GEOGRAPHIC INFORMATION SYSTEM NEEDS ASSESSMENT

Preliminary Report to GIS Committee

TOWN OF SAUGUS, MASSACHUSETTS

EDWARD J. COLLINS, JR. CENTER FOR PUBLIC MANAGEMENT
GOVERNMENT ANALYTICS PROGRAM

JULY 2016
# TABLE OF CONTENTS

SUMMARY ....................................................................................................................................... 1  
REPORT OVERVIEW ............................................................................................................................. 2  
  Town of Saugus Context .................................................................................................................. 2  
  Project Overview ............................................................................................................................ 4  
  GIS at a glance ............................................................................................................................... 5  
GIS IN SAUGUS .................................................................................................................................. 6  
  Potential Projects ............................................................................................................................ 7  
  Potential Barriers ............................................................................................................................ 10  
DEPARTMENT PROFILES .................................................................................................................. 11  
  1. Accounting ............................................................................................................................... 11  
  2. Animal Control ......................................................................................................................... 12  
  3. Assessing .................................................................................................................................... 14  
  4. Clerk .......................................................................................................................................... 15  
  5. Collector/Treasurer ...................................................................................................................... 16  
  6. Fire .............................................................................................................................................. 17  
  7. Health ......................................................................................................................................... 19  
  8. Inspectional Services ................................................................................................................... 21  
  9. Library ....................................................................................................................................... 23  
  10. Police ........................................................................................................................................ 24  
  11. Public Works ............................................................................................................................. 26  
  12. School ....................................................................................................................................... 27  
  13. Waste/Recycling ....................................................................................................................... 29  
APPENDICES ...................................................................................................................................... 31
SUMMARY

This preliminary report is designed to guide the conversation within the Saugus GIS Committee ("the Committee") around how to proceed with GIS implementation. The Collins Center's Government Analytics Program (GAP) has researched how GIS can best serve Saugus ("the Town"), learning best practices from other municipalities and assessing potential needs of Town departments. This report is a draft based on those findings, the results of surveys and interviews with department heads, and should be used to facilitate the Committee’s work in crafting the best possible plan for the Town.

The first section provides context as to the development of the Committee, including the impetus for the Committee and why it is important. The report then visits several measured impacts that a GIS system has had in other municipalities, which demonstrates that GIS investment will bring tremendous value to the Town. There is then an overview of the Collins Center’s initial scope, which we include as a guide to the Committee’s likely process going forward. This section concludes with a brief explanation of what GIS is, and what the key components of the system would be.

The “GIS in Saugus” section is a summary of the survey and interview process. We provide the self-assessment GIS needs of Department Heads as well as Collins Center suggestions for GIS project prioritization for Saugus. We note potential barriers to GIS. **Note that while this report points out the areas that appear to be of greatest urgency for GIS, we will leave it to the GIS Committee to either confirm or reject that judgement, and then to prioritize the projects accordingly.**

The Department Profile section gets into greater detail from the survey and interviews. We encourage department heads to read through all the profiles, paying special attention to their section in particular, to ensure that the Collins Center adequately captured departmental interests and priorities for GIS.

The report concludes with Appendices, including the original survey document and a sample list of GIS projects by department.

From the reading and discussion of this preliminary report will come a determination of the next steps for the GIS Committee. That will include a prioritization of potential projects, assigning members to assist in the software evaluation and demonstration process, and a discussion of other considerations for the Committee going forward. The Committee should also determine what milestones members want to have met prior to the next Committee meeting.
REPORT OVERVIEW

Town of Saugus Context

Hundreds of cities and towns in Massachusetts — and thousands across the country — are using GIS to benefit municipal services. The Town of Saugus (“the Town”) can take advantage of the opportunities that GIS provides so many other communities. Many cities and towns have been using GIS for over a decade. In Saugus, it is in limited use in Police, Fire and Treasury Departments, and just recently in the Department of Public Works. There are tremendous opportunities available for the Town to improve effectiveness and efficiency while saving money in the long run, with a relatively modest investment.

In late 2015, MassGIS approached the town with the opportunity to invest the time in learning a GIS software package they created called OLIVER. While OLIVER provides the very bare necessities for an Assessing Department, it is not a particularly substantive software platform. Around this time the Department of Public Works was implementing a GIS-based Computerized Maintenance and Management System (CMMS) — a work order and asset management system. Several town officials, including the Directors of the Departments of Economic Development and Assessing, approached the CMMS vendor to gain a better understanding of the tools they offered for GIS needs in other departments. The Directors came away impressed with the opportunities GIS offered their departments for time and cost savings. A conversation was initiated around expanding Saugus’s GIS plans to incorporate a town-wide approach.

At around this time, the Director of Economic Development submitted grant proposals with the state’s Community Compact program. The grants were available to be used implementing best practices for municipal technology needs. Saugus submitted a grant request for the assessment and planning of a GIS system, and was awarded $10,000 to hire a consultant to run an assessment process. With the recommendation of MassIT, the Town asked the UMass-Boston Collins Center’s Government Analytics Program (GAP) to submit a scope to meet the criteria of the award. (The proposed scope provided by GAP to The Town can be found on page 4.)

Once the Town and MassIT accepted the project scope, the Collins Center conducted research as to potential time and money savings that GIS could generate. Here are a few examples of potential GIS savings already realized in Massachusetts:

- Cambridge Assessor reported walk-in visits down 20% after GIS implementation, and the preparation of abutter mailing labels reduced from 2 hours to 15 minutes.
- Fitchburg Assessor reported that parcel area corrections measured by GIS increased $225,000 in assessed value in just the first ten corrections
- Hingham saved $5,000-$10,000 in developing RFP for mowing town-owned fields by calculating area of fields by GIS rather than physical measurements
• Newton resolved a property dispute with GIS that resulted in $61,800 additional tax revenue, and currently generates $4000 in annual revenue in map sales.
• The Marshfield Assessor had parcels redrawn for revised valuations using a single employee in 45 days. The Assessor had estimated it would require one FTE a full year to complete the work without GIS.

A few examples outside of Massachusetts:

• In 1995, the city of Philadelphia used GIS to optimize their garbage truck routes, saving over $1 million in overtime.
• The city of Ontario generated $190,000 per year in lost business license fees by using GIS to audit their billing files.
• In 1996, the city of Scottsdale had only 3 weeks in which to respond and challenge the numbers provided by the Census Bureau’s mid-decade census. Due to the city’s GIS database the challenge was approved, resulting in increased per capita revenues to the city of $1.8 million per year for the next five years — a total of $9 million.
• The Metropolitan Sewer District of Cincinnati used GIS to find parcels with unbilled sewer connections. The District generated thousands of dollars of missing revenue.

The Collins Center researched some of the best practices and best uses for municipal GIS. The creation of the Saugus GIS Committee came out of that process, followed by the department survey and interviews.

The Collins Center began the process of looking into municipal GIS software options, ranging from the free MassGIS offering to installations costing tens of thousands of dollars. Cloud-based GIS systems are strongly recommended to eliminate the need for future software and hardware upgrade costs. Because GIS data is often dynamic, having those updates done at the vendor level are faster, more accurate, and the most cost-effective for Saugus. The Saugus GIS Committee will solicit cost estimates and conduct demos for several of these products in the near future.

There was concern around the true cost of GIS, above the software fees. In order to get the most accurate GIS data, many municipalities hire a GIS flyover at the cost of around $100,000. While such a flyer would provide valuable information for the highest quality GIS system, a quality GIS system can be attained with currently-available public GIS information. MassGIS has already compiled excellent data on municipalities around the Commonwealth, and that information is more than good enough to get GIS off the ground. In the opinion of the Collins Center authors of this report, the expansion, management and sustainability of GIS will likely require a full time employee to manage all the various GIS needs of The Town.

With that as context, the GIS Committee is moving forward with this draft report to continue the next phases of GIS planning, assessment, and eventually implementation.
**Project Overview**

The Town requested that the Collins Center’s Government Analytics Program (GAP) conduct a GIS Needs Assessment. The scope for this assessment, as approved by the Saugus Town Manager and MassIT, includes the following:

<table>
<thead>
<tr>
<th>No.</th>
<th>Task</th>
<th>Staff Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create and facilitate a town GIS Committee, consisting principally of key department heads, the Town Manager or a member of their staff, and the IT Director. This committee will discuss GIS needs, possibilities, ambitions and requests.</td>
<td>GAP, Town Manager, ITD, Most Departments</td>
</tr>
<tr>
<td>2</td>
<td>Create, disseminate, assist in completion, and analyze a GIS needs survey to be filled out by each town department.</td>
<td>GAP, Departments</td>
</tr>
<tr>
<td>3</td>
<td>In conjunction with the survey, initiate interviews with department heads and key staff to get an understanding of GIS needs, identifying what new resources are available (GIS data, systems, and current software).</td>
<td>GAP, Departments</td>
</tr>
<tr>
<td>4</td>
<td>Conduct an inventory of any current software, licenses, and hardware, networks that would be relevant for GIS. This inventory will identify what resources exist, where they are housed, for what they are being used, and any existing duplication. The inventory will ultimately identify any software and data that will need to be synced to a GIS.</td>
<td>GAP, IT Director</td>
</tr>
<tr>
<td>5</td>
<td>Conduct a review of applicable best practices and established standards relative to GIS implementation and data formats, including initiating a dialogue with MassGIS and other relevant agencies within the Commonwealth.</td>
<td>GAP</td>
</tr>
<tr>
<td>6</td>
<td>Write a report of town GIS needs, with a recommended prioritization for software needs and implementation prioritization. Present report to GIS Committee for feedback and edits.</td>
<td>GAP</td>
</tr>
<tr>
<td>7</td>
<td>Set up GIS vendor demonstrations and quotes for the GIS Committee, calling of vendor references, and other assistance in selection of GIS vendor.</td>
<td>GAP and GIS Committee</td>
</tr>
<tr>
<td>8</td>
<td>Working with selected GIS vendor to communicate a plan for prioritization, connect to right people in each department, and initiate implementation based on agreed-upon plan.</td>
<td>GAP, GIS vendor, GIS Committee</td>
</tr>
<tr>
<td>9</td>
<td>Create a plan for the long-term sustainability of the GIS system</td>
<td>GAP, GIS vendor, GIS Committee</td>
</tr>
</tbody>
</table>
GIS at a glance

Geographic Information Systems (GIS) are a set of interfaces, software, hardware and devices that handle spatial data. In addition to map creation, these systems are used to capture, store, manipulate, analyze, and manage these data.

GIS components at a glance:

- **Interfaces**: Typical GIS deployments are packaged as a software suite, with a number of related modules that work together in handling and generating data. However, the increase in online offerings is increasing the amount of fully integrated GIS interfaces.
- **Software**: The industry-leading commercial software is ESRI’s ArcGIS, with much of its competition driven by open-source rivals, such as QGIS and Grass.
- **Hardware**: Typical GIS deployments are done through desktop and server configurations. More and more, however, GIS is being brought online into the cloud.
- **Devices**: Data capture is essential to many GIS applications. In addition to growing number of GPS device applications, organizations have long relied on remote sensing as well as aerial-imagery as part of their capture processes.

For business, GIS is used in a variety of applications to increase efficiency and manage performance. Some examples include: market research, supply chain management, crop-yield prediction in farming, planning for expanded operations, and resource management for extractive activities.

For municipalities, GIS has long been used in certain departments to provide essential functions. In Public Works, GIS has been used to manage both the resources above and below the ground. In Planning/Zoning, GIS has been used to investigate zoning, view aerial imagery, and manage land-use. In Assessing, GIS-based representations of the town serve as the basis for parcel management, with the technology further used as an analysis tool.

Increasingly, municipalities are bringing GIS town wide. Implementing GIS means can mean cost-savings and greater efficiency. It can be added to assist in day-to-day operations, with applications for fleet management, generating abutter’s lists, and traffic enforcement. It is also used for longer-term study and analysis, such as environmental impact, zoning ordinance changes, economic development, and crime analysis.

(For a sample list of GIS projects and processes, please see Appendix II.)
GIS IN SAUGUS

Selected Survey Results

The GAP team conducted an online GIS needs assessment survey to serve as base inventory of needs for each department participating in the committee. The survey is divided into three sections: Basic Information—department and contact information; Departmental GIS Capacity—an assessment of the department’s technical needs capacity; and, GIS Needs—an assessment of potential GIS projects, their priority and benefit level, and potential barriers to GIS implementation. (Please see Appendix 1 for a print version of the survey instrument.)

Easily identifiable among the results is the lack of GIS use among the departments. Only four departments (30.8%) are currently using GIS in any form. One of these (Public Works) has a complete GIS system in place (PeopleGIS). Two of these (Police and Fire) have mapping functions within existing software. Similarly, only two departments (Police and Assessing; 15.4%) have shapefiles, or GIS files, that are officially maintained by the department or outside consultants. Also, only five departments (Police, Fire, Health, IT and DPW; 38.5%) have noted employees with any prior GIS experience. This data suggests that education and training as well as technical support will be key drivers of a successful implementation in town.

Despite the lack of GIS use and awareness in town, there is clear need. Eight departments (61.5%) have functions that explicitly use maps and/or mapping. Compare this with number currently using GIS. Given the interest this project has garnered, we expect that there is considerable desire and need for GIS. However, there are also barriers to a potential implementation. When asked, the top three barriers cited by department heads were “budget” (80%), “out of date equipment” (40%), and “staff availability” (33.3%). This suggests that the committees focus should not solely be narrowed to system choice for implementation to be successful.
Potential Projects

Based on department head interviews and survey data, the project team has identified the following potential GIS projects. We have noted which projects the Department Heads consider high priority, and to help guide the discussion of the Committee, the authors have added a column with a slightly revised suggestion of priority for some of these projects.

<table>
<thead>
<tr>
<th>Department</th>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Dep’t Priority</th>
<th>Collins Sugg. Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Control</td>
<td>Mobile Capture</td>
<td>Geographic referencing and documentation of incidents.</td>
<td>Strong</td>
<td>High</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Data Sharing</td>
<td>Increase reporting capability.</td>
<td></td>
<td>Strong</td>
<td>Med.</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Assessing</td>
<td>Abutter’s List</td>
<td>Auto-generation of abutter’s list for staff and/or public.</td>
<td>Strong</td>
<td>High</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Analysis</td>
<td>Increase reporting capability.</td>
<td></td>
<td>Strong</td>
<td>High</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Clerk</td>
<td>Redistricting</td>
<td>Visual and analytical support for department’s precinct and ward planning.</td>
<td>Strong</td>
<td>High</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Poll Locations</td>
<td>After redistricting, analyzing whether poll locations are best located for voters.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>Collector/Treasurer</td>
<td>Well and septic system mapping</td>
<td>In conjunction with Health, will map for water/sewer billing purposes.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Sync building permit requests and Treasury</td>
<td>Synchronization would allow Treasury to put hold on building permit requests when taxes are delinquent, and would ensure ISD is aware of those holds.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>Shapefile Update</td>
<td>Update of hydrant and hazardous material locations.</td>
<td>Strong</td>
<td>Med.</td>
<td>Med.</td>
<td>One Time</td>
</tr>
<tr>
<td>Permitting</td>
<td>Cataloguing of fire inspection permits.</td>
<td></td>
<td>Strong</td>
<td>High</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Public Information</td>
<td>Dissemination of information for public safety education and promotion of activities.</td>
<td></td>
<td>Strong</td>
<td>Med.</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Department</td>
<td>Project</td>
<td>Description</td>
<td>Benefit</td>
<td>Dep’t Priority</td>
<td>Collins Sugg. Priority</td>
<td>Frequency</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
<td>----------------</td>
<td>------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td>Well and septic system mapping</td>
<td>In conjunction with Treasury, will map for water/sewer billing purposes.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Tenant-landlord issues</td>
<td>Managing tenant complaints and follow-ups.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Code enforcement inspections</td>
<td>Creating a system to managing all Health Department code-related inspections, such as rodent and trash complaints.</td>
<td>Strong</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Food establishment inspections</td>
<td>Tracking all food establishments and any inspections happening here. Might connect with the grease trap system.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Work order system for other permits and inspections</td>
<td>Tanning salons, tattoo parlors, pools, camps, pets, etc.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Disease and illness tracking</td>
<td>Using GIS to identify potential location-sourced health issues.</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Posting of health-related info</td>
<td>Where flu shots can be accessed, or locations to go during certain types of emergencies.</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Inspectional Services</strong></td>
<td>Map zoning codes</td>
<td>Publicly-available map of zoning code updates.</td>
<td>Strong</td>
<td>High</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>GIS-based Document Management System</td>
<td>Electronic storage of and access to parcel maps, building permits, zoning decisions and historical info.</td>
<td>Strong</td>
<td>High</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Department</td>
<td>Project</td>
<td>Description</td>
<td>Benefit</td>
<td>Dep’t Priority</td>
<td>Collins Sugg. Priority</td>
<td>Frequency</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
<td>----------------</td>
<td>------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Inspectional Services</td>
<td>Sync building permit requests and assessor</td>
<td>Allows easier sync of permits and potential valuations based on those permits over time.</td>
<td>Strong</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>(Continued)</td>
<td>database</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sync building permit requests and Treasury</td>
<td>Synchronization would allow Treasury to put hold on building permit requests when taxes are delinquent, and would ensure ISD would be aware of those holds.</td>
<td>Moderate</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Library</td>
<td>Town Data Portal</td>
<td>Increasing public access to community data, including historical sources.</td>
<td>Strong</td>
<td>High</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Accident monitoring</td>
<td>Analysis of accident clusters.</td>
<td>Strong</td>
<td>High</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Citations</td>
<td>Analysis of high citation zones for enforcement.</td>
<td>Strong</td>
<td>High</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Traffic Monitoring</td>
<td>Analysis of traffic speed patterns for strategic planning.</td>
<td>Strong</td>
<td>High</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Redistricting</td>
<td>Reshaping outdated police sectors to assign manpower more effectively</td>
<td>Strong</td>
<td>Med.</td>
<td>Med.</td>
<td>One Time</td>
</tr>
<tr>
<td>School</td>
<td>Elementary School Redistricting</td>
<td>School imbalances and demographic changes may require redistricting of school boundaries.</td>
<td>Strong</td>
<td>High</td>
<td>Med.</td>
<td>On Time</td>
</tr>
<tr>
<td></td>
<td>GIS Access to Saugus Public School students</td>
<td>Creating a comprehensive and publicly-available GIS system to students.</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Facilities work order system</td>
<td>School using SchoolDude now, and it is working. There is no specific reason to consider replacing this.</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
## Waste/Recycling

<table>
<thead>
<tr>
<th>Department</th>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Dep’t Priority</th>
<th>Collins Sugg. Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste/Recycling</td>
<td>Daily Trash and Recycling Routes</td>
<td>Mapping and dissemination of current daily routes for internal and public use.</td>
<td>Strong</td>
<td>High</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Compliance Checks</td>
<td>Compliance of applicable regulations and statutes.</td>
<td>Strong</td>
<td>Med.</td>
<td>Med.</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Potential Barriers

Based on department head interviews and survey data, the project team has identified the following potential barriers to implementing GIS:

<table>
<thead>
<tr>
<th>Department</th>
<th>Budget</th>
<th>Staff Availability</th>
<th>Technical abilities</th>
<th>Out of Date equipment</th>
<th>Lack of GIS need</th>
<th>No barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Animal Control</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Assessing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Clerk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fire</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Inspectional Services</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Public Works</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Schools</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste/Recycling</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
DEPARTMENT PROFILES

1. Accounting

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joanne Gayron, Town Accountant</td>
<td>4</td>
</tr>
</tbody>
</table>

**Top Five Services/Functions Provided by the Department**

<table>
<thead>
<tr>
<th>Budgeting</th>
<th>Financial Reporting</th>
<th>Accounts Payable</th>
<th>Payroll</th>
</tr>
</thead>
</table>

**Current GIS use**

<table>
<thead>
<tr>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

**Overview**

Accounting was not interviewed as part of this report. However, the department did complete a GIS needs survey. Their responses indicate that the department does not currently perceive a need for GIS within the department. They do not currently have functions that use maps and/or mapping, nor do they receive related requests for data from the public.

**Potential Projects**

None cited or identified.

**Potential Barriers**

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>--</td>
</tr>
</tbody>
</table>
2. Animal Control

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harold Young, Animal Control Officer (ACO)</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Five Services/Functions Provided by the Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle animal complaints</td>
</tr>
<tr>
<td>Animal bite investigations</td>
</tr>
<tr>
<td>Wildlife issues</td>
</tr>
<tr>
<td>Coordination with Police, Fire and Inspectional Services</td>
</tr>
<tr>
<td>Animal contagious diseases</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current GIS use</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Overview

The project team has noted ways GIS could offer support and efficiency to current processes for Animal control. As the ACO is who is charged with enforcing state statutes and local ordinances and by-laws regulating domestic animals, there is considerable documentation necessary regarding incidents, citations, quarantines, etc. Current paper-based record keeping could be moved to geographic-based records and analysis. GIS—with the assistance of mobile technology—could also allow the ACO to capture and access data in the field. As the department coordinates with a number of departments (Police, Fire, Inspectional Services, Board of Health), GIS could increase data sharing capabilities. There are a number of barriers to bringing in GIS. In particular, the department lacks internet or town network connection, and the computer is considerably out of date.

Potential Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Capture</td>
<td>Geographic referencing and documentation of incidents.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Data Sharing</td>
<td>Increase reporting capability.</td>
<td>Strong</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Budget</strong></td>
<td>With low staffing and poor infrastructure, it is presumed that the</td>
</tr>
<tr>
<td></td>
<td>budget is kept at a minimum.</td>
</tr>
<tr>
<td><strong>Staff Availability</strong></td>
<td>The department has one employee.</td>
</tr>
<tr>
<td><strong>Technical Abilities</strong></td>
<td>Implementation would require training in new software and hardware.</td>
</tr>
<tr>
<td><strong>Out of date equipment</strong></td>
<td>No current internet connection or network infrastructure; computer is</td>
</tr>
<tr>
<td></td>
<td>out of date; mobile technology would be of great importance.</td>
</tr>
</tbody>
</table>
3. Assessing

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracey Mingolelli, Principle Clerk</td>
<td>3</td>
</tr>
</tbody>
</table>

**Top Five Services/Functions Provided by the Department**

<table>
<thead>
<tr>
<th>Revenue Generation</th>
<th>Appeals</th>
<th>Mailing lists</th>
<th>Exemptions</th>
<th>Review Permits and Assessed Values</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Current GIS use</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Overview**

The department does not currently use GIS, instead using the state’s Computer-Aided Mass Appraisal (CAMA) system. Through the standard CAMA statewide, increasingly municipalities have begun to move to a more updated system. Saugus has recently procured Patriot Properties’ AssessPro and implementation is underway. Though this software contains some similar functions as typical GIS software, there are a many functions it does not. In particular, GIS allows for custom analysis which is typically limited in “out-of-the-box” software. GIS could also allow for custom queries (such as generating an abutter’s list) that could save staff time and benefit the public (the department cites considerable amount of public requests for data for new buildings and additions). Therefore, despite their current software, the department may still benefit from a town wide GIS.

**Potential Projects**

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abutter’s List</td>
<td>Auto-generation of abutter’s list for staff and/or public.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Analysis</td>
<td>Increase reporting capability.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

**Potential Barriers**

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of date equipment</td>
<td>The department cites speed of current hardware/software mix.</td>
</tr>
</tbody>
</table>
4. Clerk

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellen Schena, Town Clerk</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current GIS use</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>No</td>
</tr>
</tbody>
</table>

**Overview**

As the town election official, a key concern for the Town Clerk is the shape and composition of voting precincts and wards. Currently, the department’s main support for this effort is the state Voter Registration Information System (VRIS), a statewide computerized database that contains the name and address of every registered voter. Despite the VRIS, a significant portion of the redistricting work is paper-based, with review, editing, and submission conducted by mail. For a process containing maps with high-levels of details, redistricting is now needlessly cumbersome. The project team recommends using GIS to increase the speed and efficiency of the project. (GIS may also offer some additional opportunities for the department. Please see Appendix II for a sample list of other GIS projects.)

**Potential Projects**

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redistricting</td>
<td>Visual and analytical support for department’s precinct and ward planning.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Poll Locations</td>
<td>After redistricting, analyzing whether poll locations are best located for voters.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Occasional</td>
</tr>
</tbody>
</table>

**Potential Barriers**

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>None noted</td>
<td>--</td>
</tr>
</tbody>
</table>
5. Collector/Treasurer

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wendy Hatch, Finance Director and Collector/Treasurer</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Five Services/Functions Provided by the Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Collection</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current GIS use</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Overview

The department currently use GIS in its MVRS water meter software. The software allows the department to have a staffer collect and log water readings over the course of three weeks. GIS doesn’t appear to be a high priority for the Department, but there are a few areas where benefits could be found, especially in managing those properties off the water and sewer systems, and in syncing water billing and tax lien data. Another potential project might be adding maps to capital planning proposals outline the implications of land acquisitions, infrastructure projects, etc.

Potential Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well and septic system mapping and tracking</td>
<td>In conjunction with Health, will map for water/sewer billing purposes.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Sync building permit requests and Treasury</td>
<td>Synchronization would allow Treasury to put hold on building permit requests when taxes are delinquent, and would ensure ISD is aware of those holds.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Noted</td>
<td>--</td>
</tr>
</tbody>
</table>
6. Fire

### Key Contact

<table>
<thead>
<tr>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chris Vinard, Captain</td>
</tr>
</tbody>
</table>

### Top Five Services/Functions Provided by the Department

<table>
<thead>
<tr>
<th>Service/Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Suppression</td>
</tr>
<tr>
<td>Emergency Medical Service</td>
</tr>
<tr>
<td>Rescue</td>
</tr>
<tr>
<td>Fire Prevention</td>
</tr>
<tr>
<td>Education</td>
</tr>
</tbody>
</table>

### Current GIS use

<table>
<thead>
<tr>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

### Overview

The department is one of the few that currently uses GIS. Their current records management system (RMS; Tritech’s IMC) contains internal mapping functions. It allows mapping of calls for service and incidents, route planning and directions, and has automatic vehicle location (AVL) capabilities. The department also has laptops (“tough books”) available in each apparatus that gives them access to not only maps, but AVL for own and neighboring town’ apparatus while responding to incidents, and an inventory of town fire hydrants and hazardous materials locations. These tough books were obtained as part of a federal program that gave them a number of these laptops as well as the open-source GIS software (ERGIS).

Despite their current use of some GIS functions, the department’s use of GIS is minimal. Though every staff member has access to the technologies mentioned above, they are typically only used for analysis by upper management. In addition, the department is limited in its capacity to engage in longer term analysis projects.

### Potential Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shapefile Update</td>
<td>Update of hydrant and hazardous material locations.</td>
<td>Strong</td>
<td>Medium</td>
<td>One Time</td>
</tr>
<tr>
<td>Permitting</td>
<td>Cataloguing of fire inspection permits.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### Project Description

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trend Analysis</td>
<td>Analysis of incidents and calls for service patterns.</td>
<td>Strong</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Public Information</td>
<td>Dissemination of information for public safety education and promotion of activities.</td>
<td>Strong</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>--</td>
</tr>
<tr>
<td>Technical Abilities</td>
<td>Five FTEs with strong computer and technical skills.</td>
</tr>
</tbody>
</table>

**Comment**

Town does not have an engineering department. So initial data entry of infrastructure are a key foundation.
7. Health

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Greenbaum, Director of Public Health</td>
<td>2</td>
</tr>
</tbody>
</table>

**Top Five Services/Functions Provided by the Department**

<table>
<thead>
<tr>
<th>Food Establishment Inspections</th>
<th>Disease Follow-up</th>
<th>General Inspections</th>
<th>Grease Traps</th>
<th>Landfill Management</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Current GIS use</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**Overview**

The Health Department has a number of areas where GIS could be a benefit. It is currently in the process of having a Grease Trap Tracking system set up through PeopleGIS, which will connect with the DPW system. This was part of the original PeopleGIS contract, designed to meet the new Health Regulations passed last year. This is a good start, but only meets a fraction of the departments overall GIS needs. Though the potential projects for the Health Department wouldn’t necessarily be considered high priority for the Town, they don’t look to be particularly complex, and have the benefit of creating an improved tracking system of all the various types of inspections and permits that the department oversees. The Director has used these types of systems in the past in other municipalities, and is definitely interested in bringing something similar to the Saugus Board of Health.

**Potential Projects**

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well and septic system mapping and tracking</td>
<td>In conjunction with Treasury, will map for water/sewer billing purposes.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Tenant-landlord issues</td>
<td>Managing tenant complaints and follow-ups.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Code enforcement inspections</td>
<td>Creating a system to managing all Health Department code-related inspections, such as rodent and trash complaints.</td>
<td>Strong</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Project</td>
<td>Description</td>
<td>Benefit</td>
<td>Priority</td>
<td>Frequency</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Food establishment inspections</td>
<td>Tracking all food establishments and any inspections happening here. Might connect with the grease trap system.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Work order system for other permits and inspections</td>
<td>Tanning salons, tattoo parlors, pools, camps, pets, etc.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Disease and illness tracking</td>
<td>Using GIS to identify potential location-sourced health issues.</td>
<td>Moderate</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Posting of health-related info</td>
<td>Where flu shots can be accessed, or locations to go during certain types of emergencies.</td>
<td>Moderate</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>Budget is limited. As projects appear to be low lifts, this shouldn’t be a major concern.</td>
</tr>
<tr>
<td>Other</td>
<td>There are a lot of potential inspections available here. The setup might be big, but there’s a lot that could be done if it’s set up right.</td>
</tr>
</tbody>
</table>
8. Inspectional Services

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fred Varone, ISD Director;</td>
<td>5</td>
</tr>
<tr>
<td>Deborah Nickolas, Senior Clerk</td>
<td></td>
</tr>
</tbody>
</table>

**Top Five Services/Functions Provided by the Department**

<table>
<thead>
<tr>
<th>Building Permits</th>
<th>Building Inspections</th>
<th>Zoning By-Laws</th>
<th>Zoning Information</th>
<th>Communication and Customer Service</th>
</tr>
</thead>
</table>

**Current GIS use**

<table>
<thead>
<tr>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
</table>

| No |

**Overview**

The Inspectional Services Department has a high need for GIS. Many of its most important functions are related to mapping, yet there is no GIS map in use. Maps that are in use are 80 years old, and marked up by hand to varying degrees of accuracy. There is no way of tracking things like changes of building values or construction by neighborhood. In addition, 80 years of zoning code changes are not mapped in any easy-to-understand way, and there are huge opportunities on this front as well. The need and the opportunities are high.

**Potential Projects**

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map zoning codes</td>
<td>Publicly-available map of zoning code updates.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Map building permits</td>
<td>Mapping building permits (current and historic) in real-time.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>GIS-based Document Management System</td>
<td>Storage of parcel maps, building permits, zoning decisions and historical info, and making information more easily available to the public.</td>
<td>Strong</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Sync building permit requests and assessor database</td>
<td>Allows easier sync of permits and potential valuations based on those permits over time.</td>
<td>Strong</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
## Project Description

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sync building permit requests and Treasury</td>
<td>Synchronization would allow Treasury to put hold on building permit requests when taxes are delinquent, and would ensure ISD would be aware of those holds.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

## Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Abilities</td>
<td>Clerical staff has good technical ability, but GIS will be a very new function for them. This will be a challenge.</td>
</tr>
<tr>
<td>Capacity</td>
<td>Projects listed are time-consuming, and will take extensive time for outside consultants and/or staff to accomplish. The ultimate benefits will be high, but it may be a substantial investment. Staff capacity to manage ongoing GIS will need to be considered.</td>
</tr>
<tr>
<td>Complexity</td>
<td>This is a series of some of the most complex and detailed projects the Town might undertake, yet also some of the most important.</td>
</tr>
</tbody>
</table>
## 9. Library

### Key Contact

<table>
<thead>
<tr>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

| Brian Hodgdon, Director |

### Top Five Services/Functions Provided by the Department

<table>
<thead>
<tr>
<th>Describe</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide access to informational, educational and recreational materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide a safe, open and comfortable space for all citizen pursuits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage traditional and information literacy and lifelong learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promote the appreciation of local community heritage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Current GIS use

<table>
<thead>
<tr>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

### Potential Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town Data Portal</td>
<td>Increasing public access to community data, including historical sources.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

### Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Noted</td>
<td>--</td>
</tr>
</tbody>
</table>

### Comments

*The Library could be the public’s primary point of access for the informational results of this GIS project. We’re happy to do what we can to help our patrons leverage the products of this effort.*

---

Town of Saugus – Geographic Information System Needs Assessment

Edward J. Collins, Jr. Center for Public Management
10. Police

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ron Giorgetti, Assistant Chief</td>
<td>76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Five Services/Functions Provided by the Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protect and Serve the Community</td>
</tr>
<tr>
<td>Crime Investigation</td>
</tr>
<tr>
<td>Traffic Investigations</td>
</tr>
<tr>
<td>Preservation of Evidence</td>
</tr>
<tr>
<td>Court Proceedings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current GIS use</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Overview

The department is one of the few that currently uses GIS. As with Fire, the department’s RMS (Tritech’s IMC) possesses a number of internal mapping functions. It allows for mapping of calls for service and incidents, route planning and directions, and has automatic vehicle location (AVL) capabilities. In addition to IMC, the department also use two other software, each with some GIS function. GetCrashReports.com is a portal for accident reporting with a public and organization-facing access. The department also uses DataVis, a crime analysis and reporting platform that provides the department with mobile access to reports as well as real-time alerts for critical incidents. This serves as the department’s main analysis tool.

Clearly, the department possesses a number of helpful technologies and already enjoys a number of GIS benefits. However, the project team noted that long range analysis is typically conducted by the sole crime analyst. Though it is encouraging that the department has an analyst (many in the Commonwealth do not), the analyst is also responsible for budgeting and maintaining the department’s technical infrastructure (hardware, software, website, etc.). This means that they must split their time between duties, rather than being dedicated to analysis. With only five employees with strong computer and technical skills (survey data), this suggests that capacity could be a concern for GIS implementation in Police.
### Potential Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime Mapping</td>
<td>Analysis of crime trends and hot spots.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Accident monitoring</td>
<td>Analysis of accident clusters.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Citations</td>
<td>Analysis of high citation zones for enforcement.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Traffic Monitoring</td>
<td>Analysis of traffic speed patterns for strategic planning.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Redistricting</td>
<td>Reshaping outdated police sectors to assign manpower more effectively</td>
<td>Strong</td>
<td>Medium</td>
<td>One-time</td>
</tr>
</tbody>
</table>

### Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Noted</td>
<td>--</td>
</tr>
</tbody>
</table>

**Comments**  
*Town does not have an engineering department. So infrastructure [and] initial data entry are a key foundation.*
11. Public Works

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brendan O'Regan, Director</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Five Services/Functions Provided by the Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service</td>
</tr>
<tr>
<td>Current GIS use</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

Overview

The DPW has implemented a GIS-based public works work order system, also known as a Computered Maintenance Management System (CMMS). Implementation has been going well, and the department is using it to good effect. There continues to be potential for expansion and improvement going forward, but there is good momentum within this system, and the foreman are using tablets in the field to update information in real time.

Potential Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>There are no new GIS projects that the DPW needs to work on. The biggest project need will be the updating of DPW Asset information when a new Town Engineer is in place.</td>
</tr>
</tbody>
</table>

Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>None listed</td>
<td>--</td>
</tr>
</tbody>
</table>
12. School

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy Guider, Executive Assistant</td>
<td>447</td>
</tr>
</tbody>
</table>

**Top Five Services/Functions Provided by the Department**

<table>
<thead>
<tr>
<th>Service/Function</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Education</td>
<td>No</td>
</tr>
<tr>
<td>Student Safety</td>
<td>No</td>
</tr>
<tr>
<td>Student Development</td>
<td></td>
</tr>
<tr>
<td>Budget Management</td>
<td></td>
</tr>
<tr>
<td>Quality Staffing</td>
<td></td>
</tr>
</tbody>
</table>

**Overview**

The Saugus School Department has minimal ongoing need for GIS capacity, but there is one potential project — redistricting — where the department could benefit. The larger potential for GIS is in the impact it could have on student learning about Saugus. Providing GIS capabilities to the Town, and GIS access and training for Saugus Public Schools, could encourage its use by students, creating both learning opportunities and interesting project opportunities that may benefit the Town. This also may provide any GIS Director access to student interns and projects that he or she may want to accomplish but might not otherwise have the capacity for. Or projects the Town might never have even thought of.

**Potential Projects**

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elementary School Redistricting</strong></td>
<td>School imbalances and demographic changes may require redistricting of school boundaries.</td>
<td>Strong</td>
<td>High</td>
<td>One Time</td>
</tr>
<tr>
<td><strong>GIS Access to Saugus Public School students</strong></td>
<td>Creating a comprehensive and publicly-available GIS system to students.</td>
<td>Moderate</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Facilities work order system</strong></td>
<td>School using SchoolDude now, and it is working. There is no specific reason to consider replacing this.</td>
<td>Moderate</td>
<td>Low</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Noted</td>
<td>--</td>
</tr>
<tr>
<td>Other</td>
<td>Need is low, though fringe benefits might be worth considering.</td>
</tr>
<tr>
<td></td>
<td>Especially intrigued by potential of students getting trained, involved,</td>
</tr>
<tr>
<td></td>
<td>and doing projects for the Town.</td>
</tr>
</tbody>
</table>
13. Waste/Recycling

<table>
<thead>
<tr>
<th>Key Contact</th>
<th>FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lorna Cerbone, Solid Waste/Recycling Coordinator</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Five Services/Functions Provided by the Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trash/Recycling Collection Oversight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current GIS use</th>
<th>Department-maintained shapefiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Overview

The department does not currently use GIS or digital mapping in any form. Yet, the project team believes they can greatly benefit from its use. In particular, much of the department’s current work uses mapping, but in all-paper processes. The department is responsible for managing trash and recycling collection for the Town, but must manually plan and review route changes on large paper maps. Due to this process, they are also unable to disseminate these plans to the public in a map-based form online. The department is also often reliant on data from other departments but has no efficient way to access these data. This includes problem properties data from the Health Department and other property data, through the Assessor’s street file, when handling resident complaints or special instructions. Further, we have identified a number of potential GIS projects that may benefit the department.

Potential Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Benefit</th>
<th>Priority</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Trash and Recycling Routes</td>
<td>Mapping and dissemination of current daily routes for internal and public use.</td>
<td>Strong</td>
<td>High</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Compliance Checks</td>
<td>Compliance of applicable regulations and statutes.</td>
<td>Strong</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
<tr>
<td>“Set-out” Rates</td>
<td>Tracking of town-wide recycling rates.</td>
<td>Moderate</td>
<td>Medium</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### Potential Barriers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Availability</td>
<td>Department currently receives additional part-time help.</td>
</tr>
<tr>
<td>Out of Date</td>
<td>Department has noted need for update hardware and software, lack of adequate technical support, and little use of technology.</td>
</tr>
</tbody>
</table>
APPENDICES

I. GIS NEEDS ASSESSMENT SURVEY INSTRUMENT .................. 32
II. SAMPLE GIS PROJECTS AND PROCESSES .......................... 37
I. GIS NEEDS ASSESSMENT SURVEY INSTRUMENT

Town of Saugus GIS Survey

The purpose of this survey is to gather the information from Saugus’s Department Heads on GIS needs, wants and capacity. The information gathered here will provide an important resource for the Saugus GIS Committee to help with prioritization and understanding of needs and technical issues. Your responses are extremely helpful to this effort.

There are four ways to deliver this survey.

➢ You can do the survey entirely online at https://www.surveymonkey.com/r/SQ6LRDR
➢ You can fill out this survey in Microsoft Word and email it to reuben.kantor@umb.edu
➢ You can fill out this survey by hand, and scan it and email it to reuben.kantor@umb.edu
➢ You can fill out this survey by hand, and let Reuben Kantor know you’ve completed it and he can pick it up.

Contact Reuben at reuben.kantor@umb.edu, or at 617-372-2936 to let him know it’s ready to be picked up, and where he can get it.

If you have any questions, please contact Reuben Kantor at:

Reuben.Kantor@umb.edu or 617-372-2936

Thank you for your participation!
Basic Information

1. Identifying Information
   Your Name: ________________________________
   Your Department: __________________________
   Your Title: ________________________________
   Best Phone(s): ______________________________
   Email: ________________________________
   If you have an assistant or other person you want us to contact on GIS-related issues, put their name, title and contact info here:
   ________________________________

2. How many employees (including yourself) work in this department?
   Please write in the number full-time employees or equivalents (FTE): _______

3. Please list up to five of the most important functions of your department:
   #1: ________________________________
   #2: ________________________________
   #3: ________________________________
   #4: ________________________________
   #5: ________________________________

Departmental GIS Capacity

4. Is GIS currently in use in any manner in your department?  Yes  No
   a. If “Yes,” please list them:
      #1: ________________________________ #2: ________________________________
      #3: ________________________________ #4: ________________________________

Page 1
5. Do you know of any GIS shapefiles maintained by your department or department consultants?
   ☐ Yes ☐ No
   a. If “Yes,” please describe:
      
      
      

6. Do you know of any employees in your department who have worked with GIS?
   ☐ Yes ☐ No
   a. If “Yes,” please tell us their names and titles:
      
      
      

7. Does your department have any functions that currently use maps and/or mapping?
   ☐ Yes ☐ No
   a. If “Yes,” please describe:
      
      
      
      
      
      

8. How many employees in your department do you think have strong computer and technical skills?
   Please write in both the total number and the FTE: Employees _____ / FTE _____

9. How do you feel about your department’s current software and hardware, and the support available for technical needs?
10. Do you feel you receive adequate technical support for your department’s software and hardware needs?

☐ Yes  ☐ No

   a. Please describe. __________________________________________

   __________________________________________

**GIS Needs**

11. List any departmental functions you can think of that could benefit from GIS, and how much benefit GIS could provide? Only list functions where you can imagine any GIS advantages. Basically, this is anything geographic, involving an address or other mapping function.

<table>
<thead>
<tr>
<th>(Please write in function.)</th>
<th>Strong benefit</th>
<th>Mild benefit</th>
<th>Prioritize</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>

12. Has your department received requests for GIS data or related services?  ☐ Yes  ☐ No

   . If “Yes,” from whom do you receive?

   __________________________________________

13. What do you see at the biggest barriers for bringing GIS into your department?

☐ Budget  ☐ Lack of GIS need
☐ Staff availability  ☐ Other
☐ Technical abilities  ☐ No barriers
☐ Out of date equipment
a. Please elaborate on any of the barriers above, or any other that you’d like to share.


Thank you for participating in the survey. In the space below, please feel free to add any additional comments or thoughts regarding services, your department or the survey.


Thank you for completing the survey!

No. ________
II. SAMPLE GIS PROJECTS AND PROCESSES

<table>
<thead>
<tr>
<th>Department</th>
<th>Potential Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Control</td>
<td>Mapping of animal control incidents to help target areas of higher need.</td>
</tr>
<tr>
<td>Assessing</td>
<td>Parcels, wetlands, topography, water supplies, inspection routes, sales maps,</td>
</tr>
<tr>
<td></td>
<td>neighborhood maps, land class maps, zoning maps, vacant parcels, sync to</td>
</tr>
<tr>
<td></td>
<td>building plans, and eliminating discrepancies between parcel IDs.</td>
</tr>
<tr>
<td>Board of Health</td>
<td>Sync to parcel maps, number of bedrooms on a parcel, private wells and septic,</td>
</tr>
<tr>
<td></td>
<td>grease traps, geology and soils, fire hydrants, rodent incidents, and</td>
</tr>
<tr>
<td></td>
<td>dumpsters.</td>
</tr>
<tr>
<td>Cemetery Department</td>
<td>Cemetery database.</td>
</tr>
<tr>
<td>Economic Development</td>
<td>Pictometry, assessor database sync, abutter’s list, overlay district, permit</td>
</tr>
<tr>
<td></td>
<td>tracking, and liquor licenses.</td>
</tr>
<tr>
<td>Fire Department</td>
<td>Permits, hydrants, fire alarms, fire boxes, updated street maps, and utility</td>
</tr>
<tr>
<td></td>
<td>poles.</td>
</tr>
<tr>
<td>Housing Authority</td>
<td>Tracking locations of off-site Section 8 voucher tenants.</td>
</tr>
<tr>
<td>Inspectional Services</td>
<td>Permitting system synced to parcels, wetlands, flood plains, historic</td>
</tr>
<tr>
<td></td>
<td>districts, zone overlays, inspection routes, scans of building plans, grease</td>
</tr>
<tr>
<td></td>
<td>traps, camps, food establishments, tanning salons, etc.</td>
</tr>
<tr>
<td>Library</td>
<td>Inventories/databases of historic homes, demographic mapping, walks, trails,</td>
</tr>
<tr>
<td></td>
<td>and monuments.</td>
</tr>
<tr>
<td>Police Department</td>
<td>Crime mapping and hot-spotting, accidents, citations, updated street maps,</td>
</tr>
<tr>
<td></td>
<td>sectors, and speed-limit maps.</td>
</tr>
<tr>
<td>Public Works</td>
<td>Topography, pavement management, historic lands, signs, sidewalks, mowing</td>
</tr>
<tr>
<td></td>
<td>routes, recreation facilities, town facilities.</td>
</tr>
<tr>
<td>School Administration</td>
<td>Demographics and mapping of current and incoming students, bus routes, student</td>
</tr>
<tr>
<td></td>
<td>distributions, and school abutters.</td>
</tr>
<tr>
<td>Senior Center</td>
<td>Maps of senior pickup routes.</td>
</tr>
<tr>
<td>Solid Waste / Recycling</td>
<td>Mapping of trash pickup routes and incidents of missed pickups.</td>
</tr>
<tr>
<td>Town Clerk</td>
<td>Polling locations, 150 foot buffers.</td>
</tr>
<tr>
<td>Department</td>
<td>Potential Use</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Town Manager's Office</td>
<td>Entering and tracking service requests, and viewing data as needed.</td>
</tr>
<tr>
<td>Veterans Information</td>
<td>Mapping of pickup locations for veteran’s events.</td>
</tr>
<tr>
<td>Water Department</td>
<td>Water and sewer system and grease traps.</td>
</tr>
<tr>
<td>Youth &amp; Recreation</td>
<td>Tracking maintenance and availability of fields and yards.</td>
</tr>
</tbody>
</table>