



Waste Management Phoenix Open 2016 Sustainability Report Update





2016 Waste Management Phoenix Open – The Greenest Show on Grass



ZERO WASTE CHALLENGE

Waste Management established policies to control materials brought to the WMPO and educated vendors and patrons about material disposal so zero waste was sent to landfill.

TRANSPARENT REPORTING

- “Zero Waste to Landfill Operations with 10% incineration with energy recovery” validation from UL
- Evergreen Certification from the Council for Responsible Sport
- ISO 20121 Sustainable Event Management



“GREENEST SHOW ON GRASS”

WM strives to minimize waste generation, energy usage, and water consumption.



WASTE DIVERSION

- 100% materials diverted from landfill: 46% Recycled; 38% Composted; 10% Waste-to-Energy; 6% Donation



WATER CONSERVATION

- Restored 63M+ gallons to the Colorado River Basin and Verde River through Change the Course
- Engaged fans about reducing their embedded water footprint with Bonneville Environmental Foundation
- Reused 5,500 gallons of graywater from cooking and cleaning in portable toilets to save water



REUSE & DONATIONS

- Reused dumpsters repurposed as three Zero Waste Station
- Donated 18,300 pounds of unused food to local non-profits
- Donated almost 42,000 pounds of mesh fencing, carpet, and turf to Hoofbeats with Heart, Keep Phoenix Beautiful, and Peoria High School
- Reused 41,312 square feet of signage from 2015 and earlier; over 87% stored for potential reuse in 2017
- Reused 140,000 golf balls and 750,000 recycled-content golf tees in WM’s two water features



RENEWABLE ENERGY AND GHG OFFSETS

- Offset 300 metric tons of CO₂ equivalent with Wildlife Works, exceeding emissions from all event operations and player travel
- 100% of electricity provided by renewable energy
- Powered WM’s hospitality tent at the 17th Hole with solar energy
- Only utilized biodiesel generators for WMPO operations

COMMUNITY IMPACT

The WMPO impacts the surrounding community through charitable giving, community stakeholder engagement, and student involvement.

The 2016 WMPO generated over
\$9.3 Million
in charitable donations

Giving Back

- Donated to Keep America Beautiful and Keep Scottsdale Beautiful for providing Zero Waste Station volunteers
- Provided free tournament access to law enforcement, emergency services, and military personnel
- Welcomed over 3,200+ military personnel with their guests to the Patriot’s Outpost on the 18th Hole



Community Engagement Programs & Events

- Standard Bearer Program and First Tee’s Dream Day engaged youth
- CBS Outdoor Special Olympics Open
- WMPO Executive Sustainability Forum
- PGA TOUR Sustainability Challenge

Social Engagement

- Fans shared their passion for golf, the WMPO, and green practices using #greenestshow
- GREEN OUT Day raised \$100K for local charities thanks to fans and players sporting green

Introduction

The Waste Management Phoenix Open (WMPO) –the best-attended golf tournament in the world– takes place each year in Scottsdale, Arizona. This city welcomes more than half a million fans annually to the Valley of the Sun for the “Greatest Show on Grass.” Every choice we make during the months of planning for the WMPO affects our claim to the title of “The Greenest Show on Grass.” The Thunderbirds, Waste Management, the PGA TOUR, TPC Scottsdale and all of the tournament stakeholders will continue to be trailblazers on this journey towards increased sustainability. Along the way, we are thrilled to share best practices so that other sporting events and venues can do their part to green their games.

2016 marks the 81st annual Phoenix Open tournament, making it one of the five longest established events on the PGA TOUR. The WMPO is a televised public event, attended by professional athletes, celebrities, and the general public. In 2016, the WMPO was played February 1 through February 7 at TPC Scottsdale and attended by 618,365 fans.

In addition to demonstrating environmental stewardship, with a total economic impact from the 2016 tournament estimated at more than \$227 million, the WMPO has one of the largest economic impacts of any golf event in the nation. In 2017, the Thunderbirds will undertake a new economic analysis. This report is an update to our detailed [2015 WMPO Sustainability Report](#).

Zero Waste Challenge

Table 1: End-of-Life Management of Waste, in Tons

| | 2013 | 2014 | 2015 | 2016 |
|-----------------|------|------|------|------|
| Composted | 160 | 154 | 159 | 202 |
| Recycled | 197 | 206 | 216 | 241 |
| Waste-to-Energy | 49 | 40 | 41 | 53 |
| Donation | 8 | 5 | 28 | 30 |

In 2012, we launched the Zero Waste Challenge to control event materials and educate attendees so no waste is sent to the landfill. Since then, there have been no trash bins on the golf course; only recycling and compost bins. Since WM took over sponsorship of the Phoenix Open, our waste management practices have avoided 2,048 metric tons of carbon dioxide equivalent (MtCO_{2e}), which corresponds to removing 433 cars off the road for one year.

In 2016, WM continued utilizing three Zero Waste Stations, repurposed 40-cubic yard roll-off dumpsters transformed into eye-catching kiosks where fans can play an interactive game that also teaches them more about how to recycle and compost, both on the course and at home.

In 2016, we diverted 100% of all tournament materials from the landfill. UL verified this effort, awarding the WMPO a “100% landfill diversion rate with 10% incineration with energy recovery.”

Reduce and Reuse

Evaluating procurement, tracking sustainability aspects of all purchases, reusing materials each year and contracting with vendors who reuse materials prevents tons of waste from going to a landfill. To ensure that all materials brought on site are locally recyclable, compostable or reusable, vendors were asked to sign a Zero Waste Challenge Participation Agreement with Vendor Requirements for Acceptable Materials.

By contracting with manufacturers who share our goals, almost half of the 85,001 square feet of signage displayed in 2016 was reused from previous tournaments. More than 87% of the 2016 signage is stored for potential reuse.

Daily tickets, pairing sheets, Tee Off Luncheon invitations, parking passes and parking maps are printed on paper that uses 30% post-consumer recycled content, while paper badges are printed on paper made of 50% total recovered fiber. All paper materials were Forest Stewardship Council Certified. Volunteer badges were made from #5 plastic to optimize reuse throughout the week.

The main WM logo water feature was made with 144,000 golf balls and the second WM water feature incorporated 750,000 reused golf tees made from 100% recycled content. Both the golf balls and tees have been reused since 2012. While the golf balls will be reused again next year, we recycled the golf tees since their condition prevented donation.

In 2016, 18,300 pounds of unused, perishable food from the WMPO was donated to local organizations Waste Not Perishable Food Rescue and Delivery and Church on the Street. More than 20 tons of green mesh scrim, carpet and turf was donated to Keep America Beautiful, Peoria High School and Hoofbeats with Heart in 2016.



Water Conservation and Restoration

Table 2: Water Usage, in Gallons

| Water Usage | 2013 | 2014 | 2015 | 2016 |
|---------------------------|--------|--------|--------|--------|
| Fresh water, metered | 50,510 | 76,320 | 47,340 | 46,970 |
| Fresh water, used in POLs | 19,184 | 19,060 | 21,047 | 25,130 |
| Graywater, used in POLs | 4,800 | 4,645 | 6,100 | 5,500 |
| Bottled water | 25,313 | 18,842 | 24,996 | 28,641 |
| Restored water | - | 96,000 | 35M | 63M |

The WMPO implements conservation measures to ensure that water is used responsibly and limits pressures on the municipal water supply. Hand-washing stations used hand sanitizer instead of water, and portable toilets are utilized as they require less water than conventional toilets.

In 2011, WM initiated a pilot project to reuse water from cooking and cleaning in the portable toilets. Approximately 18,000 gallons of water has been reused through this initiative since then, and in 2016, WM estimates that 5,500 gallons were collected for reuse.

2016 was the second year of the WMPO Water Campaign. Working with Bonneville Environmental Foundation (BEF) as a Change the Course sponsor and teaming up with Coca-Cola and the Thunderbirds, WM restored 30 million gallons to the Colorado River Basin and the Verde River in Arizona. The Thunderbirds built on the Campaign by selecting BEF as one of three recipients of funds raised on Green Out Day, restoring an additional 33 million gallons of water. Since starting the Campaign, the WMPO has restored over 98 million gallons of water.

Energy

At the WMPO, energy powers all vehicles and heavy-duty equipment for set up and tear down of the temporary structures, heating and cooling, powering generators, and cooking. In 2016 WM continued to work with vendors to use as much alternative energy as possible.

Since WM became sponsorship of the Phoenix Open, our renewable energy practices have avoided 686 MtCO₂e, which corresponds to taking 145 cars off the road or recycling an additional 218 tons of waste. For the sixth year in a row, WM purchased 100% of electricity powered by renewable energy through the local utility, Arizona Public Service. Most of the golf cart fleet and many generators plugged into the grid and so ran on renewable energy. The sun continued to be a great source of power for WM's hospitality tent for the sixth straight year and for compactors used in key locations on the course.

Generators that could not be plugged into the grid were run on biodiesel, and over one-third of attendee shuttle busses ran on biodiesel thanks to ProEm, who managed security and bus transportation. Most WM trucks used to haul waste have been powered by compressed natural gas (CNG) since 2011, emitting less than half the release of greenhouse gas (GHG) emissions of diesel.

WM offset all GHG emissions from WMPO operations (226 MtCO₂e) and pro and pro-am player travel (70 MtCO₂e). In total, the 300 MtCO₂e was offset through Wildlife Works' sustainable forest management program that prevents the release of GHG emissions in areas like the Congo Basin.



Volunteer Engagement

WM organized 348 individual volunteers for the Zero Waste Stations, or 1,392 volunteer hours over the week.

In addition to handling materials at a Zero Waste Station, volunteers helped educate attendees, increase awareness of diversion goals, and coordinate with operations staff if service issues arose. WM donated \$10,000 to Keep Phoenix Beautiful and Keep Scottsdale Beautiful for the time their representatives served as Volunteer Managers; the organizations contributed 51 volunteers and 188 total hours.



Third Party Certifications

Highlighting economic, social and environmental efforts, the WMPO earned a Council for Responsible Sport Gold Certification in 2013 and an Evergreen Certification in 2015, becoming the first PGA TOUR tournament and the largest event ever to receive each level of this two-year certification.

Since 2013, UL has provided a third-party verification of the event's waste diversion. UL reviews where materials are initially delivered, and where all waste streams are processed down the line. In 2014, 2015 and 2016, the WMPO achieved "Zero Waste to Landfill Operations with 10% incineration with energy recovery." The WMPO remains the largest verified zero waste event in the world.

Greenhouse Gas Emissions

Please see [2015 WMPO Sustainability Report](#) for emissions details prior to 2013.

Table 3: Inputs, Outputs and associated GHG emissions from the WMPO, 2013 - 2016

| FUEL USE | | 2013 | 2014 | 2015 | 2016 | 2013 | 2014 | 2015 | 2016 |
|---|--|------------------|---------|---------|---------|------------------------------------|------|------|------|
| | | (GALLONS) | | | | (MtCO ₂ e) ¹ | | | |
| Propane | heat, cooking | 6,408 | 7,587 | 9,863 | 15,535 | 37 | 42 | 60 | 95 |
| Diesel | shuttle buses | 2,829 | 2,714 | 2,688 | 2,432 | 29 | 28 | 27 | 25 |
| Biodiesel | shuttle buses | 1,213 | 679 | 896 | 1,216 | 11 | 6 | 7 | 11 |
| Diesel | generators/equipment | 3,883 | - | - | - | 39 | - | - | - |
| Gasoline | sponsor cars | 2,279 | 1,954 | 1,842 | 1,119 | 20 | 17 | 16 | 10 |
| Diesel | sponsor cars | 24 | 35 | - | - | 0.2 | 0.4 | - | - |
| Diesel | waste/toilet service | 1,657 | 2,701 | 2,219 | 2,045 | 17 | 27 | 23 | 21 |
| CNG | portable toilet service | 207 | 185 | 192 | 236 | 1.6 | 1.4 | 1.5 | 2 |
| CNG | waste hauling service | 519 | 1,097 | 3,872 | 2,069 | 4 | 8.5 | 30 | 16 |
| Biodiesel | Generators | 2,969 | 2,504 | 1,630 | 3,015 | 28 | 24 | 17 | 31 |
| Biodiesel | refrigerated trailers | - | - | - | 1,530 | - | - | - | 15 |
| ELECTRICITY | | (KILOWATT HOURS) | | | | (MtCO ₂ e) ¹ | | | |
| Electricity | renewable energy | 131,513 | 132,630 | 130,387 | 179,979 | - | - | - | - |
| Electricity | Solar | 56 | 62 | 62 | 77 | - | - | - | - |
| WASTE END-OF-LIFE MANAGEMENT ² | | (TONS) | | | | (MtCO ₂ e) ¹ | | | |
| Composted | food scraps, F&B serving materials, wood | 160 | 154 | 159 | 202 | 16 | 20 | 6 | -1 |
| Recycled | plastics, metals, fibers | 197 | 206 | 216 | 241 | -208 | -280 | -259 | -312 |
| Waste-to-energy | residuals | 49 | 40 | 41 | 53 | -20 | -9 | -10 | -26 |
| Donated | food | 8 | 5 | 28 | 30 | -34 | -20 | -87 | -76 |
| TOTAL GREENHOUSE GAS EMISSIONS | | | | | | -19 | -134 | -169 | -189 |

¹ MtCO₂e is metric tons of carbon dioxide equivalent.

² CNG volume is provided in gas gallon equivalent.

³ The World Resources Institute GHG Protocol, Climate Registry General Reporting Protocol, and [EPA WARM model](#) were used to calculate GHG emissions.

PGA TOUR Sustainability Challenge

In 2014, WM and the PGA TOUR established the Sustainability Challenge to recognize and spread sustainability-driven event planning. Each year, all PGA TOUR tournaments are invited to respond to a questionnaire providing details on their respective initiatives in the areas of Materials Management, Natural Resources Tracking and Conservation, Economic Impact and Overall Sustainability. This year's PGA TOUR Sustainability Challenge winner was The RBC Heritage presented by Boeing. Previous winners include RBC Canadian Open and the Shell Houston Open.





Charitable Donations

The 2016 WMPO generated over \$9.3 million for charity, surpassing the \$9 million donated from the 2015 WMPO. Donations are made to more than 200 different charity organizations throughout the year and used to fund additional improvements to the local community, ensuring a lasting positive impact from the WMPO. Saturday at the WMPO is “Green Out Day”: for every person who wears green, the Thunderbirds donate “green.” A total of \$100,000 was raised for three environmental groups. The Thunderbirds also donated more than \$100,000 to charities chosen by participants in the 2016 Phoenix Suns Charities Shot at Glory, a closest-to-the-pin contest. In addition, the Thunderbirds support free booth

space for one non-profit organization daily in the WMPO Expo Booth during the event through Birdies for Charity. More information on benefiting charities of the WMPO can be found at the [WMPO website](#).



Community Stakeholder Engagement

The WMPO promotes positive local community interactions, including free event entry to all law enforcement, firefighters/emergency services, active, reserve and retired military personnel, and family members or one accompanying guest. Each year, the Thunderbirds set up the Brave Patriots’ Outpost for all military personnel and their guests. Entry, food and drinks were free, along with a great view of the 18th Hole. At the 2016 tournament, attendance reached 3,200.

The Thunderbirds and WM additionally provide opportunities for differently-abled and disabled individuals to participate in WMPO activities. This is accomplished each year through the CBS Outdoor Special Olympics Open.

Youth Involvement

Youth engagement is another important social benefit the WMPO strives to expand. This is accomplished by involving grade school and high school students in the Standard Bearer Program and First Tee Dream Day activities.

Standard Bearers are volunteers who hold the player score signs and walk around with a player grouping. During a round, a Standard Bearer can walk up to seven miles. In 2016, 286 students ages 18 and under participated in the Standard Bearer program at the WMPO.

First Tee Dream Day activities occur Tuesday of tournament week. These students would likely not have the opportunity to attend the WMPO, nor would they have the chance to engage in the First Tee Dream Day Activities without these efforts. In 2016, a record 394 students participated from six schools from four school districts.



The Waste Management Executive Sustainability Forum

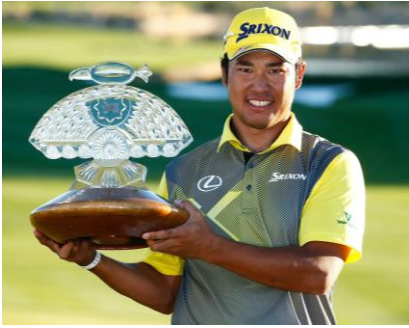


Since 2011, Waste Management has organized this one-day Forum: a carefully orchestrated, high-level discussion about sustainability, attracting business executives from various industries and public sectors as well as prominent non-governmental organizations. One of WM’s specific goals is to attract a mix of experts, customers and business prospects, all contributing to an open-minded dialogue around sustainability principles, best management practices and bottom-line results.

This year’s Forum, with a theme of “The Circular Economic,” saw a 27.7% increase in attendance from the previous year, and an online engagement reached 39,465 viewers. The Forum focused on how and why the circular economy is fractured. WM identified collective challenges, and approaches to overcoming these challenges through collaboration along the value chain.

Speaking at the 2016 Executive Sustainability Forum were Adam Minter, author and columnist at *Bloomberg*; John Tierney, author and *New York Times* science writer; Peter Zeihan, Geopolitical strategist, global affairs expert and author of *The Accidental Superpower*; David Allaway, Senior Policy Analyst at the Oregon Dept. of Environmental Quality; Jeff Wooster, Global Sustainability Director for the Dow Chemical Company; Jim Hanna, Director of Environmental Impact for Starbucks, and Keefe Harrison, Executive Director of the Recycling Partnership. Discussions were moderated by Dana Perino, former White House Press Secretary and co-host of *The Five* on Fox News Channel, and Meghan Stasz, senior director of the Grocery Manufacturers Association. The Forum concluded with breakout sessions on Solutions for Recycling Plastics, Organic Waste Recycling, and Standardized Waste Contracts, and then multiple on-course tours for Forum attendees the following day.





About The Thunderbirds

The Thunderbirds have been organizing the WMPO in the Valley of the Sun since 1937. The mission of Thunderbirds Charities, a 501(c)(3) non-profit corporation based in Phoenix, Arizona, is to assist children and families, help people in need and to improve the quality of life in their communities. To date, they have raised more than \$100 million through their WMPO activities. The active Thunderbirds, of which there are 55, volunteer as chairs of specific aspects of the WMPO, with activities that change each year. The Thunderbirds Concessions Chair again served as the Sustainability Chair as well, acting as the point of contact for all aspects of sustainability at the tournament. For more information on the governance of The Thunderbirds, please consult the [WMPO website](#) and Thunderbird [fact sheet](#).

About Waste Management

Based in Houston, Texas, Waste Management is the leading provider of comprehensive environmental services in North America. Through its subsidiaries, the company provides collection, transfer, recycling, resource recovery, and disposal services. It is North America's largest residential recycler and a leading developer, operator and owner of landfill gas-to-energy facilities in the United States. The company's customers include residential, commercial, industrial, and municipal customers throughout North America. Waste Management has been a partner of the Phoenix Open for more than 15 years, providing waste, recycling, and portable restroom services and sustainability consulting. As the title sponsor, Waste Management, in partnership with the PGA TOUR and The Thunderbirds, is dedicated to making the Waste Management Phoenix Open the greenest tournament on the PGA TOUR. The tournament is also a major platform for showcasing Waste Management Think Green solutions, including the Four Rs - reduce, reuse, recycle and recover. There were no significant changes to the organization during the reporting period. For more information on Waste Management governance, please visit the [WM website](#).



About TPC Scottsdale

TPC Scottsdale is a 36-hole resort and public golf facility, which sits on 400 acres in the McDowell foothills of the Sonoran. Owned by the Bureau of Reclamation, the property is a flood control basin for the Central Arizona Project. The assets of the facility are owned by the City of Scottsdale and the PGA TOUR is the managing partner. TPC Scottsdale has been part of Audubon International's Cooperative Sanctuary Program since 1995. Sixteen acres on the 400-acre property have been devoted to naturalized habitat areas, while a total of 200 acres are desert vegetation and landscaping. The golf courses have 15.2 surface acres of open water on four lakes that support several species of wildlife and fish, which is very difficult to find in a desert environment.

Conclusion

In 2016, the WMPO again attracted more fans than ever before, repeated and improved upon our successful Zero Waste Challenge, and continued to decrease our carbon footprint. We are proud of our commitment to being the Greenest Show on Grass and what that means to the community in which the Waste Management Phoenix Open is played. By generating less waste, making good use of the materials generated, purchasing renewable energy and using alternative energy and conserving water, we will play our part to leave the planet in better shape than we received it.

