

RTJ Trail

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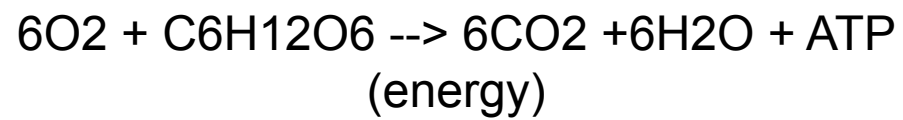
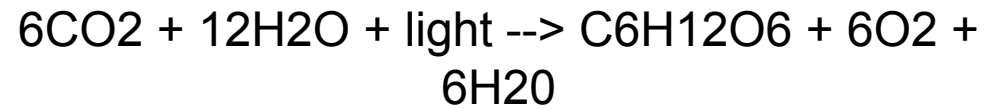
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Maintaining A Course With Pace Of Play As A Goal And Not Going Broke In The Process



Jim Moore
USGA Green Section
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PRESENTED BY THE **USGA** 



Two of the most commonly cited reasons for not playing more golf

“It takes too long”



“It’s too expensive”

Ref: John - avid golfer and bartender at Willie McBride’s in Branchburg, NJ



The Dilemma

Many of the steps that can be initiated to improve pace of play

Result in a significant increase in the consumption of resources and ultimately the cost to play

Goals	Pace of Play	Cost to Play
Maintain uniform stand of grass		
Mow roughs lower		
Mow roughs more often		
Keep free of leaves and other debris		
Reduce density of trees and understory		
Players always have priority		
Do more in less time		
Perform maintenance in non-play hours		

Solution to the Dilemma

- Identify course areas that result in slow play
 - Identify where players are going and NOT going
- Reduce maintenance and water use on areas of the course that seldom come into play
- Reallocate resources to areas that come into play most often
- Increase efficiency of maintenance tasks





Google earth

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Google earth

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Potential annual savings

Cost to play

- \$3000 in fuel
- \$4000 in labor
- Free up 250 labor hours for other tasks
- \$5000 in electricity
- \$13,000 in fertilizer and chemicals
- Over 20 acre feet of water (6.5 million gallons)
- Better manage areas that come into play most often



And how can we convince owners, managers and players that such changes can be made without this?



GPS/GIS Analysis



**GPS Data
Loggers**

*You don't
know our
players.
They go
everywhere!*





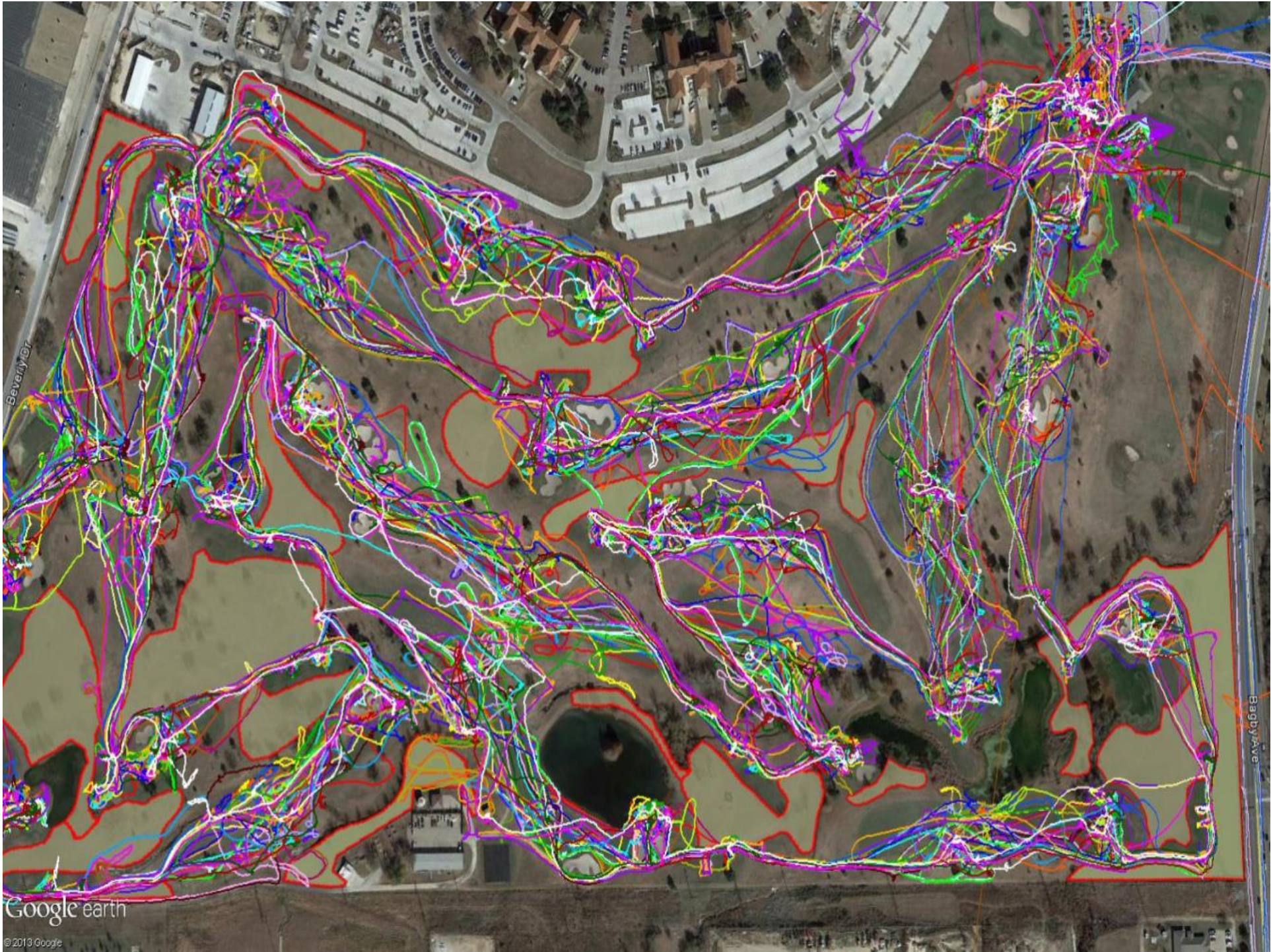
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Move resources
from here



Mow 1/week

Mow 1/week

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Olympia Fields St



Pace of Play



~~Mow 1/week~~

Mow 3/week

~~Water Fertilizer~~

~~Mow 1/week~~

Mow 1/month

Google earth

Olympia Fields St

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“Measurement is the first step that leads to control and eventually to improvement. If you can’t measure something, you can’t understand it. If you can’t understand it, you can’t control it. If you can’t control it, you can’t improve it.” H. James Harrington

“Science replaces private prejudice with public, verifiable evidence.” Richard Dawkins

“If you can’t put it in front of their face in 30 seconds or less, they won’t believe you.” Jim Moore

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Ref: John the bartender (and avid golfer) at Willie McBride’s in Branchburg, NJ



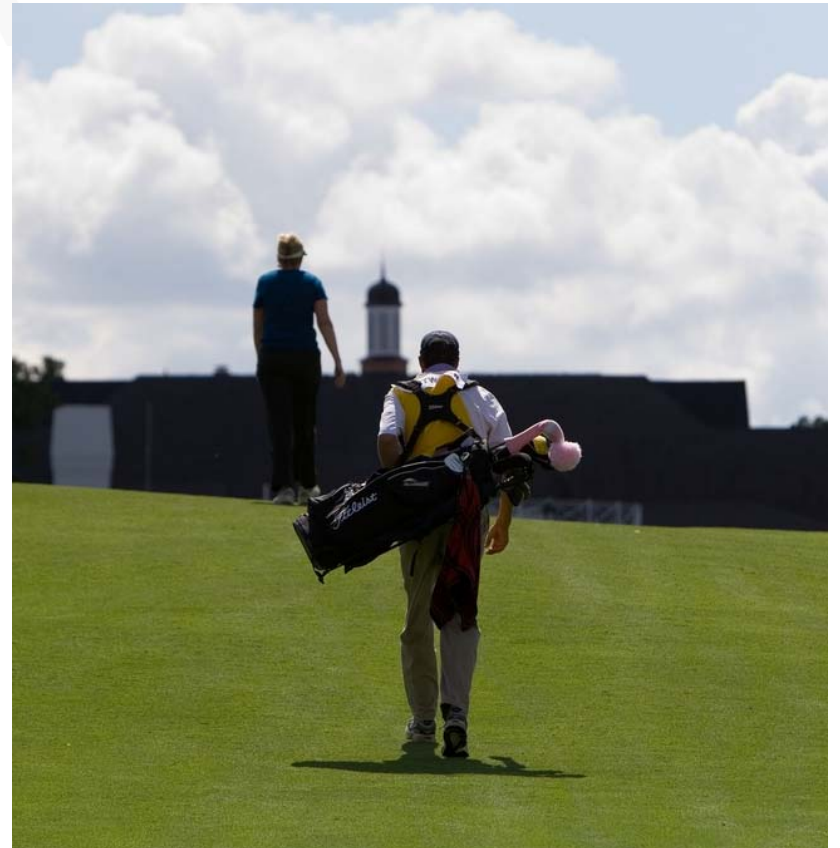
Maintenance Up the Middle: How Resource Conservation and Improving Pace of Play Work Together

Chris Hartwiger
Director, Course Consulting Service

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What is Maintenance Up the Middle?

- A strategy to reduce inputs and make the game economically more viable.
- All this is done without changing the enjoyment, the pace of play, and the traditions of the game.



What is Maintenance Up the Middle?

- The maintenance focus is on tees, greens, and fairways. The industry does a fantastic job on these areas now.
- By definition, the focus must shift away from large areas such as the rough.

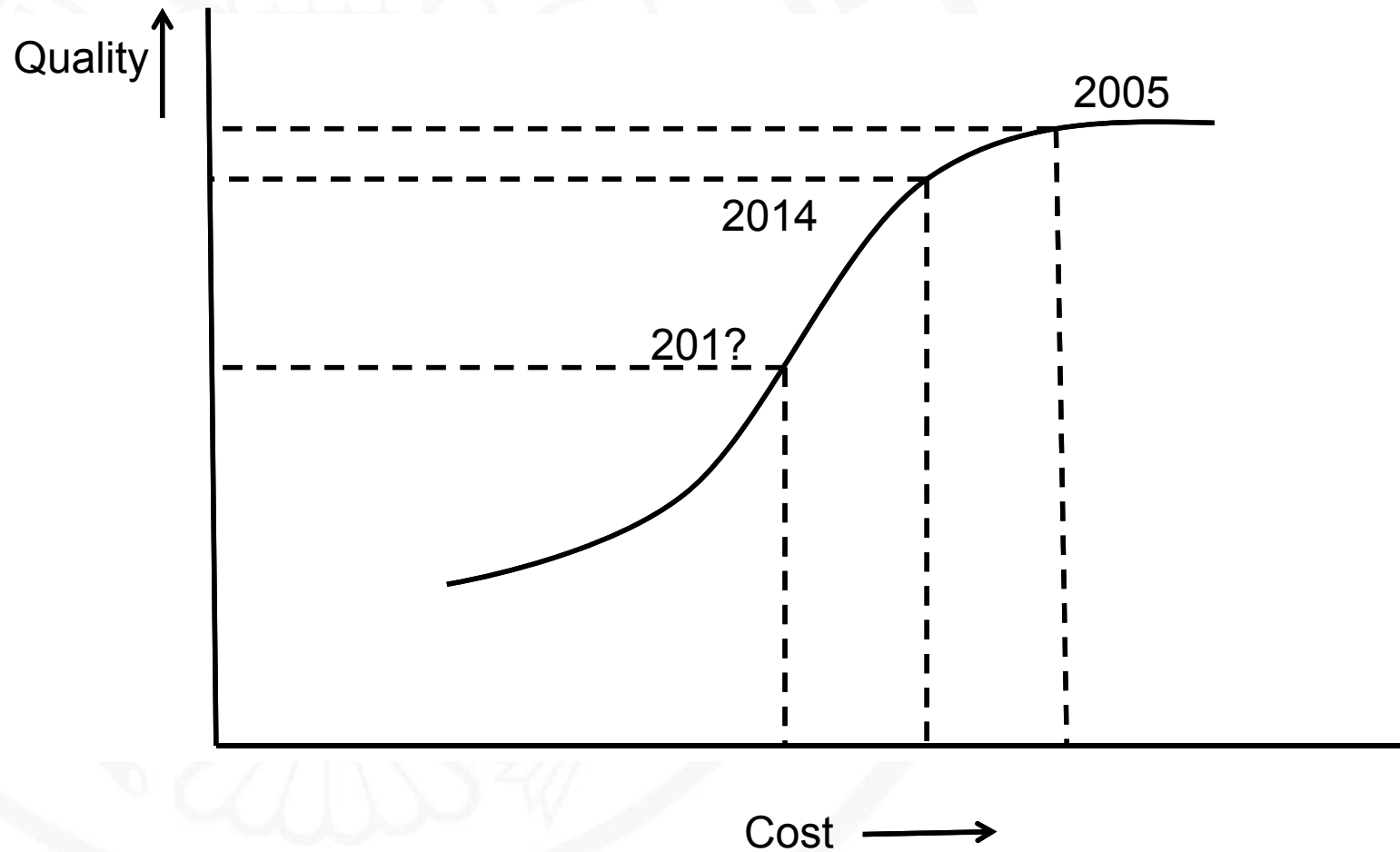
What can Maintenance Up The Middle do for a golf course?

- Reduce water use
- Reduce inputs
- Prove to be economically advantageous for golf course operators
- Ensure that golfers for generations to come will continue to enjoy the great game of golf.
- Work in harmony with solutions to improve pace of play.
- It is sustainability in practice.

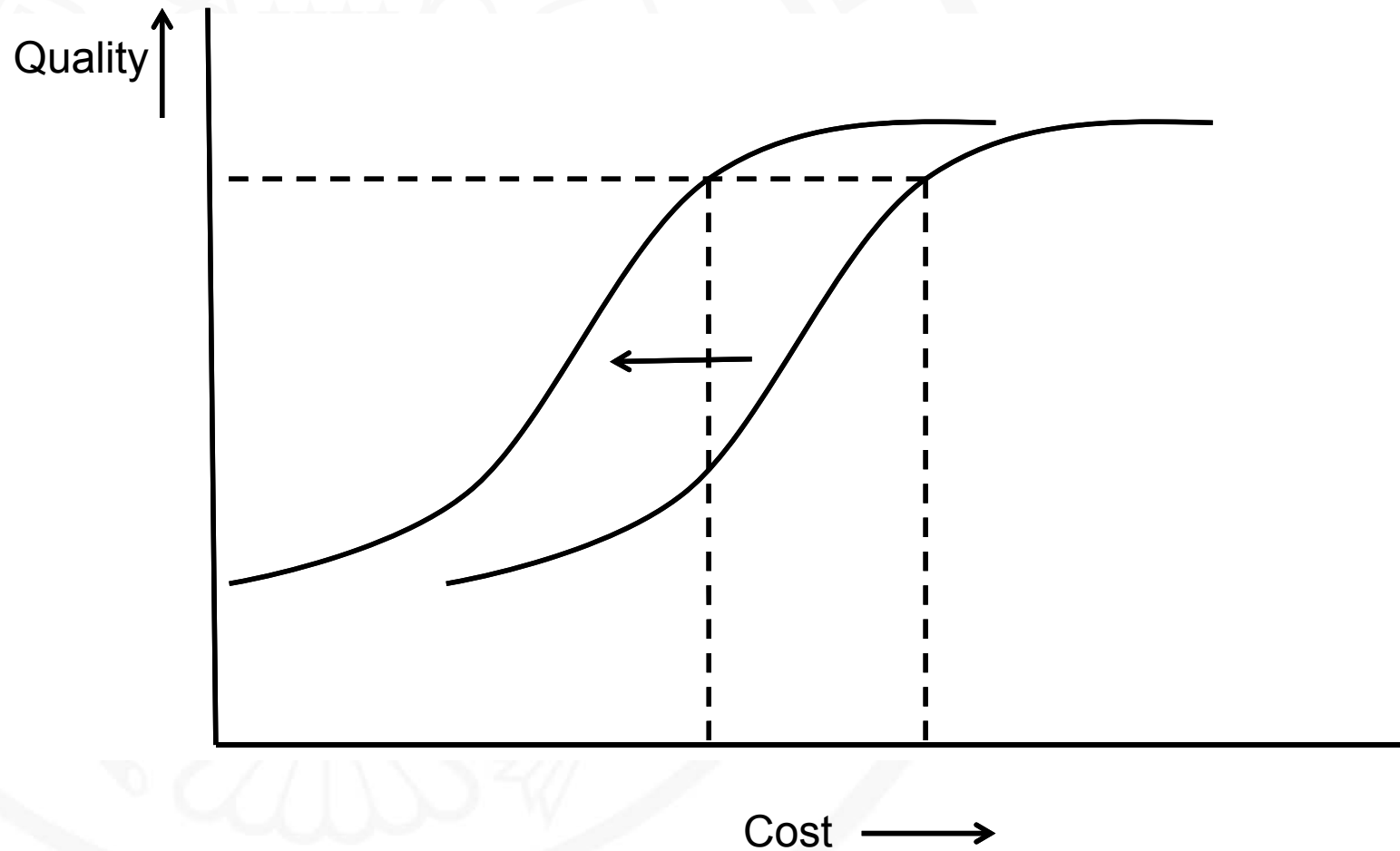
Why Maintenance Up the Middle Should be Considered?

- The model for golf maintenance must change.

Current Maintenance Model: *Cost vs. Quality*



Maintenance Up the Middle Model: *Cost vs. Quality*



What does Maintenance Up The Middle look like?

Disclaimer: Maintenance Up The Middle is not a one size fits all model. Golf maintenance is local and site specific.

Common Problem: Too Much Rough Around Tee Complexes



What Maintenance Up the Middle Might Look Like in the Southeast – Traditional Bermuda grass Model

- Irrigated
- Fertilized
- Weed Control
- Insect Control
- Weekly mowing
- Good wear tolerance
- Excellent appearance



Desired Playing Quality



Playing Quality – Interrupted by Rain

Topped Tee Shot = Lost Ball = Slow Play



STATES GOLF ASSOCIATION



The Turf at Veteran's Park: Better Than Bermudagrass?



Low Inputs

Multi-Use Facility



- No irrigation
- No signs of fertility
- No herbicides
- No traffic control
- Monthly mowing

- Cross Country
- Weekend Festivals
- Flag Football
- Overflow Parking
- Other Park Activities

Good for Golf Rough Around Tee Complexes? Would it be accepted by golfers?

- Excellent wear tolerance
- Low growing
- Not “perfectly consistent”
- Unpredictable lie, but no problem finding ball
- Minimal inputs
- Weeds don’t overtake stand



How can the USGA's Course Consulting Service deliver assistance?

- On-course consulting since 1953.
- 15 agronomists located throughout four regions.
- Expertise with all golf course turf in all climatic zones.
- Our agronomists take the most current research and science based, practical solutions and deliver them to local golf courses.
- Establish relationships that facilitate progress over time.

How the USGA's Course Consulting Service can Deliver Assistance

- New consulting visit in 2014 – Playing Quality Evaluation
 - Assesses playing quality of all key playing surfaces
 - Evaluates how golf course maintenance affects pace of play and offers solutions.

GPS in Golf

Peter J. Rouillard

Senior Vice President- Golf Operations

SunBelt Golf Corporation

PRESENTED BY THE **USGA** 

STATES GOLF ASSO



First Tee Signage



Play Fast

Play Fast Anagram sticker that that will appear on each cart's windshield:


- **P**lay ready golf from the 1st tee.
- **L**ook and read your putts while others are putting.
- **A**rrive to the 1st tee 10 minutes early to ensure you start on time.
- **Y**ou should always be aware of your pace.

- **F**orget the lost ball and drop a new one. Keep moving!
- **A**lways have an extra ball in your pocket.
- **S**tay ½ hole behind the group in front of you at all times.
- **T**ee it Forward from the 1st tee. Score like a Tour Player!

On course marshals are your partners to help PLAY FAST! Please do not hesitate to call on one of them during your round if they can assist you or your playing companions
Enjoy your day on the course!

Hole Location Sheet



















ALABAMA'S
**ROBERT TRENT JONES
GOLF TRAIL**



GRAND NATIONAL
AUBURN/OPELIKA, ALABAMA

Lake

Images provided by courtesy of
HOLEVIEW
1-800-426-2862 www.holeview.com

 Depth: 41 Yards	 Depth: 26 Yards	 Depth: 38 Yards	 Depth: 30 Yards	 Depth: 38 Yards	 Depth: 35 Yards
 Depth: 40 Yards	 Depth: 40 Yards	 Depth: 51 Yards	 Depth: 40 Yards	 Depth: 24 Yards	 Depth: 29 Yards
 Depth: 38 Yards	 Depth: 38 Yards	 Depth: 36 Yards	 Depth: 33 Yards	 Depth: 27 Yards	 Depth: 31 Yards

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Starter- Pace of Play Reference

HOLE	1	2	3	4	5	6	7	8	9	OUT	P L A Y E R	10	11	12	13	14	15	16	17	18	IN	TOT	HCP	NET
PURPLE	449	528	539	389	179	447	379	176	421	3507		414	446	483	189	389	390	205	440	592	3548	7055		
ORANGE	404	513	520	383	146	405	346	159	384	3259		379	393	465	162	348	366	172	411	572	3268	6527		
WHITE	364	500	506	356	123	389	317	129	363	3047		361	373	440	137	333	353	165	396	543	3101	6148		
MEN'S HCP	8	4	2	12	16	6	14	18	10			9	7	3	17	13	11	15	5	1				
PAR	4	5	5	4	3	4	4	3	4	36		4	4	5	3	4	4	3	4	5	36	72		
<i>Ridge</i>																								
TEAL	297	458	451	286	85	291	232	77	227	2404		279	305	410	92	251	321	145	304	463	2570	4974		
L. HCP	8	4	2	12	16	6	14	18	10			9	7	3	17	13	11	15	5	1				
PACE OF PLAY (hr:mins)	:14	:34	:54	1:08	1:17	1:31	1:45	1:54	2:08			:14	:28	:48	:57	1:11	1:25	1:34	1:48	2:08				
Date:	7:40		Scorer:	8:48		Attested:																		

Marshal Pace of Play Reference

Tee Time	Cart Number	Projected times through each hole										
		3	4	5	6	7	8	9	10	11	12	13
6:30 AM		7:07 AM	7:27 AM	7:41 AM	7:55 AM	8:15 AM	8:24 AM	8:38 AM	8:54 AM	9:08 AM	9:28 AM	9:42 AM
6:40 AM		7:17 AM	7:37 AM	7:51 AM	8:05 AM	8:25 AM	8:34 AM	8:48 AM	9:04 AM	9:18 AM	9:38 AM	9:52 AM
6:50 AM		7:27 AM	7:47 AM	8:01 AM	8:15 AM	8:35 AM	8:44 AM	8:58 AM	9:14 AM	9:28 AM	9:48 AM	10:02 AM
7:00 AM		7:37 AM	7:57 AM	8:11 AM	8:25 AM	8:45 AM	8:54 AM	9:08 AM	9:24 AM	9:38 AM	9:58 AM	10:12 AM
7:10 AM		7:47 AM	8:07 AM	8:21 AM	8:35 AM	8:55 AM	9:04 AM	9:18 AM	9:34 AM	9:48 AM	10:08 AM	10:22 AM
7:20 AM		7:57 AM	8:17 AM	8:31 AM	8:45 AM	9:05 AM	9:14 AM	9:28 AM	9:44 AM	9:58 AM	10:18 AM	10:32 AM
7:30 AM		8:07 AM	8:27 AM	8:41 AM	8:55 AM	9:15 AM	9:24 AM	9:38 AM	9:54 AM	10:08 AM	10:28 AM	10:42 AM
7:40 AM		8:17 AM	8:37 AM	8:51 AM	9:05 AM	9:25 AM	9:34 AM	9:48 AM	10:04 AM	10:18 AM	10:38 AM	10:52 AM
7:50 AM		8:27 AM	8:47 AM	9:01 AM	9:15 AM	9:35 AM	9:44 AM	9:58 AM	10:14 AM	10:28 AM	10:48 AM	11:02 AM
8:00 AM		8:37 AM	8:57 AM	9:11 AM	9:25 AM	9:45 AM	9:54 AM	10:08 AM	10:24 AM	10:38 AM	10:58 AM	11:12 AM
8:10 AM		8:47 AM	9:07 AM	9:21 AM	9:35 AM	9:55 AM	10:04 AM	10:18 AM	10:34 AM	10:48 AM	11:08 AM	11:22 AM
8:20 AM		8:57 AM	9:17 AM	9:31 AM	9:45 AM	10:05 AM	10:14 AM	10:28 AM	10:44 AM	10:58 AM	11:18 AM	11:32 AM
8:30 AM		9:07 AM	9:27 AM	9:41 AM	9:55 AM	10:15 AM	10:24 AM	10:38 AM	10:54 AM	11:08 AM	11:28 AM	11:42 AM
8:40 AM		9:17 AM	9:37 AM	9:51 AM	10:05 AM	10:25 AM	10:34 AM	10:48 AM	11:04 AM	11:18 AM	11:38 AM	11:52 AM
8:50 AM		9:27 AM	9:47 AM	10:01 AM	10:15 AM	10:35 AM	10:44 AM	10:58 AM	11:14 AM	11:28 AM	11:48 AM	12:02 PM

Marshal- Pace Improvement

- Golf cart pace of play etiquette:
two players in cart
- Play “Ready Golf”
- Continuous Putting
- Tee it Forward
- Fore Caddy for Group(s)
- Request group skip a hole
- Allow group to play through

Par 5 Hole Set-up



Par 4 Hole Set-up



Par 3 Hole Set-up



GPS Pace of Play Reporting

Oxmoor Valley

Pace By Hole Monthly Report

Report Date: 10/01/2007 to 10/31/2007

Date	Hole 1 Avg	Hole 2 Avg	Hole 3 Avg	Hole 4 Avg	Hole 5 Avg	Hole 6 Avg	Hole 7 Avg	Hole 8 Avg	Hole 9 Avg	Turn Avg	Hole 10 Avg	Hole 11 Avg	Hole 12 Avg	Hole 13 Avg	Hole 14 Avg	Hole 15 Avg	Hole 16 Avg	Hole 17 Avg	Hole 18 Avg	Total Avg
Ridge																				
10/01/2007	0:17	0:23	0:18	0:15	0:11	0:18	0:14	0:11	0:16	0:30	0:13	0:15	0:17	0:10	0:15	0:16	0:14	0:11	0:26	4:41
10/02/2007	0:16	0:21	0:16	0:14	0:09	0:18	0:13	0:10	0:14	0:23	0:14	0:14	0:14	0:14	0:14	0:16	0:12	0:09	0:23	4:07
10/03/2007	0:16	0:22	0:18	0:14	0:10	0:18	0:14	0:12	0:16	0:22	0:13	0:16	0:16	0:12	0:15	0:16	0:11	0:09	0:25	4:31
10/04/2007	0:15	0:21	0:18	0:15	0:09	0:17	0:14	0:11	0:17	0:37	0:16	0:16	0:16	0:11	0:13	0:17	0:12	0:10	0:22	4:15
10/05/2007	0:15	0:24	0:20	0:15	0:10	0:19	0:14	0:13	0:16	0:22	0:14	0:15	0:16	0:14	0:16	0:16	0:13	0:11	0:24	4:34
10/06/2007	0:14	0:23	0:18	0:15	0:10	0:18	0:14	0:10	0:16	0:20	0:15	0:16	0:17	0:12	0:15	0:19	0:13	0:11	0:25	4:34
10/07/2007	0:16	0:21	0:18	0:15	0:09	0:18	0:14	0:12	0:15	0:23	0:14	0:15	0:16	0:11	0:14	0:16	0:13	0:10	0:25	4:27
10/08/2007	0:16	0:22	0:18	0:14	0:09	0:18	0:13	0:11	0:15	0:25	0:14	0:15	0:13	0:12	0:15	0:15	0:12	0:10	0:23	4:16
10/09/2007	0:17	0:23	0:20	0:16	0:09	0:19	0:14	0:10	0:17	0:15	0:14	0:15	0:17	0:11	0:16	0:18	0:12	0:12	0:29	4:51
10/10/2007	0:17	0:21	0:19	0:15	0:10	0:18	0:15	0:12	0:15	0:15	0:14	0:15	0:16	0:12	0:14	0:16	0:13	0:11	0:27	4:42
10/11/2007	0:14	0:24	0:19	0:16	0:09	0:21	0:14	0:13	0:16	0:07	0:15	0:18	0:17	0:13	0:16	0:17	0:12	0:12	0:26	4:57
10/12/2007	0:16	0:23	0:20	0:16	0:09	0:20	0:15	0:12	0:21	0:22	0:16	0:16	0:18	0:11	0:16	0:20	0:12	0:10	0:26	4:47
10/13/2007	0:16	0:21	0:19	0:15	0:09	0:18	0:15	0:12	0:16	0:21	0:15	0:15	0:17	0:11	0:14	0:16	0:12	0:10	0:25	4:33
10/14/2007	0:16	0:23	0:19	0:15	0:10	0:19	0:14	0:12	0:15	0:24	0:16	0:16	0:17	0:14	0:15	0:19	0:12	0:10	0:25	4:36
10/15/2007	0:14	0:23	0:17	0:14	0:09	0:18	0:14	0:12	0:16	0:16	0:14	0:15	0:14	0:12	0:15	0:18	0:10	0:09	0:24	4:23
10/16/2007	0:15	0:21	0:18	0:15	0:08	0:17	0:13	0:11	0:15	0:22	0:15	0:16	0:16	0:10	0:14	0:16	0:11	0:11	0:25	3:48
10/17/2007	0:15	0:22	0:18	0:15	0:10	0:18	0:13	0:12	0:16	0:23	0:15	0:15	0:16	0:12	0:14	0:16	0:11	0:09	0:24	4:26
10/18/2007	0:16	0:20	0:17	0:14	0:10	0:17	0:13	0:11	0:16	0:10	0:13	0:16	0:14	0:11	0:14	0:17	0:12	0:09	0:26	4:23
10/19/2007	0:17	0:22	0:19	0:16	0:10	0:18	0:15	0:12	0:16	0:24	0:15	0:15	0:17	0:12	0:14	0:19	0:16	0:11	0:27	4:24
10/20/2007	0:16	0:26	0:19	0:16	0:10	0:20	0:15	0:13	0:17	0:22	0:16	0:17	0:16	0:13	0:14	0:19	0:13	0:10	0:25	4:47
10/21/2007	0:16	0:22	0:17	0:15	0:09	0:18	0:14	0:10	0:15	0:24	0:15	0:15	0:17	0:10	0:14	0:17	0:12	0:10	0:23	4:19
10/22/2007	0:15	0:23	0:18	0:15	0:09	0:19	0:15	0:14	0:16	0:12	0:15	0:16	0:18	0:10	0:16	0:18	0:13	0:10	0:26	4:45
10/23/2007	0:15	0:22	0:19	0:16	0:08	0:17	0:14	0:11	0:16	0:25	0:15	0:14	0:14	0:11	0:15	0:17	0:11	0:10	0:23	3:40
10/24/2007	0:16	0:23	0:19	0:16	0:10	0:17	0:15	0:10	0:15	0:35	0:14	0:17	0:13	0:12	0:17	0:16	0:10	0:08	0:25	3:42
10/25/2007	0:15	0:23	0:19	0:17	0:10	0:19	0:15	0:11	0:17	0:17	0:16	0:16	0:16	0:12	0:18	0:16	0:13	0:09	0:27	4:34
10/26/2007	0:15	0:25	0:20	0:16	0:10	0:20	0:15	0:13	0:16	0:24	0:15	0:15	0:14	0:12	0:16	0:18	0:10	0:10	0:24	4:27
10/27/2007	0:14	0:25	0:18	0:16	0:10	0:18	0:14	0:11	0:17	0:34	0:15	0:16	0:16	0:11	0:15	0:17	0:12	0:10	0:24	4:29
10/28/2007	0:16	0:23	0:19	0:17	0:09	0:20	0:15	0:12	0:16	0:22	0:15	0:15	0:17	0:11	0:16	0:17	0:13	0:13	0:24	4:25
10/29/2007	0:14	0:24	0:18	0:15	0:09	0:19	0:14	0:11	0:14	0:08	0:14	0:14	0:15	0:12	0:13	0:17	0:11	0:10	0:23	4:26

11/5/2007 8:08:40AM

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GPS Monthly Summary by Hole

Pace By Hole Monthly Report

Report Date: 10/01/2007 to 10/31/2007

Date	Hole 1 Avg	Hole 2 Avg	Hole 3 Avg	Hole 4 Avg	Hole 5 Avg	Hole 6 Avg	Hole 7 Avg	Hole 8 Avg	Hole 9 Avg	Turn Avg	Hole 10 Avg	Hole 11 Avg	Hole 12 Avg	Hole 13 Avg	Hole 14 Avg	Hole 15 Avg	Hole 16 Avg	Hole 17 Avg	Hole 18 Avg	Total Avg
10/24/2007	0:21	0:10	0:15	0:10	0:14	0:15	0:19	0:14	0:17	0:00	0:16	0:12	0:22	0:10	0:13	0:14	0:16	0:14	0:18	4:17
10/25/2007	0:20	0:10	0:15	0:10	0:18	0:13	0:16	0:13	0:18	0:33	0:15	0:12	0:19	0:10	0:11	0:15	0:14	0:13	0:22	4:18
10/26/2007	0:19	0:16	0:18	0:12	0:16	0:13	0:19	0:15	0:19	0:37	0:15	0:12	0:21	0:11	0:13	0:14	0:16	0:14	0:29	4:18
10/27/2007	0:20	0:14	0:17	0:11	0:15	0:15	0:20	0:17	0:19	0:00	0:16	0:13	0:22	0:11	0:12	0:15	0:17	0:14	0:23	4:42
10/28/2007	0:21	0:15	0:17	0:11	0:15	0:14	0:19	0:14	0:19	0:00	0:15	0:13	0:21	0:11	0:12	0:15	0:17	0:14	0:18	4:34
10/29/2007	0:21	0:12	0:18	0:11	0:17	0:15	0:17	0:15	0:20	0:42	0:18	0:13	0:23	0:14	0:17	0:19	0:25	0:13	0:18	4:48
10/30/2007	0:18	0:10	0:17	0:10	0:13	0:13	0:17	0:16	0:18	0:29	0:14	0:13	0:21	0:11	0:15	0:15	0:15	0:15	0:22	4:29
10/31/2007	0:18	0:09	0:16	0:09	0:13	0:10	0:15	0:13	0:15	0:00	0:14	0:11	0:17	0:09	0:10	0:12	0:15	0:12	0:14	3:53
Valley Summary																				
	0:20	0:11	0:18	0:11	0:15	0:14	0:18	0:16	0:19	0:27	0:15	0:13	0:20	0:12	0:13	0:15	0:16	0:14	0:21	4:32
Oxmoor Valley Summary																				
	0:17	0:18	0:18	0:13	0:12	0:16	0:16	0:13	0:17	0:22	0:15	0:14	0:17	0:12	0:14	0:16	0:14	0:12	0:23	4:24

Tee Time Intervals

- 8 minute verse 8 & 7 minute interval rotation
- Starter Time Impact
- 10 minute solution
- Cart Path Only Impact

- Golfer specific data
- Refinement of course set-up
- Course playability factors
 - Hazards
 - Bunkers
 - Terrain & other nature based influences
- Tournament format impact on pace of play
- Validation of multi-player golf cart use relative to pace of play