

MEADOWBROOK GOLF COURSE

City of Rapid City, South Dakota

GOLF COURSE MAINTENANCE PLAN



PRESENTED BY:
GILL DESIGN, INC.
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Introduction

Document Purpose

The purpose of this document is to outline maintenance practices and procedures necessary to achieve the architectural aesthetics, and base-line playing conditions for Meadowbrook Golf Course. Furthermore, this document is intended to serve as a guide for the operation of the Meadowbrook Golf course maintenance department, and be a reference for the City of Rapid City leaders when making staffing, capital improvement, and equipment purchasing decisions. This Plan will outline maintenance standards from an architectural perspective for the various golf course elements (greens, tees, fairways, etc.), and propose industry standard equipment, staff, and budget needs to achieve the desired course conditioning vision.

Golf Course Maintenance Overview

Maintaining Meadowbrook Golf Course is a complex and labor-intensive operation that is primarily managed by the Golf Course Superintendent who has specialized knowledge in plant sciences, business and personnel management, and public relations. Efficient and cost-effective operations additionally require a core staff of knowledgeable full-time professionals ranging from Mechanic/Equipment Manager to Irrigation Specialist to Assistant Golf Course Superintendent. The core staff is supplemented during the busy golf season by a seasonal crew of laborers, technicians, and equipment operators.

In addition to managing the staff and course conditioning operations (including proper watering schedules, integrated pest management, equipment maintenance, forestry and special course improvement projects, etc.) the Golf Course Superintendent must also ensure maintenance is performed that will produce the playing conditions expected by users, recommended by the architect, and deemed feasible by the Superintendent. The key to success is defining agreed upon course conditioning expectations ahead of time.

While the ultimate responsibility for playing conditions of Meadowbrook GC is clearly that of the Golf Course Superintendent, frequent and open communication with the Recreation Division Manager, Parks and Recreation Director, Head Golf Professional, Greens Committee, City leaders, and Golf Course Architect is necessary to ensure diverse expectations are being met throughout the playing season and/or to make adjustments needed for tournament or event play.

Maintenance Standards

A Maintenance Standards Policy

The vision for Meadowbrook Golf Course is to restore the golf course to its former award-winning position as one of the top public golf courses to play, offering playable golf conditions for golfers of all abilities as well as being able to deliver a challenging venue for tournament play. In order to provide the golf conditions that realize the vision, the City of Rapid City and Meadowbrook Golf Course Maintenance staff must first define a maintenance standard policy that outlines standards and expectations. Furthermore, based upon expectations, adequate funding must be allocated to secure appropriate equipment, and hire and/or educate professional and seasonal staff. The first step in developing this maintenance plan and budget was to clearly define maintenance standards and expectations, starting with the most labor-intensive task.... mowing.

Mowing Patterns

Mowing patterns, color, and contrast are very important in defining the boundaries of a golf hole, separating playing surfaces, and helping the golfer to read the golf hole.



White Eagle Golf Course - Garrett Gill, ASGCA

Mowing heights and mowing direction can affect turf color and appearance, and thus affect the legibility of a golf hole.

The diagram that follows illustrates the anticipated mowing height standards for Meadowbrook Golf Course during an average golf season. Note that drought may affect mowing height.



Five to six different types of mowers are needed to achieve these standards:

- 1 Greens mower
- 2 Tees mower (same as greens mower with a different mowing blade count)
- 3 Fairway mower
- 4 Trim mower for tee surrounds and bunker surrounds
- 5 Wide area rough mower - buffalo grass area
- 6 Possible need for a wide area flail mower for the naturalized area and/or contour mower for the mounds

Greens Standards

- Green speed as tested with a Stimp meter will be 9 - 9.5 for daily play, and up to 10-11 for certain tournament events. Adjustments will be made as needed on Hole #11.
- Meadowbrook will provide greens that have firm and smooth putting surfaces that are free of disease, damage, or pest infestation.
- Hole locations will be changed daily in accordance with the hole location map.

Greens Maintenance Procedures to Achieve Standards are the responsibility of the Golf Course Superintendent. These procedures generally include mowing with high-performance specialized mowers, topdressing, precision irrigation, aerating, pesticide, herbicide, and fertilizer applications, rolling, and drainage and turf repairs as needed.

Tee Standards

- Tees will have a dense bentgrass turf stand and smooth teeing surfaces.
- Turf will be free of damage, weeds, and disease.
- Turf height on bentgrass tees will be between 3/8" to 1/2" (.375" - .500"). The preferred height is 3/8".
- Tee amenity sets (trash containers, ball washers, benches, etc.) will be in good repair, clean, appropriately placed, and ready for daily use.
- Tee markers will be set up to provide optimum playing angle, choice, and daily turf condition. They will have a minimum of 12 feet between them as able, and will not crowd amenities.
- Distance marker plates will be trimmed and fully visible.
- These standards will apply to forward tees as well as back tees.

Tee Maintenance Procedures to Achieve Standards are the responsibility of the Golf Course Superintendent. These procedures generally include mowing with high-performance specialized mowers, topdressing, precision irrigation, aerating, pesticide, herbicide, and fertilizer applications, and drainage and turf repairs as needed. At times, leaf blowing, over-seeding, or scarification may be needed.

Fairway Standards

- Fairways will be low-mow bluegrass maintained at a mowing height of 5/8" to 3/4" (.625 - .750). If converted to bentgrass, the preferred mowing height will be 1/2".

- There will be no excessively wet or excessively dry areas due to irrigation malfunction.
- Fairways will be free of standing water unless there has been a major rain event in which case full drainage of the area is expected within 24 hours.
- Fairways will have sufficient turf free of disease, weeds, and debris in all mowed areas.
- Fairways will have generous landing areas for drives with shot-making premium placed on the approach shot.
- Mowing pattern will follow architect's field recommendations.

Fairway Maintenance Procedures to Achieve Standards are the responsibility of the Golf Course Superintendent. These procedures generally include mowing with high-performance specialized mowers, topdressing, precision irrigation, aerating, pesticide, herbicide, and fertilizer applications, and drainage and turf repairs as needed. At times, leaf blowing, over-seeding, or scarification may be needed.

Rough and Out-of-Play Standards

- *Rough* will be comprised of bluegrass/fescue mix that will be maintained at preferred height of 1.5 inch height of cut (HOC) for daily play. If fairway definition is insufficient, GDI recommends rough height be increased to 1.75 to 2 inches.
- *Out-of-play areas* will be naturalized and comprised of buffalograss/fescue/native prairie wildflower mix, mowed to 6" in the spring and fall.
- The low-maintenance buffalo/clump grasses and wild flowers in out-of-play naturalized areas will be mowed and maintained a bit more intensively during the first three years of establishment, but thereafter will require minimal annual maintenance with biannual mowing to 6" and possibly a controlled burn once every 2-4 years. (Naturalized areas may need burning or scarifying to keep the grass stand thin so golf balls can be easily found.)
- Rough will be minimally irrigated.
- Naturalized area will not be irrigated.
- The thatch layer in out-of-play areas will be kept thin with some areas of exposed soil visible between grass clumps and native buffalo grass and flowering plants.



Naturalized Area at White Eagle Golf Course - Garrett Gill, ASGCA

Rough Maintenance Procedures to Achieve Standards are the responsibility of the Golf Course Superintendent. These procedures generally include controlled burning, scarification, biannual spring and fall mowing (in wet years, mid-season as well) with high-performance specialized mowers that will navigate mounds if any.

Bunker Standards

- Bunkers will have five inches (5”) of uniform depth sand sourced from Pete Lein & Sons called “Meadowbrook Bunker Sand” (or sand of equal specification and approved by the Golf Course Superintendent) in bunkers at all times.
- Bunker sand will be free of rock, debris, and clayey compaction.
- Bunkers will be have an undisturbed, smoothly raked sand surface.



- Bunkers will have a clean grassy edge, free of soil contamination and turf invasion.
- Bunkers will not have pooling water after a rain event.
- Bunker edges will be mowed as rough.
- Bunkers will be raked mechanically in the center of the bunker 1-2x/week, with edges hand-raked.
- All bunkers that are mechanically raked will have more than one exit/entry point for equipment, and if wear starts to show on a particular bunker, it will be hand-raked.
- No trimming of bunker edges with a string trimmer.
- No trimming with a mechanical edger.

Bunker Maintenance Procedures to Achieve Standards are the responsibility of the Golf Course Superintendent. The type of bunker designed for Meadowbrook golf course is intended to have a very low-maintenance edge with the ability to mow up to the edge of the bunker. Although daily and weekly labor costs will be less, these bunkers will require annual bunker edging. Weekly procedures generally include mechanical bunker raking with light equipment in the center of bunkers, hand-raking of bunker edges (as needed daily), training of staff to protect bunker edges from rake and machine exit damage and to prevent sand contamination during maintenance, annual drainage inspections and pipe flushing/clean-out as needed, scheduled assessment of sand depth, and annual bunker edge maintenance as described in the following section.

Required Annual Maintenance for Meadowbrook GC Bunkers

All bunkers at Meadowbrook, whether lined with Billy Bunker bottom or not, were constructed with a soil-filled burlap sack edge (see photos below.) Sod was then rolled over the sack to meet the bunker bottom creating a grass wall on the edge of the cavity; then sand was filled into the cavity and pushed up against the sod to hold it in place.



Unfortunately, over time, the sod at the edge of the bunker will slowly tend to invade the sand bunker and this is where maintenance will be required. The first step in maintaining the bunker is to pull approximately the top 2-3 inches of sand away from the bunker edge, being careful ***NOT*** to expose the bunker liner or cavity bottom. The second step is to carefully probe to find the sand/soil interface where the bunker edge should be. The tool of choice for this job is a pitch fork inserted at the edge of the burlap sack. The edge can usually be felt by probing with the fork in the area where the man in the photo is pointing. Where the sand edge is found, the pitchfork will go in easily. The crew must be trained to carefully find the edge and avoid breaking into the soil-filled bags or matured topsoil edge in order to prevent accidental damage to the edge of the bunker cavity and/or the Billy Bunker liner, and contaminating the sand. They also must be properly trained not to expose the Billy Bunker liner or bunker cavity bottom at any time when performing maintenance. Next, the invasive turf along the edge is loosened: When the pitch fork is inserted at the edge and



twisted, the invasive sod piece is loosened so that it can then be removed. This is carried out around the entire border of the bunker, loose pieces removed and hauled away, and sand raked back to the edge of the bunker. The newly maintained bunker should look as if was never touched.

Weekly edging and trimming is eliminated in this scenario provided weekly mowing is performed properly. Bunkers should be manually edged in this manner once per year. At a club with a comparable design/type of bunker, it takes 2 laborers 1 day to edge 10-13 bunkers. At the club with a comparable bunker design, it takes two (2) laborers three (3) weeks annually to edge all 101 of their bunkers. They have been maintaining their bunkers in this manner for 7 years with no degradation of the bunker edge and no shrinkage according to the Superintendent.

Water Quality Standards

- Rapid Creek will receive no run-off from the golf course that has not first traveled through a bio-filter buffer strip, detention basin, riparian buffer, grassy swale or buffer zone.
- Areas of high velocity water will be slowed by use of check dams, weirs, and other means to reduce erosive energy.
- Areas of bank erosion will be stabilized to reduce sediment in Rapid Creek.
- Nutrients from mower washing will not run off into Rapid Creek.
- Naturalized borders of water courses will not block the golfers' view of a golf hole or golf shots that are architecturally intended to be playable (note willows on Hole 15 in particular and branches along the tee on Hole 5 may need more frequent attention). Views from the Pro Shop to Hole 9 green should also be kept clear.



Habitat and Ecosystem Standards

- Meadowbrook will provide and connect habitat corridors and native vegetation patches wherever possible in out-of-play areas on the golf course.
- Rapid Creek will have a continuous buffer strip/vegetative border along the water course (low vegetation where views are required).

Chemical Application Standards

- Meadowbrook will provide turf that is free of disease, damage, or pest infestation.
- Products will be applied only as needed and at minimal rates.
- Maintenance staff will perform regularly scheduled fertility tests.
- EPA guidelines and manufacturer's standards will be observed at all times.
- Chemicals will only be applied during calm or minimal breeze.
- The chemical application specialist will ensure strict observance of weather events.
- Rapid Creek will be protected as needed during all chemical applications.
- Signage and/or roping off of areas will be implemented as needed.

Forestry Standards

- Trees will be limbed and trimmed to ensure safety of golfers on the course.
- Trees (shade, roots, deadwood, or fruit/seed droppings) will not inhibit the quality of turf or areas of play on the golf course.
- Staff will consult with GCA prior to planting trees (unless they are indicated in the Capital Improvement Plan.)

Irrigation Standards

- Water will be delivered as conservatively and efficiently as possible.
- Turf will be watered with greens taking priority, then tees, then fairways, with lowest priority being the rough.
- Water conserving systems will be considered when it comes time to replace the irrigation system with consideration of possible integration into the City's Central Irrigation Control System.

Cart Path Standards

- Cart paths will be free of pot holes and dangerous bumps.

- Cart paths will be minimally intrusive and as visually unobtrusive as possible (paths in photos below should be corrected.)
- Cart paths will be safe.



Maintenance Staffing Levels

General Staffing for an 18-hole Golf Course

Most 18-hole golf courses are maintained by a full-time GSAA Certified Golf Course Superintendent, Assistant Superintendent, Equipment Mechanic, and approximately eight to 10 seasonal employees. These employees can be on a flexible schedule such that work is performed when golfers are less likely to be on the golf course.

Staffing Recommendations for Meadowbrook Golf Course

- GSAA Certified Golf Course Superintendent (1 Full-time - permanent)
- Golf Course Assistant Superintendent (1 Full-time - permanent)
- Golf Course Second Assistant Superintendent (1 Full-time - permanent)*
- Mechanic/Equipment Manager (1 Full-time - permanent)
- Irrigation Specialist (1 Full-time - seasonal)
- Chemical Application Specialist (1 Part-time - seasonal)
- Golf Course Grounds Crew Foreman (1 Part-time seasonal)
- Golf Course Grounds Crew Laborers (2 Part-time seasonal)
- Maintenance Equipment Operators (4 Part-time seasonal)

*Optional

All job descriptions for the above positions are included in the Appendix and were sourced from the following online document: <http://www.cmaa.org/CCMBook2/Chap15.pdf>, Frank, Kevin, Jan. 10, 2014. Rapid City's job description for Superintendent is included as well.

Salary Information

In 2013, national average salary for a Certified Golf Course Superintendent (including public and private courses) was \$98,187; Non-certified Superintendents made an average of \$77,305. (Source: <http://www.gcsaa.org/jobs/compensation-resources> Sept. 1, 2014.)

Maintenance Schedules

There are two types of maintenance schedules: the **ongoing regular** daily or weekly maintenance needs, and the second is **project based**: biennial, annual, or biannual maintenance, and special projects. Both types of maintenance are best done by setting up a rotating schedule in order to ensure consistent maintenance interventions. Fur-

thermore, the most productive time for maintenance activities is when golfers are less likely to be on the course: early morning and later in the day. The key to reducing labor costs (the biggest budget expenditure) is effective and efficient labor management/ scheduling, and equipment maintenance and staging that will maximize productivity and minimize down-time. This may include split schedules that minimize midday on-course maintenance activity. This is an *example* of a man-hour/personnel schedule. If one does not exist for MGC, we suggest creating one modified with MGC specific tasks.

Ongoing Regular Weekly Maintenance

(Numbers indicate the anticipated personnel hours required to perform the task.)

TASK	M	T	W	TH	F	SA	SU
<i>Change Cups & Service Tees</i>	5	5	5	5	5	5	5
<i>Mechanically rake center of bunkers - Hand-rake edges.</i>	5			5			
<i>Mow Greens and spot rake bunker as needed daily</i>	9	9	9	9	9	9	9
<i>Trim Work around 46 Tees, green surrounds.</i>	8	8		8	8		
<i>Tees, Collars, and Aprons</i>	12		12		12		
<i>Mow Fairways</i>	10	10		10	10		
<i>Mow Driving Range 1x/wk, practice area maintenance daily (pick range, repair divots, move hitting area, etc.)</i>	5 (mow range) +2 hr daily maint.	2	2 (Mow tee and surrounds) +2 hr daily maint.	2	2	2	2
<i>Maintain Clubhouse Grounds</i>		1		1		1	

TASK	M	T	W	TH	F	SA	SU
<i>Irrigation Repairs</i>			5				
<i>Chemical Applications</i>		3					
<i>Equipment Maintenance</i>			5				
<i>Morning Equipment Staging</i>	1	1	1	1	1	1	1
<i>Mow Rough</i>	8	8	8	8	5	5	5
<i>Hand Trimming</i>	1	1	1	1	1	1	1

Project-based Biennial, Annual, or Bi-annual Maintenance

The previous schedule listed tasks that must be done weekly to maintain the golf course. The following table lists tasks that must be done periodically/annually to ensure longevity of the golf course infrastructure. Again, we recommend MGC have an “Annual Maintenance Schedule with MGC specific tasks.

TASK	TIME REQUIRED	HOURS	PERSONNEL
<i>Aerate Greens</i>	2 Days - 9 holes one day, 9 the next (twice per year)	96	3 employees - aerator driver, plug collector, topdresser
<i>Bunker Edge Maintenance</i>	4 days - 15 bunkers/day (or 8 days with 2 workers per day) (once per year)	128	4 employees - pitch fork laborers (2), hauler/disposal (2)
<i>Aerate Fairways</i>	0	0	Contract out vs. 298" Fairway aerator - 18 holes - 2 days, 1 operator

TASK	TIME REQUIRED	HOURS	PERSONNEL
<i>Forestry</i>	5 days - 10 large trees	160	Contract out vs. 4 personnel - chainsaw operator, tractor operator, chipper, dump truck disposal driver
<i>Bunker Drainage and Clean-out</i>	30 mins per bunker - 30 bunkers per year	20	1 Grounds crew laborer
<i>Aerate Tees</i>			
<i>Annual Report and Planning Document</i>	Meetings plus document planning and preparation time	160	Superintendent in collaboration with Assistant Superintendent, Golf Pro, Club Manager, and City Officials as appropriate.
<i>Fleet management and purchasing</i>	Upfront time to establish fleet and fleet cycle, then it should be cyclical	TBD	Superintendent in collaboration with Assistant Superintendent and City Officials as appropriate.
<i>Prairie Maintenance</i>	1 day per 3 acres every 2-4 years	TBD	Superintendent in collaboration with contracted prairie burn company or trained personnel.

Average Maintenance Budget

According to a Golf Course Industry magazine study in 2012, the average public golf course maintenance operating budget including labor and overhead for an 18-hole golf course was \$458,071 (excluding water costs). The largest portion of all golf course maintenance budgets (public and private) was labor. In the GCI magazine survey, the average budget for 2012 public golf capital projects/purchasing budget was \$70,438 and average annual cost to lease mowing/cultivation equipment was \$96,051.

<http://www.golfcourseindustry.com/gci0212-state-of-industry-report.aspx>

Source of the 2011 table below: <http://www.gcsaa.org/course/maintenancebudgetsurvey.aspx>, February 2014.

Budget Range	Overall	Pacific	Upper West-Mountain	Southwest	North Central	Transition	Southeast	Northeast
< \$200,000	7.2%	7.0%	7.9%	1.7%	11.2%	7.1%	4.9%	6.6%
\$200,000-\$350,000	16.0%	5.2%	15.9%	6.1%	25.6%	20.0%	9.2%	16.0%
\$350,001-\$600,000	28.7%	23.5%	31.7%	21.7%	33.5%	33.2%	23.9%	26.2%
\$600,001-\$1,000,000	27.9%	32.2%	34.1%	25.2%	23.2%	26.8%	30.1%	28.1%
\$1,000,001-\$1,500,000	13.9%	18.3%	7.3%	26.8%	5.9%	10.6%	20.9%	17.2%
>\$1,500,000	6.3%	13.9%	3.0%	19.1%	0.6%	2.3%	11.1%	5.9%

*Maintenance budgets include all labor expenses

Maintenance Equipment Required to Meet Proposed Standards

Three recognized golf course equipment vending companies were contacted to provide a quote on a maintenance fleet that they thought would be necessary to maintain an 18-hole golf course with approximately 60 bunkers, 3 acres of greens (average size between 4,000 SF and 6,000 SF), 3 acres of tees (46 tees), 35 acres of fairways, and the rest comprising out-of-play areas, and acreage for parking, clubhouse, maintenance, etc. We also asked the companies to estimate replacement cycles, and to recommend which pieces would be appropriate for purchase versus a lease option. These proposals are included in the Appendix. GDI did additional research, consulting with two 18-hole golf course superintendents each with 30+ years experience in the industry, and a fourth equipment vendor with equipment sales and lease package experience. Their recommendations are the basis for recommendations herein.

General Maintenance Equipment Requirements for an 18-Hole Golf Course

The following is a general list of the minimum pieces of equipment necessary for maintenance of an **18-hole golf course** according to the three equipment vendors contacted separately by GDI, and the golf course superintendents. Critical pieces of equipment, such as greens and fairway mowers, should have back up equipment to cover maintenance needs should one of the mowers break down.

1. 2 Greens mowers - plus a back-up
2. 2 Tee mowers - plus a back-up
3. 2 Fairway mowers - plus a back-up
4. 1 Trim mower - plus a back-up
5. 1 Rough mower - plus a back-up
6. 2 Heavy duty work carts
7. 3 Mid-duty work carts
8. 1 Debris blower
9. 1-2 Aerators - (fairway and green)
10. 1 Bunker rake
11. 1 Spreader
12. 1 Sprayer
13. 1 Roller (dependent upon green speed expectations)
14. 1 Utility Tractor with various attachments (bucket, forestry loader, rock bucket, plow/snowblower, etc.)
15. Water pumps/generator
16. 1 Core harvester/vacuum
17. 1 Hand mower
18. 1 Air compressor

Photo Catalogue of Existing Golf Course Maintenance Fleet



#1 - Cushman



#2 - Cushman



#3 - Cushman
at Exec Course



#4 - JD Gator



#5 - Jacobsen
Truckster



#6 - Jacobsen
Truckster



#7 - Cushman
Truckster with
Watering Hose



#8 - E-Z-GO
WorkHorse



#9 - Vintage
Cushman (no
tag)

Equipment not
present for
photographing



#11 - Cushman



#12 - E-Z-GO
WorkHorse with
Sprayer attachment



#13 - E-Z-GO
WorkHorse

Equipment not
present for
photographing

#14 - E-Z-GO Sport



#15 - Jacobsen
GKIV GreensKing
Greens Mower

No Photo

#16 - Tag not
assigned.



#17 -
Jacobsen GKIV
GreensKing
Greens Mower



#18 -
Jacobsen GKIV
GreensKing
Greens Mower



#19 -
Jacobsen GKIV
GreensKing
Greens Mower



#20 -
Jacobsen GKIV
GreensKing
Greens Mower



#21 -
Jacobsen GKIV
GreensKing
Greens Mower



#22 -
Jacobsen GKIV
GreensKing
Greens Mower



#23 - Jacobsen
GKIV - at Exec
Course



#24 - Jacobsen
GKIV - GreensKing
Greens Mower



#25 - TORO
Sidewinder
trim mower



#26 - TORO Sidewinder trim mower



#27 - TORO Reelmaster fairway mower



#28 - TORO Reelmaster fairway mower



#29 - TORO Reelmaster fairway mower



#30 - Jacobsen 5111 wide area mower



#31 - JD935 Front mower at Exec. Course



#32 - Jacobsen 5111 wide area mower



#33 - Jacobsen 5111 wide area mower -dis-used parts only



#34 - Ransomes Jacobsen 723D - at Exec. Course



#35 - Ransomes Jacobsen 723D - aka - M3



#36 - Ransomes Jacobsen 723D - aka M10



#37 - SmithCo rake



#38 - TORO SandPro bunker rake



#39 - Cushman Hawk



#40 - Bobcat

John Deere Utility Tractor - not available for photographing

#41 - JD Tractor

Vertidrain - not available for photographing

#42 - Vertidrain



#43a - Turfco SP1530



#43b - Turf Tender Dakota 410 topdresser with conveyor



#44 - Turf Tender Dakota 440 topdresser with conveyor



#45 - JD fairway mower - at Exec. Course



#46 - TORO 3150 Greens Mower

Not available for photographing

#47 - TORO 3150 Greens Mower



#48 - JD 2030A ProGator with sprayer attach-

No Photo

#49 - tag unassigned or assigned to sprayer attachment?



#50 - TORO 3150 Greens Mower



#51 - Cushman Rotary



#52 - Cushman Rotary

Not available during photographing

#53 Club Car beverage cart - not available

Not available during photographing

#54 - E-Z-GO beverage cart - not available



#55 - Case Tractor



#56 Ingersoll-Rand Compressor

No Photo

#57 - Tag not assigned.



#58 - Buffalo Blower



#59 - Pressure Washer



#60 and #61 - Aera-Vators pictured to the left.

PLUS - there is one additional untagged aerator (red).



#62 - Various edgers and hand mowers - also see #69



#60



#61



#63 - ferguson Tractor



#64 - Broyhill Sprayer



#65 - Chainsaws

Not available for photographing

#66 - Wood chipper

Not available for photographing

#67 - W.E. Blowers

No Photo

#68 - Tag not assigned.



#69 - Push mowers and edgers



#70 - Generators and water pumps

Not available for photographing



See photo #70



#71 - Ryan Mataway overseeder

#72 - Core Harvester

#73 - Olathe Overseeder

#74 - Honda Pump

#75 - Versa Vac

Not present at time of photographing

Not present at time of photographing



#76 - Ryan sod cutter

#77 - Ryan reno-o-thin

#78 - Roger Sweeper

#79 - Vermeer stump grinder

#80 - Trailer long



Not present at time of photographing



No Photo



#81 - Trailer Bobcat

#82 - Trailer tilt

#83 - Trailer small

#84 - Tag not assigned.

#520 - '95 Chevy 1500 truck

Not present at time of photographing



No Photo

Not present at time of photographing



#521 - '96 Dodge truck

#522 - '92 GMC Sonoma

#523 - Tag not assigned.

#524 - '03 Ford

#525 - '96 Chevy 3500 dump truck



No Photo



#526 - '91 Ford F250

#527 - Tag not assigned.

#528 - '93 GMC

Equipment without Inventory Numbers



___ - Weed whippers



___ - Roller



___ - Ransomes Jacobsen front mount with cab



___ - Vintage rough mower



___ - Miscellaneous



___ - Plow (new)



___ - Plow (old)



___ - Plow (really old)



___ - Lely spreader



___ - Mete-R-Matic topdresser



___ - Scarifier



___ - Aerator



___ - E-Z-GO Workhorse



___ - E-Z-GO Hauler



___ - Forestry grapple



___ - Rock bucket

Actual tag numbers on each piece of equipment do not in all cases match the inventory list and tag number referenced in the MGC Maintenance Department Inventory List. For example #12 and #13 on the Inventory List are Jacobsen 1110's while the equipment with the actual tags #12 and #13 are E-Z-GO Workhorses. Tag #9 was an educated guess when assigning it to the Vintage Cushman because the Vin no. was so small. None of the Jacobsen 1110's were located (possibly one of the un-tagged above?).

Additionally, while numbering in this photo catalogue exactly matches the actual photographed number tag on each piece of equipment, it was not specifically checked against the model and serial # on the MGC Inventory List with the same number tag.

Equipment not present for photographing - Tag #s: 10, 14, 41, 42, 47, 53, 54, 66, 67, 71, 76, 77, 82, 521, 524.

Tags unassigned or a gap in numbering: 16, 49, 57, 68, 84, 523, 527.

Equipment without numbers and not listed in Inventory List: the last three items in the MGC Maintenance Department Inventory List that follows and items photographed above.

MGC Maintenance Department Inventory List - October 2014

#	Equipment	Model	Serial #	Location	City Tag
1	Cushman	898531-8910	Vin 18618	MB	
2	Cushman	898530-8910	Vin 19649	MB	
3	Cushman	898530-8910	Vin19672	EX	
4	John Deere	Gator	Woturfd002761	MB	
5	Truckster	898030A	98005266	MB	
6	Truckster	898030A	93003083	MB	
7	Truckster	898631	93003083	MB	14163
8	E-Z-GO	WH1200LX	1202230	MB	
9	Cushman	898456-8710	Vin 4598	EX	14176
10	Jac 1110	84024	6833	MB	19300
11	Cushman	898531	92003997	MB	14154
12	Jac 1110	84024	6831	EX	
13	Jac 1110	84024	6840	MB	19690
14	E-Z-GO	ST SPORT	2628225	MB	
15	GKIV	62612	1749	MB	1----n/a read
16					
17	GKIV	62226	5513	MB	11628
18	GKV	62247	3561	MB	
19	GKV	62247	3541	MB	
20	GKIV	62612	1604	MB	1-0-0 n/a read
21	GKIV	62221		MB	13677
22	GKIV	62228	3629	MB	12941
23	GKV	62247	3540	EX	Tag gone
24	GKIV	62612	1603	MB	1-9--n/a read
25	Sidewinder 3500D	30821	240000276	MB	13018
26	Sidewinder 3500D	30821	240000470	MB	
27	Toro 5300D	03530	50850	MB	13019
28	Toro 5400D	03543	200000455	MB	18419
29	Toro 5400D	03543	200000445	MB	
30	Jac 5111	69116	4304	MB	
31	JD935	F935	MOF35X11159	EX	
32	JAC 5111	69116	1819	MB	13055
33old	Jac 5111	69116	3142	MB	SCRAPPED
33	Ransome	946700	9467000914	MB	From airport
34	Ransome 723D	946700	9467000861	EX	
35	Ransome 723D	946700	9467000307	MB	From parks
36	Ransome 723D	946708	94670800320	MB	
37	Smithco rake	13-300	4404	MB	1294
38	Toro sand pro 5020	08886	08886210000205	MB	
39	Cushman hawk	797012	99005931	MB	
40	Bobcat	753	515842847	MB	20476
41	JD Tractor	5200	Lv5200c110251	MB	
42	Verti Drain	VD7316	45029	MB	
43a	Topdresser -spinners	85800	A90263	MB	Turco
43b	Topdresser- conveyor		41026608	MB	DAKOTA
44	Turf Tender	440	FT9810	MB	
45	JD Fairway	3235	mo3235A020246	EX	
46	Toro greens 3150	04357	230000372	MB	11375
47	Toro greens 3150	04357	2300004357	MB	11376
48	JD progator	2030A	tc2030at010145	MB	13017
	JD sprayer	HD200	Tc200gx041232	MB	

49					
50	Cushman rotary	898807	92001562	MB	13044/ parks
51	Cushman rotary	898807	92001570	MB	13045/ parks
52	Ransome lynx	XT2000	000357	MB	
53	Club car beverage cart	EG 9739	610364		
54	E-Z-GO beverage cart	REF 1200	2630421	MB	
55	Case	480F	JJG0004436	MB	
56	Ingersolrand compressr	P175WJDU	219027UJC315	MB	
57					
58	Buffalo blower	CKB3	13068	MB	13021
59	Pressure washer			MB	
60	AERA-vator	AE60	4280	MB	
61	AERA-Vator	AE60	4418	MB	
62	Little Wonder Edger	6002	00-1	MB	
63	Fergeson			Exec	
64	Broyhil sprayer			MB	
65	Chainsaws			MB	
66	Chipper	SP111AP3	3T3584	MB	
67	W.E.-blowers				
68				MB	
69	Push mowers Ransome	M21-4BZ2C	002575	MB	
70	Honda generator			MB	
71	Ryan mataway	544873-8910	141609	MB	
72	Core harvester			MB	
73	Olathe overseeder	M83/ M93	831614/	MB	
74	Honda pump			MB	
75	Versa Vac	07053	220000156	MB	20474
76	Ryan sod cutter	544844-9010	90500077	MB	
77	Ryan ren-o-thin	54865	93A524362	MB	
78	Roger sweeper			Exec	
79	Stump grinder	665	606	MB	
80	Trailer Long TE652			MB	8490
81	Trailer Bobcat TRL923	1R9S122T4J110	9193	MB	
82	Trailer Tilt TRL925		327125	MB	
83	Trailer small			Exec	
84					
520	95 Chevy fuel trk 1660	Vin 1GCEC14H	1SZ249585	MB	
521	96 Dodge 4876	Vin 1B7HF13Y	7TJ191746	Exec	
522	92 GMC 1594	Vin 1GTCT19Z	8N8508463	MB	
523					
524	03 Ford 1456	Vin 2FTPX18L	X3CA71346	MB	
525	96 Chevy dump 1521	Vin 1GBJC34R3	TE134695	MB	
526	91 ford 1410	Vin FTEF25Y7	MPA38353	MB	
527					
528	93 GMC 1441	Vin 1GK GK26	K7PJ748296	MB	
	Troybilt tiller			MB	
	Estate trimmer			MB	
522	06 Ford 6143	1FTWW31	Y16ED65149	MB	

Model Year and Hours by Inventory Number List

Below is the model year and hours on the equipment from both golf courses (Meadowbrook [MGC] and the Executive Course). Per Superintendent James Walraven, the numbers 1-84 match the MGC Dept. inventory list and photo catalogue in this document, and the industry standard on calculating miles on equipment to its equal in hours is 36 miles = 1hr. For example #1 on the Inventory List (Cushman Truckster) is a 1989 model and has 3709 hours which would be calculated to 133,524 miles.

1. 1989 3709
2. 1989 4971
3. 1989 3837
4. 2003 6512
5. 1998 2613
6. 1993 3495
7. 1993 5243
8. 1999 1694
9. 1986 11916
10. 1998 1304
11. 1992 11252
12. 1998 1470
13. 1998 2430
14. 2008 No hour meter
15. 1990 2444
16. None
17. 1989 3383
18. 1998 2157
19. 1998 2871
20. 1990 new hour meter 571
21. 1989 1294
22. 1989 4753
23. 1998 2565
24. 1990 2146
25. 2004 5581
26. 2004 4200
27. 1999 2880 - Fairway mower
28. 2000 3122 - Fairway mower

29. 2000 3571 - Fairway mower
 30. 1996 4991 - Fairway mower
 31. 1992 4462 - Fairway mower
 32. 1996-5785 - Fairway mower
 33. 1996 scrapped for parts 1996 Ransome 2253
 34. 1996 1996 2996
 35. 1996 2462
 36. 1996 2521
 37. 1991 1648
 38. 2001 3701
 39. 1998 no hour meter
 40. 2002 2002
 41. 2003 3414
 42. 2002 no hour meter
 43. A.2002 no hour meter B.2008
 44. 1998 no hour meter
 45. 1994 4057
 46. 2003 2816
 47. 2004 4910
 48. 2009 301
 49. None
 50. 1989 2975 (Note: #50 as photographed was TORO 3150 - possibly not a 1989)
 51. 1989 2501
 52. 1992 1319
 53. Club Car Bev Cart 3443
 54. EZGO Bev Cart 1456
 55. - 84.*
-
- | | | |
|------|------------------------|--------------|
| #520 | '95 Chevy | 96,448 miles |
| #521 | '96 Dodge | 93,326 miles |
| #522 | '06 Ford | 70,841 miles |
| #524 | '03 Ford | 80,300 miles |
| #525 | '96 Chevy (dump truck) | 38,188 miles |

*No Data was available on items #55 - 84

TABLE 1: Comparison of Equipment

On the following page is a table (Table 1) that illustrates the minimum number of pieces of each type of equipment needed to maintain an **18-Hole golf course** according to recommendations from three different golf course equipment vendors (Toro, Ransoms-Jacobsen and John Deere) - See Appendix. The minimum needed is compared to what The City owns and uses at Meadowbrook GC. The reader will notice that MGC has many more pieces of equipment than the vendors recommended, however, it should be noted that the additional pieces of equipment that MGC owns have been uniquely set up and designated for specific golf course maintenance tasks (*task-specific equipment*) and are not worth much as used equipment. *There also are pieces in the fleet designated for care of the Executive Golf Course.*

GDI did extended research on the value of having *task-specific* equipment in the maintenance fleet, consulting with two golf course superintendents and a fourth equipment vendor. Both consulting golf course superintendents said that it is common and preferable to have designated equipment for specific tasks to save on labor costs that would otherwise be required to reconfigure and set up equipment (even though there may be a cost to store and maintain the older *task-specific* equipment.) The superintendents consulted both have additional pieces set up for specific tasks, however, the number of pieces in their primary fleet is close to the minimum recommended by the vendors and they do not have as many *task-specific* machines as Meadowbrook. The “mower” below is set up for the specific task of rolling greens.



Table 1: Comparison of Equipment Owned by The City versus The Vendor-recommended Minimum Needed to Maintain the 18-Hole Golf Course

PURPOSE	# CITY OWNS	MINIMUM # RECOMMENDED
Greens/Tees Mowers	9 @MGC + 2 @ Exec	4 (2 set up for greens, 2 set up for tees)
Fairway Mowers	3 @MGC + 1 @ Exec	2
Trim Mowers	2	1
Rough Mower	7 mowers at MGC + 2 @ Exec, 1 used for parts, and 1 set up for snow removal	2 (1 wide area and 1 contour for mounds)
Heavy Duty Work Carts	9 @MGC+1 @ Exec	2
Mid-duty Work Carts	6 @MCG	3
Debris Blower	1	1
Aerator	3	2 (1 Fairway and 1 Green)
Mechanical Bunker Rake	2	1
Topdresser	4 + (1 antique)	1
Sprayer	3	1
Roller	0 (2 mowers set up with rollers)	1
Utility Tractor	2	1
Core Harvester/Vacuum	3	1
Hand Mower	1	1
Air Compressor	1	1
Water Pump/generator	x/1	x/1

Meadowbrook Equipment Listed by Task - Provided by James Walraven

The following is a summary of how each piece of equipment in the Meadowbrook fleet is used as prepared by Meadowbrook GC Superintendent, James Walraven. Mr. Walraven indicated that equipment inventory owned by MGC includes equipment from when the City had 3 golf courses (The Executive, Meadowbrook, and LaCroix Links.) He indicated that the equipment was kept or brought it back when the YMCA no longer needed it. Additional equipment not available during photographing is included in the list provided below by Mr. Walraven. Table 1 above has been edited to reflect the actual count provided by Mr. Walraven. **Text in black below is Mr. Walraven's, and text in red corresponds to GDI notes added to Mr. Walraven's notes.**

The following black text is from Mr. Walraven, GC Superintendent at Meadowbrook:

Greens/Tee Mowers (11)

The numbers in the numbered list below provided by Mr. Walraven do not correspond with inventory tag numbers - they simply count the pieces of equipment.

1. Mows greens
2. Mows greens
3. Mows greens @ Executive
4. Verticuts greens
5. Has rollers
6. Has brush for topdressing
7. Has vibratory rollers
8. Mows tees
9. Mows tees
10. Mows tees @ Exec
11. Mows fringe cut next adjacent to greens



NOTES: There is some confusion about inventory tag #50. See photo above. MGC inventory lists #50 as a Cushman rotary - the photo is a TORO 3150. The greens/tees mowers in the fleet range from model year 1989 to 1998 (15-20 years old). These comprise #15, and #17-24 in the photo list, and #46, #47 (a Toro greens 3150 not present during photos), and #50 in the photos for a total of 12 pieces. (It is possible #50 was mis-tagged and should be #47? Then there would be 11 pieces for greens/tees.) GDI recommends lease replacement of greens/tees mowers at Meadowbrook in the near future.

Fairway Mowers (4)

1. Mows fairways
2. Mows fairways
3. Mows fairways @ Exec - 1994 JD #45
4. Mows step-cut and driving range

NOTES: The three fairway mowers in the Meadowbrook fleet (not counting the fourth 1994 John Deere at the Executive course) are from model year 1999-2000 (15 years old). GDI recommends replacement of a fairway mower in the near future. Purchase price of a fairway mower is approximately \$40,000-\$44,000 each.

Trim Mowers (2) These are out 7 hrs/day 5 days a week

1. Mows around aprons and tee surrounds
2. Mows around aprons and tee surrounds - conserve on use - use for back-up mower

NOTES: Both trim mowers are 2004 model year Toro 3500D Sidewinders (10 years old). Replacement cost is approximately \$31,000 each. These trim mowers are being used about twice as much as trim mowers at our two comparison 18-hole golf courses. Further discussion about where these mowers are being used in addition to tee and green surrounds is recommended. If it is on mounds, naturalizing the mounds may reduce labor costs and wear/tear on these mowers. If it is on tee and bunker surrounds, use should be reduced now that bunkers have less perimeter edge. One of these mowers should be reserved for back-up and designated strictly for golf course feature surrounds mowing.

Rough Mowers (2) (2 wide, 1996 mowers avg 5400hr) There are actually (9)

1. wide @ MGC - #30 - 11 ft
2. wide @ MGC - #32 - 11 ft
3. mows rough - #35
4. mows rough - #36
5. mows mounds - #51
6. mows blvd around premises/clubhouse - #52
7. mows rough @ exec - #31 John Deere 935
8. mows rough @ exec - #34 Ransomes 723D
9. Has brush for sweeping paths.snow etc. - untagged with cab? - Ransome Lynx?

NOTES: There are two (2) wide area mowers at 11' wide (a third wide area mower #33-old) is being used for parts, two (2) 6FT deck mowers are at the Executive course, and five (5) others are 6' wide (two Cushmans, two Ransomes Jacobsen 723D, and one Ransomes Jacobsen Lynx with wooden cargo box), for a total of nine (9) mowers. A second Ransomes Jacobsen Lynx has a cab for snow/sweeping for a total of (11) machines *counting the #33-old "parts" machine*. The rough mowers that were photographed are nearly all model year 1996 (nearly 20 years old), except for the older John Deere at the executive course (1992.) A replacement wide area rough mower at Meadowbrook is recommended when one of the remaining two 11FT mowers cease to function.

Heavy Duty Work Carts (9) Actually 10

1. One for spot spraying
2. Sprayer
3. One for heavy duties
4. One for heavy duties
5. Irrigation
6. Used for transporting water jugs on course
7. Tows topdresser and other duties
8. Tows topdresser and other duties
9. One @ Exec
10. Driving Range picker

Mid-duty Work Carts (6)

1. Superintendents work cart.
2. Equipment Tech work cart
3. Set-up cart
4. Cup cutting and bunker maint.
5. Trim transportation
6. @ Exec

NOTES: There are 16 work carts (#1-14 [two un-numbered - The E-Z-GO Sport Hauler and E-Z-GO Workhorse]), and two beverage carts (#53 and #54). The Jacobsen 1110 Hauler, the EZGO Workhorse/Sport, and the Cushman Truckster are all various types of work carts. The large 2030A ProGator (#48) is considered a sprayer rather than a work cart. These pieces of equipment comprise numbers 1-14 on the inventory list and the two un-tagged are in the photos of equipment without inventory numbers - possibly #10 and #14? Most of these carts are model years in the '90s (20 years old), except for the Superintendent's cart and the E-Z-Go Sport Hauler. Only one work cart was present for photographing at the Executive course.

Debris Blower 1 only

NOTES: Meadowbrook has a few "messy" trees. It appears that they have W.E. blowers to augment (not photographed.). Forestry work has been recommended for Meadowbrook which may help to clean up "messy" trees and reduce the need for a second debris blower. But if this work is not undertaken, a second blower may be beneficial.

Aerator. (3)

1. Deep tine (red) Used @ Exec/MGC
2. Fairway used at Exec/MGC
3. Fairway used at Exec/MGC

NOTES: There was one additional aerator at photographing that appeared to be out of commission (center-right in photo above-right.) Both comparison 18-hole golf courses contract-out their deep tine work (usually a fairway function). MGC does this in-house.

There is one aerator that was photographed that appears to have tines set

for greens aeration, however, it appears quite old and according to Mr. Walraven's notes above in black, there are only fairway aerators at MGC. A greens aerator could be a piece of equipment considered for purchase. Discuss with the Superintendent how maintenance crew aerates greens now and if there is a need for a new aerator in the future. If so, put it into the purchase plan.

Mechanical rake (2)

1. Bunker maint - 2001 Toro SandPro
2. Bunker maint/seeding scarifying - 1991 SmithCo

NOTES: Both rakes are more than 14 years old. GDI anticipates reduced use of the mechanical bunker rake in the new bunkers (see bunker maintenance section of this document.) Since bunkers were just re-built, and a new bunker maintenance protocol is to be put in place, GDI



recommends new equipment for maintenance of the new investment. One new lightweight TORO SandPro with a rubber rake is recommended for use approximately 2x/week with spot hand-raking on the alternate days by staff mowing the greens.

Topdresser (5) Per Mr. Walraven:, there are actually 3, 1 out of commission kept as antique from when course was built.

1. Large area.
2. Small for greens @ Exec/MGC
3. Small for MGC/Exec

NOTES: The five spreader/topdressers photographed include:

#43a. TurfCo SP1530 - smaller topdresser

#43b. Dakota Turf Tender 410 model - fairway/greens topdresser

#44. Dakota Turf Tender 440 model - fairway topdresser and material handler - with conveyor boom

And two in "Un-numbered Inventory":

1. Lely (red) spinner spreader/topdresser [un-tagged] - small for greens or other small areas.

2. Mete-R-Matic [untagged] - antique

GDI has no recommendations for spreaders/topdressers.



Dakota 410 in the shed



Dakota 440 outside.

Sprayer 2 big ones, 1 smaller one

1. Dedicated for fertilizer/fungicides for greens, fwys, tees - #48 John Deere 2030A ProGator with dump box sprayer and large area boom.
 2. Dedicated for herbicides at MGC/Exec - #64 Broyhill Sprayer
 3. Spot spraying - #12 EZGO with small sprayer tank
- No recommendations.

Roller (0) Actually 2 that are mounted on greens mowers

No recommendations.

Tractors (2)

1. Used to pull large topdresser and sweeper, aerifiers - #41 - John Deere 5200
2. Used for pull 1 fairway aerifier and small sweeper - #55 - Case 480F

No recommendations.

NOTES: There is also a third tractor: #63 - An antique Ferguson tractor at the Executive course.

Core harvester/Vacuum (3)

1. Core harvester used limited when aerifying greens - #72
2. Large vacuum/sweeper multi functional - #75 Versa Vac
3. Small sweeper @ Exec - #78 Roger Sweeper (this is large - antique) No photos of small sweeper.

No recommendations.

Equipment Recommendations for Meadowbrook

Summary of Equipment Recommendations for Meadowbrook

For all equipment in the previous section, GDI recommends that if a piece of equipment is added, an older piece should be eliminated from the fleet.

In order to properly maintain Meadowbrook Golf Course, ongoing/phased renewal of the existing primary maintenance fleet is recommended. The primary fleet would be the minimum required as listed in TABLE 1. Three different vendors provided estimates for an average start-up cost of approximately \$400,000 - \$450,000 for an ENTIRE fleet required for maintenance of an 18-hole golf course. While we do not recommend renewing the entire fleet, *a phased renewal via lease cycle or purchase cycle is recommended.*

In general, the vendors all recommended 6-year lease cycles for heavily used golf course specific equipment (such as greens and tee mowers), and purchase on a 7-9 year cycle for less expensive (example: SandPro), more durable (tractor), and/or less frequently used equipment (such as a wide area rough mower) every 7-9 years.

According to one of the vendors, another consideration when formulating a maintenance fleet management plan is the potential re-sale market for each piece of equipment. In this regard, the work carts have a good re-sale market because they are multi-functional and easily re-sold, while the greens mower does not have a large re-sale market. Therefore, the City could potentially negotiate a better deal by renewing the work cart fleet (every 2-3 years). Additionally, the City may want to request if the dealer will make a lease or purchase package deal (MUD - Multi-unit Discount) if the City is procuring multiple units. Finally, leases are usually set up for "x" number of years, or "x" number of hours/year with a buyout at the end. The City could negotiate on the buyout price.

According to the "**Model Year and Hours by Inventory List**", provided by the MGC Superintendent, almost all of the equipment used at MGC is more than 10 years old, with many pieces more than 15-20 years old. Please see the MGC Inventory List on pages 25-26 for reference as an accompaniment to the following recommendations:

Greens and Tees mowers: **High priority.** For now, identify the four best greens/tees mowers in the existing fleet, set the two with the best cut quality at height-of-cut (HOC) for greens, the other two set at HOC for tees (note that this is also the same HOC as collars/fringe and aprons of greens). Please see the diagram for recommended mowing heights on page 6 of this document. For the future, get on a six-year lease cycle for greens and tees mowers, leasing two machines for greens in lease year 20xx, and two machines in lease year 20xx for tees, collars and aprons. Renew the lease every 6 years.

Remaining older greens/tees mowers in the fleet are currently set up for single-purpose *task-specific* use, ie.: There is one for verticutting, two for rolling, one for top-dress brushing, one for the fringe/collar cut, and two mowers are set aside for mowing at the Executive Course. Note that the fringe (collar) cut will be the same HOC as the tees going forward, so tees mowers could serve more than one purpose, eliminating the need for a designated machine for collars and aprons. Also note that there may be redundancy in rollers. If so, keep the vibratory roller set up.

Fairway mowers: **High priority.** Continue using the two best fairway mowers in the existing fleet, keep a third for back-up and step-cut/driving range. Get on a lease cycle for fairway mowers in lease year 20xx, a different year than the greens/tees. A fairway mower is high priority because there is minimal back-up.

Trim mower (TORO Sidewinder): **Medium priority.** The trim mowers are among the newest equipment in the fleet at 10 years. Keep both trim mowers, one for regular use, one reserved for back-up. Put a trim mower into the plan for purchase in year 20xx (lower priority than the greens/tees mowers.) Note: The consulting golf course superintendents both had one trim mower, but would have liked to have two. MGC currently has two trim mowers being used 7 hours/day, 5 days per week, which was considered heavy use according to the golf course superintendents with whom we consulted. It could be that the old bunker edges were very time consumptive to trim around or it could be another reason. If high hours on trim mowers is due to edge undulations around the old bunkers, this problem should be resolved with the new bunkers. If trim mowers are being used in out of play areas, naturalization is in the master plan and this should reduce wide area mowing labor going forward. If mowers are used a lot due to long transit time, bridge repairs may be an issue. Whatever the reason, we recommend they be conserved only for trimming around greens and tees.

4 Rough mowers: **Medium priority.** The rough mowers are among the oldest pieces of equipment in the fleet. Since the master plan proposes increased naturalization of out-of-play areas, it is anticipated that a wide area rough mower will need to be used less frequently (2-4x/year), but more intensely requiring a heavy duty machine. Since the out-of-play area will be maintained at a higher cut, consist of tougher native vegetation, and mowed less frequently, purchase of a flail mower should be considered when replacing wide-area mowers. Plan to purchase a heavy duty wide-area rough mower or flail mower, and a new contour mower for the mounds that could also be used for wide area mowing along fairways.

5 Work carts: **Medium/Low Priority.** Since the recommendation for an 18-hole course is 5 work carts, and Meadowbrook has 14-15 (one or two at the Exec), new purchases of work carts are lower priority compared to mowing equipment. Once new work carts are purchased, vendors may be more likely to work out a cyclical trade-in deal to keep the fleet new since there is a good re-sale market for work carts. Consider purchasing a new cart every other year and getting on a cycle to trade-in these work carts every couple years until the course has 5 newer carts. The two beverage cars (inventory #53 and #54) are not included in the list of 16 work carts and they were not present for photographing, but one newer beverage cart with hot/cold functions is recommended if this feature is not found on the existing carts. Alternatively, consider outsourcing the beverage cart function to the restaurant, thereby eliminating the cost to the City.

6 Debris blower: Use the older blower, VersaVac, and Weed Eater blowers. See notes above. When the time comes to buy new, consider back-pack blowers.

7 Aerators: Discuss with JJ how he has been aerating the greens to date. If the "fairway" aerator is old or cannot be set up for greens, purchase a greens aerator.

8 Mechanical Bunker Rake: GDI recommends limited use of the mechanical bunker rake: 1-2x/week in the center of bunkers and only after diligent training of staff not to rake to the edges mechanically, and how to enter/exit bunkers with the rake. A light-weight mechanical rake would be recommended for this purpose. This would be a high-priority purchase.

9 Top-dresser: No recommendations for change, MGC has enough units.

10 Sprayer: No recommendations for change, MGC has enough units.

- 11 Roller: No recommendations for change, MGC has two task specific machines, one set up with standard rollers, and one with vibratory rollers.
- 12 Utility tractor: No recommendations for change, MGC has enough units.
- 13 Core harvester/vacuum/sweep: No recommendations for change, MGC has enough units.
- 14 Hand mowers/edgers/weed whippers: GDI does not see a need for weed whippers or mechanical edgers for the bunkers although these items may be needed for sidewalks and other uses.
- 15 Ingersoll-Rand air compressor: Determine anticipated replacement urgency. Put on replacement plan in year 20xx.
- 16 Water pump/generator: It is anticipated that new bunkers will not have drainage problems and therefore there should be reduced need for pumps.
- 17 Excess equipment: ie., Not on the vendor recommendation list, but in the Meadowbrook inventory: Snow plows (3), trucks, trailers, bobcat, beverage carts (not present at photographing, but on inventory list), vintage equipment, etc. (See Photo Catalogue and Inventory List for more complete listing). Consider whether or not “excess” equipment is needed. Make special consideration for snow removal in the winter and if this needs to be performed by the golf maintenance department. Sell excess inventory.

Replacement Cycle and Budget

Below is an example of rotating replacement cycles for purchased equipment. The City of Rapid City will need to determine what cycle(s) work best for them, and if they wish to purchase or lease equipment.

- 1 Bunker rake (2015) - \$14,000
- 2 fairway mowers (2015, 2021, 2027, etc.) - \$80,000 per cycle year
- 2 greens mowers (2016, 2022, 2028, etc.) - \$50,000 per cycle year
- 2 tee mowers (2019, 2025, 2031, etc.) - \$50,000 per cycle year
- 1 trim mower (2017, 2023, 2029, etc.) - \$30,000 per cycle year
- 1 rough mower (purchase year 2018) - \$55,000 per cycle year
- 2 work carts with dump beds, 3 mid-duty (2020, 2024, 2026, etc.) \$62,000 first year of the cycle, then trade-in cost every two years*
- 1 Greens Aerator (possibly) - (2016) - \$30,000

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
\$94,000	\$80,000	\$30,000	\$55,000	\$50,000	\$62,000	\$80,000	\$50,000 + *	\$30,000	*	\$50,000	*	\$80,000

Add 4%/year for inflation

Once the lease/purchase replacement cycle is established, we recommend developing an equipment replacement cycle based on 6-year cycles for heavy-use mowers (greens, tees, fairway and trim mowers); a 2-4 year cycle on work-cart trade-ins; and 9-10 years or more on less frequently used equipment (bunker rake, rough mower, top dresser, sprayer, debris blower, aerator). Budgets should account for approximately 4% inflation according to vendors. As mentioned in the first paragraph of this section, the average budget for 2012 public golf capital projects/purchasing budget was \$70,438 and average annual cost to lease mowing/cultivation equipment was \$96,051, therefore \$70,000 - \$100,000 is projected for Meadowbrook and dependent upon whether they lease or purchase equipment.

Cost-Reduction and Conservation Strategies

Turf Conversion/Naturalization. Currently, the Meadowbrook Golf Course land area is 172 acres of which only 41 acres comprise the tees, greens, and fairways. In addition, the clubhouse and maintenance area comprise approximately 10 acres, and Rapid Creek also occupies some acreage. This leaves a rather significant amount of acreage that could be naturalized and converted from turf grass to native grasses or floodplain vegetation. Low maintenance naturalized areas would be established over a three year period of time and then maintenance intensity would significantly decrease to a controlled burn every 2-4 years, ideally every third year. A large area heavy duty either rough mower or flail mower would be needed to maintain this area during the first three years and thereafter ongoing one time each spring for a dormant mow. This area will also be burned once every three years. If mounds are naturalized, a contour rough mower is recommended. While establishment of a short grass prairie/naturalized area can be approximately \$1,000 - \$1,500 per acre, ongoing maintenance costs will be less since water and chemical inputs will be less than needed for turf grass.

<http://www.prairieresto.com>

Equipment Upgrades. Upgrading the existing maintenance fleet is another cost-reduction strategy. Older equipment costs time and money to maintain while newer equipment will reduce mechanic labor costs. Storing and maintaining obsolete and dis-used equipment is also an unnecessary cost. Auctioning off obsolete equipment and in some cases antique equipment could be a source of revenue to be re-purposed to upgrade the maintenance fleet.

Irrigation Upgrades. Similar to upgrading the maintenance fleet, upgrading the irrigation system would save time and money spent trying to keep up with system failures. A trained and dedicated irrigation technician would also reduce labor costs and help to produce a more consistently conditioned and maintained golf course.

Labor and Education. Training workers and maintaining a regular schedule can save costly mistakes that could damage the course. Trained workers would be better able to maintain the course to its expected standards. This might include mandatory annual entry-level training for seasonal laborers or even a pre-hire safety and equipment operation training seminar as a pre-requisite for job application. It also would include high-level continuing education for the professional staff.

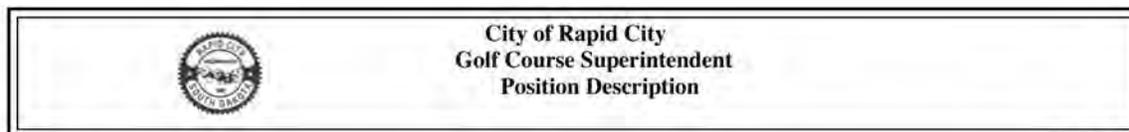
A well-maintained facility may draw tournaments and other users that might otherwise seek out different venues. In this regard, the cost-reduction strategies can also be viewed as strategies to increase patronage.

As indicated earlier, the intent of this document is to assist the Rapid City Parks and Recreation Department to more efficiently and effectively manage Meadowbrook Golf Course as a premier municipal facility.



Appendices

City of Rapid City Job Descriptions



Page 1 of 2

Job Title: Golf Course Superintendent
Department: Parks and Recreation
Division: Recreation Division
Reports To: Recreation Division Manager
FLSA Status: Exempt
Classification: Non-Union

Grade: 19
Prepared By: Sandy Massey
Prepared Date: 10/12/09
Approved By: Jerry Cole
Approved Date: 03/01/10

SUMMARY

Assigns, supervises and inspects the work of the semi-skilled and unskilled workers engaged in all phases of maintenance performed at city-owned golf courses.

ESSENTIAL DUTIES AND RESPONSIBILITIES

Essential duties and responsibilities include the following; other duties may be assigned:

1. Analyzes lab tests to coordinate quality and types of fertilizer and grasses with local soil conditions to maximize turf quality.
2. Directs specialized mowing, watering, fertilizing to produce quality turf.
3. Provides for demonstration and the safe operation of all machinery and equipment used by employees; such as gang, greens and tee mowers, sprayer, vacuum sweeper, tractor and attachments, snow blower, jack hammer, front-end loader, back-hoe, trencher, air compressor and tamper.
4. Completes and files records and forms related to golf course maintenance operations.
5. Plans and programs budget to allocate resources to activities.
6. Plans and directs the construction of greens, fairways and golf course landscaping in development of Capital Improvement Plan.
7. Informs golf associations of turf maintenance schedules.
8. Plans work projects and directs operation of equipment repair shop, including scheduling the maintenance program.

SUPERVISORY RESPONSIBILITIES

Manages three subordinate supervisors who supervise a total of 8-20 seasonal/temporary employees in the Recreation (Golf Course Maintenance) Division. Is responsible for the overall direction, coordination, and evaluation of these units. Also directly supervises 3 full time employees and 8-20 seasonal non-supervisory employees. Carries out supervisory responsibilities in accordance with the organization's policies and applicable laws. Responsibilities include interviewing, hiring, and training employees; planning, assigning, and directing work; appraising performance; rewarding and disciplining employees; addressing complaints and resolving problems.

MINIMUM QUALIFICATIONS

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and/or Experience: Bachelor's degree from four-year college or university in turf management, agronomy, horticulture or business and seven years related experience and/or training in turf or golf course management.

Communication Skills: Ability to read, analyze, and interpret common scientific and technical journals, financial reports, and legal documents. Ability to respond to common inquiries or complaints from customers, regulatory agencies, or members of the business community. Ability to write speeches and articles for publication that conform to prescribed style and format. Ability to effectively present information to top management, public groups, and/or boards of directors.

Mathematical Skills: Ability to calculate figures and amounts such as discounts, interest, commissions, proportions, percentages, area, circumference, and volume. Ability to apply concepts of basic algebra and geometry.

Reasoning Ability: Ability to define problems, collect data, establish facts, and draw valid conclusions. Ability to interpret an extensive variety of technical instructions in mathematical or diagram form and deal with several abstract and concrete variables.

Computer and Administrative Skills: To perform this job successfully, an individual should have knowledge of Microsoft Office products.

Certificates, Licenses, Registrations: Must possess a valid South Dakota driver's license or ability to obtain within 30 days from date of hire. Must possess a certification awarded by the Golf Course Superintendent Association. Must obtain a pesticide applicator's license



**City of Rapid City
Golf Course Superintendent
Position Description**

Page 2 of 2

within 60 days from date of hire and register to be a member of the local chapter and national member of Golf Course Superintendents Association of America within 60 days from date of hire.

Physical Demands: The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is regularly required to use hands to finger, handle, or feel; reach with hands and arms; climb or balance; stoop, kneel, crouch, or crawl; talk or hear and taste or smell. The employee is frequently required to stand and walk. The employee is occasionally required to sit. The employee must occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and ability to adjust focus.

Work Environment: The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is regularly exposed to moving mechanical parts and outside weather conditions. The employee is frequently exposed to vibration. The employee is occasionally exposed to wet and/or humid conditions; fumes or airborne particles; toxic or caustic chemicals and risk of electrical shock. The noise level in the work environment is usually loud.

OTHER SKILLS AND ABILITIES

Knowledge of construction and maintenance of types of golf course turf, park or grounds maintenance, herbicides and pesticides, of drainage control methods, watering and computerized irrigation systems, and knowledge of construction and maintenance of golf course paths. Demonstrated ability to maintain tees, fairways, greens and appurtenances to standards, to supervise, prepare reports and budgets. Demonstrated skill in operating tools and equipment described in essential functions.

GEST



City of Rapid City
Parks and Recreation Equipment Mechanic I, II, III
Position Description

Page 1 of 2

Job Title: Parks and Recreation Equipment Mechanic I, II, III
Department: Parks and Recreation
Division: Parks Division
Reports To: Parks Maintenance Supervisor (Parks)
Golf Course Superintendent (Golf)
FLSA Status: Non-Exempt

Classification: AFSCME
Grade: 11, 13, 15
Prepared By: Laura Klapperich
Prepared Date: 11/17/09; 01/30/14; 10/06/14
Approved By: Jeff Biegler
Approved Date: 03/01/10

SUMMARY

This position services, repairs and maintains vehicles and equipment to related area of work.

ESSENTIAL DUTIES AND RESPONSIBILITIES

Essential duties and responsibilities include the following; other duties may be assigned:

Parks and Recreation Equipment Mechanic I:

1. Under supervision performs minor welding and cutting with torch.
2. Lubricates, changes oil and filter in vehicles, including stationary, diesel powered equipment components and small engines.
3. Tests, diagnoses, and repairs vehicles and equipment.
4. Maintains clean and safe working environment.
5. Keeps service maintenance records and orders supplies.

Parks and Recreation Equipment Mechanic II:

1. Uses gas and arc welder to heat, cut, braze, weld and fabricate.

Parks and Recreation Equipment Mechanic III:

1. Establishes work plan and staffing for each phase of project. Confers with project staff to outline work plan and to assign duties, responsibilities, and scope of authority.
2. May act as lead person in absence of supervisor.

MINIMUM QUALIFICATIONS

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and/or Experience: Parks and Recreation Equipment Mechanic I: Two-year vocational/technical certificate in operation and repair of gasoline-powered vehicles and equipment or three years experience in repair of gasoline-powered vehicles and equipment.

Parks and Recreation Equipment Mechanic II: Two-year vocational/technical certificate in repair of gasoline-powered vehicles and equipment and two years related experience; or, five years experience in repair of gasoline-powered vehicles and equipment.

Parks and Recreation Equipment Mechanic III: Two-year vocational/technical certificate in repair of gasoline-powered vehicles and equipment and diesel engine repair and two years related experience; or, five years experience in repair of gasoline-powered vehicles and equipment, at least three years of which include repair of diesel-powered heavy equipment, hydraulics, and welding. Experienced in automotive-type air conditioning and able to be certified in CFC 12 refrigerant and recycling service procedures within eight months following date of employment.

Parks and Recreation Equipment Mechanic II (GOLF COURSE ONLY): Two-year vocational/technical certificate or Associates Degree in Turfgrass Management or five years experience in turf grass equipment repair and maintenance.

Communication Skills: Ability to read, analyze, and interpret general business periodicals, professional journals, technical procedures, or governmental regulations. Ability to write reports, business correspondence, and procedure manuals. Ability to effectively present information and respond to questions from groups of managers, clients, customers, and the general public. Interacts and communicates with all full time and seasonal maintenance personnel.

Mathematical Skills: Ability to calculate figures and amounts such as discounts, interest, commissions, proportions, percentages, area, circumference, and volume. Ability to apply concepts of basic algebra and geometry.

Reasoning Ability: Ability to apply common sense understanding to carry out instructions furnished in written, oral, or diagram form. Ability to deal with problems involving several concrete variables in standardized situations.

Certificates, Licenses, Registrations: Must possess a valid South Dakota Class B Commercial Driver's License (CDL) or ability to

PEM1, PEM2, PEM3



City of Rapid City
Parks and Recreation Equipment Mechanic I, II, III
Position Description

Page 2 of 2

obtain within 30 days from date of hire.

Physical Demands: The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is regularly required to use hands to finger, handle, or feel; reach with hands and arms; stoop, kneel, crouch, or crawl and talk or hear. The employee is frequently required to stand; walk and sit. The employee is occasionally required to taste or smell. The employee must occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close vision, color vision and depth perception.

Work Environment: The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is regularly exposed to moving mechanical parts and fumes or airborne particles. The employee is frequently exposed to toxic or caustic chemicals and vibration. The employee is occasionally exposed to wet and/or humid conditions; outside weather conditions; extreme cold; extreme heat and risk of electrical shock. The noise level in the work environment is usually loud.

OTHER SKILLS AND ABILITIES

Good knowledge of mechanical procedures, techniques, materials, tools, equipment, and machinery. Ability to read manuals and charts and diagnose equipment malfunctions and accurately complete reports on work performed. Ability to use computers to track maintenance records, equipment files and communicate by email.

PEM1, PEM2, PEM3



**City of Rapid City
Golf Course Maintenance I, II, III
Position Description**

Page 1 of 2

Job Title: Golf Course Maintenance I, II, III
Department: Parks and Recreation
Division: Recreation Division
Reports To: Golf Course Superintendent
FLSA Status: Non-Exempt
Classification: AFSCME

Grade: 09, 11, 12
Prepared By: Tammie Krumm
Prepared Date: 01/25/11
Approved By: Jerry Cole
Approved Date: 02/22/11

SUMMARY

Maintains parks, golf courses and cemetery.

ESSENTIAL DUTIES AND RESPONSIBILITIES

Essential duties and responsibilities include the following; other duties may be assigned:

Golf Course Maintenance I

1. Maintains golf fairways and greens, and recreation areas by operating hand and power tools to cut and prune trees, shrubs; edge flower beds; install fence; install and repair irrigation systems; remove snow; rake leaves, wood chips; set concrete forms; place concrete and finish; use motorized equipment such as mowers, tractors and attachments, sweepers, snow blowers, front-end loader, back-hoe, trencher, air compressor, tamper, jackhammer, dump trucks and pickup trucks. Operates tree spade, stump cutter, branch chipper and aerial lift truck.
2. Repairs and remodels structures such as buildings, fences, arbors and equipment by using hand and power tools.
3. Landscapes golf courses by planting trees and laying rock and sod.
4. Operates tree spade brush chipper, stump cutter, chain saw and aerial lift truck.

Golf Course Maintenance II:

1. Operates irrigation controls, valves and pumps such as manual valves, electric valves and irrigation controllers with aid of computerized timers and by hand where necessary.
2. Act as lead worker for part-time park maintenance crews.

Golf Course Maintenance III:

1. Mixes and applies pesticides.
2. Fells trees using accepted industry techniques; prunes and shapes trees and shrubs, cables and braces trees utilizing aerial lift truck.
3. Establishes work plan and staffing for each phase of project. Confers with project staff to outline work plan and to assign duties, responsibilities, and scope of authority.
4. May act as lead person in absence of supervisor.

MINIMUM QUALIFICATIONS

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and/or Experience: **Golf Course Maintenance I:** High school diploma or general education degree (GED) and three months related experience. **Golf Course Maintenance II:** High school diploma or general education degree (GED) and two years experience. **Golf Course Maintenance III:** High school diploma or general education degree (GED) and three years experience in golf or turf (sports and bent grasses) maintenance. Knowledge of the game of golf desirable.

Communication Skills: Ability to read and interpret documents such as safety rules, operating and maintenance instructions, and procedure manuals. Ability to write routine reports and correspondence. Ability to speak effectively before groups of customers or employees of organization.

Mathematical Skills: Ability to add, subtract, multiply, and divide in all units of measure, using whole numbers, common fractions, and decimals. Ability to compute rate, ratio, and percent and to draw and interpret bar graphs.

Reasoning Ability: Ability to apply common sense understanding to carry out instructions furnished in written, oral, or diagram form. Ability to deal with problems involving several concrete variables in standardized situations.

Computer and Administrative Skills: To perform this job successfully, an individual should have knowledge of Microsoft Office products.

GFM1, GFM2, GFM3



**City of Rapid City
Golf Course Maintenance I, II, III
Position Description**

Page 2 of 2

Certificates, Licenses, Registrations: Must obtain a Class B Commercial Driver's License (CDL) within 30 calendar days from hire date.
Golf Course Maintenance III: Must possess a pesticide applicator's license or ability to obtain within one year from date of hire.

Physical Demands: The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is regularly required to use hands to finger, handle, or feel and reach with hands and arms. The employee is frequently required to stand; walk; sit; climb or balance and stoop, kneel, crouch, or crawl. The employee is occasionally required to talk or hear and taste or smell. The employee must occasionally lift and/or move more than 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, depth perception and ability to adjust focus.

Work Environment: The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this job, the employee is regularly exposed to outside weather conditions. The employee is frequently exposed to moving mechanical parts and vibration. The employee is occasionally exposed to wet and/or humid conditions; high, precarious places; fumes or airborne particles; toxic or caustic chemicals; extreme cold; extreme heat and risk of electrical shock. The noise level in the work environment is usually loud.

OTHER SKILLS AND ABILITIES

Knowledge of park or ground maintenance and traffic laws and safety procedures. Ability to perform semi-skilled and unskilled manual labor, follow oral and written instructions. Demonstrated skill in operating tools and equipment described in essential functions. Experience in park or ground maintenance field preferred.

GFM1, GFM2, GFM3

Generic Job Descriptions

All job descriptions below were sourced from the following online document:

<http://www.cmaa.org/CCMBook2/Chap15.pdf>, Frank, Kevin, Jan. 10, 2014.

Job Description - Golf Course Superintendent Assistant

The Golf Course Superintendent Assistant is under the supervision of the Superintendent, but is manager in charge in the absence of the Golf Course Superintendent. The role of the Assistant is to support and assist the Superintendent in carrying out the job tasks associated with the Superintendent position, and to support the maintenance plan as set forth by the Superintendent. In this regard, the Assistant and the Superintendent must work closely together and have a common vision for the care of the course. The Assistant is often in training or working toward certification as a GSAA Certified Golf Course Superintendent and should be considered as the person most likely take over care of the course if the Superintendent were to retire or leave for a different position. For this reason, it is important to hire carefully for the Assistant position and to provide job growth and mentoring opportunities.

Job Description - Mechanic/Equipment Manager

I. Position

Equipment Mechanic

II. Related Titles

Maintenance Mechanic; Golf Course Mechanic

III. Job Summary (Essential Functions)

Repair all equipment associated with course maintenance department.

IV. Job Tasks (Additional Responsibilities)

1. Lubricates and services all course maintenance equipment.
2. Inspects equipment for operating deficiencies.
3. Repairs and adjusts equipment.
4. Maintains repair records on all equipment.
5. Trains maintenance staff in proper equipment maintenance methods.
6. Interviews and recommends applicants for maintenance staff positions.
7. Demonstrates use of new equipment.
8. Trains personnel in proper use of equipment.
9. Establishes and maintains safety procedures for using equipment.
10. Maintains safety records.
11. Trains operators in care of new equipment.
12. Performs general overhaul and other preventive maintenance on all equipment.
13. Maintains blades of reel mowers.
14. Maintains inventory of common equipment maintenance and repair parts.

15. Performs emergency repair work out of shop.
16. Undertakes body and fender work, fabrication, welding, troubleshooting, and repairs to hydraulic and electrical systems.
17. Attends staff meetings.
18. Performs other appropriate tasks assigned by the golf course superintendent.

V. Reports to

Golf Course Superintendent

VI. Supervises

No supervisory duties are included in this position.

Job Description - Chemical Application Specialist

I. Position

Pesticides Application Specialist

II. Related Titles

Chemical Technician; Chemical Application Specialist; Spray Technician

III. Job Summary (Essential Functions)

Select and appropriately apply all pesticides, herbicides and fertilizers associated with grounds and golf course maintenance.

IV. Job Tasks (Additional Responsibilities)

1. Inspects turf, shrubs, lakes, and other outdoor areas to determine pesticide, herbicide, and fertilizer needs.
2. Applies pesticides, herbicides, and fertilizers at appropriate times to maintain excellent condition of grounds and golf course; documents all applications.
3. Selects suppliers, products, and equipment for such application and maintenance.
4. Purchases products and equipment as needed within budget limitations.
5. Maintains proper inventory of products.
6. Performs preventive maintenance on and keeps accurate records for all equipment.
7. Maintains safety records; performs routine safety training and emergency drills.
8. Keeps pesticide storage facility in a clean and orderly manner; secures under lock when not present.
9. Maintains direct communication with golf professional and golf course superintendent.
10. Attends applicable training seminars and classes to maintain current knowledge.
11. Assists golf course superintendent with duties when necessary.
12. Maintains current MSDSs in convenient location.
13. Attends staff meetings.
14. Performs other appropriate tasks assigned by the golf course superintendent.

V. Reports to

Golf Course Superintendent

VI. Supervises

No supervisory duties are included in this position.

Job Description - Irrigation Specialist

I. Position

Irrigation Specialist

II. Related Titles

Irrigation Technician

III. Job Summary (Essential Functions)

Maintain proper irrigation on all grounds.

IV. Job Tasks (Additional Responsibilities)

1. Designs, implements, and maintains mechanical and electrical components of course irrigation system.
2. Repairs equipment associated with irrigation.
3. Performs preventive maintenance on all equipment associated with irrigation.
4. Maintains complete records on all equipment maintenance associated with irrigation.
5. Controls expenses associated with irrigation equipment and activities.
6. Maintains inventory of parts needed for irrigation equipment.
7. Irrigates all grounds as needed or scheduled.
8. Performs all record keeping relative to irrigation system, including weather and rainfall data; assists in recording fertilizer and pesticide applications.
9. Grades and prepares soil base, lays sod, and seeds greens, tees, and fairways.
10. Attends staff meetings.
11. Performs other appropriate tasks assigned by the golf course superintendent.

V. Reports to

Golf Course Superintendent

Job Description - Equipment Operator/Grounds Crew Foreman

I. Position

Maintenance Foreman

II. Related Titles

Foreman; Golf Course Maintenance Supervisor; Equipment Operator Foreman; Equipment Manager

III. Job Summary (Essential Functions)

Supervise daily course maintenance.

IV. Job Tasks (Additional Responsibilities)

1. Oversees and performs ongoing course maintenance activities.
2. Completes minor repair on equipment.
3. Operates and maintains equipment.
4. Maintains equipment inventory.
5. Trains personnel in ongoing course maintenance activities.
6. Selects, trains, supervises, schedules, and evaluates assigned personnel.
7. Maintains parts and supplies inventory.
8. Works with golf course superintendent to develop equipment purchase specifications.
9. Performs safety orientation and ongoing safety training for all department staff.
10. Monitors common repair and maintenance tasks.
11. Attends staff meetings.
12. Performs other appropriate tasks assigned by the golf course superintendent.

V. Reports to

Golf Course Superintendent

VI. Supervises

No supervisory duties are included in this position.

Job Description - Golf Course Laborer/Grounds Crew Person

I. Position

Grounds Person

II. Related Titles

Landscape Worker; Golf Course Laborer; Practice Area Attendant; Groundskeeper; Landscape Gardener; Course Utility Worker; Section Person

III. Job Summary (Essential Functions)

Maintain golf course and landscaping around the course, clubhouse and other club facilities, including parking lots.

IV. Job Tasks (Additional Responsibilities)

1. Trims trees; removes cuttings.
2. Maintains landscape beds around clubhouse and club grounds.
3. Rakes and blows leaves.
4. Prepares and lays sod.
5. Rakes bunkers.
6. Loads and unloads materials.
7. Repairs and maintains driving range tees.
8. Cleans equipment used in practice area.
9. Operates walk-behind equipment.
10. Aerifies and spikes greens.
11. Helps with drainage projects.
12. Empties garbage cans.
13. Attends staff meetings.
14. Performs other appropriate tasks assigned by the maintenance foreman.

V. Reports to

Maintenance Foreman

VI. Supervises

No supervisory duties are included in this position.:

Job Description - Course Maintenance Equipment Operator

I. Position

Equipment Operator

II. Related Titles

Golf Course Laborer; Course Maintenance Equipment Operator

III. Job Summary (Essential Functions)

Operate and care for course maintenance equipment.

IV. Job Tasks (Additional Responsibilities)

1. Safely operates equipment such as mowers and pluggers used for various course maintenance needs.
2. Maintains maintenance and fluid-use logs (gas and oil) on equipment.
3. Cleans machinery after each use.
4. Inspects machinery after each use.
5. Reports machinery and equipment problems to supervisor.
6. Makes necessary minor adjustments to equipment.
7. Loads and unloads materials.
8. Trims trees and removes cuttings.
9. Collects and empties litter cans.
10. Cleans gutters, drains, and culverts.
11. Waters plants.
12. Cuts grass, weeds, and bushes.
13. Rakes leaves.
14. Attends staff meetings.
15. Performs other appropriate tasks assigned by the golf course superintendent.

V. Reports to

Golf Course Superintendent

VI. Supervises

No supervisory duties are included in this position.

Tournament Day Expectations

Sourced from the following online document:

<http://www.cmaa.org/CCMBook2/Chap15.pdf>, Frank, Kevin, Jan. 10, 2014.

Preparing the Course for a Tournament

When a club hosts a tournament, the golf course must undergo special preparations. Some tournaments have specific requirements that the superintendent will need to meet, but all tournaments will require the course to be in top condition.

Jonathon L. Scott, CGCS, director of agronomy for the PGA Tour, offered these tips to prepare for a major professional tournament in the July 1998 issue of *Golf Course Management* in an article entitled "The Big Show."

First steps

- Serious and frank inventory of the golf course and its operational capabilities
- Regular series of meetings with key club and tournament personnel
- Contact with the tournament agronomist

Preparing your resources

- Evaluate the maintenance staff and ensure there are sufficient numbers of people
- Evaluate the maintenance equipment, get loaners or lease equipment as needed
- Inspect the facility's maintenance and repair center

Course preparations

- Bunkers: Must be firm, well drained, free of stones and other debris, and promote fair lies away from the edges
- Car and service paths: Should be at least 8-feet wide and composed of a weather-proof surface capable of handling heavy loads under any conditions
- Tees: Tee decks need to be evaluated for potential wear; Par 3s are especially vulnerable; should be checked for excessive thatch that can lead to puffiness and soft footing; institute a regular program of core aeration, verticutting, and topdressing at least two months before the tournament
- Fairways: Need to be relatively tight, firm fairways that maximize ball roll and spin control; regular and frequent core aeration and verticutting should begin as early as possible; fairway drainage also plays a major role in course quality during wet tournaments; soil settlement needs to be systematically addressed
- Roughs: Need to be inspected for problem areas that could affect play or spectator safety; thin turf should be overseeded and fertilized to increase density; any potholes or depressions that could result in poor footing must be filled and covered with turf; good rough will have a uniform height and density that will allow a ball to nestle, but not disappear, into the turf
- Greens: Inspect carefully and thoroughly to ensure they will produce a professional standard of smoothness and pace and also survive tremendous stress; the greens' root zone should show a clean, consistent profile with deep root penetration; use aggressive corrective cultivation techniques; initiate or continue

an alternative spike policy on the putting greens right up to the beginning of the tournament

- Fertilization: Fertilizer programs are geared toward gradually achieving the desired turf density and consistency about one month before the tournament
- Pest control: Pesticides will be part of the preparation, but they will not replace sound integrated turf management strategies
- Course distances: Need to have accurate distance measurements around the golf course

Final preparations

- Greens speed: Take a series of Stimpmeter readings on all greens to determine quickness and consistency; begin the process of greens preparation several months prior to the event; may need mechanic to perform special grinding on the bedknife of the mower and to maintain sharp reel blades
- Irrigation: Examine irrigation practices in the final phase of tournament preparations; must have regular examination of the soil moisture levels
- Rough mowing: Maintain tournament-height roughs without losing control; stop mowing the week before the event then top the rough with rotary-type mowers
- Striping: Mow stripe patterns into the golf course landscape; mow them either crosswise or diagonally in alternate passes through the fairway to avoid negative ball-roll effects
- Bunker grooming: Give special attention to bunkers the week before the tournament to ensure they are fair, consistent, and attractive accents to the design features; perform handwork to firm up perimeters, smooth the surface contours and remove stones and other debris
- Divots: Make daily repairs to turf; go over each hole and dress divots with a good, screened topsoil in the fairways and a sand-peat mixture on greens and tees, along with a matching seed mixture
- Rolling: Turf rolling is a standard practice during tournaments to smooth the surface of the greens for a more consistent ball roll; because it can create grain it is best to hold off on rolling until the turf has reached tournament-mowing height
- Cup cutting: One of the most important assignments just before and during

the tournament is cup placement; reserve space for tournament pin settings to avoid wear and old plugs near the cup; repair ball marks daily and set previous cup plugs flush to the surface with no scalping or settling; paint the cup rim

People skills

There will be numerous people that the club must work harmoniously with:

- Tournament personnel: Advance teams for a tournament's governing body, various office trailers and officials, volunteers
- Television crews
- Outside personnel: Subcontractors, corporate tents, vendor areas, portable toilets, scoreboards
- Spectators: Place perimeter fencing and gallery roping on the course

Tournament maintenance routine

- If someone connected with the event suggests a change in the maintenance procedures, discuss it thoroughly with the tournament agronomist and the rules official before making the change.
- Drag a hose on fairways to remove dew in the morning. Fill the hose with sand or water to avoid the appearance of ripples.
- Be prepared to syringe the course if there is frost.
- Be prepared for storms by having adequate equipment (pumps, squeegees, for example) on hand.
- Keep adequate staff on hand.



Eagan, MN - Johnston, IA - Sioux Falls, SD - Omaha, NE - St. Louis, MO

Equipment Quote

Customer Name	Gil Design Inc	Date	5-Feb-14
Account Number		Ship Address	
Contact Person	Kari Haug	City	Minneapolis
Phone Number		State	IA
Mobile Number		Zip Code	
Fax Number		Email Address	kari@gildesigninc.com

PO Number	X		Salesman	X	Mitch Stewart
Deliver Date	X	TBD	Special Terms	X	Budgetary Only

MODEL #	QTY	PRODUCT DESCRIPTION	UNIT PRICE	TOTAL
Greens & Tees	4	Jacobsen Greens King IV+	\$23,000.00	\$ 92,000.00
2 Each		Gas Engine, Power Steering		
		7 Blade Reels for Tees, 15 Blade Reels for Greens		
Fairways	2	Jacobsen LF-510	\$38,000.00	\$ 76,000.00
		Diesel Engine, 2WD		
		100" Width of Cut, 5- 5" Diameter, 7 Blade Reels		
Main Rough	1	Jacobsen R-311T	\$54,000.00	\$ 54,000.00
		Diesel Engine, 4WD, 11' Width of Cut		
Fine Rough & Mounds	1	Jacobsen AR-3	\$28,000.00	\$ 28,000.00
		Diesel Engine, 3WD, 72" Width of Cut, 3-27" Decks		
Turf Truck for Hauling	1	Cushman Turf- Truckster	\$20,000.00	\$ 20,000.00
		Gas Engine, 5-Speed Manual Transmission		
		Dump Box, Hitch, & Hi/ Lo Hydraulics		
Bunker Rake	1	Smithco Super Star	\$15,000.00	\$ 15,000.00
		Gas Engine, 3WD		
		Rear Rake, Center Cultivator & Front Plow		
Sprayer	1	Smithco Spray Star 2000	\$27,000.00	\$ 27,000.00
		Gas Engine, 200 Gallon Sprayer		
		Electric Controller, 18' Booms & Foam Marker		
Greens Roller	1	Smithco Ultra Roller	\$14,000.00	\$ 14,000.00
		Gas Engine, Trailer Included		
Debris Blower	1	Turfco Turbo Blower	\$7,500.00	\$ 7,500.00
		Gas Engine, Tow-Type		
Top Dresser	1	Turfco 1550 Wide Spin	\$11,500.00	\$ 11,500.00
		Gas Engine, Tow-Type, 1 Cubic Yard Capacity		
Aerator	1	Redexim Carrier 1513	\$28,000.00	\$ 28,000.00
		Gas Engine, Walk- Behind Aerator, 52" Width, 6" Depth		
Work Carts	4	Ez Go 800X	\$7,000.00	\$ 28,000.00
		Gas Engine, Dump Bed		

Subtotal	\$ 401,000.00
Sales Tax	
TOTAL	

Notes
<i>*Tractor with a Loader would also be Recommended</i>
<i>3- Year Warranty on All Equipment</i>
<i>Pricing is Budgetary Only for 2014</i>
<i>Applicable Sales Tax is NOT Included</i>





Quote Summary

Prepared For:

Gill Design Inc
122 N 2nd St
River Falls, WI 54022

Prepared By:

Joe Stoudt
Stotz Equipment
352 Blackmore Road
Casper, WY 82609
Phone: 307-265-1870

Quote Id: 9248444
Created On: 19 February 2014
Last Modified On: 22 February 2014
Expiration Date: 20 March 2014

Equipment Summary	Selling Price	Qty	Extended
JOHN DEERE 7500 PrecisionCut Fairway Mower	\$ 40,685.00 X	2 =	\$ 81,370.00
JOHN DEERE 1600 Turbo Series II Commercial Wide Area Mower With 2 Post Folding ROPS	\$ 50,871.27 X	1 =	\$ 50,871.27
JOHN DEERE 7400 TerrainCut Trim and Surrounds Mower	\$ 30,424.51 X	1 =	\$ 30,424.51
JOHN DEERE 2500B PrecisionCut Riding Greens Mower - Gas	\$ 24,654.17 X	2 =	\$ 49,308.34
JOHN DEERE 2500B PrecisionCut Riding Greens Mower - Gas	\$ 24,478.77 X	2 =	\$ 48,957.54
JOHN DEERE Gator TX Turf	\$ 7,485.23 X	3 =	\$ 22,455.69
JOHN DEERE ProGator 2020A (Gas)	\$ 19,754.25 X	2 =	\$ 39,508.50
JOHN DEERE ProGator 2020A (Gas)	\$ 23,354.27 X	1 =	\$ 23,354.27
JOHN DEERE HD200 SelectSpray (For ProGators 2020A, 2020 and 2030A, 2030)	\$ 12,593.31 X	1 =	\$ 12,593.31
JOHN DEERE 1200A Bunker and Field Rake	\$ 11,149.59 X	1 =	\$ 11,149.59
JOHN DEERE TC125 Turf Collection System	\$ 9,006.99 X	1 =	\$ 9,006.99
JOHN DEERE Aercore 800 Aerator	\$ 17,263.63 X	1 =	\$ 17,263.63

Salesperson : X _____

Accepted By : X _____

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JOHN DEERE Aercore 2000 Aerator	\$ 24,190.01	X	1	=	\$ 24,190.01
JOHN DEERE 4720 Compact Utility Tractor(56 PTO hp)	\$ 30,707.73	X	1	=	\$ 30,707.73
JOHN DEERE H180 Loader	\$ 5,134.32	X	1	=	\$ 5,134.32
DAKOTA 410 Turf Tender Top Dresser Progator Mount	\$ 12,680.00	X	1	=	\$ 12,680.00
Tru-Turf RB48-11A Golf Turf Greens Roller	\$ 11,995.00	X	1	=	\$ 11,995.00
Buffalo Turbine CKBIV Turbine Blower	\$ 6,714.38	X	1	=	\$ 6,714.38
Equipment Total					\$ 487,685.08

Quote Summary	
Equipment Total	\$ 487,685.08
SubTotal	\$ 487,685.08
Total	\$ 487,685.08
Down Payment	(0.00)
Rental Applied	(0.00)
Balance Due	\$ 487,685.08

Salesperson : X _____

Accepted By : X _____

Confidential

