

2019 SUSTAINABILITY REPORT



Every choice we make during the months of planning for the Waste Management Phoenix Open (WMPO) - the best-attended golf tournament in the world - affects our claim to the title of the **"The Greenest Show on Grass."**

The Thunderbirds, Waste Management, the PGA TOUR, TPC Scottsdale and all tournament stakeholders continue to be trailblazers on the journey towards increased sustainability. Along the way, we are thrilled to share best practices with other sporting events and venues to green their games.



ENVIRONMENTAL IMPACT

The WMPO is a carbon neutral, zero waste tournament with a balanced water footprint. The use of energy, materials and water all contribute to the greenhouse gas emissions that are harming our planet so the WMPO commits to balancing all environmental impacts from tournament activities.



SOCIAL IMPACT

Making the WMPO what it is today takes not only resources, but also a commitment to support the local community that supports our tournament. The Thunderbirds provide tournament access and hospitality to groups that otherwise might not attend, and youth participation is prioritized.



ECONOMIC IMPACT

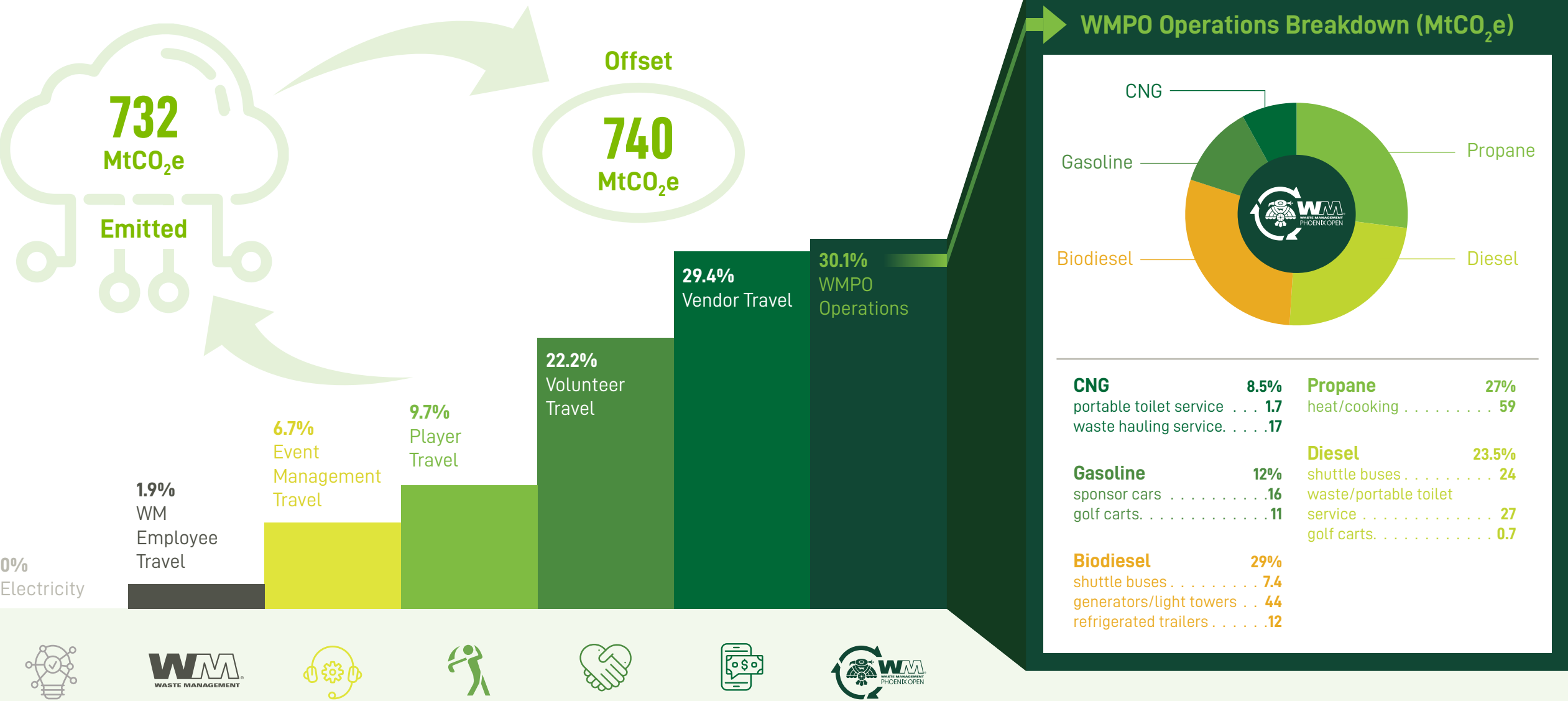
2019 marked the 84th annual WMPO tournament, maintaining our status as one of the five longest established events on the PGA TOUR. The Thunderbirds raised a record \$13.2 million for local charities and Waste Management estimated the total economic impact from the 2019 tournament and its fans at over \$390 million, one of the largest financial impacts of any golf event in the nation.

ENVIRONMENTAL IMPACT

Greenhouse Gas Emissions

The Waste Management Phoenix Open is a carbon neutral tournament.

The visualization below outlines all WMPO emissions sources and associated greenhouse gas emissions (GHGs) from the 2019 tournament. [Click here](#) to review all WMPO emissions sources and associated GHGs from 2010 through 2019.



ENVIRONMENTAL IMPACT

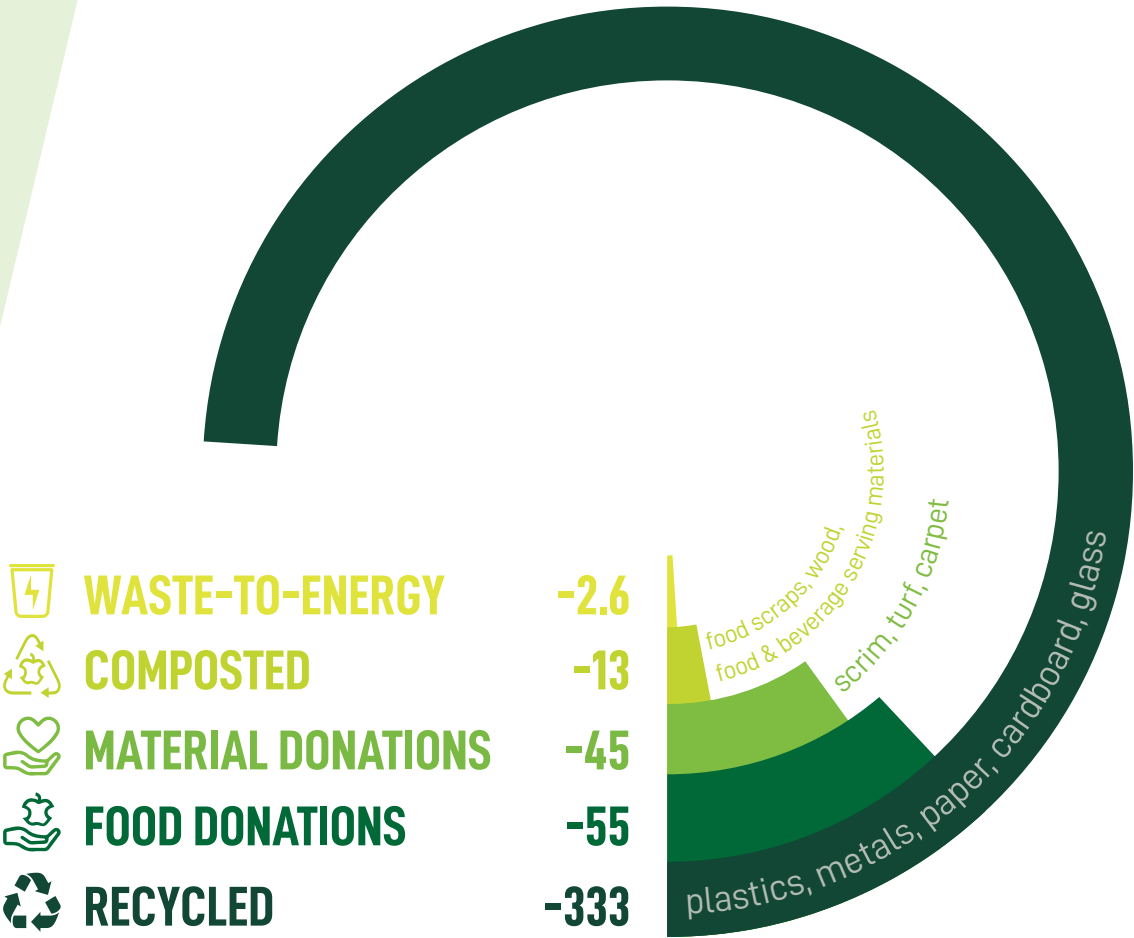
Greenhouse Gas Emissions

The Waste Management Phoenix Open is a carbon neutral tournament. Alternative energy is prioritized across all operations. **For the last nine years, the tournament purchased 100% renewable electricity from Arizona Public Service**, and the sun remains a great source of power for WMs compactors around the course. Generators that are not plugged into the grid and over one-third of attendee shuttle buses ran on biodiesel, which emits fewer emissions than diesel fuel. Most WM trucks used to haul tournament waste have run on compressed natural gas (CNG) since 2011, emitting less than half the GHGs of diesel.

WM also offsets all GHG emissions from WMPO operations as well as travel for WM employees, event management, professional and amateur players, vendors, and volunteers. In total, WM offset 740 MtCO₂e through Envirofit International’s clean cookstove program with important economic, social and environmental impacts, supporting ten of the UN Sustainable Development Goals.

In 2019, the Waste Management Phoenix Open became the first PGA TOUR tournament to commit to the [UNFCCC Sports for Climate Action initiative](#), which aims at supporting and guiding sports actors in achieving global climate change goals.

Avoided Emissions from Waste Diversion (MtCO₂e)



ENVIRONMENTAL IMPACT

Third Party Certifications



For years, the WMPO has invited third party certifiers to evaluate our environmental claims.

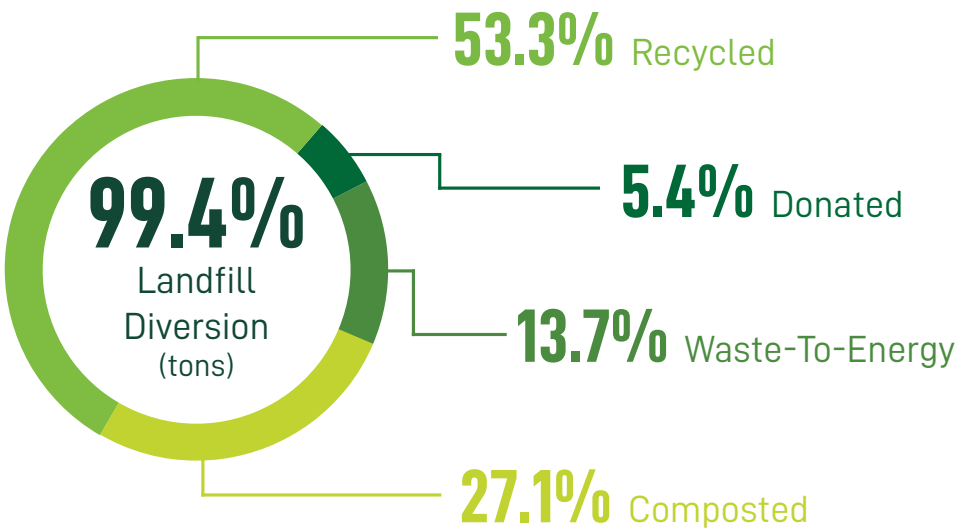
In 2019, we achieved our third [Golf Environment Organization](#) tournament certification. The Waste Management Phoenix Open was the first PGA TOUR tournament to achieve this certification and remains the largest event ever to achieve this level of recognition. The TPC Scottsdale learned about the Golf Environment Organization's facility certification from the WMPO and achieved that recognition in 2019 as well.

For the seventh straight year, [UL](#) also provided a third-party verification of the event's zero waste program. WM chose to take a different approach to the tournament's sustainable material management, with UL verifying that the WMPO achieved "Zero Waste to Landfill Gold Operations, 99.4% diversion, with 13.7% incineration with energy recovery."

ENVIRONMENTAL IMPACT

Materials

WM launched the Zero Waste Challenge in 2012 to continuously improve the management of all tournament materials used on site, expand vendor and fan understanding of proper waste disposal, divert waste from landfill, and share a feeling of responsibility for creating the Greenest Show on Grass. Since then, there have been no trash bins on course—only recycle and compost bins.



SOME RESULTS

- 100% of vendors agree in their contracts with The Thunderbirds that all materials brought on site must be locally reused, recycled, or composted.
- 88% of 2019 signage was reused from previous tournaments
- 84% of the 2019 signage is being stored for potential reuse
- Daily tickets, pairing sheets, parking passes and parking maps were printed on paper that uses 30% post-consumer recycled content
- Over 90% of paper badges are printed on paper made of 50% total recovered fiber
- All paper materials were Forest Stewardship Council Certified
- The WM logo water feature used 144,000 golf balls, reused every year since 2012
- Vendors donated 14 tons of unused, perishable food to local organizations



ENVIRONMENTAL IMPACT

Materials

Over the ten years of our Title Sponsorship, the idea of what makes a sustainable event has evolved. While the concept of zero waste has been an important strategy, we recognize that it does not always consider the upstream and downstream impacts of our management choices. In our ongoing effort to reduce GHG emissions, the WMPO has been exploring life cycle impacts of tournament materials, a concept called [sustainable materials management](#) (SMM; see sidebar for more). SMM helps us understand that, for example, impacts can occur at all stages of a beer cup's life—from design, manufacturing, transport and packaging of the beer cup, to how the WMPO golf fan will dispose of it, and whether it goes to landfill, gets recycled, composted or incinerated.

In 2019, the WMPO diverted 99.4% of all tournament materials from the landfill. Taking into consideration the option of transporting that 0.06% of waste to a specialized recycling facility, we calculated that the most environmentally beneficial way to manage this particular waste was to send it to a local landfill that captures the landfill gas to generate electricity. In fact, this will result in a net emissions savings of 1.4 MtCO_{2e}, and we hope to use this example to illustrate how to optimize environmental impacts from material management.

/ SIDEBAR

Life cycle thinking quantifies materials, energy consumption and emissions associated with those processes. Evaluating GHG emissions with a goal of reducing them can provide insight into trouble spots or changes that may need to occur to ensure resources are optimized across a product's life cycle. We have been closely studying the waste stream to improve our environmental impact, prioritizing strategies that have lowest GHG impact.



ENVIRONMENTAL IMPACTS

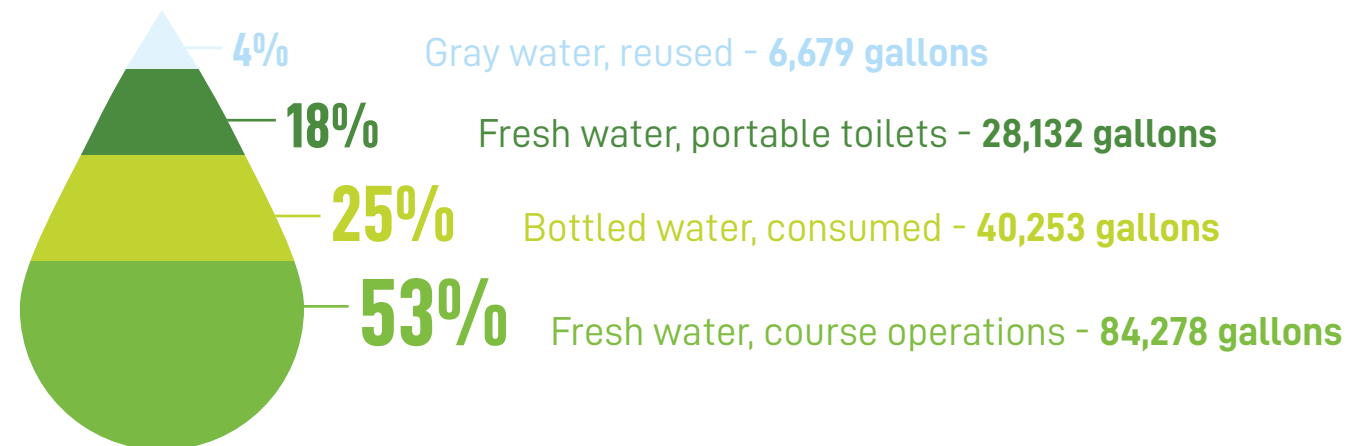
Water

The Thunderbirds, Waste Management, sponsors and vendors come together to balance the tournament's water impacts. On-course conservation measures help ensure that water is used responsibly. Hand-washing stations used hand sanitizer instead of water, and in 2019 WM captured an estimated 6,679 gallons of gray water. Since 2011, approximately 44,466 gallons of water from cooking and cleaning have been reused in the portable toilets.

2019 marked the fourth year of the tournament's coordination with Bonneville Environmental Foundation as a Change the Course sponsor. Teaming up with M Culinary, Swire Coca Cola and The Thunderbirds, WM restored 40 million gallons of water to the Verde River Valley in Arizona, bringing the program's **five-year total to over 270 million gallons restored.**

In 2019, WM created a water restoration installation to share tips on water conservation and educate about embedded water, the water that goes into the food and products we use. Fans relaxed in the installation's shaded water fixtures and learned how many gallons of water it takes to make a hamburger, a gallon of gasoline and a pair of blue jeans.

**BALANCED
WATER
FOOTPRINT**



SOCIAL IMPACTS

Community Engagement

The WMPPO has a positive social impact on the local community with programs throughout the week.

- YOUTH
- DIFFERENTLY-ABLED INDIVIDUALS
- HOMETOWN HEROES

Monday and Tuesday of tournament week are Ford Free Days so anyone can come on course, and children 17 and younger get in free with an adult any day of tournament week. The Standard Bearer Program promotes youth involvement, inviting students under 18 to carry the player score signs and walk around with a grouping – up to seven miles in one round! In 2019, over 353 students participated. The R.S. Hoyt Jr. Family Foundation Dream Day allows youth to experience golf through a junior clinic, motivational speaker and trick shot show. In 2019, a record of more than 650 students participated from schools from local districts.

Differently-abled and disabled individuals are encouraged to participate in tournament activities through the San Tan Ford Special Olympics. The Waste Management Phoenix Open promotes positive community stakeholder engagement, including free event entry to all law enforcement, firefighters, emergency services, active, reserve and retired military personnel, and family members or one accompanying guest. The Birdies for the Brave Patriots’ Outpost has free food and drinks for all military personnel and their guests, along with a great view of the 18th Hole.



SOCIAL IMPACTS

Waste Management Sustainability Forum

The Waste Management Sustainability Forum was created to meet the industry's need for innovative growth. From its early, modest beginning in 2010 in a conference room at Arizona State University to its 2019 event with wall-to-wall screen and a livestream audience watching from home, the Forum has evolved to inform and inspire. It encourages participants to exchange ideas and learn to transform big thinking into bold actions to create a better world.

This year, the Forum tackled two major topics – Plastic Waste and Cities of the Future. To help us navigate the complexities of these issues, we invited, to our stage, a series of thought-provoking speakers including National Geographic's Deputy to the Chief Scientist and Vice President, Valerie Craig and the Founder and CEO of Not Impossible Labs, Mick Ebeling.

Our day of discussions left many of our attendees feeling inspired with the promise of hope for the future of unimaginable possibilities that can be brought to fruition. Hear more about the day [here](#).

ATTENDANCE:

567 total attendees **58,054** total online viewers

WATCH 2019 WASTE MANAGEMENT SUSTAINABILITY FORUM HIGHLIGHTS:

▶ [People and Planet: Sustainability Starts with Each of Us](#) Jim Fish, President and CEO, Waste Management

▶ [Plastic Waste: A Solvable Global Challenge](#) Valerie Craig, Deputy to the Chief Scientist and Vice President, Impact Initiatives, National Geographic Society

▶ [Plastic Waste in the Environment](#) Panel moderated by David Pogue, New York Times Columnist, CBS Tech Contributor and NOVA Host

- Valerie Craig, Deputy to the Chief Scientist and Vice President, Impact Initiatives, National Geographic Society
- Nicholas Mallos, Director of Trash Free Seas, Ocean Conservancy
- Steve Sikra, Materials & Technology Manager, P&G
- Jason Hale, Communications and Recycling Professional, SYSTEMIQ

▶ [Changing the Status Quo By Design](#) Dr. Leyla Acaroglu, Designer and Sociologist

▶ [Recycling Update](#) Brent Bell, President, Waste Management Recycling Services

▶ [Global Environmental Trends and Local Impacts](#) Andrew Winston, Advisor and Author

▶ [Cities of the Future](#) Panel moderated by David Pogue, New York Times Columnist, CBS Tech Contributor & NOVA Host

- Andrew Winston, Advisor and Author
- Dr. Leyla Acaroglu, Designer and Sociologist
- Clarence Anthony, Executive Director, National League of Cities
- Rob Kunzig, Senior Environmental Editor, National Geographic Magazine

▶ [Sidebar Interviews](#) Jackie Lang and Eloisa Orozco, Senior Managers of Public Affairs & Communications, Waste Management





ECONOMIC IMPACTS

Charitable Donations

The WMPO generated over **\$13.2 million for charity in 2019**, making donations to more than 200 different organizations throughout the year and used to fund additional improvements to the local community. Saturday at the WMPO is “Green Out Day” - for every person who wears green, the Thunderbirds donate “green.” A total of \$155,000 was raised for four environmental groups. The Thunderbirds also donated more than \$100,000 to charities chosen by participants in the 2019 Phoenix Suns Charities Shot at Glory. The WMPO provides free booth space for a non-profit organization daily in the WMPO Expo through Birdies for Charity.

More information on benefiting charities can be found at the [Thunderbirds’ WMPO website](#).

\$13.2M

Raised for Charity

200+

Organizations Benefited

\$155K

Raised on Green Out Day

\$100K

Donated from Shot at Glory

2019 WASTE MANAGEMENT PHOENIX OPEN “GREENEST SHOW ON GRASS”

TRANSPARENT REPORTING

Golf Environment Organization - **GEO Certified** ✓
UL - “Zero Waste to Landfill Gold Operations, 99.4% diversion, with 13.7% incineration with energy recovery” validation 👍

WATER CONSERVATION

RESTORED
40M GALLONS
of water

REUSED
6,679 GALLONS
of gray water

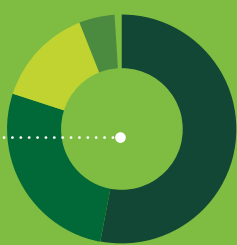
RENEWABLE ENERGY & GHG OFFSETS

740 metric tons of
CO₂ equivalent offset

100% renewable
electricity

WASTE DIVERSION

99.4%
MATERIALS FROM LANDFILL



53.3%
RECYCLED

13.7%
WASTE-TO-ENERGY

27.1%
COMPOSTED

5.4%
DONATED

REUSE & DONATION



DONATED
14 TONS
of unused food to
local non-profits



REUSED
144,068
square feet of
signage



REUSED
140,000
golf balls in WM's
water feature

COMMUNITY IMPACT



\$13.2M
IN CHARITABLE DONATIONS

GREEN OUT DAY
RAISED
\$155K

WELCOMED
10,800+
Military Personnel to
the Patriots Outpost

FREE
TOURNAMENT
ACCESS

to law enforcement,
emergency
services, and
military personnel

APPENDIX

WMPO EMISSIONS

The table below outlines **all WMPO emissions sources** and associated GHGs from 2010 through 2019.

FUEL USE		Metric Tons of Carbon Dioxide Equivalent (MtCO ₂ e)									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Propane	heat, cooking	52	82	81	37	42	60	95	66	44	59
Diesel	shuttle buses	48	64	53	29	28	27	25	24	18	24
Biodiesel	shuttle buses	-	-	-	11	6.4	7.0	11	7.6	8.2	7.4
Diesel	generators/equipment	33	47	57	39	-	-	-	-	-	-
Gasoline	sponsor cars	27	21	21	20	17	16	10	21	17	16
Diesel	sponsor cars	-	-	-	0.2	0.4	-	-	-	-	-
Diesel	VIP shuttles	-	-	-	-	-	-	-	4.3	1.5	1.5
Diesel	waste hauling/portable toilet service	23	12	17	17	27	23	21	21	18	27
Gasoline	golf carts	4.2	4.7	5.2	5.8	6.4	7.1	7.9	8.8	9.7	11
Diesel	golf carts	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.7
CNG ¹	portable toilet service	-	-	-	1.6	1.4	1.5	1.8	1.8	1.6	1.7
CNG	waste hauling service	-	14	3.7	4.0	8.5	30	16	24	22	17
Biodiesel	generators/light towers	5.0	-	10	28	24	17	31	53	50	44
Biodiesel	refrigerated trailers	-	-	-	-	-	-	15	11	13	12
ELECTRICITY											
Electricity	conventional energy	76	-	-	-	-	-	-	-	-	-
Electricity	renewable energy	-	-	-	-	-	-	-	-	-	-
Electricity	solar	-	-	-	-	-	-	-	-	-	-
WASTE END-OF-LIFE MANAGEMENT ²											
Compost	food scraps, food/beverage materials, wood	-2.0	28	54.2	74	67	67	82	93	-17	-13
Recycling	plastics, metals, fibers	-218	-101	-308	-209	-299	-259	-288	-404	-382	-333
Waste-to-energy	non-recyclable fiber and plastics, MRF residue	-	-	-0.2	-3	-0.3	-0.3	-0.3	20	-0.5	-2.6
Donation	scrim, carpet, turf, programs	-	-	-	-	-	-20	-33	-29	-76	-45
Donation	food	-	-	-	-31	-18	-58	-35	-45	-47	-55
TOTAL GREENHOUSE GAS EMISSIONS		-32	-167	-11	18	-96	-90	-49	-131	-328	-228

1 CNG volume is provided in gas gallon equivalent

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

The Waste Management Phoenix Open operates under ISO20121 standard for sustainable events management, which defines the requirements to ensure an enduring and balanced approach to economic activity, environmental responsibility and social progress relating to events.

/ THE THUNDERBIRDS

Organizing the WMPO in the Valley of the Sun since 1937, the mission of the Thunderbirds is to assist children and families, help people in need and to improve the quality of life in their communities. The Thunderbirds and the Waste Management Phoenix Open have raised more than \$81 million for local charities since 2010 when Waste Management became title sponsor. In its history, dating back to 1932, the Phoenix Open has raised more than \$147 million for charities in Arizona. For more information on the governance of The Thunderbirds, please consult the [WM Phoenix Open website](#), the [WM Phoenix Open Sustainability Page](#), and The [Thunderbirds fact sheet](#).

/ WASTE MANAGEMENT

Based in Houston, Texas, [Waste Management](#) is the leading provider of comprehensive environmental services in North America. In partnership with the PGA TOUR and The Thunderbirds, Waste Management is dedicated to making the Waste Management Phoenix Open the greenest tournament on the PGA TOUR. For more information on Waste Management's corporate sustainability efforts and WMPO activities, please visit [ThinkGreen.com](#).

/ TPC SCOTTSDALE

Sixteen acres on the 400-acre property of [TPC Scottsdale](#) have been devoted to naturalized habitat areas, and 200 acres are desert vegetation and landscaping in the McDowell foothills of the Sonoran. TPC Scottsdale is a 36-hole resort and public golf facility, has been part of Audubon International's Cooperative Sanctuary Program since 1995. This year, TPC Scottsdale is also completing its first Golf Environmental Organization's sustainable golf course certification.

