CRANBERRY VALLEY GOLF COURSE

Harwich, Massachusetts

CART PATH MASTER PLAN

Owner:

CRANBERRY VALLEY GOLF COURSE

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CRANBERRY VALLEY GOLF COURSE

HARWICH, MASSACHUSETTS

SUMMARY OF PATH MODIFICATION RECOMMENDATIONS

HOLE #1:

- We discussed improving emergency access to the front nine of the golf course. It seems that the best access to these holes is through the first tee. The existing path between the tees is too narrow for the wheel base of emergency vehicles and should be widened to better accommodate them.

- The path along the left side of the tee comes to a T intersection at the front of the middle tee. Carts cross the path and go directly onto the grass, creating a worn area. The plan proposes extending the path diagonally across the hole to provide multiple exit points and shift the end of the path to the outside of the hole.

- There is currently no path to the fairway provided for players using the forward tee. The plan addresses this by adding a spur off the maintenance/proposed emergency access path to the left of the tee.

- The option of a continuous path is shown along the right side of the hole.

- The emergency access road is proposed to split just beyond the forward tee, with one path going toward Hole #4 and the other continuing along the existing maintenance path on the left side of Hole #1. Upgrades to this path will be required to make it passable by emergency vehicles. This path is tied into the new path on the left side of Hole #2.

- The path at the green should be extended approximately 110' to provide a longer area of access and move the end of the path further from the green. Currently, the only point at which carts can enter the path is at the end. By extending the path, carts will have the option of entering the entire new section of path, thereby eliminating the extremely worn area where the path currently starts.

HOLE #2:

- The problem with the path at #2 tee is that it ends directly in front of the tee, resulting in weak and flattened turf directly in the line of view from the tee. This ruins the visual character of the hole. We have proposed removing the end of the path and shifting the end to the right side of the hole near the start of the fairway. In this configuration, although carts can still leave the path directly in front of the tee, carts can egress along the width of the hole, resulting in less concentrated wear. The course can at times restrict egress to the end to reduce wear in front of the tee

Avoid path endings directed at middle of fairway, such as here on Hole #2

- If a continuous path is desired, this has been shown to follow the left tree edge. This path would eliminate the need for the additional path in front of the tee.

- As with Hole #1, the path on #2 starts too close to the green, thereby eliminating the options for taking carts off the fairway and onto the path. They must enter at the end, causing turf wear at the end and even into the fairway. This path has been extended approximately 120'.

HOLE #3:

- As with the second hole, the tee path unfortunately ends in the middle of the hole and only a few feet from the start of the fairway. We propose eliminating about 115 feet of this path so that it can be continued down the hill to the right edge of the tree line near the start of the fairway.

- The continuous path on #3 is shown along the right edge of the hole. I was somewhat concerned with this location due to the conflict with the irrigation main and it being too visible and in play from the tee. I evaluated a path down the left side, but feel that the steepness of the grade near the start of the fairway, combined with the number of burial holes on this side, make the right side the better choice.

The use of a line across the approach helps preserve turf near green but causes excessive wear at start of path

- The angle and location of the path beginning to the right of the green directs carts to the same point of the fairway, creating poor turf conditions and depressions. The end of the path should be eliminated and the path extended about 175 feet behind and along the tree edge. Consider expanding the fairway right after extending the path.

HOLE #4:

- On #4 we have proposed establishing a new path across the hole directly in front of the tee to create an emergency access that connects to the maintenance path left of the tee to the existing paved path on the right side of the hole.

- At the green, we have suggested extending the path deeper into the green to both shorten the walk to the putting surface and eliminate the walk back to the carts that slows down play.

HOLE #5:

- On #5, we propose extending the path about 150' across the hole to the start of the fairway.

- The continuous path is proposed to follow the right side of the hole, with several trees needing to be removed behind the fairway bunker.

- The path at the green should be extended about 150 feet to expand the access options.

HOLE #6:

- We have suggested a significant change to the layout of the path at #6 tee. Currently, the path does not extend back to the tee, as a turn-around is provided to the front right. To improve circulation and reduce the walk, we have proposed taking the path across the hole directly in front of the tee and putting a turn-around at the middle of the tee area on the left edge. The property boundary may impact placement and design of the turn-around, but this revision allows the path to continue up the left side of the hole to the existing path left of the green. Due to the sharp slopes and bunkering, a path to the right and behind the green would not be feasible, and we want to avoid having the path cross the fairway.

- The end of the existing path left of the green should be eliminated to alleviate the highly worn area at the edge of the fairway. The path should be extended on a line parallel with the fairway approximately 100 feet closer to the tee in order to provide multiple access locations.

HOLE #7:

- There are no path changes proposed for Hole #7. An area of path between holes 7 and 8 should be widened and straightened.

HOLE #8:

- As with several other holes, the tee path on #8 ends too close to the fairway and in the middle of the hole. The last 60-feet of path should be removed and the end moved to the right of the fairway. One pine tree should be removed to facilitate path expansion.

- A continuous path is proposed for the right side of the hole just inside the tree edge.

- The greenside path starts much too close to the putting surface, resulting in extensive turf compaction and wear in the approach adjacent to the bunkers. The end of the path is also aligned perpendicular and too close to the fairway edge. I feel this path would best be extended back toward the tee beyond the approach bunker, making it possible for carts to exit the fairway before and after this feature.

Consider extending path on #8 to turn-around right of green

- We have also proposed extending the path to the right side of the green. The current end of path funnels all foot traffic onto the front right of the putting surface. The large number of handicap carts already drives to the right of the green. Extending the path and adding a turn-around will vary and improve the access.

HOLE #9:

- The tee path has been extended a short distance and a continuous path is shown along the right side of the hole.

- The greenside path begins too close to the putting surface; therefore we propose extending it about 155 feet closer to the tee.

HOLE #10:

- The cart path on the tenth hole is one of the more difficult ones to figure out. Players currently drive off the end of the tee path directly toward the fairway, creating worn turf and compacted ground near the start of the fairway. All carts leave the path at the same location rather than at different points. My initial advice is to gently curve the end of the path so players drive off at different locations.

- The fairway and hole corridor on #10 is very narrow. Carts are concentrated in a small, shaded area. The proximity of hole #13 to the left, and wetlands to the right, make expansion and shifting of the path to the outside of the hole problematic. A path between 10 fairway and 13 green should be avoided.

Turf conditions on the narrow 10th hole would be improved with a continuous path

- With the existing path to the right of #10 green, and the difficulty with setback from 13 green on the left, it would seem logical to continue the path down the right side, but this area is protected from development because of wetlands. At other courses, we have received permission to install timber pile supported boardwalks across wetlands for use by carts and thought this might be the best solution here. A path on the right will also require removal of several trees and the filling of a hollow where soil was formerly removed.

- It seems many carts currently go to the left of the green, and there is a maintenance path just into the trees on this side that could easily be upgraded. If construction of the path modifications to the right is not feasible, I recommend removing a few trees and paving this path as an alternate access to the green.

HOLE #11:

- The end of the tee path is eliminated and the path curved to the left and extended about 130 feet.

- I reviewed the potential for a continuous path on both sides of the hole and each side has issues. With the tee path on the left, and the green path on the right, the path could be located on either side. The right side of the hole is steeply sloped and has a burial area near the beginning of the fairway. The slope would result in the path being a long way from the fairway with a difficult walk up and down. The left side is much more accessible, but the area is prone to wayward shots from Hole #12. Based on the ease of access, I feel the left path is best.

- The beginning of the greenside path is located in a low area with the end perpendicular to the fairway, leaving only one access point. We propose eliminating the end 25 feet and extending an addition to the path along the edge of the fairway.

- The five foot wide (5') path to the right of the green should be widened to eight feet (8').

HOLE #12:

- The existing path on #12 is awkwardly located directly in front of the tee. If there is room, I would prefer to have the path continue to the side of the tee with a turn-around (if this land is Town property), this way parked carts would not be in the way of the shots from the tee. The path to the right front of the tee should be eliminated, as should the spur behind the forward tee.

- Consider extending the path along the left side of the forward tee.

- A continuous path is shown along the left side of the hole. I thought about doubling up the path on #11 with this one on #12, but felt there was too much of a safety risk in combining them.

- The current greenside path provides no access options, resulting in a significant worn area extending into the fairway at the end of the path. The problem area is compounded by an adjacent burial area. The plan shows the path being extended about 250 feet toward the tee to greatly improve the potential access points. A few trees may require removal to facilitate path development and the irrigation main will need to be avoided.

Eliminating worn areas, such as here on #12, are a constant battle

HOLE #13:

- There are no changes to the path on #13 beyond widening and repaving behind the green to allow access by emergency vehicles.

HOLE #14:

- Widen path between tees to improve access for emergency vehicles.

- Consider adding new path between tees to left side of fairway. If not installing continuous path, this addition is likely not required. The path is shown to continue along the right side of the hole, with several trees requiring removal.

- Due to limited access to the end, the path at the green should be extended about 150 feet to eliminate the barren area at the current end.

The beginning of path at #14 green must be extended to alleviate barren area

HOLE #15:

- The path at the tee should be curved toward the trees on the right.
- A continuous path that goes in and out of the trees could be located on the right side of the hole. Several trees will need to be removed to site the path. The path at the green should be extended about 150 feet. Access to the path in this area is somewhat restricted by a burial area between the fairway and new path.

HOLE #16:

- The tee path on #16 is OK as it exists.
- I looked at placement of the continuous path on both sides of the hole. The existing tee path is on the right, but the greenside path is to the left. Continuing the path along the right side would require either crossing the fairway or adding path around the back of the putting surface. With the main irrigation line also on the right edge of the hole corridor, I thought it was best to cross the hole before the fairway and route the path down the left side.

HOLE #17:

- The par-3 17th has path at the tee and green only, unlike the other par threes which have continuous path.

- The plan shows connecting the path between tee and green and extending the path to the back right of the green to improve access onto the putting surface by eliminating the walk up and down the slope.

HOLE #18:

- The 18th hole was also a difficult one to decide on the best location for the path. Steep slopes exist to the left of the forward tee and just right of the beginning of the fairway. A left side path would be less in play and not as visible, but conflicts with the irrigation main. A right side path is more in play but is a shorter length and will require shorter walks as more people are on this side of the dogleg right hole.

- The beginning 40 feet should be eliminated, but the greenside path should be extended approximately 225 feet to provide more options for access.

PHASING OF PATH ENHANCEMENTS:

The path modifications have been divided into two categories ("A" and "B") to delineate between priorities of work. The new paths denoted as "Phase A" are those modifications that should be of highest priority. Incorporation of the path system proposed in Category "A" will result in a path system that allows for cart use irrespective of most weather conditions. Currently, cart use is restricted or not allowed on many days and the additions or changes proposed in the Master Plan will make the course "weather proof". In most cases, the additions involve removal and extension of existing paths to get the start or end points further away from high play areas and to increase the options for entering or leaving the path. Drainage issues around the course were evaluated and in many cases, such as on Hole #11, extending the path moves the end of the path away from a poorly drained area which may inhibit access or egress.

Paths denoted as "Phase B" are mostly those new paths added to make a continuous path system. On most holes, we propose connecting the existing paths with extensions, although in some areas the Category "B" changes will eliminate the need for some of the Category "A" changes (such as in front of #2 tee).

A third category of path revisions are the Emergency Access paths. We feel that these paths should be phased in as time and money permit. Much of the emergency access path work can be done in house in the off season as the work involves cutting back of vegetation and grading of existing soil to form a wider path.

CONTINUOUS PATH SYSTEM:

We were asked to review the potential for a continuous path system and have shown this on the plan. A continuous path is advantageous on courses where wet conditions highly limit or restrict the use of carts. This usually is the case at courses with low flat areas and poorly drained soils. I do not feel that a continuous path system is necessary at Cranberry Valley, although there are several holes that would be benefited by paths from tee to green. The 10th and 17th holes are examples of holes that I would recommend the path be continuous.

PATH CONSTRAINTS:

There are several issues, such as slope of ground, vegetation, safety concerns and accessibility that restrict and dictate the siting of paths. At Cranberry Valley, we must also be concerned about former burial areas and irrigation mains. In routing the new paths, we have attempted to keep paths outside of known burial area locations and minimized potential conflicts with irrigation lines.

Be mindful of irrigation installation and burial areas when routing new paths

TREE REMOVAL:

Paths are best located along and within the trees that border the fairways and greens. Where feasible, we prefer to place paths behind the first row of trees so the path is out of play and hidden from view. This often requires the removal of existing trees. A summary has been provided of the approximate number of trees to be removed as a result of new paths.

PATH WIDTH:

Existing paths on the course vary in width between 5 and 8 feet. We would prefer that all new paths be 8 feet wide as this width allows for travel by vehicles and maintenance equipment with all wheels on the path. Widths narrower than 8' require those vehicles to travel with one side off the path, causing ruts in soft conditions. There are several locations where we advise widening the path to at least 8' to facilitate access by emergency vehicles.

CURBING:

On many golf courses, curbing is used to restrict cart traffic and control water. Curbing is most often used on the inside edge of paths along tees and greens to keep players from driving carts off the path to park, resulting in worn or barren grass along the edge of the path. It may also be used on curves to keep carts from cutting across the grass. Cranberry Valley currently utilizes split

rail fencing to control cart traffic and has not resorted to the use of curbing, although there are locations that it may be warranted, such as on the tee or green side of the new turn-around proposed at holes 4, 6, 8, and 12. The actual location for curbing has not been identified as part of the Master Plan, but an allowance for potential curbing has been included in the cost estimate.

MATERIALS:

The most common material used for cart paths, and that used at Cranberry Valley, is bituminous asphalt. Many people dislike the appearance of asphalt paths, leading to the use of many other materials including concrete, pavers, shell, brick chips and crushed stone. None of these materials are perfect. Most people prefer the appearance of a stone dust path, and like that balls hitting the path won't bounce for miles as off asphalt or concrete, but these paths can get very dusty when dry, and are prone to wash outs and lots of additional maintenance on hilly sites such as Cranberry Valley. The problem with changing the material used on an exiting course is that the new paths will not match the current ones and the cost of other materials is typically more expensive than asphalt. Based on this, we recommend continuing with the use of asphalt on future path work.

OTHER COURSE ENHANCEMENTS:

The installation of additional paths will generate soil as most are set into the existing ground with the surface set flush with the surrounding grade. Care must be taken in the construction of the new path to ensure that water is not trapped beside or on top of the path. Installation of drainage may be required as part of the path installation. Soil generated from path excavation should be used to develop low mounds and ridges along the edge of crossing paths to hide them from view.

The path between tees on Hole #1 is too narrow, resulting in ruts along edge

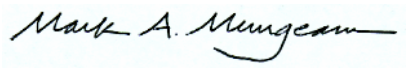
EMERGENCY ACCESS:

Consideration was given to improving the ability to access the course with emergency vehicles. A high priority of this work should be widening the path between the tees on Hole #1 and continuing this path up the left side of the first hole and across #4 so emergency vehicles can better access the front nine holes. Most of the emergency access path utilizes maintenance paths in the woods between the holes. Upgrading of these paths by widening, grading and adding of base material will be necessary in some locations.

SUMMARY:

Besides a couple holes, Cranberry Valley is currently limited to a green to tee path system. The minimal paths result in extensive turf wear and restrictions on cart use during wet conditions. MUNGEAM CORNISH GOLF DESIGN, Inc. evaluated the cart path system and drainage issues on the course in the development of a Master Plan for path improvements. The Plan identifies locations where the existing cart path should be extended and re-aligned to reduce turf damage, soil compaction and the frequency of cart use restrictions. Golfer safety was a consideration for all proposed path modifications. The path changes were grouped into several categories, with "A" being the highest priority and the modifications needed to make the course "weather proof". The plan also addresses the need for improved emergency vehicle access to isolated areas of the course.

Respectfully submitted,
MUNGEAM CORNISH GOLF DESIGN, Inc.



Mark A. Mungeam, ASGCA
2 March 2010

Cranberry Valley Golf Course

Harwich, Massachusetts

Cost Estimate Cart Path Additions

OPTION "A" ONLY

TASK	DESCRIPTION	Estimated Quantity	Unit	Unit Price	Estimated Quantity X Unit Price
1	Mobilization	1	LS	$8,000.00	$8,000.00
2	Tree Removal	20	EA	$150.00	$3,000.00
3	Remove Existing Path	7,500	SF	$1.25	$9,375.00
4	Restore areas where path removed	10,000	SF	$1.00	$10,000.00
5	Add Path (Phase A)	5,500	LF	$48.00	$264,000.00
6	Timber Pile Bridge	80	LF	$300.00	$24,000.00
7	Bluegrass / Fescue Rough Sod	4,000	SF	$0.50	$2,000.00
8	Existing Fairway Turf Shifted	0	SF	$0.50	$0.00
9	Irrigation Modifications or Repairs	1	LS	$2,500.00	$2,500.00
10	Punch List & Haul Road repair	1	LS	$3,500.00	$3,500.00
				TOTAL	$326,375.00
				10% Contingency	$32,637.50
				GRAND TOTAL	$359,012.50

LEGEND

LS= Lump Sum
EA= Each
CY= Cubic Yard
LF= Linear Feet
SF= Square Feet
AC= Acre

NOTE:

Cost estimate assumes new cart paths to be built with 2" of asphalt over 4" DGA base material

Cranberry Valley Golf Course

Harwich, Massachusetts

Cost Estimate for Cart Path Modifications

OPTION "B" and OTHER TASKS

TASK	DESCRIPTION	Estimated Quantity	Unit	Unit Price	Estimated Quantity X Unit Price
1	Mobilization	1	LS	$8,000.00	$8,000.00
2	Tree and Stump Removal	100	EA	$150.00	$15,000.00
3	Remove Existing Path	1,000	SF	$1.25	$1,250.00
4	Restore Areas where Path Removed	1,000	SF	$1.00	$1,000.00
5	Add Paved Path (Category "B")	10,500	LF	$48.00	$504,000.00
6	Widen Pavement for Emergency Access	2,400	SF	$9.00	$21,600.00
7	Widen and Grade Maintenance Paths	3,000	LF	$20.00	$60,000.00
8	Curbing (allowance)	1,000	LF	$17.50	$17,500.00
9	Rough Sod	4,000	SF	$0.50	$2,000.00
10	Drainage Improvements	1	LS	$2,500.00	$2,500.00
11	Irrigation	1	LS	$3,500.00	$3,500.00
12	Punch List & Haul Road Repair	1	LS	$5,000.00	$5,000.00
				TOTAL	$641,350.00
				10% Contingency	64,135.00
				OPTION "B" TOTAL	$705,485.00
				OPTION "A" TOTAL	$359,012.50
				GRAND TOTAL	$1,064,497.50

LEGEND

LS= Lump Sum
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SF= Square Feet
AC= Acre

NOTE:

Cost estimate asumes new cart paths to be built with 2" of asphalt over 4" of DGA base material