaluating proposals from vendors, consistent with Massachusetts General Laws (MGL) Chapter 30B, the Commonwealth's Uniform Procurement Act.
- Negotiating the performance-based contract with the preferred vendor.

- Incorporating the plan of services (implementation plan) in the contract prior to its execution.
- Assisting in the oversight of the implementation.

It does not appear that Burlington has ever carried out this kind of a structured, performance-based procurement.

Whatever decisions Burlington makes here will be with the Town likely for at least 10 years as they have been for vendors and products like MUNIS and GeoTMS.

Thus, engaging the services of an independent consultant with specific experience in the municipal arena represents a fiscally prudent action on the part of the Town.

This IT Assessment recommends that Burlington fund these services at \$50,000 for use in multiple procurements as may be needed.

## Section Five Networking and Infrastructure

### Section Five: Networking and infrastructure Summary of Key Findings and Recommendations

1. Burlington has deployed its fiber-optic backbone to all Town and School buildings, providing a solid foundation for sharing IT resources well into the future.
2. Network management and network security are ongoing, prime concerns.
3. Burlington must continue to pay attention to its wireless networking services and wireless security.
4. The scalability of the current network infrastructure should be subjected to more in-depth study, especially as the demands of educational technology grow.
5. Burlington should follow open standards throughout its network.
6. Burlington must emphasize maintaining a high level of availability and reliability in its network infrastructure.
7. The modularity of the network infrastructure might need more in-depth study.
8. Burlington must make the security of its network and infrastructure a top concern.
9. Burlington should continue to enhance its network management.
10. Burlington ought to make sure that it is deploying robust throughput components and achieving immediate response time in the network.
11. Burlington must monitor and evaluate Internet bandwidth requirements on a continuous basis, especially as demands constantly increase.

## A. OVERVIEW

Networking and infrastructure refers to information transport - how data, voice and video communications move. This incorporates both “hard” assets such as fiber-optic cable and switches as well as “soft” assets such as the software which does things like monitor networks. Networking and infrastructure is one of the more expensive elements of IT in Burlington.

## B. CURRENT STATUS

The current status of networking and infrastructure in Burlington may be characterized as follows.

1. Burlington’s current cabling infrastructure, involving single-mode fiber-optic cable and high-category-rated, low-voltage outlet cabling in most buildings, gives the Town a good running start towards convergence of technologies and wireless deployment.
2. Burlington’s municipal buildings and schools have the necessary cabling platform in place to enhance its current network capabilities such as Voice over Internet Protocol (VoIP) and wireless access points. The single-mode cable provides telephone system and data connectivity from the Town Hall to each building in Burlington.
3. Data connectivity from the Town Hall is provided via fiber-optic cable from the Cisco Virtual Switching System in the Town Hall to Cisco switches in each building. All sewer and pump stations are connected to the Town Hall via fiber-optic cable and Cisco LAN switches. The wireless system is also distributed from the Town Hall data center with multiple Cisco Access Points distributed through each building with the exception of the Town Hall Annex which currently has Category 3 cabling that will not support a fast wireless connection.
4. Burlington has substantially enhanced Networking Cabling Infrastructure with a single-mode fiber-optic roll out and with a minimum of CAT 5e cabling for all schools, the Police Department and most other Town buildings.
5. The Town and School Department have implemented network-management software appropriate to the requirements of their environment.

## C. FINDINGS AND RECOMMENDATIONS

1. *Burlington needs a logical fiber-route map in the form of a simple one-line drawing.*

The existing fiber map is an Excel spreadsheet which is a good backup and could be imported to the route map. Burlington should take two actions here:

- Hire an outside firm to work with Burlington's Information Systems Manager and develop a set of CAD drawings of the current fiber routes before any upgrades are planned. This baseline map should include the current fiber map and other pertinent information.
- Revise the current network maps to depict all network components in each Town building including telephone-system components. These can be combined and issued as another drawing in the set.

The estimated cost of this outside firm's services is \$70,000.

**2. *Burlington should evaluate the backup-generator systems at the Police Department and Town Hall.***

At the very least this needs to address the automatic transfer switch.

Burlington should hire an electrical-engineering firm to provide an evaluation of the generator systems at the Police Station and the Town Hall. This should include obtaining a cost proposal to upgrade to a more reliable system which can exercise itself on a regular basis (e.g., monthly or bi-weekly).

The estimated cost of the electrical-engineering firm's services is \$8,000.

**3. *Burlington must close all ceiling tiles in Town Hall data center in order to control temperature and humidity.***

The ceiling tiles in the data center are open to the floor above. This decreases the capabilities of the air-conditioning unit and also allows dust to gather from the floor above. The air-conditioning unit will work more efficiently when the room is sealed. This work can be done by a Town employee.

**4. *Burlington needs to re-cable the Town Hall Annex to a minimum of Category 6.***

The Town Hall Annex is now using a 10BT wiring scheme which has a Category 3 rating.

Having Category 6 cabling will enable the Town Hall Annex to have fast throughput of the network and support the deployment of Wireless Access Points in the building where required.

Burlington should hire an outside firm to create design and bid documents to issue a Request for Proposal (RFP) from a qualified low-voltage contractor to do this work.

The estimated cost of having this work done is \$19,950 including \$6,000 to hire an outside firm to do the procurement documents and \$13,950 to construct the Category 6 cabling, based on \$450 each for 31 connections.

**5. *Burlington should remove the old I-NET cabling from various buildings.***

This cabling is still in place from the Town Hall to the Library, Police, Human Services Building, Main Fire Station, the Town Hall Annex and the High School.

Removing this cabling, at least as it enters each building, would free up the necessary pathway space to add to the Town-owned fiber-optic cabling when additional capacity (more strands) to each building may be required.

Burlington will need to negotiate the cost of this work with Comcast.

**6. *Burlington should hire an independent firm to perform a Town-wide assessment of wireless LAN connectivity and create a plan to enforce policies created for this purpose.***

Mobile communication is a key component of network infrastructure for local governments and school districts.

The current profile of wireless deployment in Burlington may be summarized as follows:

- The School Department has deployed wireless access points in all of the school buildings for a total of 264 access points.
- Some but not all Town buildings have wireless access points deployed in some locations.

With the popularity of the Internet and the implementation of Bring Your Own Device (BOYD) to local governments and schools, many entities have focused on delivering Internet Protocol (IP) services across a mobile network. But providing access to the network to BYOD users requires the skill and time of a network professional with expertise in this field. In addition, limiting bandwidth utilization is a must in this situation and the constant management of the system is extremely important not only for bandwidth but security as well. The Burlington Schools are considering BYOD in the near future.

The School Department currently supports 5,000 devices.

As a generally accepted metric, each 1,000 iPod's requires bandwidth in the range of 200 to 300 megabits per second (mb/s).

The Schools have just upgraded to a 400 mb/s circuit to start the 2012-2013 school year.

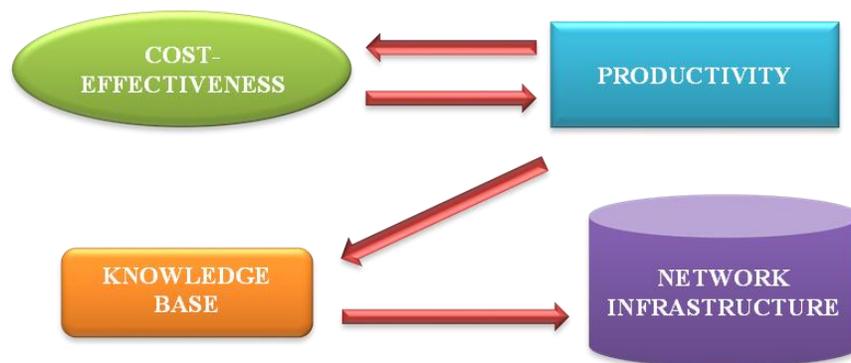
However, applying the metric formula of 200 to 300 megabits per second for every 1,000 devices to the School Department yields a demand for approximately 1 gigabit to 1.5 gigabits of bandwidth. The School Department reports that it has already had conversations about moving to 1 gigabit of bandwidth.

Thus, the need for an in-depth, independent assessment of wireless connectivity is apparent. And this assessment will also provide the information needed to address the deployment of more wireless access points in municipal buildings. The cost of engaging professional services for this work is estimated at \$8,000.

**7. *Burlington should hire an independent outside firm to perform an enterprise-wide assessment of the scalability of the current network infrastructure.***

A network is considered scalable when the network infrastructure is able to handle increasing amounts of data, hardware and network systems without noticeable degradation of network services. A well designed network infrastructure with a good foundation will always support growth.

- Cost-effectiveness in a network is directly dependent on organizational productivity.
- Organizational productivity is dependent on the organization's knowledge base.
- The knowledge base is dependent on the network infrastructure.



Therefore, Burlington's productivity is limited by the infrastructure of its network: it can only grow to the capacity of the network.

The preceding item 6 gave a picture of increasing demand in wireless services. The expanded use of IT in Burlington, especially for network-intensive applications like GIS and video, will also bring relatively significant marginal demand for bandwidth.

Engaging an independent outside firm to perform an enterprise-wide assessment of the scalability of the current network infrastructure will provide the specific guidance Burlington requires. The estimated cost of these professional services is included in the \$8,000 in the preceding item 6.

**8. *Burlington ought to conduct a detailed assessment of open standards in its networking and infrastructure.***

Open standards goes hand-in-hand with scalable, interoperable and secure network infrastructures that support converged services as well as accommodating traditional data, voice, and video services.

Open standards implies flexibility since there may be a need to interconnect different devices from different vendors for particular applications. The flexibility of these standards provides the infrastructure foundation for more effective sharing of common IT resources and also improves quality, effectiveness and productivity of cross-agency applications and information throughout the Town.

The detailed, independent enterprise-wide assessment recommended here focuses on the following kinds of open standards:

- Structured Cabling Systems.
- Copper Network Cabling.
- Fiber Network Cabling.
- Wireless Network Connectivity.
- Network Design and Implementation.
- Network Link Layer Access Protocol.
- Logical Network Topology.
- Transport and Network Layer Protocols.
- Network Devices (routers, switches, firewalls, access servers, etc.).
- Switching Technologies.
- Routing Technologies.
- Converged Services.
- Internet-Based Virtual Network Services.
- VLAN Technologies.
- Network Interfaces.
- Internal Workstation Network IP Addresses.
- Network Time Protocol.

The cost of these professional services is included in the \$8,000 in the preceding item 6.

**9. *Burlington needs to assure the reliability and availability of its network infrastructure.***

The network needs to guaranty transaction response. Generally, this is measured in the two dimensions of (1) mean time between failures (MTBF) of components and (2) mean time to repair (MTTR).

Burlington should hire an independent firm to perform a detailed, enterprise-wide assessment of the logical and physical redundancy in its infrastructure network. The cost of these professional services is included in the \$8,000 in the preceding item 6.

**10. *Burlington should evaluate the modularity of its network infrastructure.***

Modularity divides a complex system into smaller, manageable ones and makes implementation much easier to handle. Modularity and segmental infrastructure design ensure that a failure at a certain part of the network can be isolated so that it will not bring down the entire network.

Burlington should engage an independent consultant to perform a detailed, enterprise-wide assessment of the modularity of its infrastructure network. The estimated cost of these professional services is included in the \$8,000 in the preceding item 6.

***11. Burlington must evaluate its current network-security capabilities.***

As a common platform, network-infrastructure security should be based on industry-wide, open-standards-based technology. It should also require enabling protected and efficient transaction of business, delivery of services and communications among Town and School buildings as well as with the private sector.

Considering security risks and addressing them appropriately in an IP network is essential for complete assurance in the network.

Burlington ought to hire an independent firm to perform an enterprise-wide, detailed assessment study of its current network-security capabilities. The estimated cost of these professional services is included in the \$8,000 in the preceding item 6.

***12. Burlington should evaluate its network-infrastructure performance.***

Infrastructure performance is important because of the trends of consolidation, virtualization and convergence. All three of these require a high-performance infrastructure which can provide not only high bandwidth but also low latency, i.e., the time delay in transmitting data from one point to another.

While it appears that the response time in Burlington's network is adequate to meet its requirements today, this may change as new demands are placed on the network with additional applications, users and devices.

Burlington should engage a consultant to perform an enterprise-wide, detailed assessment of its current network-infrastructure performance. The estimated cost of these professional services is included in the \$8,000 in the preceding item 6.

***13. Burlington needs to monitor its Internet bandwidth.***

As Burlington expands its wireless capabilities, it needs to evaluate Internet bandwidth on a regular basis. The current Internet connection for the Schools with MECnet has been increased to 400 megabits as mentioned previously in this section. Through MECnet, the Schools will be using Sidera Networks as the service provider. While the current plan is to upgrade to 1 gigabit of bandwidth, no decision has been made or timetable established.

The Network Manager and others on the IS staff must be proactive in monitoring this situation.

## Section Six

# Telephony and Telecommunications

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<b>Section Six: Telephony and Telecommunications Summary of Key Findings and Recommendations</b>
1. Burlington should establish a plan to phase out the current Siemens HiCom systems in both the Town and School locations and replace them with a Cisco IP telephony solution.
2. Burlington ought to conduct a full billing audit of the network services provided by Verizon and re-configure these services as required to meet the current and future needs of the Town and Schools.
3. Burlington needs to carry out a VoIP readiness assessment of the current data network within and between Town and School buildings.
4. Burlington should have an audit of its current 911 network services.
5. Burlington ought to establish a comprehensive training plan with the implementation of new IP telephony systems.
6. Burlington needs to identify internal IT staff to be trained in administration of the IP telephony system implemented.
7. Reconfiguration of the PRI circuits should be part of any short-term planning for the telecommunications systems for the Town and Schools.

### A. OVERVIEW

Telephony and telecommunications refers to voice communications and messaging. This includes the telephone and voice messaging systems on-site at the Town and School locations, the local business telephone lines and circuits used for placing and receiving calls from the outside community as well the system features used to conduct telephone conversations, transfer calls, retain messages and integrate mobile telephone users.

### B. CURRENT STATUS

1. Burlington's current telecommunications system has two, main components:
  - The HiCom 300H systems manufactured by Siemens Corporation.
  - The Unified Communications Manager (formerly Call Manager) provided by Cisco.

The Siemens HiCom 300H systems were installed approximately 10 years ago and integrated through the use of the Town's fiber optic network infrastructure. This eliminated the need for

inter-building communications to be provided by Centrex service. Centrex service was a specialized analog line service originally provided by Verizon which, at a minimum, allowed for 3 or 4 digit calling and for calls to be transferred between buildings. Eliminating the need for multiple Centrex lines also reduced monthly recurring costs for Verizon.

The Main Distribution Frame (MDF) for the Siemens system is located in the Town Hall. Each building is connected via fiber to a remote voice multiplexer. The exceptions to this Siemens configuration are the Memorial Elementary and Marshall Simonds Middle Schools which have deployed Cisco IP telephony via the Cisco UC Manager.

Through the use of Siemens HiPath 3800 gateways, the Town has deployed some IP telephones in buildings served by the Siemens HiCom systems. These include:

- Simonds Park.
- Pine Haven Cemetery.
- Billerica Diversion.
- Vine Brook Water Main Plant.
- The Fire Substation.
- Main Sewer Station.
- Recreation Garage.
- Craftsmen SW1.

These Siemens IP telephones are not connected to Power over Ethernet (PoE) LAN switches for power but are locally connected to power sources. These IP telephones are not compatible with the Cisco UC Manager and therefore do not use the features of the Cisco system installed at the two school locations.

2. Burlington has installed a Cisco UC Manager to serve the telephony needs of the Memorial Elementary School and the Marshall Simonds Middle School in 2011. The UC Manager is an IP Telephony system which provides state-of-the-art features for the convergence of voice and data communications over a Local Area Network (LAN). The UC Manager's basic technology allows for the deployment of advanced features while adapting more simply to new features and technology via the use of software upgrades or adjunct hardware. The Cisco system is at the beginning of its lifecycle.

The Cisco system, by the nature of its IP telephony architecture, is flexible enough to adapt to additional growth and allows for additional features through software licensing and new software upgrades. As with other manufacturers of IP telephony systems, Cisco also has third-party partners who develop special functions and capabilities as add-ons to the UC Manager.

The UC Manager installed at the Schools can be expanded to the other Town and School locations via the current Cisco data-switch network infrastructure.

3. Burlington currently uses analog telephone lines and digital Primary Rate Interface (PRI) circuits to allow for connection to the outside community for both incoming and outgoing calling. These services, provided by Verizon, use Direct-Inward-Dialing (DID) service which allows Town and School users to be assigned a 10-digit number that can be called directly from the outside world.

The use of Primary Rate Interface (PRI) circuits connecting the Siemens (and Cisco) systems to the public telephone network allows the Town and Schools flexibility in terms of incoming and outgoing call routing. PRI circuits allow for 23 simultaneous calls and provide such functionality as incoming caller ID and Direct-Inward-Dialing (DID) service. In addition to end users, Burlington can make use of DID numbers for such applications as fax machines and other analog devices, eliminating the need for telephone lines which incur a monthly cost. Moreover, the PRI circuits allow (with the correct system software or peripheral system) for greater safety by providing a higher level of integration to the 911 network.

The PRI circuits for the Town are centrally located for use by the Siemens systems. Additionally, a separate PRI circuit is used for the Cisco systems. One of the advantages of using digital PRI circuits for network connectivity is the ability to install the circuits in multiple locations while allowing for calls to be routed between circuits automatically, should any single circuit fail for any reason.

### **C. FINDINGS AND RECOMMENDATIONS**

1. ***Burlington should establish a plan to phase out the current Siemens HiCom systems in both the Town and School locations and replace them with a Cisco IP telephony solution.***

The Siemens systems are currently at the end of their lifecycle and their cost of maintenance likely will increase in the near future. The Schools have installed a new Cisco UC Manager to service the telephony needs of two of its schools, the Memorial Elementary and Marshall Simonds Middle.

The Siemens systems present several concerns.

- a. The Siemens HiCom 300H systems are at the end of their lifecycle and, although they are currently serving the needs of the end users reasonably well, Burlington can expect system problems to increase in the future as the systems continue to age and system parts become more difficult to obtain.
- b. The Siemens HiCom 300H system, because of its inherent technology, is not flexible in terms of deployment of new features, adapting to new network technologies and making use of more cost-effective functionality such as voice/data network convergence and cellphone integration. The Siemens HiCom system has a traditional telephone-processing infrastructure that allows for multiple calls to be processed simultaneously. The system does have a growth limitation although at a level that far exceeds what Burlington would probably need.

- c. Interviews with end users in Burlington indicated some issues with regard to the current Siemens telephone systems. These include:
- No display of missed calls.
  - No caller id with name display.
  - Limit to the number of voice mail messages in a mailbox.
  - Inability to check voice mail remotely.
  - No directory of internal extensions.
  - Calls sometimes dropped or lost.
  - Call conferencing not available or difficult to use.
  - No mute feature available.
  - No speaker available for conference calls.
  - No cordless telephone to allow for mobility.
  - No auto attendant function.

Although some of these issues reflect a lack of adequate training or are the result of the type of telephone being used by the user, the majority are limitations of the Siemens system due to its age and technology.

This system plan needs to address redundancy, network resiliency, disaster prevention, 911 requirements, mobility options, messaging alternatives and system management.

Likewise, it should take into account the option to replace all systems at one time or to replace them in a phased approach. Each option has its respective advantages and disadvantages. Decisions about when and how to proceed with this procurement and implementation will depend on the availability of capital funds.

As well, Burlington's plans for replacement of the Siemens systems should take into account the Cisco technology already deployed in order to protect the investment made in that technology. The expansion of the Cisco system can be done with the use of the Commonwealth's statewide contracts or via a Cisco-specific RFP procurement conducted under Chapter 30B, the Commonwealth's Uniform Procurement Act.

Developing the plan has a one-time cost of \$11,250. The procurement and implementation of the new Cisco IP telephony solution, based on the current telephone count of 1,410 telephones still in use on the Siemens systems, has an estimated one-time cost of between \$1,190,500 and \$1,410,000 and an estimated annual cost between \$67,680 and \$84,600. These estimated costs are offset in part by the current cost of \$68,350 per year for the Siemens system which it would be replacing.

It should be noted that the telephone system replacement cost estimates are affected greatly by the final configuration of telephone instruments purchased by the Town of Burlington and how the final configuration of the system(s) are designed. For example, the use of existing Cisco data switches in small locations will negate the need for additional equipment other than telephone instruments..In addition, the redesign of how telephones are used in classrooms and the sharing of system resources such as voice messaging, call accounting and outside trunks/lines can have a dramatic effect on the final configuration and the reduction of purchase costs. It is of the utmost

importance that a full telephony plan be developed prior to soliciting vendor bids/proposals for any telephony system.

- 2. Burlington ought to conduct a full billing audit of the network services provided by Verizon and reconfigure these services as required to meet the current and future needs of the Town and Schools.***

The annual amount paid to Verizon for network services needs to be addressed by ensuring both that (1) invoices are correct (obtaining credits for any overbillings) and (2) configuration of these services is ideal for the telephony systems currently installed and adaptable to the plan developed to replace the Siemens systems. The use of the Commonwealth's statewide contracts will make sure that all services are invoiced at the most cost-effective rates.

Where firms doing this kind of audit typically are paid on the basis of a percentage of the dollars "found" for the Town, this audit should have no cost to Burlington.

- 3. Burlington needs to carry out a VoIP readiness assessment of the current data network within and between Town and School buildings.***

The full deployment of IP telephony as a replacement of the Siemens systems will require the use of the existing data network and Cisco infrastructure. It is important that the network be tested to ensure that it can process voice traffic effectively.

This VoIP readiness assessment will contribute to enhancing telephony and telecommunications in Burlington in three ways:

- Testing the network by emulating voice calls through all network switches and determining their ability to carry VoIP calls.
- Determining which network components, if any, need to be upgraded or replaced in order to meet VoIP and IP telephony requirements.
- Providing the basis for requiring the IP telephony vendor to guarantee performance end-to-end.

The VoIP readiness assessment must be conducted over a minimum of seven days to be effective; ideally, it should be conducted for a longer period of time.

The one-time cost of these services is estimated at \$11,000.

- 4. Burlington should have an audit of current 911 network services.***

The Town and Schools need to ensure the proper routing of 911 calls not just when new systems are planned and implemented but also with the current Siemens and Cisco systems installed. Burlington must be sure that the proper location of the caller is presented to 911 in order both (1) to have effective deployment of first responders to an emergency and (2) to limit potential liability to Burlington.

5. ***Burlington ought to establish a comprehensive training plan with the implementation of new IP telephony systems.***

The implementation of new IP telephony technology will not be effective without proper use by Burlington's end-users. End-user training must be negotiated as part of the plan of services for the new system. It then becomes a critical part of the initial implementation of the IP telephony system as well as a regular part of system support. Refresher training should be provided on an annual basis and included in the renewal of maintenance contracts.

End user training conducted *by professional training staff* from the vendor from which the IP telephony system is purchased will ensure that end users are comfortable with the new system and become competent in the functions and features it provides.

6. ***Burlington needs to identify internal IT staff to be trained in administration of the IP telephony system.***

Burlington needs to have control over its telephony system. This includes making changes in system programming, moving telephones and adding features where needed. Town and School personnel can be trained in specific voice-communications functionality in order to have proper programming of features. This also eliminates or reduces costs from the system vendor to make such changes. This kind of system management is provided through Web-browser based tools.

The system also can manage multiple sites within Burlington from one location, thus not requiring a physical visit to a location to make telephone changes.

7. ***Reconfiguration of the PRI circuits should be part of any short term planning for the telecommunications systems for the Town and Schools.***

This reconfiguration of PRI circuits will eliminate the possibility that the failure of any PRI circuit or telephone equipment at any single Burlington location (Town or School) will not dramatically affect the telephone operation and connection to the outside community at all locations. In addition, the reconfiguration should be coordinated to ensure the proper address information from each location is sent correctly to the PSAP during a 911 call.

## Section Seven Hardware

### Section Seven: Hardware Summary of Key Findings and Recommendations

1. The CIO must have central authority over all hardware.
2. The IS Committee and the CIO need to work hand-in-glove as a team in managing hardware.
3. Burlington needs to establish standards for all hardware.
4. Burlington's Capital Improvement Program (CIP) should incorporate the replacement of 20 per cent of Burlington's current hardware inventory every year as well as the procurement of new hardware which may be requested by Town and School offices.
5. A computer and printer should be stationed permanently or with easy hookups in regular meeting rooms in the Town and Schools.
6. Burlington should include a one-time amount of \$30,000 in its CIP for FY2014 to address specialized needs for hardware among its departments.
7. All hardware should be able to be shared to the maximum extent possible in order to maximize its value to Burlington.
8. Burlington should not be procuring white-box hardware.
9. Burlington needs to dispose of excess hardware.

### A. OVERVIEW

Hardware incorporates the wide range of computing devices which Burlington owns or are used in the conduct of the work of the Town and Schools addressed by this IT Assessment.

### B. CURRENT STATUS

The inventories carried out as part of this IT Assessment have found hardware devices with the respective type and current number of units as follows:

**Table 13: Summary of Current Hardware**

	Device Type	Current Units
1	PC's	229
2	Laptops*	44
3	MCT's	15
4	Printers	108
5	Servers	14
6	Faxes	13
7	Scanners	10
8	Copiers	19

\*Also includes notebooks and tablets.

No reliable information regarding the age of individual items of hardware and, thus, a median age for each class of hardware, is available enterprise-wide.

Burlington has never had standards established across all of its Town and School offices for any type of hardware. Thus, in the case of any one type of hardware, one finds enormous variation by such characteristics as manufacturer, model, configuration and quality.

### **C. FINDINGS AND RECOMMENDATIONS**

These Findings and Recommendations do not evaluate specific requests for hardware by individual Town or School offices. Rather, they present an enterprise-wide view of the approach which Burlington ought to put in place in order to have its procurement and deployment of hardware be as efficient and effective as possible.

#### **1. *The CIO must have central authority over all hardware.***

This is the only way that Burlington can rationalize and manage its hardware.

The current profile of hardware gives ample proof of the difficult situation which has been created by the absence of this kind of approach. Burlington has several hundred devices of different manufacture, of different models from the same manufacturer, and of varying age, quality and strategic suitability.

The randomness of Burlington's hardware environment will not change until the CIO has this full authority and responsibility.

**2. *The IS Committee and the CIO need to work hand-in-glove as a team in managing hardware.***

This includes:

- Consolidating the procurement and support of all hardware for all Town and School offices in the IS Department's budget.
- Reaching consensus on hardware standards and evaluation criteria.
- Making these standards and criteria known to all user-agencies.
- Evaluating requests for hardware from Town and School offices according to the established standards and criteria.
- Making recommendations for what should appear in the annual update of the CIP or the operating budget for the IS Department.
- Identifying the most cost-effective sources for the procurement of hardware, following the principle of strategic positioning.
- Using the full capabilities of the UMAS accounting system as discussed previously in Section Four of this IT Assessment to budget and account for hardware.
- Evaluating proposals from hardware and system vendors, consistent with Massachusetts General Laws (MGL) Chapter 30B, the Commonwealth's Uniform Procurement Act.
- Assuring that Burlington is using the full capabilities of the Help Desk/Asset Management application recommended in Section Three to manage its hardware.

Having the monthly meetings of the IS Committee which this IT Assessment recommends, as well as the informal day-to-day contact which inevitably occurs, will help to assure that this kind of approach works well for Burlington.

**3. *Burlington needs to establish standards for all hardware.***

Standards are intended to assure that all procurement of hardware is fiscally prudent by:

- Having a specific hardware strategy in place as incorporated in the standards.
- Following the principle of strategic positioning in having all procurement consider value at least as much as--or more than--cost in procurement.
- Making support of hardware and related operating and system software as efficient as possible by minimizing variety in the inventory of hardware in Burlington as far as possible.

The IS Committee and CIO should adopt and revise hardware standards every year as part of the annual budgetary process. This should look both at (1) the broader landscape of the evolution of hardware and (2) the specific direction of Burlington's COTS and other vendors as this may affect decisions about hardware.

4. *Burlington's CIP should incorporate the replacement of 20 per cent of Burlington's current hardware inventory every year as well as new hardware which may be requested by Town and School offices.*

Section Nine, Financial Management of IT, discusses this item at greater length.

5. *A computer and printer should be stationed permanently or with easy hookups in regular meeting rooms in the Town and Schools.*

IT needs to become an integral part of how Burlington carries out policy-making, management and operations at all levels every day.

Elected and appointed officials, including Burlington's staff, should have immediate access to whatever information may be required in the course of a formal or informal meeting. This may include such settings as:

- Meetings of the Board of Selectmen or School Committee where the best possible information should help inform the best possible policy-making.
- Meetings of Ways and Means where real-time financial information should be able to be accessed whenever needed and then printed out or displayed for members to review in the course of the meeting.
- Staff meetings where Burlington's personnel may wish to look at whatever the Town may know about a certain issue.
- Conferences, whether formal or informal, with applicants (e.g., for land-related approvals) where information can be shared readily.

Providing these capabilities should enhance the work of Burlington's official community substantially.

The one-time cost of this capability for two meetings rooms is estimated at \$3,000. The only annual cost would be about \$500 for expendable supplies such as paper or toner.

6. *Burlington should include a one-time amount of \$30,000 in its CIP for FY2014 to address specialized needs for hardware among its departments.*

Several departments have presented lists of particular hardware needs during the course of this IT Assessment.

As noted at the beginning of this Subsection C, it is not the role of this IT Assessment to evaluate these kinds of highly particularized requests for hardware.

Including \$30,000 in the IS Department budget and the CIP for FY2014 will provide the ability for at least some of these needs to be met.

The CIO and IS Committee should evaluate these specific requests as close as possible to the beginning of FY2014 on July 1, 2013.

**7. *All hardware should be able to be shared to the maximum extent possible in order to maximize their value to Burlington.***

One good example here is the Canon and Ricoh large-format color plotters in Engineering.

These devices are both on the Town network and, thus, accessible to any authorized user.

The availability of these devices and others like them with specialized capabilities should be made known to departments who may have some interest in using them. In the case of these printers, this may include all of Burlington's land-use agencies, Fire and Police among others.

**8. *Burlington should not be procuring white-box hardware.***

White-box refers to hardware assembled by independent businesses, typically small local firms, from various components.

From Burlington's point of view, the main issue with white-box hardware is that the Town never really knows exactly what it is getting--specifically, the components which have gone into assembling the white-box machine. Where white-box vendors in this kind of market tend to compete on price in lower-end PC's and servers, they may be using lower-cost and, thus, lower-quality components.

Moreover white-box companies tend not to have great longevity.

Finally, personnel in Burlington have complained about the quality of the white-box hardware procured by the Town previously.

In the last several years, the Town's IT staff has tended to procure hardware from major manufacturers. This is a prudent strategy which Burlington ought to follow universally.

**9. *Burlington needs to dispose of excess hardware.***

As one example, there is a closet full of PC's at the Water Treatment Plant which are reported to be more than 10 years old.

These likely are obsolete for any purpose but should be evaluated by the IS staff before Burlington makes any decision about their disposition.

## **Section Eight** **System Management**

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<b>Section Eight –System Management Summary of Key Findings and Recommendations</b>
1. The CIO needs to provide the leadership in system management which Burlington has been missing.
2. The Information Systems Manager occupies a critical role in system management.
3. Backup is the most critical issue currently facing Burlington’s system management.
4. Burlington must update its Business Continuity/Disaster Recovery plan.
5. Burlington must assure system security for all systems.
6. Burlington needs to review and revise its user-policy for IT.
7. Users must exercise full responsibility in their respective roles.
8. Burlington needs to do a better job of documentation in system management.
9. Systems which need to be accessed outside of the School calendar should not be located at School buildings.
10. Burlington needs to undertake a complete review of the architecture of its systems as this regards departmental use.
11. Burlington should address the use of uninterruptible power supply (UPS) systems.
12. Burlington should proceed cautiously in examining virtualization.
13. Burlington ought to consider implementing MUNIS’s Operating System/Database Administration (OS/DBA) services.

## A. OVERVIEW

System management addresses how Burlington administers its IT-related assets. This tends to focus, for the purposes of this IT Assessment, on its server-based systems (hence, the phrase “system management”) but also includes other hardware- and systems-related issues. Management of other IT-related assets such as application software or networking and infrastructure are discussed in the respective sections of this IT Assessment focused on those subjects.

## B. CURRENT STATUS

Burlington has no system-management strategy: while the School Department has addressed this issue, the Town has no specific formal or informal policies or principles which it follows. This is illustrated by the randomness of how the Town deals with backup of its 14 servers.

## C. FINDINGS AND RECOMMENDATIONS

### 1. *The CIO needs to provide the leadership in system management which Burlington has been missing.*

No individual has had authority or responsibility for the Town’s system management.

This picture has been different in the School Department where the System Administrator and Network Administrator have worked very closely and effectively--for example, achieving success in a major move to virtualization and reducing the School Department’s count of servers from 24 to 8.

The situation in the Town can only be described as random.

- 10 servers are located in the Town Hall’s computer room. The Town’s IT staff is responsible for the day-to-day operation of these servers.
- 3 departmental servers are located in these respective offices. The Town’s IT staff has varying levels of involvement in the management of these servers, ranging from little to none.
- One departmental server, serving a Town department, is located in the data center at the High School. The School Department’s IT staff manages this server with no involvement on the part of the Town’s IT staff.

With the advent of the consolidated IS Department, the CIO and IS staff need to fashion a best-practices approach to system management. Personnel in addition to the CIO who will have major roles in this new environment include the Information Systems Manager, Network Administrator and Technical Services Administrator. This should put in place an experienced and capable team to meet Burlington’s need for effective system management.

**2. *The Information Systems Manager occupies a critical role in system management.***

This individual has central responsibility for the direct management of Burlington's server-based environment.

Burlington's systems environment now changes in several, important ways.

- The MUNIS server's active use more than triples from a current maximum of 29 concurrent users to 99.
- The advent of the Microsoft Exchange Server environment with 100 users adds a major center of server-based activity.
- The recommended move to enterprise-wide Land Records and Work/Service Management product-sets adds major functions to Burlington's systems environment which it does not have today.
- Pending the result of the recommended GIS Master Plan, Burlington could have an enterprise-wide GIS system in place.
- Using IMC to consolidate Police and Fire systems will call for the Information Systems Manager to be available to lend support when needed, especially when this may involve the integration of complementary products like GIS.
- Rationalizing backup requires the Information Systems Manager to be directly involved in managing this function.

The Information Systems Manager should be looking to the leadership of the CIO and the collegial support of the Network Administrator, Application Implementation Manager and Technical Services Administrator in meeting these responsibilities.

**3. *Backup is the most critical and urgent issue in Burlington's system management.***

Burlington today lacks a comprehensive, coherent approach to backup of its server-based systems.

- Only two of 14 servers have off-site backup and neither of these is a daily, system backup, only incremental.
- No standard product is in use: a recognized COTS backup product is used for only three of the 14 servers.
- Several servers are backed up with a homegrown application--in one case, this typically takes 15 hours for a system-backup.

Emergency discussions took place with the ISAC, once this situation became known in the course of this IT Assessment. The ISAC has been very supportive in recommending short-term actions to the Town Administrator to address this situation.

Burlington needs to take the following actions.

- Once the CIO is on board, decide upon a longer-term product and solution to daily, system-wide backup for all servers.
- Immediately implement off-site storage of backups, preferably at a distance of at least 20 miles from Burlington in order not to have any risk in the case of a local or regional calamity. This will involve the services of a commercial vendor.
- Immediately adopt a backup policy which calls for:
  - System backups of all servers every night, set to begin at 1:00 A.M.
  - Implementing a 10-day rotation of backups.
  - Keeping a system-wide month-end backup for 13 consecutive months.
  - Keeping a fiscal-year-end backup until the completion of the following year's audit.

This IT Assessment recommends that Burlington provide \$20,000 one-time and \$2,000 per year to address issues in backup.

*This IT Assessment cannot overemphasize how critical the current situation regarding backup is.*

**4. Burlington must update its Business Continuity/Disaster Recovery (BC/DR) plan.**

The last document of this kind, entitled *Business Continuity Planning: Guide for Information Technology Planning*, appears to have been done some time not long after January, 2008: no one on the IT staff or elsewhere in Burlington knows the date. It is limited in scope and likely not current.

Prudent management of IT requires that Burlington have a clear, formal plan for:

- Emergency operations in case its own facilities should be unavailable.
- Restoration of operations at its own facilities as soon as possible.

In the post-9/11 world, this effort also now occurs within the framework of the National Incident Management System (NIMS), administered by the Federal Emergency Management Agency (FEMA) within the U.S. Department of Homeland Security.

The occasions on which Burlington likely would need to invoke its BC/DR plan are rare, especially with improvements which have taken place over the years in the reliability of systems and both hardware and software support. The one, most critical function for local governments is the processing of payrolls. But such arrangements must be in place, documented in written form and ready to use, should the need arise.

Burlington should take the actions which follow.

- a. Make the IS Committee responsible for conducting an annual review of this issue as part of Burlington's budgetary process.
- b. Review and update the Town's existing BC/DR plan.

- c. Have the CIO be responsible on a continuous basis for assuring that Burlington has addressed all technical issues, such as compatibility of hardware or software, related to on-going disaster preparedness.
- d. Maintain the disaster-recovery plan and all other documents related to IT emergency preparedness on Burlington's network and its off-site Web site with Revize under appropriate security, accessible when needed by authorized users, wherever they may be located, particularly during an emergency.
- e. Carry out a full-scale disaster-response drill at least twice a year. This should include any other jurisdictions with which Burlington may have any kind of disaster-related agreement.

Models of BC/DR plans are readily available from professional organizations involved in local government and educational administration. These can serve as a starting point for Burlington's IS staff to develop the BC/DR plan with the IS Committee, benefiting also from the advice of the ISAC.

**5. *The CIO and IS staff need to assure system security for all systems at all levels.***

As one example, a departmental end-user outside the IT staff stated in an interview for this IT Assessment that she had system-administrator's privileges for the MUNIS system, able to assign users' passwords and privileges. This is completely unacceptable.

The CIO and IS staff will need to do a full review of this critical element of system management as soon as possible.

**6. *Burlington needs to review and revise its user-policy for IT.***

The Town last adopted its *Network and Electronic Resources Usage Policy* more than nine years ago on August 18, 2003.

The School Department's *Burlington Public Schools School Committee Acceptable Use Policy, March, 2008* is included as part of the District Technology Plan 2011-2016. It is now more than four years old.

The IS Committee, through a subcommittee, and CIO should work with Town Counsel to review these policies and develop a new policy, appropriate to the current day. It may also be that Burlington maintains one policy for Town and School administrative personnel and a separate policy oriented to the educational environment for the School Department's non-administrative personnel, parents and students.

Professional organizations such as ICMA or GMIS should be helpful in identifying sample policies from other local governments for review.

**7. *Users must exercise full responsibility in their respective roles.***

One report indicated that a Town employee had brought a dependent to the office and had that dependent work on Town-related applications.

While this may have been well intended, this practice violates user-security and should not occur.

The user-policy which this IT Assessment discussed in the preceding item 6 of this subsection should address this kind of situation among others.

**8. *Burlington needs to do a better job of documentation in system management.***

For instance, no map of the computer room in the Town Hall exists. Information about the various racks, servers, telecommunications, networking and infrastructure, and other devices in the room is stored only in the heads of the Town's IT staff.

The IT staff should act now to create this documentation on an emergency basis, subject to later review by the CIO and appropriate IS Department staff. The ISAC may be able to lend its members' expertise to this effort.

**9. *Systems which need to be accessed outside of the School calendar should not be located at School buildings.***

The Town Hall and other buildings which are open every day except weekends and holidays should be home to Burlington's non-School systems.

There was a situation earlier in 2012 when the upgrade of the RecTrac application system for Recreation was scheduled to have occurred. However, this conflicted with the School calendar; as a result, the upgrade was delayed and the work of Recreation disrupted since the RecTrac server could not be accessed physically during a School vacation period.

The IS Committee, with the advice of the ISAC, should review this issue. As well, the RecTrac server should be relocated to Town Hall as soon as practicable.

**10. *Burlington needs to undertake a complete review of the architecture of its systems as this regards departmental use.***

Burlington today uses an anachronistic system of lettered drives, e.g., a J drive for one department or an E drive for another, to access and manage departmental information.

IT in general and local government in particular moved far away from this kind of architecture several decades ago.

Architecture should be invisible to end-users. A given user or department should have security set up in whatever systems it needs to use so that anything like having to access a named drive simply is not needed.

***11. Burlington should address the use of uninterruptible power supply (UPS) systems.***

This should begin with a full survey of existing UPS's and their suitability for their respective environment.

Also, in some cases such as the water and wastewater treatment plants, which are critical facilities, there are not UPS's everywhere they are needed.

The CIO and IS staff should work closely with the IS Committee to develop a plan for carrying out this survey.

This IT Assessment includes \$1,000 to provide UPS systems as may be needed.

***12. Burlington should proceed cautiously in examining virtualization.***

The School Department is the only agency in Burlington which has had any experience with virtualization: as noted earlier in item 1 of this subsection, it has recently moved from 24 servers to 8.

As this IT Assessment observed previously in Section Four, subsection C-3.11, virtualization is technically challenging. And, where Burlington now and in the future relies on COTS applications as the core of its application-software environment, Burlington should get written assurance regarding the virtualization products which it requires or supports from each of the respective vendors whose products may be involved.

This IT Assessment offers no budget for virtualization since where or how Burlington may proceed is highly uncertain.

***13. Burlington ought to consider implementing MUNIS's Operating System & Database Administration (OS/DBA) services.***

OS/DBA provides a wide range of technical services related to the support of the MUNIS server and related environment.

This is intended to remove from the IT staff of the customer like Burlington, or substantially reduce, the burden of a wide range of technical tasks.

This IT Assessment recommends that Burlington evaluate the OS/DBA services after (1) the CIO is on board and (2) the CIO and Information Systems Manager have had a chance to evaluate this offering in detail. OS/DBA services are priced by MUNIS at \$14,260 per year.

## Section Nine Financial Management of IT

<b>Section Nine –Financial Management of IT Summary of Key Findings and Recommendations</b>
1. Burlington today has no direct, reliable way to identify all current operating and capital costs related to IT.
2. The only way for Burlington to meet its responsibilities in this area is for the CIO to have comprehensive responsibility for the financial management of IT in one budget with complete authority for all IT-related procurement.
3. Burlington should be using the full range of capabilities within the Commonwealth’s Uniform Massachusetts Accounting System (UMAS) to budget and account in detail for expenditures related to IT.
4. Burlington ought to make a commitment as a policy to a specific level of effort for financial support of IT.
5. Burlington must use the full capabilities of the MUNIS system in order to have the best possible financial management of IT.
6. The CIO and IS Committee must lead Burlington in refashioning how it presents IT in its Capital Improvement Program.
7. Burlington needs to establish a replacement cycle for hardware as part of its Capital Improvement Plan (CIP).
8. Burlington should establish a replacement cycle for software as part of its CIP.
9. Burlington should evaluate the possible buy-out of its lease agreement for the IMC system.

### A. OVERVIEW

Financial management of IT addresses all of the different ways in which Burlington plans for, budgets, expends, controls, reports on, analyzes and evaluates expenditures related to IT. As a comprehensive, enterprise-wide function in the Town and Schools, IT’s financial management involves almost every Town and School office.

**B. CURRENT STATUS**

Burlington today has no direct, reliable way to identify all current operating and capital costs related to IT. The most telling example which this IT Assessment has found relates to expenditures for FY2012.

- The Town’s actual expenditures for IT as reflected in the MIS budget were \$290,765 as Table 14 shows.

**Table 14: Town MIS Department Actual Expenditure: FY2012**

	Description	Amount
<b>Salaries</b>		
1	Full Time	\$171,815
2	Part Time	\$ 12,000
3	<b>Total (Salaries):</b>	<b>\$183,815</b>
<b>Expenses</b>		
4	Materials & Supplies	\$15,400
5	Contracted Services	\$80,350
6	Capital Outlay	\$11,200
7	<b>Total (Expenses):</b>	<b>\$106,950</b>
8	<b>TOTAL:</b>	<b>\$290,765</b>

- Payments to vendors for IT-related goods and services were \$1,314,946.94 as Table 15 shows. This did not include the \$183,815 in salaries for the Town’s MIS personnel. Table 15 lists these payments.

**Table 15: IT Vendor Actual Expenditures: FY2012**

	Description	FY2012
1	Barracuda	\$1,148.00
2	Blackboard Connect	\$30,126.00
3	CBE Technologies	\$448,933.41
4	Comcast	\$762.52
5	Dell Computer Corporation	\$2,862.46
6	Dell Marketing	\$42,183.76
7	Dell Marketing L.P	\$2,862.46
8	Dell Marketing L.P	\$1,914.87
9	Des Lauriers Municipal Solutions	\$4,374.00
10	GovConnection	\$20,541.55
11	Hewlett-Packard Company	\$194,478.10
12	IceWare	\$448.00
13	Information Management Corporation	\$7,590.00
14	LaserMaster, Inc.	\$7,531.80
15	Merrimack Valley Library Consortium	\$47,394.93
16	Microsoft WWF	\$3,081.60
17	Network Solutions, LLC	\$184.95
18	Northern Business Machine	\$125,552.16
19	Open Text Inc.	\$853.00
20	Patriot Properties	\$78,386.80
21	Revize LLC	\$8,525.00
22	SchoolDude.com, Inc.	\$7,515.00
23	Siemens Communications, Inc.	\$68,352.82
24	Thawte Consulting (PTY) LTD	\$999.00
25	Tyler Technologies, Inc.	\$81,613.27

**Table 15: IT Vendor Actual Expenditures: FY2012 (Cont.)**

	Description	FY2012
26	Verizon	444,249.18
27	Verizon	\$57,152.20
28	Verizon	\$2,178.30
29	Verizon	\$103.39
30	Verizon	\$1,930.00
31	Verizon Communications	\$1,305.05
32	Verizon Communications	\$1,265.85
33	Verizon Security Manager	\$100.00
34	Verizon Select Service	\$1,086.37
35	Verizon Wireless	\$3,936.28
36	Verizon Wireless	\$2,350.83
37	Verizon Wireless	\$1,518.03
38	Vermont Systems Inc.	\$6,148.00
39	Vernon Software	\$3,408.00
40	<b>TOTAL:</b>	<b>\$1,314,946.94</b>

Please see the recommendation in Section Four, Subsection C-1, Financial Management, to merge multiple records for the same vendor.

While total payments to vendors also include (1) some non-IT purposes such as the revaluation-related services of Patriot Properties as well as (2) some education-related costs, these certainly come nowhere near the difference \$1,207,996.94 between (1) what the MIS budget states and (2) the overall expenditures of \$1,498,761.94 (including the \$1,314,946.94 plus the \$183,815 in MIS salaries minus the MIS actual expenditures).

Several reasons explain this vast discrepancy.

- The Town's IT-related budgeting and expenditures have never been centralized. Even though this was said to have occurred for FY2012 and FY2013, it hasn't.
- Departments are free to spend whatever amount they want for IT-related goods and services without any centralized oversight.

- “Bootlegging” is said by a top Town official to be common. “Bootlegging” is a common term in budgeting parlance which refers to the use of funds not originally intended for a given purpose--here IT--to pay for expenses related to that unintended purpose--here, IT-related goods and services.
- Burlington has not used the full capabilities of the Commonwealth's Uniform Massachusetts Accounting System, known as UMAS, to account for IT-related expenditures. Thus, without inspecting individual invoices, it is impossible to know in fact the purpose for which funds were spent.

### **C. FINDINGS AND RECOMENDATIONS**

***1. Burlington’s CIO must have comprehensive responsibility for the financial management of IT in one budget with complete authority for all IT-related procurement.***

This is the only way that Burlington can have sound management of what is on the order of \$1,500,000 in annual expenditures for IT in the Town and Schools.

No one today has authority and responsibility for managing all expenditures of funds for IT on an enterprise-wide basis in Burlington.

The result is that expenditures take place on an uncoordinated basis without any standards and often with no professional in IT reviewing the strategic soundness or fiscal prudence of the expenditures.

Authority and responsibility must be focused in the CIO in order to have a rational basis for the approximately \$1.5-million Burlington spends every year on IT. Here, the CIO should be coordinating closely with the IS Committee in reviewing requests for funding for IT-related goods and services as part of the budgetary cycle every year.

***2. Burlington should be using the full range of capabilities within the Commonwealth’s Uniform Massachusetts Accounting System (UMAS) to budget and account in detail for expenditures related to IT.***

Municipal accounting in Massachusetts is guided by “A Manual for the Uniform Massachusetts Accounting System,” issued by the Massachusetts Department of Revenue (DOR), Division of Local Services (DLS), Bureau of Accounts. This document is commonly referred to as “the UMAS manual.” Among other things, it sets forth the entire schema to be used by local governments in Massachusetts in their budgeting, accounting and financial reporting. It is the authoritative source for this information in the Commonwealth.

Burlington today makes no use of the classification of accounts which the UMAS system identifies for purposes specific to IT. These include, among others:

**Table 16: UMAS Account Codes for IT**

	<b>Account Code</b>	<b>Description</b>
1	5240	Repairs and Maintenance (Including Computer Equipment)
2	5270	Rentals and Leases (Including Equipment)
3	5300	Professional and Technical (Including Data Processing Services)
4	5340	Communication (Including Telephone, Data Processing Lines, Wireless Phones)
5	5580	Other Supplies (Including Expendable Data Processing Supplies)

In the absence of the use of these account codes in Burlington, this IT Assessment had to proceed by asking the Town Accountant to assemble the information on vendor-related expenditures presented previously in Table 15.

This request for vendor-information should not have been necessary. MUNIS has the ability to identify expenditures for a given account code across all funds and functions. There is no reason this request should not have been able to have been met using the MUNIS system in this way. It would have given the most complete and accurate information possible.

Burlington has direct precedent for using this kind of detailed account classification for a specific purpose. The Highway Division of DPW makes fairly extensive use of comparable, specialized account codes and subaccounts to track its costs. A listing of these accounts follows in the UMAS format for account 5210, Energy.

**Table 17: Highway Division UMAS Account Codes**

	<b>Account Code</b>	<b>Description</b>
1	5210	Occupancy
2	5211	Electricity
3	52112	Traffic Lights
4	52113	Street Lights
5	5213	Heating Fuel
6	5214	Heating Oil

MUNIS also has the ability to do two, important things here which may very well be able to enhance budgeting and accounting for IT-related goods and services:

- It can force any purchases from a given vendor to be charged only to a previously specified UMAS account.
- It can force any purchases to be charged to a given account to be made only from a previously specified vendor linked to that account.

Burlington should put together a senior-level task force to address the issue of how to use the UMAS system most effectively for these purposes. Members of this task force should include the Town Administrator, Assistant Town Administrator, School Director of Operations and Facilities, Town Accountant, Treasurer/Collector and CIO. This group should also consult with Burlington's independent auditor as a matter of due diligence in revising its chart of accounts. As well, the Town should speak with other municipalities (especially MUNIS customers) who are using the UMAS chart of accounts more completely for this purpose.

**3. *Burlington should make a commitment as a policy to a specific level of effort for financial support of IT.***

Level of effort addresses the percentage of its total budget which the Town decides to spend on IT both for operating and capital purposes.

Available information from leading sources such as Gartner and the International City/County Management Association (ICMA) measures this only with respect to general government, not including schools.

Comparability is impeded by two considerations.

- Local governments in different parts of the United States have different functional responsibilities. As an example, property assessing in Florida is exclusively a county function.
- Level of effort tells nothing about the *quality* of IT services which a local government may deliver. Put another way, all that it tells is how much a local government spends, not how good a job it does.

Over the last 10 years or so, progressive local governments have been spending about 3.5 per cent of their budget for operating and capital costs related to IT. In Burlington's case, this would translate into an annual expenditure - not including School IT - of roughly \$1,575,000, based on Burlington's non-school budget for FY2013 of about \$45-million (42 per cent of the Burlington's total budget of \$107,117,687).

As a best estimate in the absence of consolidated information today, Burlington spends about \$650,000 per year for Town-side IT costs or roughly 1.5 per cent of the Town-side budget. This

compares with the \$290,765 in the FY2012 MIS budget and includes a very rough approximation of other costs to the Town such as its imputed share of the annual cost of the fiber-optic network. This is admittedly a best estimate--really an educated guess as explained in the previous subsection on the need to do detailed budgeting and accounting based on the UMAS system.

One significant complication is that there are major pieces here which are not necessarily easy to allocate between the Town and School Department such as the \$300,000 per year for the CBE/Comcast lease.

It is also interesting to compare this level of expenditure with the private sector (this is done with some reluctance because of obvious differences). Generally speaking, one finds expenditures for information technology in the private sector on the order of anywhere from 2 to 3 per cent to as much as 7 to 14 per cent, depending on the industry. Indeed, the distinguished futurist, Thornton May, has posited growth of IT budgets to 20 to 30 per cent of a firm's operating budget over the next period of time.

**4. *Burlington should be looking to the leadership of the CIO and IS Committee in refashioning how Burlington's Capital improvement Program presents IT-related requests.***

Table 18 on the next page shows the items related to IT which currently appear in Burlington's Capital Budget Program.

However, there appears to be little shared knowledge, specific documentation or understanding of what these requests are intended to achieve.

The absence of a CIO to coordinate requests for capital expenditures for IT seems to be the main reason why Burlington has not been able to make more effective use of the CIP for this purpose.

- Together, the CIO and IS Committee should begin this process by taking requests for IT-related capital expenditures at the beginning of every annual budgetary cycle.
- The IS Committee should have established a weighted-factor system for evaluating these requests in order to make this process as fair and objective as possible.
- The IS Committee should have shared this weighted-factor system with Town and School offices before they submit their requests so they know how they will be evaluated.
- After completing its work each year, the CIO and IS Committee should then make a joint recommendation to the Town Administrator for his inclusion in the Town's budget and forwarding to the Capital Budget Committee for subsequent consideration as part of town meeting's appropriation process.

This kind of approach should provide all parties with much better information as they meet their respective responsibilities as part of Burlington's budgetary deliberations.

**Table 18: IT Capital Projects Already Programmed**

Description	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	Total
Financial software upgrade		\$150,000								<b>\$150,000</b>
Reader/Printer	\$30,000									<b>\$30,000</b>
Replacement operating software		\$100,000				\$100,000				<b>\$200,000</b>
MUNIS Server				\$35,000			\$50,000			<b>\$85,000</b>
New GenX MS Office	\$25,000			\$35,000			\$50,000			<b>\$110,000</b>
Add fiber plant		\$150,000							\$250,000	<b>\$400,000</b>
<b>TOTALS:</b>	<b>\$55,000</b>	<b>\$400,000</b>	<b>\$0</b>	<b>\$70,000</b>	<b>\$0</b>	<b>\$100,000</b>	<b>\$100,000</b>	<b>\$0</b>	<b>\$250,000</b>	<b>\$975,000</b>

5. *Burlington needs to establish a replacement cycle for hardware as part of its Capital Improvement Plan (CIP).*

As just seen in Table 18, Burlington’s CIP does not now include any funds for the replacement of hardware except for the MUNIS server.

The municipal and school-administrative environment generally can expect most hardware to have a useful lifetime of approximately five years. Exceptions to this tend to come in two cases:

- Where hardware is subject to unusual wear and tear as with mobile devices in Police or Fire vehicles or dispatching workstations.
- Where demands for performance may increase especially rapidly with high-performance, resource-intensive software such as GIS or Engineering applications.

Strategic positioning is a key principle here in assuring that Burlington gets the greatest value possible from its investment in hardware. This phrase refers to the notion of “buy smart, not cheap.” Put another way, Burlington should be spending the funds required to procure the latest and best technology applicable to a given type of hardware at the time of purchase. The expectation, then, is that this fiscally prudent investment will assure Burlington of the longest possible effective lifetime of the hardware.

This IT Assessment has found an inventory of hardware devices and estimated replacement values as follows:

**Table 19: Replacement Value of Hardware**

	Device Type	Current Units	Cost per Unit	Total Value	1/5 Value
1	PC	229	\$1,250	\$286,250	\$57,250
2	Laptop*	44	\$1,500	\$66,000	\$13,200
3	MCT	15	\$8,000	\$120,000	\$24,000
4	Printers	108	\$300	\$32,400	\$6,480
5	Servers	14	\$15,000	\$210,000	\$42,000
6	Faxes	13	\$200	\$2,600	\$520
7	Scanners	10	\$300	\$3,000	\$600
8	Copiers	19	\$7,000	\$133,000	\$26,600
9	<b>TOTALS:</b>		<b>N/A</b>	<b>\$853,250</b>	<b>\$170,650</b>

\*Includes laptops, tablets and similar portable devices.

Given this information, Burlington should include \$170,650 per year on a continuing basis over a five-year cycle as part of its CIP in order to assure the quality and reliability of its hardware environment.

**6. *Burlington needs to establish a replacement cycle for software as part of its CIP.***

As Table 18 just showed, Burlington's CIP today includes funds for the replacement of software in three areas:

- Financial software upgrade of the MUNIS system in FY2015 for \$150,000.
- Replacement of (desktop) operating software in FY2015 for \$100,000.
- New Generation X Microsoft Office Software in FY2014 for \$25,000 and later in FY2017 for an additional \$35,000.

Replacement of software is similar to but different from the discussion of replacement of hardware. In practical terms, replacement cycles for software tend to be dictated by the business decisions of the software's licensing organization regarding how long they will sell or maintain support for a product. In this respect, Burlington does not necessarily have the same degree of independence in its decision-making as it may have regarding computer hardware where such decisions tend not to have the same import after the hardware has been in use.

The connection between hardware and software sometimes occurs in following the principle of strategic positioning. Here, buying the latest and best hardware from a vendor will also tend to assure that Burlington is getting the latest and best associated software in such areas as operating systems or Microsoft Office products.

This IT Assessment recommends that Burlington include \$10,000 every fiscal year in its CIP as a reserve for replacement of its various software.

**7. *Burlington should evaluate the possible buy-out of its lease agreement for the IMC system.***

Burlington acquired the IMC system by the agreement dated October 14, 2008 and two subsequent addenda dated January 9, 2009 and April 1, 2009.

This agreement involves Burlington's making a first payment of \$10,178 on November 8, 2008 and then 10 additional payments of \$21,087 each on or before July 1 of each of the next 10 years, beginning July 1, 2009.

This is a highly unusual way to procure this kind of a system in local government or law enforcement and the reason why it was done is not obvious.

This IT Assessment includes \$5,000 for Burlington to engage the services of a financial analyst to evaluate the advantages and disadvantages to the Town if it should wish to pursue the buy-out option in paragraph 8 of the original agreement.

8. *Chargebacks to agencies for using IT should be avoided.*

Burlington should be doing everything possible to encourage users to make the fullest possible use of IT in their work for the Town and School. The notion here is that the more IT is integrated into the work of Burlington's personnel every day, the more efficient and effective the delivery of services will be.

The subject of chargebacks has been controversial in local government for many years.

This IT Assessment takes the position that chargebacks should not be used in the Town or School Department except where this involves an enterprise fund. The use of chargebacks otherwise creates an immediate barrier to having Burlington's personnel using IT as fully and as well as possible since they would know that every time they used IT for any purpose, there would be a direct cost to their agency.

IT should be regarded as an overhead cost--a cost of doing business for Burlington as a whole, not to be charged back or allocated to Burlington's user-agencies.

## Section Ten

### Summary of Recommendations

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<b>Section Ten: Summary of Recommendations Summary of Key Findings and Recommendations</b>
1. Burlington needs to have a clear sense of the direct and indirect benefits from investing prudently in IT.
2. Burlington should work through its IS Committee to establish specific criteria for evaluating requests for IT resources.
3. Burlington must be aware of factors, such as the municipal calendar or fiscal year, which may affect the implementation of these recommendations.
4. The principle of strategic positioning--buy smart, not cheap--should always be applied to Burlington's decision-making regarding IT.
5. Burlington should proceed in three phases in implementing the recommendations of this IT Assessment: (1) Urgent/Immediate recommendations for the January, 2013 town meeting; (2) Phase I which goes over the next two fiscal years from July 1, 2013 through June 30, 2015; and (3) Phase II which proceeds thereafter.
6. Burlington will be most successful in its implementation of these recommendations if it has a formal system of planning and reporting on progress.
7. Burlington needs to review all available options for financing these recommendations.
8. Burlington must always follow best practice in the procurement of IT.
9. Burlington should undertake active monitoring and updating of its system plans.
10. Burlington should explore interlocal cooperation in IT in order to access the best possible systems and software while also achieving greater economy and efficiency in its operations.

## A. OVERVIEW

Experience in local government, as well as organizations generally, has identified six prerequisites for success with information technology:

1. A specific plan, oriented to phased implementation of actions by priority.
2. A user-oriented organization, charged with ongoing responsibility for oversight.
3. Appropriate staffing of system management and operations.
4. Sufficient investment in hardware, software and communications, putting useful tools in the hands of end-users.
5. Full and well-planned training for technical staff and end-users.
6. Recognition of the interdependence of information among multiple offices involved in key functions.

The recommendations which this IT Assessment presents here incorporate these prerequisites for success. ***Burlington must address all six of these conditions if it is to gain the greatest possible benefit from its investment in information technology.***

## B. BENEFITS AND COSTS

This subsection sets the financial context for Burlington's consideration of the fiscal impact of implementing this IT Assessment's recommendations.

### ***1. Burlington needs to have a clear sense of the nature of benefits from investing in information technology.***

Burlington needs to take a realistic view of the nature of prospective benefits from its investment in information technology.

***Most benefits from investment in IT are indirect and, thus, not easily measured or quantified.***

Indirect benefits are those that do not necessarily appear as increases in revenue or reductions in expenditures in Burlington's budget. They involve:

- Improved effectiveness in the delivery of services.
- Greater efficiency or productivity in Burlington's operations.
- Sounder bases for policy-making and management.

How, for example, does one measure the greatly enhanced capability in various functions from Planning and Public Works to Police and Fire which Burlington should have from investing in the enterprise-wide Land Records system which this IT Assessment recommends? How is one to quantify this? One may make an educated guess about the benefit to Burlington in terms of more effective policy-making or more efficient and effective delivery of services. However, this can only be a rough approximation and ***cannot*** be quantified with exactness.

Where this IT Assessment makes recommendations involving cost, it is important to keep several ideas in mind.

- ***You get what you pay for.*** Price tends to be a function of quality. Burlington likely will find that its best investments may be among the higher priced or more substantial. This applies to everything from (1) the procurement of new applications, such as Land Records or Work/Service Management, to (2) the new telecommunications system and infrastructure improvements.

Likewise, lower-priced goods or services may create risks for Burlington which effectively wipe out any short-term, superficial cost advantage.

- There are substantial offsets from current costs, both direct and indirect. Burlington's current expenditures related to IT include (1) direct costs and (2) indirect costs.

***Direct costs*** are those expenditures which Burlington makes through its appropriations process for such items as hardware purchase and maintenance, software licensing and support, telephone-company services, computer supplies or IT staffing. This IT Assessment showed earlier in Section Four on Application Systems and Business Process that Burlington now spends more than \$1.3-million per year on various IT-related vendor payments.

***Indirect costs*** are those items that do not appear as appropriations related to IT as such. They are, rather, "invisible" or "soft" costs related to such things as lost revenues, duplication of effort and lost productivity due to the absence of appropriate information technology. How, for example, does one put a cost on the enormous inefficiencies which this IT Assessment has showed now exist in Burlington's Cash Receipts, Purchasing/Accounts Payable and Payroll/HR processes? These inefficiencies or "soft" costs are not due to any lack of effort or skill on the part of Burlington's staff. Instead, they result solely from redundant work caused by the absence of appropriate IT-based support for core business processes. How, if at all, should these be included in a cost-justification or benefit/cost analysis of prospective investment by Burlington in new systems?

**2. *Burlington should establish a specific set of criteria for evaluating requests for funding for IT-related investments.***

Burlington's staff, working through the IS Committee, should be able to provide the Town's elected and appointed leadership as well as its residents and taxpayers with a clear picture of how it has evaluated the competing demand among proposed investments in IT for scarce fiscal resources.

Examples of criteria follow. The key here is that Burlington itself needs ultimately to determine which criteria are (1) relevant to its decision-making and (2) in what relative measure through the use of a weighted-factor schema.

- a. **Risk/stability.** To what extent does the proposed investment address a situation related to Burlington's use of or dependence on information technology which could put some part of Burlington's government in jeopardy, e.g., by loss of information, interference with the delivery of essential services or integrity of data? For example, this IT Assessment has been very direct in expressing its concern with the current state of Burlington's backup of systems.
- b. **Management.** To what extent would the implementation of the new good or service create a special burden for Burlington's ongoing management and operations?
- c. **Impact.** How significant is each recommendation to Burlington's overall efficiency and effectiveness as a local government and school administration, including Burlington's ongoing policy-making, management and operations?
- d. **Mandate.** Is Burlington effectively required to make this investment by the Commonwealth of Massachusetts, U.S. Government or court order?

This IT Assessment deliberately keeps these criteria small in number and general. This is intended to make this process both direct and uncomplicated while at the same time providing for the fair evaluation of IT investments of different kinds.

At the same time, about 40 per cent of the recommendations of this IT Assessment are *no-cost*, requiring no capital outlay or noteworthy change in operating costs. These involve changes in organization, policy or management, such as the organization of the IS Committee and its functional teams. Burlington itself will need to decide whether or how to apply these criteria to these no-cost recommendations.

3. ***Burlington should remain aware of other factors which may affect when and how it chooses to implement recommendations of this IT Assessment.***

As the IS Committee addresses the details of the implementation, it also should consider other factors which, while not directly affecting priorities, are important. These include:

- a. ***Burlington's governmental calendar***--when certain Town or School activities take place by law. This suggests, for example, that Burlington consider implementing new applications involving reporting for a full fiscal year only at the beginning of each fiscal year on July 1.
- b. ***Offsetting of current costs***--identifying those functions which can provide a significant offset to current direct or indirect costs. This ranges from (1) the time which Burlington's staff now spends in the centralized processing of Payroll, costing the Town and Schools indirectly several thousand dollars per year, to (2) the inefficiencies related to the absence of integrated, decentralized processing of Purchasing and Accounts Payable for offices throughout the Town and Schools.

**4. *Strategic positioning should envelop Burlington's decision-making with respect to IT.***

**Strategic positioning**, which may be characterized as “buy smart, not cheap,” is a concept which this IT Assessment has discussed previously. It states that Burlington's decisions about the procurement and implementation of IT resources should consider specifically the longer-term view of their deployment, based on users' input.

The issue for local governments and other organizations is that perceived fiscal constraints sometimes lead to decisions about the procurement and implementation of IT which may not always be strategically sound or fiscally prudent.

### **C. THE PHASED IMPLEMENTATION**

This subsection presents several considerations which Burlington must address as it proceeds with the phased implementation of this IT Assessment's recommendations.

**1. *Burlington should proceed in three phases in implementing the recommendations of this IT Assessment.***

Table 21 of this IT Assessment, Implementation Plan by Phase: Cost and Non-cost, summarizes the recommendations which this document makes and identifies which involve a cost or no cost.

These phases may be described as follows:

- a. **Urgent/Immediate** presents just four recommendations which Burlington should address at the January, 2013 town meeting. These are critical to establishing a fiscally and operationally prudent basis for IT in Burlington as a \$107-million municipal corporation.
  - Implementing the joint Town-School Information Services Department.
  - Establishing the position of Chief Information Officer (CIO) to provide leadership and coordination for IT enterprise-wide in the Town and Schools.
  - Establishing the position of Application Implementation Manager to lead business process improvement throughout the Town and School Department.
  - Funding the procurement and implementation of a high-quality Help Desk/Asset Management application.
  
- b. **Phase I** focuses on a highly targeted set of essential elements of information-technology infrastructure in Burlington. These include among others:
  - Acting on the extraordinary risk presented by the current backup situation.
  - Curing the dramatic inefficiencies in financial processes throughout the Town and School by implementing the MUNIS application portfolio in much more completely.

- Realigning the organization and staffing in the IS Department to provide enhanced end-user support and business analysis. This includes the organization of the IS Committee and the active functioning of the respective functional teams.
- Providing the systems-management tools to enable Burlington to maintain the highest possible level of support for its network systems and end-users.
- Enhancing public safety by unifying the application-platform for Police and Fire.
- Procuring and implementing a robust Land Records system to serve offices Town-wide.
- Procuring and implementing the Work/Service applications software to support the delivery of facilities- and works-related services.
- Planning for critical functions such as enterprise-wide GIS which should have immediate benefit to Burlington upon implementation.

These are all elements of essential infrastructure. They put in place the foundation for the quality and stability of the Burlington's services now and in the future.

Phased I begins on July 1, 2013 at the start of FY2014 and is expected to extend for approximately two years or through FY2014 and FY2015 to June 30, 2015.

- c. **Phase II** implements the next set of IT applications which are potentially important to Burlington's business such as enterprise-wide GIS (following completion of the GIS Master Plan in Phase I) and Enterprise Content Management (ECM). While not at same level of need or impact as the recommendations in Phase I, all of the elements of Phase II can have substantial benefit to Burlington. The obvious prerequisite for Burlington's commencing the implementation of Phase II is to have completed (or at least have made substantial progress) in Phase I.

In addition, certain of these costs may be allocable to various funds or otherwise be eligible expenses for certain grant-related programs. Burlington should review this issue carefully with its independent auditor.

In summary, this IT Assessment recommends one-time and annual expenditures by phase as follows.

**Table 20: Summary Cost of Phased Recommendations**

	<b>Phase Description</b>	<b>One-Time Cost</b>	<b>Annual Cost</b>	<b>5 Year Average</b>
1	Urgent/Immediate	\$13,500	\$298,100	\$300,800
2	Phase I	\$2,705,569	\$472,434	\$1,013,548
3	Less: Phase I Offsets	\$477,250	0	\$95,450
4	Phase I Net	\$2,228,319	\$472,434	\$918,098
5	Phase II	\$205,150	\$28,930	\$69,420
6	<b>NET TOTALS:</b>	<b>\$2,446,969</b>	<b>\$799,464</b>	<b>\$1,288,138</b>

Table 21 on the next several pages presents in detail each of the recommendations of this IT Assessment by phase. It provides a net increase in expenditures for the projects included in each phase, respectively.

There are several recommendations in Table 21, identified by the use of a question mark (“?”), whose costs could not be determined within the scope of this IT Assessment. *Some of these may be significant.* Thus, the amounts in the preceding Table 20 must also be viewed with this major qualification.

A few notes to these tables are important.

- The actual incidence of these expenditures may vary significantly from year to year as a function of Burlington’s decisions with respect to their financing.
- The use of “INCL” means that the related funds have been included in another line item among these recommendations.

**Table 21: Implementation Plan by Phase: Cost and Non-Cost**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
<b>Urgent/Immediate Recommendations</b>					
1	3.C.1	Establish joint Town-School Information Services Dept.	N	\$0	\$0
2	3.C.2	Establish Chief Information Officer (CIO).	Y	\$7,500	\$112,000
3	3.C.2	Budget for benefits for CIO.	Y	\$0	\$39,200
4	3.C.3	Establish Application Implementation Manager.	Y	\$1,000	\$94,000
5	3.C.3	Budget for benefits for Application Implementation Manager.	Y	\$0	\$32,900
6	3.C.16	Implement Help Desk/Asset Management application.	Y	\$5,000	\$20,000
7		<b>TOTALS:</b>		<b>\$13,500</b>	<b>\$298,100</b>
<b>Phase I Recommendations Section Four: IT Organization</b>					
8	3.C.5	Reclassify Network Administrator's position.	Y	\$0	\$8,000
9	3.C.6	Reclassify System Administrator's position.	Y	\$0	\$13,000
10	3.C.7	Reclassify IT Support Administrator's position.	N	\$0	\$0
11	3.C.8	Return Information Systems Manager to titled duties.	N	\$0	\$0
12	3.C.9	IS staff as internal consultants with training.	Y	\$7,500	\$0
13	3.C.10	Organize IS Department to incorporate strategic direction.	N	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
14	3.C.11	Carry out IS classification and compensation study.	Y	\$10,000	\$0	\$2,000
15	3.C.12	Fund IS staff membership in professional associations.	Y	\$0	\$1,910	\$1,910
16	3.C.13	Train departmental wizards.	N	\$0	\$0	\$0
17	3.C.14	Establish user-driven committee structure.	N	\$0	\$0	\$0
18	3.C.15	Engage consultant to help launch of IS Committee & teams.	Y	\$18,000	\$0	\$3,600
19	3.C.17	Establish and maintain standards.	N	\$0	\$0	\$0
20	3.C.18.	Evaluate use of contracted services.	N	\$0	\$0	\$0
21	3.C.19	Hold hiring until CIO is on board.	N	\$0	\$0	\$0
22	3.C.20	Provide on-going training for IS professionals.	Y	\$0	\$8,000	\$8,000
23	3.C.21	Consider ramifications for staffing of strategic choices.	N	\$0	\$0	\$0
<b>Section Five: Application Systems and Business Process</b>						
<b>C-1. Financial Management</b>						
24	4.C.1	Invest effort and financial resources in application systems.	Y	Included	Included	Included
25	4.C.2	Evaluate appropriateness of cloud computing case-by-case.	N	\$0	\$0	\$0
26	4.C.3	Budget for server-based applications: sufficient funding.	N	\$0	\$0	\$0
27	4.C-1.1	Deploy MUNIS ERP system fully: efficiency & effectiveness.	Y	\$146,605	\$22,656	\$51,977
28	4.C-1.2	Procure site license: current & recommended MUNIS apps.	Y	\$11,500	\$4,600	\$6,900

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
29	4.C-1.3	Upgrade MUNIS server for more use and users.	Y			
30	4.C-1.4	Develop written plan: phased implementation, decentralization.	N	\$0	\$0	\$0
31	4.C-1.5	Implement encumbrance accounting: Req./PO system.	Y	Included	Included	Included
32	4.C-1.6	Undertake complete reengineering of Req./Purchasing & A/P.	N	\$0	\$0	\$0
33	4.C-1.7	Undertake complete reengineering of Accounts Payable.	N	\$0	\$0	\$0
34	4.C-1.8	Undertake complete reengineering of Cash Receipts.	Y	\$15,000	\$0	\$3,000
35	4.C-1.9	Provide 4 counter-top cash stations.	Y	\$19,860	\$0	\$3,972
36	4.C-1.10	Use MUNIS General Billing throughout the Town & Schools	Y	\$3,825	\$0	\$765
37	4.C-1.11	Merge all records for each vendor.	N	\$0	\$0	\$0
38	4.C-1.12	Provide 2 countertop cash stations for Treasurer/Collector.	Y	Included	Included	Included
39	4.C-1.13	Review the use of the MUNIS Budget Preparation system.	Y	\$3,825	\$0	\$765
40	4.C-1.14	End School duplication of year-end balances: MUNIS->Excel.:	N	\$0	\$0	\$0
41	4.C-1.15	Fund refresher training in current MUNIS applications.	Y	\$44,625	\$0	\$8,925
42	4.C-1.16	Eliminate all third-party financial software.	N	\$0	\$0	\$0
43	4.C-1.17	Halt photocopying and mailing of vendors' invoices.	N	\$0	\$0	\$0
44	4.C-1.18	Provide secure, read-only access to MUNIS Tax apps.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
45	4.C-1.19	Review with MUNIS all Water & Sewer processes.	Y	\$4,175	\$0	\$835
46	4.C-1.20	Review Retirement processes with MUNIS & auditor.	Y	\$10,000	\$0	\$2,000
47	4.C-1.21	Use colored envelopes and separate PO boxes for receivables.	N	\$0	\$0	\$0
48	4.C-1.22	Reconsider removing of retirees' records from MUNIS.	N	\$0	\$0	\$0
<b>C-2. Payroll/Human Resources</b>						
49	4.C-2.1	Decentralize Payroll as far as possible.	N	\$0	\$0	\$0
50	4.C-2.2.	Undertake complete reengineering of the Payroll process.	N	\$0	\$0	\$0
51	4.C-2.3	Use MUNIS integrated leave accounting in Payroll process.	N	\$0	\$0	\$0
52	4.C-2.6	Use MUNIS Payroll to manage compliance with FMLA.	N	\$0	\$0	\$0
53	4.C-2.9	Implement Tyler Reporting Services and Forms Processing.	Y	Included	Included	Included
54	4.C-2.10	Fund 3 days of refresher training in MUNIS Payroll/HR.	Y	\$3,825	\$0	\$765
55	4.C-2.11	Implement MUNIS position control.	N	\$0	\$0	\$0
<b>C-3. Public Safety</b>						
56	4.C-3.1	Implement full suite of IMC Police and Fire applications.	X	\$197,570	\$19,830	\$59,344
57	4.C-3.2	Implement PowerPhone CAD protocols: Police, Fire & EMD.	X	Included	Included	Included

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
58	4.C-3.3	Implement Police & Fire assets from other communities: CAD.	N	\$0	\$0	\$0
59	4.C-3.4	Implement GIS for Police and Fire as soon as possible.	Y	Included	Include	Included
60	4.C-3.5	Have IMC resolve persistent issues in the Police system.	N	\$0	\$0	\$0
61	4.C-3.6	Complete migration from QED to IMC.	N	\$0	\$0	\$0
62	4.C-3.7	Make full use of all modules previously licensed from IMC.	N	\$0	\$0	\$0
63	4.C-3.8	Implement Automatic Vehicle Location (AVL).	Y	Included	Include	Included
64	4.C-3.9	4 days of refresher training for IMC Police applications.	Y	\$12,000	\$0	\$2,400
65	4.C-3.10	Provide IT infrastructure for Emergency Operations Center.	Y	\$25,000	\$5,000	\$10,000
66	4.C-3.11	Wait for CIO before doing virtualization.	N	\$0	\$0	\$0
67	4.C-3.12	Encourage Police officers to do reports in vehicles.	N	\$0	\$0	\$0
68	4.C-3.13	Provide SMART Board in Police Roll Call Room.	Y	\$3,500	\$0	\$700
69	4.C-3.14	Implement Coplogic Web-based citizen reporting of incidents.	Y	Included	Include	Included
71	4.C-3.15	Decide about automation of Fire Inspections.	Y	Included	Include	Included
72	4.C-3.16	Maintain Fire training records in MUNIS or IMC.	N	\$0	\$0	\$0
73	4.C-3.17	Evaluate current Police server for Police and Fire.	Y	?	?	?
74	4.C-3.18	Explore school-security cameras linked to display in cruisers.	Y	?	?	?

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
75	4.C-3.19	Fix Police Microsoft Exchange-SharePoint integration issue.	Y	?	?	?
76	4.C-3.20	Eliminate unnecessary manual records.	N	\$0	\$0	\$0
77	4.C-3.10	Provide Police access to SharePoint outside Police Hq.	Y	?	?	?
<b>C-4. Land Records</b>						
78	4.C-4.1	Procure and implement enterprise Land Records system.	Y	\$150,000	\$25,000	\$55,000
79	4.C-4.2	Consider procurement with other municipalities or MAPC.	Y	Included	Include	Included
80	4.C-4.3	Leverage property-records repository in Patriot CAMA.	Y	\$1,000	\$0	\$200
81	4.C-4.4	Compare functionality, detail between Web & server CAMA.	N	\$0	\$0	\$0
82	4.C-4.5	Require as-built plans in industry-standard format.	Y	?	?	?
83	4.C-4.6	Review feasibility of GeoTMS to CAMA export.	N	\$0	\$0	\$0
84	4.C-4.7	Stop typing property transfers onto cards.	N	\$0	\$0	\$0
85	4.C-4.8	Have all Town offices use Patriot for abutters' lists.	N	\$0	\$0	\$0
86	4.C-4.9	Put all land-use forms in editable pdf on Web site.	N	\$0	\$0	\$0
87	4.C-4.10	Procure and implement app: 3-D modeling for Planning, etc.	Y	\$10,000	\$2,000	\$4,000
88	4.C-4.11	Decide about processing land payments in MUNIS or vendor.	N	\$0	\$0	\$0
89	4.C-4.12	Deploy Land Records system with mobile capabilities.	Y	Included	Include	Included

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
<b>C-5. Web Services</b>					
90	4.C-5.1	Enhance Web presence with new Revize application.	N	\$0	\$0
91	4.C-5.2	Provide editable forms on the Town's Web site.	N	\$0	\$0
92	4.C-5.3	Undertake comparison w/ leading local-government Web sites.	N	\$0	\$0
<b>C-6. Geographic Information Systems</b>					
93	4.C-6.1	Develop GIS Master Plan with consultant.	Y	\$50,000	\$0
<b>C-7. Work/Service Management</b>					
94	4.C-7.1	Implement integrated Work/Service Management application.	Y	\$125,000	\$20,000
95	4.C-7.2	Evaluate vendors' department- and division-level security.	Y	Included	Include
96	4.C-7.3	Reengineer Work/Service business processes w/new app.	N	\$0	\$0
97	4.C-7.4	Complete internal development of Highway "green book."	N	\$0	\$0
98	4.C-7.6	Assure appropriate documentation & support: SCADA system.	N	\$0	\$0
99	4.C-7.7	Provide tablets: Water and Wastewater personnel rounds.	Y	\$10,000	\$2,000
100	4.C-7.8	Provide access to SCADA system for staff at Mill Pond.	Y	?	?
101	4.C-7.9	Assure survivability of Cemetery records.	N	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average	
<b>C-8. Office Systems and Collaboration</b>						
102	4.C-8.1	Establish Microsoft Exchange Server as standard.	Y	\$70,439	\$2,500	\$16,588
103	4.C-8.2	Provide for migration from Office 2003 & 2007 to 2010.	Y	\$15,000	\$0	\$3,000
<b>C-9. Executive Administration and Records Management</b>						
104	4.C-9.1	Examine compliance with FTC Red Flags Rule.	N	\$0	\$0	\$0
105	4.C-9.2	Examine discovery under Federal Rules of Civil Procedure.	Y	?	?	?
106	4.C-9.5	Obtain 10 licenses for Adobe XI Pro.	Y	\$4,490	\$0	\$898
107	4.C-9.6	Implement indexing application for Town Archivist.	Y	\$1,000	\$200	\$400
108	4.C-9.7	Provide local and remote access to FaxPress.	Y	?	?	?
<b>C-10. Community Services</b>						
109	4.C-10.1	Address issues in Evergreen Library system.	N	\$0	\$0	\$0
110	4.C-10.2	Resolve issues with Library printers.	Y	\$2,500	\$500	\$1,000
111	4.C-10.3	Evaluate export of financial information: Evergreen->MUNIS.	N	\$0	\$0	\$0
112	4.C-10.4	Review further use of Connect-City reverse 9-1-1 for seniors.	N	\$0	\$0	\$0
113	4.C-10.5	Pursue enhanced use of MySeniorCenter.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
114	4.C-10.6	Implement hand-held scanning capabilities: MySeniorCenter.	Y	\$820	\$100	\$264
115	4.C-10.7	Procure tablets for Council on Aging home visits.	Y	\$10,000	\$200	\$2,200
116	4.C-10.8	Procure application for Burlington Community Life Center.	Y	\$10,000	\$2,000	\$4,000
117	4.C-10.9	Use MUNIS for Community Life Cash Receipts.	N	\$0	\$0	\$0
118	4.C-10.10	Add RecTrac modules for Recreation.	Y	\$11,760	\$2,148	\$4,500
119	4.C-10.11	Have Recreation decide re: Work/Service Mgt. Apps.	Y	Included	Included	Included
120	4.C-10.12.	Show availability of Recreation sites on Town Web site.	N	\$0	\$0	\$0
121	4.C-10.13	Undertake full review of cloud v. server for RecTrac.	N	\$0	\$0	\$0
122	4.C-10.14	Resolve issues in compatibility between PC's and RecTrac.	N	\$0	\$0	\$0
123	4.C-10.15	Have Recreation take full advantage of MUNIS financials.	N	\$0	\$0	\$0
<b>C-11. Other</b>						
124	4.C-11.1	Wait to address social media.	N	\$0	\$0	\$0
125	4.C-11.2	Engage expert in Microsoft Access.	Y	\$3,000	\$1,500	\$2,100
126	4.C-11.3	Reconsider OmniForm.	N	\$0	\$0	\$0
127	4.C-11.4	Consult with other leading users of COTS applications.	N	\$0	\$0	\$0
128	4.C-11.5	Establish a standard product for surveys.	Y	\$0	\$780	\$780

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
129	4.C-11.6	Examine mobile solutions as appropriate.	Y	Included	Included	Included
130	4.C-11.7	Establish a training facility.	Y	\$50,000	\$1,000	\$11,000
131	4.C-11.8	Budget for ongoing training of end-users: all depts & apps.	Y	0	\$32,500	\$32,500
132	4.C-11.10	Budget professional procurement & implementation services.	Y	\$50,000	\$0	\$10,000
<b>Section Five: Network and Infrastructure</b>						
133	5.C-1	Map the existing fiber-optic network.	Y	\$70,000	\$0	\$14,000
134	5.C-2	Evaluate backup generators at Police and Town Hall.	Y	\$8,000	\$0	\$1,600
135	5.C-3	Close ceiling tiles in the Town Hall data center.	N	\$0	\$0	\$0
136	5.C-4	Recable the Town Hall Annex.	Y	\$19,950	\$0	\$3,990
137	5.C-5	Remove I-NET cabling from various buildings.	Y	?	?	?
138	5.C-6	Assess wireless LAN connectivity	Y	\$8,000	\$0	\$1,600
139	5.C-7	Assess scalability of current network infrastructure.	Y	Included	Included	Included
140	5.C-8	Assess Open Standards in networking and infrastructure.	Y	Included	Included	Included
141	5.C-9	Assure reliability and availability of network infrastructure.	Y	Included	Included	Included
142	5.C-10	Evaluate modularity of current network infrastructure.	Y	Included	Included	Included
143	5.C-11	Evaluate current network-security capabilities.	Y	Included	Included	Included

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
144	5.C-12	Evaluate network-infrastructure performance.	Y	Included	Included	Included
145	5.C-13	Monitor Internet bandwidth.	N	\$0	\$0	\$0
<b>Section Six: Telephony and Telecommunications</b>						
146	6.C-1	Establish a plan to phase out the current Siemens HiCom systems in both the Town and School locations and replace with a Cisco IP telephony solution.	Y	\$1,410,000	\$84,600	\$366,600
147	6.C-2	Conduct a full billing audit of the network services provided by Verizon and re-configure these services as required to meet the current and future needs of the Town and Schools.	Y	\$7,800	\$0	\$1,560
148	6.C-3	Conduct a VoIP readiness assessment of the current data network within and between Town and School buildings.	Y	\$11,000	\$0	\$2,200
149	6.C-4	Conduct an audit of current 911 network services.	N	\$0	\$0	\$0
150	6.C-5	Establish a comprehensive training plan with the implementation of new IP telephony systems.	N	\$0	\$0	\$0
151	6.C-6	Identify internal IT staff to be trained in administration of the IP telephony system implemented.	N	\$0	\$0	\$0
<b>Section Seven: Hardware</b>						
152	7.C.1	Give CIO central authority over all hardware.	N	\$0	\$0	\$0
153	7.C.2	Have IS Committee & CIO work hand-in-glove w/hardware.	N	\$0	\$0	\$0
154	7.C.3	Establish standards for all hardware.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
155	7.C.4	Replace 20 per cent of hardware every year in CIP.	Y	Included	Included	Included
156	7.C.5	Put computer & printer in 2 Town & School meeting rooms.	Y	\$3,000	\$500	\$1,100
157	7.C.6	Include \$30,000 in FY2014 CIP for departmental hardware.	Y	\$30,000	\$0	\$6,000
158	7.C.7	Share hardware to the maximum extent possible.	N	\$0	\$0	\$0
159	7.C.8	Do not procure white-box hardware.	N	\$0	\$0	\$0
160	7.C.9	Dispose of excess hardware.	N	\$0	\$0	\$0
<b>Section Eight: System Management</b>						
161	8.C.1	Have the CIO provide leadership in system management.	N	\$0	\$0	\$0
162	8.C.2	Have the Information Systems Manager occupy critical role.	N	\$0	\$0	\$0
163	8.C.3	Address urgent and critical issues in backup.	Y	\$20,000	\$2,000	\$6,000
164	8.C.4	Update Business Continuity/Disaster Recovery (BC/DR) plan.	N	\$0	\$0	\$0
165	8.C.5	Assure system security for all systems at all levels.	N	\$0	\$0	\$0
166	8.C.6	Review and revise its user-policy for IT.	N	\$0	\$0	\$0
167	8.C.7	Have users exercise full responsibility in their respective roles.	N	\$0	\$0	\$0
168	8.C.8	Do a better job of documentation in system management.	N	\$0	\$0	\$0
169	8.C.9	Locate critical systems outside the High School.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
170	8.C.9	Locate critical systems outside the High School.	N	\$0	\$0	\$0
171	8.C.10	Undertake complete review of departmental architecture.	N	\$0	\$0	\$0
172	8.C.11	Address use of uninterruptible power supply (UPS) systems.	Y	\$1,000	\$0	\$200
173	8.C.12	Proceed cautiously in examining virtualization.	Y	?	?	?
174	8.C.13	Consider MUNIS OS/DBA service.	Y	\$0	\$14,260	\$14,260
<b>Section Nine: Financial Management of IT</b>						
175	9.C.1	Give CIO full responsibility for financial management of IT.	N	\$0	\$0	\$0
176	9.C.1	Put all IT expenditures in one budget.	N	\$0	\$0	\$0
177	9.C.1	Give CIO full responsibility for all procurement of IT.	N	\$0	\$0	\$0
178	9.C.2	Use full capabilities of UMAS accounting system for IT.	N	\$0	\$0	\$0
179	9.C.3	Commit to a specific level of effort for financial support of IT.	N	\$0	\$0	\$0
180	9.C.4	Refashion how CIP presents IT-related requests.	N	\$0	\$0	\$0
181	9.C.5	Establish replacement cycle for hardware as part of CIP.	Y	\$0	\$170,650	\$170,650
182	9.C.6	Establish replacement cycle for software as part of CIP.	Y	\$0	\$20,000	\$20,000
183	9.C.7	Evaluate possible buy-out of lease agreement for the IMC system.	Y	\$5,000	\$0	\$1,000

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
184	9.C.8	Avoid chargebacks to user-agencies.	N	\$0	\$0	\$0
<b>Section Ten: Summary of Recommendations</b>						
185	10.B.1	Have a clear sense of direct and indirect benefits from IT.	N	\$0	\$0	\$0
186	10.B.2	Establish specific criteria for evaluating IT requests.	N	\$0	\$0	\$0
187	10.B.3	Be aware of factors influencing IT implementation.	N	\$0	\$0	\$0
188	10.B.4	Apply strategic positioning in all IT decision-making.	N	\$0	\$0	\$0
189	10.C.1	Proceed in 3 phases in implementing recommendations.	N	\$0	\$0	\$0
190	10.C.2	Undertake formal planning and reporting on implementation.	N	\$0	\$0	\$0
200	10.C.3	Review all options for financing of recommendations.	N	\$0	\$0	\$0
201	10.C.4	Follow best practice in procurement of IT.	N	\$0	\$0	\$0
202	10.C.5	Undertake active monitoring and updating of system plans.	Y	\$0	\$5,000	\$5,000
203	10.C.6	Explore interlocal cooperation in IT.	N	\$0	\$0	\$0
204		<b>Phase I- Total Recommended</b>		<b>\$2,705,569</b>	<b>\$472,434</b>	<b>\$1,013,548</b>

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

	Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average
<b>Less Funds Programmed or Appropriated</b>						
205		–MUNIS Upgrade from CIP FY2015.		\$150,000	\$0	\$30,000
206		–Replacement Operating Software from CIP FY2015.		\$100,000	\$0	\$20,000
207		–New GenX MS Office from CIP FY2014.		\$25,000	\$0	\$5,000
208		–Add Fiber Plant from CIP FY2015.		\$150,000	\$0	\$30,000
209		–Balance from IT Assessment Article 12, Jan. 23, 2012.		\$35,250	\$0	\$7,050
210		–Balance from GIS Article 27, May 16, 2011.		\$17,000	\$0	\$3,400
211		<b>Total Funds Programmed or Appropriated</b>		<b>\$477,250</b>	<b>\$0</b>	<b>\$95,450</b>
212		<b>Net New Phase I Funds Recommended</b>		<b>\$2,228,319</b>	<b>\$472,434</b>	<b>\$918,098</b>
<b>Phase II Recommendations</b>						
<b>C-2. Payroll/Human Resources</b>						
213	4.C-2.4	Consider deployment of MUNIS Employee Self-service.	Y	\$10,425	\$1,530	\$3,615
214	4.C-2.5	Examine integration of CATS Applicant Tracking w/MUNIS.	N	\$0	\$0	\$0
215	4.C-2.7	Review and revise all position specifications for IT KSA's.	N	\$0	\$0	\$0
216	4.C-2.8	Include IT in all employees' orientation.	N	\$0	\$0	\$0

**Table 21: Implementation Plan by Phase: Cost and Non-Cost (Cont.)**

Section	Description	Cost (Y/N)	One-Time Cost	Annual Cost	5-Year Average	
<b>C-7. Work/Service Management</b>						
217	4.C-7.5	Procure and implement Cemetery Division application.	Y	\$7,500	\$1,500	\$3,000
<b>C-9. Executive Administration and Records Management</b>						
218	4.C-9.3	Evaluate implementation of The Paperless Council.	Y	\$10,000	\$1,000	\$3,000
219	4.C-9.4	Procure and implement Electronic Content Mgt. System.	Y	\$120,000	\$15,000	\$39,000
<b>C-11. Other</b>						
220	4.C-11.9	Consider additional MUNIS applications.	Y	\$57,225	\$9,360	\$20,805
221		<b>Phase II - Total Recommended</b>		<b>\$205,150</b>	<b>\$28,390</b>	<b>\$69,420</b>
222		<b>Less Funds Programmed Or Appropriated</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
223		<b>Net New Phase II Funds Recommended</b>		<b>\$205,150</b>	<b>\$28,390</b>	<b>\$69,420</b>

**2. *Burlington needs to undertake formalized, written planning and reporting on the phased implementation of IT projects from the IS Committee and CIO to the Town Administrator and Superintendent of Schools.***

Formal, written planning and reporting impose a rigor on this process and require Burlington's staff to think through all aspects of implementation.

This kind of formal planning and reporting also recognizes the fundamental impact which IT has on almost every service in Burlington and the need for its elected and appointed leadership to know on as timely and full a basis as possible what is happening with key IT efforts, especially where there may be nascent problems.

**3. *Burlington will need to review carefully its options for financing of these recommendations.***

Several options are available for financing the acquisition of information technology. These include:

- a. Appropriation by taxation.
- b. Appropriation from available funds.
- c. Borrowing.
- d. Lease-purchase.
- e. Outright leasing or rental.
- f. Inter-fund financing with enterprise funds.
- g. Application for financial assistance from the Commonwealth of Massachusetts, United States Government or other sources.

These decisions generally depend on: (a) how each expenditure fits with Burlington's overall financial plans; (b) what fund balances may be available; and (c) the amount of funds actually required, based on the procurement of the recommended goods and services. Massachusetts law governs various aspects of financing the procurement of information technology. For example, borrowing for hardware generally is limited to eight years and software to five years.

Burlington should consult with Town Counsel, its financial advisor and bond counsel before proceeding very far in its planning for financing of any of these recommendations.

**4. *Burlington must follow best practice in the procurement of all IT.***

In many ways, effective management of IT resources begins with the quality of the process involved in their procurement. This determines: (a) the effort which the organization's employees at all levels will be willing to make in the successful implementation of new IT resources; and (b) the quality and suitability of the IT resources in meeting the organization's functional requirements.

Procurement of IT is both an art and a science, incorporating fact and judgment weighed both objectively and subjectively. Massachusetts General Laws Chapter 30B, the Uniform Procurement Act, controls procurement for municipalities and school districts in the Commonwealth.

Burlington needs to establish a clear, consistent approach to the procurement of IT. This begins with the active role of the user-organization involved in the particular procurement and continues through a sound needs assessment and performance-based contracting, incorporating specific consideration of *strategic positioning*, discussed previously in this IT Assessment.

**5. *Burlington should be undertaking active monitoring and updating of system plans across the enterprise.***

The IS Committee and CIO should take responsibility for this monitoring and updating, which ought to be done as part of the Town's annual budget-preparation process and have several components, including:

- a. A written statement which: (1) reviews progress and problems during the current year; and (2) sets goals and objectives for the next fiscal year.
- b. Review by an independent consultant--an "annual physical"--to assure that the plan is whole and sensible, and presents a sound direction for Burlington. This has an estimated cost of \$5,000.

**6. *Interlocal cooperation may provide important opportunities for Burlington's use of IT.***

Local governments have cooperated in IT in different ways since the 1970's. Thus, this is not a new or unproven concept.

Burlington may be able to benefit from this kind of voluntary cooperation in attaining both (1) significant economies of scale and (2) substantial enhancement of service-delivery capabilities.

Earlier, Section Four of this IT Assessment used the example of partnering with the MAPC or other local governments in order to be able to afford a Tier 1 solution for Land Records.

In considering interlocal cooperation in IT, Burlington must be able to identify some significant, specific benefit(s) in cost or service to proceeding with this kind of consolidation of services. Although the idea of consolidation may have some philosophical appeal, that by itself is not sufficient to justify moving in this direction.

Burlington will also need to consider several factors in deciding whether to proceed with interlocal cooperation in any one or more systems. These include:

- Governance--how the cooperative effort will be managed from a policy-making point of view among the participating entities.
- Organizational culture--the similarity of the agencies in how they do their work.
- History of cooperation--whether the entities have a record of success in joint ventures.

- Business issues in shared IT--whether full examination has been made of licensing and other terms and conditions, e.g., contractual issues related to relicensing, migration or non-transferable use.
- Cost sharing--how this will be done, e.g., by relative population or number of transactions.

Burlington should keep in mind the possibility of interlocal cooperation when it licenses any new system or application software. For example, language may be able to be included in the licensing agreement which explicitly provides for the use of the application by Burlington or any governmental agency or authority functioning for the benefit of Burlington, including all employees, agents and contractors thereof.

## Section Eleven

### Conclusion

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This IT Assessment provides the comprehensive and detailed view of IT in Burlington which the Town has requested.

Most important, it emphasizes the critical need to organize and staff the IT function appropriately through the new Information Services (IS) Department as the essential prerequisite to achieving any other significant improvement in what Burlington does with IT.

In this vein, this IT Assessment recognizes that the Chief Information Officer (CIO) occupies a unique and critical position in helping to assure that Burlington makes steady progress in IT both wisely and cautiously.

Thereafter, it presents almost 200 findings and recommendations which have a direct tie to business process, economy and efficiency throughout the Town and School Department.

The phased implementation which this IT Assessment presents give Burlington a clear, set-by-step roadmap for what needs to be done, including all one-time and annual costs.

Burlington's Town and School staff holds the key to success. This is why the process of developing this IT Assessment has emphasized their full participation from the very beginning, including among other things the participation of more than 50 personnel at the Project Workshop in July, 2012 and interviews with 92 individuals.

Finally, Burlington's elected and appointed leadership has a critical role both in launching the implementation of these recommendations successfully and sustaining their fundamental importance in enhancing Town and School services over the longer term.

**Appendix A**  
**Interviewees**

## Interviewees

	Department	Name	Position
1	Accountant	Paul Sagarino	Town Accountant
2		Mickey Maguire	Principal Account Clerk
3		Laura Nichols	Principal Account Clerk
4	Assessors	Jim Doherty	Assessor
5		Marci Naomi	Principal Clerk
6		Maureen Niciloro	Senior Clerk
7		Debra Smoske	Senior Clerk
8	Board of Health	Susan Lumello	Director
9		Marlene Johnson	Health Agent
10		Cathy Piccolo	Principal Clerk
11	Building	John Clancy	Inspector of Buildings
12		Judy Sorensen	Principal Clerk
13		Andy Ungerson	Senior Building Inspector
14	Clerk	Amy Warfield	Town Clerk
15		Daniel McCormack	Archivist
16		Linda McNeill	Administrative Assistant
17		Janice Archer	Senior Clerk
18	Community Life	Christine Shruhan	Director
19		Rose Udics	Secretary
20	Conservation Commission	John Keeley	Conservation Administrator
21		Jodie Wennemer	Conservation Assistant
22	Council on Aging	Margery McDonald	Director
23	Fire	Steven Yetrman	Chief
24		Michael Patterson	Assistant Chief

**Interviewees**  
 (Continued)

	Department	Name	Position
25	Human Resources	Joanne Faust	Director
26	IT: Schools	Robert Cunha	System Administrator
27		Jose DeSousa	Network Administrator
28		John Allegretto	Network/Repair Technician
29	IT: Town	Jim Round	Info. Systems Manager
30		Linda Bellavia	IT Support Administrator
31		Casey Silva	Network Repair Technician
32	Library	Lori Hodgson	Director
33		Susanne Sullivan	Assistant Director
34		Marnie Smith	Head Reference Librarian
35		Mollie Collins	Children's Librarian/Head of Youth Services
36		Cara Thissell	Circulation librarian
37		Nan Wang	Technical Services Librarian
38		Gerri Gaffney	Principal Clerk
39	Parks & Recreation	Don Lorinovich	Director
40		Kelly Lehman	Program Coordinator
41		David Grubb	Asst. Program Coordinator
42		Mary Nelson	Program Administrator
43		Doug Gillingham	Supervisor of Parks Mtce.
44		Carol Lynch	Principal Clerk
45		Nancy Santilli	Senior Clerk
46	Planning	Tony Fields	Director
47		Jennifer Gelinis	Principal Clerk
48		Don Benjamin	Assistant Planner
49		Kristin Kassner	Senior Planner

**Interviewees**  
 (Continued)

	Department	Name	Position
50	Police	Michael Kent	Chief
51		Kevin Doherty	Sergeant & IT Supervisor
52		William Soda	Officer & IT Specialist
53		Sage Costa	Officer & IT Support
54	Public Works	John Sanchez	Director
55		Arlene DeFilippo	Secretary
56		Pialisa Manent	Head Clerk
57		Patti Robichaud	Principal Clerk
58		Thomas Hayes	Town Engineer
59		Kevin Keane	Highway Superintendent
60		Donna Manning	Highway
61		Dave McCafferty	Water and Sewer Supt.
62		Norm Lavigne	Water Treatment Plant Supt.
63		Robert Clougherty	Treatment Plant Operator
64		Tommy Lee	Central Maintenance. Supt.
65		Paul Cauldwell	Cemetery Manager
66		Richard Reid	Cemetery Foreman
67	Schools: Superintendent	Dr. Eric Conti	Superintendent
68		Patrick Larkin	Assistant Superintendent
69	Schools: Business & Facil.	Craig Robinson	Dir. of Finance & Ops
70		Pat Enos	Confidential Secretary
71		Debbie Walsh	Bookkeeper
72		Marianne Frazier	Bookkeeper
73		Leslie Netishen	Bookkeeper

**Interviewees**  
(Continued)

	<b>Department</b>	<b>Name</b>	<b>Position</b>
74	Selectmen/Town Admin.	Daniel Grattan	Selectman
75		John Petrin	Town Administrator
76		Thomas Hickey	Asst. Town Administrator
77		Pauline Gillingham	Exec. Asst. to Town Admin.
78		Sandi Madigan	Principal Clerk
79		Jean Gallant	Senior Clerk
80		Vanessa Ranieri	Principal Clerk
81	Treasurer/Collector	Brian Curtin	Town Treasurer/Collector
82		Terri Clement	Assistant Tax Collector
83		Paula McMahon	Principal Clerk
84		Lisa Runyon	Senior Clerk
85		Melinda Sullivan	Senior Clerk
86		Loreen Perron	Principal Account Clerk
87		Pat Dodson	Principal Account Clerk
88		Jane Hyde	Benefits Administrator
89		Jennifer Ryan	Senior Clerk
90		Sheila Flaherty	Senior Clerk
91	Veterans Services	Bob Hagan	Director
92		Betty McDonough	Principal Clerk

**Appendix B**  
**Chief Information Officer (CIO)**  
**Sample Position Specification**

## **Chief Information Officer Sample Position Specification**

### **CHIEF INFORMATION OFFICER**

#### **Position Purpose**

The purpose of this position is to provide leadership and vision to both Town and School operations in the area of Information Technology. Leads and develops strategic information-technologies planning for the Town/Schools; provides direction to officials and departments in integrating and aligning technology with plan objectives. Plans, organizes, directs and evaluates the Information Services (IS) Department and its operations to ensure effective support for organizational objectives and efficient and effective implementation of initiatives; guides departmental application services. Defines and coordinates the standards, directions, and policies for Information Technology; all other related work as required.

#### **Supervision**

***Supervision Scope:*** Performs highly technical and responsible duties requiring extensive judgment and initiative in planning for, managing, maintaining and supporting the use of information technology throughout the Town and School Department; development of Town-authored applications, using third- and fourth-generation languages and report-generators; implementation and support of vendor-licensed applications; and other activities related to the use of information technology throughout the Town and School Department.

***Supervision Received:*** Works independently under the broad general supervision of both the Town Administrator and Superintendent of Schools.

***Supervision Given:*** Regularly supervises and confers with direct reporting staff and contractors; reviews their work, the results achieved, and the associated programs, projects and activities. Exercises indirect supervision over all employees with the Information Services Department.

#### **Job Environment**

Work is performed under typical office conditions with electro-mechanical computer- and telecommunications-related equipment; exposure to noise from printers, bursters, decollators and other computer-related equipment. Portions of computer system/peripheral locations may have more stringent climate controls.

Operates enterprise-wide, departmental and PC-based computer systems, components, and other office equipment.

Has regular, daily contact with personnel and offices throughout the Town and School Department in answering questions, solving problems, providing training, implementing and supporting applications from vendors, and developing, implementing and supporting applications authored by the Town's staff.

Has access to extensive confidential information from files in computer systems and elsewhere throughout the Town government and School Department.

Errors could result in damage to or loss of information, damage to hardware or software or delay in service, possible monetary loss, or legal consequences adverse to the Town or School Department.

### **Essential Functions**

(The essential functions or duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to the position.)

Provides leadership to Town/School officials and department directors on alignment of technology with Town initiatives, policy and strategic objectives. Makes presentations and prepares reports and plans.

Evaluates needs for information technology on an on-going basis; coordinates all services throughout the Town and School Department related to information technology; consults with users throughout the Town and School Department in order to determine how to improve the efficiency and effectiveness of the Town's or School Department's use of information technology on a continuous basis; maintains standards for hardware, software and communications throughout the Town and School Department; manages the Town's and School Department's procurement of information technology.

Organizes and provides direction in the area of IT operations including the implementation and maintenance of the Town's computers, software and connectivity. Provides direction in the area of IT applications, maintaining and supporting the use of enterprise software needed to meet the operational, management, and reporting requirements of the organization. Has principal responsibility for the implementation and support of packaged applications licensed from vendors.

Organizes and provides direction in the area of IT Customer Service which includes the supporting help desk, PC's, desktop applications, and IT training coordination.

Establishes well-defined evaluation criteria to guide the Town in developing an IT financial plan. Establishes and leads the annual decision-making process that will produce an IT financial plan, which prioritizes the IT initiatives for the Town, and incorporates them into the budget process. Prepares and administers the department's operating and capital budgets; performs long-range planning for information technology. Develops and presents funding strategies to support technology investments.

Meets with representatives of vendors to stay abreast of technologies and discuss options for the Town and School Department.

Has significant involvement in the Town & School Information Services Committee, which is responsible for reviewing and prioritizing IT projects, identifying cross-departmental needs and resources, and provides for two-way communications between departments.

Serves as a spokesperson and advocate for the Town-wide IT needs and goals, which may include meetings with, and presentation to, many different elected and appointed boards, town meeting, citizen and business groups, and the local media.

Works with Information Systems Advisory Committee, which is a citizen committee that provides external, objective input into IT decisions; provides oversight of the IT strategic plan, including annual updates, reviews of the annual IT investment plan; reviews the status of major IT initiatives.

Performs needs analysis and develops, designs and implements uses of information technology in response to needs of users in various offices throughout the Town and School Department.

Reviews, analyzes and establishes priorities among requests for services from Town and School Department offices in conjunction with the Information Services Committee.

Establishes and supervises the maintenance of security on all systems throughout the Town and School Department.

Recommends policies and practices to improve the use of information technology in the Town and School Department.

Trouble-shoots and supports systems on an enterprise-wide basis.

Assures that all daily, weekly and other production schedules are met in a timely and accurate manner.

Assigns work to and supervises departmental staff; provides direct assistance to staff as necessary.

Serves as a member of leadership team, and addresses Town-wide policy, management and strategic issues.

Establishes and maintains working environment conducive to positive morale, quality, creativity, and teamwork.

Performs similar or related work as required.

### **Recommended Minimum Qualifications**

**Education, Training and Experience:** Bachelor's degree in information systems, business or related field; five years of experience in information technology involving system planning, management and operations, training, programming or related skills with mid-range or client-server systems; two years of supervisory experience; three years of public-sector experience; or any equivalent combination of training and experience.

**Special Requirements:** Requires Driver's License.

**Knowledge, Ability and Skill:** ***Knowledge.*** Thorough knowledge of contemporary information-technology; understanding of modern techniques of business-systems analysis and consultative skills. Knowledge of mid-range/server and PC-based systems. Thorough knowledge of programming methods and techniques. Knowledge of enterprise-wide telecommunications. Considerable knowledge of strategic planning, systems and project management.

***Ability.*** Ability to establish and maintain effective communication, both written and oral, with all classes of employees, public officials, vendors, citizen groups and committees, and others inside and outside the Town government and School Department as required. Ability to evaluate hardware and software options and plan for their future use, including procurement. Ability to work effectively with Town and School policy-makers and managerial employees, including the assessment and resolution of problems and setting of priorities. Ability to undertake full scope of operations of enterprise-wide or departmental mid-range or client-server systems. Ability to manage complex budgets and to prepare and review complex financial analysis. Ability to facilitate teams and to lead decision-making processes in a collaborative environment. Ability to provide training to employees on a wide variety of computer software and hardware. Ability to

effectively manage and supervise personnel and interdepartmental technology committees and work programs.

**Skill.** Strong conceptual, analytical, and writing skills. Good presentation skills. Extensive group process and process improvement skills. Computer skills that encompass effective use of word processing, spreadsheet, project management, presentation, mail and Internet browser software.

### **Physical Requirements**

*The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.*

Minimal physical effort required to perform work under typical office conditions, with frequent moderate effort in such tasks as moving and installing computer hardware and related office equipment. Position requires the ability to operate a keyboard for extended periods of time. Position requires the ability to view computer screens for an extended period of time.

(This job description does not constitute an employment agreement between the employer and employee and is subject to change by the employer as the needs of the employer and requirements of the job change.)