American Rescue Plan Act-Coronavirus State & Federal Local Fiscal Recovery Funds

Request for Expenditure

Date of Request:	**11 November 2021**
Contact person(s) for request (including contact information):	**Jeff Stauter** **Kreider Services** **500 Anchor Road, Dixon** **stauterj@kreiderservices.org** **217-622-4615 mobile**
Department(s) for expenditure:	**UNK**
Timeline for project/expenditure:	**2022/2023**
ARPA Grant Category this expenditure falls under (reference Outline and/or IFR)	**Job creation/ retention, outdoor space, depending on QCT neighborhood improvement**

Detailed cost of expenditure and timeline for project (Please include estimates and any other supporting documentation)	**An irrigation systems life is around 25 years. The current system is a 50+ year old single line hydraulic system that breaks down regularly. It plugs up, leaks and doesn't deliver adequate consistent quality water to maintain the course.** **The ponds that are used with irrigation system are mucked up, full of weeds and reeds. A total replacement for a single line system is necessary. A complete system means pumps, 3" irrigation lines, sprinkler heads, a control system and dredging the ponds. The cost estimates range from $700,000 - $840,000 dependent on unforeseen issues. This estimate is from Toro Irrigation Systems.**
Narrative regarding expenditure (how this expenditure fits into the funding, how this expenditure will benefit the department/county, details regarding project, etc.)	**Kreider Services, inc. was asked to submit a proposal to take over Timber Creek Gold Course in Dixon. Kreider Services would purchase the course for $1.00 and agree to keep it operating as a golf course. Kreider would contract out for golf course management, food and beverage, and pro-shop services. The idea being that the contract holders would employ people with disabilities the course.** **Kreider Services is requesting $800,000 in funding to replace the courses irrigation system. This is the cornerstone for keeping the course healthy and successful. The current system is at least fifty years old.** **A quick google search will show local governments around the country investing ARPA funds in golf course upgrades and construction.** **Besides employment opportunities for people with disabilities, A golf course is an important community amenity that is helpful in attracting professional to the area, as well as providing recreation for citizens, and athletic opportunities for students.** **The attached USGA report is the guide we will use to improve the course. We do not promise to meet every benchmark in the**

	report, but this is the roadmap to keeping the course open and successful. Investments will continue over several years, but without the irrigation system, they would not be good investments.
If this expense is ineligible under the grant funds and is a needed expense, which line item/account/fund do you anticipate using for expenditure?	**any appropriate source**
Signature/Date of person(s) submitting Request	11/19/21
Expenditure: **APPROVED DENIED** **Signature/Date of person(s) Approving/Denying Expenditure Request**	

***Note this is a REQUEST for the expenditure to be reviewed and considered for payment with ARPA grant funds. Please await approval/denial prior to expending funds.**

Sara Leisner

From: Sara Leisner
Sent: November 22, 2021 9:37 AM
To: 'Jeff Stauter'
Cc: Wendy Ryerson; Patty Rudolphi; Paul Rudolphi
Subject: RE: ARPA Expenditure Request (002).docx
Attachments: FRF-Interim-Final-Rule.pdf; 7-19-21 FAQ.pdf

Jeff,
Thank you for the clarification on your request. I have reviewed the Interim Final Rule (IFR) issues by Treasury as well as the FAQ documents published to determine the eligibility of your requests. I attached the documents and listed the page numbers where I located the information.

The request for premium pay-under the category of premium pay (Page 50 in the IFR) it states that we should prioritize workers who have yet to receive premium pay. In your request it states that employees were previously paid hazard pay until the funds were depleted. Based on this information, I find the request is ineligible for ARPA in this category. Looking at the other option of a bonus for vaccinated employees- in the FAQ document, it discusses a bonus for vaccinated employees on page 8 question 2.12, that is eligible, however we also have to take into consideration the above information, to prioritize those workers who have not received any bonus/premium pay, which still makes it ineligible under the bonus category. If you interpret this differently or see something I have missed, please let me know and I can review it again.

For the request regarding the golf course irrigation system, I am looking at the purchase of the irrigation system itself as that is what the funds will be spent on. Not the wages for the workers employed. Based upon that, the request is not eligible for ARPA funding. ARPA funds are eligible for parks, tourism and travel. In the FAQ document page 6 # 2.10 it discusses other impacted industries and we have to consider whether the impacts were due to the pandemic or a longer term economic or industrial trend unrelated to the pandemic. From the request you submitted it sounds as though this system was a need prior to the pandemic and not due to the pandemic. On page 11 of the FAQ section 2.18 addresses investments in parks, outdoor spaces, etc. for locations within a Qualified Census Tract (QCT). Lee County is not a QCT. On page 38 of the IFR it states that funds can be used for non-QCT areas, however documentation is needed to support that the pandemic resulted in a disproportionate public health or economic incomes to the specific populations/areas to be served. If you interpret this differently or see something I have missed, please let me know and I can review it again.

Thanks,

Sara Leisner
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From: Jeff Stauter <stauterj@kreiderservices.org>
Sent: November 22, 2021 8:27 AM

Onsite Visit Report

Timber Creek Golf Course
Dixon, Illinois

Visit Date: November 19, 2020

Present:

Jim Marshall, Potential Golf Course Investor
Ryan Marshall, Potential Golf Course Investor
Rick Humphrey, Current Golf Course Manager
Zach Nicoludis, USGA Agronomist, Green Section

United States Golf Association
Zach Nicoludis, Agronomist | Green Section
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The USGA Green Section develops and disseminates sustainable management practices that produce better playing conditions for better golf.

Executive Summary

It was a pleasure to visit Timber Creek Golf Course for the first time. Significant efforts have been put forth to restore the golf course to playing conditions because it was left unmaintained for approximately one year. It is impressive to see that Mr. Humphrey and his staff have reestablished all the playing surfaces, so the golf course is playable.

The agronomic program and what need to be done moving forward as it relates to maintaining the putting greens, tees, fairways, rough, and bunkers were discussed at length while touring the course. While the playing surfaces have been restored to playability, a sound agronomic program, focusing on performing the necessary cultural management practices, will need to be put in place and followed strictly. Elements that must be included in the agronomic program moving forward include:

- Multiple aerations and frequent topdressing to manage organic matter on the putting greens.
- Multiple aerations on fairways and tees to target organic matter removal and reduction of compaction.
- A disease management program for all the primary playing surfaces that rotates fungicide classifications to limit the risk of disease resistance from developing.
- A weed management program to control a broad spectrum of weeds, especially clover and crabgrass.

In addition to performing sound agronomic practices, we discussed how a long-term plan that outlines course improvement projects and capital investments must be developed. Specific areas we covered while touring the golf course included:

- Replacing the existing irrigation system.
- Renovating all the bunkers since they are beyond what is considered their expected lifespan.
- A new equipment fleet must be obtained, so all the playing surfaces can be properly maintained.
- A new maintenance facility must be constructed to store all the new equipment properly.
- A tree management plan must be developed to maintain all the trees on the golf course properly.
- Adding forward tees would make the golf course more accessible for those golfers with a higher handicap and slower swing speed.

The following report details the observations and recommendations that were made as we toured the golf course.

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Putting Greens

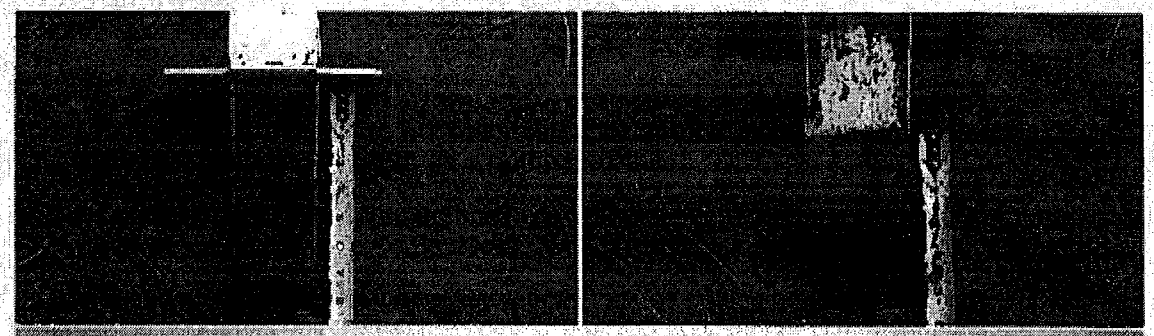
Observations

1. **Since the putting greens were not maintained for approximately one year, they basically had to be reestablished to produce a putting surface.**

   - It was reported that the putting greens had to be reseeded when the putting green mowing heights were lowered once it was decided that the golf course was going to be reestablished.
   - After every putting surface, it was determined that the putting greens are a mixture of creeping bentgrass and *Poa annua*, with creeping bentgrass being the dominant turf on each putting green.
   - While each putting green may appear the same on the surface, not all the putting greens were constructed simultaneously. No. 1 through No. 6, and No. 16 through No. 18 were built when the course was constructed as a nine-hole course and holes No. 7 through No. 15 were constructed when the course was expanded to 18 holes.

2. **Several samples collected from multiple putting greens revealed organic matter levels are high, especially in the top inch of the soil profile.**

   - It was reported how in the past, aeration and topdressing were completed sporadically on the putting greens. Both of these practices are completed to manage the organic matter in the putting green profile.



Typically, we would observe a sand cap that has accumulated from topdressing and aeration over the years. There appeared to be some sand in the profile, but the lack of sand and high concentration of organic material, indicates organic matter levels are high and more aggressive cultural management practices will be necessary to improve soil physical properties. The samples we collected on the day of the visit will help us benchmark current organic matter levels.

   - If organic matter levels accumulate to a high level, this will have a negative impact on turf health and playability. High levels of organic matter will result in excess water being retained. This will create soft conditions, expose the turf to increased disease occurrence and increase the likelihood of mechanical damage.
   - Samples were collected from No. 2 and No. 7 for a research project funded by the USGA. These samples will be sent to a soil physical testing lab to quantify organic matter levels at three portions of the soil profile.

- Benchmarking where organic matter levels are at this time will be critical for guiding cultural management practices in the future.

- It should also be noted that while collecting samples from multiple putting greens, especially on holes No. 7 through No. 15, it was determined that localized dry spots are impacting turf health on putting greens. Localized dry spots develop when a wax-like substance secreted by soil microbes coat soil particles and impact water retention. Based on our discussions, it does not appear that wetting agents have been used in the past to mitigate the impact of localized dry spots.

3. **Crabgrass encroachment was observed in nearly every collar around the putting greens.**

   - Preemergent herbicides to control crabgrass encroachment were used on other areas of the golf course during the 2020 season, but it does not appear that they were applied to collars.

   - The growth habit of crabgrass is such that it can impact the playability, not to mention that it significantly impacts course aesthetics.

4. **Significant turf loss has occurred on the practice putting green.**

   - At this time, it is not possible to determine precisely why all the turf declined, but significant efforts will be required to restore it to a quality putting surface.

   - Hardwood trees surrounding the practice putting green certainly impact the amount of direct sunlight that reaches this playing surface. Direct sunlight is critical during the early morning hours to accelerate the rate at which moisture evaporates from the leaf tissue. Prolonged leaf wetness increases the likelihood of disease occurrence. Direct sunlight is also critical for driving photosynthesis so the turf can produce carbohydrates used for energy.

Notice how the trees located on the east side of the putting green restrict sunlight from reaching this playing surface for most of the morning. This has a significant impact on turf health.

   - Samples collected from the practice putting green revealed that this is a sand-based green. Sand-based greens will certainly perform differently than the push-up greens that exist on the golf course. Generally speaking, irrigation practices and fertilizer management will be

different for when both push-up style and sand based putting greens are being managed at the same golf course.

5. **For the most part, trees are not a major concern when it comes to impacting the growing environments surrounding putting greens, but we did discuss how trees near a few putting greens can impact turf health.**

   - The hardwood trees located to the left of No. 2 green impact the amount of direct sunlight this green receives during the morning hours. This increases the likelihood of disease occurrence and impacts the turfs ability to produce carbohydrates.
   - Trees located on the hillside to the left of No. 6 green impact the amount of direct sunlight that reaches this putting green during the morning hours. The largest hardwood tree located nearest No. 6 green has the greatest impact on limiting direct sunlight from reaching this playing surface.
     - It should also be noted that many of the trees located in the dense tree population behind No. 7 and No. 11 tees also impact how much sunlight reaches this playing surface.
   - The trees located behind No. 17 green do not impact sunlight penetration, but tree roots are extending into the putting green and impacting overall turf health.

Recommendations

1. **For turf health and playability to improve on the putting greens, it is recommended to perform more aggressive cultural management practices to reduce organic matter levels in the soil profile.**

   - During the 2021 season, it is recommended to:
     - Core aerate putting greens three times with either 0.5 inch or 0.625-inch tines. During the visit we discussed aerating the putting greens twice, but the results from the organic matter tests indicate a third aeration is needed to remove organic matter.
     - Solid deep tine aerate the putting greens once.
     - Lightly topdress to match growth throughout the golf season. Applying between 100 and 150 pounds of sand per 1000 square feet every two weeks is a common schedule for topdressing programs. However, this program can certainly be adjusted based on resources and the golf schedule.
   - It is recommended to collect samples from No. 2 and No. 7 again in the fall of 2021 to determine how organic matter levels have changed. These test results will help determine if any further changes need to be made to the cultural management program.

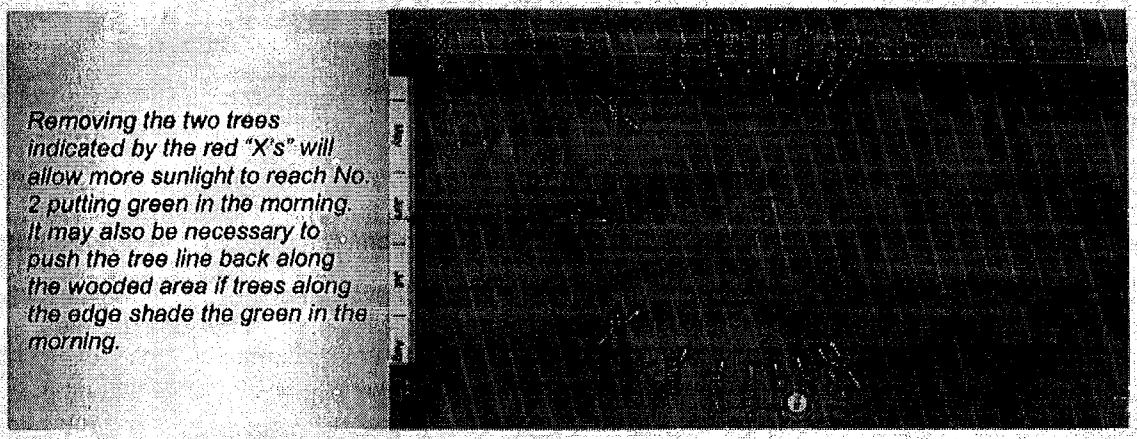
2. **It is recommended to apply a preemergent herbicide to all the collars to control crabgrass encroachment.**

   - While the preemergent herbicide dithiopyr could be applied to the collars, this is a tough application to make because none of this herbicide can be applied to the putting greens.
   - Therefore, it is recommended to use The Andersons® Goosegrass/Crabgrass Control on the collars. This product is being recommended because it is labeled for putting greens, and if some is inadvertently applied to the putting greens, it will not have a negative effect.

3. **Before turf is established on the practice putting green, the hardwood trees that limit the amount of direct sunlight that reaches this playing surface must be removed to improve the overall growing environment.**

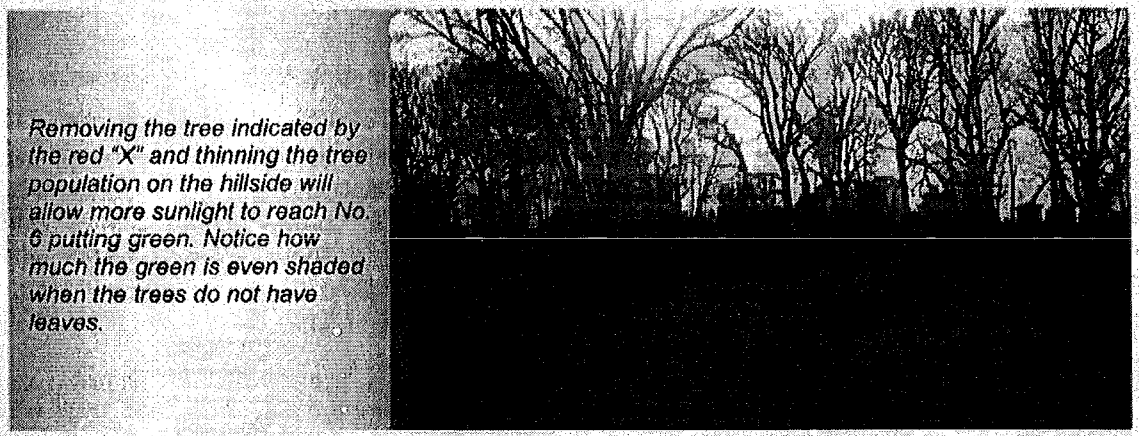
   - It will be necessary to remove the organic matter layer on the top of the green before it is seeded. This will make it possible to manage the mat layer as the new turf matures. Also, it is necessary to determine if the drainage is functioning and where it is daylighted. If drainage is not functioning, steps will have to be taken to install new drainage.
   - We discussed whether this putting green should be established in the spring or the fall. Spring establishments can be challenging because the juvenile turf will be placed under considerable environmental stress throughout the summer. Regardless of when this putting green is established, it will likely not be in play until the spring of 2022.
   - The Green Section Record article, Managing New Putting Greens, can be used to guide the maintenance of this putting green after it is established.

4. **It is recommended to remove the two hardwood trees located to the left of No. 2 to increase direct sunlight that reaches this putting green.**



Removing the two trees indicated by the red "X's" will allow more sunlight to reach No. 2 putting green in the morning. It may also be necessary to push the tree line back along the wooded area if trees along the edge shade the green in the morning.

5. **It is recommended to remove the large hardwood tree located to the left of No. 6 and thin the tree population behind No. 7 and No. 11 tees to increase the amount of direct sunlight that reaches No. 6 green.**



Removing the tree indicated by the red "X" and thinning the tree population on the hillside will allow more sunlight to reach No. 6 putting green. Notice how much the green is even shaded when the trees do not have leaves.

6. **It is recommended to root prune behind No. 17 putting green to eliminate tree root competition with the turf.**

   - Root pruning is when tree roots are severed to eliminate competition with the turf for water and nutrients. This process will need to be performed every three to five years.

Root pruning behind No. 17 green will eliminate tree root competition with the turf. We often see a trencher, vibratory plow, or Imants RootPruner used for this process.

Fairways

Observations

1. **Overall, the fairways were in good condition on the day of the visit.**

   - The fairways consist of mainly Kentucky bluegrass, with some *Poa annua* encroachment occurring on each fairway. When maintained on fairways, Kentucky bluegrass can certainly produce a quality playing surface.

   - Based on our discussions, very few plant protectants were applied to the fairways during the 2020 golf season to guard against disease. It is impressive to see that major turf health issues did not develop, considering all the weather-related challenges that were experienced in 2020 which increased disease pressure.

2. **Similar to the collars, crabgrass encroachment on the fairways was an issue this past year.**

   - Preemergent herbicides were applied to the fairways to control crabgrass, but some breakthrough did occur.

   - It is expected that some breakthrough would occur on the fairways considering they were left unmaintained for an entire year. During this time, it is likely crabgrass germinated, and significant seed production occurred. Therefore, there is a prolific seed bank in the soil profile, and it will be necessary to apply preemergent herbicides moving forward to control this challenging weed.

3. **Damage from animals searching for grubs has been an issue in the past.**

   - An insecticide was applied to control grubs, but it appears some grub populations were not controlled, and damage resulted as animals searched for the grubs as a food source.

- Like the crabgrass encroachment issue, going an entire year without applying products to control grubs allowed the populations to flourish, and therefore ongoing efforts will be necessary to control grubs.

4. **It was mentioned how significant clover encroachment occurred on the fairways this year and impacted the playability and overall course aesthetics.**

   - When clover is present, it indicates that nitrogen levels are likely low, and the soil is compacted. Based on how challenging it was to force the soil profiler into the ground, compaction has occurred.

   - Through our discussions, it was revealed that herbicides were not applied to the fairways to control clover. While clover populations are significant, fortunately, there are a number of herbicides that can be applied to control this weed successfully.

5. **Samples collected from multiple fairways revealed that the soil profile is severely compacted.**

   - This compaction is likely due to cultural management practices not being performed on the fairways regularly. It should be noted that core aeration, which helps alleviate compaction, has not been performed.

The high clay soil found in the soil profile is very compacted. Clay soils typically drain poorly, but even more so when compacted. This will ultimately have a negative impact on turf health and playing conditions.

Recommendations

1. **To improve crabgrass control in the 2021 golf season, it is recommended to make split applications of dithiopyr to provide extended crabgrass control.**

   By making split applications, it will be possible to control crabgrass germination later in the summer, which will ultimately help limit how much crabgrass goes to seed. Be sure to follow label recommendations for the dithiopyr rate that can be applied with split applications.

2. **It is recommended to use the insecticide Acelepryn® for grub control moving forward.**

   - While Imidacloprid can certainly provide adequate grub control, golf courses where Acelepryn has been used have experienced far superior control.

   - It would even be possible to make an application of a fertilizer that is a carrier for dithiopyr and Acelepryn for both crabgrass and grub control. These products are often referred to as a one-and-done application because of the supply of nutrients, crabgrass control, and grub control.

- It should be noted that liquid applications typically provide improved control, but adequate control is often received with a granular application.

3. **It is recommended to make an application of an herbicide labeled for clover control on Kentucky bluegrass fairways in the spring.**

   One product that is frequently used for clover control is Lontrel. It should be noted that there are other options, but this is a commonly used product on fairways. Also, the best time to control clover with herbicides is the fall. A spring application will help control clover, but a follow up application will likely be necessary in the fall. It would be possible to make spot applications to help conserve costs when making these applications.

4. **It is recommended to core aerate fairways twice a year to manage organic matter and compaction.**

   - Given the current labor resources, it is recommended to work with a contract aeration company to complete aeration. Some companies offer both aeration and cleanup services, so the course only has to be closed for a day or two.
   - This type of aeration schedule will be necessary every year. It is not something that can be deferred because of the impact it has on turf health and playing conditions.

Tees

Observations

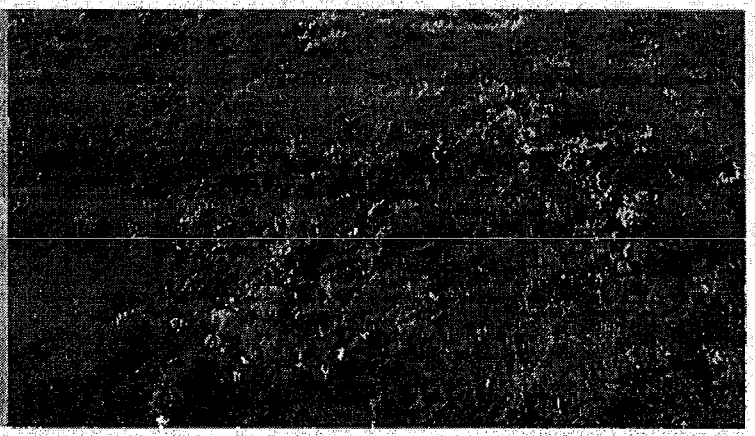
1. **Similar to the fairways, crabgrass encroachment was an issue on the tees.**

   - Based on the level of crabgrass encroachment, it does not appear that a preemergent herbicide was applied to the tees to control crabgrass.
   - Moving forward, a program will have to be put in place that makes it possible to establish seed on all the tees as well as control crabgrass encroachment.

2. **Grub damage was also an issue that was experienced on the tees.**

   - It was reported that an insecticide, most likely Imidacloprid, was applied to the tees for grub control, but breakthrough still occurred.

Through our discussions it was revealed that grub damage has been a historical issue. Preventative applications will need to be made every year to reduce damage.



- Similar to our discussion in the fairway section of this report, since the golf course was not maintained for an entire year, this allowed the grub populations to increase, which is now impacting turf health.

3. **Trees located near several tee complexes are impacting turf health and playability.**

   - White pine trees located to the left of No. 2 tee impact the amount of direct sunlight that reaches this tee. Considering this is a par-3 tee where significant iron play takes place, direct sunlight is critical for promoting divot recovery.
   - The hardwood tree located behind No. 3 tee has roots that extend into the tee and compete with the turf for water and nutrients. When tree roots are competing with turf for water and nutrients, the tree roots will always win.
   - The hardwood trees located behind No. 4 tee have limbs that overhang the tee and impact where the markers can be placed.
   - The hardwood tree located to the front right of No. 7 tee impacts how a golfer can shape their shot.
   - The dense tree population located along the left side and behind No. 15 tee impacts how much direct sunlight reaches this playing surface. Based on the turf density on this tee, it will be necessary to increase the amount of sunlight that reaches this playing surface.

Recommendations

1. **It is recommended to include the tees in the same program outlined to control grubs and clover on the fairways.**

   Since these playing surfaces are maintained at approximately the same height, making these applications simultaneously with the same products will improve the overall efficiency of these applications and provide the best control.

2. **Including the tees with the recommended fairway aeration schedule is also recommended.**

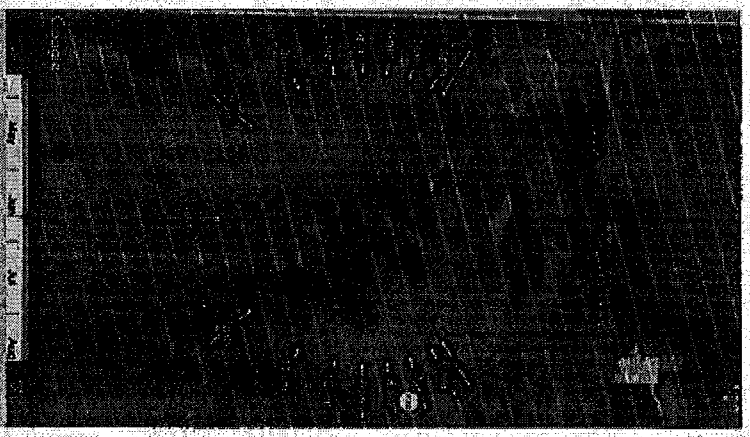
   Completing aeration on all the primary playing surfaces at the same time minimizes golfer disruption and ensures all the necessary cultural management practices are performed at the proper time.

3. **Since it is likely that some seeding will be necessary on the tees next spring, it is recommended to use a different approach for controlling crabgrass.**

   - Applying a product like dithiopyr to the tees will prevent any grass from germinating in the spring.
   - Fortunately, the herbicide mesotrione can be applied when Kentucky bluegrass is seeded, and germination will not be impacted. This herbicide will provide approximately six weeks of crabgrass control.
   - For the first application, it is recommended to use a starter fertilizer with mesotrione at seeding, so nutrients are provided for the new seedlings and weed control is established. A follow up application can be made with the same product or a sprayable formulation of mesotrione can be used.

4. **It is recommended to remove all the white pine trees located to the left of No. 2 tee.**

Removing the white pine trees located near No. 2 will increase the amount direct sunlight that reaches this tee. This is particularly important on No. 2 since it is a par 3, and more divots are likely to be generated.



5. **It is recommended to prune the hardwood trees behind No. 4 tee, so the limbs do not overhang the tee and potentially impact the golfers' tee shot.**

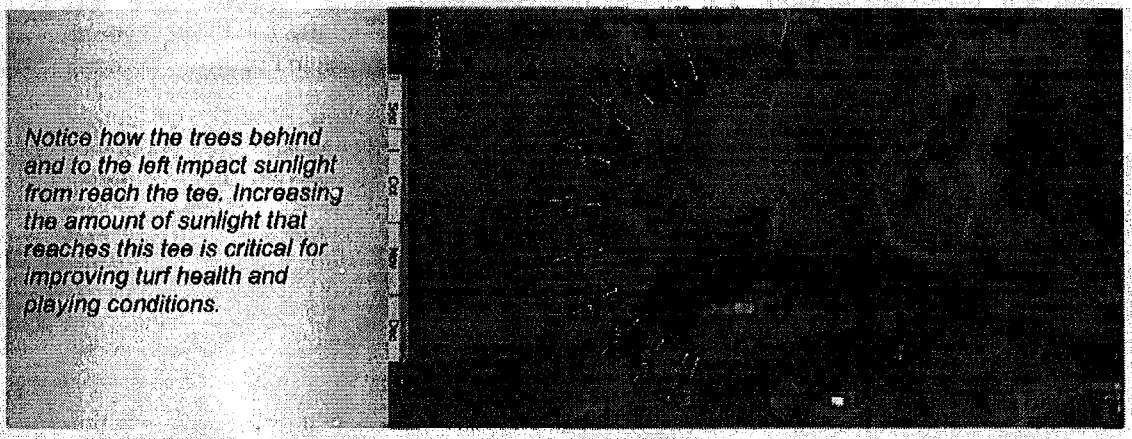
Overhanging limbs from the trees located behind No. 4 can impact a golfer's tee shot. This limits where the tee markers can be set and results in traffic being concentrated in certain areas.

6. **It is recommended to remove the hardwood tree to the front right of No. 7 tee so golfers can play a right to left tee shot if they desire.**

Removing the tree to the right on No. 7 tee will provide golfers with additional options for shaping their shot off the tee.

7. **It is recommended to thin the tree population to the left and behind No. 15 tee to increase the amount of direct sunlight that reaches this tee throughout the day.**

USGA



Notice how the trees behind and to the left impact sunlight from reach the tee. Increasing the amount of sunlight that reaches this tee is critical for improving turf health and playing conditions.

Rough

Observations

1. **Crabgrass encroachment was an issue in the rough this year as well.**

   Since there were higher levels of crabgrass encroachment in the rough when compared to the fairways, it is likely a preemergent herbicide was not applied to the rough for control.

2. **It was reported that grubs have been an ongoing issue in the rough.**

   Based on the level of damage that was reported in the rough, it is not likely that an insecticide was applied to control grubs.

3. **Similar to the fairways, it was discussed how clover encroachment impacted playing conditions and course aesthetics during the 2020 golf season.**

   - Based on the levels of clover in the rough, herbicides have not been applied to control this weed.
   - It was reported that some golfers even lost their ball in patches of clover. Fortunately, there are multiple herbicide options for controlling clover in the rough.

4. **In the past tall grass areas or unmown rough areas were established to reduce resources dedicated to mowing the rough and to add another feature to the golf course.**

   - For a number of reasons, these areas were converted back to maintained rough. An example of an area that was converted back to maintained rough, is the rough around No. 6 tee.
   - We discuss how there are many areas throughout the course where unmown rough could be established and have minimal impact on play, while at the same time help streamline the maintenance operation.

Recommendations

1. **Along with the fairways, tees, and collars, it is recommended to treat the rough with a preemergent herbicide for crabgrass control and an insecticide for grub control.**

- If it is not cost effective to treat all the rough, making one pass with the sprayer around all the tees, fairways, and putting greens would improve conditions in high profile areas.
- Another option is to use the above mentioned one-and-done type products to treat the fairways, rough, and tees all together. There are countless ways to develop a strategy for controlling grubs and crabgrass and this is something we can certainly discuss further as an agronomic program is being put together.

2. **When the fairways are treated for clover, it is recommended to treat the rough at the same time.**
   - It will be possible to use a different product that is more cost effective in the rough for clover control when compared to the fairways.
   - Some seeding may be necessary as clover populations are reduced because bare areas may develop.
3. **It is recommended to establish tall grass areas in the rough where play is limited.**
   - This will make it possible to dedicate more resources to areas of the course where golfers are likely to play a shot.
   - The USGA offers GPS Services to show how golfers are using a golf course and where tall grass areas can be established, so play is not significantly impacted.

Long-Term Planning

Observations

1. **Nearly all the components of the irrigation system were installed in the late 1960s.**
   - Giving most of the irrigation program components are approaching 50 years old, it is safe to say that they are beyond what is considered their expected lifespan.
   - It is common for failure to be experienced with the irrigation system when it is operated. Failure has occurred so often; the agronomic team had to operate the sprinklers during the workday so that the system could be closely monitored. This has a significant impact on the efficiency of the maintenance operation, as well as turf health and play.
   - The integrity of the irrigation pump house is declining, and the components located inside the pump house are not completely protected from the weather.
2. **It is believed that no significant renovation work has been performed on the bunkers since they were originally constructed.**
   - It was reported that after moderate rainfall, significant ponding occurs in the bunkers. This indicates that the sand is severely contaminated and not draining as well as any drainage that may have been installed in the bunkers is no longer functioning.
   - Generally speaking, the lifespan of a bunker is approximately 12 to 15 years. It is safe to say that all the bunkers are beyond what is considered their expected lifespan.
3. **Currently, the agronomic team has limited space for where maintenance equipment can be stored.**

- Without an adequate maintenance facility, it is impossible to protect the equipment used to maintain the golf course.
- Golf course maintenance equipment requires a significant investment, and all the equipment must be protected from the elements, so weathering is not experienced.
    - It should also be noted that the maintenance facility serves as a meeting place for the agronomic team and where all the equipment is repaired should it be needed.
- A quick tour of the maintenance facility revealed that the proper equipment is not available to the agronomic team to maintain the golf course. Basically, the agronomic team has access to a few putting green mowers, a few fairway mowers, a few rough mowers, a bunker rake, utility vehicles and a topdresser.
- While all of this equipment is certainly necessary for maintaining a golf course, the current equipment condition is such that it is not reliable. Additionally, important equipment, such as aerators, are not available to the agronomic team to perform cultural practices.

4. **A long-term tree plan has not been developed for managing the entire tree population located throughout the golf course.**
    - The large tree population is certainly a feature of the golf course, but a significant investment is required to maintain all the trees properly. While we took the time to identify some trees that require removal, an evaluation of every tree on the property must be conducted to determine each tree's impact on playability, turf health, and overall tree health.
    - Additionally, minimal pruning has been performed on the trees located throughout the golf course. Generally speaking, trees on a golf course should be pruned every 3 to 5 years. This has a significant impact on the amount of time dedicated to cleaning up debris during a major storm or in the spring.
5. **Based on our discussions, it does not appear as though internal drainage has been installed in the putting greens.**
    - Without internal drainage, the underlying clay soil is the limiting factor when it comes to the putting greens draining once the ground becomes saturated. This has a negative impact on turf health and playing conditions.
    - The BMP Case Study, Drainage Installation Improves Soft Putting Greens, highlights how internal drainage can improve the overall performance of putting greens.
6. **Currently, the forward tees play at a distance of approximately 5,200 yards.**
    - One of the biggest obstacles for new golfers, those with a slow swing speed, or those with a higher handicap is many golf courses do not offer a set of tees that suits their game.
    - A more forward set of tees would certainly make the course more accessible for golfers of all skill levels.
7. **We discussed the budget and what it takes to maintain a golf course properly.**
    - Every golf course is unique, and a budget must be tailored to fit the needs of each facility.
    - At this time, we do not have complete records to show how many rounds have been played or how much has been dedicated to maintaining the golf course.

Recommendations

1. **It is recommended to develop a long-term golf course improvement project plan that places a priority on replacing the irrigation system, rebuilding bunkers, building a new maintenance facility or renovating the cart storage building to accommodate all the needs of the agronomic team, updating the equipment fleet, and developing a long-term tree plan.**

   - Many of the golf course improvement projects that were listed will require significant investment and can certainly be completed over multiple years.
   - The most important thing is to develop a priority list and continue to invest in each project until it is properly completed.
   - The Green Section Collection, Planning for the Future, offers several resources on developing a long-term plan for a golf course.

2. **An immediate focus must be on the irrigation system, investing in equipment, and investing in a new maintenance facility.**

   - To begin replacing the irrigation system, it is recommended to contact an irrigation consultant and begin talking to irrigation contractors to install the system.
   - We discussed two irrigation consultants that several golf courses have recently used in the Midwest, Mike Kuhn and Tony Altum, and the irrigation installation company Leibold Irrigation, Inc.
   - When it comes to replacing the equipment, using a combination of leasing, and buying will likely be the most cost-effective strategy for ensuring reliable equipment is acquired.
     - The Green Section Collection, Equipment Management for Golf Courses, offers multiple resources that relate to building a proper equipment fleet. The article, Golf Course Maintenance Equipment 101, offers an example of what an equipment inventory should look like for an 18-hole golf course. This is certainly a topic we can discuss further as plans are put in place to update the equipment fleet.
   - When it comes to replacing the maintenance facility, we discussed how part of the cart storage building could be cleaned out for equipment storage. This would certainly be a sound strategy that would be much more cost effective than building a new facility.
     - It should be noted that the maintenance facility should include a lift for the mechanic to repair equipment, a break room, proper facilities for the agronomic team, and an office for managers.

3. **After addressing the immediate priorities that were just outlined, decision-makers must determine which golf course improvement projects should be completed in which order.**

   - Rebuilding bunkers would certainly add curb appeal to the golf course and address many of the complaints received from golfers in the recent past. Ideally, bunkers would all be rebuilt at the same time, but if this project had to be completed over a couple of years to make it work economically, that is certainly possible too. The GPS Services that were mentioned in the Rough section of the report also help to determine what bunkers are in play and if any can be removed to improve maintenance efficiency.

- Similar to the bunkers, installing internal drainage in the putting greens is something that could be completed over several years. The most common approach is for facilities to address their worst-performing putting greens first and then work through the rest of the putting greens. Two companies that install internal drainage in putting greens are Golf Preservations Inc and XGD Systems.

4. **It is recommended to develop a long-term tree management plan.**

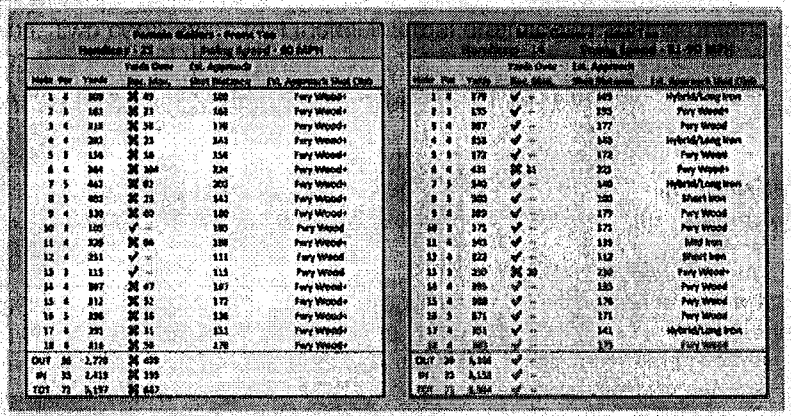
   - It would be beneficial to work with a tree service or skilled arborist to perform much of the removals and pruning. This is a strategy we see employed at many golf courses. It is possible to work along with the arborist or tree service to assist in the cleanup to help offset some of the costs.

   - It will be necessary for the foreseeable future to focus on removing all the ash trees from the golf course because the emerald ash borer is impacting them. Even if ash trees are healthy, proactive removal is recommended because it is only a matter of time until they are infected with the emerald ash borer.

   - As you advance, it will be necessary to evaluate each tree on the golf course from a perspective of its impact on turf health, impact on playability, and overall tree health.

     - If there is interest, this is something that could certainly be completed in a USGA Tree Consulting Service Visit.

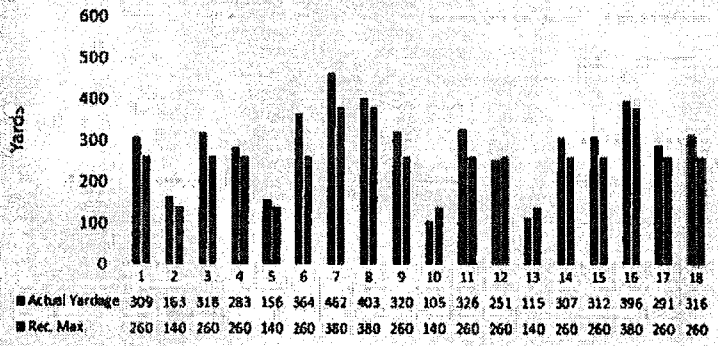
5. **It is recommended to add forward tees to make the course more accessible to golfers of all skill levels. The charts below offer recommended distances for where forward tees could be located so golfers of all skill levels have a similar club selection provided a well struck shot is played.**



When comparing the golf course an average female golfer plays compared to the average male, we can see two different golf experiences are provided. With the exception of two holes, the average female golfer will not reach the putting greens in regulation. However, the average male golfer ends up hitting a wide selection of clubs for an approach shot.

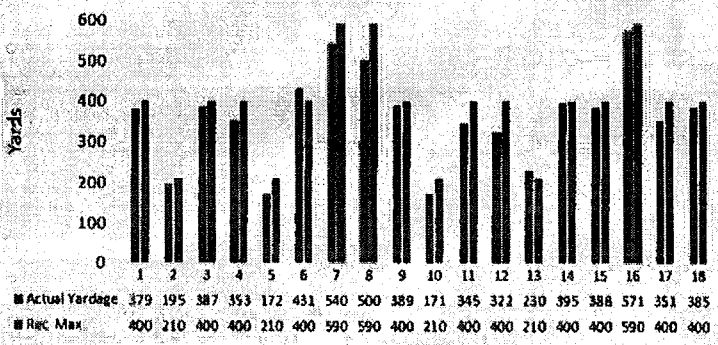
This chart shows how on nearly every hole female golfers are playing a distance that is over what is considered the maximum distance for the average female golfer.

Actual Yardage vs. Recommended Max. for Female Golfers



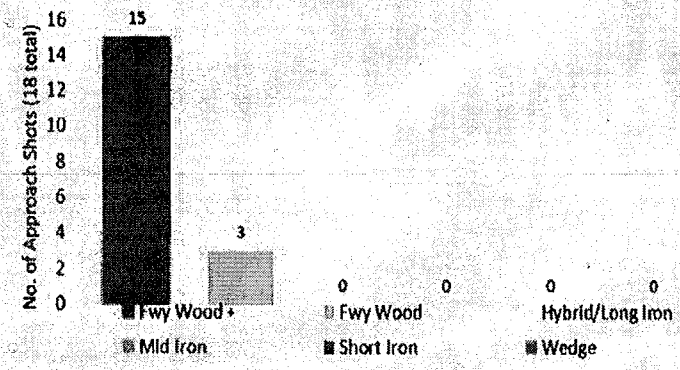
However, the opposite is true for the average male golfer. Nearly every hole plays shorter than the maximum recommended distance for the average male golfer.

Actual Yardage vs. Recommended Max. for Male Golfers



At the current distance, the average female golfer will be playing a wood for every approach shot. This is not an enjoyable way to play a round of golf.

Number of Approach Shots by Club for Female Golfers



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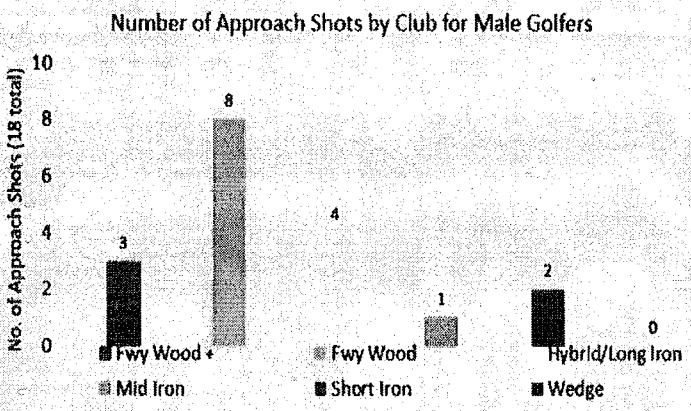
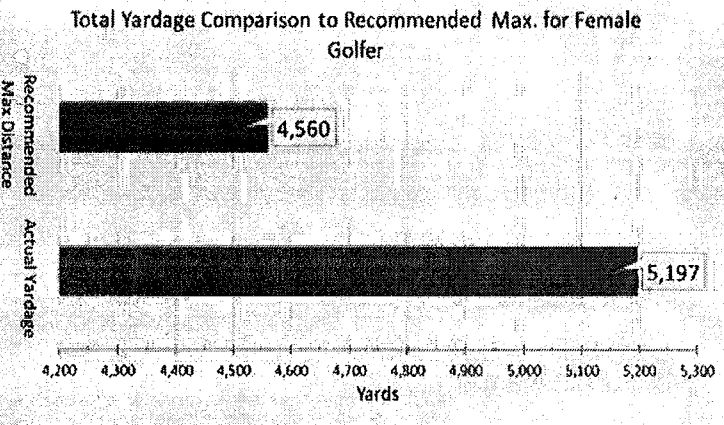
However, the average male golfer ends up having an opportunity to hit each club in his bag.



Here we can see that the forward tees are playing about 650 yards longer than what would be the recommended maximum distance for the average female golfer.



This graph shows how far golfers within certain handicap ranges hit different clubs and what is the maximum recommended distance for par-3's, par-4's, and par-5's.

			Max. Club Distance						Recommended Maximum Hole Distance (yards) by Par			Course
	Handicap	MPH	6 Driver	5 Fairway Wood	4 Long Iron/Hybrid	3 Mid Iron	2 Short Iron	1 Wedge	Three	Four	Five	Max
Women	Pro	>85	253	210	175	135	135	120	253	461	673	8,124
	0-5	81-85	202	190	161	135	115	97	202	392	582	6,856
	6-10	76-80	182	175	147	125	105	92	182	357	532	6,251
	11-15	71-75	172	165	135	117	97	85	172	337	502	5,901
	16-20	66-70	157	150	125	115	92	75	157	307	457	5,376
	21-25	61-65	140	135	105	100	80	60	140	275	410	4,815
	26+	<60	120	120	90	90	70	50	120	240	360	4,200
		Average	140	120	105	100	80	60	140	260	380	4,560
Men	Pro	>110	300	260	230	190	170	150	300	560	820	9,820
	0-5	101-110	270	240	220	180	150	140	270	510	750	8,940
	6-10	91-100	240	220	200	170	140	120	240	460	680	8,060
	11-15	81-90	210	190	170	140	120	100	210	400	590	7,010
	16-20	71-80	180	170	140	120	100	90	180	350	510	6,130
	21-25	61-70	150	150	120	110	90	75	150	300	450	5,250
	26+	<60	120	120	90	90	70	50	120	240	360	4,200
		Average	210	190	170	140	120	100	210	400	590	7,010

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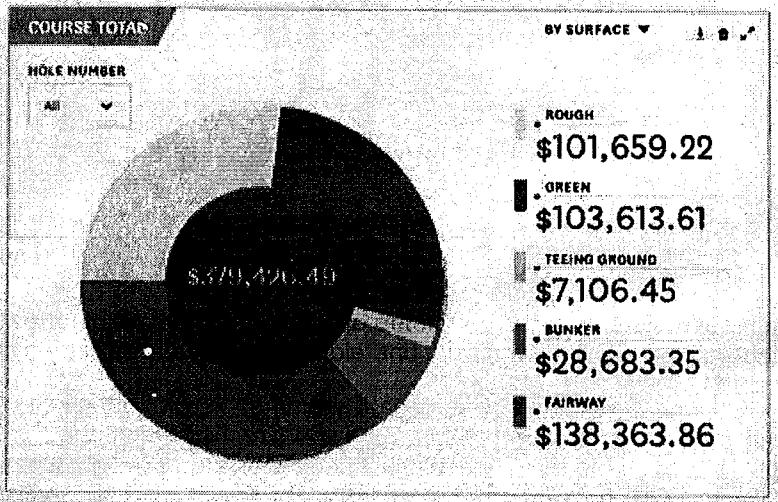
Here are the maximum distances golfers will typically hit their approach shot based on handicap ranges and swing speeds.

			Max. Approach Shot Distance by Club Selection					
	Handicap	MPH	Driver	Fairway Wood	Long Iron/Hybrid	Mid Iron	Short Iron	Wedge
Women	Pro	>85	253	193	163	143	128	120
	0-5	81-85	202	176	149	125	106	97
	6-10	76-80	182	161	136	115	99	92
	11-15	71-75	172	150	126	107	91	85
	16-20	66-70	157	138	119	102	84	75
	21-25	61-65	140	120	103	90	70	60
	26+	<60	120	105	90	80	60	50
		Average	140	113	103	90	70	60
Men	Pro	>110	300	245	210	180	160	150
	0-5	101-110	270	230	200	165	145	140
	6-10	91-100	240	210	185	150	125	120
	11-15	81-90	210	180	155	130	110	100
	16-20	71-80	180	155	130	110	95	90
	21-25	61-70	150	135	115	100	80	70
	26+	<60	120	105	90	80	60	50
		Average	210	180	155	130	110	100

- These charts should be used as a guide to determine approximately where forward tees should be located. The layout of each hole and terrain will have to be considered.
- Placing the tees on the fairway can make it so additional maintenance is not require for new tees. Creating a subtle tee pad on the fairway makes it so fairway mowers can mow over the tees and these surfaces would be included with all the plant protectants applied to the fairways.

6. Moving forward, a detailed budget must be developed for maintaining the golf course.

- Before a budget is developed, maintenance standards must be set for the golf course. This will make it possible to determine if the available funds are enough to meet the desired expectations. The USGA Green Section Collection, Maintenance Standards, offers several articles on how to develop maintenance standards.



Using the USGA Facility App, maintaining the primary playing surfaces based on industry averages cost just under $380,000. This is certainly a good starting point for developing a budget, but it must be remembered that the data here does not include some major operating expenses such as tree maintenance because the database has not been customized.

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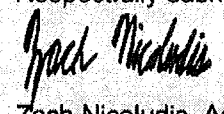
Summary

Overall, it is impressive to see that Timber Creek Golf Course has been brought back to life after not being maintained for nearly an entire year. Moving forward, it will be necessary to commit to completing sound agronomic practices year after year as well as investing in golf course improvement projects to continue to improve the quality of the course. Developing a long-term plan will go a long way in ensuring the golf course's integrity is protected and golfers experience quality, consistent conditions.

Thank you for your time and continued support of the USGA Green Section. I look forward to working with your facility in the future. If there are any questions regarding this report's contents, please feel free to contact me at znicoludis@usga.org or on my cell phone at (412) 215-6488.

Respectfully submitted,



Zach Nicoludis, Agronomist
USGA Green Section

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Additional Considerations

The USGA appreciates your support of the Course Consulting Service. Please visit the *Green Section Record* to access regional updates that detail agronomist observations across the region. Also, please visit the Water Resource Center to learn about golf's use of water and how your facility can help conserve and protect our most important natural resource.

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About the USGA Course Consulting Service

As a not-for-profit agency that is free from commercial connections, the USGA Course Consulting Service is dedicated to providing impartial, expert guidance on decisions that can affect the playing quality, operational efficiency, and sustainability of your course.

First started in 1953, the USGA Course Consulting Service permits individual facilities to reap the benefits of on-site visits by highly skilled USGA agronomists located in Green Section offices throughout the country.

For questions regarding this report or any other aspect of the USGA Course Consulting Service, please do not hesitate to contact our office.