

Carbon Neutral Working Group Report 2024

5/25/2024

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Carbon Neutral Working Group Report 2024

1. Introduction/Background

In 2019, based on input from the Oregon Country Fair's (OCF's) 50th Anniversary Sustainability Initiative and in keeping with OCF's commitment to operate by a seventh generation Intention, the Board of Directors passed a motion stating, "To continue the Fair's environmental leadership and to do its part to contain the severe threat climate change poses, the OCF Board of Directors hereby declares that it will strive to become carbon neutral by 2025."

A Carbon Neutral Working Group (CNWG) was formed, and in February 2020, OCF partnered with Portland State University's Institute for Sustainable Solutions (ISS) to calculate and develop a plan to lower its carbon footprint. A summary of the eight months and countless hours of work completed in collaboration with OCF and ISS, including graduate students and university faculty, was presented at the September 2020 Board of directors meeting. The project's Phase 1 reports and documents are available on the oregoncountryfair.net site.

The OCF Carbon Neutral Working Group continued to meet through the Covid-19 pandemic and the suspension of the OCF event in 2020 and 2021. During this time, efforts were made to continue data collection and emission evaluations from event operations, volunteer staff, and ticket buyers.

The following report to the Board of Directors includes carbon footprint data and estimates to date, along with recommendations for next steps.

2. Summary of 2023 Activities

The center for this work during the event is at the StewardShip in Xavanadu. The StewardShip showcases what OCF does in the areas of carbon reduction, sustainability, and stewardship of the land.

During the 2023 fair, The StewardShip hosted two talks educating the general public about the fair's progress measuring its carbon footprint. The talks were led by Luke Hanst, from Portland State University's Institute for Sustainable Solutions, who focused on what the data shows about the fair's carbon emissions and what information still needs to be collected.

Fairgoers who stopped at the StewardShip in 2023 were encouraged to participate in a survey developed by the Carbon Neutral Working Group regarding the public's travel patterns to and from the fair. This survey was also mailed to all of the 2023 ticket buyers. The results of this survey were used to update the carbon footprint analysis described below. (see Appendix A & B)

Also during the 2023 Fair, the OCF Survey Team added a few transportation-related questions to its regular demographic exit survey. In that survey, respondents were asked about their mode of transportation, how many people were in their travel party, and how far they traveled using different modes of transportation. They were also asked about their willingness to change transportation behavior to and from the fair. The results of this survey were primarily used to identify actions that the fair can consider to reduce the event's overall footprint. The survey and the report are included as Appendix B.

3. Three 2023 Surveys

In 2023, OCF volunteers conducted three surveys to gather information about the travel patterns and habits of the public and fair family. These surveys were a follow-up to the work completed in 2019 where we estimated that 97% of the carbon generated by the OCF comes from travel.

Two of the surveys were conducted online and analyzed by the Carbon Neutral Working Group (CNWG), and one was an intercept survey conducted and analyzed by the OCF Survey Team. Both the online surveys and the exit survey asked for ways people could reduce their travel footprint. The online surveys included a multiple-choice question, while the exit survey was open ended. Here are the results.

A. Two Online Surveys

The CNWG pursued two online surveys to gather new data to update the OCF carbon footprint initially calculated in 2019. A summary of this information follows. (See the appendix for more details.)

A.1. Travel Patterns

- A) **Ticket Buyers:** Thanks to help from OCF staff, and especially Vanessa, we were able to use the Tickets West customer data to send out a short OCF survey about the public's travel patterns to the fair. Tickets West, the sole ticket outlet in 2023, collected data from each ticket purchaser that included the address, email and other contact information and made it available for us to use. We received 1,274 responses from our Tickets West customers, which we used to refine our carbon emission estimates for 2019 and provide a new estimate for 2023.

In 2019, we used the customer addresses to calculate the travel distance to and from the fair, but we did not have survey data to help us select important variables such as the number of people per car or the average distance for participant flights to OCF. Using this new survey data, we were able to refine our estimate for 2019, resulting in a decrease in the estimated emissions for 2019.

- B) **Fair Family:** In 2019, emissions calculations for Fair Family commutes utilized surveying to estimate emissions based on commuting distance, vehicle types, number of people commuting, and travel patterns of Fair Family. Altogether, we received 500 survey responses that provided travel information: 373 selected "Crew," and 127 selected "Booth."

We were not as successful gathering data from Fair Family (artisans, volunteers, and staff) in 2023. In 2023, we only received 100 responses. There were 23 from booths and 77 from volunteers. Unfortunately, the response rate is not high enough to be statistically significant. However, it does appear that the culture is shifting with the Fair Family. There are many more Zoom meetings where many family members can participate remotely, and it appears that carpooling is also increasing.

A.2 Recommended Actions to Lower Carbon Footprint

Here is the online survey question related to actions that people would be willing to take to lower their footprint and the answers received:

Online Survey Question: *On a scale of 1-10, how willing would you be to act on any of the following hypothetical carbon reduction behaviors that were suggested at the Carbon Neutral Working Group's town halls in 2021?*

- Carpool with more people per vehicle: 6.81
- Switch from car travel to an alternative transportation method: 5.84
- Ride on OCF themed trains to Eugene from your point of origin: 6.47
- Purchase fair-provided carbon offsets: 5.18
- Participate in OCF organized bike rides to the fair from Eugene and Veneta: 3.7

B. The Exit Survey

In 2023, OCF Survey Team added a few transportation-related questions to its regular demographic survey of the public. Surveys were administered primarily by 10 volunteers during the fair. A summary of this information follows. (See the appendix for the full report.)

B.1 Travel Patterns

In that survey, respondents were asked about their mode of transportation, how many were in their travel party, and how far they traveled with each mode of transportation. They were also asked about their willingness to change transportation behavior to and from the fair. The OCF Survey Team received a total of 1133 respondents.

The vast majority of participants traveled via car/truck, although 15% traveled via bus and almost 5% traveled by plane. The typical participant carpooled with at least one other person when traveling via car/truck or RV. Over three-quarters of responding participants would at least consider making changes to their transportation behavior when traveling to the Oregon Country Fair.

B. 2 Summary of Recommended Actions to lower carbon footprint

Here is a summary of some of the suggestions for actions to improve transportation options provided by respondents. The full list is in Appendix B.

- Contract for more frequent bus service, especially at peak times; more pickup spots in Eugene and more buses at the end of day.
- Develop a new shuttle bus entrance into and out of OCF.
- Schedule a Sunday shuttle bus from Zumwalt or Richardson Park.
- Organize a train or shuttle bus from Portland. One suggested a party bus.
- Provide better access to EV charging stations.
- Advocate for bike lanes and other safe bike routes to OCF.
- Increase carpooling by developing easy ways for drivers and riders to communicate and set up rides.
- Develop a transit/lodging package within walking distance of the OCF.

4. Carbon Footprint Estimates for 2019 and 2023

The data gathered from the online surveys in 2023 was used to help refine the carbon footprint calculations for 2019 and estimate the transportation related carbon footprint for 2023. In summary, we used the data collected in 2023 to revise our estimated carbon footprint for OCF in 2019 based on better data that showed more people per carpool and a lower percentage of people flying to the fair. The public footprint for 2023 was lower than in 2019 due primarily to lower total attendance. It may also be the case that Fair Family emissions are lower than we estimated in 2019 and 2023 because it appears from very limited data that people are taking fewer trips and carpooling more.

- The adjusted estimate for public transportation emissions in 2019 is 1792 tons of CO₂e, which was based on a public attendance of approximately 59,000 people, or about **61 lbs of CO₂e per attendee**.
- In 2023, there were about 39,000 attendees. Using the same 61 lbs. of CO₂e emission per person, we arrive at an estimated 1185 tons CO₂e for 2023's public transportation category.

Assuming the same emissions in all other fair categories, we arrive at an estimated 3.695 tons CO₂e for total fair emissions in 2023, a reduction of 705 tons of CO₂e.

2019

Original estimated carbon emissions	<u>4,499 tons CO2e</u>
Revised estimated carbon emissions	<u>4,400 tons CO2e</u>

2023

Total estimated carbon emissions	<u>3,695 tons of CO2e.</u>
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What do these numbers mean? The 3695 tons of CO2e in 2023 is equivalent to the emissions from 800 cars for one year, or roughly 375,000 gallons of gasoline. In terms of offset, this is equivalent to the emissions avoided by .9 wind turbines running for a year, or 55,000 tree seedlings over 10 years.

5. Next Steps/CNWG Recommendations

Based on the work completed over the past few years, the Carbon Neutral Working Group recommends consideration of the following actions:

A. Help! Recruit a few new OCF team members and seek help from university students.

The work so far has been shouldered by a small but mighty team of volunteers, but more help is needed to advance the work. While knowledge and experience in many fields could be helpful, the following have been identified as potentially being especially helpful.

OCF

- Data analyst
- Paid parking or traffic volunteer
- Pre-fair volunteer
- Alternative transportation enthusiast
- Grant Writer

University students

Engage university students (e.g., PSU, OSU, UO, LCC) in a transportation-related project.

B. Transportation related actions

1. Develop strategies to change transportation behavior.

Based on initial results that show transportation is where we have the most emissions, this is the area where we believe we can make the most headway the fastest. Longer term, there are other areas we should target such as offsetting our emissions on the fair property and in the Veneta area.

- Increase price of paid parking
- Increase price of vehicle stickers
- Create carpooling incentives (for cars with three or more people)
- Develop strategies to increase ridesharing
- Analyze bus ridership and develop cost effective strategies to increase ridership

2. Continue to gather transportation data

Continue to work with the OCF survey team to gather data on fair family travel patterns
Work with Afton Tickets to gather information on where tickets are purchased to continue to better understand ticket buyers' travel patterns.

C. Work with Peach Power to explore/develop/refine strategies to reduce the impact of our electrical energy use: renewables and other options.

- More grid-tied solar panels on property- Sign up for net metering.
- Finish the hub roof solar project.

Explore community solar panels on a Veneta/Elmira school via a community solar project

Investigate the increased use of grid power in certain areas to reduce battery waste and inefficiencies.

D. Work with the LUMP and the Emerald Ash Borer Committees to calculate the fair's Carbon sequestration and the effect that the Emerald Ash Borer could have on that.

One piece of research we have yet to conduct is calculating how much carbon we're already sequestering through trees and grasslands on the fair property. In addition, a large portion of our tree canopy is Ash and will be affected by the Emerald Ash Borer. We need to calculate what impact the Emerald Ash Borer is expected to have on our footprint and what we plan to do about it. Work with the Emerald Ash Borer committee to develop a work plan to complete this work.

E. Communications

Develop an ongoing communications plan to promote actions to reduce individual carbon footprints. Utilize the *Positively Neutral* column in *Fair Family News* and social media.

F. Board / Budget Committee Actions Required

- Update Board motion due date as follows: "To continue the Fair's environmental leadership and to do its part to contain the severe threat climate change poses, the OCF Board of Directors hereby declares that it will strive to become carbon neutral by ~~2025~~ 2030"
- Develop an annual Capital Improvement Project budget to provide funding for educational materials for the Carbon Neutral Initiative. This will be similar to the EAB Capital Improvement Project Budget.

APPENDIX A: Two Carbon Neutral Working Group Surveys

APPENDIX A-1 OCF Carbon Neutral Transportation Survey

The OCF Transportation Survey was developed to direct people to certain questions based on their answers to other questions. For example, if they are an OCF volunteer, they are asked how many trips they made to the fair site prior to the event while members of the general public are asked how many days they attended the event. If someone's trip to the fair included a flight they are asked what airport they flew into and then asked what other modes they took to get to the fair. If they rode their bicycle to the event they were asked questions about that experience.

So, rather than list all of the questions and the possible follow up questions, the entire survey can be found here: https://portlandstate.qualtrics.com/jfe/form/SV_cUqgnolaKjrlDmK

APPENDIX A-2 OCF Booth Energy Survey

The following survey was sent to booths to find out not only what their travel patterns were but also find out more about their in-booth energy use. The questions are not in numerical order due to the way the survey was constructed.

Q1 Are you responding on behalf of an Artisan or Food Booth?

- Artisan Booth (1)
- Food Booth (2)

Q5 What is the estimated miles per gallon of the vehicle used to transport / support the booth? (Zero indicates an electric vehicle.)

Q3 In which zip code did your booth begin its journey?

Q6 How many supply runs or commutes (round trips) did this vehicle take prior to, during, and after the fair between the zip code of origin and the Fair?

Q7 How many round trips did this vehicle take between the Fair and Veneta?

Q8 How many round trips did this vehicle take between the Fair and Eugene/Springfield?

Q10 What quantity of the following energy sources did your booth use? (Zero indicates no use of this fuel type.)

- Gallons of propane used: (1)

- Gallons of gasoline used (not by a transportation vehicle): (2)

- Gallons of diesel used (not by a transportation vehicle): (3)

- Gallons of biodiesel used: (4)

Q11 If your booth used batteries, were they charged using:

- Community Solar (1)
- Other Solar Source (2)
- Grid Electricity (3)

Q12 What ideas do you have to reduce carbon emissions relating to booths at the Fair?

APPENDIX B: Public and Fair Family carbon footprint analysis

By Luke Hanst and Craig Smith

After the 2023 Fair, the Carbon Neutral Working Group (CNWG) pursued two surveys to gather new data to update our OCF carbon footprint. 97% of the carbon generated by the OCF comes from travel by customers, artisans and volunteers. So in calculating a 2023 carbon footprint, we focused on gathering travel data from customers and Fair Family for the calculation.

Thanks to help from OCF staff and especially Vanessa, we were able to use the Tickets West customer data to send out a short OCF survey about their travel to the Fair. Tickets West is our sole ticket outlet and collects data from each ticket purchaser that includes the address, email and other contact information that is available for us to use. We received 1274 responses from our customers which we used to refine our carbon emission estimates for 2019 and provide a new estimate for 2023.

In 2019 we used the customer addresses to calculate the travel distance to and from the Fair, but we did not have survey data to help us select important variables such as people per car or the average distance for participant flights to the OCF. Using this new survey data we were able to refine our estimate for 2019, resulting in a decrease in the estimated emissions for 2019.

Unfortunately, we were not as successful gathering data from Fair Family (Artisans, volunteers and staff) in 2023. In 2019, Emissions calculations for Fair Family commutes utilized surveying to estimate emissions based on commuting distance, vehicle types, number of people commuting, and travel patterns of Fair Family (Crews, Artisans, and Staff). There were approximately 500 survey responses which provided travel information: 373 selected "Crew" and 127 selected "Booth". In 2023 we only received 100 responses. There were 23 from booths and 77 from volunteers. Unfortunately the response rate is not high enough to be statistically significant for 2023. However, it does appear that the culture is shifting with the Fair Family and less trips to the Fair and more carpooling is occurring. Part of the reduced trips to the Fair is the result of Zoom meetings where many Family members can participate remotely. And it appears that carpooling is increasing too.

Here is the data from both the public and Family surveys:

Respondents:

- Total Responses: 1374
 - Public: 1274
 - Booth Workers: 23
 - OCF Volunteers: 77

Methods of Transportation:

- Driving: 1052
- OCF affiliated bus: 394
- Public bus: 27
- Train: 12
- Bike: 25
- Walk: 20

- Fly: 23
- Other: 42

Important Carbon Impact Variables:

- Average people per car: 2.5
 - Helps define the appropriate carpool scenario, described below.
- Average estimated MPG: 26.6
 - On par with the 2019 survey’s estimate between 25-27
- 54 electric vehicles
- 6 of 23 booth workers made round trips with an average of 1.6 additional trips
 - Significantly less than the 2019 survey’s 4.71 avg trips but that survey had a much greater sample size
- 39 of 77 OCF Volunteers made round trips with an average of 2.3 additional trips
 - Significantly less than the 2019 survey’s 7.73 avg trips but again that survey had a much greater sample size
- Insufficient data to estimate average flight vs drive distance

Updating Driving Emissions Scenario w/ Above Variables:

In 2020 the data analysis created six scenarios for public transportation assuming either “carpooling less” (2 people per car) or “carpooling more” (4 people per car) and assuming one of three potential average travel distances at which people will fly instead of drive (“High emissions” for air travel at ≥200 miles; “medium emissions” for air travel at ≥314 miles; and “high emissions” for air travel beginning at ≥500 miles). With this refined estimate of 2.5 people per car for public transit, we can eliminate the more vs less carpooling dimension and state:

High Emissions (Flight at ≥200 miles)	
Driving emissions:	1,056,534.35 Lbs. CO2e
Flying emissions:	2,598,055.40 Lbs. CO2e
Total:	3,654,589.75 Lbs. CO2e

Medium Emissions (Flight at ≥314 miles)	
Driving emissions:	1,360,643.14 Lbs. CO2e
Flying emissions:	2,223,602.50 Lbs. CO2e
Total:	3,584,245.64 Lbs. CO2e

Low Emissions (Flight at ≥500 miles)	
Driving emissions:	1,588,516.78 Lbs. CO2e
Flying emissions:	1,929,535.57 Lbs. CO2e
Total:	3,518,052.35 Lbs. CO2e

Eliminating the variability between more and less carpooling reduces the range of these scenarios to within 150K Lbs. CO2e compared to the 330k Lbs. CO2e range we saw on the "carpooling more" scenario in 2020. While we did not receive sufficient data to estimate the average distance at which flight becomes more common, we do see that less than .2% of people fly to the OCF which could suggest the "low emissions" scenario is more plausible.

The total carbon estimation for the 2020 report used the "medium emissions, carpooling less scenario," ~3,770,000 lbs CO2e. With our new data we can suggest closer to ~3,584,000 lbs CO2e, which adjusts the 2019 fair's total estimated emissions to 4,400 tons CO2e.

Using this updated public carbon quantity, we can now adjust the data based on the total number of participants attending the fair. 2019's adjusted estimate of 3,584,000 lbs of CO2e was based on a public attendance of ~59,000 people or about 61 lbs of CO2e per attendee. In 2023 there were about ~39,000 attendees, using the same 61 lbs of CO2e emission per person, we arrive at an estimated 2,369,000 lbs CO2e for 2023's public transportation category. Assuming the same emissions in all other fair categories, we arrive at an estimated 3695 tons CO2e for total fair emissions in 2023, a reduction of 705 tons of CO2e.

An important potential next step in data analysis is to better estimate the average people per car for OCF staff and booth workers. Our survey's values are 3x lower than that survey and also suggest that more carpools take place at closer distances. If our data is more accurate this would be a dramatic reduction in what is estimated to be the largest emission source at the OCF, but additional data is necessary.

In summary, we used the data collected in 2023 and estimated a revised carbon footprint for the OCF in 2019 of 4,400 tons CO2e based on more people per carpool and a lower percentage of people flying to the fair. We argue the public footprint for 2023 is lower due to a lower total attendance, which brings the fair down to an estimated 3695 tons of CO2e. It may also be the case that Fair Family emissions are lower than we estimated in 2019 and 2023 because it appears from very limited data that people are taking less trips and carpooling more.

Survey results 2023

On a scale of 1-10, how willing would you be to act on any of the following hypothetical carbon reduction behaviors that were suggested at the Carbon Neutral Working Group's town halls in 2021?

Carpool with more people per vehicle: 6.81

Switch from car travel to an alternative transportation method: 5.84

Ride on OCF themed trains to Eugene from your point of origin: 6.47

Purchase Fair-provided carbon offsets: 5.18

Participate in OCF organized bike rides to the fair from Eugene and Veneta: 3.7

Other Notes:

*It is likely that these averages vary by mode of transportation taken but that analysis was not conducted.

*Many variables were not analyzed and could provide useful insight in the future

Appendix C: 2023 Oregon Country Fair Demographic Survey

Questions 15 - 18 were added at the request of the Carbon Neutral Working Group.

- 1) Are you at least 18 years of age? Yes No
If you answered No to Question 1, you are not eligible to take this survey.
- 2) What is your age? 18-24 25-34 35-44 45-54 55-64 65+ I prefer not to answer.
- 3) By which gender do you most identify?
 Woman Man Non-binary Other I prefer not to answer.
- 4) Do you identify as LGBTQIA+? Yes No Unsure I prefer not to answer.
- 5) Do you identify as BIPOC? Yes No Unsure I prefer not to answer.
- 6) Which of the following best describes your disability status?
 I am disabled, and I AM a member of an ADA protected class.
 I am disabled, and I AM NOT a member of an ADA protected class.
 Not applicable, I am not disabled.
 I prefer not to answer.
- 7) Are you neurodivergent? Yes No Unsure I prefer not to answer.
- 8) What is your Employment Status?
 Full Time Part Time Unemployed Retired I prefer not to answer.
- 9) Are you self-employed? Yes No I prefer not to answer.
- 10) Are you a student? Full Time Part Time Not a student I prefer not to answer.
- 11) What is your Annual Household Income (Please include all household members)?
 Less than \$20,000 \$20,000 - \$49,999 \$50,000 - \$99,999
 \$100,000 - \$199,999 \$200,000+ I prefer not to answer.
- 12) How large is your household? _____ Of those, how many are under 18? _____
- 13) How much money have you spent or do you plan to spend at the Oregon Country Fair today NOT including the cost of admission/parking? _____
- 14) How much money have you spent or do you plan to spend today around Eugene and Lane County (even if you live here) as part of your visit to the Oregon Country Fair (This includes things like gas, lodging, and food/meals outside of Fair)? _____

This section of the survey is about how you got to the Oregon Country Fair.

- 15) What is your zip code? _____

16) Which of the following modes of transportation did you use to get from your home to the Oregon Country Fair, approximately how far did you travel and how many people were in your “travel party”?

a) Mode of Transportation		b) Approximately, how far did you travel (miles)?	c) How many people were in your travel party?
Plane	<input type="checkbox"/>		
Train	<input type="checkbox"/>		
Bus	<input type="checkbox"/>		
RV	<input type="checkbox"/>		
Car/Truck	<input type="checkbox"/>		
Motorcycle	<input type="checkbox"/>		
Bicycle	<input type="checkbox"/>		

17) How willing are you to change the way in which you travel to the Oregon Country Fair in order to reduce the carbon emissions associated with your mode of transportation (changes might include carpooling or taking the bus)?

- I’m unable or not interested in changing.
- I’d consider making some changes.
- I’m interested in changing.

18) Is there anything that you’d like to add?