THEODORE WIRTH REGIONAL PARK – 18 HOLE GOLF COURSE

Cart Path Conditions Assessment - 2018
TABLE OF CONTENTS

PURPOSE ..................................................................................................................1

SUMMARY AND RECOMMENDATIONS .........................................................2

ESTIMATE OF PROBABLE COSTS .................................................................3

CONDITION ANALYSIS ..................................................................................4-19

NEEDS ASSESSMENT ......................................................................................20-31

   High Priority
   Secondary Priority
   Long-term Priority

ATTACHMENTS

   Sheet L1.0N: Northern Section of Golf Course
   Sheet L1.0C: Central Section of Golf Course
   Sheet L1.0S: Southern Section of Golf Course

Prepared by: Minneapolis Park and Recreation Board
Date: December 17, 2018
Contact: Jon Duesman
PURPOSE

This report provides an analysis of the current condition of the cart paths for the 18-hole golf course at Theodore Wirth Regional Park and guides the process for repairing, replacing or creating new segments of cart paths to improve access and playability. Each golf hole has differing lengths of cart path segments in varying degrees of condition. Segments of cart paths are generally composed of bituminous, crushed rock, or stone.

Cart paths direct the flow of golf cart traffic over the entire golf course to protect the golf course, enhance the golf experience, and maximize playability. The location of some existing cart paths may not work with where golf carts tend to travel. Cart paths can detract from the enjoyment of a golf course if they dominate the viewshed on a hole or come too close to the area of play. Golf course architects find ways to hide cart paths so they are not visible, yet still provide the level of access necessary. Each golf hole at Theodore Wirth has some length of cart path located near tee boxes and/or greens complexes. In many instances these cart paths segments are too short in length and thus do not provide the level of access necessary nor direct the flow of cart traffic to protect turf areas. Many areas of the golf course, not just low-lying areas, remain wet for extended periods of time. These frequent wet conditions often result in decreased play because the golf course is too wet for golf cart traffic.

Following the condition analysis this report provides a needs assessment for each golf hole, prioritizing where improvements are necessary and classifying a level of importance and suggested improvement suited for the condition. The level of importance is considered by priority as High, Secondary, or Long-term. A full course evaluation coupled with conversations with golf staff identified where cart path segments need to be replaced or added, and what priority should be associated with each area.
SUMMARY/RECOMMENDATIONS

In the effort to improve access and increase playability on the golf course a variety of needs ranging from high priority to long-term priority are necessary. The estimate of probable cost is set up to identify how much each proposed priority area might cost. It identifies what each priority area might cost by itself, but also identifies what the entire project might cost if all areas were combined. Because any improvement would be performed during the golf season, the best approach would be to complete any proposed improvement in the shortest amount of time in order to limit impacts on play.

Currently the Minneapolis Park and Recreation Board has $93,000 in funding from FEMA to address cart path improvements. Outside of this the MPRB does not have any funding dedicated to cart path improvements. Any outside funding through donations, beyond the FEMA funding, will greatly enhance the ability of the MPRB to advance the proposed cart path improvements.

The best approach to bidding this work would be publicly bid with unit pricing, asking for a price per liner foot for bituminous cart path and for gravel cart path. With the acceptance of the low bid we would address as many areas as funding allows. Addressing high priority areas first will certainly be a great start. However, if all high priority areas cannot be addressed at one time MPRB staff have identified the most critical of the high priority areas related to improving playability. These would be:

High Priority Areas:

- Clubhouse path
- Hole #15 Green and Hole #16 Tee (Premier Course Improvement)
- Hole #9 Tee
- Hole #13 Tee
- Hole #10 Tee
- Hole #9 Green
## ESTIMATE OF PROBABLE COSTS FOR CART PATH IMPROVEMENTS

<table>
<thead>
<tr>
<th>GOLF HOLE LOCATION</th>
<th>HIGH PRIORITY AREAS</th>
<th>SECONDARY PRIORITY AREAS</th>
<th>LONG-TERM PRIORITY AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOLE #1</td>
<td>$4,517.00</td>
<td>$3,779.00</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #2</td>
<td>$16,741.00</td>
<td>$22,782.00</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #3</td>
<td>$19,004.00</td>
<td>$2,625.00</td>
<td>$8,190.00</td>
</tr>
<tr>
<td>HOLE #4</td>
<td>$ -</td>
<td>$ -</td>
<td>$9,030.00</td>
</tr>
<tr>
<td>HOLE #5</td>
<td>$29,295.00</td>
<td>$6,721.00</td>
<td>$7,426.00</td>
</tr>
<tr>
<td>HOLE #6</td>
<td>$21,945.00</td>
<td>$15,014.00</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #7</td>
<td>$9,870.00</td>
<td>$14,804.00</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #8</td>
<td>$17,009.00</td>
<td>$ -</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #9</td>
<td>$24,464.00</td>
<td>$32,546.00</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #10</td>
<td>$31,199.00</td>
<td>$15,011.00</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #11</td>
<td>$13,859.00</td>
<td>$ -</td>
<td>$15,752.00</td>
</tr>
<tr>
<td>HOLE #12</td>
<td>NO WORK REQUIRED DUE TO 2018 GOLF COURSE IMPROVEMENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOLE #13</td>
<td>$20,160.00</td>
<td>$ -</td>
<td>$15,392.00</td>
</tr>
<tr>
<td>HOLE #14</td>
<td>$21,943.00</td>
<td>$2,831.00</td>
<td>$22,575.00</td>
</tr>
<tr>
<td>HOLE #15 TEE</td>
<td>$12,287.00</td>
<td>$ -</td>
<td>$8,185.00</td>
</tr>
<tr>
<td>HOLE #15G AND #16T</td>
<td>$131,885.00</td>
<td>$ -</td>
<td>-</td>
</tr>
<tr>
<td>HOLE #16 GREEN</td>
<td>$4,513.00</td>
<td>$ -</td>
<td>$4,914.00</td>
</tr>
<tr>
<td>HOLE #17</td>
<td>$ -</td>
<td>$ -</td>
<td>$15,749.00</td>
</tr>
<tr>
<td>HOLE #18</td>
<td>NO WORK REQUIRED DUE TO 2018 GOLF COURSE IMPROVEMENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLUBHOUSE</td>
<td>$17,408.00</td>
<td>$ -</td>
<td>-</td>
</tr>
<tr>
<td><strong>Sub-Total: High Priority</strong></td>
<td><strong>$396,099.00</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub-Total Secondary Priority</strong></td>
<td><strong>$116,113.00</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub-Total Long Term Priority</strong></td>
<td></td>
<td><strong>$107,213.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Estimated Cost - All Areas</strong></td>
<td><strong>$619,425.00</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CONDITION ANALYSIS

Hole #1

Tee Complex: The cart path is bituminous starting at the back tees and eventually transitions to gravel just beyond the middle tee. The bituminous is stable with some cracking in the pavement. The gravel path segment is generally stable and firm but portions of the path near the wetland are muddy and slightly rutted. The length of this gravel path extends just beyond the forward tee. Beyond this the grade rises and the soil can remain wet, making it soft and slippery after rain events. The path does not extend far enough to provide access for golf carts beyond the tee complex.

Green Complex: The gravel cart path begins on the tee side of the bridge but is not well defined, it is hard to identify where carts should be directed heading towards the bridge. In front of the bridge the grade is uneven, with a low area which holds water, making the area soft and unpassable. The gravel path extends from the bridge and wraps around behind the green complex. The entire length of the path is compacted gravel, in firm and stable condition. The drainage over the path is suitable but there are areas that trap water with small, defined potholes. Drainage behind the green could be improved.
Hole #2

Tee Complex: The path is gravel and rather firm with some potholing. The gradient of the path at the bridge crossing on both sides is quite steep so improvements could be made to lessen the severity. The path extends just beyond the forward tee box. Behind the forward tee the path is rough and prone to potholing. The fairway is prone to being soft given its proximity to the wetland. Golf carts that travel down the middle or left side of this hole end up in soft areas, damaging the turf and affecting play. Golf carts should travel along the right side of the hole out towards the landing area. Beyond the landing area the ground on the right side of the fairway, near the wetland, tends to stay saturated for extended periods of time making it difficult for golf carts to travel there.

Green Complex: There is a minimal amount of cart path to the left side of the green. The cart path is bituminous, but the edges are cracked and breaking off. Golf carts should approach the green from the left side, however the ground along the left side of the hole can remain soft due to the proximity of the adjacent wetland.
Hole #3

Tee Complex: The cart path is bituminous from the back tees to just beyond the forward tees. Beyond this the path transitions to compacted gravel and soil for a small segment. The condition of the bituminous varies, with several areas that have been patched and areas that are severely cracked. The compacted gravel and soil section is firm with some uneven areas. The area just beyond where the cart path ends is low-lying and can remain soft, creating difficulties for golf carts to travel through. The grade rises at a point about 225 feet beyond the edge of the path, where conditions often become slippery when wet.

Green Complex: There is minimal amount of a cart path near the green making it very difficult to know where to approach the green with a golf cart. The cart path exists as a dirt path located on the back-left side of the green. To protect the area in front of the green and deter golf carts from crossing the fairway during soft conditions a cart path should be provided along the right side.

Hole #4

Tee Complex: The cart path is comprised of compacted gravel. It is stable and firm with a few uneven areas. The pathway extends from the back tee to just beyond the forward tee box. The cart path area receives rainfall runoff from the adjacent hill which can affect golf cart access. Extending the cart path forward will aid in a more defined and improved access to the green.
Green Complex: There is no cart path at the green complex. Golf cart traffic is generally directed to the right side of the green.

Hole #5

Tee Complex: The cart path starts at the back tees and continues to the middle tees where it stops. It does not extend to the forward tee box, affecting turf growth and golf cart access. The cart path is compacted gravel but the gravel is not stable. The cart path could use better grading to improve drainage, as the middle stretch of the path is low and holds water. The cart path should be extended to the front tees and beyond to direct cart traffic and ensure a suitable area is created in front of the forward tees where the low-lying ground and soil remains soft for extended periods of time.

Green Complex: This path was reconstructed as part of the 2018 golf course improvements. The cart path begins just in front of the green but the ground in front of the cart path often is soft. The cart path is gravel and stable, however behind the green tree roots severely impact its use and degrade the condition of this cart path. During wet conditions this can be very slippery for golf carts.

Hole #6

Tee Complex: The existing path continues from #5 green over and around the back tees. The path is compacted gravel, in firm condition but with some potholing. When wet the path becomes muddy. Along the back-left side of the back tee, traffic from golf carts has eroded the slope up towards the tee box. The cart path continues towards the forward tee box, stopping just short.
In front of the forward tee box the grade drops down and then rises back up, making this area prone to staying wet. It is best to keep carts along the left side of the hole. To help direct carts in this direction the cart path should be extended to the forward tee and beyond.

Green Complex: There is no cart path at the green resulting in a section of worn-down turf left of the green. Golf carts should be directed to the left side of the green. In order to do this a cart path needs to be constructed and it should start just in front of the green, winding through the trees and over to #7 tee.

Hole #7

Tee Complex: The existing path starts behind the back tee and wraps around the right side of the tees, extending just beyond the forward tee box. The path is compacted gravel in firm condition with some low areas which hold water. As the cart path approaches the fairway it is elevated due to the low-lying area, which often remains wet for extended periods of time. Once golf carts leave the path the grade rises. This, and the fact the ground stays wet, makes it difficult for golf carts to travel.

Green Complex: The cart path is compacted gravel. It is located on the right side of the green beginning just in front of the green with a slight uphill rise. Due
to this uphill rise it makes the path prone to washing out when it rains, causing gravel to wash into the fairway. The cart path extends past the green and heads to Hole #8.

Hole #8

Tee Complex: The existing path is compacted gravel. It is firm but there are several low areas which hold water, but in general the path is passable during varying conditions. To better direct golf carts towards the left side of the hole the existing cart path should be extended approximately 25 feet further towards the green.

Green Complex: A dirt trail exists near the green on its left side, in the trees. Tree roots make it difficult to drive over this path and the bare soil is highly erodible and unsafe for passage. The passage towards the green is shared with a maintenance trail so it increases the erodible nature of the area and creates challenges related to navigation. A slight realignment to the path and the construction of an actual path will protect the turf and provide a better approach to the green.

Hole #9

Tee Complex: The existing path near the back tee is bituminous and in good condition. The turnaround by the back tee could be widened as a large area of turf has been rutted due to golf carts not successfully making the turn. The path transitions to gravel heading towards the forward tee box. The gravel is stable and passable when wet but will hold water and can be slippery. Just beyond the forward tee the turf is heavily worn due to the soft
soil conditions. Large areas of this golf hole often remain wet and soft for extended periods of time making golf cart travel and golf play difficult. The left side of the golf hole is the higher side so creating new cart path along the left side of the golf hole is preferred in order to protect the turf and increase playability. A cart path which stretches from tee to green would be a significant benefit to increasing playability. Soil correction for any new cart path work is most likely necessary to replace softer soils with firm, free draining soils.

Green Complex: The existing cart path at the green is composed primarily of compacted gravel, with some dirt and mud mixed in at the start of the cart path. The area in front of the cart path often stays wet so the turf gets trampled. The cart path should be extended so that a continuous cart path is provided the full length of the hole. Although the existing gravel cart path is stable it should be reconstructed as bituminous.
Hole #10

Tee Complex: The existing cart path is bituminous for much of the length along the tee box. The condition of the bituminous is generally good but the drainage of the path is not ideal as there is a low area which will hold water. Near the forward tee box the cart path transitions to gravel and this path continues as gravel to the hill along the left side of the hole to about the landing area. Runoff from rainfall is channelized along the left side of the golf hole, which washes out the gravel and creates ruts in the cart path. Where the cart path ends the turf to the top of the hill can stay wet making it difficult for golf carts. When conditions are wet golf carts slide and become stuck trying to make it up the hill.

Green Complex: There is no cart path that helps direct golf carts towards the green. The ground is not as wet as other areas on this hole, but because no cart path exists golf carts tend to scatter around the front of the green which negatively affects the quality of turf in an area of play. Having a cart path extend from the green and connect with the cart path coming up the left side of the hole would significantly improve access and protect the turf.

Hole #11

Tee Complex: The existing cart path is a mixture of compacted gravel and dirt. The path is firm and stable and passable during wetter conditions. The cart path extends just beyond the front of the tee box. The grade then drops and then rises. It is in the low area where the grade drops that the ground can stay wet, making it difficult for golf carts. Golf carts tend to scatter at the end of the cart path to avoid soft areas, but it would be best if golf carts could be directed along the right side of the golf hole as eventually this is...
the side of the golf hole golf carts need to be on when approaching the green.

Green Complex: The existing cart path at the green is new from the recent 2018 golf course reconstruction project. The severity of slope on this golf hole from the landing area towards the green limits visibility and makes it difficult to determine which side of the golf hole golf carts should be on. Staff place markers in the fairway in front of the green to divert golf carts to the right side of the green. The ground along the right side of the hole is sloped enough so it does not trap or hold water but can be slippery for golf carts when wet. Extending the cart path back from the green will improve access and increase playability and safety.

**Hole #12**

Tee Complex: The existing cart path is new bituminous; it was constructed as part of the 2018 golf course improvements.

Green Complex: The existing cart path is new bituminous; it was constructed as part of the 2018 golf course improvements.
Hole #13

Tee Complex: The existing cart path starting from the bridge and extending just beyond the forward tee box is bituminous. The condition of the segment from the bridge to just short of the forward tee is old and will need replacing. The segment of cart path nearest the forward tee box is new and therefore in good condition. The turf area in front of the forward tee box can remain wet for extended periods of time due to it being in a low-lying area and from the drainage that comes across the hillside. As a result, golf carts when leaving the paved cart path often get stuck trying to drive towards the fairway.

Green Complex: Golf carts access the green from the bridge on the right side of the hole. To better direct golf carts to the bridge a new section of cart path should extend from the bridge approximately 75 feet. Just beyond the bridge and up towards the green, the ground can remain saturated making golf cart travel difficult and degrading the quality of turf. At the green the cart path is located on the right side and is comprised of compacted gravel, with some areas that are muddy. The path is generally firm and stable under wetter conditions. In time this path will need to be rebuilt and improved to fix the uneven nature and softer areas.
**Hole #14**

Tee Complex: The existing path continues from Hole #13 green and extends along the right side of the tee boxes, stopping at the forward tee. The cart path is generally comprised of compacted gravel but is muddy in many areas, with low areas where puddles form. The cart path stays relatively firm, enough for golf carts to travel over after rain but less stable material washes out and weakens surrounding turf areas. Where the cart path ends the forward tee is located approximately 75 feet to the east. Those using the forward tee drive off the path on the grass to the tee box. The ground here is often wet given its proximity to the wetland, making access difficult. Beyond the forward tee box the grade rises significantly towards the landing area and the turf in this area tends to stay wet. As golf carts leave the cart path and head up the hill golf carts can slide and get stuck.
Green Complex: There is a small segment of bituminous cart path left of the green. The bituminous is old but in relatively stable condition. The cart path begins about 60 feet before the green. For about 20 feet in front of the cart path the turf is worn down due to the amount of golf cart traffic and canopy of trees overhead which affects turf growth. Generally, the lead up to the green is suitable, however even with the amount of slope the ground can stay wet for prolonged periods of time. Extending the cart path an additional 200 feet will protect the turf and avoid golf carts sliding and damaging the turf.

Hole #15

Tee Complex: The existing cart path is bituminous, it is old and stable but shows significant cracking. The cart path continues from Hole #14 green, extending to the forward tee. At the forward tee box the cart path continues as gravel for approximately 60 feet. The turf beyond this section of gravel and more specifically along the left side of the golf hole can remain soft. Providing access and directing golf carts along the right side of the hole is best to protect the turf and improve playability.

Green Complex: The existing cart path is primarily compacted gravel and starts about 50 feet before the green, running along the right side of the green. A wetland area exists between a portion of Holes #15 and #16. Overflow runoff from this wetland area is channelized
down towards this segment of cart path, which over time has made the cart path muddy and soft. The cart path is uneven with several depressions that trap and hold water, further degrading the cart path. Because the cart path receives direct and constant runoff it continues to be a very problematic area, creating significant access issues for golf carts. This area is one of the worst areas on the golf course where conditions will stay wet for prolonged periods of time, making it at times impossible for golf carts to travel through the area.

**Hole #16**

Tee Complex: The existing cart path is a mixture of compacted gravel, larger stone, and mud. This area of the golf course is always prone to oversaturation thus limiting and at times preventing access. The area is low-lying, next to a wetland, and constant runoff from the hillside to the south further aids in the constant saturation of the ground. It is a struggle to keep the cart path level and free of ponding water. The cart path extends outward towards one of the forward tee boxes. The most forward tee box is located on the left side of the hole, far from where the cart path is currently located. Golf carts attempting to drive over to this tee box often experience very soft and wet turf conditions, limiting access and oftentimes resulting in damaged turf from the golf carts.
Simply reconstructing the cart path in this area will not fix the problem and will certainly not provide a lasting positive effect on the golf course and playability. Greater consideration must be given to improving drainage in the area in order to provide a stable and reliable path of travel for golf carts.

Green Complex: The existing path is a mixture of looser gravel and dirt. At some point this may have been a bituminous path but due to the degradation it is not possible to discern if that was the case. It is not a well-defined surface, which starts towards the back of the green. Prior to this segment of path, the ground is bare with no turf. This condition exists for approximately 75 feet prior to the cart path. The ground here can remain relatively dry and capable of supporting golf cart traffic. The lack of a defined cart path here has led to a situation where golf carts approach from various directions in close proximity to the green, creating a large, worn turf condition. On the backside of the green the cart path ascends the steep hill. At this point the path is bituminous however, the condition of the pavement is highly degraded. The asphalt is severely cracked and broken and segments along the edge the bituminous have broken off. This condition does not provide a firm nor reliable condition of use.
Hole #17

Tee Complex: The cart path from tee to green is bituminous and in stable condition. Segments of the path have been patched over the years. Some segments have more severe cracking and there are places where the edge of the cart path is degraded and crumbling. The alignment of the cart path functions well. In its current condition the cart path provides suitable access from tee to green.

Green Complex: The cart path is cut in along the side slope of the hill, left of the green. The downhill side of the cart path is steep and prone to wash-outs from rain events. Currently the cart path functions fine and provides suitable access to the green while protecting the turf from excessive golf cart traffic.

Hole #18

Tee Complex: The existing cart path is new bituminous; it was constructed as part of the 2018 golf course improvements.

Green Complex: The existing cart path is new bituminous; it was constructed as part of the 2018 golf course improvements.

Clubhouse

The cart path leading down the hill from #18 green to the golf cart parking area is severely degraded. The cart path is bituminous, but the condition of the pavement is old, with large cracks and segments where bituminous has broken off. Due to the large number of trees in this area sections of the cart path have buckled making the drive uneven. The path descends a steep hill with several turns, making it difficult to navigate. One significant problem that has led to unsafe
conditions with this path, along with premature deterioration, is the area uphill of here. Rainfall runoff uphill of this area is channelized towards this path causing the bituminous path at the very top to wash out and deposit debris further down the cart path. Longer term improvements in this area should include addressing rainfall runoff to prevent degradation of areas downhill of here and converting the gravel maintenance road leading to the top of the hill to bituminous.
NEEDS ASSESSMENT

This needs assessment looks at the entire 18-hole course, from tee to green, highlighting where cart path improvements are necessary in order to maximize playability. As expected, many areas are identified as High Priority areas. Golf staff view High Priority areas as vital in the effort to improve play and protect the golf course.

The ranking of proposed cart path improvements is based on a three-tier scale: High Priority, Secondary Priority and Long-Term Priority. High Priority areas are those where conditions are the worst and most difficult for golf carts to travel, decreasing playability of the course because golf cart access is not possible. These areas also create maintenance issues in repeated repairs to the turf. Improvements here are needed most and therefore should be performed first.

Secondary Priority areas are places on the golf course that currently function in some capacity, whether there is an existing cart path or a turf area that eventually could be converted to a cart path. Secondary priorities are areas where improvements are warranted to help further improve playability. These would be extensions to places where cart paths currently exist, directing golf cart traffic off areas which tend to stay wet for longer periods of time.

Long-term needs would be the least important in terms of addressing improvements. Typically, these would be areas where cart paths currently exist and function relatively well but will eventually need to be replaced. In addition, some of these areas would be where cart paths do not exist but if constructed would certainly further golf cart access and playability while improving the quality of the golf course.
Hole #1

Tee Complex: The cart path should be extended approximately 125 feet beyond the forward tee box along the right side. This will provide a firm surface for golf cart travel and help better direct carts to where they should go.

High Priority – Add 125 feet of cart path. This can be constructed as a gravel path.

Green Complex: The cart path should be extended straight back approximately 100 feet from the bridge on the tee side of the creek. This will better define the route golf carts would take when approaching the bridge, providing a stable surface for golf carts and alleviating the problem of damaged and inaccessible turf areas.

Secondary Priority – Add 100 feet of cart path. This can be constructed as a gravel path.

Hole #2

Tee Complex: The cart path should be extended an additional 450 feet beyond the forward tee box. This will provide suitable access for golf carts and direct them to where they should go, avoiding soft turf areas in the fairway. The extension of this cart path segment can be done in a two-phased approach.

High Priority – Construct new cart path 200 feet beyond bridge. This can be constructed as a gravel path.

Secondary Priority – Extend cart path an additional 250 feet. This can be constructed as a gravel path.

Green Complex: The cart path should be extended straight back approximately 400 feet from the where the path currently exists. This will identify how golf carts should approach the green and will also provide a stable surface for golf cart travel. The extension of this cart path segment can be done in a two-phased approach. As part of this work the existing segment of cart path can be reconstructed and realigned slightly to bring carts slightly closer to the green complex.
High Priority – Add 150 feet of cart path. This should be constructed as a bituminous path.

Secondary Priority – Extend cart path an additional 250 feet. This should be constructed as a bituminous path.

Hole #3

Tee Complex: The cart path should be extended an additional 250 feet beyond the forward tee box. This will provide firm ground for golf cart travel and better direct golf carts to where they should go, avoiding soft turf areas.

High Priority – This should be constructed as a bituminous path.

Green Complex: New cart path should be constructed along the right side of the green. This will help identify where golf carts should approach the green and provide a stable surface for golf cart travel. A bump out area just off the front right side of the green can help bring golfers closer to the green but keep golf carts back far enough to protect the turf. The construction of this cart path segment can be done in a two-phased approach.

Secondary Priority – Construct 65 feet of cart path from existing cart path by #4 Tee Complex. This can be constructed as a gravel path.

Long term Priority – Extend cart path an additional 225 feet. This can be constructed as a gravel path.

Hole #4

Tee Complex: The cart path should be extended approximately 80 feet beyond where it currently ends. This would aid in access towards the green and direct golf carts towards the right side of the green.

Long term Priority - This can be constructed as a gravel path.

Green Complex: New cart path should be constructed back from the green, along the right side where it would then connect with the cart path at Hole #5. This new segment of cart path would need to be around 130 feet in length. It will protect the turf in front of the
green and provide a defined place for golfers to stop their golf carts when approaching the green.

Long term Priority - This should be constructed as a bituminous path.

Hole #5
Tee Complex: The existing gravel cart path should be reconstructed, improving the drainage as well as the general condition of the surface of the path. To improve access, protect turf, and direct golf carts, the path should be extended to the forward tees and beyond. The construction of this cart path segment can be done in a two-phased approach.

High Priority – Construct 500 feet of new path, from back tees to beyond forward tees. This should be constructed as a bituminous path.

Long term Priority – Extend the cart path an additional 200 feet through the low area along the right side of the fairway. This can be constructed as a gravel path.

Green Complex: The cart path should be extended back from the existing cart path an additional 180 feet to enhance access of the green and protect the turf along the left side of the green, providing direction on where golf carts should travel. The segment of existing cart path along the side of the green can remain but the segment starting behind the green, where the tree roots are and heading over to Hole #6, needs to be replaced.

High Priority – Reconstruct gravel segment behind green. This should be constructed as a bituminous path.

Secondary Priority – Extend cart path 180 feet back from existing cart path. This path can be constructed as a gravel path.

Hole #6
Tee Complex: The existing cart path behind and along the side of the back tee box should be reconstructed. The gravel is not stable and
it would be best to improve the drainage and pave this segment with asphalt. The cart path also needs to be extended to the front tee and beyond to direct golfers to the left side of the hole, which tends to be the dryer side. The construction of this cart path segment can be done in a two-phased approach.

**High Priority – Replace the existing gravel path with bituminous.**

**Secondary Priority – Extend cart path towards fairway 400 feet from existing cart path. This can be constructed as a gravel path.**

**Green Complex:** A cart path should be constructed along the left side of the green in lieu of the existing dirt path. The cart path should start approximately 80 feet in front of the green and be routed through the trees and tie into the cart path behind the back tee at Hole #7.

**High Priority – Construct cart path along left side of green. This should be constructed as a bituminous path.**

**Hole #7**

**Tee Complex:** The last 100 feet of the cart path should be rebuilt, fixing the low areas. Priority would be to extend the cart path approximately 300 feet beyond the forward tee box along the right side of the hole. This will provide a suitable route for golf carts to traverse the slope towards the landing area. In addition, it would be a benefit to further extend the cart path an additional 100 feet, ensuring golf carts can successfully make it to the top of the hill without travelling over soft ground. The construction of this cart path segment can be done in a two-phased approach.

**Secondary Priority – Reconstruct end of path and add an additional 400 feet. This can be constructed as a gravel path.**

**Green Complex:** The cart path should be extended straight back approximately 75 feet from where the path currently begins to better direct golfers as they approach the green. The path should
also be realigned to prevent the path from washing gravel into the fairway after rainfall events.

**High Priority** - This should be constructed as a bituminous path.

**Hole #8**

Tee Complex: The cart path should be re-graded to correct the low areas. The path should also be extended beyond the forward tee approximately 25 feet. The cart path could then be paved to provide a more stable surface for golf cart and maintenance vehicles.

**High Priority** – This should be constructed as a bituminous path.

Green Complex: A cart path should be constructed to protect the turf, directing golf carts to one specific area. A cart path through the trees will protect the health of the trees and provide a safer means of travel for cart carts.

**High Priority** – This should be constructed as a bituminous path.

**Hole #9**

*Tee Complex: The portion of existing gravel should be converted to bituminous.* Given the need for extensive cart path improvements on this hole it is possible work could be done all at once or, phased over time. If the work were to be phased, a bituminous cart path should be extended beyond the forward tee and routed to the left side of the hole approximately 240 feet beyond the tee box. Another segment of cart path approximately 475 feet in length could be constructed to further extend along the length of the golf hole, providing a much-needed stable surface for golf cart travel.

**High Priority** – Add 240 feet of new cart path beyond tee box. This can be constructed as a bituminous path.

**Secondary Priority** – Extend cart path approximately 500 feet along left side of golf hole. This can be constructed as a bituminous path.

Green Complex: So that golf carts can better access the green and to prevent the turf from being damaged, a segment of new cart path
approximately 225 feet in length should be extended back from the existing cart path. The existing gravel cart path at the green should be reconstructed as a bituminous path. These improvements can be done in a two-phased approach.

**High Priority – Extend cart path back from green approximately 225 feet. This can be constructed as a bituminous path.**

**Secondary Priority – Reconstruct existing cart path at green and convert to bituminous.**

**Hole #10**

Tee Complex: The existing gravel cart path section should be reconstructed and replaced with bituminous, protecting the path from washing out during rain events. To further help protect the path, improvements to the adjoining hillside left of the cart path should occur to divert and slow runoff. Given the steep uphill to the green and the soft soil conditions the cart path should be extended to the top of the hill. The reconstruction and extension of this cart path segment can be done in a two-phased approach.

**High Priority – Extend cart path approximately 200 feet up hill. This can be constructed as a bituminous path. The existing gravel path will also need to be re-graded along with the installation of area drains along the west side of the path to capture runoff coming down the hillside.**

**Secondary Priority – Reconstruct existing gravel path to a bituminous path.**

Green Complex: A cart path should be constructed at the green to help direct the flow of travel and protect the turf around the green. The cart path should be extended back from the green approximately 130 feet where it would eventually connect to the extension of cart path along the left side of the hole.

**Secondary Priority – Construct new cart path at the green. This should be constructed as a bituminous path.**
Hole #11

Tee Complex: The cart path should be extended approximately another 300 feet beyond the forward tee box along the right side of the golf hole. This will provide firm ground for the golf carts to travel through the low area and better direct golf carts.

High Priority – This should be constructed as a bituminous path.

Green Complex: The existing cart path is in good shape and does not require any upgrades. However, the cart path should be extended approximately 350 feet up the hill and along the right side to direct golf carts to the green while also providing a much safer path for golfers to descend the steep hillside.

Long term Priority – This should be constructed as a bituminous path.

Hole #12

Tee Complex: No work required due to 2018 golf course improvements project.

Green Complex: No work required due to 2018 golf course improvements project.

Hole #13

Tee Complex: The existing segment of bituminous cart path that is old should be replaced. In front of the forward tee box the cart path should be extended approximately 250 feet through the low-lying area and to the right side of the golf hole.

High Priority – Construct new cart path beyond forward tee box. This should be constructed as a bituminous path.

Long term Priority – Replace old segment of bituminous cart path.

Green Complex: A new segment of cart path approximately 75 feet in length should be constructed on the tee side of the bridge. In addition, a segment of new cart path approximately 200 feet in
length should be constructed from the bridge to the existing gravel cart path by the green. Reconstruct the existing compacted gravel cart path section to address drainage issues.

High Priority – Construct new cart path on green side of bridge. This should be constructed as a bituminous path.

Long term Priority – Add additional 75 feet of cart path at bridge. This should be constructed as a bituminous path. Reconstruct existing gravel path along the side and behind the green. This can remain a gravel path.

Hole #14

Tee Complex: Reconstruct the existing gravel/mud path, remove the soil that has mixed in with the gravel and improve the drainage to eliminate ponding areas of water on the cart path. A small segment of new cart path should be added at the end to protect the turf and provide a stable surface so golf carts can access the forward tee box. In addition, a new segment of cart path should be added along the right side of the hole. This will focus cart path traffic along the right side of the golf hole and provide golfers a suitable route to take to access the landing area. The proposed improvements can be done in a phased approach.

High Priority – Construct new cart path approximately 225 feet along right side of golf hole. This should be constructed as a bituminous path.

Secondary Priority – Construct small segment of new cart path over to forward tee box. This should be constructed as a bituminous path.

Long term Priority – Reconstruct existing gravel path. This can remain as a gravel path. In addition, extend cart path an additional 180 feet up the right side of the fairway to the landing area. This should be constructed as a bituminous path.

Green Complex: To protect the turf and avoid slippery conditions for golf carts, the cart path should be extended approximately from the
existing cart path segment to the landing area. Replace the existing bituminous cart path.

**High Priority** – Construct new cart path back approximately 200 feet beyond existing. This should be constructed as a bituminous path.

**Long term Priority** – Replace existing bituminous path at the green. In addition, extend cart path an additional 220 feet towards the landing area. This should be constructed as a bituminous path.

**Hole #15 Tee**

Tee Complex: Replace the existing bituminous cart path. Extend the cart path in front of the forward tee box approximately 275 feet and route it along the right side of the golf hole.

**High Priority** – Add new cart path approximately 275 feet beyond existing. This should be constructed as a bituminous path.

**Long term Priority** – Replace existing bituminous cart path.

**Hole #15 Green and Hole #16 Tee Complex**

Cart path improvements associated with this green and over to Hole #16 tee would be considered a premier golf course improvement. One that would greatly improve golf course access, playability and maintenance, but also provide a significant visual enhancement to the golf course as well. The existing conditions here being in a low-lying area by the wetland with a constant source of runoff from the hillside creates a situation where larger scale improvements are merited. The existing gravel path at Hole #15 green should be reconstructed as bituminous and the cart path extended approximately 150 feet towards the fairway. The area just east of the cart path should be re-graded and turned into an extension of the nearby wetland where it could join the wetland north of the green. This will greatly improve the turf conditions and golf hole accessibility by containing runoff from the hillside and diverting it from the cart path. A boardwalk structure would need to be constructed to span the proposed new wetland area. The cart path at Hole #16 tee would be brought over to the east side of the tee
area. In order to accomplish this the back tee would be reconfigured to accommodate a turn-around at the back tee for golf carts. The realigned cart path would eventually direct golfers down the right side of the hole, which is the preferred route to avoid the often softer and wetter conditions on the left side of the golf hole. The cart path would also be extended approximately 100 feet beyond the forward tee box providing a stable path for golfers to travel over.

**High Priority –** Extend cart path 150 feet towards Hole #15 fairway, reconstruct existing gravel path as bituminous. Perform larger grading scope to properly address drainage issues. Realign and reconstruct cart path over to left side of the Hole #16 tee area. Extend cart path up the hill towards landing area. This should be constructed as a bituminous path.

**Hole #16 Green**

Green Complex: New cart path should be extended approximately 100 feet from the green along the left side of the golf hole. Reconstruct the degraded bituminous segment behind the green. The proposed work associated with these improvements can be done in a two-phased approach.

**High Priority –** Construct new cart path along left side of green and extend cart path from the green approximately 100 feet. This should be constructed as a bituminous path.

**Long term Priority –** Reconstruct existing bituminous cart path behind the green and towards Hole #17.

**Hole #17**

Tee and Green Complexes: The age of the cart path from tee to green is similar. Since this golf hole is paved from tee to green the approach would be to repave this entire segment of cart path when the pavement has reached end of life versus patching different portions at different times.

**Long term Priority –** Reconstruct existing bituminous cart path.
Hole #18

Tee Complex: No work required due to recent 2018 golf course improvements project.

Green Complex: No work required due to recent 2018 golf course improvements project.

Clubhouse

This cart path is unsafe and needs to be replaced from the top down to the cart parking area. At the top of the hill re-grading improvements will be necessary to address the issues associated with runoff from rainfall events, ensuring the cart path is not subjected to premature deterioration. To create safer routes of travel, options for re-routing the cart path should be considered.

High Priority – Realign and reconstruct existing bituminous cart path.