

HFC Committee

HFC-18

From: Karla Peters <Karla.Peters@co.maui.hi.us>
Sent: Thursday, June 20, 2019 12:05 PM
To: HFC Committee
Cc: Mimi Desjardins; Shelly K. Espeleta
Subject: HFC-18
Attachments: GolfBoard+vs.+Turf.pdf

Aloha Chair Hokama,

Attached, for the committee's reference, is information on the motorized skateboards to be discussed in the subject agenda item.

Please feel free to contact me if you have any questions.

Thank you!

Karla

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Our Mission: "Provide safe, satisfying and cost effective recreational opportunities for the residents of and visitors to Maui County."

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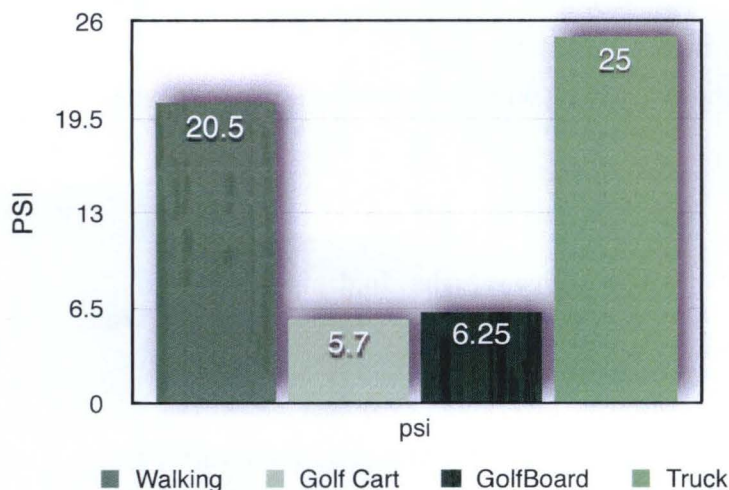
The GolfBoard and Your Turf

Every golfer loves playing on turf that is healthy and beautifully manicured. Day in and day out Golf Course Superintendents everywhere do battle with the forces that try to undermine their ability to produce these desired pristine playing conditions. Turf disease, insects, inclement weather all wreak havoc on thriving grass plants that make up the golfer's playground.

Ironically, it's the action of the golfers themselves that cause a significant amount of turf damage. Foot traffic, golf cart wear injury, and un-repaired divots and ballmarks are all forms of golf course injury that can be maintained with good golf etiquette.

With the introduction of the GolfBoard, and out of concern for turf injury, some have brought up the question, "What is the psi of the GolfBoard on the turf?" While this is a fair and reasonable question, psi alone is a small part of the vehicular turf injury equation.

In the following chart, you can see that the psi of a person walking* is far greater than the psi of a golf cart or a GolfBoard. But if psi alone were the most important factor in turf damage, then why aren't there dead footprints all over the golf course? Simple answer: traffic patterns.



***Walking psi based on average of 200-pound golfer heel of foot = 25 psi, plus ball of foot = 16 psi.**

Golf cart based weight of cart plus two people and gear (1,450)

GolfBoard based on 170-pound rider and gear

Truck based on 3,000-pounds

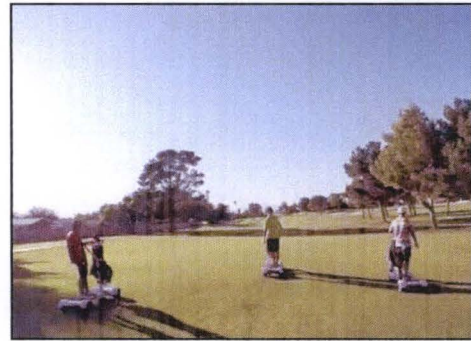
**source: David L. Weinecke, USGA Green Section Agronomist*

Beyond PSI



More than psi, more even than turf tire design, repetitive turf wear injury is more a matter of traffic patterns and operator usage. The main reason you won't see dead footprints all over the course is the simple fact that foot traffic is spread out across the entire course. People don't walk in straight lines behind each other to get to their shots, they spread out and each person heads to their individual ball. (The picture at left is an example of what happens to turf when people walk in the same path over and over to get around the bunker.)

This is one of the great advantages of the GolfBoard. Each player will be able to drive out to their own shot, as opposed to riding around in the cart from one ball to the next. Golf carts being larger vehicles, drivers of carts also tend to consistently follow the same entry and exit points along the cart paths, destroying turf along the way. GolfBoard users, on the other hand, have the advantage of being able to choose to spread out their traffic along many points of the cart path, thus reducing repetitive wear injury.



Standing psi numbers can be of little significance when you take in to account other factors such as vehicle design and operator usage.

Vehicle Design

Golf carts are clutch-operated, belt-driven one wheel drive vehicles. In damp conditions, this can spell disaster for your turf. Tires spinning, brake-lock skidding, large rutting and soil displacement and compaction is all turf damage waiting to happen under the wheels of a golf cart.

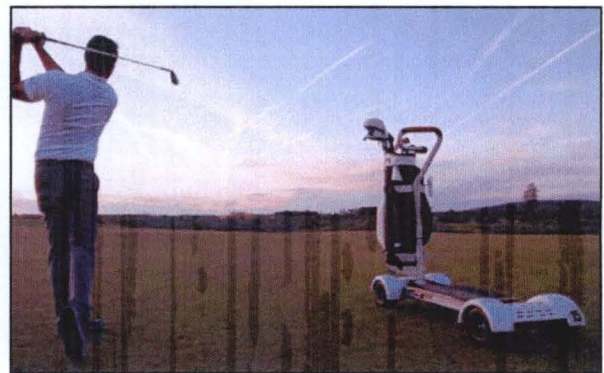
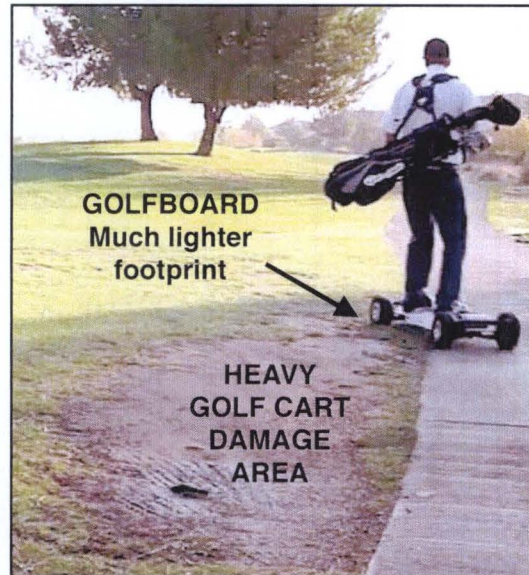
The electronic systems of the all-wheel drive GolfBoard virtually eliminate these turf problems. Consistent power to all wheels provides smooth starts with no tire spin, and the automatic braking system brings the GolfBoard coasting to a stop with no wheel-lock skid potential.

Operator Usage

Golf cart users tend to drive a cart much like they drive a car, with little thought to the turf underneath. This brings in to account what we call 'force-psi,' where we take in to account the forces of impact, momentum, and braking. When carts leave the path, they impact the turf with much more force than if they were simply parked on the grass. Turning and stopping the cart also creates a downward compressing force much greater than straight-line operation.

Consider the following: What is the 'force-psi' of a golf cart leaving the cart path at 5 mph, 8 mph, or 12 mph? Taking these factors in to consideration, you can see why healthy turf doesn't stand a chance at that exit point. A 1,400 pound golf cart moving at 10 mph will have much more turf injury potential than a 300 pound GolfBoard, regardless of standing psi.

Traffic control and distribution of wear are significant factors in reducing turf injury on a golf course. The introduction of GolfBoards to your fleet will help alleviate repetitive turf injury by spreading golfers out over wider turf areas.



Information sources:

Vavrek, B., Agronomist, USGA Green Section. *Traffic... How Much Can You Bare?* USGA Green Section Record, July-August, 2002

Weinecke, D., Agronomist, USGA Green Section. *Letting the Numbers Tell the Story on Cart Damage*, USGA Green Section Record, November-December, 2004

Carrow, R, Ph.D., Professor of Turfgrass Science, University of Georgia, Agricultural Experiment Station, Griffin, Ga. *Golf Course Management, Tire Change Offers Small Decline in Turf Wear*, May 1997