Case Study

The Reenergizing of Poppy Hills

How a Water Reduction Initiative has increased Speed of Play

Bruce Charlton
President/Chief Design Officer
Robert Trent Jones II, LLC
Pace of Play has become a household term in golf. What was once regarded as “something only the group ahead could solve” is now being tackled by all of golf’s major organizations.

The members of the American Society of Golf Course Architects (ASGCA) are uniquely qualified to assist course owners and operators in improving pace of play at their facilities. Getting players to move faster — and smoother — involves five basic ingredients:

1. Course design — The key variable that sets it all in motion.
2. How the course is being managed (e.g., the starting time interval, sequencing at the first tee, assisting players, etc.)
3. Course set-up (e.g., tee flexibility, hole lengths, hole placements, etc.)
4. Maintenance and Tee Conditions (green speeds, rough heights, tee areas, visibility, etc.)
5. Player abilities, and the varying types of players on a course at any given time.

The goal is to create an even flow of golfers as they play the game, minimizing wait times and creating a more enjoyable experience. Your Golf Course Architect also has the goal of preserving the spirit of the game — to make sure that your course offers the fun and challenging aspects that lure people to play time and time again.

For more information visit: www.asgca.org
Poppy Hills- Renovation Summary

Three Important Pieces:

1. Water Conservation
2. Golfer Experience
3. Pace of Play Considerations
Poppy Hills - The Setting
Poppy Hills

Elimination of mounds, and cleaning the forest floor

Before

After
Reduction of Turf that’s out of play

Before

After

Presented by the USGA
Poppy Hills

Seamless Transitions

Before

After

PRESENTED BY THE USGA
## WATER CONSERVATION

### 1. Poppy Hills - Water Conservation

**Case Study: Renovation Of Poppy Hills Golf Course**

<table>
<thead>
<tr>
<th><strong>BY THE NUMBERS</strong></th>
<th><strong>12</strong></th>
<th>Acres of added natural areas</th>
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<tr>
<td></td>
<td><strong>20</strong></td>
<td>Acres of irrigated turf reduction</td>
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<tr>
<td></td>
<td><strong>50</strong></td>
<td>Approximate acres of playable fairway</td>
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<tr>
<td></td>
<td><strong>150%</strong></td>
<td>Increase of fairway landing areas</td>
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<td></td>
<td><strong>1,800</strong></td>
<td>Individually controlled sprinklers</td>
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<td><strong>45,000</strong></td>
<td>Square feet of new practice tees</td>
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<td></td>
<td><strong>75,000</strong></td>
<td>Linear feet of underground drainage</td>
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<td></td>
<td><strong>150,000</strong></td>
<td>Square feet of newly designed greens</td>
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<tr>
<td></td>
<td><strong>170,000</strong></td>
<td>Total Square feet of meandering tee surfaces</td>
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1. Poppy Hills - Water Conservation

- Installation of “State of the Art” / Water Efficient Irrigation System

- Implementation of an expanded water conservation and management program

- During irrigation replacement also establish 15.5 acres of non-irrigated areas

- Develop sand cap program for improved drainage and to promote firm and fast playing conditions

- Introduce naturalized features

- Establish low maintenance areas that will also come into play strategically
1. Poppy Hills- Water Conservation

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Acres</th>
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<tr>
<td>'As built' Irrigated Turf</td>
<td>62.3</td>
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<tr>
<td>Previous Irrigated Turf</td>
<td>85.0</td>
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<tr>
<td>Naturalized Non-Irrigated Area</td>
<td>15.0</td>
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<tr>
<td>Non-Irrigated &quot;Natural Sand Areas&quot;</td>
<td>5.26</td>
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<td>Non-Irrigated Golf Bunker Area</td>
<td>3.14</td>
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<tr>
<td>New Forested Areas</td>
<td>4.0</td>
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</table>
1. Poppy Hills - Water Conservation

REDUCING IRRIGATED TURF

SAND CAPPING
1. Poppy Hills- Water Conservation

Careful selection of new grasses

New Technologies to reduce bunker maintenance
1. Poppy Hills - Water Conservation

Before

After

Achieving More with Less

Presented by the USGA
2. Poppy Hills - Player Experience

Firm, Fast, Fun

- Reduced severity of doglegs
- Reduced square footage of bunkers
- Introduced Sandy playable areas
- Flexible Teeing Grounds
- Elimination of perched tees
- Increased vision through the forest
2. Poppy Hills- Player Experience
Firm, Fast, Fun
2. Poppy Hills- Player Experience

Firm, Fast, Fun
2. Poppy Hills - Player Experience

Firm, Fast, Fun

Poppy Hills Golf Course
3. Pace of Play Considerations
3. Pace of play Considerations

- Routing
- Flow of play
- Reduce severity of green contours
- Increasing Vision
- Elimination of Rough
- Cleaning forest floor
- Increasing fairway width
- Creating more opportunities for recovery
- Reducing water hazards
3. Pace of Play Considerations

**Initial Golf Course Analysis**

<table>
<thead>
<tr>
<th>Hole Number</th>
<th>Direction of Play</th>
<th>Score</th>
<th>Front Nine Total</th>
<th>Back Nine Total</th>
<th>Totals</th>
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<tr>
<td>Hole 1</td>
<td></td>
<td></td>
<td></td>
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<td>Hole 5</td>
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<td>Hole 8</td>
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<td>Hole 9</td>
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</table>

*Note: Wind direction is based off of prevailing onshore pattern.*
### 3. Pace of Play Considerations

#### Initial Golf Course Analysis

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<thead>
<tr>
<th>Hole Number</th>
<th>Hazard Angle at Green on Approach</th>
<th>Wind</th>
<th>Hole Number</th>
<th>Green Orientation for Approach (optimum angle for approach)</th>
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<td>Hazard Right</td>
<td>Hazard Left</td>
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<td>Hole 2</td>
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<td>Hole 3</td>
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<td>Hole 6</td>
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<tr>
<td>Hole 7</td>
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</tr>
<tr>
<td>Hole 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hole 9</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Front Nine</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>2</td>
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</table>

Hole 10 - Hole 18 follow the same pattern as above.
A New Golf Experience
Case Study:

Independence Golf Club

Lester George, Golf Course Architect, A.S.G.C.A.
Pace of Play Symposium
Case Study: Independence Golf Club

Aerial Photo Before Renovation
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Preliminary Master Plan
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Corporate & Commercial Expansion Plan
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Corporate & Commercial Expansion Plan (Rear)
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Every discussion with the owner and every decision was made with the following three objectives in mind:

- Pace of Play
- Playability (Enjoyment)
- Sustainability (Maintenance)
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Case Study: Independence Golf Club

Pace of Play

CHECKLIST & TIPS
for working with your COURSE ARCHITECT

A. Initial Steps to Stating Up the Issues of Pace-of-Play
- What type of course do you operate?
- What type of golfers (HCps) do you cater to?
- What is your current USGA Pace Rating?
- Can/Walking policies
- What are your current round times?
- Are round times consistent—or varied?
- What is your idea of an ideal round time?

B. Understanding Site Constraints
- How well known is your routing and course footprint?
- Is there any room for change and adjustment?
- Quantity the grade and site constraints
- Quantity soil types, vegetation and firmness

C. The Design Intent of the Course
- History and legacy
- Identify the essential design characteristics
- How does the design dictate setup?
- How does the design dictate maintenance?
- Does the design limit flexibility (tees, lengths)?
- What changes to the design intent would be possible and beneficial?
- What type of golfers (HCps) do you cater to?

D. Routing & Sequence
- Does the current routing pose any routing obstacles?
- Where are the issues?
- Does the par order and lengths of holes work for (or against) good pace?
- Are their solutions that may not involve physical change (easy fixes)
- What are some ideas that may be "thinking out of the box"?

E. Course Set-up, Length & Flexibility
- Is tee flexibility ample?
- Is there a tee use policy and a way to enforce it?
- Are there solutions to set-up where wait times can be reduced or eliminated?

F. Course Conditions
- Greens speed
- Rough height
- Tall grasses, and their proximity to freeways play
- Fairway widths
- Hazard difficulty
- Forced carries
- Tree overgrowth (blind areas, visibility)
- Hole locations
- Fairways, roll, etc

G. Follow-up
- Master planning relative to Pace-of-Play solutions
- Turf area evaluation
- Tee addition planning

*For information on the USGA Pace Rating System go to
www.usga.org/paceofplay

For more information visit: www.asgca.org

Checklist

Presented by the USGA

George Gurtz Design, Inc.

independence
Pace of Play Symposium
Case Study: Independence Golf Club

Analysis of Playability
Pace of Play Symposium
Case Study: Independence Golf Club

Analysis of Playability
## Pace of Play Symposium
### Case Study: Independence Golf Club

### Analysis of Playability Bunkers

<table>
<thead>
<tr>
<th>HOLE #</th>
<th>EXISTING BUNKERS (S.F.)</th>
<th>REBUILT IN PLACE (S.F.)</th>
<th>NEW BUNKERS (S.F.)</th>
<th>REMOVED BUNKERS (S.F.)</th>
<th>PROPOSED BUNKERS (S.F.)</th>
<th>DIFFERENCE (S.F.)</th>
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**RANGE**

- EXISTING BUNKERS: 10,243 S.F.
- PROPOSED BUNKERS: 4,392 S.F.
- NEW BUNKERS: 2,014 S.F.
- REMOVED BUNKERS: 15,841 S.F.
- DIFFERENCE: 6,258 S.F.
### Pace of Play Symposium
Case Study: Independence Golf Club

#### Analysis of Playability
Fairways

<table>
<thead>
<tr>
<th>HOLE #</th>
<th>EXISTING FAIRWAY (S.F.)</th>
<th>PROPOSED FAIRWAY (S.F.)</th>
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</table>
Pace of Play Symposium
Case Study: Independence Golf Club

Range
(Maintenance)
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 1 – Par 4
460 / 425 / 390 / 335 / 325
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 1 – Par 4
460 / 425 / 390 / 335 / 325
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 2 – Par 4
450 / 415 / 400 / 340 / 315
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 3 – Par 4
415 / 385 / 370 / 285 / 285
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 3 – Par 4
415 / 385 / 370 / 285 / 285
Hole # 3 – Par 4
Approach
Case Study: Independence Golf Club

Hole # 6 – Par 4
400 / 365 / 355 / 325 / 290
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 7 – Par 3
220 / 195 / 170 / 145 / 140
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 7 – Par 3
220 / 195 / 170 / 145 / 140
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 11 – Par 3
215 / 210 / 160 / 140 / 110 / 85
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 13 – Par 5
520 / 485 / 470 / 440 / 410
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 13 – Par 5
520 / 485 / 470 / 440 / 410
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 14 – Par 3
205 / 180 / 145 / 135 / 115
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 14 – Par 3
205 / 180 / 145 / 135 / 115
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 17 – Par 5
595 / 560 / 500 / 450 / 425
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 17 – Par 5
Saving Bunker
Pace of Play Symposium
Case Study: Independence Golf Club

Hole # 17 – Par 5
595 / 560 / 500 / 450 / 425
Pace of Play Symposium
Case Study: Independence Golf Club

Primary Rough
Pace of Play Symposium
Case Study: Independence Golf Club

Secondary Rough
Pace of Play Symposium
Case Study: Independence Golf Club

- Removed 500 trees, bushes, shrubs, and 55,000 sq. ft. of bunkers.
- Added protective and saving bunkers.
- Re-routed cart, walking paths, and traffic patterns.
- This combination of changes has resulted in an average round of 4 hour and 5 minutes, yielding an average reduction of 45 minutes per round!!
Pace of Play Symposium
Case Study: Independence Golf Club

- Increase in pace of play allows 10 more prime-time groups at an average revenue of $300 per foursome, yielding a revenue increase of $3,000 per day.

- 10 fewer golf carts needed due to faster pace, at a cost of $75 per cart for a savings of $750/month.

- Able to reallocate 20% of 26,400 annual maintenance man hours, resulting in $52,800 of savings annually.

- Able to compete with private clubs for high-end corporate outings.

Impact on Revenue
Reduced bunker severity.
Continues to challenge the better player.
Able to provide higher handicap player with a fun experience.
Increasing fairway area/reducing rough area provides a direct benefit to playability.
Lowering rough height and new mowing patterns (green surrounds) increases pace of play.
Pace of Play Symposium
Case Study: Independence Golf Club

- Conversion to Champion Bermuda greens (USGA Consult)
- Conversion to Better Billy Bunkers
- Conversion to 419 Bermuda Grass fairways (USGA Consult)
- Added two wells for self-contained irrigation
- Converted 7 acres of rough to mulch

Impact on Sustainability
Pace of Play Symposium
Case Study: Independence Golf Club

Lester George, A.S.G.C.A.