WOODLAND PARK ZOO

2025–2030

SUSTAINABILITY PLAN

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EXECUTIVE SUMMARY

This Sustainability Plan follows the previous plan drafted in 2018. Due to the COVID-19 Pandemic, many of those goals and initiatives did not come to fruition. However, the plan acted as a foundation to continue building on as we strive for a greener zoo. The goal of this plan is to act as the guide to reducing utility consumption (gas and water) and decarbonizing/electrifying in a strategic way. Prioritization will be focused on decarbonization, energy efficiency, waste management, and water conservation as these conservation efforts will result in utility cost savings that can support future sustainability initiatives. Additional sustainability themes such as procurement and design will continue to be developed and strategized over the next few years and prioritized during the next plan update in 2030.

SUSTAINABILITY VISION STATEMENT

At Woodland Park Zoo, sustainability is foundational to our mission to protect wildlife, restore ecosystems, and safeguard the planet we all share. As a conservation-focused nonprofit, we integrate environmental stewardship into every level of our operations — reducing waste, conserving water, improving energy efficiency, and minimizing greenhouse gas emissions.

Over the next five years, we will lead with data-driven strategies to scale resource conservation, expand renewable energy on site generation, and implement nature-based solutions that lower our environmental impact. Our goal is to not only meet ambitious sustainability targets but also to **demonstrate what's possible when conservation and operational excellence go hand in hand.**

By modeling best practices and sharing our journey, we aim to inspire others — from guests to partners — to take meaningful action for a more sustainable future.

OVERVIEW

Woodland Park Zoo's strategic pillars encompass the zoo's mission, values and priorities. The Sustainability Plan framework was developed with each of these pillars in mind:

Animal Welfare and Population Sustainability

High water quality for animal water features, fresh ingredients optimal for animal nutrition, high air quality for the local air both animals and staff breathe, and pollution prevention to keep staff and animals healthy and safe.

Conservation Action

Demonstrational projects and programs (Zoo Doo tours, solar at the Historic Carousel, reusable programs in food concessions, fleet electrification, etc.), Discovery Stations, public programming and signage to guide and inspire guests to take conservation action in their everyday lives.

Wildlife Conservation
Responsible use of natural resources for zoo operations and reducing the zoo's combined sewer/stormwater impacts.

Guest Engagement
Climate messaging on and off zoo grounds, sustainability storytelling, on site sustainability tours, signage, public programming, and collaboration with guest facing events such as Spring Spectacular.

Diversity, Equity, Accessibility, Inclusion (DEAI)
Micro e-mobility access, electrified public transit options, reduce energy/water burden, addressing environmental equity challenges in messaging and programming.

Financial Stewardship, Philanthrophy, and Operations Excellence and Leadership
Resource conservation, Zoo Doo donations to community organizations and implementing innovative solutions to decarbonization efforts.

The Sustainability Plan's primary objective is to align with strategic pillar Financial Stewardship, Philanthropy, and Operations Excellence and Leadership because the zoo must first pilot and demonstrate sustainability on site through best practices before bringing forward those lessons learned and action to the public/partners. Additionally, utility costs will continue to rise as the impacts of climate change reduce resource availability and rates increase. Improving the zoo's resource conservation measures will have an immediate impact on financial sustainability and resource conservation to continue to self-fund new sustainability projects and programs.

As a community-centered institution, the zoo has a responsibility to ensure that all people—regardless of background, identity, or ability—have equitable access to nature, environmental education, and the benefits of sustainability initiatives. Historically, marginalized communities have disproportionately borne the burden of environmental harm while being excluded from decision-making processes and green spaces. By embedding DEAI and environmental equity into our operations and programs, we not only foster a more inclusive and just institution but also ***broaden the impact of our conservation efforts.*** A diverse and engaged community strengthens our ability to inspire collective action for wildlife and environmental protection, making our mission more resilient, representative, and effective.

Key Focus Area
Resource conservation will be the primary focus for the Sustainability Plan in the short and long term. As resource conservation projects are implemented, the zoo will engage with guests through public programming, events, signage, and tours to educate our guests about these measures and inspire resource conservation action in our community.

Key Focus Area	Category	Goal	Metric
Energy and Decarbonization	Electricity	25% reduction	1,389,723 kWh
	Natural Gas	WPZ Decarbonization Plan	Plan Completion
		20% reduction	32,581 therms
	Renewable Energy Generation	Triple on site renewable energy capacity	241,971 kWh
Water	Potable/Domestic	30% reduction	7.4M gallons
	Irrigation	20% reduction	3.5M gallons
Waste	Landfill	30% reduction	75 tons
	Organics	20% reduction	64 tons
Transportation and Equipment	Fleet	18 functional charging stations on zoo grounds	18 functional chargers
		63% of fleet categorized as zero-emission vehicles (ZEV)	63% fleet ZEV
Sustainable Procurement	Sustainable Procurement Policy	Implement sustainable procurement policy	Sustainable Procurement Policy Completion
		Establish baseline for local vendor sourcing for animal diets by 2028	Baseline Animal Diet Vendor Report
Sustainable Design	Design Standards	Implement sustainable design guidelines	Sustainable design guideline document completion
Biodiversity and Ecology	Reduced CSO Impact	Implement 3 CSO-reducing facility projects	Complete at least 3 projects

Baseline Assesment

This plan uses 2024 resource use as the baseline to benchmark for the next five years. Resource usage fluctuates significantly based on the animals the zoo has on exhibit. Using baseline data from the most recent year will give the most accurate number to measure improvements from project implementation.

Key Focus Area	Category	2024 Baseline Data
Energy and Decarbonization	Electricity	5,558,892 kWh
	Natural Gas	162,908 Therms*
	Renewable Energy Generation	80,657 kWh
Water	Potable/Domestic	24,586,012 gal
	Irrigation	17,678,232 gal
Waste	Landfill	249 tons
	Organics	322 tons
	Co-mingled Recycle	48 tons
	Zoo Doo (Diverted)	500 tons
Transportation and Equipment	Fleet	47% fossil fuel 53% zero emission
Sustainable Procurement	Sustainable Procurement Policy	N/A
Sustainable Design	Design Standard	N/A
Biodiversity and Ecology	Reduced CSO Impact	N/A

Natural gas baseline usage and goal will update once Tropical Asia data is updated

ELECTRICITY

The zoo has two main electrical feeds, North and South, and smaller feeds in parking lots and back-of-house areas. The primary electrical usage data has been measured at the zoo for decades, but metering at the building and exhibit level is the most valuable data for electrification. ***The zoo cannot manage what it does not measure.***

Currently, the zoo captures electrical usage at the building level for 19 buildings and exhibits. However, these submeters only capture roughly 55% of the total electrical use campus wide. This indicates the zoo needs to roll out more submeters to gain better insight into high energy-using buildings/exhibits. This will help prioritize and measure areas with a high energy savings impact. This data will also be used to apply for grant funding, which often requires data to justify energy efficiency impacts and return on investment.

Electricity usage has also been benchmarked by Energy Star Portfolio Manager (ESPM) for the past decade, but only for five larger buildings on site

NATURAL GAS

Natural gas provides heat critical for animal welfare to 18 exhibit spaces and 13 office/public spaces. Natural gas usage has previously been benchmarked in ESPM for five buildings. None of the zoo's buildings are required to meet Washington State's Clean Buildings Performance Standard (CBPS). However, the zoo plans to decarbonize its buildings to meet the City of Seattle's goal of a carbon neutral portfolio by 2042. The Electrification Feasibility Study completed in 2025 will help inform the zoo's long-range planning to strategically transition gas-powered facilities to electric based on equipment age, building/exhibit plans, budget, and electrification impact.

ON-SITE RENEWABLE ENERGY GENERATION

There are three solar rooftop arrays on site: Historic Carousel (10,260 kWh generated annually), 1899 Grove (17,147 kWh generated annually), and Commissary (53,250 kWh generated annually). These arrays were a part of Seattle City Light (SCL) community solar generation since they were installed in 2010. In 2020, the community solar program ended, and ownership was transferred to WPZ. In 2024, these arrays generated a combined 80,657 kWh of clean, renewable energy, bringing the zoo closer to achieving net-zero emissions. This added electrical capacity is critical in electrifying/decarbonizing buildings, electrifying the fleet, and expanding EV charging infrastructure for visitors and residents.

WATER

Water is one of the most critical resources used on site for animal exhibit water features, animal welfare, maintaining landscaping across 92-acres, kitchen preparation (for visitors and animals), etc. Water is the zoo's most used commodity and represents the largest area for improvement.

Water is serviced to the zoo with one main domestic water feed and one main irrigation water feed. Submeters are owned independently and manually read monthly. These submeters will be upgraded to smart water meters in 2025 to capture consistent, real-time data that will integrate into our building management system.

Water usage fluctuates due to changes in animal exhibits and welfare prioritization. For example, the hippo exhibit closed at the end of 2024, which will result in significant water savings (approximately 11 million gallons). Additionally, HPAI bird flu on site resulted in bird quarantines and emptying exhibit pools to reduce the risk of transmission from 2024 to 2025. These two examples demonstrate the types of unpredictable events that will cause anomalies in water data, including in the zoo's baseline data used to establish goals for this plan.

WASTE

The main waste streams in zoo operations are landfill, co-mingled recycling, and organics. The zoo has seven recycling vendors to recycle everyday recycling as well as construction materials, textiles, e-waste, furniture, lighting, batteries, and more. Tonnage is recorded monthly for each of these streams.

Zoo Doo, the zoo's compost program to divert animal manure and bedding from landfill, diverts approximately 500 tons annually from landfill. Similarly to water, the output of this program is highly dependent on the animals on exhibit. For example, once Taj the rhino, Glenn's fellow roommate, was transferred to another zoo, we saw a 200-ton decrease in annual output. The rotation of "super poopers" will impact the amount of manure/bedding diverted each year.

TRANSPORTATION AND EQUIPMENT

The zoo's fleet comprises vehicles, carts, trikes, generators, and other miscellaneous equipment. The fleet has 136 transportation and equipment assets, 43% are powered by fossil fuels and 57% are categorized as zero emission. Prioritizing zero emission vehicles (ZEVs) is not only better for the environment but will result in better air quality for both staff and animals. In addition, transitioning from gas, diesel, and propane to electric is crucial for energy independence and resilience in a world with fuel prices on the rise/unpredictable.

SUSTAINABLE PROCUREMENT

Currently, the zoo does not have an official sustainable procurement policy nor a centralized process to share said data. Sustainability is one of the scoring criteria through the bidding selection process throughout the zoo. It is important to select vendors who are local to minimize greenhouse gas emissions from transportation, use environmentally friendly materials, exercise fair and equitable labor practices and practice responsible operational resource use. The implementation of a formal procurement policy will also help reduce and reuse as often as possible to minimize unneeded spending and reduce waste. Centralizing this data will provide consistent information from across different departments that can then be analyzed and acted upon.

There has not been a baseline assessment of commissary (animal diet and enrichment) local vendor sourcing. This baseline will be identified in the next year to better understand the vendor sourcing and the possible environmental impacts of transitioning those vendors to more local sources.

SUSTAINABLE DESIGN

The zoo was founded in 1899 and much of the original infrastructure is still in place. As existing infrastructures continues to fail due to age, it is important to have sustainable design standards for building and irrigation/water systems. Standardizing these systems will make it easier to seamlessly integrate with the zoo's building management software for existing and new buildings. This will result in real-time, accurate, consistent resource usage by building and exhibit. Sustainable design will be an expectation in the zoo's long-term plan and design for new construction. Design considerations will go beyond baseline architectural firm recommendations to continue to be a leader in innovative sustainable design.

BIODIVERSITY AND ECOLOGY

As a conservation organization, sustainable use of local resources and a reduction of pollution and its environmental impacts are embedded in our core operations. As a high-water user in the community, reducing stormwater loading and improving water quality from runoff can significantly reduce the impact of combined sewer overflow (CSO) events. A few sustainable water opportunities have been implemented over the years such as the green roof at Zoomazium or upgrading from hand watering to automatic irrigation, yet this planning effort has

been ad hoc. A dedicated plan to reduce CSO impact will allow the zoo to be strategic with these projects and measure impact.

STRATEGIC FRAMEWORK

The strategic framework for the Sustainability Plan takes a holistic approach to implementing and improving sustainability practices across all zoo departments. The seven Key Focus Areas are broken down into primary and secondary levels of prioritization. Priority areas were ranked based on a) environmental impact b) facility/staff readiness c) financial savings.

Primary Initiatives

Resource conservation management is a primary priority due to the high environmental impact, project readiness, and high financial savings. Pursuing improved sustainability measures in our facility operation will also positively impact wildlife given carbon emissions, water quality, and waste pollution are detrimental to a thriving environment for wildlife and humanity.

ENERGY AND DECARBONIZATION

OVEVIEW

The research is clear: climate change is here and is caused by humans. Human activities are driving global warming trends that will have lasting impacts, including destabilizing native ecosystems, habitat destruction, and increased natural disaster events. It is our responsibility to be mindful of how energy sources contribute to climate change and to alter the way facilities operate to reduce this positive feedback loop. This is why energy and decarbonization is the zoo's top priority in the Sustainability Plan. This section will provide an overview of the zoo's current energy status, goals, and associated challenges in achieving those goals.

First, the zoo is on a decarbonization journey driven by our conservation mission and is expedited due to local government sustainability goals. The zoo facility is owned by the City of Seattle and is maintained and operated by zoo staff. As a result, the zoo must adhere to the City's requirement for a net-zero emissions portfolio wide by 2042. To meet this target, the zoo must plan for building decarbonization to comply with City requirements. Planning campus-wide decarbonization is not an easy feat when hundreds of animals have heating requirements for animal welfare.

One of the first steps the zoo has taken to plan its decarbonization efforts is through its partnership with the City of Seattle Office of Sustainability and Environment (OSE). In 2024, the zoo started working with OSE and South Seattle College to assist with benchmarking natural gas usage through the utilization of Energy Star Portfolio Manager (ESPM). By the end of 2025, all buildings to decarbonize will be tracked on ESPM. To better understand and further plan building decarbonization, the partnership extended to incorporate Engineering Economics, Inc (EEI), to assess the zoo's natural gas systems and provide scope, budget, and prioritization guidance to fully decarbonize building systems. This assessment is referred to as the Electrification Feasibility Study and was completed in March 2025.

Thirty-two buildings are currently powered by natural gas. To decarbonize, the zoo will need to consult and plan alongside Seattle City Light (SCL) to increase the campus's electrical capacity. Implementing energy efficiency measures will free up electrical capacity for decarbonization. Solar power generation will also support increasing electrical capacity with renewable, clean energy.

The zoo worked with SCL to install solar arrays on our Commissary and 1899 Grove (concessions) buildings. This program sunset in 2020 and will now provide clean energy to the zoo's grid. In addition to the carousel array, these arrays generate approximately 80,000 kWh annually. **This is enough electricity to power an average of eight U.S. households for an entire year!** To maximize clean energy and further support decarbonization, the zoo will clean and maintain existing arrays, and it plans to add new solar arrays on roofs and parking canopy structures. The Lion and Otter Lots have been identified as one of the few remaining opportunities on grounds to install solar (high tree canopy cover within most of zoo grounds). Other opportunity areas include the South Entrance Complex roof, West Entrance roof, and roofs of new exhibits as they are built, such as Forest Trailhead (planned for energization July 2025).

To best utilize solar for building power and incorporate battery storage where applicable, the zoo will need to plan solar and electrification in tandem to strategize and plan improvements to the zoo's microgrid holistically. This plan, referred to in the Action Plan as the Woodland Park Zoo Electrification Plan, will help improve campus resilience, accommodate changes and additions to electrification and more on site renewable energy generation, and streamlining electricity monitoring/management. This electrification plan will be a foundational piece of information to inform long range planning, scheduled to begin in 2026.

Goals and Measures of Success

Goals were set based on feasibility and impact in the next five years (2030).

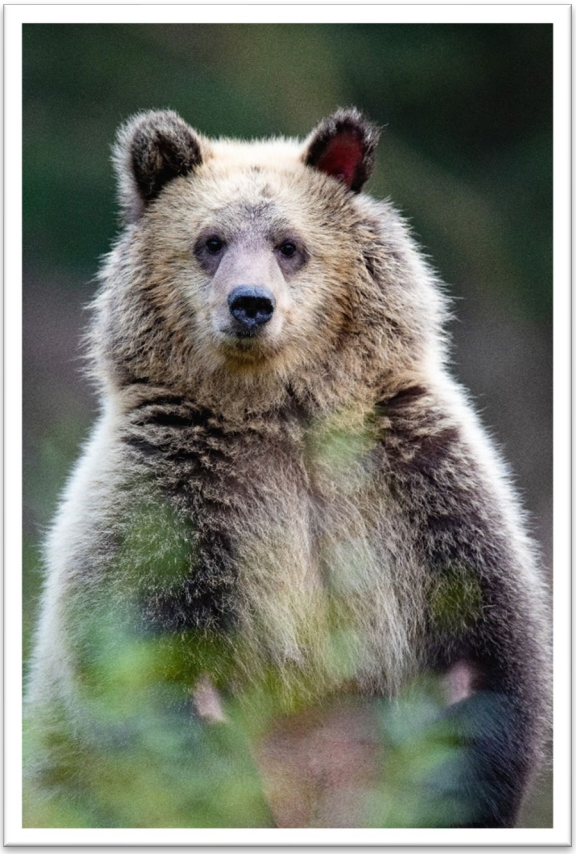
- 25% reduction in electricity usage
  - 1,389,723 kWh reduction
- 20% reduction in natural gas usage for building systems
  - 32,582 therm reduction
- Triple on site renewable energy capacity
  - 156,276 kWh increase

Proposed Project Impacts by Category

Energy Efficiency

- Zoomazium theatrical lighting LED retrofit
  - Impact: 46% power reduction, 70% heat reduction, peak electrical demand reduced by 17 kW, kWh annual reduction To Be Determined
- South Entrance Complex roof replacement
  - Impact: KWh reduction To Be Determined
- VFD upgrades for water systems

- Impact: KWh reduction To Be Determined



Decarbonization

- Eagle, Bear, Basecamp decarbonization
  - Impact: 4,000 therm reduction
- Rhino barn full decarbonization
  - Impact: 24,246 therm reduction
- South Entran Complex decarbonization
  - Impact: 10,772 therm reduction
- Carousal decarbonization
  - Impact: 3,813 therm reduction
- Ambassador Animals
  - Impact: 950 therm reduction
- 1899 Grove (main concessions)
  - Impact: 19,550 therm reduction

Renewable Energy Generation

- Solar canopy in Lion Lot
  - Impact: 382,081 kWh/year
- Solar on Forest Trailhead roof
  - Impact: To Be Determined
- Solar on West Entrance (Zoo Store and Admissions)
  - Impact: 36,981 kWh/year
- Solar on South Entrance Complex
  - Impact: To Be Determined

Challenges	Recommendations for Addressing Challenges
Long lead times for electrical upgrades	Strategic planning with Seattle City Light
Expensive to upgrade transformers, panels, etc.	Identify ROI per project to justify investments, leverage grants and donor funding, state and federal rebates and incentives
Staff time to scope, budget, and project manage energy efficiency, electrification, and solar projects in tandem with other routine scheduled maintenance and facility work	Utilize this plan to draft five year facility work plan, expand maintenance/sustainability team for increase sustainability facility workload
Identifying funding sources to support funding this work and staff time	Work closely with the Institutional Giving and Government Affairs teams to help identify when these opportunities come available and support with submitting applications, leverage industry partnerships
Reliability of electrical systems over natural gas systems	Electric replacements to gas systems are not as reliable as gas systems which can pose a challenge for the zoo's animal welfare standards. Facility experts will continue to keep tabs on new electrified technology and electrified equipment that meets the zoo's usage needs

WATER

OVERVIEW

Over the course of 125 years, the zoo has undergone multiple ground-altering infrastructure iterations, but the zoo does not always have documentation and/or maps to indicate when and where such changes and modifications were made. As a result, studies were needed to understand the zoo's water usage, including inefficiencies, underground locations, possible leaks, etc. Through a King County Waterworks grant, the zoo completed completed a campus-wide water assessment, referred to as the Waterworks 2023 Study. Though this study provided insightful information about the zoo's water usage and stormwater impacts, more work is needed in order to operationalize on these opportunities.

WATERWORKS 2023 STUDY KEY TAKEAWAYS

1. ***Stable Status Quo***
    a. Water use at the zoo declined from 2000 to 2009. Since then, it has stabilized at between 47 and 53 million gallons per year.
2. ***Supply vs. Demand***
    a. Reducing the zoo's water demands while pairing them with alternative water supplies will be key to achieving its water reduction goals.
3. ***Consistent Irrigation Usage***
    a. Irrigation system demand has been consistent, ranging from 14 to 18 million gallons per year for the last 22 years.
4. ***Visitors + Employees = Reclaimed Water Opportunities***

a. 1.2 million annual visitors and 500 employees/volunteers generate approximately 16 million gallons of wastewater annually. If captured, treated, and reused for irrigation, this alone would cover the annual irrigation demand.

5. Unmetered Animal Exhibits

a. There are 39 submeters at the zoo representing less than 30% of the total campus water demand. Increased submetering will allow for better tracking and accountability for water used

6. Lost Water

a. 2 million gallons of irrigation water are unaccounted for annually during winter months when irrigation systems are weatherized.

7. ***Dump and Fill vs. Recirculating Water Features***

a. Currently, there are more than a dozen “dump-and-fill" ponds and 11 on recirculating systems. The majority of the dump-and-fill water/waste goes directly into the City of Seattle’s combined sewer system.

The zoo’s 47–53-million-gallon annual water usage serves to maintain the zoo’s 92-acre grounds and landscaping, maintain and exceed water quality standards for animal welfare, provide enrichment for animals, run kitchens (both for animals and visitors), restrooms, etc. Easy win opportunities, such as upgrading to water-saving fixtures in public restrooms, are planned for near-term projects. Exhibit pool filtration upgrades will have a higher impact but will require planning to scope and budget adequately. This is why one of the first proposed planning projects to follow up the Waterworks 2023 Study is a Woodland Park Zoo Water Conservation Plan, like the proposed Electrification Plan, which will allow the zoo to plan and operationalize water opportunities identified in the Waterworks 2023 Study.

In addition to the study, King County Waterworks awarded the zoo grant funding that will allow the zoo to capture accurate data and quickly detect leaks. Smart water meters will replace old submeters with a few new additions in exhibits with water features, such as the Tiger and Asain Small-Clawed Otter exhibits. Smart water meters will give the facilities staff real-time water usage to quickly detect water system issues and high-water usage behaviors. This grant will also fund smart flow sensors and will quickly detect leaks for all the zoo’s irrigation systems.

GOALS AND MEASURES OF SUCCESS

Goals were set based on feasibility and impact in the next five years (2030).

- 30% reduction in potable water usage
  - — 7,375,804-gallon reduction
- 20% reduction in irrigation water usage
  - — 3,535,646-gallon reduction

PROPOSED PROJECTS

Impacts to be determined from the Water Conservation Plan and/or business case development.

- Install water efficient dishwasher in Gather + Graze Café (concessions)
- Install water-saving fixtures in all public restrooms
- Install rainwater capture system for high water exhibit users
- Utilize reclaimed wastewater for irrigation

Challenges	Recommendations for Addressing Challenges
Identifying funding sources to support funding this work and staff time	Work closely with the Institutional Giving and Government Affairs teams to help identify when these opportunities come available and support with submitting applications, leverage industry partnerships
Increased water usage due to weather/climate change in order to meet animal welfare standards	Consider innovative solutions to combat with climate such as rainwater capture
Insufficient staff time to scope, budget, and project manage	Utilize this plan to draft five year facility workplan, expand maintenance/sustainability team for increased sustainability facility workload

WASTE

OVERVIEW

Reducing landfill generation is better for the planet, and better for the zoo's operational budget as well. Landfill disposal costs account for over half of the zoo's total waste budget! Reducing landfill generation will benefit both the planet and the zoo's pocketbook. Practicing the 3 R's: Reduce, Reuse, and Recycle, will help the zoo continue to make progress in waste reduction efforts.

REDUCE. Reducing single use items is the most significant way to reduce waste. In partnership with the zoo's hospitality partner, Levy Restaurants, single use cups have been replaced with durables. Since June 2024, this initiative has successfully diverted 47k cups from landfills, with plans to expand the program in the next few years.

REUSE. What are we best known for reusing? Zoo Doo! Our most poopular program, **Zoo Doo**, features one of the smallest and most efficient composting systems, designed by local company Engineered Compost Systems (ECS). In 2019, the zoo upgraded to a covered aerated static pile (CASP) system, which enabled this successful composting program to expand to include nearly all animal waste on site,

including waste from carnivores and primates. Composting in urban environments often faces challenges such as limited space, proximity to neighbors, and odor concerns. However, in its 40-year history, the Zoo Doo Yard has never received a single complaint from neighbors, making it a unique and exemplary case study for organic waste management in densely populated areas. This system diverts nearly 500 tons of waste annually from landfills, producing a valuable soil amendment utilized by the zoo's Horticulture team, local residents, schools, and community gardens.

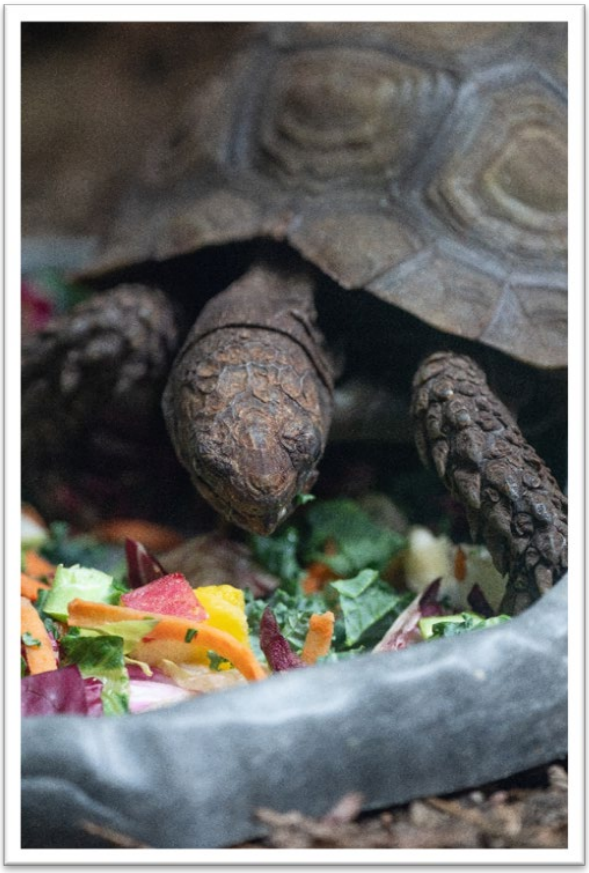
To take the concept of reusing organic matter a step further, the zoo intends to explore options to reuse human and animal food waste for compost. Organics are the zoo's second most costly waste stream, so reducing the quantity of organic waste hauled away will result in operational savings. Additionally, food waste composting will act as a demonstrational educational opportunity to further engage and educate the Greater Seattle community on the environmental benefits of home/community composting.

The Reuse mindset is carried over to non-organic materials, too. The zoo has partnered with local organizations, such as local tool libraries and small salvage businesses to keep equipment, furniture, and other miscellaneous items out of the landfill. In an effort to reduce landfill generation, the zoo will continue to support existing partnerships and identify new partnerships to reuse as many materials as possible across zoo departments.

RECYCLE. Zoo recycling programs are established for materials such as textiles, gloves, construction materials, electronics, light bulbs, batteries, plastic film, and more. In the next five years, the sustainability team will identify new recycling streams to reduce landfill generation.

Through qualitative data collection, the sustainability team identified high rates of waste contamination, with materials sorted into the incorrect waste stream. This results in bags that could otherwise be recycled or composted going to landfill. Engaging with guests to provide education on materials sorting and reduce contamination rates will be an ongoing effort. This summer (2025), the sustainability team will conduct a study to understand better what sorting station signage is most effective (i.e. variation of signage location, language, icons, etc.).

Seasonal waste volume data also shows waste generation from events. Waste audits on the event level are needed to establish a baseline and track the success of various initiatives, whether it's purchasing or behavior change, because again, **the zoo cannot improve what it does not measure.**



Goals and Measures of Success

Goals were set based on feasibility and impact in the next five years (2030).

- **Reduce or divert 20% of organic waste**
  - 64 tons of organics waste generation reduction/diversion
- **30% reduction in landfill generation by 2030**
  - 75-ton landfill generation reduction/diversion

PROPOSED PROJECT IMPACTS

Organics

- Divert food waste from animal diets by composting on site
  - Impact: ~20 tons diverted
- **Implement Waste Not 2.0 to track food waste during animal diet prep and quality control of deliveries**
  - Impact: To Be Determined
- Cross-collaborative project with Levy and the events team specifically targeting food waste prevention
  - Impact: target 11.6 tons of food waste avoided

Landfill

- Waste audits for events
  - Baseline data for benchmarking and measuring success
- Strive for zero-waste events for at least 50% of all events held on grounds
  - 22.5 tons of landfill generation diversion
- Roll out refreshed on site recycling guide for staff
  - Impact To Be Determined
- Refresh sorting station signage for reduced contamination
  - Impact To Be Determined
- Expand reusable dishware to reduce single use items from entering the waste stream
  - Impact To Be Determined, 44,000 cups diverted for 2024 summer season
- Engage the Green Team to communicate proper recycling streams, reduce purchases that will end up in the landfill, etc.
  - Impact on staff training / sustainable operation education
- Increase electronic recycling and ECO-CELL collections to further support gorilla conservation
  - Impact 0.75 tons of landfill diversion

Challenges	Recommendations for Addressing Challenges
The zoo is not a controlled system (i.e. ability for visitors to bring outside food and beverages), making it difficult to control contamination rates	Collect data, such as waste audits, to better understand what guests are bringing into the zoo, implement better signage, guest engagement to educate the importance of proper sorting
Difficulty in measuring the success of behavior change initiatives	Work closely with Learning and Innovation Evaluation and Impact team to help measure success of staff and guest facing initiatives
Space to properly sort and hold recyclable items (space constraints)	Re-evaluate and reorganize back of house areas to make space to hold items for recycling and community organization donations
Staff time to maintain Zoo Doo program and expand recycling and donation programs	Utilize this plan to draft five year facility workplan, expand sustainability team for increase waste/recycling workload

TRANSPORTATION AND EQUIPMENT

OVERVIEW

The zoo's fleet comprises vehicles, carts, equipment, generators, and trikes. Fleet electrification will reduce the zoo's operational carbon footprint, improve localized air quality, and provide fuel cost savings. The zoo will continue striving for a zero-emission fleet and will tap into electric vehicle (EV) charging infrastructure as quickly as possible while incentives last. Making the campus infrastructure EV-ready first will allow for a smooth transition to further electrify vehicles and equipment.

EV-readiness in parking lots will not only be used for fleet but will also support transportation electrification in the Seattle community. The Lion Lot is positioned right off Highway 99 and will provide charging along the West Coast electric highway. Charging in our public lots will promote and support electric vehicle adoption for visitors and staff.

Goals and Measures of Success

Goals were set based on feasibility and impact in the next five years (2030).

- Make WPZ campus EV ready for fleet and public use
  - 18 functional EV charging ports
- 63% of fleet categorized as zero-emission vehicles (ZEV)
  - 47% fossil fuel, 63% zero emission

PROPOSED PROJECTS

EV Charging Infrastructure

- 8 L2 chargers in Otter Lot
- 2 L2 fleet chargers at Commissary building
- 4 L2 chargers outside Sign shop
- At least 4 DCFC in Lion Lot

Fleet and Equipment

- **Rotomix (Zoo Doo mixer)**
- **Forklift**
- **Genie Boom Lift**
- **Commissary Van**
- **Education Van**
- **Gas Toro Cart**
- **Gas Power**
- **Security Vehicle**
- **Education Sienna Van**
- **Box Truck**
- **Zoobaru #1**
- **Zoobaru #2**
- **Pressure Washers**

Challenges	Recommendations for Addressing Challenges
Availability of electric alternatives to gas systems	Research and stay in tune with industry advancements in electrification and pilot new systems
Vandalism of charging cables	Outsource maintenance and operations of chargers and include uptime requirement in site-host agreement
Reliability of newer electric models compared to gas	Pilot electric models at a smaller scale in non-animal areas to test reliability before scaling up to animal areas
High upfront costs to electrify vehicles/equipment	Work closely with the Institutional Giving and Government Affairs teams to help identify when these opportunities come available and support with submitting applications, leverage industry partnerships

SECONDARY INITIATIVES

The following focus areas are ranked as secondary priority primarily due to staff bandwidth. As a result, most projects identified within these focus areas may take longer to scope, plan, and implement.

SUSTAINABLE PROCUREMENT

Overview

Sustainable sourcing is a key focus identified in the zoo's 2018 Sustainability Plan. While progress has been slow due to staffing, bandwidth, and funding limitations, the zoo has made notable strides in several areas of its supply chain.

Though there is no formal sustainable procurement policy in place, there are still some sustainable sourcing guidelines in place. Vendors are evaluated based on sustainability criteria, such as materials, manufacturing practices, proximity to the zoo, mission alignment, and being chemical-free (e.g., PFAS-free). Expanding these guidelines into a formal policy with standard operating procedures (SOPs) for departments will further the mission's commitment to sustainability and will likely result in a further reduction in landfill generation by sourcing recyclable materials.

Consumption can become more sustainable by integrating recycling/reuse in a closed-loop system. One example of a close-loop

system in our operations is our management of organic waste. Cedar Grove, an organic waste recycling company, collects the zoo's organic materials such as food scraps from animal diets and landscape debris. These materials are processed into compost at Cedar Grove's facilities and are used at Sound Sustainable Farms to grow fresh produce. Depending on seasonality, the zoo purchases a portion of its animal diet supplies from Sound Sustainable Farms, creating a partially closed-loop system. The zoo continues to look for additional closed-loop opportunities to reduce waste, optimize resource usage, and minimize environmental impact. Another way the zoo can further its sustainable procurement practices is through the farm-to-table ideology. The zoo provides browse (shoots, twigs, leafy branches, and herbaceous shrubs) as enrichment and nutrition for animals. ***We like to think of it as farm-to-stable!*** A significant portion of this browse is donated by local partners across the Greater Seattle Area, including organizations like the Seattle Department of Transportation, Seattle Parks amd Recreation, Seattle Public Utilities, UW Arboretum, Bush School, Expedia, Seattle Center, and Seattle University. This collaboration helps reduce waste that would otherwise be sent to an organics compost facility. The zoo will continue to nurture these partnerships and continue to expand the browse donation program.

Winter browse species can be difficult to maintain with donations alone. Through Washington State funding, the zoo is constructing a winter browse garden so animals can continue to have a reliable source of browse through the winter months. This project will be completed in Fall 2025.

Additionally, the zoo will explore innovative solutions to reliable food sourcing as climate change continues to impact dietary sourcing during the hot, summer months. Having the capability of growing on site will improve food resiliency and reduce food sourcing costs. The zoo has done initial research on hydroponic systems, a sustainable farming method that offers several environmental benefits such as water conservation, reduced soil erosion, lower pesticide use, increased crop yield, and energy efficiency. Other zoos have implemented this system, and our team has engaged in conversations to learn from the experience of these other institutions. This project would serve and benefit zoo operations and act as a demonstrational project to further engage and educate on sustainable farming practices.

GOALS AND MEASURES OF SUCCESS

- Implement sustainable procurement policy by 2029
  - Sustainable Procurement Document
- Identify baseline of total animal diet/enrichment sourcing comes from local vendors or is grown on site by 2028
  - Baseline Animal Diet Vendor Report

PROPOSED PROJECTS

- Complete Sustainability Procurement Policy
- Establish baseline local vendor list for animal diet/enrichment
- Procure through an on site hydroponic system or through a vendor that grows using hydroponic system
- Winter browse garden (phase 1 scheduled for completion by end of 2025)

Challenges	Recommendations for Addressing Challenges
Workload management with other sustainability priorities	Utilize this plan to draft five year facility workplan, expand sustainability team for increase sustainable procurement program development workload
Identifying funding sources to cover the costs of implementing identified project	Work closely with the Institutional Giving and Government Affairs teams to help identify when these opportunities come available and support with submitting applications, leverage industry partnerships
Capturing an accurate baseline of animal diets when animal populations fluctuate on site	Capture data by animal unit and note population changes as they occur

SUSTAINABLE DESIGN

OVERVIEW

The zoo mirrors sustainable design standards set by the City of Seattle. This includes but is not limited to drip irrigation specs, energy system standards, and water system specifications. Though this is already followed in practice, a formal document consolidating these standards will ensure that steps are not missed that can result in costly mistakes.

Goals and Measures of Success

- Implement sustainable guidelines for WPZ buildings and exhibits by end of 2026

— Sustainable Design Guideline Document

Challenges	Recommendations for Addressing Challenges
Selecting equipment/systems that will be available for the next 20+ years	Research and stay in tune with industry advancements in electrification and pilot new systems
Working around aging infrastructure to implement standards that can be unique to each animal exhibit	Pilot electric models at a smaller scale in non-animal areas to test reliability before scaling up to animal areas

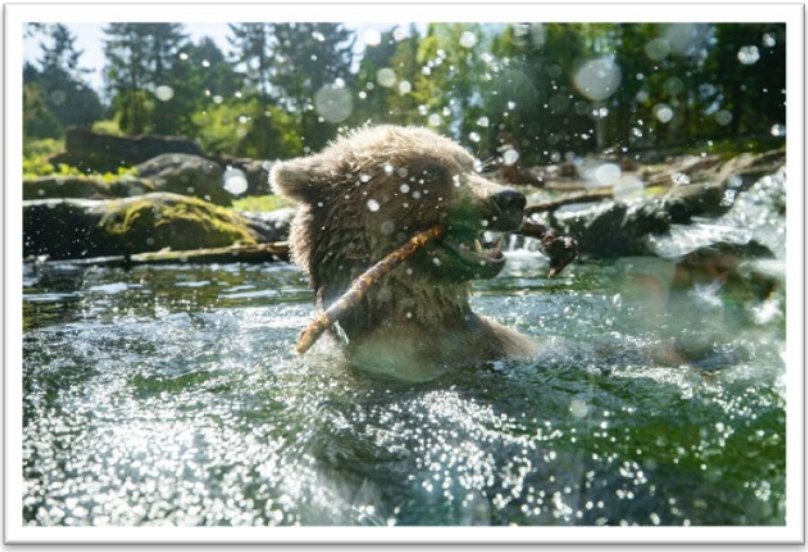
BIODIVERSITY AND ECOLOGY

OVERVIEW

Biodiversity is what makes up our natural world. The intersection of all living things -- humans, animals, plants, fungi, and even microorganisms -- work together to maintain a balanced ecosystem for life to thrive. Human activities can disrupt the natural balance, and the zoo remains committed to reducing its impact on the local biodiversity within our 92-acre campus.

The zoo has fostered a biodiverse ecosystem on site with pollinator gardens, a vast variety of vegetation, high percentage of tree canopy cover, etc. One area where the zoo can make improvements is reducing the impact of our water usage on local waterways. The City of Seattle owns and operates a wastewater collection system that collects residential and industrial wastewater and conveys the collected wastewater to regional conveyance systems and wastewater treatment plants. About two-thirds of the City is served by a combined sewer system that carries both untreated sewage and stormwater.

During heavy rains, the combined sewer system can be overwhelmed and will overflow at designed relief points to avoid sewer flooding in streets and causing backups into homes and businesses. These overflows are called combined sewer overflows (CSOs), and they contribute to pollution of surrounding water bodies and negatively affect the natural environment.



The southwest portion of the zoo is located in the Fremont CSO basin (174) and the southeast portion of the zoo is located in the Wallingford basin (147). The northeast portion of the zoo flows north, then east, then south as it re-enters the combined sewer basin.

The zoo has a combination of dedicated storm drain pipes and combined sewer pipes. The outfalls discharging to the combined sewer mains are the ideal targets for stormwater intervention as they will reduce loading and volume into the combined sewer. In the next five years, the zoo will implement at least three projects that will reduce combined sewer loading in order to reduce CSOs and stormwater pollutants in order to protect public health and the environment.

Goals and Measures of Success

- Reduce zoo impact on combined sewer overflow (CSO) events
  - Implement at least three projects that reduce CSO impact

Challenges	Recommendations for Addressing Challenges
Workload management with other sustainability priorities	Utilize this plan to draft five year facility workplan, expand sustainability team for increase sustainable procurement program development workload
Identifying funding sources to cover the costs of implementing identified project	Work closely with the Institutional Giving and Government Affairs teams to help identify when these opportunities come available and support with submitting applications, leverage industry partnerships
Measuring and evaluating impact	Work closely with Learning and Innovation Evaluation and Impact team to help measure success of staff and guest facing initiatives

ACTION PLAN

The Sustainability Action Plan is a living document designed to help zoo staff across departments stay on target to accomplish the goals within each key focus area. Projects identified through electrification and water plans will be added as they are prioritized, budgeted, or funded through other means (donations/grant funds).

This Action Plan provides the framework needed to achieve the goals outlined in the plan. However, to succeed, the zoo will need to provide adequate staffing, cross-department collaboration and ownership, funding (or staff support to apply for funding opportunities), and commitment to piloting and learning from mistakes.

RESOURCE ALLOCATION

The sustainability team currently has 2.5 staff members. To achieve the goals outlined in this plan, more staff support will be needed to research, scope, budget, plan, and implement projects, collaborate with other departments in various resource conservation initiatives, and build/maintain meaningful community and AZA partnerships.

Cross-Collaborative Department Responsibilities:

- Maintenance/Facilities: meter upgrades, water fixture installation, EV charger installation, Zoo Doo operations, LED retrofits, fleet and equipment electrification and other facility upgrades
- Horticulture: automated irrigation project planning/coordination, browse program development for sustainable procurement, water efficiency in daily operations
- Grounds: coordinate waste reduction initiatives, identify barriers, and collaborate to reduce waste stream contamination in guest-facing areas
- Learning and Innovation: Partner for Zoo Doo tours, public programming, internships, and data collection
- Events: reduce waste generation (zero waste events) and celebrate sustainability with activities at events such as Spring Spectacular
- People and Culture: Development and implementation of new staff trainings
- Development: identify grant opportunities and coordinate grant proposal submission, identify individual and corporate donors for sustainable project opportunities
- Guest Engagement: Sustainability storytelling, blog posts, educating guests about innovative sustainability projects on exhibit signage, and social media posts
- Levy: coordinate durables roll-out logistics and messaging (reduce contamination), reduce waste at catered events, roll out sustainable initiatives such as Waste Not 2.0 program, storytelling for sustainably/locally sourced meat/produce,and plant-based food offerings

CONTRIBUTOR ENGAGEMENT

INTERNAL CONTRIBUTORS

The passion and motivation that Woodland Park Zoo staff have for sustainability and conservation action puts the zoo in a position to enact meaningful change. These sustainability champions will help push initiatives forward to inspire guests through the impactful work we conduct on site to be a greener zoo. The sustainability team will work with internal contributors as noted above for resource allocation, as well as through the Green Team, training opportunities, and more.

Green Team

Woodland Park Zoo is home to one of the longest standing Green Teams in the industry. Founded in 2001 with a mission to focus on water and energy conservation, our Green Team is a multi-disciplinary group of zoo employees who pursue, promote, and encourage sustainable daily practices at and beyond the zoo. Our Green Team works with every department across the zoo to influence and advocate for sustainability practices on zoo grounds and beyond, in collaboration with our partners. We work closely with our Learning and Innovation and Engagement staff to drive both internal and external conservation action and behavioral change.

The members of the Green Team will act as Sustainability Champions across the organization to implement initiatives, whether physical changes or behavior changes, to support reaching the goals outlined in this plan.

Training

As new green business practices are identified, training should be implemented for all staff or specific departments. Training for sustainability should also be an annual requirement, not just during onboarding. Sustainability will collaborate with People and Culture to develop and roll out these regular trainings.

Communication

Communication of initiative progress will be shared out in various forms such as within Green Team (then disseminated to rest of teams), ZooFlash, SharePoint site to centralize information, recurring team/department meetings, all staff meetings, etc.

Project management will be tracked using project management software (such as Microsoft Projects) to stay on track of deliverables across departments and within target deadlines.

External Contributors

The zoo cannot succeed without the help of external groups such as vendors, community groups, partners, sponsors, and of course, zoo visitors. The zoo commits to maintaining these relationships and further expanding external partnerships to meet sustainability goals, receive feedback, and leverage these partnerships to begin strategizing Sustainability planning beyond 2030.

INNOVATION AND OPPORTUNITY

Operating in a “business as usual” capacity is what put the world into the climate crisis position. To reduce our operational environmental impact, we must think creatively and strategically to hit our ambitious goals. This may mean piloting new programs and innovative technologies that can be replicated in other areas across the zoo and even across the broader Seattle and AZA communities.

There will also be opportunities that arise from grants or project alignment with local community organizations. It’s important we remain agile to take advantage of these opportunities when they become available.

Some innovative opportunities include, but are not limited to:

- Low-income community solar
- Compost heating system
- Hydroponics
- Solar + battery storage
- Resiliency HUB

Environmental Equity

It is a human right to have equal access to clean air, water, and other natural resources. The zoo will work with marginalized communities to better understand environmental burdens, such as energy or water burdens. This feedback will inform project and program prioritization and may take place on or off-site in order to reach communities in need.

Examples of projects or programs that will be explored include but are not limited to:

- Zoo Doo donations to community organizations, non-profits, and community gardens
- Demonstration projects such as rain gardens, rain barrels, etc.
- Accessible electric transportation such as electric connector shuttle from the light rail to Woodland Park Zoo
- Meal vouchers for field trip/student groups to try plant-based meals at concessions
- Public tours of the Zoo Doo yard to learn about the benefits of composting

Leadership Commitment

To successfully implement the Sustainability Plan, executive leadership is crucial. Departments across the organization will need consistent support to collaborate, plan, scope, and execute the initiatives outlined in this plan. Sustainability work should not be viewed as additional or peripheral—it must be embedded into how the zoo operates daily. This shift in mindset requires leadership to actively promote sustainability as a shared organizational responsibility, not just a departmental function. As such, staffing levels may need to be adjusted, and funding priorities may need to be realigned to ensure teams have the capacity to integrate sustainability into their core functions.

Leadership commitment also means intentionally prioritizing staff time for sustainability-related work. Employees across departments need space to contribute to initiatives such as waste reduction, energy conservation, and water savings. Without dedicated time, even the most enthusiastic staff cannot meaningfully participate or innovate. Leaders must also support cross-departmental collaboration by encouraging flexible scheduling, integrating sustainability goals into annual work plans, and holding managers accountable for contributing

to campus-wide progress. ***This kind of institutional support helps ensure that sustainability is operationalized in a way that is consistent, effective, and resilient over time.***

Lastly, financial support is essential. Successful project scoping and implementation often require up-front investment, whether for technical studies, consultant support, capital improvements, or pilot programs. Leadership must be willing to set aside budget resources and pursue external funding opportunities when needed. ***By doing so, they signal to staff, partners, and the public that sustainability is not just a value but a priority.*** Through this strategic alignment of time, staffing, and funding, leadership enables the zoo to take meaningful, measurable steps toward a more sustainable and equitable future.

CONCLUSION

Guided by our vision as a conservation-focused nonprofit, this plan sets clear priorities around decarbonization, energy efficiency, waste management, and water conservation—efforts that not only reduce our environmental footprint but also support long-term financial sustainability through lowered utility costs. As we continue to advance these key areas, additional sustainability themes such as procurement and design will be thoughtfully developed and integrated, with comprehensive updates planned for the next iteration of this plan in 2030.

Sustainability is more than a goal—it is embedded in our culture and operations, driving us to be a model of environmental excellence. We will remain accountable through ongoing measurement and reporting, fostering collaboration across our staff, partners, and community. Together, we will continue inspiring responsible stewardship and innovative solutions that protect wildlife and preserve natural resources for generations to come.