

TOM IRWIN ADVISORS

Tom IRWIN<sup>INC.</sup>

*Feasibility Study for the Purchase of  
Millwood Farms Golf Course*

Framingham, Massachusetts



August 2016

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**Initial Observations:**

*The course is generally in good condition. The current maintenance practices are adequate. With limited investment the course quality could be elevated. Longer term, an improved irrigation system may be warranted. The course is currently operating at a profit and this margin could be increased. The course has had a steady amount of rounds played over the last 3 years and the demographics favor continued demand. There are opportunities for alternative revenue streams but these would require investigation and investment. The ability to preserve so much open space and provide many assets to the town cannot be understated. The primary challenges will be whether revenue can adequately service the debt required for purchase and deciding upon a fruitful course management structure.*

**Section 1: Background**

Because public green spaces are so highly valued and cherished, they define and enrich the quality of life in a town unlike any other investment. They also make a powerful first impression to any visitor who encounters safe and attractive public amenities.



At Tom Irwin Advisors, we understand how much these spaces mean. We believe that through proper design construction and management, they can deliver decades of enjoyment to the community — and even grow in value over time.

The town of Framingham is in a unique and enviable position, the opportunity to greatly expand public green space and recreational opportunity in the heart of the town. The chance to purchase a fully functional 68 acre 14 hole golf course, prevent suburban sprawl, and expand public access to recreational opportunities is rare indeed.

However such an expenditure of public funds necessitates careful consideration and a probative investigation. Following a series of preliminary discussions with town officials, Tom Irwin Advisors offered several suggested areas of inquiry. This report details each of those elements.

### Project Summary:

To investigate this opportunity, Tom Irwin Advisors has been chosen to conduct a feasibility study involving:

- Interviewing various stakeholders to determine the overarching vision, desires, and concerns.
- Assess the physical condition of the golf course and the adequacy of the maintenance practices.
- Review the state of the current operating budget and potential future extraordinary expenses.
- Provide a general state of the industry.

The town of Framingham has a unique opportunity to purchase a fully functional fourteen-hole golf course that sits within the town's residential areas. In this day, it is exceedingly rare that a large, 68 acre, tract of open space can be acquired by a town. It is even more special that the tract of land has a functional golf course. The chance to add an amenity, such as a public golf course, to the town's roster of desirable attributes is extraordinary. A golf course could be a wonderful addition to the town.

- The course would preserve open space.
- It would shape the character of the town moving forward.
- It would preserve the bordering neighborhoods esthetic and enhance the local property values.
- The presence of an affordable and publically accessible golf course could act to make Framingham a destination.
- It could drive golfers to the town enhancing other businesses.



Another positive aspect of this parcel is that it could have other seasonal uses that

## Section 1: Background

would enhance the lives of townspeople. Perhaps even town folks that do not play golf. Winter or seasonal activities could be included, such as:

- sledding,
- skating,
- cross-country skiing
- a bird sanctuary
- nature/walking trails
- a town gathering spot.



While there are a great many positives, there are an equal number of concerns.

- Is this a white elephant?
- How expensive will it be to maintain?
- How many rounds could the town reasonably expect to be played?
- Are the systems that allow the course to function properly operating?
- Is it possible or cost effective to raise the standards of play?
- Can this be considered an asset for all the towns' people?
- Will this be the type of thing that makes people love living in Framingham?



These questions all need answers and they need to be addressed quickly and as accurately as the time pressures inherent in this deal allow. To that end, Tom Irwin Advisors has provided answers to these and other questions

## Section 2: Advisor Findings & Recommendations

### Section 2: Advisor Findings & Recommendations

#### Findings

Investigation Finding	Comments
<b>Stakeholder Interviews were positive with reservations</b>	<ul style="list-style-type: none"> <li>➤ They expressed excitement with the potential purchase,</li> <li>➤ Most thought the preservation of the green space was important</li> <li>➤ Most were in agreement that this could be an asset for the town and the communities that it could serve</li> <li>➤ They agreed that the financial outlook must make sense in order to progress and purchase the golf course</li> </ul>
<b>Current Greens condition/evaluation were favorable</b>	<ul style="list-style-type: none"> <li>➤ General course condition is good</li> <li>➤ Greens are above the quality level</li> <li>➤ Some teeing areas will require re-leveling over time</li> <li>➤ Greens have prospered from a sound management and maintenance plan and approach</li> </ul>
<b>Irrigation system</b>	<ul style="list-style-type: none"> <li>➤ Irrigation system is functional for its current demands but aging.</li> <li>➤ Some damaged heads should be repaired</li> <li>➤ The irrigation system will not support fairway irrigation</li> <li>➤ Upgrading should be planned for the future</li> <li>➤ The pump house needs renewal</li> <li>➤ Irrigation control boxes are functional but outdated</li> </ul>
<b>Course Drainage</b>	<ul style="list-style-type: none"> <li>➤ The greens and fairways drain well</li> <li>➤ Some greens displayed inconsistent drainage</li> <li>➤ No major drainage issues were observed</li> <li>➤ Localized drainage has been installed</li> <li>➤ Some drainage supports the irrigation pond</li> <li>➤ Water quality needs monitoring, for greens health, due to salt levels</li> </ul>
<b>The course maintenance equipment is a mixture of new and old</b>	<ul style="list-style-type: none"> <li>➤ Consideration should be given to adopting a replacement cycle</li> <li>➤ Equipment can be leased if needed</li> <li>➤ The current equipment mix is serviceable but limited</li> </ul>
<b>Current staffing levels are low and may require additional staff</b>	<ul style="list-style-type: none"> <li>➤ The current staff have been able to maintain the course at a high level</li> <li>➤ The staff has valuable practical experience, but lacks formal training</li> <li>➤ Low nor no cost training is available via professional associations</li> <li>➤ An experienced and qualified superintendent is critical</li> <li>➤ New staff may be required to support growth</li> </ul>
<b>Current maintenance budget is adequate</b>	<ul style="list-style-type: none"> <li>➤ The current maintenance budget is \$190,000, without payroll</li> <li>➤ This budget can sustain the course</li> </ul>
<b>Current Revenues</b>	<ul style="list-style-type: none"> <li>➤ The course is currently profitable</li> <li>➤ Profits range between \$60,000 and \$80,000</li> <li>➤ With town purchase These profits could rise to approximately \$100,000 due to offset expenses such as property tax and municipal water</li> <li>➤ The rounds have been steady 24,000 rounds</li> <li>➤ 2016 is experiencing unusually strong growth in rounds played</li> </ul>
<b>The course compares</b>	<ul style="list-style-type: none"> <li>➤ Other courses in the area had similar numbers of rounds played</li> </ul>

## Section 2: Advisor Findings & Recommendations

<b>favorably to other courses</b>	<ul style="list-style-type: none"> <li>➤ 11 nearby courses were charging \$30 on weekdays and \$35 for weekends. This is slightly higher than Millwood</li> <li>➤ Maintenance budgets were similar (excluding payroll)</li> </ul>
<b>Demographics are favorable</b>	<ul style="list-style-type: none"> <li>➤ The local growth in population rates are favorable for more potential rounds</li> <li>➤ The percentage of high income households could support more golf</li> <li>➤ The demographics beyond the 5 mile core area are also favorable</li> </ul>
<b>Revenue forecasting shows modest growth potential</b>	<ul style="list-style-type: none"> <li>➤ A 4% to 6% growth rate, after expenses, is reasonable</li> <li>➤ Expenses are projected to increase by 3%</li> <li>➤ In 5 years the course, with sustained growth, could possibly net \$148,384</li> </ul>
<b>To improve the quality level of the course would require investment</b>	<ul style="list-style-type: none"> <li>➤ To improve the course quality level would require an investment of approximately \$50,000</li> <li>➤ To irrigate fairways would require upgrading the irrigation system</li> <li>➤ A contingency fund should be established to improve the course or react to emergencies</li> </ul>
<b>The State of Golf has improved and stabilized</b>	<ul style="list-style-type: none"> <li>➤ The recessions impact on golf in Massachusetts appears to be mitigated</li> <li>➤ Rounds have returned to pre-recession levels</li> <li>➤ Nationally rounds of golf have rebounded</li> <li>➤ Projected growth will be moderate and steady.</li> <li>➤ Massachusetts Golf Facility revenue increased 10% between 2006 and 2012 after adjusting for inflation</li> <li>➤ Course closures nationwide appear to driven by development pressures and poorly planned golf/residential projects</li> <li>➤ Avid golfers are playing more rounds year</li> <li>➤ The fastest growing demographic for golf is 18-39</li> <li>➤ Retiring baby boomers are expected to enjoy more rounds</li> </ul>
<b>Clubhouse and Pro Shop</b>	<ul style="list-style-type: none"> <li>➤ Revenue growth exists in improving the clubhouse and operation</li> <li>➤ These are not major drivers of revenues</li> <li>➤ Food and Beverage sales typically operate at a 60% margin</li> <li>➤ Goods sold in the pro shop typically net 40%</li> <li>➤ These would require additional staff and infrastructure improvements</li> </ul>
<b>Alternative uses are desirable to the community but won't drive revenue growth</b>	<ul style="list-style-type: none"> <li>➤ Alternative uses add benefit for the non golfing community members</li> <li>➤ Can enhance the environment and the surrounding area</li> <li>➤ A driving range can generate revenue after construction</li> <li>➤ A practice area and lessons can also generate some revenues</li> <li>➤ Most alternate uses are revenue neutral or are limited in scope</li> <li>➤ Maintaining the land as open space has inherent value</li> </ul>
<b>There is potential to develop a portion of the land</b>	<ul style="list-style-type: none"> <li>➤ A portion of the land could be sold for development while retaining a nine hole course</li> <li>➤ Some of the properties associated with the course could also be sold to offset some of the purchase price</li> <li>➤ Converting to a nine-hole course may trigger reduced rounds of play.</li> <li>➤ A nine hole course would command lower greens fees</li> </ul>

## Section 2: Advisor Findings & Recommendations

### Recommendations

We based our recommendations upon the all of the available information, as well as, extensive field-testing. We have prioritized these action items into three categories. High priority should be initiated as soon as practical and certainly within the first two seasons. Medium priority items should commence by the third or fourth. Low priority items are necessary but could be postponed. All action items will affect the quality of play, the resilience of the course, and, it's long-term sustainability

Priority Level	Recommendation	Comments
High	Financing will be critical	Town financial support is going to be necessary. It is highly unlikely that net profits will cover bond interest rates. Obtaining the most favorable bond rate will dictate the level of municipal appropriation necessary to fiancé the acquisition
High	Conduct a formal Due Diligence Review	Prior to closing, conduct a formal due diligence review including corporate good standing, Audited statements and audit review letters, pending litigation, and an accountants business valuation
High	Improve accounting practices	Implement proper business accounting and cost control measures. Identifying and correcting inefficiencies may help forward-looking revenues.
High	Establish a contingency fund	Consider establishing an account for future capital projects or emergency measures. This is a one-time contribution of \$100,000 to \$200,000.
High	Contribute 2.5% to 5% of revenues to a capital improvement fund	This fund exists outside the contingency fund. This fund is for normal improvements, repairs, and upgrades.
High	Maintain current staff	The current staff knows the course and how to maintain it. Keeping them will benefit the course over the transition period.
High	Repair damaged irrigation heads	Damaged irrigation heads can fail putting the greens at risk. It is a relatively low cost/high benefit repair.
High	Keep the current	For the same reasons as keeping existing staff and to maintain the course while a qualified replacement is

## Section 2: Advisor Findings & Recommendations

	superintendent.	sought. Long term, hiring and promotion of an assistant superintendent from another well performing course will benefit the Millwood operation.
<b>High</b>	Underground Storage Tank	Have a qualified professional evaluate the condition of the tank. Install or upgrade sacrificial anodes. Establish monitoring protocol. Plan for its replacement with an above ground tank.
<b>High</b>	Promptly establish golfer outreach	Communicate to current golfers that the course will remain in operation to avoid the loss of league play and long time loyal patrons. Use signage, social media, and the website to reassure golfers.
<b>Medium</b>	Management Plan	Investigate and decide upon an appropriate management plan. Short term the exiting staff can manage the course under town oversight. Investigate if a third party management team is desirable, despite generally lower revenues to the town. Investigate the establishment of an enterprise account.
<b>Medium</b>	Seek qualified new staff	New staff, when added, should come from within the industry or from qualified turf management programs. A pesticide applicator license could help reduce costs
<b>Medium</b>	Plan for Irrigation system improvements	Unless a full irrigation system replacement is planned. Consider improving the pump house and controllers first.
<b>Medium</b>	Plan for a full irrigation system replacement	This does not need to be done immediately, but planning for its eventual replacement is prudent due to the cost. Improvements will allow for overall course improvements such as irrigating the fairways.
<b>Medium</b>	Improve the maintenance regime.	Material quality can be improved and some practices, such as the spray rig, can be improved. Implement recommended changes outlined in this document. A small investment, over time, can yield strong returns
<b>Medium</b>	Optimize the clubhouse	The clubhouse could be a source of revenue. Consider outsourcing its management. The facility could be expanded. This could allow for a formal pro shop.
<b>Medium</b>	Course Maintenance Plan	Establish a formal maintenance plan and schedule. This will allow the town to monitor conditions and make corrections. A documented management plan will also aid future managers.

## Section 2: Advisor Findings & Recommendations

<b>Medium</b>	Improve equipment	Overtime, add high quality equipment as older versions are taken off line. Leasing equipment may be cost effective
<b>Medium</b>	Plan for sustainability	Consider adopting a Environmental Management System to control impacts and improve the course. Third party certification may also be desirable in the future. Use such certifications as a guide to design operational plans
<b>Low</b>	Establish School and Community Programs	Integrate the course into athletic programs and summer or senior recreation.
<b>Low</b>	Plan for alternative uses	Develop a plan for the potential layout of cross country trails and acquiring track equipment.
<b>Low</b>	Investigate real estate development	The potential to develop a portion of the land is a valuable part of this transaction. Converting to a nine hole course is not without downsides. Maintain enough buffer for safety, to potentially enlarge the irrigation pond, and to allow for learning areas or a driving range

As an active Golf Course, used for the longest season possible, maintenance scheduling and usage monitoring will be essential. These greens will be hard pressed to recover from overuse without adequate support. The foundational element of this course remains strong. They drain well. They have solid soil structures. They appear well constructed. The vital need is irrigation. With a modicum of care and time this golf course should be able to be improved to a high standard level, become more resilient, and environmentally self-sustaining.

## Section 2: Advisor Findings & Recommendations

### Moving Forward

Overall, Millwood Farms golf course is in good condition. The greens, which are arguably the most important portion of the course, all scored as standard or high standard on the Performance Quality Standards Assessment. This met or exceeded the desired quality level.

We have discerned no major outstanding structural issues with the course. The irrigation system is older but it is currently functional and can maintain the course at its present level. In the short term, maintaining an adequate water supply will be critical and some minor repairs to irrigation heads is warranted. If the town ever decided to improve the course quality and begin fairway irrigation, the system would need to be replaced. Fortunately this is not needed immediately and this decision can be planned and budgeted for as a future capital improvement. Shorter term the irrigation system can be improved, if desired, by adding an upgraded pump and controls.

The course has been implementing an effective maintenance practice and the current budgets and staffing expertise has been able to maintain the course at an acceptable level. This is evidenced by player loyalty and a stable level of rounds played over the past few years.

The current average of 24,366 rounds per year has provided enough revenue to make the course meet its obligations, maintain the quality, and generate a modest profit. This is consistent with other nearby courses. The profitability of municipal courses varies considerably, some courses; with proper management and lower debt can be quite profitable. Courses run by outside management companies tend to produce much lower revenue as a result of their assuming the risk and their need to generate profit.

The current state of golf in Massachusetts shows that the rounds of play have rebounded from the recessionary lows. From 2006 to 2012, golf facilities have posted a 10% increase in revenue after adjusting for inflation. Nationally, avid golfers are playing more rounds than in the past and golf is growing in the 18 to 39 year old demographic. The fundamentals, population and income, all support a modestly expanding base of potential golfers.

It is unlikely that the course will generate enough profit to cover any reasonable bond interest payments. This will necessitate a significant level of support from town appropriations for the duration of the bond. The level of support is highly sensitive to the ultimate purchase price, offsetting revenues, and the interest rate.

It is possible that revenues from the course could grow by 4% per year. As an established course in a mature market, 4 % is a reasonable projection. It is possible,

## Section 2: Advisor Findings & Recommendations

that growth could be higher, closer to 6-8%, but this may be overly optimistic. A 4% growth rate is attainable since greens fees can rise, cart rentals can rise, and the town would not be subject to some costs that currently weigh on operations.

Additional revenue sources could be developed by pursuing some course improvements such as a driving range, lessons area, pro shop, or enhanced clubhouse activities. This would be a longer-term project requiring some level of initial investment. Off season uses or shoulder uses could enhance the value to the town. These could include cross-country skiing, sledding, ice-skating, walking or nature trails.

The true value is in preserving a valuable piece of open space in town. This open space can be preserved for future uses and as a limit on development. The land itself likely carries a higher value than the asking price. It is also possible that small portion of the land can be sold off to reduce debt while still retaining an attractive 9-hole golf course. Such an option would impact overall revenues for the course but it could reduce the level of town support necessary.

Determining the proper management structure, implementing cost controls and standard accounting methods, sustaining course quality, attracting or retaining qualified staff are all challenges moving forward. If these challenges are met, the course should be able to grow and support a portion of its bond-servicing obligation.

For more information, we invite you to review the larger document that follows. For greater detail on our findings, our analysis, and our methodologies please review the proof points in Section 6. A table of contents has been provided to aid navigation.



## Section 3: The Project Overview

### Our Project Brief



This feasibility will involve several factors.

One critical area is to interview the stakeholders within the town and learn what are their fears and their vision. Will this substantial investment hamper other town functions? Will it burden town services? How would it affect their area of operations? Can we make some of the “unforeseen consequences”, foreseeable?

A second area of inquiry has been a physical examination and assessment of the course. What exactly are you buying? Since the most remarkable

item on a golf course is the greens, we will measure and evaluate the quality of a selection of greens. This was done by conducting a Performance Quality Standard Assessment on each of the 14 greens plus the putting green.

We also have examined the primary infrastructure of the course. The most important is the irrigation system. This is one of the most expensive and an extensive mechanical item on the course and it needs to be functional and efficient. We have assessed, evaluated and tested this system.

We also evaluated the drainage on site. This is critical as it directly increases the amount of rounds possible per year and is a direct driver of course quality.

The state of any included maintenance equipment is an important consideration. Tom Irwin Advisors have inspected such equipment and provided an estimate of any potential future capital expenses.

Thirdly, Tom Irwin Advisors compared and contrasted different municipal golf courses. We looked for commonalities and drew inferences from the state of the course, interviews with facility personnel, and their current practices.



We drew a general concept on the state of the market and the perception of the

### Section 3: The Project Overview

viability and challenges associated with a public course. We generated a revenue forecast based upon previous years rounds of play. And, we discussed the current state of the golf industry and the pros and cons of an 18-hole vs. a 9-hole course.



Finally, we have examined the state of the current budget and whether or not that is sufficient to operate the course 'as is' and determined what would be needed to elevate the course to a High Standard state of play as defined by our Performance Quality Standards Assessment. In addition to this we outlined a general management plan.

In order to adequately investigate the value to all of the townspeople, we spent some time looking at alternative/seasonal uses for the property that could increase its benefit to non-golfers and the town as a whole when the course is off-season. Of course these additional areas could also form the basis for increased revenue.

When discussing possible expanded revenue opportunities, we have addressed the benefits of adding a pro shop, and, the possible impact of adding a clubhouse with full hospitality features.

Furthermore, we touched upon the feasibility of selling a portion of the land to generate needed revenue. This was cursory as it was beyond our scope. It must be stated that these discussions are quite preliminary due to the high degree of variability and uncertainty in the projects. Future projections, by their nature, only constitute general estimates.

In conclusion, it needs to be mentioned that this is a large and complex project and time is of the essence. Given the firm deadline for the right of first refusal and our compressed timeline for starting and completing this document, the depth of inquiry for some subjects has been limited. We have striven, within the given time scales, to conduct the greatest depth of inquiry possible. We endeavored, in this feasibility report, to outline any weaknesses in the data that has been gathered to allow any reviewers or interested parties to understand the limitations of the inquiry. Every reasonable effort has been made to ensure that the data contained in this study reflect the most accurate and timely information possible as of the date the primary research was collected.

Since a large portion of this report relies upon research, we have included a listing of literature cited. This study is based on estimates, assumptions, and other information developed by Tom Irwin Advisors and from its independent sub consultant's efforts and general knowledge of the industry. No responsibility is assumed for inaccuracies in

### Section 3: The Project Overview

reporting by its representatives or by any other data source used in the preparation of this study. No warranty or representation is made that any of the projected values or results contained in this study will be achieved

#### Project Action Table

Note that this chart does not include all electronic and telephonic communications. It also does not include inter-team communications, repeat meetings, or report writing.

Dates	Purpose	Notes
3/29/16	Introductory meeting	Jim Snyder, Thom Begin and Chris McGinty
6/9/16	Onboarding meeting	With Jim Snyder and Thom Begin
7/6/16	Meet with Owner	Tour Course with Jim Drake
7/6/16	Start Performance Quality Standards Assessments of greens	
7/7/16	Machinery/tools evaluation General course condition evaluation	Jim Drake
7/8/16	Irrigation system evaluation	
7/11 to 14/16	PQSA	Performance Quality Standards Assessments of greens
7/18/16	Review Greenkeeping staff	
7/19-21/16	Interview Golfers/staff	
7/21/16	Project Progress meeting	Interviews of Parks Dept. staff
7/28/16	Meeting	Interview with Cheryl Tully Stoll
8/1/16	Telephone Interview	Interview with Joan Rastani Chair of the Parks Commission

## Section 4: The Challenge Wheel

### Project Lifecycle

Understanding the project management cycle is critical for educated decision making. Data driven decisions need proper fore thought and careful analysis. Framingham is embarking upon a major decision that could have major ramifications for the town. These ramifications include positive and negative aspects. The project management cycle can help quantify the process.

While Framingham is at the start of the process, decisions will need to be made throughout the timeline. This process, should Framingham purchase Millwood Farms Golf course, will extend beyond the close of sale.

Decisions will need to be made about

- Alternative uses,
- Course management,
- Budgetary concerns, and
- Course maintenance.

Every project faces a set of common challenges

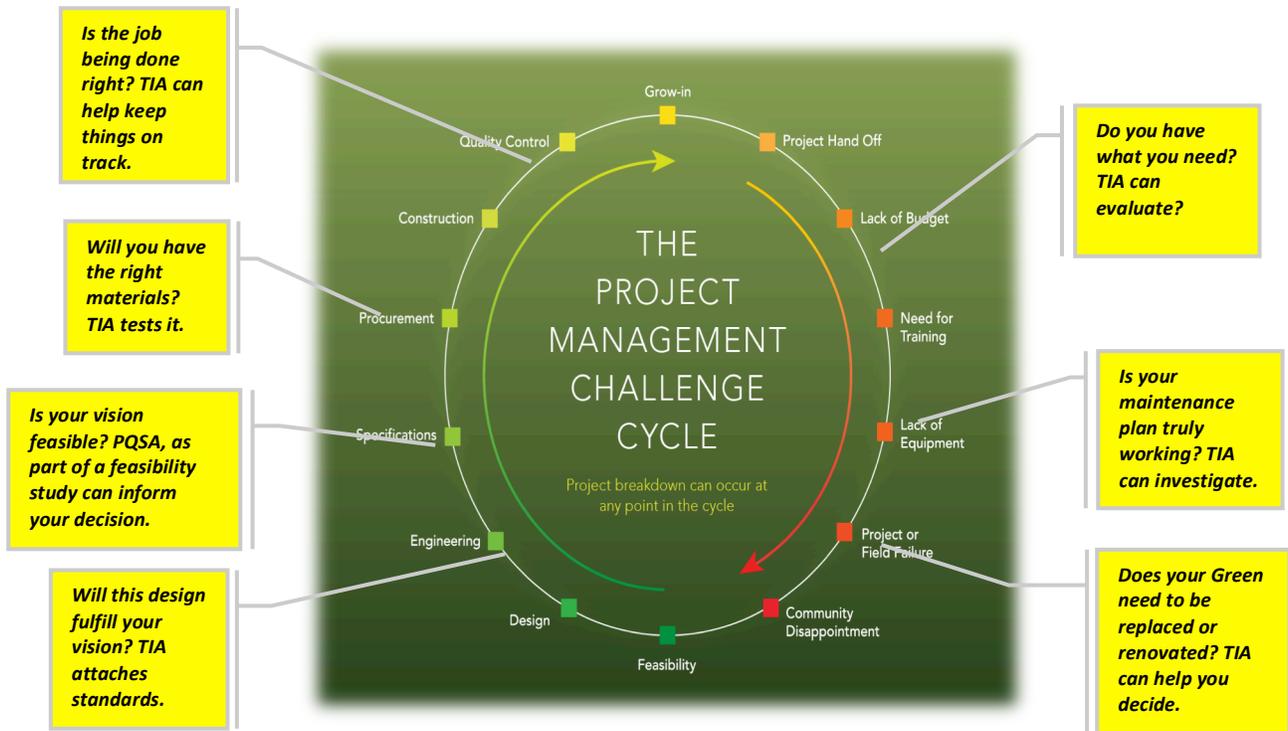
- A lack of unified vision which leads to disrupted communications,
- Missed opportunities, and,
- Burdensome compromises.

One or many of these challenges can plague a project at many differing points in its life cycle. These issues can

- Sow the seeds for delay
- Cost overruns, and
- Can ultimately lead to the project's long term failure

The town of Framingham decided to face one of these challenges by allowing Tom Irwin Advisors to conduct this Feasibility Study. With careful consideration and contemplation it can help define the aspirations, and concerns, for your decision at present and into the future. With this information we can take appropriate steps to help you activate your vision and realize those dreams.

## Section 4: The Challenge Wheel



## Section 5: Your Advisor Team

### Principles and Contributing Technical Consultants

#### Ian Lacy- Lead Project Advisor

Ian has spent 33 years in the sports turf industry, as a golf course Greens keeper, Head Groundsman, and a Sports Turf Lecturer. He was on the original design team for Performance Quality Standards (PQS) in the late 80's in the UK. His teams have developed standards for all types of athletics fields, and adapted PQS for use in Baseball/Softball, Football, Soccer, Lacrosse, Field Hockey, Golf and Synthetic Surfaces.



“My passion for creating and caring for green spaces started at a very young age,” he replies. “Having started at the bottom as an apprentice greenkeeper, then becoming a qualified greenkeeper, then a head groundsman, taught me the value of proper design and construction and the impact it has on a field’s ability to serve a community over the long term.”

I am motivated by a desire to ensure that young athletes get the best possible start. “Having watched my own son growing up loving sport, I want to make sure that everyone’s sons and daughters have the best playing surfaces on which to learn, improve their skills, and enjoy the sport they are playing.”

#### Kevin Dufour- Sustainability Advisor



Kevin’s profession as an Environmental Scientist for over 28 years has been complemented by 22 years as an Attorney. His passion to drive environmental improvement, and, for a truly sustainable future, lead him to develop a Sustainability Consultancy eight years ago. Kevin holds degrees in Environmental Science and English from the University of Massachusetts Lowell and a Juris Doctorate degree from the Massachusetts School of Law.

Dufour is one of few LEED-Accredited Professionals in Operations and Maintenance in Massachusetts, a Green Globes certified professional, and, the recipient of an EPA Commendation for Outstanding Performance. Those credentials and experiences enable Dufour to help clients set and achieve their sustainability benchmarks.

Kevin Dufour recognizes the need for performance quality standards and how to achieve them in a sustainable way. As an environmental scientist and attorney at law, he understands environmental responsibility and the complex laws and regulations associated with it.

The challenge, “is that few, if any, individuals possess the complete range of knowledge necessary to build an environmentally sustainable sports or recreational facility.”

### **Jack Schmidgall-Design and Construction Advisor**



Jack has more than 40 years of experience that began when the Wakefield, Massachusetts native took a summer job at Colonial Country Club in nearby Lynnfield. After earning his degree in Turf Management at the University of Massachusetts Stockbridge School in 1974, Schmidgall was recruited by the town facilities manager in Wakefield, who needed someone to take over responsibility for the town’s newly built high school athletic facilities. Schmidgall spent the next decade in Wakefield before moving on to Danvers, where he devoted another 26 years to creating a legacy of sports turf Excellence.

Jacks sports turf expertise has supported many municipal through collegiate level projects. His consultancy has lead every aspect from design through construction and educating managers about ongoing maintenance post project handover. Perhaps the pinnacle of his career has been as the lead sports turf consultant for the Lowell Spinners, the Class A affiliate of the Boston Red Sox.

“We can help in almost every situation that can arise — that’s something unique to us. We understand expectations and impacts, we offer alternatives, and the result is a comprehensive proposal — the right materials, the right process, the right equipment, at the right cost.”

“ We’re able to look at all aspects — design, development, construction, management, all in a responsible way because we’re experienced in all those areas. “

### Contributing Technical Consultants

#### Greg Cormier

Greg Cormier is a Certified Golf Course Superintendent who has managed at two top tier private clubs. He has a passion for maintaining outdoor green spaces and working with people. Most recently Greg was the Director of Golf Course Operations at Nashawtuc Country Club in Concord, MA. Before his 7 years at Nashawtuc, he was the West Course Superintendent at Oak Hill Country Club in Rochester, NY. Greg earned his Bachelor's degree from the State University of New York at Cobleskill, where he studied Turfgrass Management. His experience producing high quality golf course conditions at Nashawtuc CC while maintaining a Certified Audubon Sanctuary status from Audubon International is valuable at a time where preserving our environment is just as important as course conditions.

Greg has construction experience with building greens, tees, bunkers, cart paths, drainage and irrigation installation. He has worked with local and national construction and architectural firms. Most recently he has collaborated with famed architect Rees Jones referred to as "the Open Doctor" for having re-designed so many host sites of the US Open.

In addition to his role with Tom Irwin Advisors, Greg also works as a Client Representative for Tom Irwin Inc. where he works with golf course superintendents across the Boston area to provide testing, consulting and solutions.

#### Lisa Golden

After graduating from Bridgewater State University with a B.S. in Computer Science and a minor in Mathematics, Lisa began a summer job on the grounds crew at the Concord Country Club (CCC) Concord, Ma and her career in turfgrass began. After a few years of working at the CCC she applied and was accepted into the Plant, Soil, and Insect Science program at the University of Massachusetts Amherst and began her studies towards a B.S. with a concentration in turf management. During this time Lisa worked at the UMass Soil and Tissue Testing Laboratory as well as the Turfgrass Physiology Lab. After finishing her B.S. she took a position as an Assistant Superintendent at Brae Burn Country Club (BBCC) Newton, MA. A year after starting at the BBCC, Lisa was back in Amherst pursuing her M.S. at UMass in Plant and Soil Science. She spent 3 years completing graduate classes, working as a Teacher's Assistant, teaching many lecture and lab classes, and working as a Research Assistant in the Turfgrass Physiology Lab. The main focus of her research was the evaluation of physiological mechanisms and management strategies associated with drought resistance of bentgrass species. This included designing research both in the field as well as the greenhouse, collecting the data, running laboratory tests, statistically analyzing the data and lab results, and reporting the findings in a thesis that was defended to a committee of professors.

While working on her Masters Lisa also returned to work at the CCC and after graduating with her M.S. Lisa continued there until being hired as the Sports Turf Manager at the Longwood Cricket Club Chestnut Hill, MA. Lisa still continues to guest lecture at UMass Amherst and worked as an Adjunct Professor teaching Turfgrass Physiology and Ecology in the spring 2016.

### **Kyle McNearney**

Founder of Smart Water Management, Kyle McNerney, is passionate about controlling irrigation so it complements the landscapes and the people managing them. Kyle has an in depth understanding of turf management and irrigation which developed from 14 years in the golf course turf industry. In the midst, Kyle identified that there were better control options available for the commercial landscape and sports turf market but these products were rarely utilized. A process of assessing irrigation and developing plans, which will work, became his passion. Instead of focusing strictly on numbers and equations from an irrigation textbook, Smart Water Management recognizes the problems, which will lead to turf issues, or develops a plan for how to use current systems correctly.

Graduated 2004 UMass Amherst BS Plant and Soil Science

Graduated 2003 Le Moyne College BS Business Administration

LEED AP

Certified Lawndscape Water Manager, Irrigation Designer, Landscape Irrigation Auditor

EPA WaterSense Partner

## Section 6: Proof Points

### Current Conditions

#### Overview



Aerial photo of Millwood Farms golf course

### Millwood Golf Course Site Analysis

#### Introduction

This site analysis report is in relation to an ongoing Feasibility Study. The Town of Framingham has the opportunity to purchase the golf course and the land it occupies. Tom Irwin Advisors were contacted in mid June and contracted in mid July to carry out a feasibility study to ascertain and help the town towards a decision to purchase or not.

One crucial area of the study was to evaluate and identify the current agronomic, playing conditions and general infrastructure of the golf course and club.

Millwood Golf Course is a 14-hole public daily fee facility. It is situated in the northern part of the town of Framingham. Several visits were made to the site over a period of a week to evaluate the conditions of the golf course, equipment, staffing, and overall maintenance practices.

### Overview

Overall the golf course is in good condition for a potential municipal course. It is our opinion that the current conditions of the putting surfaces are at or above the turf quality standards for most public courses at this level and price range. The teeing areas are also generally in good condition with the exception of a few holes, which need the forward tees, renovated. If the teeing areas were treated for turf diseases on a regular basis they would be even better. The fairways currently do not have automatic irrigation and are only treated once annually for annual and perennial weeds such as Crabgrass (*Digitaria sanguinalis*). There is currently no disease control on fairways. Despite all of this, they are in playable condition and still being mowed regularly.

### Table of Recommendations for Course Improvement

Areas	Recommendation	Priority
Teeing areas on holes 9,11	Reconstruct forward tees on holes	Low-Medium
All	Treat tees for disease	High
Irrigation pump station	Needs renewing	High
Underground Storage tanks	Need replacing with above ground storage tanks	High
Equipment wash down area	Needs to be investigated to ascertain the cost of installation	Medium
Chemical Mix area	Needs to be investigated to ascertain the cost of installation	Medium
Purchase a new chemical application sprayer	Needs to be investigated to ascertain the cost. (Generally 25-55K)	Medium

## Section 6: Proof Points

Train up and license a member of staff to be able to apply chemicals	Needs to be investigated to ascertain cost	Medium
Purchase sharpening equipment for mowing reels or blades	Needs to be investigated to ascertain cost	Medium

Key to above recommendations priority

High Priority-	Should be carried out within 1 year
Medium priority-	Should be carried out within 2 years
Low Priority-	Should be carried out within 3 years

### Infrastructure

The current infrastructure does need some capital improvements. The irrigation pump station should be replaced as it is aging and outdated for its efficiency and reliability. The irrigation controllers should also be replaced due to age and records of problems recently. The Maintenance Facility was built in 2010 and is in very good condition. There are currently two underground fuel storage tanks and it is recommended that they should be replaced with above ground storage tanks. There is currently no self-contained equipment wash down pad or designated chemical mix and load area. It is recommended that this is investigated and potentially installed in the near future. One of the two buildings does have solar panels and produces a net excess of power throughout the year.

### Maintenance Equipment

The fleet of maintenance equipment is not part of the purchase price for the golf course, but we have carried out an evaluation into this, as the town and the current owner may agree to a sale of some or all of the equipment tools, outside of the overall purchase of the golf course. The equipment is a mix of both new and aging equipment. There is a list below describing each piece of equipment, the current replacement cost and a forecast of when it should be replaced.

Many municipalities choose to lease the fleet of equipment because it keeps downtime and repair costs to a minimum. The labor cost can be saved on a skilled mechanic and often times a full-time staff member can perform the basic maintenance on the fleet.

All chemical applications are contracted out at this point because the current sprayer is inadequate and there is no licensed pesticide applicator on the staff.

It is recommended that a new sprayer should be purchased to save on the cost of contracting the applications out and a certified applicator should be hired or a member of staff should be trained up to be licensed. (More information can be found in the recommendations section of this report)

The reel mowers are sent out annually, to be sharpened. We recommend purchasing the specialty equipment to sharpen the mowers on site. The golf carts for the golfers are in good condition because they are leased. There are two maintenance carts that are part of the lease. The beverage cart is owned by the club and is in good working condition.

### **Staffing**

There are currently 6 seasonal employees in addition to the Superintendent/ Owner. The staff feels that with 8 employees they would be able to accomplish everything they need to. This may also be achieved with 6 skilled employees who could perform several different tasks. Currently, there is an Assistant/Mechanic who is very valuable and can help and assist with a number of tasks on the golf course if required.

The rest of the employees are college students on summer break.

Currently the owner of the golf course is the Head Superintendent. He doesn't have a college degree in Turfgrass Management but has attended several courses during off-season times. He lacks a pesticide license at the current time.

The Superintendent employs an Assistant Superintendent who has several years experience and on the job training but lacks any formal training in Turfgrass Management. The Assistant Superintendent is also the mechanic and the irrigation technician.

Clearly these two individuals are extremely valuable to Millwood because they essentially complete all of the most important tasks on the property. This leaves only two full-time staff.

The worrying issues are what if one of the two leaves their post for another role elsewhere in the industry or either encounters a sustained level of sick leave.

The rest of the staff (five) is made up of seasonal employees who have nothing more than on the job experience with basic equipment operation. There is one older gentleman who returns each year to perform mowing tasks and one college student who is in his third season, while the rest of the crew was hired this year and they are all new to the industry and lack any long term training.

## Section 6: Proof Points

All of the full time and part-time/seasonal staff have expressed an interest to remain with the golf course should the Town be able to purchase the course.

As part of Tom Irwin Advisors work on this feasibility we have prepared recommendations to address some of the potential issues reported. The recommendations are based on the town purchasing the golf course. Please see the recommendations table below for more information.

### Recommendations for Staff

Action	Notes/comments	Priority
Evaluate current staffing levels	Based on the current staffing structure it would be a good idea to evaluate if another full time employee may be required. This would give more support to the two current full time staff members, both in physical output and also in supportive experience and knowledge.	High
A member of staff should be trained up to be able to apply pesticides	This would give the staff autonomy to be able to carry out more in-house spray applications, allowing greater response times during times of disease pressure, and to allow a more efficient and effective overall approach.	High
A training Needs Analysis should be carried out for all staff	This would allow the town to be able to evaluate if the staff may be re-employed following the purchase.	High

### Priority levels

High Action within the next 6 months following purchase of the golf course

Medium Action within a year following purchase of the golf course

Low Action within 18 months following purchase of the golf course

### Stakeholder Vision

Over a period of several weeks, Tom Irwin Advisors interviewed many of the stakeholder and decision makers involved with a potential purchase of the golf course.

This is a crucial element of any feasibility study. Identifying any stakeholders view or vision of an intended project will help to have a 360 degree view of the project from the very people the project will affect.

This was done so that we could gather a well-informed opinion about the vision and priorities of the Town of Framingham, as well as the more prosaic concerns such as desired uses, current concerns, and fiscal challenges.

We interviewed individuals who are:

- Members of the Parks and Rec Department,
- Members of the Select committee
- Members of the Selectmen
- Chairman of the Parks and Rec Commission
- Members of the public/golfers.

As these interviews progressed, several common themes began to emerge. These are outlined below. For a matrix detailing the interview questions and answers, please see appendix for more details

Most individuals interviewed had the following common thoughts:

- **They expressed excitement with the potential purchase,**
- **Most thought the preservation of the green space was important**
- They were in agreement that this could be an asset for the town and the communities that it could serve
- They agreed that the financial outlook must make sense in order to progress and purchase the golf course

### Current Maintenance Practices

#### Millwood Golf Course Maintenance Overview

As part of Tom Irwin Advisors (TIA) work for the town of Framingham carrying out a feasibility study for the potential purchase of Millwood Farms Golf Club.

TIA has carried out a series of investigations, evaluations and assessments on the current condition of the golf course.

One area has been to evaluate the impact and overall effect of the maintenance program on the condition of the golf course.

Generally the program, approach and execution have a sound footing, which helps keep the course in good overall condition.

The primary focus is on the greens. It is common for a daily fee course to focus most of their resources on the greens and Millwood's greens are as good, if not better, than other courses of its caliber in the area.

The greens benefit from a solid cultural program including:

- Thatch management through aeration twice annually.
- Verti-cutting is carried out as needed.
- Sand top-dressing is also applied as needed to maintain firm conditions and keep thatch levels to a minimum.
- A Balanced nutrition program through granular fertilizer is applied in the spring and fall.
- Liquid nutrition is programmed and applied every two weeks throughout the golf season.
- Growth regulators are used on the greens to reduce clipping yield and improve ball roll.
- The greens are mowed daily and clippings are collected to maintain a clean putting surface.

Teeing areas are:

- Treated for weeds and insects in the spring
- Currently lack an effective disease prevention program.
- Walk-mowed 3 days per week
- Divots are filled every other week.

Fairways receive:

- Weed and insect prevention
- Currently lack an effective disease management program.
- Fairways are mowed 3 days per week and clippings are not collected.
- The fairways lack automatic irrigation, which creates difficulty in keeping them healthy

Bunkers are mechanically raked daily to ensure that golfers have a smooth sand surface to play out of.

The current maintenance program at Millwood golf course is working well, and this is consistent with the assessments carried out and the overall visual condition of the golf course.

As with any program it can be improved with more resources and staff.



### Current Usage

The course is currently running around 25,000 rounds per year. These rounds are primarily played mid day with about 28% of the play occurring in the evening. 25,000 rounds has been fairly consistent year over year with a variance, greater or lesser, between 2012 and 2015 of 9.27%.

As expected the majority of the use occurs during the peak summer season with most rounds occurring between June and August. There is an average of 4,295 rounds played per the months of June, July, and August.

The observed conditions of the course indicate that the current maintenance practices are in line with the current level of usage. The course currently exhibits higher quality greens than similarly priced municipal courses. Maintaining quality conditions is critical for any courses ability to attract and retain clientele. If efforts were made to increase play, the maintenance budget would need to be increased proportionally. Attempts to reduce the existing budget could well lead to course degradation and a corresponding loss of customers. Once lost, it is exceedingly difficult to win those customers back.



## Projected Course Maintenance Budget

<b>Millwood Golf Course</b>						
	8/7/16					
<b>Golf Course Maintenance</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
	<b>Budget</b>	<b>Budget</b>	<b>Budget</b>	<b>Budget</b>	<b>Budget</b>	<b>Budget</b>
Payroll	\$150,000.00	\$154,500.0	\$159,135.0	\$163,909.05	\$168,826.32	\$173,891.11
Payroll Tax	\$65,000.00	\$66,950.00	\$68,958.00	\$71,026.74	\$73,157.54	\$75,352.27
Benefits	\$5,000.00	\$5,150.00	\$5,304.50	\$5,463.64	\$5,627.54	\$5,796.37
W.C. Insurance	\$1,000.00	\$1,030.00	\$1,060.90	\$1,092.73	\$1,125.51	\$1,159.27
Sand/Stone/Earth Materials	\$3,000.00	\$3,090.00	\$3,182.70	\$3,278.18	\$3,376.53	\$3,477.82
Seed & Sod	\$2,000.00	\$2,060.00	\$2,121.80	\$2,185.45	\$2,251.02	\$2,318.55
Plants, Shrubs & Landscape	\$2,000.00	\$2,060.00	\$2,121.80	\$2,185.45	\$2,251.02	\$2,318.55
Course Accessories	\$1,000.00	\$1,030.00	\$1,060.90	\$1,092.73	\$1,125.51	\$1,159.28
Supplies	\$12,000.00	\$12,360.00	\$12,730.80	\$13,112.72	\$13,506.11	\$13,911.29
Turf Chem and Fert	\$50,000.00	\$51,500.00	\$53,045.00	\$54,636.35	\$56,275.44	\$57,963.70
Gasoline & Lubricants	\$20,000.00	\$20,600.00	\$21,218.00	\$21,854.54	\$22,510.18	\$23,185.48
Small Tools	\$2,000.00	\$2,060.00	\$2,120.180	\$2,185.405	\$2,251.016	\$2,318.548
Equip Repair & Maint	\$25,000.00	\$25,750.00	\$26,522.50	\$27,318.18	\$28,137.72	\$28,981.85
Machine & Equipment Rental	\$500.00	\$515.00	\$530.45	\$546.36	\$562.75	\$579.64
Equip/Service Contracts	\$5,000.00	\$5,150.00	\$5,304.50	\$5,463.64	\$5,627.54	\$5,796.37

Drainage & Irrigation Rep/Maint	\$5,000.00	\$5150.00	\$5304.50	\$5463.64	\$5627.54	\$5796.37
Purchase Irrigation Water	\$5,000.00	\$5150.00	\$5304.50	\$5463.64	\$5627.54	\$5796.37
Disposal Service	\$3,000.00	\$3090.00	\$3182.70	\$3278.18	\$3376.53	\$3477.82
Truck Lease	\$7,000.00	\$7210.00	\$7426.30	\$7649.09	\$7878.56	\$8114.92
Building Maint & Repairs	\$2,500.00	\$2575.00	\$2652.25	\$2731.82	\$2813.77	\$2898.19
Utilities	\$4,000.00	\$4120.00	\$4243.60	\$4370.91	\$4502.04	\$4637.10
Miscellaneous Expenses	\$5,000.00	\$5150.00	\$5304.50	\$5463.64	\$5627.54	\$5796.37
<b>Net Greens &amp; Grounds Expenses:</b>	<b>\$375,000.00</b>	\$404250.00	\$416917.00	\$429440.71	\$442324.42	\$455594.17

The projected expenses are based upon a 3% increase in costs year over year. The starting payroll figure does not include the superintendent and is an estimation based on current hourly rates and average monthly hours expended by the maintenance staff at Millwood Farms. The figures above only include maintenance costs and do not include revenue or expenses associated with the clubhouse. The establishment of a contingency fund and a capital improvement fund are recommended. A contingency fund would be a one-time appropriation of \$100,000 to \$200,000. This fund would be used to cover emergency repairs such as the failure of a green or other unexpected occurrence. The fund could be established by retaining course earnings for a short time period. It could be released once the capital improvement fund grows. It is also recommended that 2.5% to 5% of earnings be retained as a capital improvement fund. This would be used for projected course improvements such as expanding the clubhouse or adding a driving range in the future.

Golf Course Operations Budget –Rounds of Play

2013-Play Totals												
Month	Card	14	Senior	Junior	L-Cash	L-Card	Early	Late	Totals	2012%	Ave	Days
March	0	0	0	0	0	0	0	0	0	0	0	0
April	174	543	302	73	173	336	15	489	2105	84	78	27
May	342	598	418	61	397	1039	82	733	3670	105	122	30
June	364	1033	335	47	294	859	72	914	3918	93	135	29
July	300	693	327	84	451	851	122	915	3743	82	121	31
August	291	913	473	246	695	646	143	1154	4651	113	150	31
September	297	685	422	93	563	313	43	709	3125	99	104	30
October	203	536	329	39	53	7	14	416	1597	111	52	31
November	57	351	0	4	0	0	0	154	566	81	35	16
December	1	36	0	0	0	0	0	1	38	31	5	8
<b>Total</b>	<b>2029</b>	<b>5388</b>	<b>2606</b>	<b>647</b>	<b>2626</b>	<b>4051</b>	<b>491</b>	<b>5485</b>	<b>23413</b>	<b>93</b>	<b>100</b>	<b>233</b>

Total Play	2012	25289
Total Play	2013	23413
Change		1876
Open		233

2014-Play Totals

Month	Card	14	Senior	Junior	L-Cash	L-Card	Early	Late	Totals	2014%	Ave	Days
March	0	0	0	0	0	0	0	0	0	0	0	0
April	95	296	157	77	138	184	19	337	1413	61	52	25
May	292	564	261	56	403	976	59	796	3407	92	110	31
June	264	804	357	99	403	1165	151	1115	4358	111	145	30
July	241	640	303	79	557	1142	132	1063	4157	111	134	31
August	258	793	344	145	820	687	163	1217	4427	95	148	30
September	317	642	416	71	732	311	71	821	3381	108	113	30
October	148	551	219	17	89	27	2	517	1570	98	56	28
November	31	352	0	6	0	7	0	87	483	85	28	17
December												
<b>Total</b>	<b>1646</b>	<b>4642</b>	<b>2057</b>	<b>550</b>	<b>3142</b>	<b>4499</b>	<b>597</b>	<b>5953</b>	<b>23196</b>			<b>222</b>

Total Play	2014	23196
Total Play	2013	23413
Change		217
Open		222

## Section 6: Proof Points

2015 Total Play													
Month	Card	14	Senior	Junior	L-Cash	L-Card	Early	Late	Totals	2014%	T %	Ave	Days
March	0	0	0	0	0	0	0	0	0	0		0	0
April	75	215	87	48	138	272	9	373	1217	86	86	68	18
May	279	581	245	48	595	1072	138	994	3952	116	107	127	31
June	225	638	376	61	502	1175	157	1028	4162	96	102	154	27
July	268	592	382	89	755	1148	219	1166	4619	111	105	149	31
August	247	798	363	166	829	804	178	1240	4625	104	105	149	31
September	288	533	362	57	682	533	97	827	3379	100	104	117	29
October	195	333	415	43	56	39	16	582	1679	107	103	54	31
November	81	278	358	8	0	0	7	300	1032	214	106		
December	11	0	0	0	0	0	0	891	902				
<b>Total</b>	<b>1669</b>	<b>3968</b>	<b>2588</b>	<b>520</b>	<b>3557</b>	<b>5043</b>	<b>821</b>	<b>7401</b>	<b>25567</b>				<b>198</b>

<b>Total Play</b>	2015	25567
<b>Total Play</b>	2014	23196
<b>Change</b>		<b>2371</b>
<b>Open</b>		<b>222</b>

2016 Total Play													
Month	Card	14	Senior	Junior	L-Cash	L-Card	Early	Late	Totals	2015%	T %	Ave	Days
March	7	425	0	14	0	0	0	128	574	0		34	17
April	183	503	170	75	132	240	15	636	1954	160	207	81	24
May	273	612	273	59	464	938	92	884	3595	90	118	116	31
June	289	643	451	118	761	1246	209	1125	4842	116	117	161	30

The rounds of play have been stable year over year. This indicates high player satisfaction and loyalty. 2016 is unusually high, most likely due to favorable playing conditions. Consistent or growing rounds of play are the most favorable indicator for future or continued profitability.

## Current Course Accounts

Cash Flow comparison 3/1/2014 through 2/29/2016 (Cash Basis)						
Category			3/1/2014-2/29/2015		3/1/2015-2/29/2016	Amount Difference
<b>Inflows</b>						
Uncatogrizd			841.34		0	841.34
G Refunds			5,559.25		5698.69	139.34
Interest			6.75		12.23	5.48
Millwood Golf course			688417.47		759130.47	70,725
Other Income			31,172		755	30,417.10
Rental Income			30,724.01		30875	9,150.99
<b>Total Inflows</b>			<b>756717.92</b>		<b>805480.29</b>	<b>48,762.47</b>
<b>Outflows</b>						
1-Food			15,332.49		25,052.81	-9,720.32
15-New Equipment			20,075.38		27,649.98	-7,574.60
15-Not Filed			6,896.40		25,216.17	-18,319.77
2-Snacks			882.14		0.00	882.14
4-Liquor			15,274.93		27,690.50	12,415.57
5-Soda			7,500.38		9,767.75	-2,267.37
7-19th Services			497.49		522.00	-24.51
7-19 Supplies			4,264.85		6,927.09	2,662.24
8-Meal Tax			5,361.67		7,505.38	-2,143.71
8-Meal Tax			497.53		0.00	497.53
A-Payroll			200,140.43		205,550.35	-5,410.01
A-Payroll Service			2,704.77		3,724.06	-1,019.29
A-Payroll Tax			79,485.24		83,638.77	-4,153.53
B-Course Parts			24,568.02		19,911.88	4,656.14
B-Course Services			22,934.17		32,722.19	-9,788.02
B-Course Supplies			12,709.77		14,072.22	-1,362.45
B-Equipment Rental			671.05		714.57	-43.52
B-Gasoline			19,222.01		13,935.35	5,286.66
B-Turf/Chem			23,084.46		31,061.85	-7,977.39
B-Water			7,996.67		18,196.86	-10,200.19
BJ'S			22.07		0.00	22.07
C-GS Resale			5,482.52		5,576.47	-93.95
C-GS Supplies			2,694.39		2,986.60	-274.21
C-Handicaps			4,600.00		3,975.00	625.00
C-Prizes			947.92		480.00	467.92
C-Rental Carts-Gas			31,714.68		31,298.46	416.22
D-Electric			11,107.45		9,096.54	2,010.91
D-Heating Oil			9,258.41		6,253.51	3,004.90
D-Telephone			6,406.70		6,204.53	202.17
E-Health Insurance			15,747.57		24,700.72	-8,953.15
E-Insurance			33,906.20		36,570.79	-2,664.59
F-Corp Tax			456.00		456	0.00
F-Property Tax			23,757.24		34,108.22	-10,350.78
F-Sales Tax			5,691.44		6,520.45	-829.04
F-User Fee			3,638.75		3,507.75	131.00
G-Bank Charges			25,598.77		20,801.01	4,797.76
G-L&P Fee			6,109.00		10,000.00	-3,891.00
G-miscellaneous			9,137.27		18,542.86	-9,405.59
G-Office Supplies			2,447.26		3,381.72	-934.46
H-Apt Repair			192.07		6,151.75	-5,959.68
H-Apt Trash			3,037.19		3,117.33	-80.14
H-Electric Bill			659.49		1,185.54	-526.05
H-Heating Oil			10,678.29		7,860.87	2,817.42
H-Pest control			744.00		992.00	-248.00
S-Corp			5,078.78		0.00	5,078.78
<b>Total Outflows</b>			<b>689,413.39</b>		<b>797,609.90</b>	<b>108,196.51</b>
<b>Overall Total</b>			<b>67,304.53</b>		<b>7,870.39</b>	<b>-59,434.14</b>

Section 6: Proof Points

Cash Flow comparison 3/1/2013 through 2/28/2015 (Cash Basis)						
Category			3/1/2013-2/28/14		3/1/2014-2/28/2015	Amount Difference
<b>Inflows</b>						
Uncategorized			72,756.12		841.34	71,914.78
G Refunds			6,445.31		5,559.25	886.06
Interest			4.59		6.75	2.16
Millwood Golf course			652,875.85		688,414.47	35,539
Other Income			30,901		31,173	271.00
Rental Income			22,070.00		30,724.01	8,654.01
<b>Total Inflows</b>			<b>785,052.92</b>		<b>756,717.92</b>	<b>28,335.00</b>
<b>Outflows</b>						
Uncategorized			244		0	244.09
1-Food			22,653.03		15,332.49	7,320.54
15-New Equipment			24,757.71		20,075.38	4,682.33
15-Not Filed			21,781.11		6,896.40	14,884.71
2-Snacks			0.00		882.14	882.14
4-Liquor			11,286.07		15,274.93	3,988.86
5-Soda			6,739.50		7,500.38	760.88
7-19th Services			880.28		497.49	382.79
7-19 Supplies			1,762.42		4,264.85	2,502.43
8-Meal Tax			4,399.23		5,361.67	971.44
8-Meal Tax			0.00		497.53	497.53
A-Payroll			205,931.35		200,140.34	5,791.35
A-Payroll Service			2,706.52		2,704.77	1.75.00
A-Payroll Tax			87,675.47		79,485.24	8,190.23
B-Course Parts			22,697.33		24,568.02	1,870.69
B-Course Services			23,603.23		22,934.17	669.06
B-Course Supplies			13,759.70		12,709.77	1,049.93
B-Equipment Rental			594.57		671.05	76.48
B-Gasoline			16,608.51		19,222.01	2,613.50
B-Turf/Chem			34,826.90		23,084.46	11,742.44
B-Water			3,175.91		7,996.67	4,820.76
BJ'S			1,236.63		222.07	1,014.56
C-GS Resale			381.92		5,482.52	5,100.60
C-GS Supplies			2,596.45		2,694.39	97.94
C-Handicaps			3,650.00		4,600.00	950.00
C-Prizes			324.32		947.92	623.60
C-Rental Carts-Gas			28,075		31,714.68	3,639.10
D-Electric			6,226.83		11,107.45	4,880.62
D-Heating Oil			9,875.20		9,258.41	616.79
D-Telephone			6,554.12		6,406.70	147.42
E-Health Insurance			12,090.39		15,747.57	3,657.18
E-Insurance			34,610.00		33,906.20	703.80
F-Corp Tax			0.00		456	456.00
F-Property Tax			32,191.45		23,757.44	703.80
F-Sales Tax			5,461.86		5,691.41	229.55
F-User Fee			4,172.98		3,638.75	534.23
F-Water Bill			1,166.02		0.00	1,166.02
G-Bank Charges			17,735.32		25,598.77	7,863.45
G-L&P Fee			6,934.00		6,109.00	825.00
G-miscellaneous			3,435.78		9,137.27	5,701.49
G-Office Supplies			2,679.20		2,447.26	231.94
H-Apt Repair			207.15		192.07	15.08
H-Apt Trash			2,764.62		3,037.19	272.57
H-Electric Bill			743.65		659.49	84.16
H-Heating Oil			11,320.50		10,678.29	642.21
H-Pest control			992.00		744.00	248.00
New Equipment			2,294.83		0.00	2,294.83
S-Corp			2,924.00		5,078.78	2,154.78
<b>Total Outflows</b>			<b>712,744.52</b>		<b>689,413.39</b>	<b>23,331.13</b>
<b>Overall Total</b>			<b>72,308.40</b>		<b>67,304.53</b>	<b>5,003.87</b>

## Section 6: Proof Points

### Revenue Projections

Raw Revenue Comparison 2013-2015			
	2015	2014	2013
Golf revenue	764841.39	693980.47	659325.75
Golf related expenses	-211117.00	-189748.11	-190999.01
Revenue from Golf	553724.39	504232.36	468326.74
Payroll including tax service expenses	-292913.18	-282330.35	-296313.34
Net revenue after payroll	260811.21	221902.01	172013.40
Club House Expenses	-141345.83	-97444.77	-118740.26
<b>Net Revenue After Club Expenses</b>	<b>119465.38</b>	<b>124457.24</b>	<b>53273.14</b>
Rounds per year	25567.00	23196.00	23413.00
<b>Net revenue per round</b>	<b>4.67</b>	<b>5.37</b>	<b>2.28</b>
Average rounds per year	24366	24366	24366
Average revenue based on revenue per round	113853.54	130734.83	55441.56
2016 projection for rounds based on 4 month 16.6% increase	28435		
Projected revenue	132866.51		
-10%' 4yr avg. rounds	21929	21929	21929
<b>Revenue based on revenue per rounds</b>	<b>102466.32</b>	<b>117659.20</b>	<b>49896.50</b>
+10%' 4yr avg. rounds	26802	26802	26802
<b>Revenue based on revenue per rounds</b>	<b>125236.09</b>	<b>143805.09</b>	<b>60984.35</b>
Gross rev/rounds what course makes per round	29.92	29.92	28.16
<b>Range of Revenues as 14 hole \$49896.50 - \$143,805.09</b>			
(+/- 10% rounds from average and using best and worst revenue per round)			

All figures were self-reported by Millwood Golf Course. Determining an accurate estimate of revenues was made more difficult due to the fact that the course currently

operates several rental properties. Furthermore, the expenses and revenues were comingled. The clubhouse revenues were included in the general golf revenues. The table above includes the clubhouse revenues and expenses. Revenues and expenses for the rental properties have been excluded to such an extent, as we have been able to discern.

Based upon the uncertainty inherent in the figures as presented by Millwood, we believe that it would be prudent for the Town of Framingham to conduct a full professional business Due Diligence review utilizing audited figures. While we have no reason to suspect the numbers provided, and they are consistent with normal golf course operations, if potential revenues and forward looking projections are necessary for the decision making, such a review can and should be included as a condition of the sale.

The best estimates are the 2015 and 2014 years. In 2013 significant one-time expenses, such as new equipment, have depressed the earnings. The average net golf revenue, after expenses, for 2014 and 2015 is \$121,961.

The rounds played have been relatively stable over the reported years. This demonstrates a loyal following and a stable customer base. 2016 has seen a significant increase in rounds played in the first 4 months. This could be aberration due to the very favorable weather seen in the early season. Golfers have been able to start early and nearly every day has been playable due to a lack of rain. To be conservative, we did not include the 2016 figures into our projections.

Golf rounds played tend to be stable. There is not a high “churn” rate. Most golfers do not switch courses readily. Most play a course that has both favorable conditions and is close to home. Industry analysis dictates that it is prudent to project no more than a 10% swing in participation rates year over year. Rounds played can fluctuate due to weather or course conditions. We projected rounds played to vary between 21,929 and 26,802. If we exclude the skewed numbers from 2013, that would yield projected revenues of between \$102,466 and \$143,805. If you include the 2013 numbers the low-end projection drops to \$49,896.

We have also investigated what could happen if the course were reconfigured to a nine-hole course. The rates from several nine-hole courses indicate that a reduction in greens fees of approximately 33% would be needed to remain competitive. The average weekend rate at nearby nine-hole courses is \$22. Millwood currently charges \$33.

In addition to a reduced green fee, we must caution that the course could see a reduced number of rounds played. A nine-hole course is not as attractive as a longer length course. Nine-hole courses are often stigmatized as “Par 3 Pitch and Putt”. There is also

## Section 6: Proof Points

a perception that these courses are less challenging. The introduction of “Executive nine hole courses” has attempted to reverse the negative connotation. These courses promote the shorter length as a positive for time pressured “executives”. This could work in Millwood’s favor.

Additionally, Millwood Farms is unique in that it is a 14-hole course rather than an 18. The current players do not seem particularly bothered by the shorter course and may not be overly disappointed by a shift to nine holes. With these facts in mind, we analyzed the course as a nine hole with a corresponding drop in greens fees.

We assumed both a 10% drop in rounds played and no drop in rounds played. For the worst case scenario we reduced the rounds played by 10% (bad weather, conditions) and an additional 10% (undesirable 9 hole layout) and reduced the greens fees; this yielded average projected revenue of \$65,378. This was based on the 2014 and 2015 revenues. If the rounds of play do not drop and all current golfers continue to play Millwood at nine holes, the average revenue would be \$81,714 based upon the above assumptions.

Sample of 9 hole rates at other courses

Course	Town	Average weekday rate	Average weekend rate	Maximum full price	Cart	Notes
Sassamon Trace	Natick	16	21	22	7	
Cyprian Keys	Boylston	15	17	18	25	par 3
Pine Meadows	Lexington	20	24	24	11	muni
St Marks	Southborough	18	20	21	10	
Fresh Pond	Cambridge	20	24	27	20	muni
Chelmsford	Chelmsford	17	17	22	10	
<b>Avg</b>		<b>18</b>	<b>21</b>	<b>22</b>	<b>14</b>	
Millwood Farms	Framingham	21	22	33	9	

## Section 6: Proof Points

<b>Worst case at 9 holes</b>			
-10%' 4yr avg. rounds played	21929	21929	21929
Assume additional 10% decrease by converting to 9 holes (rounds played)	19736	19736	19736
Revenue based on revenue per rounds (unadjusted fees)	92,219.68	105,893.28	44,906.85
Assume a fee reduction of 33%	60,864.99	69,889.57	29,638.52
<b>Average rounds just price adjustment for 9</b>			
4 yr. avg. rds.	24366	24366	24366
Average revenue based on revenue per round (unadjusted rates)	113,853.53	130,734.82	55,441.56
Assume 33% cut in rates	75,143.34	86,284.99	36,591.43

Possible 9 hole revenue range \$29,638 - \$86,284.99  
(Using average and negatively adjusted rounds and best and worst price per rounds)

Projecting growth is highly speculative. It assumes that the course maintains or improves its conditions. It also assumes that the weather is favorable for play and that no other competition impacts the use of the course. Some courses project a growth rate as high as 8-10%. This is certainly possible if it is a new and growing course. An established course in an established market is much more likely to experience modest growth. A conservative growth projection is 4% year of year. This is consistent with other nearby courses (Sassamon Trace). The tables below show the 5 year projected growth for both a 9 hole and the current 14 hole, based upon the least and most optimistic revenue projections. By using the extreme ends of the projections, a large range will be evident. We have also made similar projections utilizing a more robust 8% growth rate.

Finally, we used the average revenues from the 2014 and 2015 seasons and projected a 4% growth rate out over 20 years to provide an estimate for bond financing purposes.

Of course any growth will depend upon efficient management, continued population growth, and an ongoing promotional and marketing effort. These figures do not reflect any growth in greens fees. Millwood Farms has stated that greens fees have not been raised in the last 3-5 years. Typically, they have raised fees \$1 year over year in the past. Local golf is very price dependent. The low fees do provide a competitive advantage. Industry wide fees increase by about 2.5% per year.

**Possible range of revenue growth over 5 years**

	Range	2017	2018	2019	2020	2021
14 holes based on 4% growth	49,896.00	51,891.84	53,967.51	56,126.21	58,371.26	60,706.11
	143,805.00	149,557.20	155,539.49	161,761.07	168,231.51	174,960.77
9 hole based on 4% growth	\$29,638.00	\$30,823.52	\$32,056.46	\$33,338.72	\$34,672.27	\$36,059.16
	\$84,284.00	\$87,655.36	\$91,161.57	\$94,808.04	\$98,600.36	\$102,544.37
14 holes based on 8% growth	49,896.00	53,887.68	58,198.69	62,854.59	67,882.96	73,313.59
	143,805.00	155,309.40	167,734.15	181,152.88	195,645.11	211,296.72
9 hole based on 8% growth	29,638.00	32,009.04	34,569.76	37,335.34	40,322.17	43,547.95
	84,284.00	91,026.72	98,308.86	106,173.57	114,667.45	123,840.85

**Projecting a 4% growth rate in the average revenue (\$121,961) for golf operations for 2014 and 2015**

2017	2018	2019	2020	2021
\$126,839.44	\$131,913.02	\$137,189.54	\$142,677.12	\$148,384.20
2022	2023	2024	2025	2026
\$154,319.57	\$160,492.36	\$166,912.05	\$173,588.53	\$180,532.07
2027	2028	2029	2030	2031
\$187,753.36	\$195,263.49	\$203,074.03	\$211,196.99	\$219,644.87
2032	2033	2034	2035	2036
\$228,430.67	\$237,567.89	\$247,070.61	\$256,953.43	\$267,231.57

### Equipment Review

The equipment/tools when evaluated ranged from brand new to aging. There was a good range and diversity of equipment, which would allow for a satisfactory level of maintenance. Most of the equipment and tools were in better than satisfactory condition, having received regular or annual maintenance. Few repairs outside those normally associated with the type of equipment given its daily usage

Some of the older equipment would need to be considered for renewal and therefore we have added a machine/tool replacement matrix. As with the maintenance programs this has been based over a 5-year period.

Overall it is our opinion that with some updating and continued consistent maintenance, the range, diversity and condition of the equipment and tools is more than adequate to sustain any future maintenance programs. Furthermore, equipment need not be purchased outright but full suites of necessary equipment can be leased directly from the manufacturer.

Below we have outlined the equipment and provided a suggested timeline for its replacement. While none of the equipment is in need of immediate replacement, much of it is older and outdated. These pieces, through adequate preventive maintenance and timely repairs, can be kept in an operational state but replacement should be considered as the cost versus benefit from their continued use may not be favorable



## Section 6: Proof Points

Millwood Equipment Inventory			
Description	Condition	Replacement Cost	Years Until Replacement based on current date 2016
Buffalo Turbine Blower	Good	\$4500.00	2020
Utility Bed Cart	Fair goes with lease	N/A	N/A
Utility Bed Cart	Fair goes with lease	N/A	N/A
Beverage Cart	Good	\$23000.00	2022
Honda Snowblower	New	\$2000.00	2022
Generator	Good	\$3-5000	2022
2" Trash Pump	Good	\$750.00	N/A
Rototiller	Fair	\$3000.00	2019
Backpack Blower 1	New	\$1000.00	2019
Backpack Blower 2	New	\$1000.00	2019
Backpack Blower 3	New	\$1000.00	2019
Line Trimmer 1	New	\$500.00	2018
Line Trimmer 2	New	\$500.00	2018
Line trimmer 3	New	\$500.00	2018
Pressure Washer	Good	\$1000.00	2020
Dixie Chopper 48" Rotary zero turn	Good	\$12000.00	2020
Old G-Plex Tri-plex	Engine issue	\$35000.00	2017
Greens King IV Tri-Plex Greens Mower with groomer reels	1650 hours- good	\$35000.00	2019
Greens King VI Tri-Plex Greens Mower	2350 hours- good	\$35000.00	2018
Toro Sand Pro 3 wheel drive	Old 3000 hours	\$20000.00	2018
Leaf Vacuum	Old- Parts use only	\$30000.00	2017
Ryan Mataway	Old- still runs	\$15000.00	2021
AP 2000 Rotary Spreader	Good	\$250.00	2019
Vicon Tractor Spreader	Old- still works	\$5500.00	2020
Mower caddy trailers (2)	Good	\$3500.00	2022
LF 3400 Fairway mower	Old	\$50000.00	2018
Pro Gator Heavy Duty Work Vehicle	New	\$22000.00	2022
JCB Backhoe Loader (small)	New	\$60000.00	2027
PGM 22" Walk Mower - Tees (2)	Old	\$11000.00	2019
PGM 22" Walk Mower	Old	\$11000.00	2019

## Optimizing the Clubhouse

### Millwood Golf Course-Clubhouse options

#### Introduction

As part of our work for the town of Framingham we were asked to look into options regarding the current clubhouse including:

- Its benefits.
- Its challenges.
- Is it big enough?
- Should it be expanded or moved?
- Should it be renovated or re-designed?

Currently at Millwood Golf course there is a small clubhouse, which currently has the following:

- Bathrooms (ladies and Gentlemen)
- A small lounge/restaurant area
- A small but well equipped kitchen
- A good sized outdoor patio area with room for approx. 40 people

Millwood has reported that current merchandise sales account for approximately 1% of revenue and food and beverage is about 15% of revenue. They report the clubhouse has been under new management and that its revenues have increased greatly in the past 4 years.

The "clubhouse" is the main building at most golf courses, where golfers first head when arriving at the course. The clubhouse is where public golfers spend up to 25 percent of their time during the total golf experience, but at private courses, this number can be as high as 50 percent.

The clubhouse generally contains:

- The pro shop where golfers check in and pay.
- Usually includes some kind of food and drink service (whether a full-scale dining area, snack bar or simply drinks in a fridge).

At larger golf clubs, the clubhouse might also contain a meeting room and a bar or lounge, or locker rooms for golfers.

### History

The term "clubhouse" derives from the original application of the term at golf courses. In pre-20th century Britain, private, members-only golf clubs sprang up around courses. Those clubs were not necessarily involved in running the golf course, but they attracted golfers who sought membership for social reasons or as a way to gain better access to the course. Those private clubs often purchased or built buildings adjacent to or nearby the courses they played at.

And those buildings were called "clubhouses" because they literally housed the club.

### Modern times

Not every golf course has a clubhouse. At those that do, how large or small, how luxurious or basic the clubhouse varies widely. As a general rule, the fancier the golf course - the more expensive it is to play - the more likely it is to have a very nice clubhouse.

### Do's

- Match a clubhouse's style with the membership. By surveying the members, staff and competing clubs in the vicinity.
- Maximize space. Proper space planning plays a large role in whether a clubhouse will drive or drag revenue opportunities.
- Addressing both indoor and outdoor spaces during a renovation can create a new clubhouse dynamic without dramatically altering the existing structure. This allows club members to retain the familiarity of their club while experiencing exciting and dynamic upgrades.
- A remodeling project sends a message to membership that the club is interested in growth and development, while creating a measurable ROI. A new appearance for the golf shop, a revamped dining experience, or the addition of a new spa are enhancements that can make the difference between member retention and attrition.
- From a golfer's standpoint, good design is memorable, possesses character, creates a sense of place and time, and encourages interaction. From the members' viewpoint, good design creates an emotional connection that helps them feel at ease, like they were bringing friends and family to a "second home."

### Don'ts

- Allow silent revenue killers to go unnoticed. Rooms that are unoccupied and seldom used not only create an unnecessary operational and maintenance expense, but also drain energy from the clubhouse and take up valuable space that may be used in more effective ways.
- Try to be all things to all people. The best-designed 19th holes are efficient spaces that do one thing and do it exceedingly well. Many clubs have attempted to be all things to all people, and they've failed. By effectively utilizing the space, a good 19th hole hits the customer emotionally and drives revenue. Focusing on a stand-out food-and-beverage-operation can be an ideal, targeted renovation choice for a club.
- Assume renovations necessitate a closure. For golf courses located in the North, which have a true off-season, the planning, design, building and installation of a full clubhouse interior renovation can take place while the club is closed. Meanwhile, courses that are open year-round can take advantage of shoulder seasons to complete wholesale or spot renovations before the peak season hits.
- Fall victim to the latest fads. "Trendy" is often confused with contemporary, and stodgy with traditional. It's important to understand that interior architectural elements can be traditional and fashionable, especially when they're set off with contemporary artwork or accessories that are juxtaposed against a traditional design. That juxtaposition has a popular place in design, and club owners and operators want focal pieces that reflect the traditions and history of the game. Ideally, these pieces will also provide a sense of place tied to the area, or reflect a prevalent architectural motif.
- Ignore the obvious. Dated interior furniture and finishes, and aging equipment, such as HVAC systems, plumbing and kitchen appliances often offer a good indication of when a clubhouse needs a makeover. If an interior finish is more than five years old, it may be time to consider an upgrade.
- If it's beyond seven years (the hotel industry standard), upgrading may be imperative, as mold and other allergens can emerge as health issues.

Old Scottish Links in Bridgewater MA, and The Ledges in Hadley MA, are examples of municipal clubs that have been able to grow revenues and build or support and expanded clubhouse operation. Old Scottish Links was able to construct their clubhouse, 2012, by creatively using volunteer labor including student from the vocational school. In the end, it has become an asset held by the town with pride.

### Adding a Pro Shop

Currently Millwood Farms has a very modest retail area with a few items for sale. If the clubhouse were expanded a proper pro shop could be added. Soft goods typically have a margin of about 40%. Investing in a pro shop would require some construction, staffing, and the initial purchase of inventory. It is not unreasonable to expect a pro shop to produce about \$2.00 per round of golf. At approximately 24,000 rounds currently played at Millwood, this would yield gross revenues of \$48,000. With a margin of 40%, an operating pro shop could see revenues of \$19,000 not including construction expenses. It is possible that the management of the pro shop could be outsourced to a third party and the town could recoup a lease payment. A local golf pro, interviewed for this feasibility study related that a pro shop could net \$20,000 on \$100,000 in sales. He advised against a full pro shop due to the competition from large retailers.

The addition of a pro shop also allows for the addition of a more structured lessons program. At this time, the course does not have a resident golf pro on staff. Itinerant pros teach workshops on a contractual basis. The course currently has the space to dedicate a training area. This would allow lessons without interfering with the rate of play. This also allows for the attraction of younger golfers, as well as, school-based programs. A golf pro can elevate the status of the golf course and make it a more desirable destination.

Golfers taking lessons will often play the course they are learning on repeatedly in order to refine their game. In effect, Millwood would become their “home” course. We did not investigate the demand for golf lessons so it is not possible to predict whether or not the addition of a golf pro could yield significant revenue. A local golf pro related, “A teaching pro, entry level, could profit \$20,000 on lessons” he went on to state, “having a chipping green, bunker, and fairway for short game practice is key to attracting golfers. Especially kids”. He also mentioned, “If you have a practice facility and youth program sponsored by local business, it can be very profitable and a win-win for the town and local business.”

Golf carts are often a significant source of revenue for golf courses. It appears that the rates for carts at Millwood could be raised and thus provide some limited revenue. The average cart rental rate is about \$5 less than other courses. Millwood currently reports about \$60,000 in revenue with \$30,000 in costs for their carts.

### Course Management Options

There are many golf courses in the greater Framingham area as well as throughout Massachusetts including both private and public courses. There are several different mechanisms for maintaining, operating and managing a municipal golf course. Models include contracted management services with municipal maintenance provided through the public works department; contracted maintenance services with municipal facility operations and management; municipal operations, management and maintenance; and contracted operations, management and maintenance. There are advantages and disadvantages to each of the options available to municipalities. Our research of municipal golf courses both in Massachusetts and elsewhere in the country identified common issues. Our primary source for this information was the Town of Auburn Pakachoag Golf Course Analysis Report. In general, there are three common mechanisms utilized, although there are several variations on each (i.e. hiring golf pro, contracting for pro-shop and/or restaurant operations, leasing the equipment and maintenance of equipment, etc.):

1. Lease the entire facility for operations, management and maintenance;
2. Contract for management services only and provide in-house maintenance services or contract for maintenance services only and provide municipal management and operations.
3. Complete municipal operations, management, and maintenance.

Leasing the entire operations, management and maintenance of the golf course to a private company significantly decreases the municipality's control over the facility as control over the operational policies and procedures are generally subjugated to the Lessee/private management company.

Agreements can specify the standards for maintenance and operations but that is often subject to interpretation and disagreement between the parties. Long-term contracts with terms of ten to thirty years are common under this option, particularly when the private company intends or is required to invest in significant capital improvements.

It is also possible that the maintenance of the course and thus its overall condition could deteriorate in the latter years of a long-term contract as the private company may hesitate to make significant improvements in the facility that do not yield a strong Return on Investment in the short-term latter years.

If the contract is based on a fixed monthly fee to the municipality, then the private company benefits from a profitable season. On the other hand, in a down economy

where estimated revenues are not realized, then the municipality is not financially impacted.

The benefits to an all-inclusive lease of the entire operations, management and maintenance to a private company include the fact that the municipality will receive dedicated revenues (under a fixed monthly or annual fee schedule), no capital outlay is needed for the purchase or lease of equipment, and no additional municipal employees need to be hired.

Contracting for management and operations only, while maintaining the facility and grounds through a municipal department, is a hybrid model that can have several variations (such as multiple contracted services for carts, food and beverage).

Typically, under the contract for management and operations, a municipality enters into a fee-for-service contract with a golf management company that provides their own golf pro. The company will run the operations of the facility including the greens, clubhouse, equipment rentals, pro-shop, and all programs and events.

The management contract can be based upon a fixed fee paid to the company with the municipality retaining all revenues generated in order to cover the management fees. Or the contract can be incentive-based, which may have a base rate in addition to a percentage of gross revenues (performance-based incentives).

Under this option, the municipality bears the financial risk as the management fees are contracted regardless of the revenues generated, and those revenues may or may not cover management fees in addition to the cost of grounds and buildings maintenance and repair. This option also places a heavier burden on the municipality for developing policies, monitoring vendor contracts, and managing the manager. Under this scenario, the municipality also bears the financial burden for facility improvements and upgrades.

Similarly, the hybrid model can have the municipality operate and manage the facility while contracting out the maintenance function. Under this variation of the hybrid option, the municipality handles all management and operations while contracting with a private company to maintain the tees, greens, and fairways. The cost to contract these maintenance functions can be extremely high. The revenues may or may not cover the costs of the contracted services if the weather or the economy has an adverse effect on revenues during the contracted period.

Municipalities that undertake the entire operation, management and maintenance of the golf course need to make initial up-front capital investments in the purchase or lease of carts and maintenance equipment as well as hire dedicated employees, managers and perhaps a golf pro to staff and manage the facility. This model provides

total control over the facility to the municipality, which must also assume responsibility for policies, procedures, marketing, and all aspects of facility and grounds management and maintenance. Without proper staffing and equipment, the model will not be effective. With proper staffing and equipment, however, the model may provide the best opportunity for the municipality to ensure that this valuable asset remains in good condition and operates efficiently.

In recent year it appears as if there has been a shift in sentiment towards using management companies. Several courses have shifted away from management companies and have taken control of their courses.

Sassamon Trace in Natick and Pakachoag in Auburn are two such courses that have reverted to town management.

This is due to a desire to ensure that course, as a public asset, is managed responsibly and not allowed to degrade. It may also be due to a desire for the town to recover a greater portion of the revenue. Often times management companies, in the past, have increased their profits at the expense of adequate maintenance. They frequently resort to using lower cost, or inferior products and reduce their maintenance schedules to save labor expenses. Towns that have retained management contracts have rewritten terms upon expiration to be consistent with the inspector general's recommendations. (See Appendix for full copy of the recommendations)

Maintaining a course as a municipal operation is a significant endeavor. The proper equipment must be leased, the proper products sourced, and the proper personnel must be retained. Securing the services of a well-trained and qualified superintendent is critical. Maintaining a golf course at the standard players demand is a highly specialized task requiring years of experience and a wide depth of knowledge. This specialized background often, but not always, exceeds the capabilities of the local DPW.

Often a quality superintendent can be found within the ranks of assistant superintendents at other high quality golf courses. Golf course management and green keeping still retains an element of apprenticeship. Many young professionals, upon graduating from University Turf Management programs will spend years under the tutelage of experienced professionals. Many of these younger practitioners are eager for the challenge and prestige of maintaining a course on their own.

If Framingham chose to manage a course themselves, it should consider establishing an enterprise account to fund the operation. As an enterprise under G.L. Ch 44 Sec. 53F ½ expenses and revenues are segregated from the town's general fund. Furthermore, an Enterprise must be self-supporting. While the majority funds stay with the course for improvements, the town is able to collect and administrative fee.

Golf in Massachusetts – State of the Industry

Overview

The chart below was taken directly from the SRI International Massachusetts Golf Economy Report of 2014. This chart indicates that the golf industry is made up of more than just the golf course and its facility but that it also consists of golf supplies, potential investments, and possibility for tournaments and charitable giving. The effects of a local golf course may also be positively felt in other industries such as real estate, construction, and tourism.



(SRI International 2014. The Massachusetts Golf Economy Report 2014. Arlington, VA: SRI International.)

There are almost 16,000 golf courses throughout the United States with approximately half a million jobs created (Haydu et al., 2008). Based on a report done by the National Golf Foundation (NGF) in 2006 there were 240 public golf courses in Massachusetts and 50 of those golf courses fell under the category of ‘municipal, military, and university’

(NGF, 2007). According to SRI International there was a significant decline in the Massachusetts golf industry from 2007-2009 due to the recession and therefore reduction in disposable income (SRI International, 2014).

However, from 2006 to 2012 revenues from golf facilities (including driving ranges and other related facilities) rose 22%. If the figures are adjusted for inflation the rise in revenues has been a more modest 10%.

Turfnet.com reported that from 2005 to 2013 there was a net loss of 643 golf courses throughout the country with 157 closing in 2013 alone. Of the 157 closed courses, 151 were public courses and 7 of those were municipal (Reitman, 2014). Although there was a decline, in 2012 it was reported that there was an overall 7.9% increase in the Massachusetts golf industry from 2006 -2012 (SRI International, 2014). This increase can also be seen in the NGF 2013 report where 249 public golf courses in Massachusetts with 57 of them categorized as 'municipal, military, and university' were reported, showing an increase in public courses from the previous 2006 NGF report (NGF, 2013). The PGA has also reported that the average revenue for the 'municipal, military, university' courses declined in Massachusetts from the 2005/2006 season to 2011 but beginning in 2012 has seen increases nearing pre-recession revenues (SRI International, 2014).

The trend seen in many of these reports is that the elite top private country clubs and the lower priced public courses fared the best through the recession. The more average country club as well as the higher priced public courses seemed to do the worst. This trend is thought to be due to the very wealthy being less affected by the recession and therefore high end country clubs were not affected as greatly. Whereas many of the average income golfers no longer splurged on higher end tee times and golf vacations but continued playing at their local golf courses. Golf Digest reported that in 2005 there were approximately 30 million golfers but this number has decreased to 24.7 million, until 2014 when that number increased to 25 million (Stachura, 2015). Although not as high as it once was during the pre-recession boom of golf, the industry as a whole is showing upward trends.

According to NGF report they also saw an increase in rounds played per year from 2013 to 2014. The number of new golfers has also stayed at a consistent 2 million golfers per year, with more than half of them made up of 18-39 year olds (NGF, 2014). Golf Digest also reported participation rates for golf in New England as one of the two highest regions in the country (Stachura, 2015.)

## Nearby Courses

Course	Type	Distance from town	Rates			mgt company	location
			weekday	week end	cart		
Millwood Farms Golf Course	Public - 14 holes	1.63	30	33	11	Private	175 Millwood St - Framingham
Framingham Country Club	Private - 18 holes	2.21	n/a	n/a	n/a	Private	Gates St - Framingham
Sassamon Trace	Public/Muni - 9 holes	4.2	32	35	14	Natick/Muni	233 S Main St
Martin Memorial Golf Course	Public/Muni - 18 holes	8.66	27	30	15	DCR/Muni	190 Park Road - Weston
Glen Ellen Country Club	Public - 18 holes	8.95	39	55	20	Private	84 Orchard St - Millis
Maynard Gold Course	Public/Muni - 9 holes	9.19	32	34	16	Sterling Mgt.	Brown St - Maynard
Butternut Farm Golf Club	Public - 18 holes	9.2	40	54	20	Private	115 Wheeler Rd - Stow
Juniper Hill Golf Course -Lakeside	Public - 18 holes (2 courses)	9.82	43	48	40	Private	202 Brigham St - Northborough
Sandy Burr Country Club	Public - 18 holes	6.5	50	60	20	Private	103 Cochituate Rd -Wayland
Indian Meadows	Semi Public-9	13	50	53	35	Johnson Mgt.	275 Turn pike Rd - Wesborough
Stow Acres Country Club	Public - 18 holes (2 courses)	13	48	65	20	Private	58 Randall Road - Stow

While there are a large number of courses in Massachusetts, it does not appear that there is an oversupply. Many of the courses in the immediate area have been enjoying adequate or increasing levels of play. According to the Massachusetts Golf Association, 75% of all golfers in Massachusetts play at least 50% of their rounds at a public allowed private course or at a municipal course. 74% of golfers surveyed have played at least one round at a municipal course.

We have identified 3 municipal courses within the market range of Millwood Farms. Maynard is the most similar. Sassamon Trace is an executive length 9-hole course. That course is the closest and strongest competitor. It is a well maintained and managed course. Martin Memorial golf course is not a good comparison because it is owned and operated by the state department of conservation and recreation.

### Demographic Comparison Suitable for Framingham/Millwood Farms

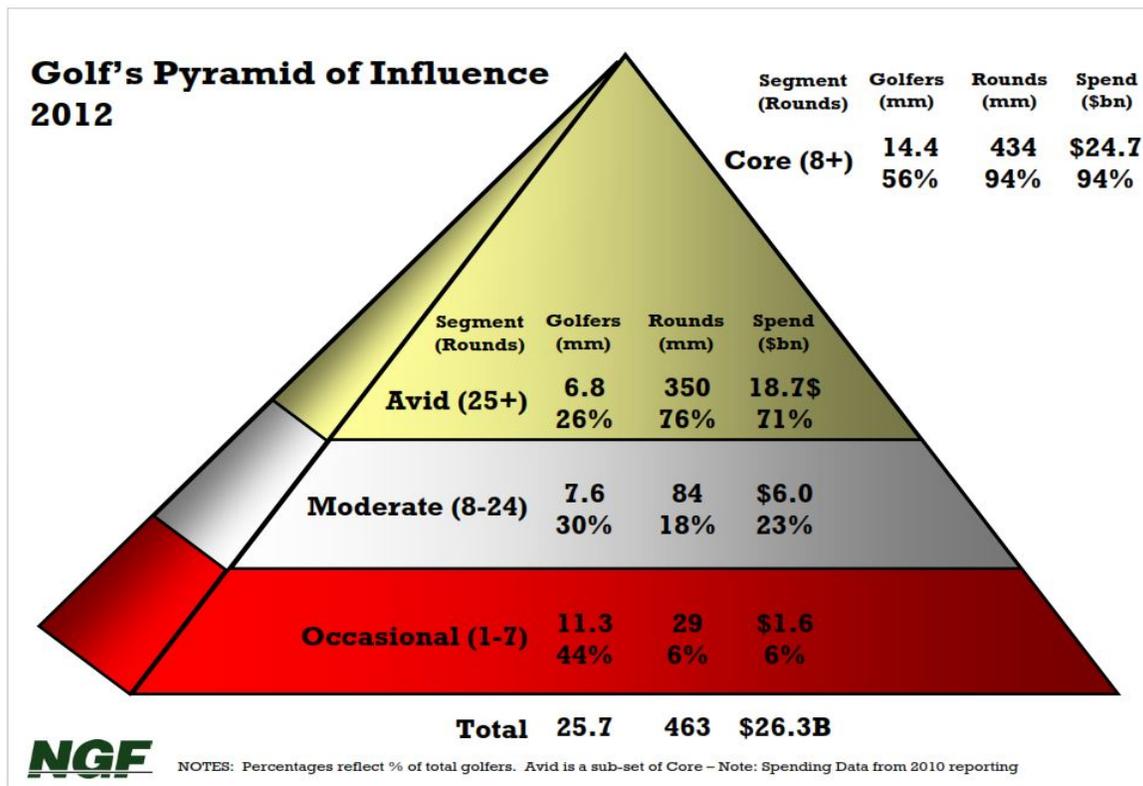
The area around Millwood Farms and the greater Framingham area would appear capable to support the operation of course at its current levels. The simple fact that the course has had consistent levels of usage over the last three years is indicative of this.

While a full predictive analysis is beyond the scope of our project brief, we thought it important to include and examination of some key demographics. Finding reliable or consistent data for the golf industry is a challenge. Many relevant statistics are considered confidential by the clubs and thus not readily disclosed. Public and industry sources often have a great deal of variability. Many organizations, both public and private, track industry data. Among these, are the National Golf Foundation, the Professional Golfers Association, the Massachusetts Golf Association, the US Census,

Golf Nexus, Golf the Golf Course Superintendents Association, and many others. All of these sources track data but many only track data from their members, thus a consistent data source is difficult to ascertain.

There are a great many factors that can be used to estimate the demand for golf in any given area. These include the population, the income levels, and the areas rate of participation in game of golf. Nationally the rounds of golf played have remained consistent year over year. This is reflected in the stability of Millwood’s player base. Furthermore, New England has one of the highest household participation rates in the country.

For 2013 to 2014 the rounds of golf, nationally, have increased by 1%, however, the rounds of golf played by core players – those that played more than 8 rounds per season – have increased to 32 rounds. This is 2 rounds higher than 2005, the year that rounds of golf played peaked nationally.



This is important to understanding the market forces operating on the Millwood Farms golf course. While rounds may have been consistent, it is the enthusiastic player that has been supporting the game. Through player interviews and data provided by Millwood management, their players are largely loyal daily players or league players.

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This is evidenced by the numbers of rounds that are played for with “loyalty cards”, as well as, the number of golf league rounds played.

This presents a great benefit, as the players that are currently playing will likely continue to play this course. The strong league play also provides an opportunity to showcase the course to newer players and possible increase the amount of golfers attracted to the course.

That said, there is an inherent risk associated with loyal players. The first is that if the course quality were to decline, the players may shift their loyalty to another course. The second risk, reinforced by player interviews, is the uncertainty with the course. Many leagues are questioning if Millwood will continue to be a course or if it will be sold to developers. The current management has been making efforts via web and in person to reassure these golfers. In particular he has been stressing the course will remain open for at least the 2017 season, no matter the outcome of the sale. This is critical because losing a significant amount of league play will put the course budgets under pressure.

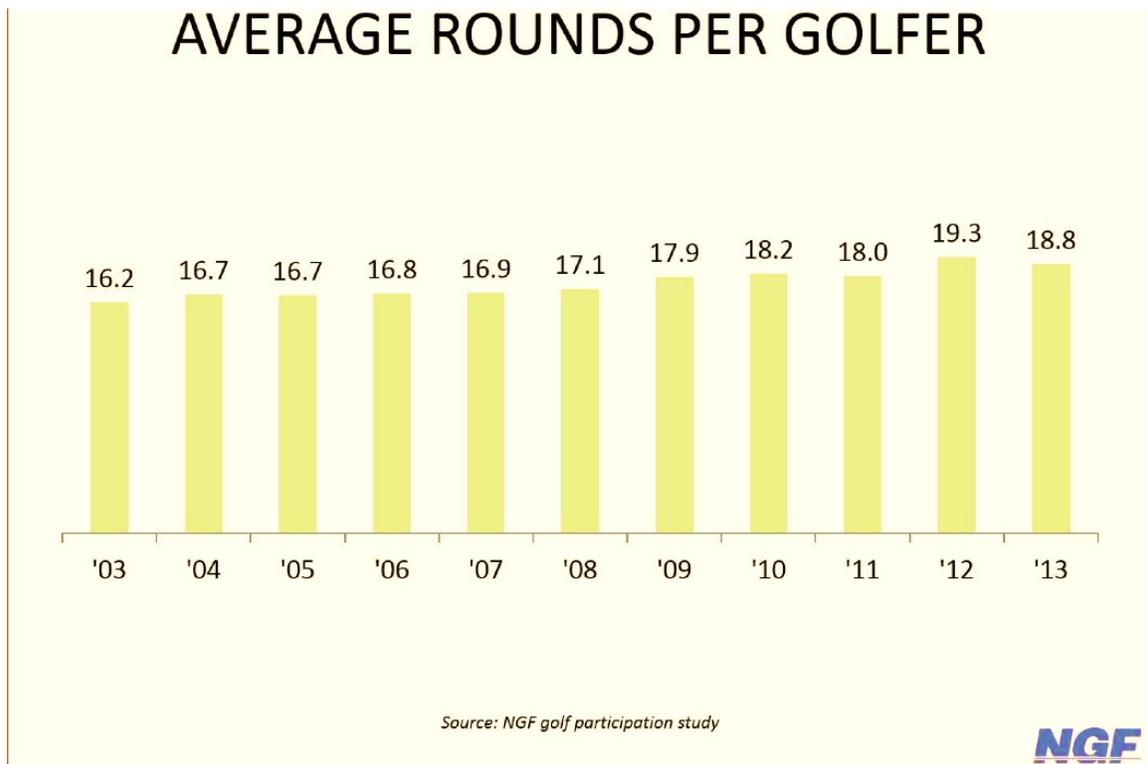
Another telling statistic from the national game is that, contrary to conventional wisdom; golf is receiving considerable support from younger players. While the number of new golfers from 2013-2014 has remained stable at 2 Million, more than 50% of those have been in the age 18-39 cohort.

The National Golf Foundation estimates that household participation in Massachusetts is about 12.7%. Estimates of participation rates vary, for discussion purposes a range of 11 to 13% is appropriate. Also, average rounds played is also fluctuates. The primary driver for this is climatic. This is a concern for courses in New England where weather can increase or decrease the length of a season. A conservative range would be to expect rounds of play within a 10% margin. Another factor to be considered is distance. Most golfers have no need to venture far from home. The density of courses within Massachusetts reinforces this. According to NGF surveys most golfers will play within 5 miles of their hometown.

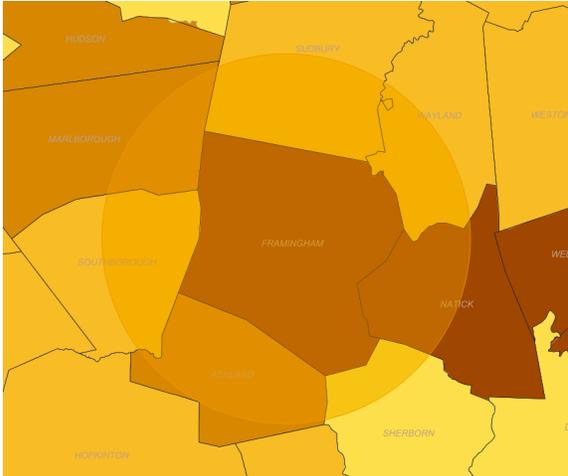
Percentage of golfers	Distance
10-15%	In Town
40-60%	Within 5 miles
30-35%	5-10 miles
10-20%	Greater than 10 miles

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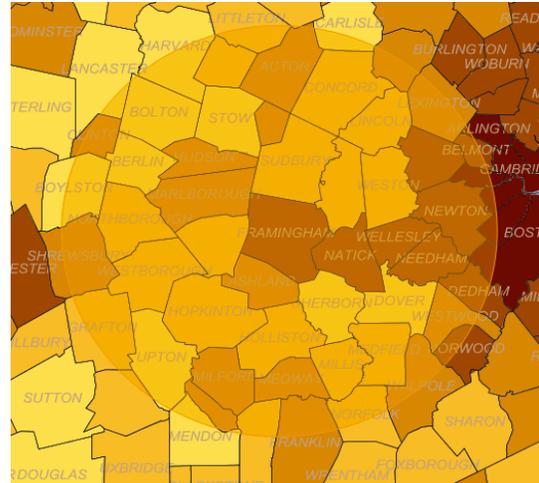
According to the 2010 Census, Framingham has a population of 68,318. This represents an increase of 1408 over the 2000 census, representing a 2.1% increase. This is 0.15% below the median growth of the top 20 most populous cities in the census. These figures represent a potential pool of 8,697 golfers within the town. Of the new arrivals to the town over the last 10 years, there is a potential of 178 newly arrived golfers. Not every potential golfer will play Millwood Farms, nor will they play multiple rounds per season. According to NGF in 2013 the average number of rounds played per player was 18.8. This yielded a *potential* pool of rounds played within the Framingham area of 163,503. Millwood Farms is capturing approximately 15.3% of the *potential* rounds in Framingham.



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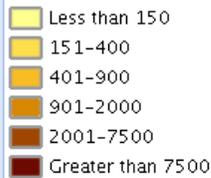


Population density 5 Mile Radius of Framingham

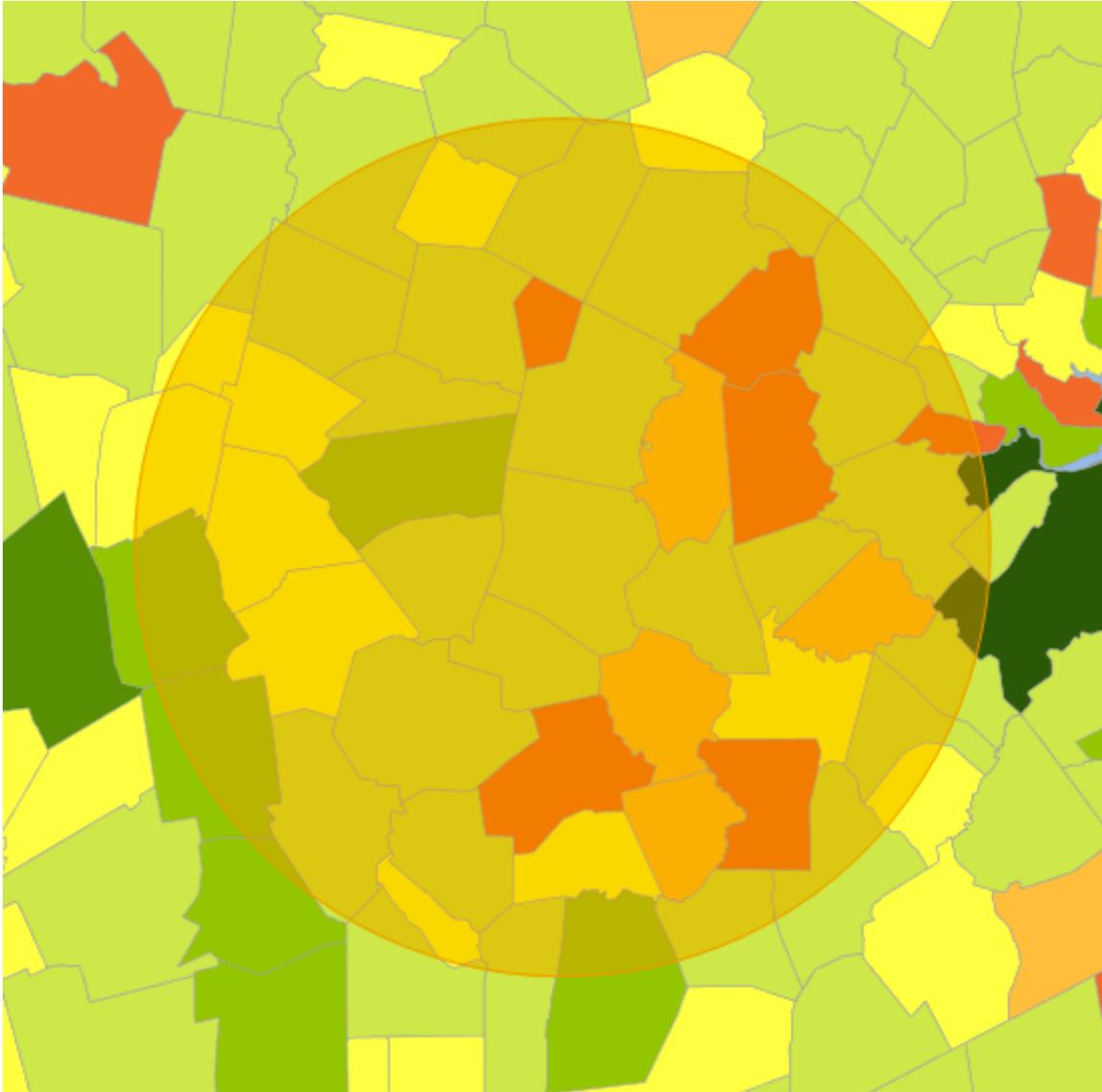


Population density 15 Mile Radius of Framingham

Census 2010 Population Per Sq. Mile

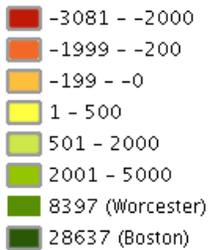


As the above images, generated from the Mass GIS system, demonstrate. Framingham and the areas immediately to the west have the highest population density in the 15 mile radius. Framingham is well positioned geographically to continue to draw golfers from the west and to a lesser extent from the south.



Population Change 10 mile Radius

Census 2010 Population Change 2000-2010



The above graphic details the population change in the 10 mile radius surrounding Framingham. Note that the radius identifier casts a yellow hue over the lighter green areas. This map shows that the population of the area has grown steadily with most of

## Section 6: Proof Points

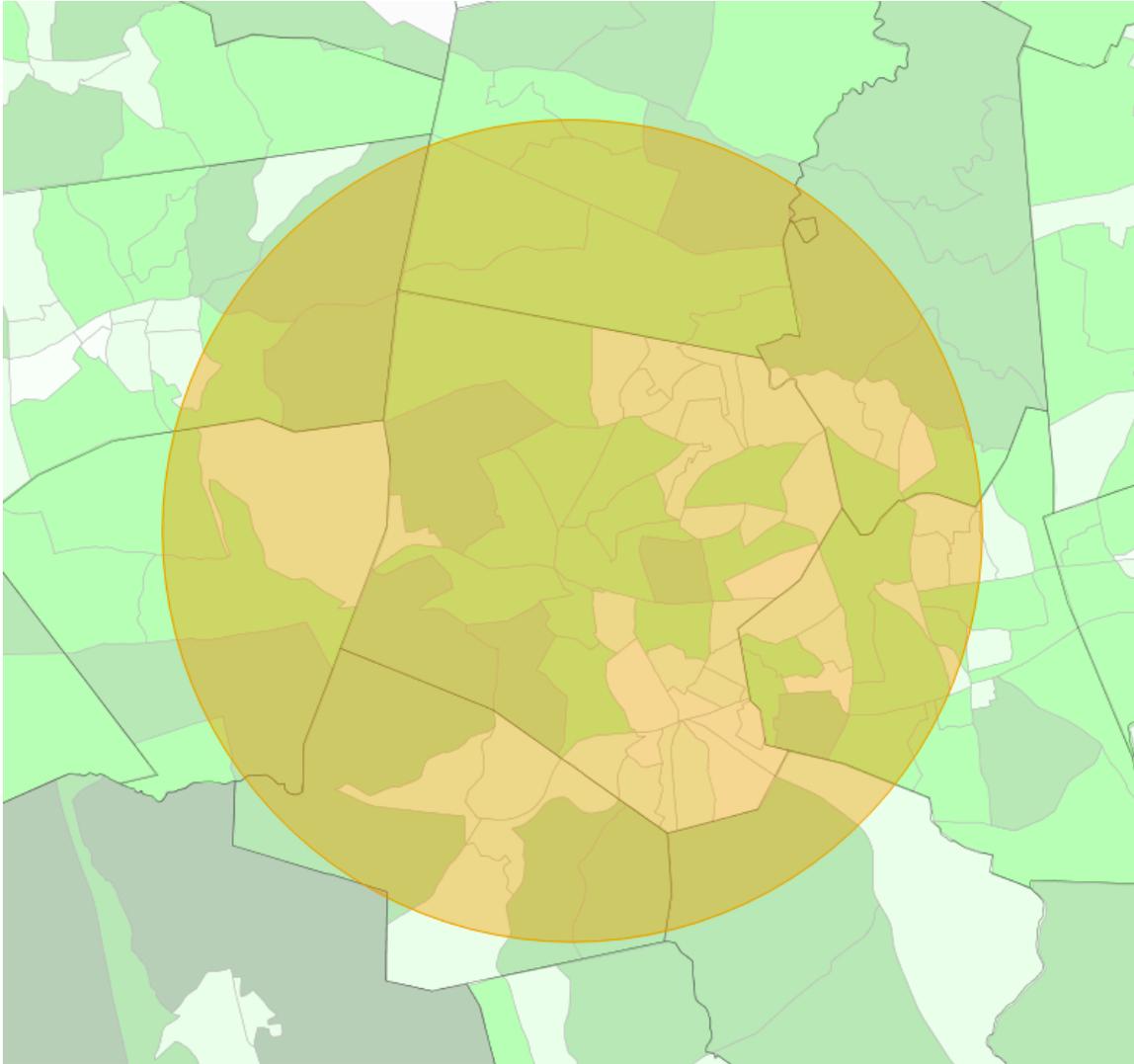
the towns showing an increase of 500-2000 persons. While there has been some population loss to the north and south of the target area, overall the change has been positive. Naturally, an expanding population base increases the pool of potential golfers.

While golf appeals to persons with a broad range of incomes, it still suffers from a stigma of it as sport of the affluent. At least a third of all golfers earn under \$50,000. Two thirds earn greater than \$50,000. Income must be considered when assessing the demand for golf. The chart below, using year 2000 census data, shows rates of play.

### HOUSEHOLD INCOME COMPARED

<u>Household Income</u>	<u>Percent of Golfer Households</u>	<u>Percent of Massachusetts Households</u>
Less than \$15,000	4%	15%
\$15,000-\$24,999	7%	10%
\$25,000-\$34,999	8%	12%
\$35,000-\$49,999	19%	18%
\$50,000-\$74,999	24%	22%
\$75,000-\$99,999	18%	11%
\$100,000 and Over	19%	12%
<b>Total</b>	100%	100%

Source: National Golf Foundation and the US Bureau of the Census.



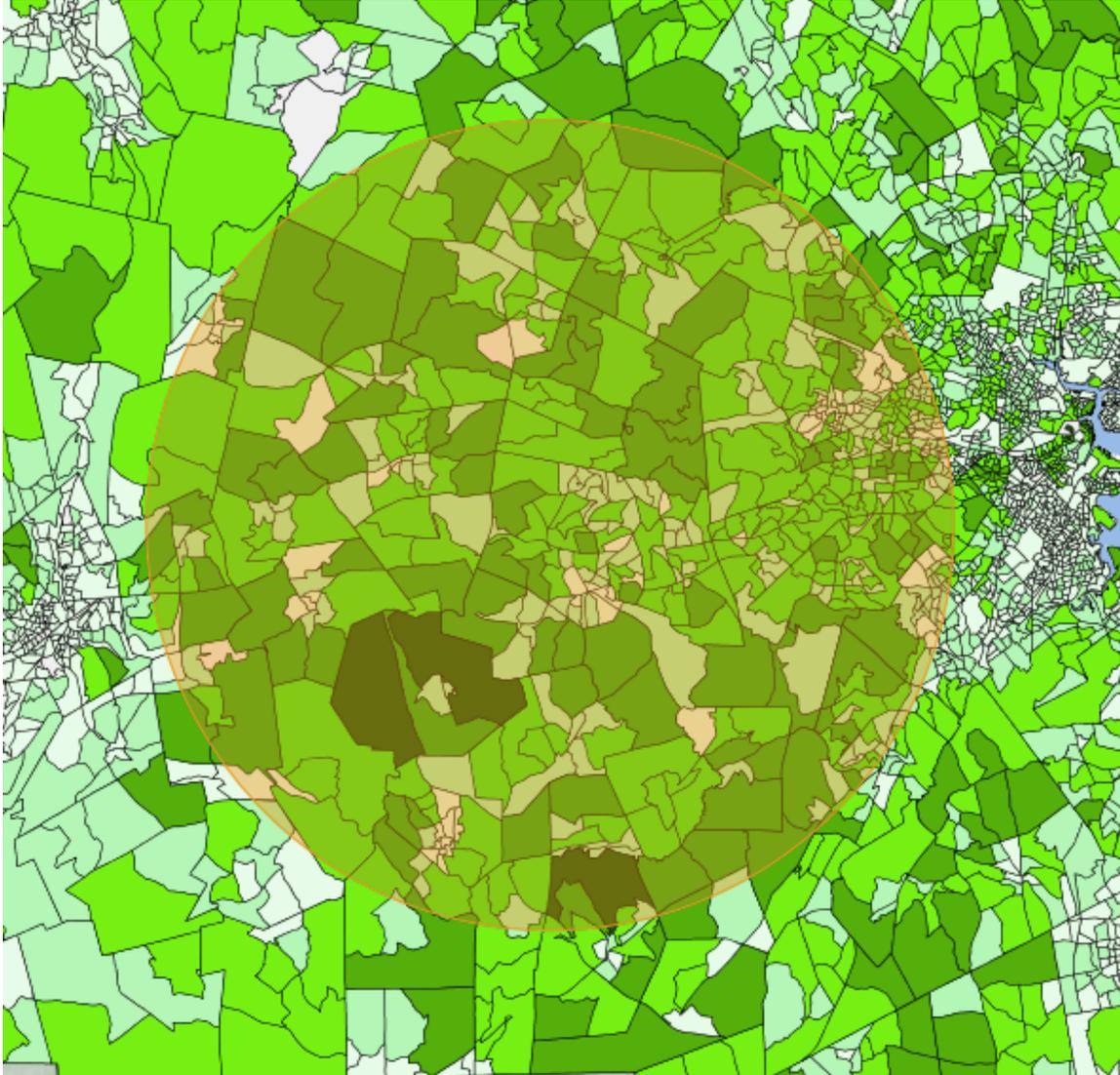
Number of household earning more than \$75,000 within a 5-mile radius of Framingham.

**Census 2000 Households Earning More than 75,000 Dollars**

-  None Present
-  1 to 100 households
-  101 to 200 households
-  201 to 400 households
-  401 to 800 households
-  More than 800 households

Looking at income distribution map. We can see that a significant proportion of the population lies within the \$75,000 household income strata. This bodes well for

maintaining or increasing the rounds of play at Millwood Farms golf club. When we expand the area of investigation out to 15 miles, the favorable trend continues. Note that the data, population, income, and participation rates, is based upon the year 2000 census. Graphical representations of 2010 census data are not yet available on public sites. The year 2000 data is qualitatively representative as the area has grown in population and household income. However, this is a weakness in the data and should be considered.



Household income greater than \$75,000, 15-mile radius from Framingham

In conclusion, it appears that the current demographics are in place to support the existing rounds of play at Millwood Farms. The population in the market area is increasing. The income levels appear to be sufficient to support a health base of players. A generally aging population is seen as good for the short-term growth of golf as retirees have more time for golf. In addition golf is considered a “lifetime” sport so it

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as attractive as both a physical and social pursuit. The fact that “core” or dedicated golfers produce the most rounds played also favors growth with an aging demographic. The longer-term future is buoyed by growth in young adult and middle-aged players. Time constraints on this demographic favor local courses and shorter length courses, both of which are in Millwood Farms favor.



### Comparison of other municipal courses

In 2013 The Metropolitan Area Planning Commission (MAPC) interviewed several municipal golf course managers as part of a study pursuant to the purchase, in 2012, of the Maynard Country Club, by the town of Maynard. Through this process they concluded that the town was best served by continuing to operate the course.

Unlike the other towns queried by MAPC, Maynard choose outsource the management.

At this time Maynard has contracted with Sterling Golf Management to run the course. The contract, running through 2014, provided for an annual fee of \$50,000 payable to the town. The management company is responsible for all maintenance and any repair costs under \$2,500. The contract has subsequently been renewed in 2015.

The new contract provides for a minimum payment to the town of \$40,000. Sterling will provide all maintenance equipment; formerly the town supplied much of the equipment. Above set minimums, which were reduced from the previous contract, the town receives 15% from golf operations and 7.5 % from food and beverage sales.

As reported by the course superintendent, Patrick VanVleck, Maynard experienced a combined 35% rise in rounds played over the last two years

Below is the summary of other golf courses interviewed as part of the MAPC process.

### Review of 9-hole Municipal Golf Courses

As the Town of Framingham decides if Millwood Golf Course is a wise and profitable investment for the town, it is important to look into other towns that have taken on a similar investment and what the results have been for them

Although every town and golf course is unique, reviewing nearby towns and similar municipal golf courses allows some insight into the success, issues, and possible failure of like situations.

This review of 2 other towns and their choices will hopefully help the Town of Framingham in choosing whether or not to purchase the golf course and if so, some of the options going forward in managing the property.

**Maynard Golf Course Maynard, MA**

Maynard Country Club was a 9-hole member owned semi-private club that was established in 1921. The nearly 62 acres was purchased by the Town of Maynard in 2012 for \$2 million. It was made public and renamed the Maynard Golf Course and is currently run by Sterling Golf Management, Inc.

When the town first purchased the golf course they entered into a 3 year contract with Sterling Golf Management to manage the course as a town municipal golf course. During those 3 years a committee was tasked with researching the best use for the land going forward.

The committee assembled was called the Maynard Golf Course Re-Use Committee. This committee gathered input from the community, researched the possibility of maintaining the golf course as is, as well as alternative uses that met the rules of the Community Preservation Act which the town had received much funding from in order to purchase the land. They were looking to put together possible uses that were both economically feasible as well as met the needs and wants of the community. The committee put together 4 possible scenarios.

**The first scenario** was to continue and extend their short term plans of maintaining the golf course as a town municipal 9-hole course run by Sterling Golf Management. Over the 3-year short term plan the committee found the golf course to be providing revenue for the town while still allowing additional money towards improvements on the golf course and facilities. It allowed for natural woodland areas to be preserved as green space and during winter months the residents could use the space for skiing and sledding.

Some concerns with this possible scenario were that Sterling Golf or any other golf management company may not sign another contract to maintain the course, the potential of any future management company going under, and that a golf course limits the number of people that use the land. Possibly using the land for a wider variety of activities would open use of the land to more residents.

**The second scenario** is very similar to the first but with additional non-golf uses for the land. The golf course would continue to be operated as a 9-hole course but allow for activities such as early morning walks and runs, making the last tee time earlier to allow for more residents to freely walk the course in the evening, and to also continue allowing for current winter activities to continue. In addition there would be a few special days set aside for golf and/or non-golf town activities to take place on the course. These would be scheduled in advance allowing for regular golfers to plan accordingly and encouraging more of the residents to take part. Activities can range from free golf for residents for

a day to larger scale town events. Concerns with this scenario were that limiting the time and days of golf is potentially concerning for a golf management company as the additional non-golf activities may bring in little to no revenue. Large town events would also require much planning and stretch the town resources and cause traffic and parking issues.

**The third scenario** was to continue operations of the golf course by redesigning a couple holes for non-golf use. By shifting two of the holes it would allow for more open space to be used for non-golf uses. This would be costly to do but has potential to bring in addition revenue and give the town residents more green space to use. Town outdoor events, weddings, and possible community garden areas are just some of the possibilities for this extra space. In addition to the cost of this project another concern is that regular golfers would not want changes to a golf course and that the construction would disrupt regular play both of which may decrease revenue.

**The fourth and final scenario** was recommended in the event that the golf course was no longer a feasible possibility. This scenario involves no longer using the land for golf but instead as green space, parks, and possible four-season recreational space. They proposed both low use and high use scenarios. Low use scenarios being; walking/running trails, picnic areas, staging and seating for concerts, a disc golf course, and playground. High use being ideas that would take considerably more cost to implement, larger modifications to the land, and require more inputs going forward. Ideas such as athletic fields, pool, recreation facility, camping sites, and driving range would be considered high input.

In the end the committee recommended that the town continue maintaining Maynard Golf Course as a public 9-hole course managed by Sterling Golf Management, Inc. They recommend using many of their suggestions that would allow more residents to have access to the land and to continue evaluating possible improvements to the course and future uses for the land. As part of the contract with Sterling Golf the Town of Maynard pays them to manage the course and they are responsible for repairs and upkeep of capital under a set amount and major repairs are to be paid for by the town. In return the Town of Maynard is guaranteed a set minimum paid to the town that depending on revenue from golf could be more. The Town of Maynard also pays the Town of Acton a tax, as part of the golf course is in Acton. Maynard Golf Course continues to be run by Sterling Golf Management, has special reduced golf fees for residents, and has also hosted special events such as town appreciation day.

#### **Sassamon Trace Golf Course Natick, MA**

Sassamon Trace Golf Course is a 9-hole municipal course in Natick, MA. It was built on a former landfill and opened in the fall of 2001. In the late 1990's the town needed to cap the landfill and decide what to do with the land. The town

looked into simply leaving the land to grow over, turning it into athletic fields, and building a golf course. The golf course was approved, the landfill was capped, and the course was constructed. The plan was to repay the cost of capping and building the course using the revenue produced by the course. In the end the project went over budget and that, with the additional cost of leasing part of the land from the neighboring Town of Sherborn and hiring Sterling Golf Management to operate the facility and manage the course, Sassamon Trace was costing the town more than it was making. The contract with Sterling Golf was to maintain and operate the golf course. The Town of Natick would pay Sterling Golf a set amount that increased at a set percent each year and in turn the town would receive greens fees, cart fees, and membership income.

Over time the town became unhappy with the performance of Sterling Golf and when their contract was up, the town began taking bids. Each time the contract ended and the town took bids and each time they either received no other bids or Sterling Golf far out bided their competition. Over many years of taking bids from outside management companies the Town of Natick decided to take their golf course maintenance and operations in-house. Since doing so the Town of Natick has reported an increase in revenue, rounds played, and an improvement in overall quality of the golf course. There has also been discussion of the town investing additional money for a driving range/practice facility. The Supporters of Sassamon Trace, a group that began in 2004 and does fundraisers for the course, is currently working towards raising money for an irrigation system and well to be installed.

	<b>Agawam</b>	<b>Braintree</b>	<b>Brookline (Robert T. Lynch)</b>	<b>Cambridge - Fresh Pond</b>	<b>Peabody - The Meadow</b>
Contact	Tony Roberto	Daryn Brown	Michael Murphy	Robert Carey	Peter Cronan
Number	413 786-2194	781 843-6513 Ext. 5 781 589-5433 cell	617 739-7693 617 879-5684	617 349-6282	978 532-9390
e-mail	<a href="mailto:troberto@agawamgc.com">troberto@agawamgc.com</a>	<a href="mailto:dbrown@braintreema.gov">dbrown@braintreema.gov</a>	<a href="mailto:mimurphy@brooklinema.gov">mimurphy@brooklinema.gov</a>	<a href="mailto:rcarey5858@comcast.net">rcarey5858@comcast.net</a>	<a href="mailto:peter.cronan@comcast.net">peter.cronan@comcast.net</a>
Acreage	Couple of hundred acres.	165 but a lot of water/woods	130	54 acres and 15 of that is environmentally sensitive.	259
9 or 18	18	18	18	9	18
Par for the course	71	72	71		71
Facilities?		Pro shop, Fairway Café	Pro shop, Vine Ripe Grill	Pro shop	Club house, Grille
Who manages?	Town	Town	Under the recreation department	There is a dedicated superintendent and a crew.	City of Peabody

		<b>Agawam</b>	<b>Braintree</b>	<b>Brookline (Robert T. Lynch)</b>	<b>Cambridge - Fresh Pond</b>	<b>Peabody - The Meadow</b>
Why not use a management company?		He has worked for four management companies. You're paying a management fee. Better to eliminate the middleman.	Town bought in 1955. In-house mgt. since then. 6 full time employees who are union. If losing money might look for outside mgt. Part of DPW but personnel are dedicated to the golf course. Sometimes lend them out. Not interchangeable since a plow driver not the same as a fairway mower. They do use seasonal college kids. In the 80's many municipal golf courses were privatized but reversing that trend now. Towns that had mgt. companies lost control. Also found it was hard to put together bids on intangibles like dense grass.	Flip flopped a few times. Town had been running it and then had union issues so they leased it out to a few companies. But then realized that the \$money wasn't going to the town so they went back to running it in- house in 2005.	Golf course has been municipal since 1932.	Mayor at the time wanted to have complete control. Johnson Management was running a course in a nearby community and having lots of problems.
<b>Restaurant</b>						
Privately run or municipal?		Club house, restaurant. They had been running the restaurant but will be leasing in the future. They have an RFP out right now soliciting bids.	They are going out to bid for an operator of the snack bar.	Bid out as a concession.	There is a small concession that is bid out.	Run by the city

		<b>Agawam</b>	<b>Braintree</b>	<b>Brookline (Robert T. Lynch)</b>	<b>Cambridge - Fresh Pond</b>	<b>Peabody - The Meadow</b>
Who maintains?		Town - Maintenance is done by 4 DPW employees but they only work on the golf course. Also 4-6 seasonal college kids.		There are seasonal employees who work just at the golf course. Maintenance is under the Recreation Department.		There is a mechanic and a grounds crew that are dedicated to the golf course. They occasionally have the tree department do some work for them or might lend equipment to the parks dept. for recreational field work.
Enterprise or general fund?		Enterprise fund. DOR monitors budgets for enterprise funds.	Enterprise fund is the only way to go. Have had one since 1986. State allows an administrative fee of 4-9% of revenue as an administrative fee to town for admin. Related to payroll, etc. \$50,000 goes to town. Price structure has to be in line with the quality of the course.	Enterprise fund.	General fund. The budget is under the Human Services Dept.	Enterprise fund. The money the course makes stays with the course.

	Agawam	Braintree	Brookline (Robert T. Lynch)	Cambridge - Fresh Pond	Peabody - The Meadow
Recent profit/loss history?	Great year this year.	Past few years have been lean. Break even right now but enough money to do maintenance. We have \$160,000 in rainy day fund. Late 80/s/90s the economy was good but the course was not in great shape because their manager not the best. Town did a search and brought in someone from the outside. In a good year they made (??) \$1.4 million.	Golf is cyclical. There has been an increase in play in the last 1.5 years. Location is a factor; Brookline is close to major population centers. It's generally a break-even proposition. They have approx. \$255,000 cushion in a rainy day fund. Last year they had a "surplus" but the year before they were short \$15,000.	Not a big money maker. They put back most profit into the course. It's primarily break-even or a 10% profit. Revenues are about \$760,000 annually.	The business is very much weather-related but they grossed \$1.5 million last year.
Length of lease?	NA	NA	NA		NA
Fixed fee or percentage?	NA	NA	NA		NA
What is fixed fee/percentage?	NA	NA	NA		NA
What is municipality liable for?	Everything. They do have a policy just for the golf course.	Everything.	Everything.		NA

		Agawam	Braintree	Brookline (Robert T. Lynch)	Cambridge - Fresh Pond	Peabody - The Meadow
IPM? Audubon certification?		Could become Audubon Certified if they re-applied. Had started the process under former superintendent but never completed.	Started to apply but didn't follow through. The program has a lot of requirements and takes a couple of years to get certification. They purchased 80 bat houses.	They do practice IPM. Not Audubon certified. It is worth it if you can do it but there are a few issues on the course that would preclude it for now.	IPM and Audubon certified.	No. Looked into it a few years ago because some local women who walked the course thought it would be a good idea but haven't moved forward with it.
Water source?		They buy water from the town. Water bill is high.	On-site irrigation ponds.	Town wells.	Little Brook nearby.	They buy water from a local business (Russello) who has 5-6 million gallon water rights and because of economy, aren't using it all. Happy to sell their excess.
Abutter conflicts?		None because golf course is large enough that there aren't close residential abutters.	The closest abutters are at the 1st and 2nd hole and parts of the 17th hole. They have had a few broken windows and balls in the yard. Some residents cut down trees for a better view but opened up their yards to more damage. 1/2 abutters are golfers. The abutters to the parking lot complained about noise (early AM deliveries of fertilizer). They close the parking lot with gates during off hours. They do not put up netting. They have had some requests but no one wants to look at nets. They have also planted some trees. Sometimes it becomes a question of Neighbor A wants one solution but Neighbor D does not. Town Counsel ruling that the golf	Most residential is 75 yards across a 4 lane highway from them. Nearest residential is near the 1st hole. We try to keep the noise of mowing down.	Mostly over noise. They now have electric mowers and start mowing between 7-8 AM. Minimal problems with windows. They do have some netting up.	They are off of Granite Street which is residential. No major conflicts. They have netting on one side of the 2nd hole because that's the only location where golf balls are a potential hazard.

		<b>Agawam</b>	<b>Braintree</b>	<b>Brookline (Robert T. Lynch)</b>	<b>Cambridge - Fresh Pond</b>	<b>Peabody - The Meadow</b>
Injuries to golfers/non-golfers?		No	Some deaths (heart attacks), broken ankle.		Minimal.	A few incidents.
Damages to the course?		No. Is close to the police station.	Have had some problems. The problem with kids is cyclical. Occasional drinking but someone always picks up the cans they leave.			Right now not a problem. They have had some problems with kids primarily damaging signs which is minor compared to damaging greens. Mostly kids who party in nearby woods and then come on to the golf course.
Broken windows?		No				
Lawsuits?		No	No lawsuits. Towns have limited liability. No specific insurance policy for the golf course; covered under general liability.		None. No specific policy; just the general liability.	None. They don't have a separate liability policy for the course. There is a disclaimer printed on every ticket that covers the bases.
Does high school golf team use?		Yes	Public schools for free and private schools for a fee.		Yes; Rindge and Latin.	Peabody HS, Bishop Fenwick and Danvers/Saugus also use it.

		Agawam	Braintree	Brookline (Robert T. Lynch)	Cambridge - Fresh Pond	Peabody - The Meadow
Reduced fees for residents?		No; one rate only but frequent specials (for all).	There is a resident and non-resident fee.		Resident and non-resident rates	Yes. Majority of users come from out of the city; about a 60/40 split. They don't do memberships but some do because you get a chunk of money upfront.
Course rentals for charity?		Yes			Has to be a Cambridge charity. Less than 7 events per year.	Yes. They have approx. 15 fundraisers per year. They try to schedule them on Monday mornings which is traditionally a slow time for golf. Some municipalities donate the course.
Annual festivals/events (non-golf)?		No	The Mayor is a big recreation guy. They hold an annual haunted hay ride and sell approx. 700 tickets. It's run as a break-even event and run out of a separate hay ride account.			
Winter uses		None. They put up snow fences for the winter. No other uses allowed except walking. Skiing and sledding damage the tees and greens and the quality of the playing surface is what keeps people coming back to play.	Sledding happens near the 18th hole. It's not authorized but it is permitted. Part of the driving range floods - tried to develop a skating rink. Working on bull dozing to level it and putting in lights and creating a 150 by 100 foot rink. Two years ago they bought a snowmobile to tow a groomer and they are now looking for a groomer for x-c trails. There is no harm from x-c skiing and if you groom trails people will ski where you want them to. Walking in winter is fine.		No limitations - when there is snow on the ground they can ski, sled, walk. No snow fencing.	We are a public facility so we try to accommodate other uses. Sledding and cross-country skiing allowed but not promoted. It is used primarily off season by dog walkers. Dog waste is a bit of a problem. No use of ponds.

		<b>Agawam</b>	<b>Braintree</b>	<b>Brookline (Robert T. Lynch)</b>	<b>Cambridge - Fresh Pond</b>	<b>Peabody - The Meadow</b>
Non-winter uses			The Mayor wanted him to find a fishing spot but on the course fishing takes attention away from awareness of balls. There is one pond that is kind of out of the way so he cleared some trees, might add a dock next year. Pond has a lot of fish. Parking is in a nearby ind. park. The Mayor loves the idea of having it open to other recreational uses for non-golfers. The golf course used to be under Parks & Rec. so there is still a recreational focus. Early AM walking not OK; they open at 5:00 AM so people can play before work. Late in the evening or dusk is fine.		Nothing but golfing	They have a group of walkers who walk in the morning. They will ask the course which side (which 9) they are starting from that morning so that they don't conflict with players. The course switches which holes they start leagues on for variety.
Parking		Adequate parking.	Adequate unless there is a big event.		Inadequate parking is our #1 issue.	Approximately 215 spaces. Just enough. If event and regular golfing, sometimes need to park on the road but not a problem with neighbors

Section 6: Proof Points

	Agawam	Braintree	Brookline (Robert T. Lynch)	Cambridge - Fresh Pond	Peabody - The Meadow
Other comments	There are 11 golf courses within 10 minutes. CT people come to play because of the price.	Night golf, special needs program, town employee cards for \$10.00 with restricted hours. Town bought a border collie for geese control. They have 15 water holes and at this time of year they have approximately 500-600 geese per night. They don't sell memberships but something called a seasonal permit. Just a different name but makes it easier to revoke a permit than take away a membership. They have had to do this a few times when a permit holder has been abusive to staff or exhibiting other bad behavior. They have 5 special needs events per year and they donate the golf course for free to a Special Needs fundraising group and the Braintree Athletic Assoc.			No use of ponds. The Meadow used to be a skating area but overgrown now. There used to be a group of municipally owned golf courses that met together yearly but not recently.
	MAPC also received the following information from Department Manager at MAPC who was previously the Town Manager in North Reading: North Reading purchased the 18-hole Hillview Country Club, and set up separate leases to a golf course manager to run the course and another lessee to run the function facility. The town set this up as an Enterprise Fund under the jurisdiction of the Golf Course Commission (which is appointed by the Board of Selectmen). The facility operated efficiently and eventually had all repairs completed and built up a cushion for long-term maintenance. In order to address issues of the need for other recreational uses, the Commission bonded for the purchase of a 20+ acre farm along the river for conversion into recreational lands. The commission completed the improvements and ran that facility as well, using the surplus operating revenues from the golf course. Now, more than 20 years later, the Commission has also reached an agreement to make improvements to the school recreation fields.				

Source: Maynard Golf Course Reuse Report

## Alternative Uses

Alternative Uses for Millwood Golf Club

1. Cross Country Skiing/Snow Shoeing	December-March (snow dependent)
2. Sledding/Tubing	December-March (snow dependent)
3. Foot Golf	Golf Off Season
4. Disc Golf	Year Round
5. Nature Walks/Tree Tours	Year Round
6. After school/Vacation programs	Year Round
7. Indoor Virtual Golf	Year Round
8. Golf Boards	Year Round
9. Driving Range	Nearly Year Round

- 1. Cross Country Skiing/Snow Shoeing.** The open space of golf course rough areas as well as wooded areas, can lend themselves nicely to winter activities such as skiing and snow shoeing. Designated areas and or trails could be posted for friends and families of all ages to enjoy the outdoors and exercise during the golf off season as well as get outside for some fresh air during the winter months.
- 2. Sledding/Tubing.** Hilly fairways and rough areas are a great place for kids and adults alike to enjoy a snow day or weekend of snowy weather outdoors. There is potential for a concession stand and/or the restaurant to be open for use during this time as well. A simple carpet lift could generate revenue.
- 3. Foot Golf.** This is a sport played similar to golf but the players use their feet to kick a number 5 size soccer ball into a 21-inch hole. This would involve the full use of the actual golf course as well as cutting 21-inch cups. Foot golf can be played by people of all ages at any time in the golf off season. Similar to golf it can be played by one person or by teams. Quail Ridge in Acton, MA has a successful in-season foot-golf program.

- 4. Disc Golf.** This is a game that can be played year round depending on the weather. Disc golf is also similar to golf but involves throwing a disc (Frisbee) from a designated tee area towards the target or basket. The baskets can be permanently installed alongside the golf holes and/or through wooded areas as well. Similar to golf it can be played by one person or by teams.
- 5. Nature Walks/Tours.** Golf courses are great green spaces that can be used by the local people to go for walks, runs, and general outdoor enjoyment. Depending on the variety and available space of wooded areas, they can lend themselves nicely for walks/hikes or tours of native trees and plants. These areas also have potential for students at local schools, or groups such as the boy scouts/girl scouts that are learning about plants, insects, trees, and nature, to walk in native wooded areas to learn.
- 6. After school/Vacation Programs.** Golf courses are great places for after school and programs run during school and summer vacations. Kids of all ages can learn to play golf, (and potentially foot and disc golf), get exercise, take hikes and learn about the outdoors, as well as ski, sled, and snow shoe in winter months. The First Green Program provides a framework on towns/Supt's to host Field Trips/ Science Labs on the Golf course. [www.thefirstgreen.org](http://www.thefirstgreen.org)
- 7. Indoor Virtual Golf.** This would involve setting up an indoor virtual golf game. This would allow golfers to practice year round, rain or shine, day or night. It would also allow golf pros to give lessons to people of all ages regardless of the time of year or weather outside. This idea would involve an investment in the equipment needed and the indoor space to play.
- 8. Golf Boards.** These are electric stand up alternatives to traditional golf carts. They combine the feeling of surfing or skateboarding with a golf cart. They allow for faster play, access to a larger area of the course, less damage –and are fun. They appeal to a younger demographic but many course walkers enjoy them. Originated in 2014, they are spreading in popularity from the west coast.
- 9. Driving Range.** A driving is an attractive option. Many golfers will visit a range just to practice. This could drive new golfers to the course. It can be a significant revenue enhancer as it requires little maintenance and costs. Since it is easily closed it also could be an area for community gatherings and festivals. To install a driving range at Millwood Farms would require the taking of at least one of the longer holes and some construction including establishing a tee area and the installation of net barriers. A driving range could net approximately \$20,000 in revenue.

### Alternative uses partially compatible with golf

A great many alternative uses for the parcel that are not necessarily compatible with its operation as a golf course can be envisaged. Any alternatives, including developing homes on a portion of the site would require a more detailed analysis. Many potential uses present challenges to the ongoing operation as a golf course.

For instance, walking or nature trails can be incorporated into the course but it must be carefully considered. The inherent hazard of errant golf balls is a real concern. The Millwood site is a fairly tight course. There is not a lot of protected areas that would allow for the concurrent use.

This can be addressed by allowing such use out of the normal operating hours or season. Enhancing the ecological profile of the course through increased habitat and naturalized areas, can optimize this use. Pursuing certifications such as Audubon certified golf course or a Sustainable Sites designation will improve opportunities for wildlife viewing.

Other uses could include.

- Community Garden Space
- Ice Skating Pond, or constructed rink.
- Snow tubing with lift
- Cross country or snowmobile trails
- Outdoor community gathering/festival space
- Dog Park
- Fishing area
- Mountain Biking Trails

With careful consideration, these uses could be considered in addition to golf. This could be accomplished by limited course redesign or the addition of protective measures. Finally, such activities could be included either in off times or off season activities. The detrimental impact on the course must be considered. Many of these additional uses may result in higher maintenance costs.

### Activities not consistent with the current operation of the golf course.

One of the potential advantages of purchasing this parcel is that land itself has inherent value. The opportunity to reserve such a large parcel for open space, with or without golf, is a rare opportunity for any town. In addition, if it becomes desirable, the land could be repurposed for any number of beneficial municipal uses, including:

## Section 6: Proof Points

- Parkland
- Athletic fields
- Municipal buildings such as senior center, DPW, public safety, or schools
- Solar power facility
- Low income housing or other residential development
- Commercial development.

One aspect that we have been asked to consider is the sectioning off of a portion of the course for housing. This could offset some of the purchase price. Real estate development is beyond our areas of expertise, but based on our cursory review, one area that could be portioned would be as detailed below:



Potential area for homes.

Partitioning this 15-acre parcel from the larger 63-acre parcel could be possible. This could allow for the construction of several homes with desirable “course side” locations. Some issues to consider would include the traffic impact, the accessibility of utilities, and the proximity of the irrigation pond.

Golf operations would need to be considered. The pond would need to be fenced off to mitigate its potential as an attractive nuisance. It would also be prudent to consider including a buffer around the pond to allow for future maintenance activities and the potential to expand the pond to maximize on site water storage. Errant golf balls are also a concern. Finally, the impacts of day-to-day operations would have to be

addressed. This would include noise from mowing, spraying operations, noise from players, and traffic.

Finally, removing some holes from play would likely have a detrimental impact on the courses budget. The course may need to adjust its fees downward to render it competitive with other 9-hole courses. Also the rounds of play could diminish due to the shortened course. League players may look elsewhere. This could result in a decrease of 10-20% of rounds played. The financial impact on the course would need to be balanced against the potential revenue from the development.

### Real Property On Site

There are several structures on site. These homes, if included with the sale, could be sold or redeveloped. This could be a source of offsetting funding for the courses acquisition.

The home attached to the clubhouse could present several opportunities. This building could be renovated to allow for expansion of the clubhouse. Expanding the clubhouse could allow for enhanced uses as a function facility. This could provide a source of revenue to the town.

Alternatively, the building could be renovated into a community recreation center that could provide meeting and activity space for community groups.

Finally, this could be retained as housing for the course superintendent. This is not an uncommon practice. Many courses, particularly private courses, provide housing for the Superintendent. This ensures that the superintendent is on site to deal with any crisis immediately. (Vandals, broken irrigation lines, storms, etc.). It also provides an incentive to attract and retain quality personnel. As a supplement to salary, a lower rate of pay could be offered.

Other funding sources, such a mixed use, golf/residential, are an option but they come with their own challenges. Changing the course from a 14 hole course to a 9 hole course could impact the number of rounds played and the ability of the course to generate revenue. It is possible that the buildings associated with the course could be sold to generate some revenue that could help offset the purchase price.

With the land at East Leigh Farms currently on the market for approximately \$134,000 per acre, the value of the 68 acres Millwood Golf Course would be approximately \$9,112,000. If a 15 acre section were partitioned it could be worth at least \$2,008,928.

## Section 6: Proof Points



The tax revenue is also an area that needs to be considered. If the course is sold to a developer, some past real estate taxes would be due to the town. If the site were to be developed, there could be potential real estate taxes available depending upon the value, type, and number of structures built. This, of course, would be offset by demand for town services and any off site economic activity that would be lost if the golf course closed.

Another aspect of sustainability is caring for and protecting the people who use, recreate, and work at the facility. There are several workers currently employed by the club. All of them have expressed an interest in continuing to care for the facility if given the opportunity. In addition to the workers, there are the abutters. These folks benefit from keeping the property “as is”. Their home values and aesthetics are improved. Allowing this parcel to be developed would increase traffic, noise, pollution, and demand for services. Finally, one needs to consider the impact on all of the citizens. Preserving a large area of open space benefits all citizens. This is enhanced by the opportunity for off season or other recreational or municipal use that such a large area provides.

## Field Testing

### Overview

Testing or Assessment forms the basis for developing an informed and actionable set of recommendations designed to improve what currently exists , or in many cases, is used to help establish a baseline level of quality from which a management plan can be designed.

Without a thorough understanding of the present state of affairs, any preventative or corrective actions would be dubious. You cannot manage what you don't measure. The Greens at Millwood Golf Club have been thoroughly investigated via soil nutritional assays, soil physical component testing, and, we utilized the services of subject matter professionals to obtain detailed opinions. Furthermore, we employed the suite of analytical tools present in a Performance Quality Standards Assessment to enhance our understanding of the golf greens, teeing areas, fairways, and bunkers . All of the above allows data driven decision making to inform our recommendations.

### Soils Nutritional Status

The greens at Millwood Golf Club are in good health, although there is room for improvement to get them to optimal health. Once the greens are in optimal health they become more tolerable to stress and require less inputs. It can take several years to change soil chemistry but these soils have a moderate Total Exchange Capacity (T.E.C.) which means they can be changed quicker than a soil with a high T.E.C. The percent organic matter is around 3% which shows that proper amounts of aeration and top-dressing have been carried out over the years. Calcium levels are very low and magnesium and potassium are also slightly deficient. Correcting these deficiencies should be the top priority moving forward. Trace element levels are sufficient in the soil.



### **Total Exchange Capacity TEC**

Values range from 4-7% which is typical for greens that have been modified with sand over the years. This means that we have the ability to change soil chemistry relatively easily with bulk applications of nutrients.

**Percent Organic Matter**

Low, averaging around 3%. This is good for the health of the greens.

**Exchangeable Cations**

Calcium levels are very low and Magnesium and Potassium levels are slightly low.

**Base Saturation**

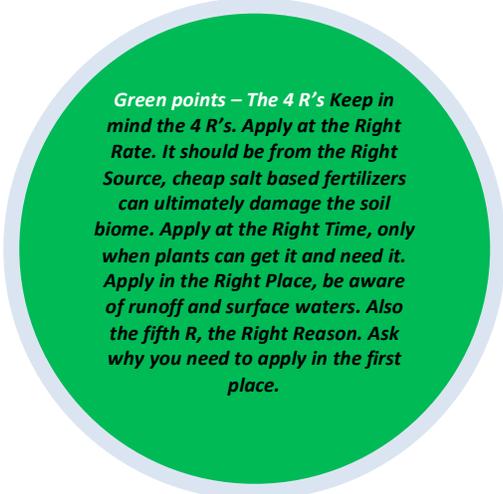
Ca and Mag are very low. Exchangeable Hydrogen Is very high. Hydrogen is easily displaced when Ca and Mg are introduced because Hydrogen is a weaker cation. This means that the soils would drain better and allow for better air movement if calcium and magnesium were added to displace the excessive hydrogen. Sodium is high in greens 3 and 5.

**Trace Elements**

Trace elements appear to be at sufficient levels in the soil.

**Recommendations**

Calcium and Magnesium should be added to displace Sodium in the soil, especially on greens 3 and 5. The best way to achieve this would be to rinse in Exchange (Calcium Sulfate) at 16 oz/ 1000 at least once per month. Followed with foliar applications of Cal-Vantage (4 different forms of calcium) at 4oz / 1000 every two weeks. Dolomitic Limestone should also be applied twice per season at 15 lbs/ 1000 to increase Calcium and Magnesium levels in the soil.



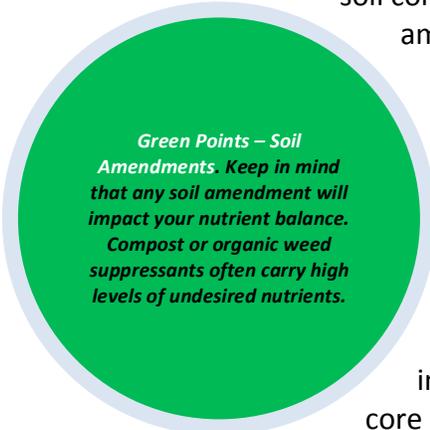
***Key Points –Soil Nutrition***

- 1) Deficient in Calcium and Magnesium.*
- 2) Sodium is high in a few greens and bears watching.*
- 3) A small amount of balanced micro nutrient may help*
- 4) Soil shows signs of low beneficial microbial activity*
- 5) High bicarbonate levels should be addressed and monitored*

## Soils Physical Conditions

### Soil Physical Properties Analysis

The ideal soil physical properties are a set of guidelines produced by the United States Golf Association (USGA). Unless a green is newly constructed to these particular guidelines, most greens in the United States do not meet the guidelines. In general, the soil composition of a green should be mostly sand with a limited amount of clay and silt. Gravel within the rootzone, should be under 2mm in size. A sandy soil will drain faster and will allow for better air and water movement through the roots one.



*Green Points – Soil Amendments. Keep in mind that any soil amendment will impact your nutrient balance. Compost or organic weed suppressants often carry high levels of undesired nutrients.*

The greens tested at Millwood were all relatively consistent in their soil physical properties. This is a good thing for consistency in management practices and for playing conditions. The greens averaged about 82% sand, 2.5% clay and 16% silt. These ratios are good and can continue to improve over time as 1mm-2mm sand is introduced following core aeration in the spring and fall. Core aeration will help prevent the establishment of an impermeable layer. Drainage testing indicates that some greens are developing such a layer. When looking at Millwood's greens compared to the USGA Guidelines; the greens meet the recommended specifications in 3 out of the 6 categories.

### ***Key Points –Soils Physical***

- 1) Soils are consistent with an older golf course.*
- 2) The soils met USGA standards in 3 of 6 categories*
- 3) The soils can be improved with periodic top dressing*
- 4) Aeration, particularly deep tine, can help with permeability and structure.*
- 5) Corrective action includes amendments that favor microorganisms and a program of sand topdressing.*

## Irrigation System Evaluation

### Millwood Golf Course

#### Objective

The purpose of this report is to assess the condition of the current components being used for watering the Millwood Golf Course.

#### Current Water Supply and Delivery

##### Wells

The irrigation water is supplied through a 50 gallon per minute well which feeds a storage pond. If the wells are unable to offset the irrigation demand the pond can be replenished with municipal water. The municipal water feeds the pond using the irrigation mainline on the 14<sup>th</sup> hole and requires using isolation valves to avoid contamination

##### Holding Pond

The wells feed an approximately 820,000-gallon irrigation holding pond. The pond has some plant material but is very clean.

##### Pump

The water from the pond is fed to the irrigation through a single 20 horsepower vertical turbine pump which lifts the water from the ponds and pressurize it into the irrigation system. The pump can deliver more than 200 gallons per minute. The pump is controlled through the irrigation controllers via a pump start relay. This requires an irrigation station to be running in order to develop pressure in the system. Almost all golf course pumping systems maintain constant pressure independent of the controllers. This allows greater flexibility in the scheduling and the use of manual quick coupling valves. One of the controllers was not able to initiate the pump start relay. This problem is being investigated.

##### Irrigation Control

The property is managed through 4 Network LTC controllers at 2 satellite locations. The controllers are not connected to central control software to manage pump efficiency.

##### Irrigation Coverage

The irrigation system includes automatic irrigation for the greens and tees only. The upper practice green is not irrigated automatically. This green requires using a rolling sprinkler connected to a quick coupling valve and is manually watered. The majority of the greens have 4 large turf rotors with valve- in-head control. There are 2 heads per station for the greens but they are connected to the controller with individual wires. Almost all of the rotors are Toro large turf rotors with a few Bear rotors mixed

in. Many of the rotors have cracked shells. While this is mostly an aesthetic problem now, the heads are cracked because they are not set slightly below grade and are hit by the mowers.

### **Mainline and Lateral Piping**

The piping throughout the property is reported to be PVC and at all visible points this was observed.

The swing joints, which allows the adjustment of the irrigation level to the surface, are a combination of metal and plastic. There are multiple mainline and lateral valves, which will help isolate a problem, but due to the age of the system some of the valves are no longer reliable. Many quick coupler valves were installed for fairway watering.



### System Assessment

The current condition of this system is fairly strong due to the ongoing conversion to modern rotors. It should be understood that expanding coverage so that the fairways are automatically watered would not be feasible unless an entirety new system was installed.

This is due to the following limitations:

- The well can provide a maximum of 75,000 gallons per day but drawing at that level will run the well dry. Reasonable expectations for the well would be about 150,000 gallons per week or about 25,000 gallons per day.
- The current draw for greens and tees is about 60,000 gallons per day during a hot stretch. Adding fairways would increase this to about 140,000 gallons per day.
- Providing 140,000 gallons per day would require the pump to operate 12 hours per day.

A larger pump station would create unsafe flow rates in the current mainline piping. These limitations dictate that simply expanding the system to water fairways would be bound for failure. In order to irrigate fairways automatically a new irrigation system would need to be designed and installed. The approximate cost of this project would be over \$1 million.

### Anticipated Issues and Recommendations

- The many cracked shells around the property will become increasingly problematic unless they are addressed. Converting from corroded metal swing joints to newer PVC swing joints, backfilling these areas with sand and installing the heads slightly below grade will be a worthwhile investment. The 25-30 problematic heads would require approximately \$250-350 in materials and 2 hours of labor each. (These issues are discussed in further detail on system review starting on page 4)
  - Hole 1: 1 cracked head on green
  - Hole 2: 1 leaking head on tee; 1 cracked on green
  - Hole 3: 1 cracked head on green
  - Hole 4: 1 cracked head on tee, 1 head cracked on green
  - Hole 5: 1 head cracked on green
  - Hole 6: Acceptable
  - Hole 7: 1 head cracked on tee, 1 head cracked on green
  - Hole 8: Acceptable
  - Hole 9: 2 heads cracked on green
  - Hole 10: 1 head cracked on green
  - Hole 11: 3 heads cracked on green
  - Hole 12: 1 head cracked on tee, 1 head cracked on green, 2 heads cracked in approach
  - Hole 13: 1 head cracked on tee
  - Hole 14: 2 heads cracked on green

The controllers are older style. An affordable central control platform for the commercial irrigation market would be a substantial improvement and require about \$8,000 in upfront cost. Upgrading the controller would provide the capacity to control each head individually

The pump is currently outside where it is constantly exposed to humidity which can deteriorate the electric motor. Consider a housing with a fan to protect the motor. The current pump start relay system matches the limited design of the system but does not allow the use of the quick coupler valves. Controlling the pump through a pressure transducer would help to resolve this.

Problematic gate valves should be replaced as the budget dictates. The best time to replace a valve is after the system winterization or before the spring startup.

### **Summary**

The system as a means of irrigating the greens and tees has the capability of being sufficient with some improvements. Beyond slight improvements the system will require expansion. Expanding the system will quickly reach the extent of its design and cause failures at an accelerated rate. This failure would likely show as mainline breaks at first.

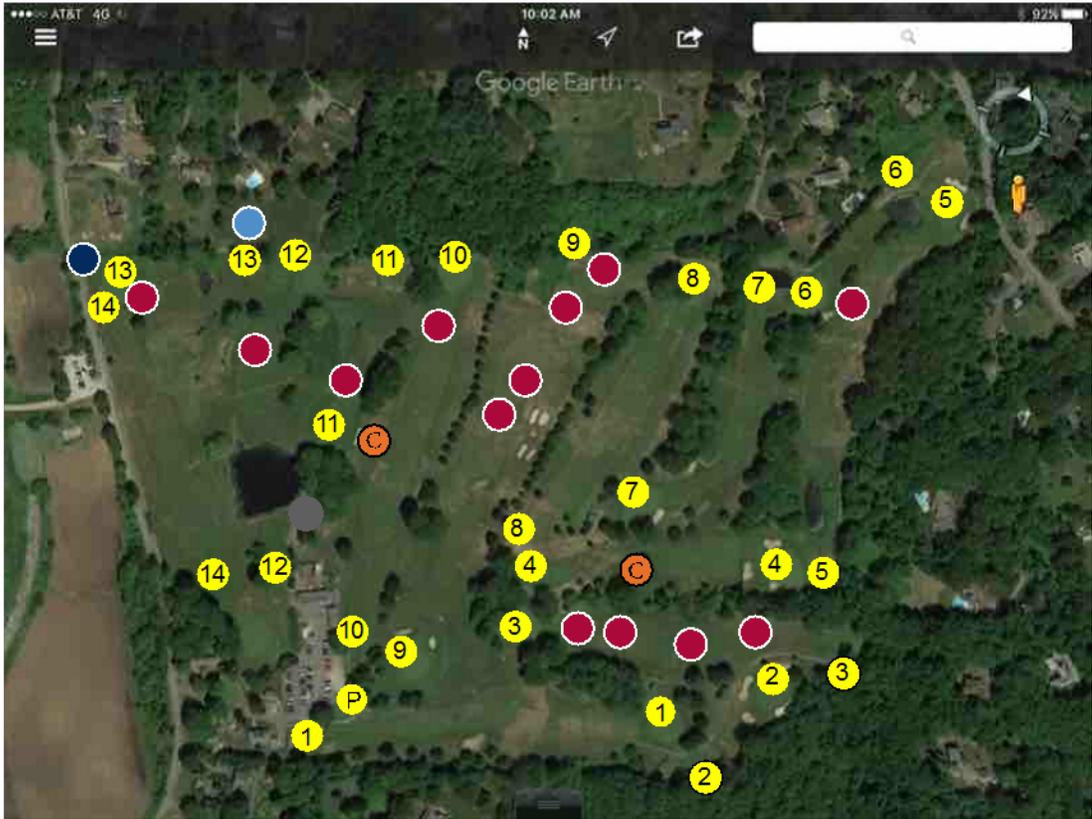


System Review - Jul 7 2016

Customer Name: Tom Irwin Advisors  
Contact Name: Ian Lacy  
Contact Phone #:

Site Name: Millwood Golf Course  
Auditor: Kyle McNerney

SITE PLAN WITH ZONE LOCATIONS:



- Well
- 2-inch Municipal Connection
- Quick Coupling Valve
- Irrigation Controller
- 20 HP Vertical Turbine Pump

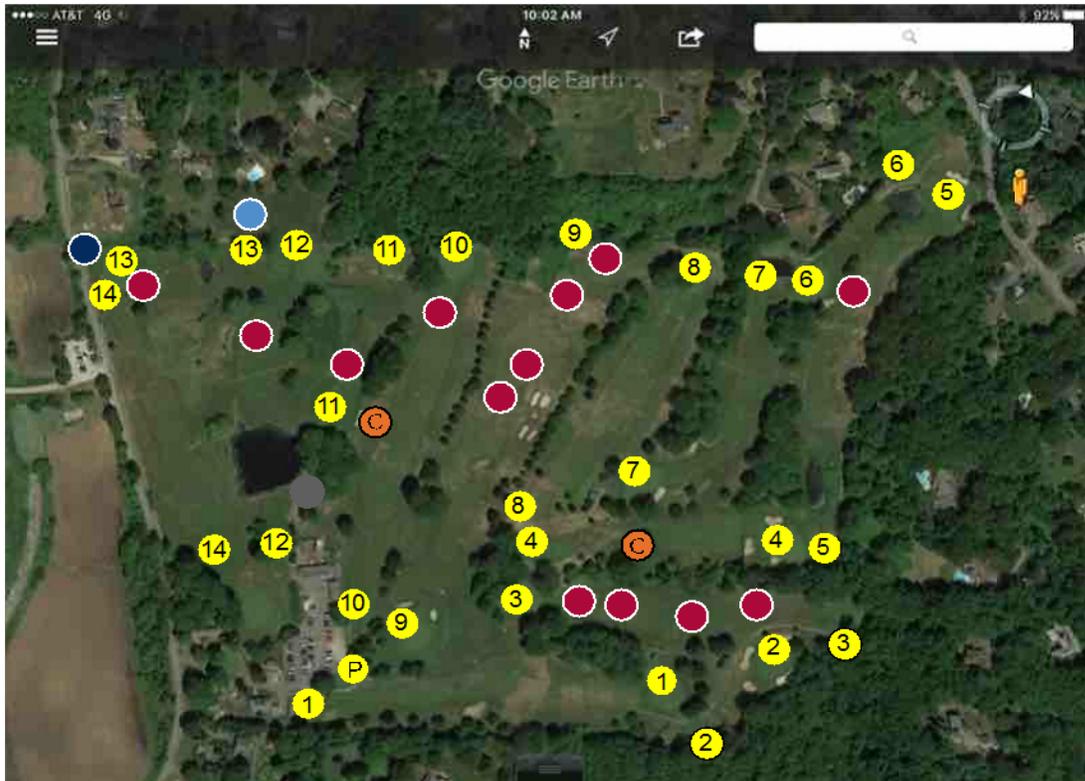


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**SITE PLAN WITH ZONE LOCATIONS:**



-  Well
-  2-inch Municipal Connection
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-  Irrigation Controller
-  20 HP Vertical Turbine Pump

**ZONE PHOTOS:**



**Zone #:** 1

**Comments:**

First tee irrigated off of residential irrigation system with Hunter PGP's



**Zone #:** P

**Comments:**

Practice Green adjacent to first tee. The area appears to be watered with a single 7 series Toro rotor.



**Zone #:** 1

**Comments:**

First green: three Toro 854 heads, one remaining older series with cracked housing in the back center.

## Section 6: Proof Points



**Zone #:** 8

**Comments:**

8th Rear tee irrigation is connected to fourth tee.  
Both heads are newer Toro 854.



**Zone #:** 8

**Comments:**

Eighth green-all four heads are newer series  
Toro 854.



**Zone #:** 9

**Comments:**

Ninth tee 4 heads total - middle 2 are older  
series Toro, front and back are newer series.

## Section 6: Proof Points



**Zone #:** 12

**Comments:**

12th green - 3 heads due to size. All heads are older series Toro rotors; back left head is severely damaged. Two heads in the approach. Both are seven series Toro rotors and both are damaged and should be replaced.



**Zone #:** 13

**Comments:**

13th tee - both heads on back level are seven series Toro rotors. Head towards left side should be level to grade. No irrigation identified for red level.



**Zone #:** 13

**Comments:**

13th green - front center and left side head are older series Toro rotors.



**Zone #:** 14

**Comments:**

14 tee - The rear portion of the tee relies on water from the 13th green which is not adequate. The two heads along the left side of the rear level are newer series Toro rotors. The one in the middle of the Tee should be leveled and the grade adjusted.



**Zone #:** 14

**Comments:**

14th green - all four heads are newer series toro rotors. The grade should be adjusted for both heads on the left-hand side to prevent further damage.

## Millwood Farms Golf Club- Water test interpretation

### Water pH (6.7)

Okay for irrigation water

### Cation/Anion Ratio

(.98) Water has more anions than cations. This means that the water can strip nutrients out of the soil over a period of time.

### Dominant Cations

Na (35.5 ppm) and Ca (19 ppm)

### Dominant Anions

Chlorides (60 ppm) and Bicarbonates (68 ppm)

The soil solution will be dominated by Sodium (Na) and Calcium (Ca) Chlorides that will stay in solution. Ca and Na Bicarbonates that will precipitate out as calcium carbonate

when the soil dries down, (Tums or limestone are both calcium carbonate) and Na Carbonate which stays in solution.

**Sodium Adsorption Ratio / Adjusted SAR**

SAR- 1.97- Good

Adj. SAR- 1.85 Better. This number is adjusted based on how the salts are interacting in the soil.

**Comments:**

When under high irrigation used (high Evapotranspiration) and low natural rainfall, salts of sodium will persist in the soil solution. Since it is the most available, roots will pull in the solution and can cause the plant to wilt earlier than usual, and cause an imbalance with other beneficial cations. (K, Ca, Mg). Bicarbonates will also lead to sealing off of the surface making it difficult for water to penetrate the surface. Ball marks can become more severe as well as spike marks.

**Recommendations:**

Utilize spiking / venting to keep opening up the surface. Use rinse in spray applications to flush sodium and re-solubilize bicarbonates.

Best solutions to rinse in would be: Exchange (Ca Sulfate) to add calcium and flush sodium and Kick Soil Conditioner to help mitigate the bicarbonate effects in the soil, by re-solubilizing solid carbonate compounds.



**Green Points – Water Quality**  
*Water can also be a source of environmental inputs. Water should be tested to prevent excess sodium or other salts from accumulating. Poor quality water can also be an unexpected source of unaccounted nutrients..*

**Green Points – Water Innovations.** *Water can be saved by utilizing rain water harvesting systems, storage cisterns, and subsurface drip irrigation. Vast amounts of water can be collected off an impervious surface such as a roof or parking lot.*

### **Key Points –Irrigation**

- 1) The irrigation is adequate for watering greens and tee boxes.*
- 2) The system is not upgradeable for fairway watering.*
- 3) Many heads need minor repairs, this could yield water savings.*
- 4) A full irrigation system design and installation should be planned for the future.*
- 5) Purchased water was a considerable drain on revenue. If the town does not need to purchase water it will boost revenue.*

### Drainage Evaluation

It is understood that a traditional herringbone drainage system installed in all of the greens.

Another area of note is that the infiltration readings across the subject area had quite a high degree of variability. This variability may again impede the drainage of the greens

Infiltration readings for the greens identified that there is a problem with many of the greens structures, and on further investigation it was established that a semi-impermeable layer of clay and silt existed at the 6" depth.



The fairways drainage is a mixture of installed interceptor drains that have been placed at strategic points across many of the fairways and rough areas. On first look it appears as if the fairways drain acceptably the fairway gradients indicate some broad variation in elevations, which is to be expected. These high and low spots can create areas that hold water. Over time, the ability of the soils to drain will be compromised as will the ability of the grass to thrive.

At the present time drainage does not appear to be a significant issue but it should be monitored. Poor drainage is one of the most common reasons that golf courses can become difficult to play and maintain.

### ***Key Points Drainage***

- 1) Course drainage appears adequate.*
- 2) Many efforts have been made to improve drainage.*
- 3) Remedial measures such as aeration can improve greens drainage.*
- 4) The interceptor drains can be piped to provide more water for irrigation.*
- 5) The evaluation was done during a widespread drought.*

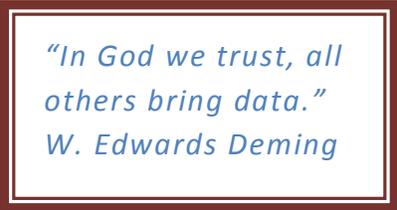
## CSA & PQSA

### About Comprehensive Sportsfield Analytics

Comprehensive Sportsfield Analytics is the process of quantifying a sports surface physical characteristics and comparing the observed measurements against known metrics. Through this system we can compare the surface against other objectives standards and track the surface as it changes over time. This analysis can be supported by many tools depending upon the clients concerns or desires.

These tools can include comprehensive irrigation audits; soil nutrient and chemical paste extracts, soil microbiology assays, irrigation water evaluations, physical soil structure and particle analysis, facility sustainability assessments, Budgetary and training audits, and, Environmental Management Systems.

The primary tool used for analyzing a golf course (greens, tee, fairways) is a Performance Quality Standards Assessment™ or PQSA. The PQSA was first developed over 25 years ago in Great Britain. Ian Lacy, now of Tom Irwin Advisors, was the head of the Professional Services Division of the Institute of Groundsmanship that defined and developed the Performance Quality Standards.



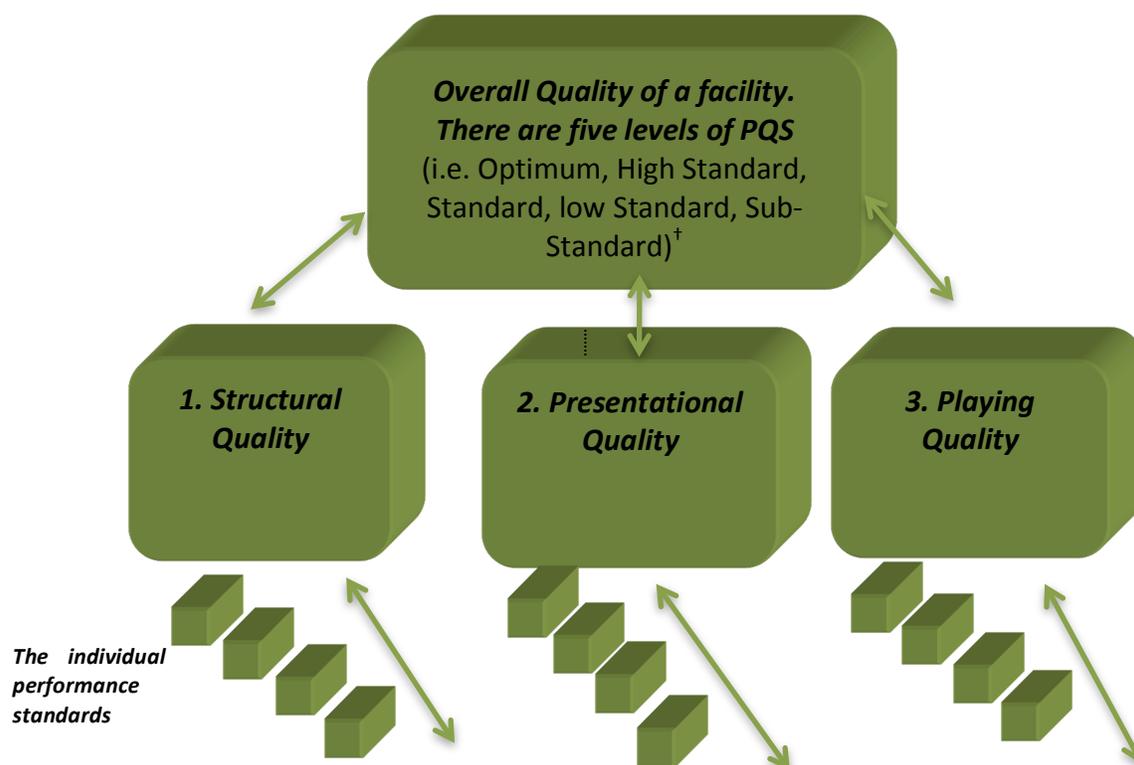
*"In God we trust, all others bring data."  
W. Edwards Deming*

These standards, and test methods, have been updated and improved to reflect advancing knowledge in turf management and the application of more precise technology. The adaptation for use on a golf course took place in 2012.

A Limited PQSA for golf, tests the greens. The greens are the area of the course that receives the most intense use. They require the most rigorous maintenance. They are the most expensive element to reconstruct. And, most importantly, they are how a player ultimately judges the quality, the experience, and value of a course. Performance Quality Standards Assessments (PQSA) were carried out on all 15 greens within Millwood Golf Course.

A Performance Quality Standard can be defined as 'A complete representation of a product that has a range of clearly defined and measurable criteria; which are associated with a specified level of quality. A Performance Quality Standard Assessment measures golf greens against objective and defensible standards that relate to the performance and fitness for purpose.

## Illustration of the concept of Performance Quality Standards



Specifically, a Performance Quality Standards Assessment (PQSA) includes an evaluation of 30 separate criteria. Each of these criteria tests is repeated in multiple strategic locations across the field under test. This will yield in excess of 200 individual data points. These criteria are grouped into three broad categories; structural, presentational, and playability. A score is generated for each test, and aggregate score is calculated for each category. These scores can then be used to calculate a total aggregate score. This score can be compared to rating ranges of Optimum Standard, High Standard, Standard, Low Standard and Sub-Standard.

By testing a wide range of individual criteria, a comprehensive picture is built up of the 'current state of a golf green or tee or fairway. It is this sort of objective information that is invaluable in making informed decisions regarding what maintenance tasks may be required and how the management of the golf course can be more effectively and efficiently undertaken.

A key consideration in the use of Performance Quality Standards is that of ensuring a golf course maintains a sustainable level of use. It is therefore essential that a realistic sustainable level of use is initially determined for a Golf Course, thus allowing the effective management to take place.

### The Uses of a Performance Quality Standards Assessment.

The metrics developed by a PQSA can be useful in a variety of situations. These metrics can be used to make informed decisions on maintenance and turf management practices. Course usage can be better controlled over time. Cultural and nutritional practices can be adjusted.

Potentially damaging or hazardous conditions can be identified and corrective action can be taken in a timely manner. Observations can be logged and documented. A maintenance team and their superintendent's effectiveness can be demonstrated, tracked, and if needed, corrected.

*"You can't manage what you don't measure."  
Business Adage*

By measuring the fields' performance over time, management decisions can be prioritized. The data presented can be used to support the budgetary process, to justify current expenditures, or for data driven planning for future needs. PQSA is also useful for benchmarking a recently constructed course or course element, or, for informed cost benefit decisions regarding renovation versus reconstruction.

### The Limitations of PQSA.

First and foremost, PQSA cannot measure what is un-measurable. It cannot guarantee a beautiful high performing golf course. It cannot measure a green keeping team's passion, zeal, or knowledge. It cannot quantify their dedication or their attention to detail. It cannot determine their worth or effectiveness. It can support, but not prove, the supposition that their actions have helped foster a healthy standard of turf. It cannot prove that their actions or inactions resulted in a poorly performing surface. There are simply too many unknowns, too many variables. Greens can, and do, fail through nobody's fault.

As stated above, PQSA can help identify problem areas before they are readily identifiable. It can help guide decision making so they are made with the most current and actionable intelligence available at the time. It can make visible trends and call attention to potentially harmful deficits.

While many aspects that are measured (i.e. hardness, smoothness, debris, etc.) could impact safety that is not the primary purpose of a PQS assessment. The primary purpose is to impose metrics for presentational quality, playability, and overall health of the surface

Naturally safety would flow from high marks in these areas. **We do not, cannot, warrant that a surface is "safe" based upon our limited testing and observations.** We are only testing a representative sample of the total area of the field and conditions change from hour to hour and from location to location on the field. What we will do, as far as safety goes, is provide objective data that can call attention to potential issues that would demand further investigation. We can provide a record that the course was periodically checked and action was recommended.

### Performance Quality Standard Rating

- ❖ An **Optimal** rating indicates an exceptional golf course which will demonstrate superior wear tolerance and be able to support prolonged above average usage under normal conditions. Optimal greens will provide the best and most enjoyable playing surface for the widest range of golfer abilities. These greens can tolerate reduced inputs/maintenance for longer periods without degrading. Aesthetically, these courses are suitable for high-level play. This rating is difficult to achieve and a golf course may move between Optimal and High Standard depending upon the stressors on the surface and varying natural conditions.
- ❖ A **High Standard** rating equals a top-performing green suitable for use in high visibility community events such as public tournament play. This sward will suffer less damage and recover quickly when subject to stress. This green is typically thriving under its current management practices and has a sustainable level of usage.
- ❖ A **Standard** rating is acceptable for general recreational purposes under a carefully monitored management plan and with ongoing supportive maintenance.
- ❖ A **Low Standard** rating is marginal and indicates a green that is currently fit for purpose but will likely need future remedial work to maintain playability. A Low Standard Field will continue to decline unless additional maintenance efforts and management changes are implemented quickly.
- ❖ A **Substandard** rated green may continue to be used but significant aspects, including playability and aesthetics, may be seriously impaired. Caution is strongly advised, use should be determined on a case-by-case basis depending upon the specific criteria scores. These greens will require immediate corrective action and the requirement for significant rehabilitation to support continued use is imminent. Substandard greens will drive players away from your course. Once gone, they may not return.

*A deadly disease of management, "use of visible figures only for management with little or no consideration of figures that are unknown or unknowable." W. Edwards Deming.*

- ❖ Any rating below Substandard is **Failing** and thus is not fit for purpose and should be closed until correction action can be taken. These greens present an ongoing danger to any users of the surface. Steps limiting public access may be warranted.

### Regarding the Results and Interpreting the Data:

The Performance Quality Standards Assessment (PQSA) is based upon a representative sampling of data points across a wide area. The number and location of the sampling points has a direct relationship on the integrity of the data. Where ASTM standards or other recognized standards exist we follow their recommended sampling locations. If specified locations are not delineated, we will, for most tests default to the 10 specified ASTM Points. For many tests we will also include up to 10 random locations on the surface. The exact number of tests will be clarified in your proposal document and may vary depending upon the level of testing chosen or customized testing regimes.

Each of the testing areas are identified and set out as grids. These help determine the location of the test areas and allow for a measure of repeatability for future tests at the same site. In this way trends can be detected and a history for that specific field can be developed. This is very useful in tracking the “life” of the surface, early detection of stress, early adoption of mitigating practices, seasonal and sport variations, and, timely adjustments of usage. The test point may be located anywhere within the grid and thus inter-grid readings may vary considerably. A golf green, while desirable, is rarely uniformly consistent throughout its area.

The graphs in the Results section help visualize the data. The presence or absence of a specific graph or comment does not indicate an area of concern nor does it indicate an acceptable result. Graphs and results notations are merely reflections of the assessors desire to call attention to specific area.

Most graphical representations are based on averages of multiple measurements. Some, such as the percentage of undesirable grass are more qualitative in nature and are based on observation coupled with the assistance of a grid tool that segments a square meter into 100 equal portions. All of the data collected is available in the appendix.

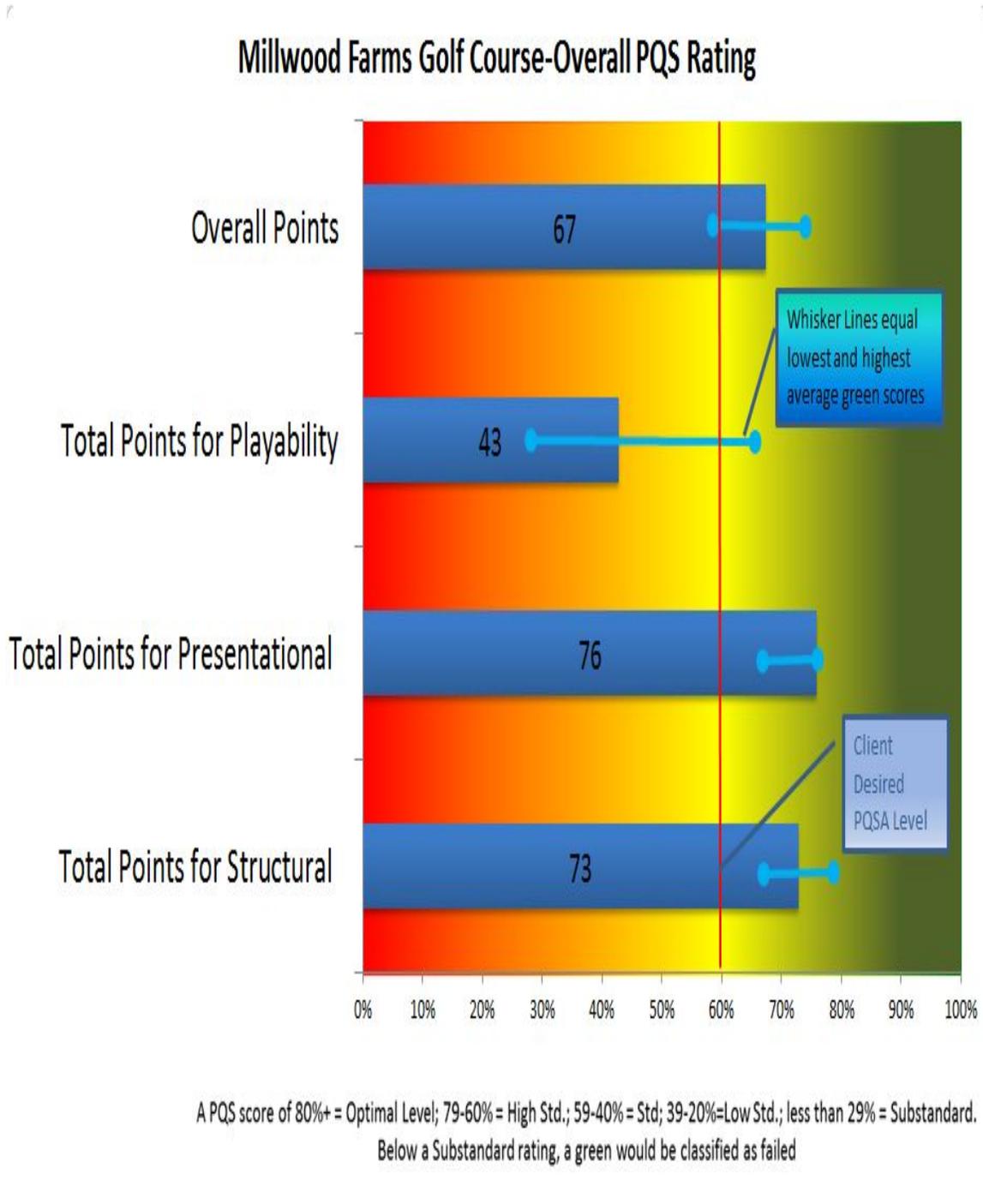
The aerial photos, obtained from public Internet sites (e.g. Google Earth) are used as representations of the areas under study and not for precise measurement purposes. Simple measurements such as the location of obstructions may be estimated from the images. They are used to demonstrate the location of test points and the methodology of test site selection.

Some measurements, methodologies, and procedures utilized in the Tom Irwin Advisors PQS Assessment have evolved over the earlier British version. These evolutions may

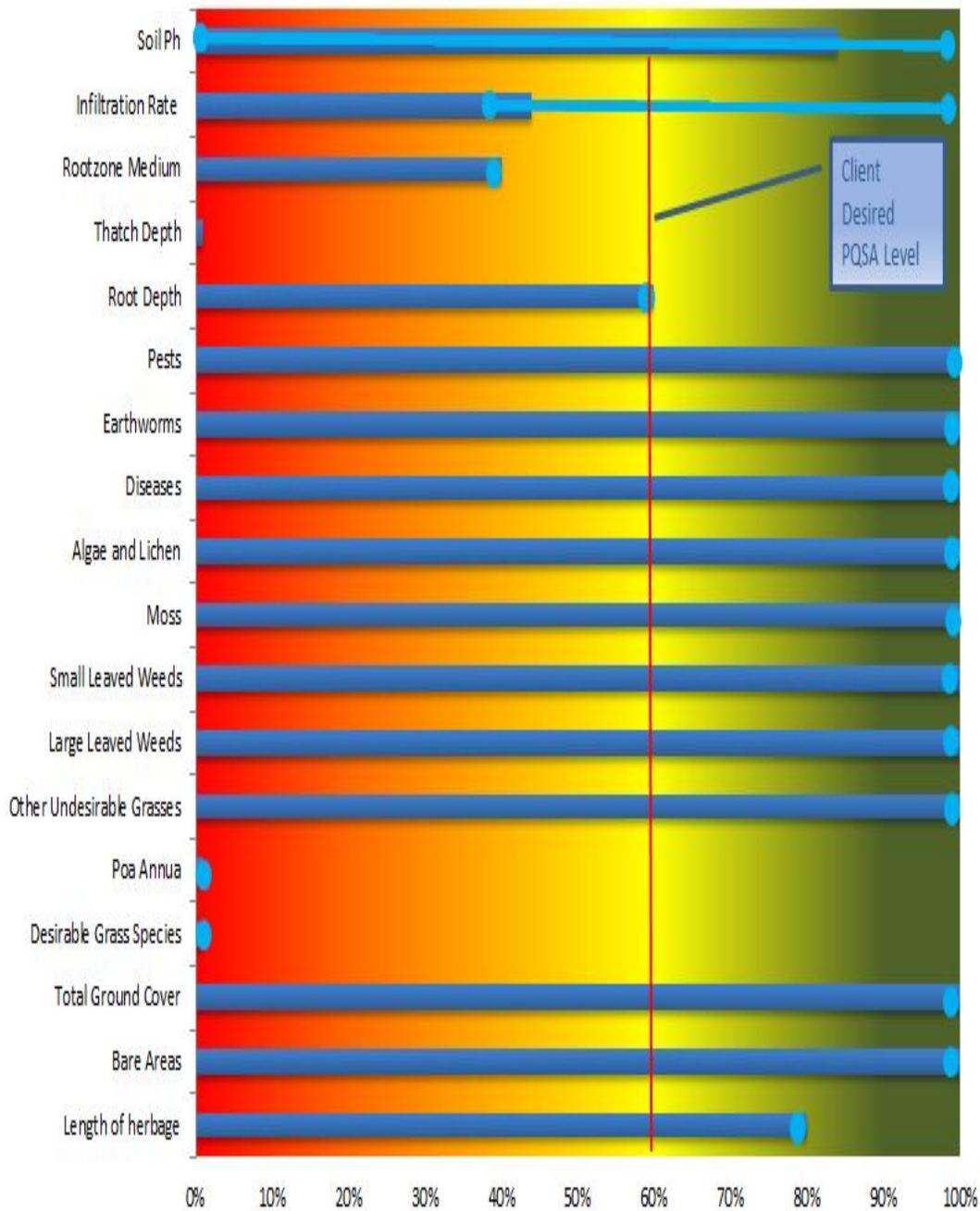
## Section 6: Proof Points

have involved the use of newer, more accurate, instrumentation. Also, testing procedures may have been refined overtime. Where no exacting standards exist, TIA has sought to clarify and develop procedures based upon the latest university research, other international bodies, or information gleaned from other professional or technical association.

Millwood Farms Golf Course Results

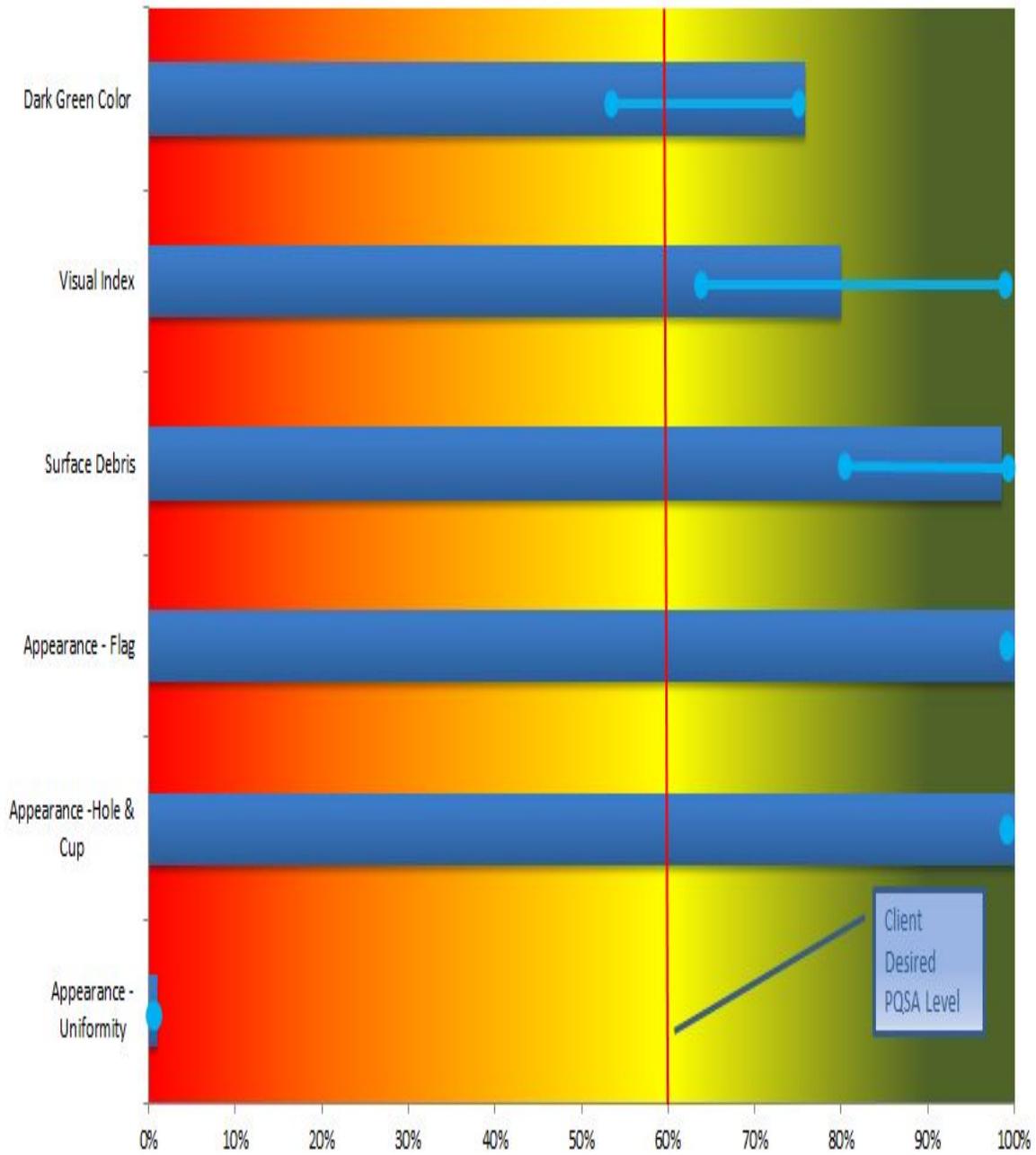


### Millwood Farms Golf Course -Structural Quality



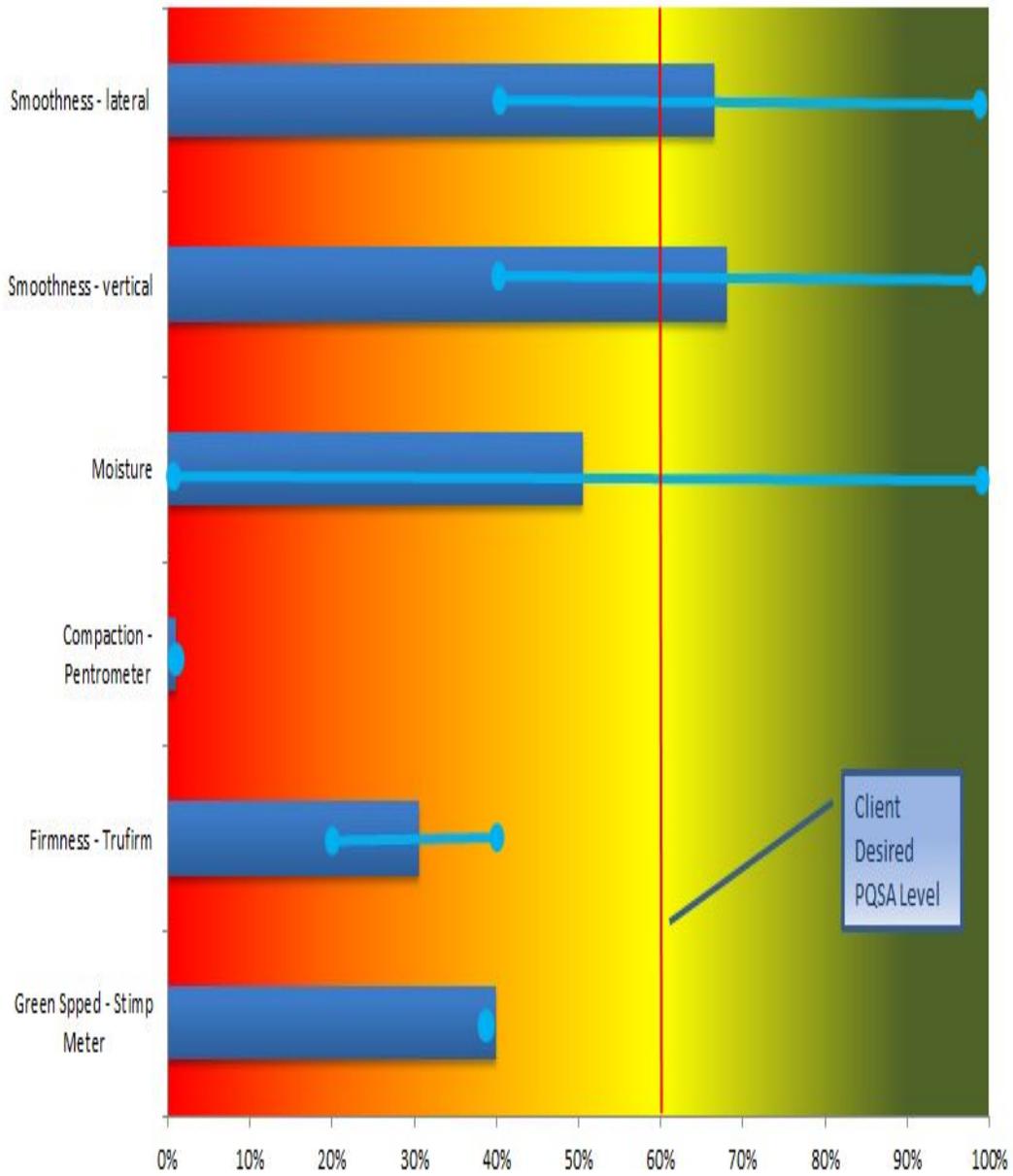
A PQS score of 80%+ = Optimal Level; 79-60% = High Std.; 59-40% = Std.; 39-20%=Low Std.; less than 29% = Substandard.  
 Below a Substandard rating, a green would be classified as failed

### Millwood Farms Golf Course-Presentational Quality



A PQS score of 80%+ = Optimal Level; 79-60% = High Std.; 59-40% = Std; 39-20%=Low Std.; less than 29% = Substandard.  
 Below a Substandard rating, a green would be classified as failed

### Millwood Farms Golf Course-Playability Quality



A PQS score of 80%+ = Optimal Level; 79-60% = High Std.; 59-40% = Std; 39-20%=Low Std.; less than 29% = Substandard.  
 Below a Substandard rating, a green would be classified as failed

**Summary**

All 15 greens (14 in play on the golf course and the putting green) were assessed, Generally the greens were in very good condition given that very little climatic rainfall had taken place before or during the assessment. It is clear to see that a maintenance strategy is being followed and the greens provided a relative smooth and true ball roll when observed.

While some criteria, when assessed, did not come up to the required standard, many other criteria exceeded the standard required, the overall result of all greens was very positive with all of the greens attaining/exceeding the standard sought.

See the following table for more information.

**Greens:** 2,3,7,9,10,11,12,and the putting green all scored over 100 points with greens: 10,12 top scoring with 107 points (High Standard)

**Greens:** 1,4,5,6,8,13,14 all scored below 100 points with green 6 registering 83 points the lowest score.

The following tables highlight where the individual criteria either have or have not met the standard level of performance quality.

**Areas not reaching standards.**

Criteria	Average Result	Comments- Actions
<b>Structural Quality</b>		
Desirable grass species	Below Sub-Standard	Greens 1,6,13,14,and putting green scored lowest with 55%
Poa annua	Below Sub-Standard	Greens 1,6,13,14, and the putting green scored lowest with 45%
Thatch depth	Below Sub-Standard	Green 1 scored lowest with 1" thatch layer
Root depth	Low Standard	Greens 11,12 scored lowest with only 3" depth of roots.
Rootzone medium	Low Standard	Greens 11,12 scored lowest with only 3" of consistent rootzone depth
Infiltration rate	Low Standard	Greens 1,4,6,8,14 scored lowest with 0.96" of infiltration per hour
<b>Presentational Quality</b>		

## Section 6: Proof Points

Appearance	Below Sub-Standard	Greens: 1,2,3,5,6,7,9,10,11,13,14 and putting green scored lowest with 65%
<b>Playing Quality</b>		
Green speed	Low Standard	The putting green scored lowest with 96" (8ft) speed.
Firmness	Sub-Standard	The putting green scored lowest with .414 for green firmness
Moisture	Low Standard	Green 2 scored lowest with 33.2%
Compaction	Below Sub-Standard	Green 6 scored lowest with 400 psi at 3" depth of the rootzone

*Note: The above table depicts all criteria that have **NOT** reached at least Standard Quality Level*

### Areas reaching/exceeding standards

Criteria	Result	Comments- Actions
<b>Structural Quality</b>		
Height of Cut	High Standard	All greens on the golf course had a height of cut at 3mm
Bare area.	Optimum	All greens on the course had no bare areas
Total sward cover	Optimum	All greens on the golf course had 100% sward cover
Other undesirable grass species	Optimum	All greens on the golf course had no undesirable grasses.
Weeds - Large-leaved	Optimum	All greens on the golf course had no weeds present.
Weeds - Small-leaved	Optimum	All greens on the golf course had no weeds present
Moss	Optimum	All greens on the golf course had no moss present
Algae and Lichen	Optimum	All greens on the golf course had no Algae or lichen present
Diseases	Optimum	All greens on the golf course had no Disease present

## Section 6: Proof Points

Earthworms	Optimum	All greens on the golf course had no Earthworms present
Pests	Optimum	All greens on the golf course had no Pests present
Soil pH	High Standard	Green 1 scored lowest with a pH of 5.4
<b>Presentational Quality</b>		
Hole cup and position	Optimum	All greens on the golf course had the hole and flag position in line with the rules of golf
Surface debris	Optimum	All greens on the golf course had no surface debris
DGCI	Optimum	All greens on the golf course had optimum DGCI Green 1 scored lowest with .562
Visual Index		All greens on the golf course had no issues with visual Index Green 1 scored lowest with 6.3
<b>Playing Quality</b>		
Trueness (Lateral)	Standard	Green 5 scored lowest with 23.1G
Smoothness (Vertical)	Standard	Green 4 scored lowest with 53.1G

*Note: The above table depicts all criteria that **HAVE** reached standard level of quality or above*

### Recommendations

Criteria	Recommendations	Priority
Poa annua	<ul style="list-style-type: none"> <li>Follow the same recommendations/procedures as Desirable grass</li> </ul>	High
Thatch	<ul style="list-style-type: none"> <li>Carry out more core aeration, and top-dress</li> <li>Verti-cut regularly throughout the season</li> <li>Investigate nutrition program</li> <li>Carry out renovations at beginning and end of golf season</li> </ul>	Medium Medium High Medium
Appearance	<ul style="list-style-type: none"> <li>Follow the same recommendations/procedures as desirable grass and Poa annua</li> </ul>	High/medium
Firmness	<ul style="list-style-type: none"> <li>Carry out more core aeration, and top-dress regularly</li> <li>Carry out light rolling on a regular basis</li> </ul>	Medium Medium

## Section 6: Proof Points

Moisture	<ul style="list-style-type: none"> <li>• Devise an irrigation strategy to include the following:               <ul style="list-style-type: none"> <li>○ Take regular readings of green moisture</li> <li>○ Calibrate the output from Irrigation heads</li> <li>○ Check current topdressing material</li> <li>○ Analyze soil physical properties</li> <li>○ Carry out regular aeration (deep and core)</li> </ul> </li> </ul>	Medium
Compaction	<ul style="list-style-type: none"> <li>• Analyze soil physical properties</li> <li>• Carry out more core aeration, and top-dress regularly</li> <li>• Carry out more deep aeration</li> <li>• Control Irrigation output and consistency</li> </ul>	High Medium Medium Medium

## Course Improvement Options

### Overview

As determined by our Performance Quality Standards Assessment, the course is generally in good condition. The greens quality is consistent with what would be seen at any other area public course. In fact, the quality is better than most municipal courses. No immediate needs were identified. This section is included to inform the town of Framingham of any potential costs that could be incurred in the future.

This would include the rebuilding of tee boxes, greens, or bunkers. The only significant cost expected would be the upgrading of the irrigation system. This is detailed elsewhere in the report. The irrigation system is currently functioning and is only in need of some minor repairs. Moving forward, it would be wise to consider its eventual upgrade. It is sufficient, as presently maintained, for current operations. Any desire to add functionality, such as irrigated fairways would require an upgrade. Upgrading the irrigation system would also allow for more efficient use of water. More efficient irrigation heads could be installed, better moisture sensors could be included, as well as, more modern control and zoning. While involving a considerable capital outlay, these improvements would enhance the sustainability of the course and could result in cost savings in the future.

*Green Points – Integrated Pest Management: IPM is defined in Connecticut as, “integrated pest management means use of all available pest control techniques, including judicious use of pesticides, when warranted, to maintain a pest population at or below an acceptable level, while decreasing the use of pesticides.” These plans include monitoring, threshold action levels, and incremental control strategies. The approach is to use the method with least risk and greatest control. While only required for schools K-8, an IPM plan is a cornerstone of sound environmental management.*

*Green Points – Stewardship  
Stewardship begins with responsibility. Defining the environmental impacts and who is responsible for mitigating those impacts is a first step. This is best accomplished through a well thought out Environmental Management System. This collection of polices harvests low hanging fruit and charts the course for long term sustainability*

. Ultimately, an irrigation system should be included in any longer term planning.

In addition to the irrigation system, future activities could include the reconstruction of various course features. The costs, for planning purposes, are outlined below:

Construction Costs Estimates- Millwood Farms		
<b>Greens Construction (4,000 sqft)</b>		
	Remove existing Turf and shaping (Labor)	\$6000.00
	Install Drainage and Gravel layer (Labor)	\$8000.00
	Install Greens Mix (Labor)	\$2000.00
	Seeding (Labor)	\$1000.00
	Seed/ Grow In Supplies	\$3100.00
	Irrigation	\$3000.00
	Loam for surrounds (25 yards)	\$400.00
	Mix (150 ton)	\$6100.00
	Sod Surrounds (15,000 sqft installed)	\$7500.00
	Gravel (75 ton)	\$2175.00
	<b>Total Green Construction Cost</b>	<b>\$41450.00</b>
<b>Tee Construction (2,000 sqft)</b>		
	Remove existing turf a shape new tee (labor)	\$3000.00
	Install Drainage (Labor)	\$750.00
	Install tee mix (Labor)	\$2000.00
	Seeding	\$1000.00

## Section 6: Proof Points

	Seed	\$50.00
	Irrigation	\$1500.00
	Tee Mix (45 ton)	\$1850.00
	Loam for surrounds (28 ton)	\$623.00
	Sod Surrounds (3,000 sqft installed)	\$1500.00
	<b>Total Tee Construction Cost</b>	<b>\$12273.00</b>
<b>Bunker Install 1000 soft</b>		
	Shape bunker	\$4000.00
	Sand	\$650.00
	Liam	\$350.00
	Stone	\$50.00
	<b>Total Bunker Construction Cost</b>	<b>\$5050.00</b>

Course maintenance is critical. While the current maintenance regime and staff have done an admirable job in keeping the course in as good a shape as it is, elevating the state of play would dictate enhanced practices. The appendix details a proposed budget and application plan.. Below is listed a recommended maintenance schedule. Adhering to these schedules would increase to current maintenance budget. These recommended practices would not greatly expand the budget as they were developed with the current budget in mind.

*Green Points – Plant health. The best defense against disease is a healthy stand of turf. If disease pressure mounts, use the least amount of the least risky product that will produce the desired results. Lots of ineffective product can be more harmful than a small amount of highly effective product. Fortunately, organic options such as grub gone are entering the market.*

Recommended Maintenance Schedule

Operation	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Greens												
Mowing	0	0	0	2	16	25	25	25	16	1	0	0
Switching/Brushing	0	0	0	0	3	5	5	5	5	2	0	0
Aeration	0	0	0	0	2	0	0	2	0	0	1	0
Verti-cut	0	0	0	0	2	2	2	2	2	1	0	0
Nutrition	0	0	0	1	2	2	2	2	2	1	0	0
Top Dress	0	0	0	0	2	2	2	2	2	1	0	1
Overseed	0	0	0	0	0	0	0	1	0	0	0	0
Plant protection (disease)	0	0	0	1	2	2	2	2	2	1	1	0
Plant Protection (Weed)	0	0	0	0	0	0	0	0	0	0	0	0
Plant Protection (Pests)	0	0	0	1	1	1	1	0	0	0	0	0

Section 6: Proof Points

Irrigation	0	0	0	0	20	20	20	20	20	0	0	0
Hand Watering/syringing	0	0	0	0	20	20	20	20	10	0	0	0
	-	-	-	-								-
Speed Rolling	0	0	0	0	3	10	10	10	15	1	1	0
Hole Changing	0	0	0	0	20	25	28	25	26	15	5	0
<b>Surrounds</b>												
Mow	0	0	0	0	6	6	7	7	6	2	0	0
Aeration	0	0	0	0	0	0	0	0	0	0	0	0
Verti-cut	0	0	0	0	0	0	0	0	0	0	0	0
Nutrition	0	0	0	0	1	0	0	0	0	0	0	0
Top Dress	0	0	0	0	0	0	0	0	0	0	0	0
Overseed	0	0	0	0	0	0	0	0	0	0	0	0
Plant protection (disease)	0	0	0	0	0	0	0	0	0	0	0	0
Plant Protection (Weed)	0	0	0	1	0	0	0	0	0	0	0	0
Plant Protection (Pests)	0	0	0	0	0	0	1	0	0	0	0	0
Irrigation	0	0	0	0	20	25	25	25	15	0	0	0

Section 6: Proof Points

Hand Watering/syringing	0	0	0	0	0	0	0	0	0	0	0	0
	-	-	-	-	-	-	-	-	-	-	-	-
<b>Tees</b>												
Mow	0	0	0	2	15	20	20	20	15	2	0	0
Aeration	0	0	0	0	1	0	0	0	1	0	0	0
Verti-cut	0	0	0	0	0	0	0	0	0	0	0	0
Nutrition	0	0	0	0	1	1	1	1	1	1	0	0
Top Dress	0	0	0	0	0	0	0	0	0	0	0	0
Overseed	0	0	0	0	0	0	0	0	0	0	0	0
Plant protection (disease)	0	0	0	0	1	1	2	2	1	1	1	0
Plant Protection (Weed)	0	0	0	0	1	0	0	0	0	0	0	0
Plant Protection (Pests)	0	0	0	0	0	0	1	0	0	0	0	0
Irrigation	0	0	0	0	10	20	20	20	15	0	0	0
Hand Watering/syringing	0	0	0	0	5	5	5	5	0	0	0	0
Wetting agents	0	0	0	0	0	0	0	0	0	0	0	0
Divot/repair	0	0	0	0	10	20	20	20	20	5	0	0

Section 6: Proof Points

Tee Marking moving	0	0	0	5	25	25	30	30	30	15	0	0
Clean out trash bins	0	0	0	5	20	25	25	30	30	5	0	0
Fairways												
Mow	0	0	0	2	15	15	15	15	10	5	0	0
Aeration	0	0	0	0	1	0	0	1	0	0	0	0
Verti-cut	0	0	0	0	0	0	0	0	0	0	0	0
Nutrition	0	0	0	0	1	0	0	0	1	0	0	0
Top Dress	0	0	0	0	0	0	0	0	0	0	0	0
Overseed	0	0	0	0	0	0	0	0	1	0	0	0
Plant protection (disease)												
Plant Protection (Weed)												
Plant Protection (Pests)												
Irrigation												
Hand Watering/syringing												

Wetting agents	Red	Red	Green	Red									
Divot/repair	Red	Red	Green	Red									

**Green Points – Drift Control**  
*Spray drift can be a major problem. Improper nozzles or pressurization can cause a loss of valuable product. Drift agents help the product go where it is needed and stay where its applied rather than migrate into the environment.*

**Green Points – Wetting Agents.**  
*These products can maximize any water that is available for irrigation. Wetting agents work two ways, first they reduce the surface tension and allow the water to penetrate the soil rather than run off. Second they bind within the soil column to provide longer lasting hydration.*

### Recommended Nutritional Practices

See Full Nutrition Planner in the Appendix. Note that this planner should be adjusted yearly based upon actual observable results.

### General Plant Health Practices

***See Full Planner in the Appendix. Note that this planner should be adjusted yearly based upon actual observable results.***

All nutrition, herbicides, and pesticides should be applied as part of an Integrated Pest Management Plan (IPM) and Nutritional management Plan. Both are part of an Environmental Management System.

### Building a Sustainable Legacy

Whenever you are managing a golf course, or any green space, you want that green space to provide beauty, enjoyment, and recreation for years to come, meeting the needs of today's generation while protecting those of the future.

That's only possible if your project delivers on all three dimensions of sustainability:

**1. Community** – A beautiful outdoor space forges a lasting emotional connection with the people it serves. In today's world, outdoor green spaces have become the rallying point for neighbors and the community at large. These cherished places form an intergenerational bond where memories are shared and created.

**2. Environment** – Environmental impact is an essential consideration for any green space project. This is particularly true of golf courses given the public perception and their potential footprint. A public space requires proper siting, healthy soil, and adequate drainage to exist in harmony with its surrounding environment. Quiet, natural spaces must be protected so that they can continue to offer ecosystem services for generations to come.

**3. Economy** – The long-term sustainability of any project must address the fiscal realities in order to insure its long-term viability. Foresight and proper





planning, including all aspects from initial design, to maintenance, to eventual renovations must be carefully contemplated in order to preserve the stakeholder's investment in a valuable community treasure.

If the town of Framingham chooses to purchase Millwood Farms Golf Course, its operations will be under considerable public scrutiny. Today's public is very sensitive to environmental concerns and long-term sustainability. Regardless of whether or not the facility is managed by the town or by a

contractor, it must be managed in a sustainable manner. The course could consider any number of environmental certifications to help guide its mission of environmentally aware management. These include Audubon Certified Sanctuary program, LEED's Sustainable Sites certification (SITES), or, Golf Environment Organization (GEO). At the very least, if the town chooses to purchase the course, they could consider developing an Environmental Management System for its operation. This will ensure that all activities are done properly, that environment is protected, that waste is minimized, and that environmental liability is managed.

Sustainability is not just environmental stewardship. According to the three "P" model, it includes stewardship and care for People and economics (Profit), as well as, the Planet. Without a proper economic footing, the course will fail and it is likely that both People and the Planet will suffer.

The impact of the purchase of the course must be carefully considered. One area that has not been shared with Tom Irwin Advisors is how the purchase is to be financed. It is assumed that this will be accomplished via the issuance of a municipal bond. As far as debt servicing is concerned, this is highly dependent upon the bonds interest rate. A second factor to be considered is alternative funding sources. Unfortunately, it does not appear that Framingham has adopted the Community Preservation Act. Had this been so, these funds may have been available for the purchase of the golf course. That said, there may be various other grant or low interest loan opportunities that would help offset the costs.



### How Tom Irwin Advisors Can Help:

Your grounds are the public face of your institution and are beloved by all who are honored to spend time enjoying them. The open spaces foster a sense of place, a moment of serenity, and a natural touchstone. Your open spaces are a cherished resource. How many memories are created upon those fields? They are enjoyed by participant and spectator alike and are an outward symbol of Town of Framingham's passion and commitment to excellence.

Tom Irwin Advisors is uniquely positioned to assist with your long-term vision. Particular services that will help you achieve your goals include:

- Facility Audits and Needs Assessments including capital planning, staff evaluations, time/motion studies, equipment needs investigations, and, sustainability audits.
- Specifications, design services, bidder evaluation, and Project Management.
- Quality assurance and construction administration services for Golf Courses
- Critical and unbiased analysis of both natural and synthetic surfaces including costs, maintenance, present quality, and renovation.
- Feasibility Studies and decision-making guidance.
- Agronomic Planning including nutrient management plans.
- Irrigation water analysis and irrigation system auditing.
- Environmental Management Systems and design services including LEED, Green Globes, and SITES certification/planning.
- IPM planning and alternative control strategies
- Pre and Post construction/renovation evaluation and benchmarking.
- Multi year maintenance planning, needs assessment, and gap analysis
- Irrigation and drainage audits
- Technical assistance and training programs.
- Performance Quality Standards Assessments evaluate current conditions and track changes over time.

Tom Irwin Advisors is ready to help you meet the challenges in creating elite level grounds that will be sustainable long into the future.

## Appendices

### Appendix 1: Example Agronomic Planner

**Millwood Farms Golf Course**  
**Jim Drake**  
2017 Agronomic Planner

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Tom Irwin, Inc | 13 A Street , Burlington MA 01803 | 800-582-5959



**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Fairways**

16.07 Acres    699,999.94 sq.ft.    Spray Tank Capacity: 300 gal    Spray Coverage: 300,000.00 sq.ft.    Dilution Rate: 1.00 Gal/M    Number of Sprays: 2.33

4/28/17		Spray Rinse In		Water in after application or that night					
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Dimension 2EW	2x2.5 Gal	0.75	0.82 Case	1 Gal	97.3 oz			Crabgrass Prevention	
Sea-3	55 Gal	3.00	0.30 Drum	7 Gal	3.8 oz			Complete Bio-Stimulant full of carbon sorces and minerals to reduce stress and feed microorganisms	
Border 2.0	2x2.5 Gal		Case					Drift control. Improves product efficiency.	
5/1/17		Granular Application		Water in or time with Rain					
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Country Club 29-0-10 SGN 195	50 Lb	3.45	48.27 Bag		1.00	0.00	0.34		
7/1/17		Granular Application		Water in or time with Rain					
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Merit 0.5 Granular	30 Lb	1.40	32.67 Bag					Broad spectrum grub control.	
9/1/17		Granular Application		Water in or time with Rain					
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Country Club 29-0-10 SGN 195	50 Lb	3.45	48.27 Bag		1.00	0.00	0.34		

Worksheet is for reference and budget purposes only. Check all label rates and compatibilities.

**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

4/18/17		Spray Foliar							
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz				Aids in water penetration, sequesters hard water ions, plant health benefits	
Chipco 26019 Flo	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz				Broad spectrum contact fungicide for snow molds, leaf spots, anthracnose.	
Pegasus 6L	2x2.5 Gal	2.00	0.37 Case	1 Gal 112.6 oz				Broad spectrum contact fungicide for snow molds, leaf spots, anthracnose.	
Chlorpyrifos SPC 4	2x2.5 Gal	3.00	0.56 Case	2 Gal 103.7 oz				ABW Adult and Larval Control	
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.	

5/1/17		Spray Foliar							
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz					
Mirage™ StressGard™	2x2.5 Gal	1.00	0.19 Case	120 oz				Tebuconazole with Stress Guard. Anthracnose and Summer Patch	
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03	6 forms of Nitrogen with soluble carbon and trace nutrients for plant health response	
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz				Highly efficient Nutrashield Calcium for stronger cell walls.	
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz				Highly efficient Nutrashield Magnesium for chlorophyll production.	
TurfRx Supreme Flowable	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01	P,K, Micros and Soluble Carbon	

5/3/17		Spray Foliar							
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	1.00	0.19 Case	120 oz				Aids in water penetration, sequesters hard water ions, plant health benefits	
Vivax™	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz				4 part soil surfactant maximizes efficiency of irrigation and rain water.	
BaseMag™ F	2x2.5 Gal	15.00	2.81 Case	14 Gal 7.7 oz				Ball milled fast acting Dolomitic Lime to immediately effect soil chemistry	
Kick Soil Conditioner	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz				Complete Bio-Stimulant full of carbon sources and minerals to condition soil and stimulate microbiology	

**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

5/10/17		Granular Application		Water In Immediately or time with rain					
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Replenish 5-4-5 GG	50 Lb	25.00	60.00 Bag		1.25	1.00	1.25	Mineral/Organic Soil Fertility for re-charging soil and aeration recovery	
Sili-Cal SS GG	50 Lb	15.00	36.00 Bag					Calcium and Silicon for wear tolerance, turf rigidity, smooth ball roll, increased phosphours availability.	
5/16/17		Spray Foliar		Let Dry on plant, water at night					
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz					
Firebird Pro	4x1 Gal	0.20	0.05 Case	24 oz				Pyrethroid insecticide for adult hyperodes, cutworms, webworms.	
Pegasus 6L	2x2.5 Gal	2.00	0.37 Case	1 Gal 112.6 oz				Anthracnose & Dollar Spot Control	
Arena 50 WDG	2.5 Lb	0.30	0.90 Each	2 Lb 4 oz				ABW larval control. Broad Spectrum Insect control	
Chipco 26019 Flo	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz				Anthracnose, Summer patch, Dollar Spot	
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03		
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz					
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz					
TurfRx Supreme Flowable	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01		
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.	

Worksheet is for reference and budget purposes only. Check all label rates and compatibilities.

Jim Drake

Print Date: 8/10/16

Millwood Farms Golf Course

2017 Agronomic Planner

2017 Greens

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

6/1/17		Spray Foliar								
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz						
Mirage™ StressGard™	2x2.5 Gal	1.00	0.19 Case	120 oz				Tebuconazole with Stress Guard. Anthracnose and Summer Patch		
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03	6 forms of Nitrogen with soluble carbon and trace nutrients for plant health response		
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz				Highly efficient Nutrashield Calcium for stronger cell walls.		
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz				Highly efficient Nutrashield Magnesium for chlorophyll production.		
TurfRx Green	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01	Nutrashield plant nutrition. Improves photosynthesis, nitrogen efficiency and reduces plant stress. Plant available P,K, and micros.		
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.		
6/3/17		Spray Rinse In		Conserve if needed						
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	1.00	0.19 Case	120 oz						
Vivax™	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz						
BaseMag™ F	2x2.5 Gal	15.00	2.81 Case	14 Gal 7.7 oz						
Kick Soil Conditioner	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz						
Conserve SC	4x1 Qt	1.00	0.94 Each	120 oz				ABW Larve control		
Border 2.0	2x2.5 Gal		Case					Drift control. Improves product efficiency.		

**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

6/16/17		Spray Foliar		Let Dry on plant, water at night					
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz					
Affirm WDG	3x2.4 Lb	0.88	0.92 Case	6 Lb 9.6 oz				Anthracoze, Summer patch, Dollar Spot	
Pegasus 6L	2x2.5 Gal	2.00	0.37 Case	1 Gal 112.6 oz				Anthracoze & Dollar Spot Control	
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03		
TurfRx Green	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01	Nutrashield plant nutrition. Improves photosynthesis, nitrogen efficiency and reduces plant stress. Plant available P,K, and micros.	
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz					
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz					
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.	
7/1/17									
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz					
Mirage™ StressGard™	2x2.5 Gal	1.00	0.19 Case	120 oz				Tebuconazole with Stress Guard. Anthracnose and Summer Patch	
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03	6 forms of Nitrogen with soluble carbon and trace nutrients for plant health response	
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz				Highly efficient Nutrashield Calcium for stronger cell walls.	
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz				Highly efficient Nutrashield Magnesium for chlorophyll production.	
TurfRx Green	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01	Nutrashield plant nutrition. Improves photosynthesis, nitrogen efficiency and reduces plant stress. Plant available P,K, and micros.	
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.	

Worksheet is for reference and budget purposes only. Check all label rates and compatibilities.

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**Jim Drake**

Print Date: 8/10/16

**Millwood Farms Golf Course**

**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

7/3/17		Spray Rinse In							
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	1.00	0.19 Case	120 oz					
Vivax™	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz					
BaseMag™ F	2x2.5 Gal	15.00	2.81 Case	14 Gal 7.7 oz					
Kick Soil Conditioner	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz					
Border 2.0	2x2.5 Gal		Case					Drift control. Improves product efficiency.	

7/15/17		Spray Foliar		Let Dry on plant, water at night					
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz					
Chipco Signature	8 x 5.5 Lb	4.00	0.68 Case	30 Lb				Anthracnose, Summer patch, Dollar Spot	
Pegasus 6L	2x2.5 Gal	2.00	0.37 Case	1 Gal 112.6 oz				Anthracnose & Dollar Spot Control	
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03		
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz					
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz					
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.	
TurfRx Green	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01	Nutrashield plant nutrition. Improves photosynthesis, nitrogen efficiency and reduces plant stress. Plant available P,K, and micros.	

Worksheet is for reference and budget purposes only. Check all label rates and compatibilities.

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**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

8/1/17										
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz				Aids in water penetration, sequesters hard water ions, plant health benefits		
Mirage™ StressGard™	2x2.5 Gal	1.00	0.19 Case	120 oz				Tebuconazole with Stress Guard. Anthracnose and Summer Patch		
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03	6 forms of Nitrogen with soluble carbon and trace nutrients for plant health response		
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz				Highly efficient Nutrashield Calcium for stronger cell walls.		
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz				Highly efficient Nutrashield Magnesium for chlorophyll production.		
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.		
8/3/17    Spray Rinse In										
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	1.00	0.19 Case	120 oz						
Vivax™	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz						
BaseMag™ F	2x2.5 Gal	15.00	2.81 Case	14 Gal 7.7 oz						
Kick Soil Conditioner	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz						
Border 2.0	2x2.5 Gal		Case					Drift control. Improves product efficiency.		

**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

8/15/17		Spray Foliar		Let Dry on plant, water at night						
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz						
Affirm WDG	3x2.4 Lb	0.88	0.92 Case	6 Lb 9.6 oz				Anthracnose, Summer patch, Dollar Spot		
Pegasus 6L	2x2.5 Gal	2.00	0.37 Case	1 Gal 112.6 oz				Anthracnose & Dollar Spot Control		
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03			
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz						
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz						
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.		
TurfRx Green	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01	Nutrashield plant nutrition. Improves photosynthesis, nitrogen efficiency and reduces plant stress. Plant available P,K, and micros.		

9/1/17		Spray Foliar								
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz						
Mirage™ StressGard™	2x2.5 Gal	1.00	0.19 Case	120 oz				Tebuconazole with Stress Guard. Anthracnose and Summer Patch		
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03	6 forms of Nitrogen with soluble carbon and trace nutrients for plant health response		
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz				Highly efficient Nutrashield Calcium for stronger cell walls.		
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz				Highly efficient Nutrashield Magnesium for chlorophyll production.		
TurfRx Supreme Flowable	2x2.5 Gal	2.13	0.40 Case	2 Gal	0.00	0.01	0.01	P,K, Micros and Soluble Carbon		
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz				Drift control. Improves product efficiency.		

**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

9/2/17		Spray Rinse In								
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	1.00	0.19 Case	120 oz						
Vivax™	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz				4 part soil surfactant maximizes efficiency of irrigation and rain water.		
BaseMag™ F	2x2.5 Gal	15.00	2.81 Case	14 Gal 7.7 oz				Soil Flocculation & Calcium Needs		
Kick Soil Conditioner	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz				Complete Bio-Stimulant full of carbon sources and minerals to condition soil and stimulate microbiology		
Border 2.0	2x2.5 Gal		Case					Drift control. Improves product efficiency.		

9/15/17		Spray Foliar			Let dry on plant					
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz						
Xzemplar	4x11.4 Oz	0.18	0.47 Case	21.6 oz						
Protein Plus 14-2-6	2x2.5 Gal	8.00	1.50 Case	7.50 Gal	0.09	0.01	0.03			
TurfRx Ca	2x2.5 Gal	2.50	0.47 Case	2 Gal 43.5 oz						
TurfRx Mg	2x2.5 Gal	1.00	0.19 Case	120 oz						
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz						

10/1/17		Granular Application			Water In or time with rain					
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Replenish 5-4-5 GG	50 Lb	25.00	60.00 Bag		1.25	1.00	1.25			
Sili-Cal SS GG	50 Lb	15.00	36.00 Bag							

10/15/17		Spray Foliar			Snow Mold lead up spray to reduce soil populations					
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose		
Chipco 26019 Flo	2x2.5 Gal	4.00	0.75 Case	3 Gal 96 oz				Broad spectrum contact fungicide for snow molds, leaf spots, anthracnose.		
Border 2.0	2x2.5 Gal		Case					Drift control. Improves product efficiency.		

**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Greens**

2.75 Acres    119,999.99 sq.ft.    Spray Tank Capacity: 240 gal    Spray Coverage: 120,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

11/1/17	Spray Foliar	Snow mold prevention							
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso Plus™	2x2.5 Gal	0.25	0.05 Case	30 oz					
Interface® Stressgard	2x2.5 Gal	5.00	0.94 Case	4 Gal 88.3 oz					
Border 2.0	2x2.5 Gal	0.46	0.09 Case	55 oz					

**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

**2017 Tees**

1.47 Acres    64,000.00 sq.ft.    Spray Tank Capacity: 128 gal    Spray Coverage: 64,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

5/2/17	Spray Foliar	Water in that night or time with a rain							Purpose
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Xzemplar	4x11.4 Oz	0.18	0.25 Case	11.5 oz				Long Lasting Dollar spot Control	
Dimension 2EW	2x2.5 Gal	0.75	0.08 Case	48 oz				Crabgrass Prevention	
Border 2.0	2x2.5 Gal	0.86	0.09 Case	55 oz				Drift control. Improves product efficiency.	

5/4/17	Granular Application								Purpose
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Replenish 16-0-5 SG	50 Lb	1.56	2.00 Bag		0.25	0.00	0.08		

6/1/17	Spray Foliar	Water in that night							Purpose
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso™	2x2.5 Gal	1.00	0.10 Drum	0.50 Gal				4 part soil surfactant maximizes efficiency of irrigation and rain water.	
Bayleton Flo	2x2.5 Gal	1.00	0.10 Case	0.50 Gal				Anthracoese, Summer patch, Dollar Spot	
Sea-3	55 Gal	3.00	0.03 Drum	1.50 Gal				Complete Bio-Stimulant full of carbon sorces and minerals to reduce stress and feed microorganisms	
Border 2.0	2x2.5 Gal		Case					Drift control. Improves product efficiency.	

6/7/17	Granular Application								Purpose
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Replenish 16-0-5 SG	50 Lb	1.56	2.00 Bag		0.25	0.00	0.08		

7/1/17	Spray Foliar	Water in that night							Purpose
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Vivax™	2x2.5 Gal	3.00	0.30 Case	1.50 Gal				4 part soil surfactant maximizes efficiency of irrigation and rain water.	
Merit 75 WSP	4x4x1.6 Oz	1.10	2.75 Case	4 Lb 6.4 oz				Broad spectrum grub control.	
Mirage™ StressGard™	2x2.5 Gal	1.00	0.10 Case	0.50 Gal				Tebuconazole with Stress Guard.	
Border 2.0	2x2.5 Gal	0.86	0.09 Case	55 oz					

Worksheet is for reference and budget purposes only. Check all label rates and compatibilities.

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**Jim Drake**  
**Millwood Farms Golf Course**

Print Date: 8/10/16  
**2017 Agronomic Planner**

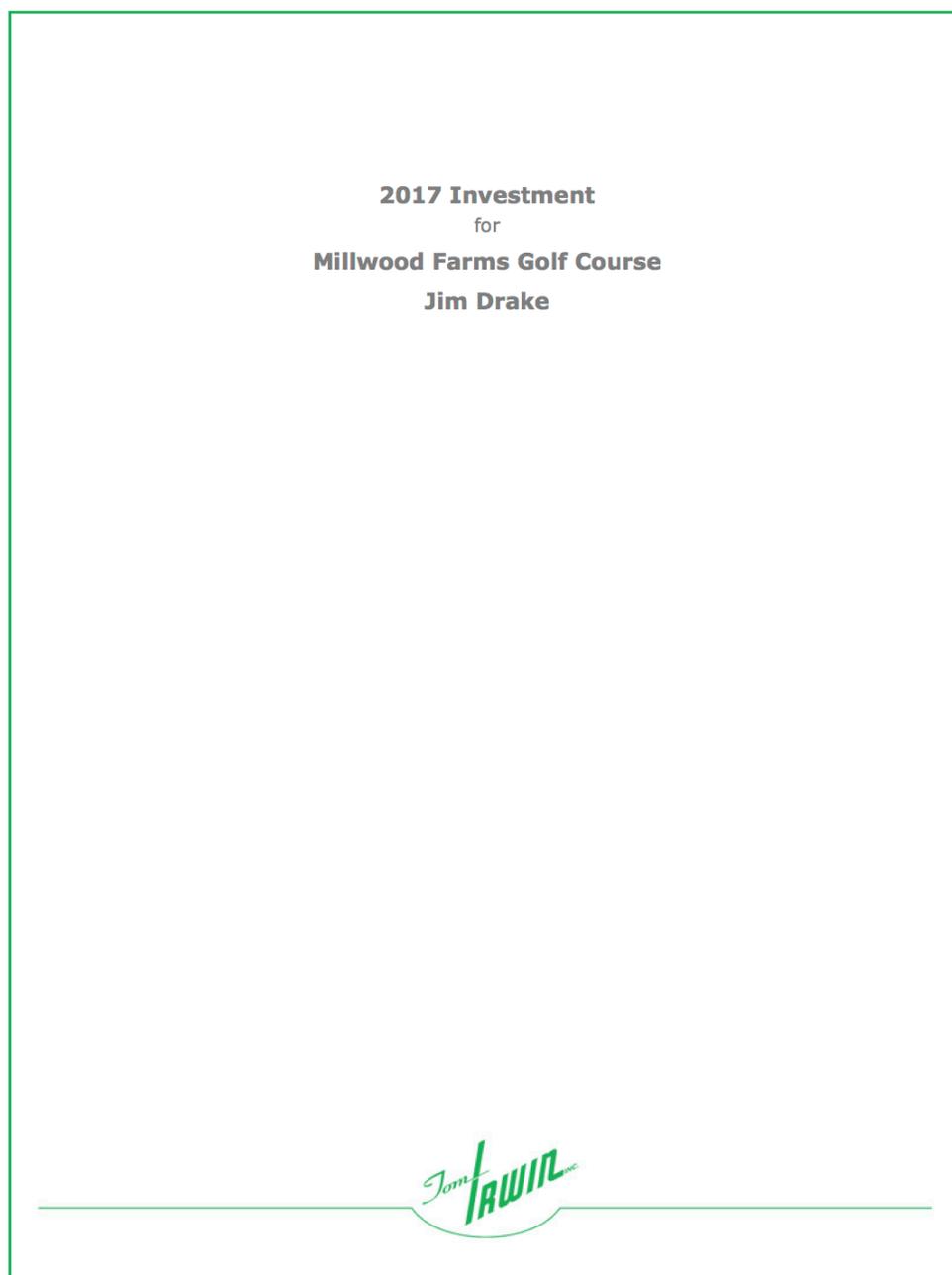
**2017 Tees**

1.47 Acres    64,000.00 sq.ft.    Spray Tank Capacity: 128 gal    Spray Coverage: 64,000.00 sq.ft.    Dilution Rate: 2.00 Gal/M    Number of Sprays: 1.00

7/5/17    Granular Application									
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Replenish 16-0-5 SG	50 Lb	1.56	2.00 Bag		0.25	0.00	0.08		
8/1/17    Spray Foliar    Let dry on foliage									
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Alypso™	55 Gal	0.75	0.01 Drum	48 oz					
Xzemplar	4x11.4 Oz	0.18	0.25 Case	11.5 oz				Dollar Spot & Brown Patch Control	
Sea-3	55 Gal	3.00	0.03 Drum	1.50 Gal				Complete Bio-Stimulant full of carbon sources and minerals to reduce stress and feed microorganisms	
Border 2.0	2x2.5 Gal	0.86	0.09 Case	55 oz				Drift control. Improves product efficiency.	
8/2/17    Granular Application									
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Replenish 16-0-5 SG	50 Lb	1.56	2.00 Bag		0.25	0.00	0.08		
9/6/17    Granular Application									
Product	Package	lb/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Replenish 16-0-5 SG	50 Lb	1.56	2.00 Bag		0.25	0.00	0.08		
10/1/17    Spray Foliar									
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Chipco 26019 Flo	2x2.5 Gal	3.00	0.30 Case	1.50 Gal				Local systemic fungicide for control of leafspots, dollar spot.	
Border 2.0	2x2.5 Gal	0.86	0.09 Case	55 oz				Drift control. Improves product efficiency.	
11/1/17    Spray Foliar    Snow Mold Prevention									
Product	Package	oz/M	Total Case/Bag	Per Load	n/M	p/M	k/M	Purpose	
Interface® Stressgard	2x2.5 Gal	4.00	0.40 Case	2 Gal				Snow Mold, Leaf Spots, Patch, Rust	
Border 2.0	2x2.5 Gal		Case						

Worksheet is for reference and budget purposes only. Check all label rates and compatibilities.

Appendix 2: Example Investment Plan



7/29/16

**Millwood Farms Golf Course  
2016 Investment Detail**

Product	UOM	Qty	Unit Price	Total Price
<b>Fairways</b>				
<b>Plant Protectants</b>				
<i>Adjuvant</i>				
Border 2.0	Case	0.00	\$ 455.00	\$ 0.00
<i>Herbicide</i>				
Dimension 2EW	2x2.5 Gal Case	0.82	1,785.00	\$ 1,463.70
<i>Insecticide Granular</i>				
Merit 0.5 Granular	30 Lb Bag	32.67	\$ 89.00	\$ 2,907.63
<i>Organics Liquid</i>				
Sea-3	55 Gal Drum	0.30	2,795.00	\$ 838.50
<b>Fertilizer</b>				
<i>Fairway Grade</i>				
Country Club 29-0-10 SGN 195	50 Lb (45) Bag	96.55	\$ 41.95	\$ 4,050.27
<b>Grass Seed</b>				
<i>Blend</i>				
Overseeding Bent Fescue Mix	Lb	348.48	\$ 7.63	\$ 2,658.90
Total Investment - Fairways				\$11,919.00
<b>Greens</b>				
<b>Plant Protectants</b>				
<i>Adjuvant</i>				
Border 2.0	Case	0.63	\$ 455.00	\$ 286.65
<i>Fungicide</i>				
Chipco 26019 Flo	2x2.5 Gal Case	0.75	\$ 575.00	\$ 431.25
Pegasus 6L	2x2.5 Gal Case	1.85	\$ 355.00	\$ 656.75
<i>Fungicide Agency</i>				
Bayleton Flo	2x2.5 Gal Case	0.57	2,700.00	\$ 1,539.00
Chipco Signature	8x5.5 Lb Case	0.68	1,111.00	\$ 755.48
Interface® Stressgard	2x2.5 Gal Case	0.94	\$ 772.50	\$ 726.15
Mirage™ StressGard™	2x2.5 Gal Case	0.95	\$ 875.00	\$ 831.25
Xzemplar	4x11.4 Oz Case	0.47	\$ 758.33	\$ 356.42
<i>Insecticide</i>				
Arena 50 WDG	2.5 Lb Each	0.90	\$ 750.00	\$ 675.00
Chlorpyrifos SPC 4	2x2.5 Gal Case	0.56	\$ 455.00	\$ 254.80
Conserve SC	4x1 Qt Each	0.94	\$ 769.00	\$ 722.86
Firebird Pro	4x1 Gal Case	0.05	\$ 450.00	\$ 22.50
<i>Nutrients Liquid</i>				

7/29/16

**Millwood Farms Golf Course  
2016 Investment Detail**

Product	UOM	Qty	Unit Price	Total Price
BaseMag™ F	2x2.5 Gal Case	14.05	\$ 224.00	\$ 3,147.20
TurfRx Ca	2x2.5 Gal Case	4.70	\$ 359.00	\$ 1,687.30
TurfRx Mg	2x2.5 Gal Case	1.90	\$ 535.00	\$ 1,016.50
<i>Organics Liquid</i>				
Kick Soil Conditioner	2x2.5 Gal Case	3.75	\$ 395.00	\$ 1,481.25
<i>Wetting Agent Liquid</i>				
Alypso Plus™	2x2.5 Gal Case	1.55	\$ 345.00	\$ 534.75
Vivax™	2x2.5 Gal Case	3.75	\$ 645.00	\$ 2,418.75
<b>Fertilizer</b>				
<i>Greens Grade</i>				
Sili-Cal SS GG	50 Lb (40) Bag	72.00	\$ 44.50	\$ 3,204.00
<i>Organic Greens Grade</i>				
Replenish 5-4-5 GG	50 Lb (40) Bag	120.00	\$ 47.50	\$ 5,700.00
<i>Organics Liquid</i>				
Protein Plus 14-2-6	2x2.5 Gal Case	15.00	\$ 335.00	\$ 5,025.00
Total Investment - Greens				\$31,472.86

**Tees**

**Plant Protectants**

<i>Adjuvant</i>				
Border 2.0	Case	0.36	\$ 455.00	\$ 163.80
<i>Fungicide</i>				
Chipco 26019 Flo	2x2.5 Gal Case	0.30	\$ 575.00	\$ 172.50
<i>Fungicide Agency</i>				
Bayleton Flo	2x2.5 Gal Case	0.10	2,700.00	\$ 270.00
Interface® Stressgard	2x2.5 Gal Case	0.40	\$ 772.50	\$ 309.00
Mirage™ StressGard™	2x2.5 Gal Case	0.10	\$ 875.00	\$ 87.50
Xzemplar	4x11.4 Oz Case	0.50	\$ 758.33	\$ 379.17
<i>Herbicide</i>				
Dimension 2EW	2x2.5 Gal Case	0.08	1,785.00	\$ 142.80
<i>Insecticide</i>				
Merit 75 WSP	4x4x1.6 Oz Case	2.75	\$ 495.00	\$ 1,361.25
<i>Organics Liquid</i>				
Sea-3	55 Gal Drum	0.06	2,795.00	\$ 167.70
<i>Wetting Agent Liquid</i>				
Alypso™	2x2.5 Gal Case	0.10	\$ 435.00	\$ 43.50
Vivax™	2x2.5 Gal Case	0.30	\$ 645.00	\$ 193.50

7/29/16

**Millwood Farms Golf Course  
2016 Investment Detail**

Product	UOM	Qty	Unit Price	Total Price
BaseMag™ F	2x2.5 Gal Case	14.05	\$ 224.00	\$ 3,147.20
TurfRx Ca	2x2.5 Gal Case	4.70	\$ 359.00	\$ 1,687.30
TurfRx Mg	2x2.5 Gal Case	1.90	\$ 535.00	\$ 1,016.50
<i>Organics Liquid</i>				
Kick Soil Conditioner	2x2.5 Gal Case	3.75	\$ 395.00	\$ 1,481.25
<i>Wetting Agent Liquid</i>				
Alypso Plus™	2x2.5 Gal Case	1.55	\$ 345.00	\$ 534.75
Vivax™	2x2.5 Gal Case	3.75	\$ 645.00	\$ 2,418.75
<b>Fertilizer</b>				
<i>Greens Grade</i>				
Sili-Cal SS GG	50 Lb (40) Bag	72.00	\$ 44.50	\$ 3,204.00
<i>Organic Greens Grade</i>				
Replenish 5-4-5 GG	50 Lb (40) Bag	120.00	\$ 47.50	\$ 5,700.00
<i>Organics Liquid</i>				
Protein Plus 14-2-6	2x2.5 Gal Case	15.00	\$ 335.00	\$ 5,025.00
Total Investment - Greens				\$31,472.86

**Tees**

**Plant Protectants**

<i>Adjuvant</i>				
Border 2.0	Case	0.36	\$ 455.00	\$ 163.80
<i>Fungicide</i>				
Chipco 26019 Flo	2x2.5 Gal Case	0.30	\$ 575.00	\$ 172.50
<i>Fungicide Agency</i>				
Bayleton Flo	2x2.5 Gal Case	0.10	2,700.00	\$ 270.00
Interface® Stressgard	2x2.5 Gal Case	0.40	\$ 772.50	\$ 309.00
Mirage™ StressGard™	2x2.5 Gal Case	0.10	\$ 875.00	\$ 87.50
Xzemplar	4x11.4 Oz Case	0.50	\$ 758.33	\$ 379.17
<i>Herbicide</i>				
Dimension 2EW	2x2.5 Gal Case	0.08	1,785.00	\$ 142.80
<i>Insecticide</i>				
Merit 75 WSP	4x4x1.6 Oz Case	2.75	\$ 495.00	\$ 1,361.25
<i>Organics Liquid</i>				
Sea-3	55 Gal Drum	0.06	2,795.00	\$ 167.70
<i>Wetting Agent Liquid</i>				
Alypso™	2x2.5 Gal Case	0.10	\$ 435.00	\$ 43.50
Vivax™	2x2.5 Gal Case	0.30	\$ 645.00	\$ 193.50

Appendix 3: Soil Reports- Nutritional and Physical

<b>Soil Report</b>							
Job Name: <b>Millwood Golf Club</b>			Date: 7/22/2016				
Company: Tom Irwin Inc			Submitted By: Ian Lacy				
Sample Location			Green	Green	Green	Green	
Sample ID			Putting	1	3	5	
Lab Number			68	69	70	71	
Sample Depth in inches			6	6	6	6	
Total Exchange Capacity (M. E.)			3.68	5.05	4.22	3.30	
pH of Soil Sample			4.3	4.9	5.1	5.4	
Organic Matter, Percent			2.24	2.67	2.91	2.35	
<b>ANIONS</b>	<b>SULFUR:</b>	p.p.m.	71	48	48	52	
	<b>Mehlich III Phosphorous:</b>	as (P <sub>2</sub> O <sub>5</sub> ) lbs / acre	1210	766	551	817	
<b>EXCHANGEABLE CATIONS</b>	<b>CALCIUM:</b>	Desired Value	1000	1373	1147	896	
		Value Found	320	650	571	533	
		Deficit	-680	-723	-576	-363	
	<b>MAGNESIUM:</b>	Desired Value	200	200	200	200	
		Value Found	47	98	92	80	
		Deficit	-153	-102	-108	-120	
	<b>POTASSIUM:</b>	Desired Value	200	200	200	200	
		Value Found	89	101	92	116	
		Deficit	-111	-99	-108	-84	
	<b>SODIUM:</b>	lbs / acre	34	59	98	82	
	<b>BASE SATURATION %</b>	Calcium (60 to 70%)		21.76	32.17	33.84	40.41
		Magnesium (10 to 20%)		5.33	8.08	9.09	10.11
Potassium (2 to 5%)		3.10	2.56	2.80	4.51		
Sodium (.5 to 3%)		2.03	2.54	5.03	5.40		
Other Bases (Variable)		8.80	7.60	7.20	6.60		
Exchangable Hydrogen (10 to 15%)		59.00	47.00	42.00	33.00		
<b>TRACE ELEMENTS</b>	Boron (p.p.m.)		0.2	0.23	0.23	0.27	
	Iron (p.p.m.)		191	199	173	227	
	Manganese (p.p.m.)		15	20	16	23	
	Copper (p.p.m.)		12.49	4.94	4.26	3.74	
	Zinc (p.p.m.)		6.15	14.99	12.59	13.04	
	Aluminum (p.p.m.)		1615	1259	1049	1196	
<b>OTHER</b>							

**Logan Labs, LLC**

### Physical Analysis Report

<b>Job Name</b>	Millwood Golf Club	<b>Company</b>	Tom Irwin Inc
<b>Contact</b>		<b>Sample ID</b>	263507
<b>Rep</b>		<b>Lab Number</b>	3525
<b>Submitted By</b>		<b>Run Date</b>	7/22/2016

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**Sample Location** Green  
**Sample Name** Putting

<b>Particle Size Analysis</b>		<b>%</b>	<b>Notes</b>
<b>Clay</b>		3.00	
<b>Silt</b>		20.80	
<b>Sand</b>		76.20	
<b>Organic Matter</b>		2.24	
<b>Fine Gravel</b>	<b>mm</b>	<b>%</b>	
	2.00	0.00	
<b>Sand Fractions</b>	<b>mm</b>	<b>%</b>	
	1.00	4.20	
	.25	38.80	
	.15	7.40	
	.05	25.80	

**USGA Specifications:**  
 2mm + 1mm = not more than 10%  
 .25mm = minimum of 60%  
 .15mm = not more than 20%  
 .05mm = not more than 5%  
 Silt = not more than 5%  
 Clay = not more than 3%

**Logan Labs, LLC**

## Physical Analysis Report

<b>Job Name</b>	Millwood Golf Club	<b>Company</b>	Tom Irwin Inc
<b>Contact</b>		<b>Sample ID</b>	263510
<b>Rep</b>		<b>Lab Number</b>	3527
<b>Submitted By</b>		<b>Run Date</b>	7/22/2016

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**Sample Location** Green

**Sample Name** 3

<b>Particle Size Analysis</b>	<b>%</b>	<b>Notes</b>
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<b>Clay</b>	2.00	
-------------	------	--

<b>Silt</b>	14.10	
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<b>Sand</b>	83.90	
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<b>Organic Matter</b>	2.91	
-----------------------	------	--

<b>Fine Gravel</b>	<b>mm</b>	<b>%</b>
	2.00	0.00

<b>Sand Fractions</b>	<b>mm</b>	<b>%</b>
	1.00	5.90
	.25	54.40
	.15	9.20
	.05	14.40

**USGA Specifications:**

2mm + 1mm = not more than 10%

.25mm = minimum of 60%

.15mm = not more than 20%

.05mm = not more than 5%

Silt = not more than 5%

Clay = not more than 3%

**Logan Labs, LLC**

### Physical Analysis Report

<b>Job Name</b>	Millwood Golf Club	<b>Company</b>	Tom Irwin Inc
<b>Contact</b>		<b>Sample ID</b>	263511
<b>Rep</b>		<b>Lab Number</b>	3529
<b>Submitted By</b>		<b>Run Date</b>	7/22/2016

---

**Sample Location** Green

**Sample Name** 10

<b>Particle Size Analysis</b>	<b>%</b>	<b>Notes</b>
-------------------------------	----------	--------------

<b>Clay</b>	2.00	
-------------	------	--

<b>Silt</b>	16.00	
-------------	-------	--

<b>Sand</b>	82.00	
-------------	-------	--

<b>Organic Matter</b>	2.80	
-----------------------	------	--

<b>Fine Gravel</b>	<b>mm</b>	<b>%</b>
	2.00	0.00

<b>Sand Fractions</b>	<b>mm</b>	<b>%</b>
	1.00	6.00
	.25	49.50
	.15	8.50
	.05	18.00

**USGA Specifications:**

2mm + 1mm = not more than 10%

.25mm = minimum of 60%

.15mm = not more than 20%

.05mm = not more than 5%

Silt = not more than 5%

Clay = not more than 3%

**Logan Labs, LLC**

### Physical Analysis Report

<b>Job Name</b>	Millwood Golf Club	<b>Company</b>	Tom Irwin Inc
<b>Contact</b>		<b>Sample ID</b>	263508
<b>Rep</b>		<b>Lab Number</b>	3526
<b>Submitted By</b>		<b>Run Date</b>	7/22/2016

---

**Sample Location** Green

**Sample Name** 1

<b>Particle Size Analysis</b>	%	<b>Notes</b>
-------------------------------	---	--------------

<b>Clay</b>	3.00
-------------	------

<b>Silt</b>	14.60
-------------	-------

<b>Sand</b>	82.40
-------------	-------

<b>Organic Matter</b>	2.67
-----------------------	------

<b>Fine Gravel</b>	<i>mm</i>	%
	<b>2.00</b>	0.00

<b>Sand Fractions</b>	<i>mm</i>	%
	<b>1.00</b>	4.60
	<b>.25</b>	51.80
	<b>.15</b>	9.80
	<b>.05</b>	16.20

**USGA Specifications:**

*2mm + 1mm = not more than 10%*

*.25mm = minimum of 60%*

*.15mm = not more than 20%*

*.05mm = not more than 5%*

*Silt = not more than 5%*

*Clay = not more than 3%*

**Logan Labs, LLC**

## Physical Analysis Report

<b>Job Name</b>	Millwood Golf Club	<b>Company</b>	Tom Irwin Inc
<b>Contact</b>		<b>Sample ID</b>	263509
<b>Rep</b>		<b>Lab Number</b>	3528
<b>Submitted By</b>		<b>Run Date</b>	7/22/2016

---

**Sample Location** Green  
**Sample Name** 5

<b>Particle Size Analysis</b>		<b>%</b>	<b>Notes</b>
<b>Clay</b>		3.00	
<b>Silt</b>		15.60	
<b>Sand</b>		81.40	
<b>Organic Matter</b>		2.35	
<b>Fine Gravel</b>	<b>mm</b>	<b>%</b>	
	<b>2.00</b>	0.00	
<b>Sand Fractions</b>	<b>mm</b>	<b>%</b>	
	<b>1.00</b>	3.60	
	<b>.25</b>	48.00	
	<b>.15</b>	13.20	
	<b>.05</b>	16.60	

**USGA Specifications:**

*2mm + 1mm = not more than 10%*  
*.25mm = minimum of 60%*  
*.15mm = not more than 20%*  
*.05mm = not more than 5%*  
*Silt = not more than 5%*  
*Clay = not more than 3%*

**Logan Labs, LLC**

Appendix 4: Water Quality Report



**Water Analysis Report**

**Job Name** Town of Framingham  
**Contact**  
**Rep**  
**Submitted By** Ian Lacy

**Company** Tom Irwin Inc  
**Sample ID** 264079  
**Lab Number** 10752  
**Run Date** 8/1/2016

**Sample Location** Pond **Notes**  
**Sample Name** 14th Hole

**pH** 6.7  
**Hardness ppm** 60.8  
**Hardness Grains /gal** 3.56  
**Conductivity mmhos/cm** 0.29  
**Sodium Adsorbtion Ratio** 1.97

		ppm	meq/L	lbs/A in
<b>Calcium</b>	<b>Ca</b>	18.9	0.95	4.30
<b>Magnesium</b>	<b>Mg</b>	3.3	0.28	0.75
<b>Potassium</b>	<b>K</b>	3.2	0.08	0.72
<b>Sodium</b>	<b>Na</b>	35.5	1.54	8.06
<b>Iron</b>	<b>Fe</b>	0.1		0.01

		ppm	meq/L	lbs/A in
<b>Total Alkalinity</b>		56.0		12.73
<b>Carbonate</b>		0.0	0.00	0.00
<b>Bicarbonate</b>		68.0	1.11	15.45
<b>Chloride</b>		60.0	1.70	13.64
<b>Sulfate</b>		4.1	0.09	0.93

**Salt Concentration** 185.6 42.18  
**Boron** 0.02

**Cation/Anion Ratio** 0.98

**pHc** 8.46  
**Adj. SAR** 1.85

**Appendix 5: Methods of Test and References:**

<i>Method of Test</i>	<i>Name</i>
1. BS 7370-3: 1991: Appendix A.A3	Measurement of height of vegetation
2. BS 7370-3: 1991: Appendix A.A4  ASTM	Assessment of evenness (planarity)
3. BS 7370-3: 1991: Appendix A.A6	Estimating the percentage ground cover of a range of components
4. BS 7370-3: 1991: Appendix A.A7	Measurement of thatch thickness (Including root and rootzone depth)
5. BS 7370-3: 1991: Appendix A.A8  ASTM	Measurement of infiltration rate
6. BS 7370-3: 1991: Appendix A.A9	Soil sampling for the measurement of soil pH, phosphate and potash
7. BS 7044-2.1: 1989: Method 1	Determination of ball bounce
8. BS 7044-2.1: 1989: Method 2	Determination of ball roll
9. BS 7044-2.2: 1990: Method 1	Determination of traction
10. BS 7044-2.2: 1990: Method 5  ASTM	Determination of hardness
11. BS 3882: 1994 Annex C	Determination of soil phosphate content
12. BS 3882: 1994 Annex E	Determination of soil potash content
13. IOG Test Method PQT. 1	Determination of vertical and horizontal

	position of goal posts.
14. BS 7755-5.4 1998, ISO 11277:1998	Determination of particle size distribution in mineral soil material
15. BS 7755-3.2:1995, ISO 10390:1994	Determination of soil pH.
16. IOG Test Method PQT. 2	Determination of gradient.
17. TIA Test Method, Ohio State Checklist, STMA Safe check list, Australian Football National Risk Protection Programme	Field Hazard Survey

## Appendix 6: Test Apparatus & Methodology

### Structural Quality

#### Name of Test: Height of Cut

Number of Criteria Evaluated: 1, multiple locations.

Apparatus: Grass Height Prism Gauge, Steel Rule

Photo or Diagram:

Description:

Depending upon the surface under test, an accurate height of cut measurement can be taken with glass prism gauge or a steel ruler. The preferred instrument is the prism gauge due to its accuracy and its ability to readily detect cut quality. The prism gauge is best suited for low cut turf. It has an accuracy of 0.020 inches or 1 mm. For surfaces greater than 1 5/8 inches a steel rule would be the preferred instrument.

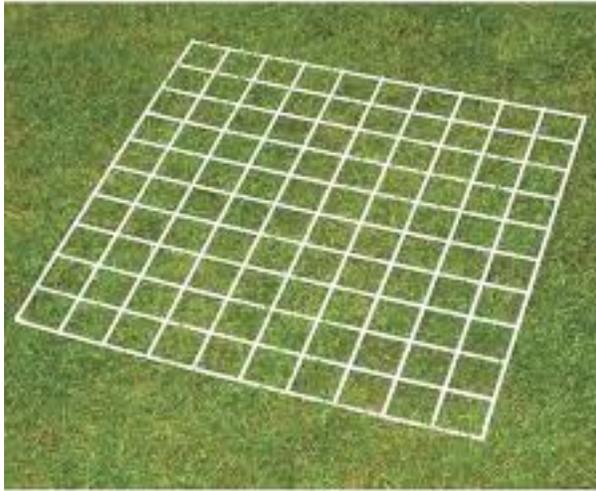


### Name of Test: Sward Grid Test

Number of Criteria Evaluated: 14 each evaluated at multiple locations.

Apparatus: 1 Meter Sward Test Grid, divided into 100 equally sized subdivisions

Photo or Diagram:



Description:

Each subdivided square equals 1% of the total area of the grid. Utilize the subdivisions to estimate the percentage of: bare area, turf coverage, desirable grass, undesirable grass, poa annua, large leaved weeds, small leaved weeds, holes, surface debris, earthworm casts, moss, disease, pests, and, algae & lichen.

### Name of Test: Soil Profile

Number of Criteria Evaluated: 3, multiple locations.

Apparatus: Mascaro Soil Profiler

Photo or Diagram:



### Description:

The Mascaro soil sampler pulls a 7-inch by 3-inch soil sample. From this sample measurements can be made of the thatch depth, the root depth, and the depth and composition of the root zone medium. In addition, observations for pests, disease, anaerobic conditions, and detrimental layering can be determined. The general soil composition and physical characteristics can be ascertained from the sample.

### Name of Test: Infiltration

Number of Criteria Evaluated: 1, multiple locations.

Apparatus: Double Ring Infiltrometer

Photo or Diagram:



Specifications:

2 <sup>2</sup>/<sub>3</sub> inch inner ring, 4 <sup>1</sup>/<sub>4</sub> inch outer ring

mm and inch scale

Countdown timer

Description:

The double ring Infiltrometer measures the rate of movement of water through a limited soil column. The device is inserted to the Saturn ring with a slight twisting motion. The Inner and outer ring are filled to capacity and the float is zeroed. The timer is started and when elapsed, the amount of water infiltrated is read from the scale. Repeat at designated test points.

## Name of Test: Visual Index and Dark Green Color Index

Number of Criteria Evaluated: 2, multiple locations.

Apparatus: Green Index plus, spectrum meter

Photo or Diagram:

Description:

Canopy Greenness is an indicator of the chlorophyll levels, which are impacted by stresses caused by inadequate nutrition and moisture, pest pressure, disease, or excessive compaction levels. A Dark Green Color Index can be calculated to quantify the color. The range of values is dependent upon the Turfgrass cultivar. The DGCI value typically ranges between .000 and .900. This value will be factored into the Visual Quality Rating. The value of a DGCI rating is that it is repeatable and it minimized the subjective nature or color and quality ratings. This allows for more reliable comparison between sites and time. Measurements can be compared to identify variability or trends in turf health across golf course greens and fairways, as well as other sports field, providing valuable data for decisions regarding fertilization and irrigation, and for assisting in early detection of plant stress or disease.



A digital camera captures an image as a series of pixels that have different levels of Red, Green, and Blue (RGB) color. However, for the purposes of quantifying turf greenness, it is not accurate to just use the Green parameter from this color scheme. This is because the amount of Red and Blue also affect how green the turf looks. Therefore, the RGB color scheme must first be converted into Hue, Saturation, and Brightness (HSB).

Hue has a value between 0 and 359; Saturation and Brightness have values between 0.0 and 1.0. DGCI is then calculated from the HSB values.

Visual Quality ratings are based on several factors. These include color, density, uniformity, and texture as well as the functional use of the turf. Visual Quality is rated from 1-9 with 6 generally being considered an acceptable rating and 9 indicating exception turf quality.

## Test Apparatus and Methodology

### Playability

#### Name of Test: Firmness

**Number of Criteria Evaluated:** 1, multiple locations

**Apparatus:** Trufirm (FieldScout)

**Photo or Diagram:**



#### Specifications:

Power: 2 AA batteries (included)

Weight: 4.3 lb (1.95 kg)

Height: 27 in (69 cm)

Diameter of Hammer: 1.68 in (4.45 cm)

Measurement Units: Depth of travel (inches)

Range: 0.1 in - 1.5 in

Resolution: 0.01 in at 1.00 in - 1.50 in (0.25 mm at 25.4 mm - 38.1 mm)

0.003 in at 0.00 in - 0.999 in (0.076 mm at 0 mm - 25.4 mm)

Display: LCD with backlight

#### Description:

The patented TruFirm system utilizes a hemisphere-shaped impact hammer that mimics the shape of a golf ball to better simulate golf ball impacts. The mass is dropped from a consistent height and the maximum turf penetration value is recorded and correlated to the surface firmness — the lower the penetration value, the firmer the turf.

#### Common applications for TruFirm include:

- Golf course greens for better playing conditions and fewer ball marks

- Fairway landing areas for longer drives
- Green approach areas for chip and run play
- Bunker sands for surface firmness

### Name of Test: Soil Moisture

Number of Criteria Evaluated: 1, average of three tests per location, multiple locations.

Apparatus: TDR 300 Field Scout Digital Moisture Meter

Photo or Diagram:



#### Specifications:

Measurement Units - Percent volumetric water content

Resolution 0.1%

Accuracy  $\pm 3.0\%$  volumetric water content with electrical conductivity  $< 2 \text{ dS m}^{-1}$

Range 0% to saturation (Saturation is typically around 50% volumetric water.)

#### Description:

The TDR 300 converts a measured electrical signal into a Volumetric Moisture Content reading using an equation valid over a wide range of mineral soils. The meter is

inserted into the soil at several locations around the test point and these readings are averaged to produce a representative sample.

### Name of Test: Rotational Traction

Number of Criteria Evaluated: 1, average of three tests per location, multiple locations.

Apparatus: Shear vane tester

Photo or Diagram:



Specifications:

Output: 0-30Nm reading torque wrench

Resolution: 1 Nm

Variable tests, cleats or vanes.

Description:

The shear vane tester has been used for over 25 years in turf grass science and related field. The tester is inserted into the turf and the rotated until the roots begin to tear. The peak torque, in Newton meters, is measured from the gauge. The test is repeated 3 three times to generate an average before moving to the next point.

**Name of Test: Compaction**

Number of Criteria Evaluated :1 over multiple locations

Apparatus: Penetrometer

Photo:



The penetrometer is the tool of choice for measuring soil compaction. Soil compaction differs from field hardness. This is a source of frequent confusion.

Field hardness is an indicator of the resiliency of the upper few inches of the soil column. The unit of measurement is GMax or derived value based upon deceleration of a known mass. The

purpose is to estimate the rate and force of deceleration upon impact. The focus is primarily on player safety and concussion prevention.

Compaction, while related and a contributor to, hardness is a measurement of the soil porosity and friability. A compact soil is denser and has limited air space within the soil column. Compaction can occur at any level resulting in “hard pans” or “plow pans”. These compacted layers will inhibit root growth and the free flow of air, moisture, and nutrients. Once a compacted layer has established it self, it will not resolve without intervention. Compaction is measured in the pounds per square inch (PSI) required to drive the probe to differing depths. The use of the penetrometer is based upon standard ASAE S313.3 0 -200 PSI are considered Good growing conditions, 200-300 PSI are fair, greater than 300 PSI are poor and will result in abnormal root development and impaired air and water exchange.

**Name of Test: Smoothness and Trueness**

**Number of Criteria Evaluated: 1** over multiple locations

**Apparatus: Parry Meter**

**Photo:**



**Description:**

Smoothness and Trueness of golf greens has often been the holy grail of Golf Course Superintendents. Trying to create consistency of golf greens is crucial to the quality of the surface and the enjoyment of the players.

The parry meter is a unique tool that uses a real golf ball mounted on a frame, and a very clever application that uses the accelerometer found in all smart phones to read the putting surface. Some of the key facts can be found below:

- Turf management tool
- Discover the effects of different mowing equipment etc.
- Improve consistency from green to green
- Use's a real Golf Ball to measure how a real golf ball performs
- Measures the vertical & Lateral deviations- using smartphone technology
- Create healthier great performing greens by focusing on smoothness & trueness
- Designed & Built to last - no maintenance, greasing or adjustments required
- **74** readings per second
- **1,554** readings per run

**Name of Test: Speed**

**Number of Criteria Evaluated: 1** over multiple locations

**Apparatus: Stimp Meter**

**Photo:**



**Description:**

The **Stimpmeter** is a device used to measure the speed of a golf course putting green by applying a known force to a golf ball and measuring the distance traveled in feet. The ball is pulled out of the notch by gravity when the device is slowly raised to an angle of about 20°, rolling onto the green at a repeatable velocity of 6.00 ft/s (1.83 m/s). The distance travelled by the ball in feet is the “speed” of the putting green. Six distances, three in each of two opposite directions, should be averaged on a flat section of the putting green where possible. The three balls in each direction must be within 8 inches (20 cm) of each other for USGA validation of the test.



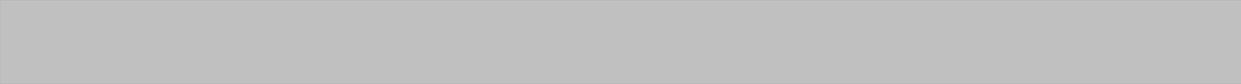
# **Office of the Inspector General**

Commonwealth of Massachusetts

**Gregory W. Sullivan**  
Inspector General

## **Advisory on Municipal Golf Course Management Contracts**

June 2009



**Massachusetts Office of the Inspector General**

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June 2009

Dear Municipal Official:

The attached report is an advisory based on our review of contracts pertaining to the 63 municipal golf courses in the Commonwealth. This Office also contracted with Melanson Heath & Co., an independent certified public accounting firm, to conduct financial and internal control audits on a sample of four municipal golf courses that were representative of the larger group.

This review was conducted to determine if municipalities are operating golf courses using sound business practices and are exercising adequate vendor oversight to ensure that municipalities receive a fair share of golf course revenue.

Our review found that municipalities need to improve golf course contract preparation and contract oversight. Many municipalities appear to have no assurance that they are receiving a fair share of revenue from vendors.

We strongly suggest that you review the attached recommendations and make any necessary changes to current procurement and/or operational practices to ensure compliance with the laws, greater oversight, fair revenue collection, and sound business operations.

Please keep in mind that although this review examined only golf courses, the same issues, concerns and remedies may apply to any municipal business enterprise or contracts generally. Please also keep in mind that the comments and recommendations in this advisory should not be viewed as addressing all possible issues or concerns regarding golf course or other contracts. Also, not all of the recommendations may be applicable to your contract situation. The main purpose of the advisory is to provoke your thoughtful review of current and future municipal contracts.

If you have any questions, please do not hesitate to contact the office.

Sincerely,

*Gregory W. Sullivan*

Gregory W. Sullivan  
Inspector General

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## ***Introduction***

There are 63 municipal golf courses in the Commonwealth of varied sizes and types.

53 of these operate through leases or vendor contracts for management, maintenance, food and beverage service, pro-shop operations or some combination thereof while 10 operate solely with municipal employees.

A municipality operates a golf course as a public benefit. However, operational costs of a golf course can put a financial strain on a municipal budget. Although a municipal golf course is not guaranteed to make a profit many municipal golf courses do generate a profit. To reduce financial and operational risks and with the hope of generating revenue, the majority of municipalities have privatized golf course management, operations, maintenance and other services through vendor contracts and lease arrangements. The goals of any privatization effort should include increasing municipal income, improving course quality, and improving operational efficiency. Although no comprehensive tally is maintained by the Commonwealth, the Office of the Inspector General (OIG) estimates that the total annual income earned by municipalities from golf courses exceeds \$30 million. Vendors gross significantly higher income. Nationally, municipal courses generate billions of dollars in revenue.

As more municipalities have moved towards privatizing golf course operations the OIG has received numerous procurement related inquiries. Additionally, previous audits and investigations of golf courses by Massachusetts oversight and law enforcement agencies, including the OIG, have identified issues beyond procurement such as asset misappropriation, lack of internal controls, unreported related transactions, missing cash, poor record keeping, and poor management practices.

The increasing need for municipal revenue, increasing privatization, and concerns both in Massachusetts and around the nation regarding fraud, waste, and abuse in public sector business enterprises, like golf courses, prompted the OIG to review golf course contracting in Massachusetts. The OIG review focused on privatized courses. The goal of the OIG was to identify vulnerabilities to fraud, waste, and abuse in municipal golf courses and provide recommendations to improve contracting and efficiency. The OIG specifically reviewed whether:

- 1) Municipalities are getting their fair share of revenue under contracts, leases, or other forms of privatization.
- 2) Municipalities provide adequate oversight and control over contractors, vendors, lessees, etc.
- 3) Municipalities operate these public “enterprises” using accepted business standards and follow M.G.L. c.30B, the Uniform Procurement Law, as well as municipal finance laws.

To complete this review, the OIG examined dozens of municipal golf course contracts and, in 2008, used the services of Melanson Heath & Co., an independent certified public accounting firm in Massachusetts with considerable expertise in municipal and government accounting to conduct a financial and internal control review of a sample of four municipal golf courses that the OIG considered representative of the larger group.

To protect taxpayer dollars, the OIG believes that golf course and other public enterprises must be operated with a high degree of oversight, transparency, and integrity.

Based on the OIG review, it appears that many municipalities can improve their oversight and control over golf course operations. Although many municipalities have policies, procedures, and lengthy vendor contracts in place, oversight and contract management can be improved. Contracts or agreements without adequate monitoring and oversight are not guaranteed to operate effectively.

## **OIG Advice**

The following recommended practices are based on the issues and practices identified from a review of municipal golf course contracts in Massachusetts.

The OIG strongly advises municipalities to consult with their legal counsels, procurement staff, and other professionals when contracting for golf course management and operations.

### **1. Vendor Oversight by Municipalities<sup>1</sup>**

Municipalities must ensure that vendors comply with all contractual requirements. Municipalities should not rely on vendor relationships or a belief that the legal and moral weight of a contract by itself will ensure compliance.

Overall, the OIG review found the need for increased contract oversight. Many municipalities told the OIG that they did not verify contractual requirements and only performed cursory reviews of vendor revenue information. Officials stated that if they did not receive complaints from golfers and the vendor made scheduled payments to the city or town, they saw no reason to “interfere,” “obstruct,” or “get on the back” of the vendor.

Municipal officials have a responsibility to a) protect a public asset – the golf course, b) ensure that contracts are adhered to and, c) ensure that taxpayers get what they are paying for under the contract. Vendors are making substantial income under these contracts. In return for this income they have made contractual promises to share revenue and/or make investments in the golf course and perform specific functions. Municipal officials have a responsibility to ensure this compliance. Not doing so is the equivalent of paying for goods or services never received. A responsible official would not knowingly do this.

Contract compliance includes a vendor paying the municipality what it is obligated to pay under the contract. For many of the OIG reviewed contracts, the municipality is

<sup>1</sup> From this point, the term “vendor” will be used to refer to vendors, contractors, lessees, and other non-government parties involved with golf course management and operations.

compensated by receiving a share of profits and/or by receiving a set fee from the vendor. To ensure that an adequate profit share is received and that a set fee is based on realistic revenue estimates, municipalities should use accepted business standards. The OIG has found that many municipalities do not. For example, half of the contracts reviewed do not require the vendor to provide financial information to the municipality and do not explicitly give the municipality the right to audit golf course records to verify revenue. One contract even specifies that the lessee is not required to provide financial statements.

Knowledge of a facility's financial status is critical for municipalities. It is one of the best methods to ensure the course is being operated properly and in the taxpayer's interest. Also, when it is time to re-procure golf course services the municipality must be able to provide accurate income and expense information to bidders and proposers and the municipality should be able to determine if a vendor's price proposal accurately and fairly reflects a course's revenue potential. Keep in mind that an inability to provide income and expense information to potential proposers or bidders is detrimental to fair and open competition and therefore in violation of M.G.L. c.30B.

To improve contract compliance and oversight the OIG recommends that:

- a. Contracts contain a requirement for, at a minimum, monthly vendor reporting of all revenue regardless of source or whether the revenue is to be shared with the municipality. The types of revenue that should be reported here and in any annual reporting should include, but not be limited to, greens fees, food and beverage, pro-shop sales, golf cart rentals, club and pull cart rentals, golf lessons, tournament fees, membership fees, marketing/advertising revenue, driving range revenue, and locker rentals.
- b. Contracts require the vendor to provide an annual audited financial statement prepared by a licensed certified public accountant. Consideration should also be given to require the vendor to provide a copy of its annual filed tax return.
- c. Contracts should require the vendor to pay for an audit of golf course records every three years or before the end of a contract period, whichever comes first. To avoid any potential conflict of interest, the audit should be performed by a licensed certified public accountant (CPA) chosen by the municipality. The municipality should be considered the client for the purposes of the CPA contract.

- d. Vendor reporting requirements should include timetables. For example, monthly reports should be provided no later than 15 days after the end of the preceding month and annual financial information should be provided no later than 90 days after the close of the business year, season, or contract year.
- e. Contracts should clearly specify the right of the municipality or other authorized government entity to request and review all records, documents and financial statements related to all aspects of the vendor's business operations including, if necessary, those beyond the municipal golf course.
- f. Contracts should specify the period for vendor record retention. At a minimum, records should be retained by the vendor for the same period the municipality would be required to under the Secretary of States record retention regulations or for one year from the final date of payment under the contract (as required by M.G.L. c.30B) whichever is the longer period.
- g. Contracts should require detailed cash management and control requirements and procedures.

A review of vendor financial information and contract compliance along with an adequate audit plan will help a municipality verify vendor claims and help to ensure the receipt of the proper share of golf course profits.

## **2. Revenue-share agreements**

Trust but verify. In revenue-share agreements the amount of money the municipality receives changes based on how much revenue the golf course earns and/or the vendor reports. Therefore, it is critical that every contract contain specific cash handling procedures and financial reporting requirements to ensure that the revenue earned equals the revenue reported. Without adequate reporting and controls, municipalities have no assurance that they are receiving a fair and complete share of revenue.

However, the majority of OIG reviewed contracts with a revenue-share or profit-share agreement lacked specific cash management or control procedures. Cash management procedures include specific policies concerning how to control, account for and report cash received. As an accepted business standard, vendors will institute some form of control and cash management systems. However, if the municipality does not require specific practices under the contract, the municipality should still reserve the right under

the contract to approve and require reasonable changes to a system set up by a vendor. At a minimum, controls and cash management should mimic the systems in place for the municipality's treasurer and/or collector's office.

Control and cash management systems should include, but not be limited to:

- a. segregation of duties (for example the cashier should not reconcile the cash count to the register tape totals);
- b. detailed reporting as described previously in finding one;
- c. reconciliation of daily bank deposits by municipal, not vendor staff;
- d. a computerized point-of-sale (POS) cash register system;
- e. paper and electronic transaction records; and
- f. daily cash register reports.

Failure to require proper controls leaves municipalities vulnerable to fraud. Without oversight, the vendor could under-report revenue or could launder money through other business operations and the municipality would have no way of knowing. Many municipalities engaged in a revenue-share agreement are operating solely with a “good faith” belief that the vendor is fairly compensating the municipality.

In addition, most golf course contracts do not maintain the right of the municipality to enter the property, conduct surprise cash counts or inspections. Both of these methods are a proactive way to prevent fraud and at a minimum signify to the vendor that the municipality is serious about maintaining oversight over course operations. The OIG recommends that in addition to audits and surprise inspections, municipalities use methods such as “mystery shoppers” and customer surveys as part of vendor oversight. Enforcing contract compliance need not be a belligerent or adversarial process; it is an accepted and expected business practice. Many vendors have told the OIG that they welcome oversight because they “have nothing to hide” and are proud of their work, and it is not, as some municipal officials have told the OIG, “an inconvenience to the vendor” or an “unfair” practice. The OIG offers that a vendor who asserts that oversight is inconvenient or unfair might not welcome it for reasons tied to fraud, waste, abuse, or non-compliance.

### **3. Contract Provisions**

Trust but verify. Many contracts included provisions for construction or maintenance work in addition to golf course management services. The municipality should apply sound and effective oversight for any contract requirement for construction or

maintenance work. The municipality must consider these contract requirements as part of the vendor's compensation to the municipality. As such the municipality is responsible for ensuring that the work has been completed as required. The municipality should examine minimally:

- a. the quality of work;
- b. that work adheres to appropriate codes and standards;
- c. that all permits and licenses have been obtained and fees paid;
- d. that the monetary value of the work meets or exceeds contract requirements; and
- e. that all appropriate warranties have been transferred to the municipality.

The municipality should consult with and use the services of its public works, building, and/or inspectional service, and other appropriate staff for the oversight identified above. Effective contract monitoring is necessary for a successful procurement process.

Also, note that any addition of construction and maintenance requirements to service contracts or leases should be reviewed with the Office of the Attorney General and your legal counsel to prevent possible violations of public construction statutes.

#### **4. Free or subsidized utilities to vendors**

In 20 percent of the contracts surveyed, municipalities are paying all or a portion of vendor utility costs with the most commonly subsidized utilities being heat and electricity. A further 11 percent of contracts surveyed fail to address which party is responsible for utility costs.

For example, at one course a vendor is paying \$3,500 per year for the right to operate a food concession at the course. Per the contract, the vendor must pay for electricity expenses but receives free water, heat and air conditioning for the concession. In this situation, the utility costs may exceed the rent paid to the municipality.

At a golf course, water used for irrigation is a critical utility cost. According to the Massachusetts Department of Environmental Protection, "golf courses require large quantities of ground or surface water to maintain playing surfaces and managed turf areas." Some municipalities have taken responsibility for all or a portion of this large

expense. Municipalities may also fail to identify this and other expenses when calculating golf course “profits” for the municipality or when negotiating a fee or revenue share agreement with the vendor.

Utility costs are an overhead expense necessary to operate a business and should be factored into any vendor agreement. Assignment of these costs to the municipality could negate any profitability, provide an unfair and unwarranted subsidy to a private enterprise or make the course a cost burden to the municipality.

## **5. Lengths of Leases and Contracts**

Massachusetts General Law places limitations on the length of certain municipal contracts, leases etc. As a rule, if the length is for three years or less then standard procurement rules apply. If the length of supplies and services contracts exceeds three years, a municipality must obtain an approval vote of its governing authority. Real property leases do not require majority vote approval. Additionally, M.G.L. c.40, §3 may limit a municipality’s right to enter into leases of municipally-owned buildings. A municipality should consult with its legal counsel if contemplating any agreements that will extend beyond three years and/or involve leasing municipally-owned buildings.

The OIG strongly advises against long term contracts, those longer than five years, as being contrary to accepted business standards. Long term contracts may not benefit a municipality because they could saddle a municipality with a poorly performing vendor and unless the contract provides for payments that escalate in value, the municipality may not receive fair value over the contract term.

For example, one municipality has leased a course to the same lessee since the 1920’s. The lease agreement pre-dates M.G.L. c.30B and has remained virtually unchanged and has never been open to fair competition. The vendor only pays the municipality \$100 annually to lease the golf course. In another case, a municipality entered into a 25 year contract at a flat annual fee of \$24,000. It is a questionable business practice to enter into long-term, low value arrangements without first considering historical income and expense information and revenue potential.

Longer term contracts limit competition, restrain municipal options, and unless carefully crafted, seriously undermine the municipality’s ability to earn a fair and reasonable

return from the private use of a public asset. The OIG recommends against long term agreements and recommends re-procurement no more than every five years.

## **6. Monetary Considerations**

A municipality must decide how it wants to be paid under the contract. As stated previously, most municipalities use either a flat fee or revenue sharing arrangement. However, in a number of flat fee cases, the municipality did not provide for an escalation or change to the fee over time. In an extreme case cited previously, the fee has been \$100 for almost 90 years. The OIG recommends using a price escalator for a flat fee arrangement. This escalator can be tied to the consumer price index, inflation rate, or other factor. The value of money does not remain constant so the value of a flat fee paid to the municipality will diminish over time if it remains constant.

In addition to fees and/or revenue sharing from the golf course, some municipalities include a Payment in Lieu of Taxes (PILOT) requirement in the lease or contract. The PILOT substitutes for a real property tax. The PILOT can be based on the assessed value of the property, on another measure, or simply be a flat fee (with escalation consideration). Some municipalities also require the vendor to pay personal property tax on the value of the equipment, clubhouse furnishings etc. and require the vendor to register the vehicles used for golf course purposes at the golf course address in order for the municipality to collect any applicable motor vehicle excise taxes.

Regardless of the forms of income, the municipality should determine upfront what types of income there could be, how this income should be calculated, how and if it should be shared with the municipality and how it should be remitted to the municipality. For example, with concessions such as a pro-shop the municipality could share in the profits or charge a fee or rent as it would from another licensee or concessionaire. For revenue sharing agreements the municipality might consider minimum fees as a baseline. For example, some contracts require a revenue share after certain gross revenue is achieved such as 25 percent of anything grossed above \$300,000. The municipality might want to consider a minimum in the event that \$300,000 is not achieved. The minimum could be set on a flat fee basis such as 10 percent or \$30,000. This ensures some municipal income.

Jurisdictions outside Massachusetts have used a flat fee per golf round played rather than a flat fee contract payment in their contracts. This combines both flat fee and revenue share elements and reduces the need for a municipality to monitor vendor income and cash controls. However, the municipality must then monitor the number and types of rounds played. Other jurisdictions have the vendor add a per round surcharge to the greens fee that is payable to the municipality in addition to any other fee or revenue share arrangement with the vendor.

## **7. Procurement**

The OIG advises that before any golf course procurement process, a municipality should consult with its designated procurement official (PO). For example, some municipalities use a process managed by an appointed Golf Commission or other body. This process may occur outside the control and oversight of the PO. In these cases the PO should be consulted. Officials should understand the legal requirements of the procurement process as well as suggested best practices. Municipalities must ensure that all provisions of the Uniform Procurement Act (M.G.L. c.30B), municipal finance law and any other applicable state law are adhered to. Failure to follow state law could nullify the contracts or leases in question and could undermine the municipality's ability to protect the public interest.

Under M.G.L. c. 30B, the specific procurement procedures to use depend on the dollar value of the contract to the vendor, not the amount the vendor is paying the jurisdiction. Also, if the contract requires the vendor to perform any construction work or capital improvements at the golf course, this work may be subject to M.G.L. c.30B, M.G.L. c.30 §39M, or M.G.L. c.149. If the municipality would like to include any form of construction work, or major capital improvements as part of a management agreement, contract or lease, the municipality should consult with their legal counsel and the Office of the Attorney General to determine the applicability of these statutes and the Department of Occupational Safety concerning applicable prevailing wage requirements.

Additionally, the OIG has previously offered the following procurement-related advice for M.G.L. c.30B procurement:

- a. contracts must be in writing;

- b. request for proposals (RFP) must contain a clear written explanation of the evaluation process and the evaluation criteria;
- c. evaluation process must be clear, methodical, and consistent with established criterion;
- d. RFP must contain a scope of services and contract terms and conditions and contract language should be as clear and detailed as possible and above all protect taxpayer interests - vague and/or broad contract language should be eliminated;
- e. altering or waiving terms and conditions after contract award is prejudicial to a fair and open competitive procurement – for example, a requirement for a performance bond cannot be waived post-award in exchange for vendor cash placed in escrow;
- f. the scope of services and contract terms and conditions must be clear, specify standards, specifications, performance requirements, performance evaluation criteria, timetables, and monetary considerations;
- g. RFP and contract should reference other applicable statutes, regulations, ordinances as necessary.

## **8. Ethics Issues**

An employee contract for the management of any component of golf course operations that includes revenue sharing or allows the employee to operate a separate enterprise such as the pro-shop, snack bar, provide lessons etc. should be reviewed with the State Ethics Commission to avoid any conflict of interest violations under M.G.L. c.268A, §20 or other sections. Any other contracts, including those for goods, services, consulting, management, etc. involving current or former municipal employees or related parties should be discussed with the Ethics Commission as well.

## **9. Contract Employees**

A number of golf courses are managed by a municipal contract employee. Besides a possible conflict of interest issue, the municipality should consider, a) the value of using an employee versus a vendor, b) whether the total compensation package to a contract employee is fair and reasonable, and c) whether this compensation would exceed that

paid to a vendor.

In most contracts the OIG reviewed, the contract employee received a salary and all benefits provided to other municipal employees including health, pension, and leave

benefits. However, the cost of the benefits package is not always considered when reviewing the profitability of the golf course even though these costs can be significant. Additionally, most contract employees appear to be allowed under their respective contracts to manage concessions and retain all earned concession revenue. Depending on the sales volume, this revenue could equal or exceed the employee's salary. This could make the golf course manager one of the highest paid municipal employees in a city or town. This may not have been the intent of municipal officials. Unfortunately, a number of contracts do not require nor do the municipalities ask for this "private" revenue information from the employee leaving the municipality unaware of the employee's total earnings and the income potential of the golf course. The employee is also left with the responsibility to report this income for tax purposes.

The municipality should consider all contract costs, the value of providing holidays, vacation and other leave time for a seasonal employee (a municipal business enterprise may not best be served by having employees take time off when business is at its peak), and the reasonableness of having employees keep all concession profits that are operated on public property presumably while the employee is earning a salary to perform other functions. Other contract benefits include allowing employees and their families to play golf for free and some contracts do not allow for termination. In other words, the employee may be reassigned but would still be entitled to benefits and concession rights. Municipalities need to consider the scope and reasonableness of protections and benefits afforded contract employees. The municipality should consider at what point a contract employee becomes a vendor provided with benefits.

## **10. Security**

The municipality should require the vendor to be responsible for golf course security. Security measures may consist of adequate lighting, perimeter security systems, building alarms, and cameras. A determination of the need and level of security should be done in consultation with local law enforcement. A security measure to be considered in addition to others is having a camera(s) to monitor cash register and revenue activity. This camera should be accessible to authorized municipal personnel and the vendor should be required to retain tapes or digital images for contract specified

periods. Consultation with local law enforcement and a review of record retention regulations could assist in identifying a reasonable period of time. The type of camera technology used could influence the vendor's ability to and cost of retaining this data.

#### **11. Insurance and Bonding**

The specifications should require that the vendor be responsible for obtaining and paying for all forms of required insurance and bonding (payment, performance, surety, etc.) The types and levels of insurance and bonding required should be determined in consultation with your legal counsel.

#### **12. "Comps": Allowing free play**

Most golf courses offer free or complimentary (comps) rounds of golf. The OIG understands that there may be a practical business purpose for using comps. However, comps reduce revenue and could enable or create the appearance of favoritism, fraud, waste and abuse. Therefore, the OIG recommends that controls be instituted to track and control the use of comps. At a minimum, the vendor should be required to track the type of comps used and be prepared to report monthly to the municipality the reasons for the comps, who authorized the comp, what customer used the comps and how many times. The municipality should also review this information periodically for reasonableness and to identify possible abuses. The OIG also suggests the following:

- a. To the extent possible, the type of comps allowed should be identified in the contract. Some municipalities require free or discounted play for the local high school team, senior citizens, veterans, or others. The contract should clearly define this criterion. Some of the municipalities the OIG spoke with about comps were unaware of the level of comps used by the vendor.
- b. The municipality should consider placing limits on discretionary comps' used by the vendor. For example, the contract could use a fixed number or percentage of total rounds played as a limit on comps used. In one case reviewed by the OIG, the vendor used more than 8,000 comps in one year for a variety of reasons. Using the lowest greens fee charged, these comps equaled a minimum of \$160,000. The potential revenue for the municipality in the case of a 50 percent greens fee revenue share would have been \$80,000. One municipality requires the vendor to pay it a flat fee for all comps regardless of type.

- c. Some contracts allow vendor employees and sometimes their families to play for free. The municipality should consider this as a form of compensation for the vendor and consider placing limits on this type of use or charge the vendor a

separate fee for these rounds. Some jurisdictions outside Massachusetts charge the vendor a discounted rate rather than allow free vendor employee play.

- d. Municipal employees should not receive comps. However, the municipality could consider having employees pay a resident rate or take advantage of other discounted rates available to other members of the public.

### **Miscellaneous Recommendations**

- a. Before exercising an option for extending a contract, consider current income and expenses to determine if a new procurement rather than an extension would be financial beneficial.
- b. Consider a contract termination clause executable by the municipality.
- c. Contracts should define what “gross receipts” are for the purposes of a revenue sharing provision.
- d. Contracts should address the possibility of alcohol sales and use.
- e. Contracts should address the possibility of lottery sales and whether the municipality is entitled to a portion of the sellers share of “winnings.”
- f. If the golf course has a gasoline tank, adequate security and use controls should exist.
- g. Taxes: the contract should ensure that the vendor is responsible for paying, income, sales, meals, excise and other federal, state and local taxes and fees. If the municipality intends the vendor to use the municipality’s tax exempt status for purchases etc., the municipality must consult with the Massachusetts Department of Revenue for the propriety of this use before adding to a contract.
- h. Contracts should define the golf “season,” daily schedules, and reasons for course closure.
- i. Contracts should define “resident,” “member”, or any other categories for the purpose of discounts, membership etc. The municipality should predetermine what discounts or special rates might be allowed.

- j. Municipal courses should be considered public courses (open to the public) unless the municipality consults its legal counsel for an opinion to allow and an approval vote of its governing body to limit public access.
- k. Contracts should identify which expenses, if any, remain a municipal responsibility.
- l. Contracts should address grounds keeping maintenance, and turf management standards and plans.
- m. Municipalities should consider the business experience, professional certifications, and financial stability needed to operate and manage the golf course and should establish minimum criteria for proposers or bidders.
- n. Municipalities should review if the proposed fees and prices to be charged by the vendor are within the range charged by competition at similar and/or nearby facilities.
- o. Municipalities should consider whether contract requirements and municipal compensation are within the range of similar municipal and/or nearby facilities.
- p. Marketing requirements should be identified in the contract.

**Attachment #1:**

**Massachusetts Municipal Golf Courses  
Identified by the Office of the Inspector General**

<b>Municipality</b>	<b>Course Name</b>
1. Abington	Strawberry Valley Golf Course
2. Acushnet	Acushnet River Valley Golf Course
3. Agawam	Agawam Municipal Golf Course
4. Amherst	Cherry Hills Golf Course
5. Auburn	Pakachoag Park and Golf Course
6. Barnstable	Hyannis Golf Course
7. Barnstable	Olde Barnstable Fairgrounds Golf Course
8. Beverly	Beverly Golf and Tennis Club
9. Boston	William Devine Golf Course
10. Boston	George Wright Golf Course
11. Braintree	Braintree Municipal Golf Course
12. Brewster	Captains Golf Course
13. Bridgewater	Olde Scotland Links
14. Brockton	D.W. Field Golf Course
15. Brookline	Putterham Meadows Golf Course
16. Cambridge	Fresh Pond Golf Course
17. Chatham	Seaside Links
18. Chelmsford	Chelmsford Country Club
19. Chicopee	Chicopee Municipal Golf Course
20. Dennis	Dennis Highland Golf Course
21. Dennis	Dennis Pines Golf Course
22. Duxbury	The North Hill Country Club
23. Falmouth	Falmouth Country Club
24. Gardner	Gardner Municipal Golf Course
25. Groton	Groton Country Club
26. Harwich	Cranberry Valley Golf Course
27. Hingham	South Shore Country Club
28. Holliston	Pinecrest Golf Club
29. Leicester	Hillcrest Country Club
30. Lexington	Pine Meadow Golf Course
31. Ludlow	Westover Municipal Golf Course
32. Lynn	Larry Gannon Golf Course
33. Lynnfield	Reedy Meadows Golf Course
34. Lynnfield	King Rail Reserve Golf Course
35. Melrose	Mount Hood Golf Course
36. Nahant	Kelley Green Golf Course
37. Nantucket	Miacomet Golf Course
38. Natick	Sassamon Trace Golf Course
39. Needham	Needham Golf Club

Millwright Park Golf Course

Feasibility Study  
Framingham, MA  
August 2016

40. New Bedford	New Bedford Municipal Golf Course
41. Newton	Newton Commonwealth Golf Course
42. Norfolk County	Presidents Golf Course
43. North Reading	Hillview Country Club
44. Peabody	The Meadows at Peabody
45. Plymouth	Crosswinds Golf Club
46. Quincy (and Milton)	Granite Links Golf Club at Quarry Hills
47. Salem	Old Salem Greens
48. Sandwich	Sandwich Hollows Golf Course
49. Scituate	Widow's Walk Golf Course
50. South Hadley	The Ledges Golf Course
51. Springfield	Franconia Golf Course
52. Springfield	Veterans Golf Course
53. Stoneham	Unicorn Golf Course
54. Stoneham	Stoneham Oaks Golf Course
55. Stoughton	Cedar Hills Golf Course
56. Taunton	John F. Parker Municipal Golf Course
57. Westborough	Westborough Country Club
58. Wilbraham	Wilbraham Country Club
59. Winthrop	Winthrop Golf Club
60. Woburn	Woburn Country Club
61. Worcester	Green Hill Municipal Golf Course
62. Yarmouth	Bass River Golf Course
63. Yarmouth	Bayberry Hills Golf Course
Source: Prepared by Office of the Inspector General staff.	

## Appendix 8 Consolidated Interviews

<p><b>What do they think of the idea of the town purchasing the course?</b></p>	<ul style="list-style-type: none"> <li>• Great Idea, hopefully they will buy the course</li> <li>• On the face of it a great opportunity</li> <li>• A recreational Opportunity for the town</li> <li>• Building the face of Golf</li> <li>• It will probably mean adding a department and having increased personnel</li> <li>• On the face it is a great opportunity</li> <li>• A recreational Opportunity for the town</li> <li>• Building the face of Golf</li> <li>• It will probably mean adding a department</li> <li>• Will need increased personnel</li> <li>• If the numbers work, a complete win for the town</li> <li>• Amenity/open space saved</li> <li>• Great Idea, hopefully they will buy the course</li> <li>• A recreational opportunity for the town, inn the North West quadrant.</li> <li>• Offers opportunities throughout the town.</li> <li>• It will probably mean adding a department</li> <li>• And having increased personnel, hesitance of required budget and resource.</li> <li>• Selling to the town-tough</li> </ul>
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	<ul style="list-style-type: none"> <li>• Does it make sense?</li> <li>• It may continue to fuel a perceived division in the town between North and South.</li> <li>• Open spaces have disappeared</li> </ul>
<p><b>How do they think it would benefit the town?</b></p>	<ul style="list-style-type: none"> <li>• By having ownership of the golf course and land,</li> <li>• Help attract more golfers</li> <li>• Protect a green space area from development of housing.</li> <li>• Offer the community another option.</li> <li>• Protect a green space area from development of housing.</li> <li>• Offer the community another option.</li> <li>• Protect a green space area from development of housing.</li> <li>• Important amenity in town portfolio</li> <li>• High school golf</li> <li>• Could bring business into town.</li> <li>• By having ownership of the golf course and land</li> <li>• Help attract more golfers</li> <li>• Ability of town folk to belong to something, to have a say in the town owning something.</li> </ul>
<p><b>Do they think it would be a wise decision? If so why</b></p>	<ul style="list-style-type: none"> <li>• Wise decision yes, it will help preserve the land as a green space.</li> <li>• Could be a good decision.</li> <li>• Not sure until we see how the numbers stack up, it needs to be able to break even/make a profit for it to work.</li> <li>• Could be a good decision.</li> </ul>

	<ul style="list-style-type: none"> <li>• Wise decision yes, it will help preserve the land as a green space.</li> </ul>
<p><b>Would it still make sense if the course operated at a loss? If that loss was temporary?</b></p>	<ul style="list-style-type: none"> <li>• Yes, as long as there is a strategic plan and view to use that as an investment period.</li> <li>• The course should not be a burden on the residents or the towns operation.</li> <li>• Investment is key, major or minor it would need to take place or at least be planned/budgeted for.</li> <li>• A 1-2 year learning curve would be Ok, as long as progress was made and the course can return a profit.</li> <li>• Could be avenues such as alcohol and food concessions</li> <li>• Yes- as long as that investment was repayed.</li> <li>• Could be bonded into the purchase price.</li> <li>• Would require less investment in the longer-term future.</li> <li>• Ok if it initially made a loss, should base the investment on sustainability.</li> <li>• A capital plan needs to be built that takes into account the 20 year bond.</li> <li>• Yes- as long as that investment was repaid.</li> <li>• Could be bonded into the purchase price.</li> <li>• Would require less investment in the longer-term future.</li> <li>• Possible re-negotiation of price if investment required is considerable.</li> <li>• Very much so</li> <li>• Area of town in a better light</li> </ul>

	<ul style="list-style-type: none"> <li>• A recreational experience.</li> <li>• Could be part of the day and keep the business in the town.</li> </ul>
<p><b>Are funds available to improve the course? To establish an operating reserve?</b></p>	<ul style="list-style-type: none"> <li>• Yes, but due consideration needs to be given to the type and level of investment required.</li> <li>• Yes. (IL suggested that \$200K would be needed to start the fund with)</li> <li>• Houses on the course could be sold to help provide the investment and to pay to the purchase price, bringing down the repayment amount.</li> </ul>
<p><b>How does the town view the course?</b></p>	<ul style="list-style-type: none"> <li>• The view point could be improved, at the moment many of the residents see it as a private golf course, although it does all public pay and play.</li> <li>• Fairly neutral</li> <li>• Excited Resident pride</li> <li>• Only public golf course in Framingham</li> <li>• Interested and cautiously guarded.</li> <li>• Preservation of open space.</li> </ul>
<p><b>Have you played the course, if so what did you think?</b></p>	<ul style="list-style-type: none"> <li>• Yes, I am a regular player; it's a beautiful course with ponds and large wooded areas.</li> <li>• The golf course is in generally very good condition with the greens being very good.</li> <li>• Fairways could do with more water at hot times of the season.</li> <li>• Not played the course, but I am planning to play soon.</li> <li>• Yes-Love it (But not the hills!!!)</li> <li>• A friendly environment</li> <li>• A good mix of challenges and variety</li> </ul>

	<ul style="list-style-type: none"> <li>• Yes, not overly challenging, could be a start-up course for learners.</li> <li>• You would not go there for a challenge</li> <li>• You go for convenience and as part of a league</li> </ul>
<b>Regardless of the course, do you view the chance for the town to acquire that much-undeveloped land as valuable?</b>	<ul style="list-style-type: none"> <li>• Yes, even if the town sold off 4 holes to make it 9 holes and re-developed the land, it would be a good thing.</li> <li>• Yes, it would be a good investment and asset</li> <li>• Yes, open space should be preserved.</li> </ul>
<b>Do you think the town would tolerate higher taxes to support the course?</b>	<ul style="list-style-type: none"> <li>• Probably not, especially those residents that don't play golf or have any interest in it.</li> <li>• I think we need to look at a self-sustaining course that would not affect the taxes.</li> <li>• This would be poorly viewed!</li> <li>• Hopefully we do not need to ask for more taxes, this would be difficult to sell to the public.</li> </ul>
<b>Do you see it as an asset to the schools?</b>	<ul style="list-style-type: none"> <li>• Yes, it would be a great asset to local schools, not just for golf, but also for nature trails etc, or educational visits.</li> <li>• Yes, many schools could benefit not only from golf, but also educational involvement.</li> <li>• Yes, many schools could benefit not only from golf.</li> <li>• Educational involvement.</li> <li>• Nature walks/field trip (Out of golf season)</li> <li>• Yes, whether a classroom in environment science, but also from an athletic perspective.</li> </ul>
<b>What are your concerns regarding the purchase?</b>	<ul style="list-style-type: none"> <li>• Viability-will it work?</li> <li>• Having an extra department more than likely</li> </ul>

	<ul style="list-style-type: none"> <li>• Infrastructure will need to be put in place. Extra department to manage and budget for?</li> <li>• The numbers</li> <li>• Selling it to the town (needs a 2/3s majority)</li> <li>• No tax revenue, if developed there would be tax revenue.</li> <li>• Impact on capital budget No major concerns, maybe a concern of people who don't play golf or see it as an elitist sport</li> <li>• Development of capital planning</li> <li>• The daily input of time could increase.</li> <li>• A new department would need to be created.</li> <li>• The parks and recs department needs more staff</li> <li>• How would we fit the new division into the existing structures.</li> </ul>
<p><b>What are your concerns regarding the ongoing operation?</b></p>	<ul style="list-style-type: none"> <li>• Overall budgets for all facets of the parks and recreational departments</li> <li>• Level of care for staff, conditions for pay etc</li> <li>• This "new" dept will need to be adequately staffed.</li> <li>• Extra department to manage and budget for?</li> <li>• Overall budgets for all facets of the parks and recreational departments</li> <li>• Level of care for staff, conditions for pay etc</li> <li>• Also do we keep the current staff or look to recruit new staff, a personal consideration that potentially 7 people may lose their jobs! Proper staffing levels.</li> </ul>

	<ul style="list-style-type: none"> <li>• Be able to maintain the course when needed.</li> <li>• Municipal governments may be a challenge when bringing in contractors.</li> </ul>
<b>Do you think that this will impact other facets of your work?</b>	<ul style="list-style-type: none"> <li>• Yes, but only in the sense that it will require resource, in the same way that any other new department may need.</li> <li>• Specialized expertise needed.</li> <li>• It's a business and needs to be approached that way</li> <li>• If it fails it will affect us all badly.</li> <li>• Operationally, it could be a challenge</li> </ul>
<b>How will this impact your staff?</b>	<ul style="list-style-type: none"> <li>• Depends on the department and how it would be resourced.</li> <li>• Parks department would be impacted, not sure if that would be negative or positive, hopefully positive.</li> </ul>
<b>How will this impact your budget?</b>	<ul style="list-style-type: none"> <li>• Hard to say at present, but it would be affected</li> <li>• Resources and staffing would be the areas.</li> </ul>
<b>Do you think this will make the town more attractive to residents or business?</b>	<ul style="list-style-type: none"> <li>• Yes, I think it would, the opportunity for local and outside businesses to set up corporate golf would be good.</li> <li>• Positively, local businesses could have corporate days.</li> <li>• Local golf leagues already benefit.</li> <li>• Could hold weddings etc. at the course.</li> <li>• Marginally</li> </ul>
<b>Do you believe that this project has community support?</b>	<ul style="list-style-type: none"> <li>• Yes, but mainly from those that play golf or are interested, outside of those people I am not sure.</li> <li>• Yes, to a degree, much will depend on the number and how we present this opportunity to the town.</li> <li>• Yes, if the numbers work.</li> </ul>

	<ul style="list-style-type: none"> <li>• Yes, some significant support</li> </ul>
<b>Would the town like a place for other seasonal uses such as cross country skiing?</b>	<ul style="list-style-type: none"> <li>• Yes, or disc golf, snow shoeing</li> </ul>
<b>Is the course subject to water bans?</b>	<ul style="list-style-type: none"> <li>• No the town does not pay for water</li> <li>• Not Sure probably, fairways never get water</li> </ul>
<b>Is this the right thing to do?</b>	<ul style="list-style-type: none"> <li>• Yes, I believe it is, even if to stop house developments.</li> <li>• Yes</li> <li>• Yes-If the numbers work.</li> </ul>
<b>If the lands were developed into houses or commercial space would that be a greater benefit than having a town golf course?</b>	<ul style="list-style-type: none"> <li>• Not in my opinion, it should stay a golf course or green space.</li> <li>• Yes, it would bring in more in taxes.</li> <li>• Yes, in the sense of more taxes to the town.</li> <li>• Not in my opinion, it should stay a golf course or green space.</li> </ul>
<b>Is preserving this space from development a favorable legacy?</b>	<ul style="list-style-type: none"> <li>• Yes, absolutely</li> <li>• Yes</li> <li>• Yes- it's a must</li> </ul>
<b>Is a municipal golf course a good idea right now?</b>	<ul style="list-style-type: none"> <li>• Not sure, but I think so, and that is why the town has hired your company to help get to the correct decision</li> <li>• Not sure, we are hoping it could be, but that is why we are carrying out the feasibility study.</li> <li>• Not sure, but I think so</li> <li>• Anytime a municipality has chance to own a golf course, they should think about it.</li> </ul>
<b>Do they think it would be a wise</b>	<ul style="list-style-type: none"> <li>• Very much so</li> </ul>

<p><b>decision? If so why</b></p>	<ul style="list-style-type: none"> <li>• Area of town in a better light</li> <li>• A recreational experience.</li> <li>• Could be part of the day and keep the business in the town.</li> </ul>
<p><b>Would it still make sense if the course operated at a loss? If that loss was temporary?</b></p>	<ul style="list-style-type: none"> <li>• Depending on amount of loss and for how long.</li> </ul>
<p><b>Are funds available to improve the course? To establish an operating reserve?</b></p>	<ul style="list-style-type: none"> <li>• Yes, but due consideration needs to be given to the type and level of investment required. Yes it could be done and this should be considered.</li> </ul>

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