



OREGON ZOO BOND CITIZENS' OVERSIGHT COMMITTEE FINAL PROGRAM REPORT

Presented November 2021 to the
Metro Council and the community

OREGON
ZOO



I want to thank all of the current and past members of the Oregon Zoo Bond Citizens' Oversight Committee for their service as well as all of the staff from the Oregon Zoo and Metro who made this a true team effort. The process of citizen oversight established by this committee stands as a model for other processes where public trust and support is desired and exemplifies all that can be gained when diverse community voices and dedicated public employees work in collaboration to assure transparency and accountability in government efforts.

—Susan G. Hartnett, Chair

Photo: Bond completion celebration. Left to right: Heidi Rahn, Scott Robinson, Craig Stroud, Sarah Keane, Dan Aja, Christine Taylor, Jim Mitchell, Dick Stenson, Robyn Pierce, Susan Hartnett, Deidra Krys-Rusoff, Karen Weylandt, Kevin Spellman, Linnea Nelson, Sarah Orizaga, Julie Fitzgerald

November 1, 2021

RE: Oregon Zoo Bond Citizens' Oversight Committee Final Program Report

Dear Metro Councilors and Regional Community Members:

I am pleased to transmit the Oregon Zoo Bond Citizens' Oversight Committee's final report, which presents our summaries and findings on how the program progressed from passage of the bond measure in 2008 through completion of the final projects in October 2021. The report recaps the entire Zoo Bond Program's efforts to improve animal welfare, enhance conservation education, and increase the zoo's sustainability.

The committee is pleased to report that throughout the thirteen years since the bond measure was approved by voters in November 2008, the bond funds were spent wisely, bond projects were completed on schedule and within budget, and the bond program successfully delivered on voter expectations.

This report is the culmination of a team effort involving contributions by many people who diligently engaged in thoughtful, professional work to bring the vision embodied in the initial bond measure. The community's decision to approve the bond began the process of rebuilding, updating, and modernizing the Oregon Zoo, which is the number one paid attraction in the Pacific Northwest based on annual attendance.

This work has been challenging and rewarding and its amazing outcomes can be seen on a short walk through the zoo. The new habitats for condors, elephants, polar bears, chimpanzees and black rhinos are state-of-the-art and provide environments where these endangered animals can thrive. Improvements to guest amenities, including the Zoo Train, cafes, plaza and wayfinding, are also easy to spot. Much of the work on the zoo's infrastructure is hidden but is equally important to the success of the bond program.

However, if you walk further you will find habitats in need of improvements, aged buildings in need of replacement, and infrastructure in need of upgrading. It is my sincere hope that the success of the 2008 bond inspires regional leaders and voters to continue addressing the needs of all the wildlife in our care and to begin moving forward on another significant capital investment in the Oregon Zoo.

In closing, I want to thank all of the current and past members of the Oregon Zoo Bond Citizens' Oversight Committee for their service as well as all of the staff from the Oregon Zoo and Metro who made this a true team effort. The process of citizen oversight established by this committee stands as a model for other processes where public trust and support is desired and exemplifies all that can be gained when diverse community voices and dedicated public employees work in collaboration to assure transparency and accountability in government efforts.

The committee members also wish to sincerely thank the Oregon Zoo and Metro staff and leadership who have supported the zoo bond program. Special thanks go to Councilor Shirley Craddick who has been the Metro Council liaison to the committee since its inception.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan G. Hartnett". The signature is fluid and cursive, written in a professional style.

Susan G. Hartnett, Chair

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OREGON ZOO BOND CITIZENS' OVERSIGHT COMMITTEE FINAL PROGRAM REPORT

A report to the Metro Council and community regarding the zoo bond projects and program from inception to completion:

Presented November 2021 for the period 2010 to 2021

INTRODUCTION

In 2008, Portland area voters expressed the value they place on animal welfare, conservation education, and resource conservation when they passed the \$125 million bond measure to fund habitat and infrastructure upgrades at the Oregon Zoo. As mandated by the bond measure, the Oregon Zoo Bond Citizens' Oversight Committee ("the committee") provided independent citizen review to help ensure the public's money was well spent. This is the committee's final report to the Metro Council and the community, presenting its summaries and findings on how the program progressed from passage of the bond measure in November 2008 through completion of the final projects in October 2021.

Zoo Bond Ballot Measure

Bonds to Protect Animal Health and Safety; Conserve, Recycle Water

The zoo bond measure calls for updating and replacing old exhibits and facilities, increasing access to conservation education, and replacing utility systems to reduce water and energy use and lower operating costs.

- Provide more humane care for animals; update four outdated and undersized enclosures with larger, more natural and safer spaces.
- Protect animal health and safety; modernize zoo's substandard 45-year-old animal clinic determined deficient by the Association of Zoos and Aquariums.
- Increase access to conservation education; provide more space for summer camps, classes and hands-on learning for kids, adults and families.

About the committee

The 2008 zoo bond measure titled “Bonds to Protect Animal Health and Safety: Conserve, Recycle Water” (the “zoo bond”) called for a citizen oversight committee to do the following:

1. Assess progress in implementing the Oregon Zoo bond measure project improvements.
2. Report on project spending trends and cost projections, and review and report on the annual independent financial audit of spending.
3. Consider and recommend project modifications intended to account for increases in construction costs in excess of budget estimates, to ensure that the purpose and promise of the Oregon Zoo bond measure is fully realized.

First appointed by the Metro Council in January 2010, the committee generally met four times each year in February, May, September and November. Committee members brought a range of interests and skills to the committee’s work and were from diverse backgrounds.

The committee operated under a charter that incorporated the governance and reporting requirements of Metro Council Ordinance 10-1232. The committee meetings typically involved interactive presentations by the zoo bond staff and other Oregon Zoo and Metro staff. Each meeting included considerable discussion and question/answer time.

The committee operated at a high oversight level, reviewing the zoo improvement program to ensure that the bond program and projects were on track. In most cases, the committee did not make specific project decisions, instead looked at how decision-making occurred and how business was conducted. The committee sought to help ensure that the right processes and controls were in place so that the best possible value could be realized from the voter-approved zoo bond funds.

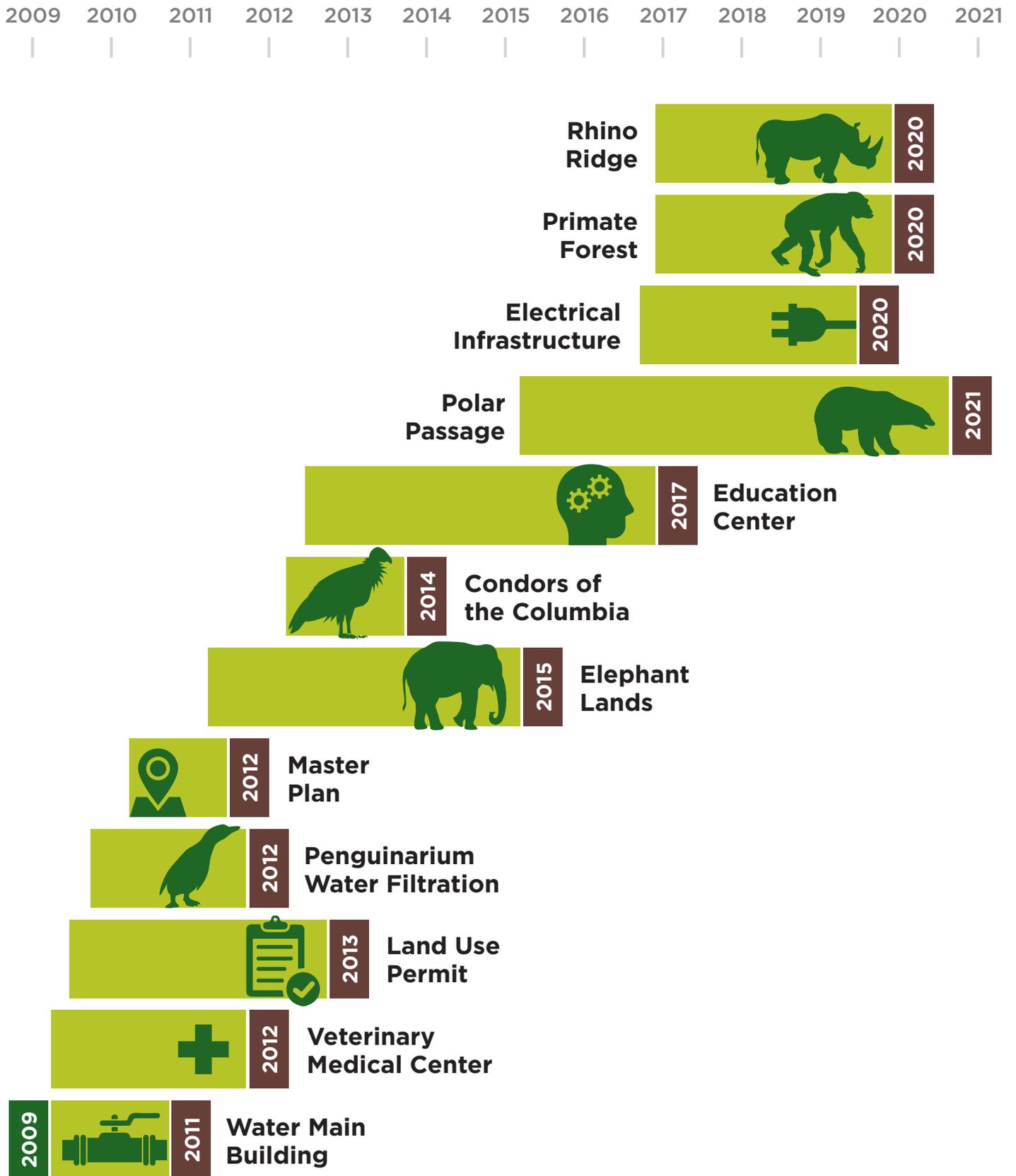
The committee’s reporting requirement

The committee was required to report annually to the Metro Council regarding the progress of the zoo bond measure improvements, spending trends and cost projections, and project modifications. In addition to the bond reporting requirements, the committee reviewed other requirements and goals for the program including the state requirement that 1.5 percent of construction costs on eligible projects be used for renewable energy installations, the Metro requirement that 1 percent of construction costs on projects of a certain size be used for commissioned artwork, and an aspirational goal that zoo bond-funded construction projects achieve 15 percent participation from minority-owned, women-owned, emerging small business, and service-disabled veteran-owned firms.

This report provides the committee’s summary review of the bond program since inception, including the additional requirements and goals described above. Appendix A contains more detailed information on the completed projects and background on the bond initiation process and early planning stages. Throughout the report, the committee focused on the three main objectives of the ballot measure—animal welfare, conservation education, and infrastructure and sustainability—and documentation of project development or construction challenges.

The committee’s meeting materials, annual reports, program fiscal audits and other reports can be found on the [Oversight Committee meeting materials pages](#) on the zoo’s website.

Project sequence and progress



PROGRAM SUMMARY CONCLUSIONS

The committee’s assessment of the zoo bond program can be summarized in five main conclusions:

1. Animal welfare was a top priority throughout the program, influencing all design and construction decisions, resulting in environments where the wildlife will thrive.
2. Education and conservation goals were major drivers in the program, especially in the design of the new habitats; the Education Center, an award winning building, will support these elements of the zoo’s mission for generations.
3. The innovative sustainability project elements provide immediate benefits in reduced energy and water consumption and form the backbone of a new “greener” zoo infrastructure.
4. The program was well managed with a high level of transparency and focus on the promised outcomes assuring the public’s trust was earned and maintained.
5. The program delivered the promised projects within the bond’s financial parameters, using partnerships and sound financial decision making to achieve even more than originally planned.

PROGRAM INITIATIVES

This section describes the three main objectives of the ballot measure—animal welfare, conservation education, and infrastructure and sustainability—and provides highlights of how those objectives are embodied in the bond program and project outcomes, including two additional program initiatives that the Committee has monitored and reported on since 2015—diversity in contracting utilization and program governance and structure. Appendix A includes a detailed description of the ways the ballot initiatives were incorporated into all completed projects.

Animal Welfare

Protecting animal health and safety was a priority in the ballot measure and the zoo is committed to providing its animals with the best care possible. Animal welfare was prioritized during design and monitored during all construction. The sequence of the bond-funded projects also prioritized animal welfare.

Animal welfare refers to an animal’s collective physical, mental and emotional states over a period of time and is measured on a continuum from poor to excellent.

The zoo aims to optimize the welfare potential of each animal through enrichment, habitat design, nutrition, research

Zoo Objectives

- Increase space for elephants
- Create modern animal hospital and quarantine facilities
- Provide more humane conditions for polar bears through reduced concrete substrate, increased pools and increased space
- Add trees, rocks and water to primate areas

programs, veterinary care, husbandry training, population management and staff training. For animals to thrive, the zoo takes into account psychological aspects of welfare such as mental, emotional, and social health. The zoo conducts continuous welfare assessments of individual animals and the species to analyze behavior, physiology, and physical appearance and health.

Bond Projects

- ✓ The Veterinary Medical Center enhances animal holding options, increases safety and comfort and reduces stress for animals, and has dramatically improved the ability to control communicable diseases
- ✓ The upgrades to the Penguinarium water filtration system improved water quality for the resident penguins
- ✓ Condors of the Columbia habitat provides flowing water for drinking and bathing and offers high perch and short flight opportunities for birds
- ✓ Elephant Lands habitat includes more options for extending outside access, increases exercise opportunities and offers a more natural and stimulating environment
- ✓ The Education Center provides improved facilities for the Zoo's invertebrate collection and western pond turtles
- ✓ Polar Passage provides bears with long views, natural substrate, more space, and meets Association of Zoos and Aquariums and Manitoba standards for polar bear habitats
- ✓ Primate Forest provides the chimpanzees with more complex habitat spaces, including interchangeable, three-dimensional structures with climbing structures and hammocks, and allows extended families flexibility to socialize
- ✓ Rhino Ridge, which was fully funded by the Oregon Zoo Foundation and its donors, doubles the space available for the endangered black rhinoceros and provides the possibility for breeding
- ✓ The Electrical Infrastructure project replaced outdated generators and associated infrastructure improving the zoo's ability to address animal needs during power outage events

Conservation Education

The ballot measure highlighted a need to increase conservation education opportunities for zoo visitors. The zoo aims to inspire visitors to take conservation action, increase its capacity to invite and engage diverse audiences in conservation education, engage other conservation partners in providing resources and programming to the zoo's 1.5 million annual visitors, and advance conservation education in the region by fostering connection and dialogue among different sectors.

Zoo Objectives

- Increase access to conservation education
- Provide more space for summer camps
- Expand classes to engage region's diverse population
- Provide visitors with hands-on learning

In 2018, the Oregon Zoo finalized an Integrated Conservation Action Plan (ICAP). This plan establishes the zoo's primary conservation priorities and helps the zoo focus efforts around animals, programs and operations for greater impact. The ICAP helps prioritize staff resource investments and decisions; maximizes effectiveness of zoo conservation efforts; unifies the zoo's education, interpretive messaging and communication strategies to increase awareness of the zoo's conservation efforts and inspire conservation action locally and globally; and aligns sustainability efforts on zoo grounds with conservation priorities.

Bond Projects

- ✓ The Education Center creates a dedicated space for education programming at the zoo, allowing the zoo to increase capacity for conservation education including seven new classrooms and three tent sites
- ✓ Conservation education is an integrated part of the main themes of the interpretive experience in all bond projects
- ✓ Conservation education is focused on and aligned with the Zoo's Integrated Conservation Action Plan and the Interpretive Framework guides messaging throughout the zoo.
- ✓ Conservation education highlights the impacts of human activities on the wildlife housed in new habitats, such as the impacts of deforestation from palm oil farming on Asian elephants and great apes, and global climate change on polar bears.

Infrastructure and Sustainability

The ballot measure called for the zoo to conserve and reuse water, requiring significant infrastructure upgrades. Most of the zoo's infrastructure dated back to the 1950s and 1960s, and much of it still does. The most expensive utility cost at the zoo is water. Leaking pipes, run-off, inadequate filtration systems, and lack of rainwater reclamation systems all contributed to wasted water and increased costs. Millions of gallons of water per year and thousands of dollars are being saved through the bond-funded major rebuilding of the zoo's water distribution system. In addition, new buildings have been designed to capture solar power and warmth and provide natural light and ventilation, cutting down on energy usage and cost.

In its 2011 Comprehensive Capital Master Plan, the Oregon Zoo detailed its commitment to creating an efficient and sustainable campus constantly striving to increase conservation of resources and improvement and expansion of services. Through these types of efforts, operating funds needed for utilities and energy are reduced and can be used for support of the zoo's core missions. Bond funds were used to replace many of the antiquated building/operational systems and animal habitats—approximately 40 percent of the zoo's area—but much work is still needed

Zoo Objectives

- Achieve LEED silver or higher in each project
- Reduce 2008 GHG emissions 80% by 2050
- Generate renewable solar energy onsite
- Invest 1.5% of capital construction costs in renewable energy
- Reduce 2008 water use 50% by 2025

for the Oregon Zoo to be a truly energy efficient and sustainable campus with modern habitats for all the resident animals.

Bond program improvements, enhancements and sustainable features have been incorporated to improve site infrastructure, including the new train route and trestle, new service road, sanitary sewer line replacement, improved stormwater management, and energy and water saving measures.

The Zoo bond projects' aspirational goal was to meet or exceed US Green Building Council Leadership in Energy and Environmental Design (LEED¹) Silver certification. The Veterinary Medical Center and Elephant Lands both received LEED Gold Certifications, and the Education Center was awarded LEED Platinum, the highest level of certification. Polar Passage and Primate Forest were awarded LEED Silver certification.

Bond Projects

- ✓ The Water Main Building provides a crucial upgrade to the zoo's water infrastructure, helping to prevent water waste and associated costs, and creating the ability to implement more natural wastewater management and rainwater capture and reuse systems.
- ✓ Completed projects separated the old combined sewer system into isolated stormwater and sanitary sewers, and have built stormwater planters and bioswales to naturally filter and clean stormwater before sending it downstream
- ✓ Upgrades to the Penguinarium water system saves seven million gallons of water each year and overall water use has decreased by more than 90 percent because the pool water is filtered rather than being drained and refilled
- ✓ An underground stormwater storage facility capable of storing and slowly releasing storm run-off from the entire zoo during a ten-year rain event was incorporated with Elephant Lands
- ✓ The objectives of reducing the use of city water and reclaiming or reusing non-potable water have been achieved on several projects
- ✓ Landscape designs incorporated native, climate-adaptive plant species
- ✓ The Education Center's "net-zero" design features an impressive array of sustainable technologies and new operational approaches that will yield results for years to come.
- ✓ The Electrical Infrastructure project replaced outdated generators and associated infrastructure, increasing capacity and reliability critical to both animal and guest needs, especially in power outage events
- ✓ Bird-friendly glass, which minimizes bird strikes, and bird-safe lighting were installed in several projects
- ✓ Elephant Lands was the first commercial building in Oregon to use cross-laminated timber (CLT), which is a sustainable wood product; CLT was also used extensively at Polar Passage and Primate Forest, which greatly reduces the buildings' carbon footprints

¹LEED is an internationally recognized means to assess the effectiveness of building materials, systems and siting choices to reduce environmental impact through a broad range of energy and resource consumption measures. Certification only applies to buildings.

- ✓ Material reuse was a theme of the bond program including wood from the elk viewing shelter, peeler poles from the Elephant Museum and pavers from the original Elephant Plaza picnic area
- ✓ Solar hot water pre-heating was incorporated into two projects
- ✓ Green roofs were installed at Elephant Lands and the Education Center

In 2019, the committee recommended that the Education Center continue to collect data on energy use in order to achieve the International Living Future Institute (ILFI) Zero Energy Certification. This data collection was interrupted by the forced closures associated with the COVID-19 pandemic and the project was placed on hold with ILFI until the zoo returns to normal operations.

Diversity in Contracting

While not specifically called for in the ballot measure, setting and meeting goals for contracting opportunities for minority-owned enterprises, women-owned enterprises, emerging small businesses, and service-disabled veteran-owned enterprises (“COBID firms”) is an important Metro objective. Early in its inception, the committee made it an aspect of the bond projects to track and report.

This section provides an overview of the diversity in contracting of the zoo bond projects; a more complete summary is included in Appendix B and details for specific projects are included in Appendix A.

Overall, the bond program has spent \$105.5 million on COBID-eligible construction contracts, and \$15.4 million, or 14.7 percent, of that went to COBID firms.

Committee Focus

- Establish an aspirational contracting goal of 15 percent participation from COBID firms
- Consider alternative contracting methods as means to increase COBID participation
- Encourage efforts by Metro and other local governments to increase equity and diversity in construction-related labor force and business ownership through public policies and programs

Program construction Totals	Amount	Percentage
Total Construction Contract	\$115,679,702	
Total COBID-Eligible Contract	\$105,597,825	
Total COBID Contract	\$15,480,918	14.70%
Minority-Owned Business Enterprise	\$4,141,489	3.90%
Women-Owned Business Enterprise	\$4,355,934	4.10%
Emerging Small Business	\$6,960,593	6.60%
Service-Disabled Veterans*	N/A	N/A

*Category not applicable to projects contracted prior to January 2016 when the state of Oregon began that COBID category.

Through a series of quarterly reports and monthly updates, which can be found on the [Oversight Committee meeting materials pages](#) on the zoo's website, the committee monitored the bond program diversity in contracting efforts and outcomes and as the bond program neared completion, the committee recommended that the data be fully integrated into Metro's annual report on the topic.

Program Governance and Structure

Prior to the start of the zoo bond construction projects, the Metro Auditor recommended improved accountability through clarity of the organizational structure. The Auditor suggested clearly delineating roles and responsibilities and lines of authority.

While the ballot measure did not mention program governance as an element to monitor, early in its inception the Committee asked to be kept informed when changes to the program governance and structure were being considered by zoo management or Metro.

The governance structure initially set up for the zoo bond program separated bond program project planning and construction activity from zoo operations. A follow-up audit demonstrated that separating the bond program from zoo operations created a separate project management function better suited to address financial oversight, scheduling, and information sharing.

This robust governance and oversight structure continued to guide the bond program and proved to be effective in ensuring careful and diligent stewardship of bond funds. The bond program organizational structure is shown in Appendix F.

The committee received regular updates on bond program staffing through its final meeting in May 2021. Many staff changes occurred in both the bond program and the zoo staff between passage of the bond measure in November 2008 and completion of the bond projects in 2021, particularly in the final years as the number of projects diminished and staff moved on to other positions.

The committee wishes to acknowledge the hard work, professionalism and commitment of each and every staff person who contributed to the bond program, whether a direct employee of the program or a member of the zoo or Metro staff who supported the effort. Our heartfelt thanks, appreciation, and admiration to all of them.

Committee Focus

- Review changes in organizational structure, roles and responsibilities and lines of authority to assure clarity, transparency and appropriate continuity



SUMMARY OF BOND PROJECTS

The mission of Oregon Zoo is “Creating a better future for wildlife.” The 2008 voter approval of the \$125 million bond measure provided funds necessary for a significant investment in upgrades throughout the zoo.

Included in the program was the development of the first half of a 20-year master plan, which addressing approximately 40 percent of the zoo area. None of the projects expanded the zoo boundary, so it was necessary to maximize use of the available existing space. The bond goals to improve animal welfare, conservation education and sustainability were continuously used in decision making about project design and sequencing.

This section provides a brief overview of the major projects implemented through the bond program. Detailed information about all of the program’s efforts and projects can be found in Appendix A.

1. Veterinary Medical Center

Groundbreaking ceremony . . . September 29, 2010
Construction launch August 8, 2010
Substantial completion January 4, 2012
Grand opening January 19, 2012
LEED Certification Gold
Size 15,950 square feet
Budget approx. \$9.4 million
Final cost approx. \$9.1 million



Veterinary Medical Center entrance

Project notes

- 22,000-gallon rain harvest and storage tank
- Storm water quality swales – clean any storm water runoff before it leaves the site
- 35 solar tube skylights bring natural light into the building
- Recycled 90% of construction waste
- Water efficient landscaping – drought resistant plants, irrigation sensors
- Low VOC materials used
- Recycled materials used in construction – carpet, rubber floors, steel and wood
- Tree removal mitigation – 78 trees removed, 195 replanted

2. Penguin Life Support System

Groundbreaking ceremony.October 2010
Construction launch.November 1, 2010
Substantial completionNovember 17, 2010
Budgetapprox. \$1.8 million
Final costapprox. \$1.75 million

Project notes

- 25,000-gallon pool – instead of dumping/filling water twice a week,
- The water is changed twice a year, saving 6 million gallons of water.
- Water savings translates into approximately \$100,000 annually, a 97% reduction



Visitors at Penguinarium

3. Condors of the Columbia

Groundbreaking ceremony.May 24, 2013
Construction launch.June 3, 2013
Substantial completionAugust 31, 2013
Grand openingMay 22, 2014
LEED CertificationGold
SizeAviary 30' tall,
100' long
Budgetapprox. \$2.6 million
Final costapprox. \$2.2 million



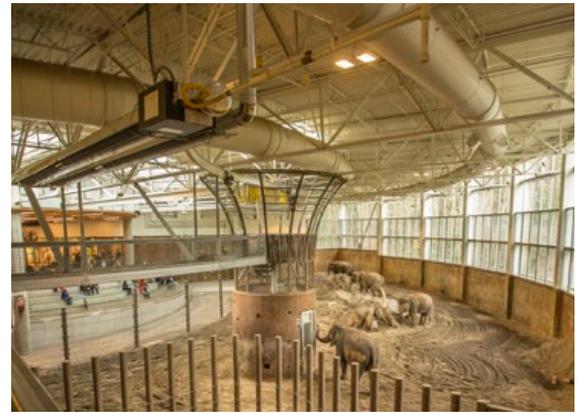
Condor inside new habitat

Project notes

- New condor habitat highlights the Oregon Zoo's successful condor breeding program and inspires guests to learn more about these iconic birds that once flew over the Columbia River
- Sized for 4-5 condors who are not currently participating in the breeding program
- Condors owned by US Fish and Wildlife Service
- No human contact, all food provided in rooms so birds have potential to return to breeding program if appropriate
- Interpretive theme: condors and other large birds are declining due to lead poisoning. Hunters are encouraged to not use lead ammunition for their health and safety and to protect wildlife.

4. Elephant Lands

Groundbreaking ceremony.	June 10, 2013
Construction launch.	August 30, 2013
Substantial completion	
Wildlife Live.	July 12, 2013
Train	November 21, 2014
East Hub	April 7, 2015
Service Road.	May 19, 2015
Entire project	December 7, 2015
Grand openings (phased)	
Encounter Habitat	February 2014
Elephant Plaza	April 15, 2014
North Habitat	April 2015
Forest Hall/Elephant Barn	May 2015
South Habitat	December 2015
Elephant Pool	December 2015
Grand opening	December 15, 2015
LEED Certification	Gold
Size	6 acres
Sand substrate	4' deep
Forest Hall and barn	nearly 33,000 square feet, 43' tall
Pool.	160,000 gallons, 80' long x 80' wide, 12' deep
Budget	approx. \$57.5 million
Final cost	approx. \$57.4 million



Elephant family inside Forest Hall



Elephant Lands Pool

Project notes

- Sub-projects included relocating the train, a new perimeter service road, relocating the Wildlife Live animal holding
- Facilities, water and energy sustainability measures (LEED, geothermal loop)
- Varying terrain for exercise
- Video cameras and monitors show locations of each elephant in habitat
- Reuse of boulders and logs - downed trees and lumber from the elephant museum
- Promotes herd dynamic - habitat promotes choice, can be separate or social as they choose
- Landslide mitigation throughout project site
- 20 timed feeders encourage natural foraging behaviors - elephants have to explore entire habitat to discover food in various locations

- Geothermal system to exchange energy between elephants and polar bears – heat produced by running the chiller at polar bears will be transferred through the underground “slinky” to heat the elephant building
- Bird-friendly glazing on glass to prevent window strikes
- Solar panels on the roof enable building to use 60% less energy and emit 40% less greenhouse gases than buildings of similar size
- FSC Certified wood used in the ceiling of the viewing area
- Rainwater collected from the roof of Forest Hall is used to flush toilets and at habitat rinse stations
- Native plants in the landscaping require less irrigation

5. Education Center

Groundbreaking ceremony. September 1, 2015
 Construction launch. September 9, 2015
 Substantial completion December 28, 2016
 Grand opening March 2, 2017
 LEED Certification Platinum

Size

Site (excluding train station) 1.8 acre
 Nature Exploration Station . 12,900 square feet
 Classroom/café building. . . . 6,000 square feet
 Total building area. 18,900 sqft

Budget approx. \$17.7 million
 Final cost approx. \$17.4 million



Nature Exploration Station

Additional funding from OZF NW Species Conservation fund for turtle lab, Metro Solid Waste (RCR) for wildlife garden, Metro Parks and Nature for interactive map exhibit, Metro Council approved reallocation for additional PV arrays for net-zero energy.

Project notes

- 760 solar panels installed on the roofs of the Education Center and train station – help achieve net-zero energy operations
- High-efficiency lighting (LED) and HVAC systems are controlled through a digital controls system – saved energy
- Radiant floor heating in Nature Exploration Station
- Forest Stewardship Certified (FSC) certified wood
- Bird-friendly lights and fritted glass helps prevent window strikes
- Native plants in the landscaping require less irrigation
- Green roofs on the wildlife garden shelter and bee hotel
- Rainwater collected from the roof is stored in a 10,000-gallon underground storage tank – used to flush toilets and urinals

- Material reuse – nature play area, landscape gates, and wildlife garden shelter used wood from the old Elephant Museum; pavers in wildlife garden are from the old elephant plaza picnic area

6. Polar Passage, 7. Primate Forest & 8. Rhino Ridge

Groundbreaking ceremony . . . October 2018

Construction launch October 2018

Substantial completion

Rhino Ridge October 2020

Primate Forest October 2020

Polar Passage February 2021

Growler’s March 2021

Storage Building March 2021

Grand opening Fall 2021

LEED Certification (pending) Silver

Size

Rhino Ridge 0.5 acres

Primate Forest 1.3 acres

Polar Passage 2.5 acres

Budget approx. \$47.2 million

Final cost approx. \$47.2 million

Project notes

Rhino Ridge

- This habitat upgrade was fully funded by Oregon Zoo Foundation donors
- Doubled the amount of space for rhinos, and habitat design encourages natural behaviors
- Habitats feature natural substrate, drinkers and timed feeders
- An encounter wall and viewing wall provide guests with up close views of rhinos and animal care staff interactions, highlighting animal welfare science

Primate Forest

- Multiple climbing structures with varying levels in all habitats
- Two outdoor habitats featuring heated caves, waterfall, live trees, termite mound and logs
- Indoor habitat featuring a natural biofloor, nests and a termite mound
- Bird-friendly glazing with vertical UV striping to prevent window strikes



View from top of Polar Passage habitat



Chimp inside new Primate Forest habitat



Rhino Ridge habitat

Polar Passage

- 3 pools with chilled saltwater, total pool volume is 115,000 gallons
- Large filtration system saving millions of gallons of water, all pool water is filtered/cleaned once an hour
- Underwater viewing pool is 20 feet deep
- Swim flume was rebuilt in stainless steel for saltwater compatibility
- Habitats feature vista views, varied natural terrain, cedar log shelters, drinkers, dig pits and logs
- Ice tub filled using a timed ice flaking machine
- Cave with both heating and cooling
- Bird-friendly glazing with vertical UV striping to prevent window strikes
- Completed connection to geothermal loop installed during Elephant Lands construction

FINANCIAL SUMMARY CONCLUSIONS

The committee’s assessment of the zoo bond program’s financial outcomes can be summarized in four main conclusions:

- The program fully expended the \$125 million authorized by voters in a manner consistent with the primary goals included in the bond measure—animal welfare, conservation education and sustainability
- The bond funds were increased to \$153.7 million by contributions from the Oregon Zoo Foundation, grants, and rebates from the Energy Trust of Oregon for energy reduction measures and through good financial management practices
- The bond program had a significant economic impact locally and regionally through direct spending, indirect and induced spending, and job creation
- Careful and consistent financial management through periods of significant recession and construction cost escalation was an essential element in the program’s overall success

The committee also believes the bond program offers some key lessons that can help the zoo and Metro in planning future significant capital investments. These are:

- Including both project cost contingencies and a program cost contingency protects against unexpected budget adjustments and allows a better cushion for a decade-long program
- The accuracy and reliability of initial project budgets depends on the amount of pre-planning completed when the budget is established; developing the Comprehensive Capital Master Plan prior to establishing the bond measure amount may have been beneficial
- Plan, plan, and plan some more but remember that a plan is not a prediction when it comes to economic trends and forces; the impacts of the Great Recession and the historic levels of construction cost escalation that followed could not have been foreseen

PROGRAM FINANCIAL OVERVIEW

The zoo bond program budget and expenditures were divided into four main areas: construction projects, planning projects, land use processes and program administration. As of June 30, 2021, the allocated resources for all program activities total \$150,474,821 and revenues total \$153,716,951. The completed projects were finished on time and within budget.

Project	Project Budget	Project Expenditures	Forecasted Expenditures	Percentage Complete
Master Plan/Land Use Permits	3,304,011	\$3,197,675	\$3,197,673	100%
Veterinary Medical Center	9,464,299	\$8,840,329	\$8,840,329	100%
Penguin Life Support System	\$1,800,00	\$1,762,250	\$1,762,250	100%
Water Main Building	267,459	\$242,495	\$242,495	100%
Condors of the Columbia	2,628,592	\$2,215,609	\$2,215,609	100%
Elephant Lands	57,561,443	\$57,407,246	\$57,407,246	100%
Remote Elephant Center	\$117,864	\$117,864	\$117,863	100%
Education Center	\$17,699,157	\$17,412,630	\$17,412,630	100%
Interpretives/Wayfinding	\$2,766,640	\$2,535,847	\$2,535,847	100%
Percent-for-Art	\$843,154	\$774,650	\$774,650	100%
Program Administration	\$8,850,000	\$7,357,653	\$8,850,000	100%
Bond Arbitrage Payment	\$623,779	\$623,779	\$623,779	100%
Electrical Infrastructure	\$1,500,000	\$1,488,333	\$1,488,333	100%
Close-Out Contingency	\$844,805	\$59,814	\$844,805	70%
Polar Passage/Primate/Rhino	\$47,202,256	\$46,438,650	\$47,202,256	100%
Totals		\$150,474,824	\$153,515,765	
Unallocated Program Contingency			\$201,185	
Zoo Bond Program Forecasted Revenues			\$153,716,951	

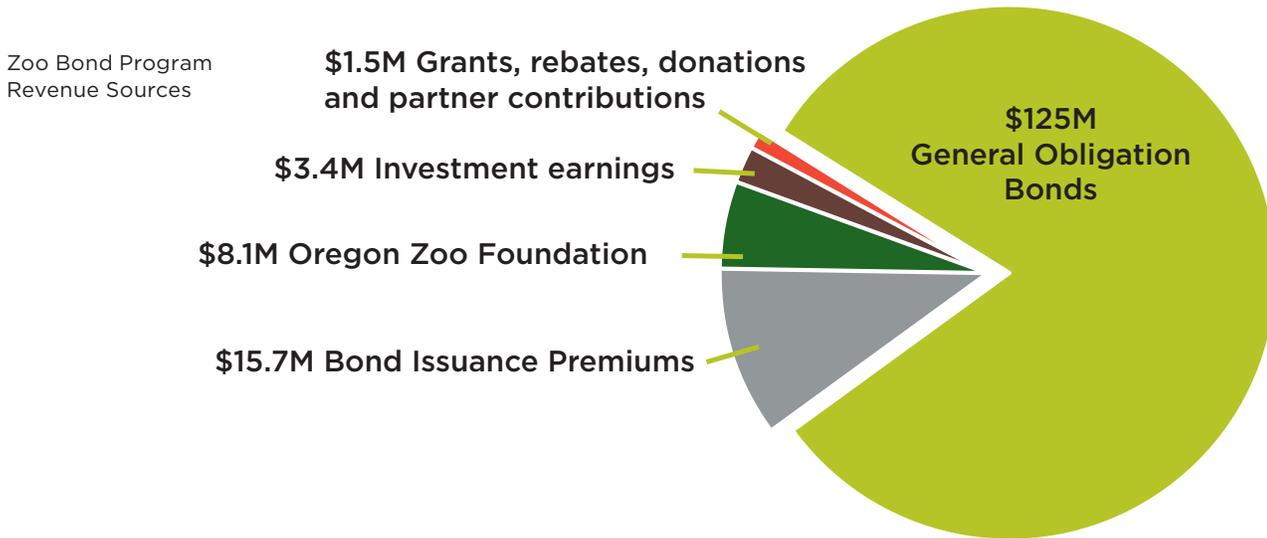
Funding sources total approximately \$153 million, including \$125 million from general obligation bond measure proceeds, \$8.1 million from the Oregon Zoo Foundation, \$1.5 million in grants, rebates, donations, and partner contributions, \$3.4 million in investment earnings and \$15.7 million from bond sale premium proceeds. Oregon Zoo Foundation additionally raised \$3 million for furnishings and animal welfare enhancements to bond projects.

These added resources allowed the program to complete all of the bond projects without sacrificing bond program goals, including animal welfare objectives.

Contributions from the Oregon Zoo Foundation, grants, rebates and Metro’s conservative fiscal policy and excellent AAA bond rating from S&P and AAA from Moody’s all contributed to the program’s successful completion of the projects, despite significant cost escalation in the region especially toward the end of the zoo bond program. For example,

cost escalation required an addition of \$3.2 million to the Polar Passage, Primate Forest, and Rhino Ridge project budget even after significant value engineering but due to good financial management and these invaluable additional resources, this was within the program resources.

Restricted bond funds were fully spent down in April 2021. The program has \$844,805 budgeted for close-out contingency needs. These remaining funds were a combination of contributions from the Oregon Zoo Foundation and incentive dollars from the Energy Trust of Oregon.



The bond program met Metro’s requirement to invest one percent of direct construction costs in public art. The eligible direct construction costs through the end of the bond program totaled \$77,871,784, making the 1 percent for art requirement \$778,718. At the conclusion of the program, the Percent-for-Art spending was \$724,650. In addition to the zoo bond investments in art commissions and historic art relocation, the Oregon Cultural Trust, Oregon Zoo Foundation and zoo operations have invested \$62,841 in restoration of three sets of historic artwork that were moved to accommodate bond construction projects. These include the Willard Martin mosaic, two totem poles and the Warren Iliff sculpture garden. With these restoration investments included, the total art expenditures were \$787,491.

Metro’s central services supported the zoo bond program with budget management, bond sales, legal support, procurement of goods and services, and information services. These administrative costs and the actual costs of issuing the bonds total \$8.8 million (5.8 percent) of the zoo bond program’s total expenditures. This percentage is comparable to other local public bond-funded construction projects. An analysis of the Beaverton School District, Portland Public School District and Portland Community College bond programs resulted in a range of administrative costs between 3.8 percent and 7.2 percent of the total program budget.

Metro’s agreement in 2018 to cap the central services transfer amount provided a high level of confidence that the administrative costs would not increase during the final years of the program and assured that remaining funds would be focused on the bond goals of animal welfare, conservation education and sustainability.

Contracting Methods

The program received Metro Council approval to use an alternative general contractor procurement method called the Construction Management by General Contractor (CM/GC) for Elephant Lands, the Education Center, and Polar Passage/Primate Forest/Rhino Ridge. This approach worked well for these projects and, given the complexity of the zoo operations and physical features, the committee continues to support the consideration of alternative contracting methods for future zoo projects.

Reports evaluating the outcomes of the use of CM/GC for Elephant Lands, the Education Center and Polar Passage/Primate Forest/Rhino Ridge can be found on the [Oversight Committee meeting materials pages](#) on the zoo's website.

Master Plan Implementation and Update

The Oregon Zoo's 2011 Comprehensive Capital Master Plan describes the zoo's vision and goals, the purpose and intent for each facility, and includes a budget, sequence and timeline of construction projects that will bring the future vision to reality. This representation of the zoo's future is an essential tool to coordinate the development of the zoo's separate facilities into a coherent, effective and unique institution with a clear and recognizable theme and mission.



The Metro Council approved the master plan in 2011, including the budgets for the projects funded by the 2008 bond. The CCMP has been a crucial element to ensure efficient and effective use of bond proceeds. An update to the CCMP will be critical in assessing the needs of the remaining aged habitats and facilities and in defining the improvements necessary to meet current animal welfare standards, inspire zoo visitors to take actions in support of conservation, and to build on the sustainable infrastructure backbone built with the 2008 bond funds.

Zoo Operating Costs

The Oregon Zoo staff anticipates that some future operating costs of the zoo will increase upon completion of the bond-funded projects, but will be offset by additional revenue-generating opportunities and cost savings and efficiencies gained through new technologies and the modernization of zoo infrastructure. The committee believes it is important that staff continue to monitor this assumption to assure sound financial planning and to provide additional data for future capital investments.

Independent Financial Audits

Beginning in 2009, Moss Adams issued an annual independent financial audit report of the zoo bond program each year through 2020. The auditors consistently reported that nothing came to their attention that caused them to believe that Metro failed to comply with the provisions of the bond measure. No specific management letter comments were made. Notices of the audit reports were published in the Daily Journal of Commerce, the audit reports were posted on the zoo website, and the audit reports were provided to the Oversight Committee. All twelve annual audit reports can be found on the [Oversight Committee meeting materials pages](#) on the zoo's website.

FINAL RECOMMENDATIONS

Most years, the committee's annual report includes recommendations about actions and activities to monitor or explore during the next year. These recommendations helped the committee track important goals and provided staff with guidance on the issues that were of interest to the committee. Each year the prior year's recommendations were updated and in most cases the committee decided the recommended action or effort had been concluded; sometimes a recommendation was carried over to the following year.

As the bond program came to a close, the committee became aware that future action on a few matters would go beyond the duration of the committee's reporting process. The committee respectfully presents the following five recommendations to help assure that progress begun under the bond program continues into the future.

- The committee recommends that progress on the Integrated Conservation Action Plan (ICAP) be reported to the Metro Council as part of the zoo's annual report.
- The committee recognizes that the data collection necessary to achieve the International Living Future Institute (ILFI) Zero Energy Certification was interrupted by the zoo's closure and reduced operations due to COVID-19 restrictions. The committee recommends that progress towards achieving the ILFI certification be reported to the Metro Council as part of the zoo's annual report.

- The committee recommends that the Education Center continue to be operated in a way that optimizes net-zero energy goals while achieving other program goals and that the results of these efforts be reported to the Metro Council as part of the zoo’s annual report.
- The committee recommends that the zoo update its Comprehensive Capital Master Plan to define the needs of the remaining aged habitats and facilities, and that Metro Council begin thinking about funding options for the improvements necessary to address those needs continuing the focus on animal welfare, conservation education, and sustainability.
- The committee recommends that the early assumptions about the financial impacts on zoo operations resulting from the bond projects be assessed over time and the outcomes reported to the Metro Council. Specifically, this would include monitoring over time the changes in operating expenses and revenues resulting from the bond projects (e.g. lower utility costs due to reduced water usage and increased revenue due to greater attendance). The committee recognizes that this is a difficult task, especially given the dramatic financial impacts of the global pandemic but believes the information could be useful in formulating plans for further renovation of the Oregon Zoo.



APPENDIX A – BACKGROUND INFORMATION AND COMPLETED PROJECTS

As the zoo bond program moved towards conclusion, the committee decided the time was right to make format changes intended to begin transitioning the annual report to a final bond program report when the current projects are completed in 2021. To that end, beginning with the 2018 report, Appendix A was added to capture cumulative information about the bond’s inception and early planning stages along with information on completed projects. The committee’s goal in making these changes was to assemble a complete picture of the zoo bond process and program and to highlight for the public key information about the program’s performance in fulfilling the bond’s intent. The committee also believes this information may be useful to Metro and other public agencies when undertaking a significant bond-funded construction program.

1. Introduction: How the zoo bond program started

In 2008, the Portland Metro region voted to invest \$125 million in the zoo to protect animal welfare, increase access to conservation education and improve sustainability. The bond projects were ambitious and extensive, with approximately 40 percent of the zoo grounds getting an upgrade. Construction spanned a decade, with initial projects taking off in 2010 and the last three habitats—Polar Passage, Primate Forest and Rhino Ridge—opening in 2021.

Even an undertaking of this magnitude starts as a small spark. For two years the 21-member volunteer Oregon Zoo Foundation Board worked with zoo leadership, the Metro Council, zoo veterinarians, animal biologists and scientists, and community leaders to develop a plan for the future of the zoo. The Oregon Zoo Future Committee, led by a Metro councilor and the zoo director, dug deep to conduct strategic plans, commissioned early opinion polling, and conducted interviews and briefings with key constituents.

This early work turned up a consistent theme—the people of the Portland region wanted animals at the zoo to have the best habitats possible. And this theme was well-grounded. The zoo, and still has, had many aging facilities that reflected decades-old standards of care or required unsustainable levels of maintenance.

- At nearly 50 years old, the Association of Zoos and Aquariums had noted the zoo’s veterinary hospital and quarantine facilities were substandard and deficient.
- Built in 1959, the elephants’ indoor and outdoor spaces were worn, cramped and out-of-date.
- The Polar Bear habitat was built when the primary objective was containment of the bears. As a concrete bowl, it became scorching hot in summer and did not provide a sufficient amount of enrichment opportunities.
- Similarly, the Primate area was originally designed to be easy for the keepers to clean and no longer met current standards for primate engagement or a stimulating environment.
- Out-of-date water filtration capabilities for the hippo and penguin habitats wasted more than 11 million gallons a year, and were woefully out of sync with the sustainability values and financial stewardship responsibilities of Metro.

In November 2008, Measure 26-96 – “Bond to Protect Animal Health and Safety; Conserve, Recycle Water” – was approved by voters: Yes 195,652 (59.72 percent); No 131,985 (40.28 percent).

2. Oregon Zoo Bond Advisory Group

The Oregon Zoo Bond Advisory Group (OZBAG) played a pivotal role in early planning for specific bond-funded improvements. Following passage of the zoo bond measure in November 2008, OZBAG was established to make recommendations to the zoo bond program manager regarding planning and implementation surrounding the planning, permitting, contracting and construction activity reflected in the zoo bond measure. The group consisted of five external members, eight staff and two Metro Councilors, and were appointed by the Metro deputy chief operating officer. Members were recognized experts in their fields, including real estate law, financial management, facility management, and facility planning and construction management.

OZBAG provided professional, prospective guidance regarding how to move forward with specific project issues, especially related to land use and the Comprehensive Capital Master Plan preparation. The legal land use expertise on OZBAG proved critical in advising the bond program on the best way to negotiate the land use process.

OZBAG helped the program develop a successful land use strategy that resulted in no appeals and no delays to construction. The group met 18 times over four years from July 2009 to June 2013, when it had completed its work advising on the land use process.

Lessons Learned

OZBAG assisted greatly in steering Metro on land use decisions related to the conditional use master plan (CUMS) and was valuable in weighing various land use strategies. Because land use actions are often complex, large-scale capital programs may benefit from engaging an expert group like OZBAG early in the process to navigate the land use review process.

3. Water Main Building, 2011

Most of the zoo's infrastructure dates back to the 1950s and 60s, including pipes, plumbing, and irrigation systems. Water is the most expensive utility cost at the zoo, and the outdated infrastructure contributed to waste, increasing costs, and downstream water degradation because of leaking pipes, run-off, inadequate filtration systems, and storm water discharge into the sanitary system.

Although the zoo had successfully implemented water conservation programs over the years, they had been small, scattered, and limited in success because of the zoo's aging water infrastructure. The zoo determined that to reduce water waste, it would need to undertake a major rebuild of the zoo's water distribution system, including installation of central plant piping, on-site storm water, and the separation of storm water from sanitary sewer systems in accordance with City of Portland requirements.

The Water Main Building was completed in 2011, and provides a crucial upgrade to the zoo's water infrastructure, helping to prevent water waste and associated costs, as well as reducing downstream water degradation. The Water Main Building keeps non-potable water, including storm water, from entering the water system. It also allows for the collection of rainwater at the Veterinary Medical Center via a 30,000-gallon cistern and reuse of the rainwater to flush toilets and wash down animal quarters.

4. Comprehensive Capital Master Plan, 2011

Developing a Comprehensive Capital Master Planning (CCMP) was a crucial element in helping to ensure efficient and effective use of bond proceeds. Metro issued a Request for Proposals in April 2010 for an interdisciplinary consulting team to complete a CCMP for the remaining zoo bond improvements funded by the \$125 million bond.

The Penguin Filtration and Veterinary Medical Center projects (VMC) were begun before the new Conditional Use Master Plan and the Comprehensive Capital Master Plan were complete, because the VMC land use was approved under the zoo's prior Conditional Use Master Plan and the Penguin Filtration project was a mechanical upgrade that was not dependent on a land use decision.

Bond program staff received compliments from external parties on a well-written RFP, and their hard work paid off. A multidisciplinary team was selected for this work:

- SRG Partnership (prime consultant; architecture and management)
- CLR Design (zoo planning and exhibit design)
- Atelier Dreiseitl (landscape, planning and sustainability)

The consultant team was charged with developing a 20-year campus plan encompassing bond-funded projects as well as future phases that did not have an identified funding source. Metro expected the consultant team to balance schematic designs for the specific bond projects, sustainability initiatives, and infrastructure improvements with available bond resources.

In addition to a sweeping scope, one challenge for the consultant team was to develop a plan within the realities of the site itself. The zoo campus slopes and unstable soils are important considerations. The consultant team mitigated the soil concern by working with geotechnical engineers that had a 20-year history of work on the zoo campus.

The primary consultant team worked with Metro staff at six CCMP workshops, each scheduled for three days duration. Metro established zoo stakeholder teams for each major bond project to test the consultant team's concepts and draft plans. Following the workshops, the consultant team reviewed and advanced the top-most siting and concepts. To provide public outreach and an opportunity for comment on the CCMP, the program held five open houses in April and August 2011.

In addition, the program used Metro's innovative online opinion panel, Opt In, to communicate draft plans and to seek opinion on various planning options and received more than 4,400 responses. Respondents indicated they were in favor of implementing the bond construction over a longer period of time, keeping animals on site, and maintaining the zoo guest experience, rather than doing the construction in a shorter period that would hinder the guest experience and require more animals to be moved offsite. Respondents also indicated they were in favor of substituting improvements to the rhino habitat instead of the hippo habitat as listed in the bond measure, since it would save large amounts of water and energy and promote conservation of the endangered black rhino.

As major stakeholders in the future of the zoo, the Oregon Zoo Foundation (OZF) director and key staff were directly involved in the CCMP process. In addition to attending master planning sessions, OZF staff worked with a separate consultant team on a development plan that relied on information from the CCMP.

Several significant changes and challenges included:

- Removal of hippo project: Through careful assessment of zoo capacity, funding and animal welfare needs, the zoo decided to remove hippos from the zoo collection and therefore remove the hippo filtration project, and instead added the Rhino Ridge project.
- Train Route: The expansion of the elephant exhibit necessitated changes to the zoo train route. As a favorite experience for zoo guests, this project necessitated careful planning. The consultant team proposed five alternate route options.

In the end, the CCMP provided:

- Analysis, recommendations and a strategy for Metro to implement the specific bond projects, as well as sustainability initiatives and infrastructure improvements. This included refining project scopes through schematic design.
- An overall schedule for all projects based on the optimal project sequencing, timing and estimated duration. This plan included a schedule for each project.
- An overall bond budget and financing plan with cost estimates for each project based on schematic designs.
 - Contingencies were included based on the proposed site and complexity of each specific project. The plan included direct, indirect and overhead costs; construction cost inflation; and assumed timing for cash in- and out-flows.
 - The financing plan assumed no outside funding sources and was developed from a conservative mindset. This allowed any outside funds to be used for scope enhancements and not critical (base) project elements.

The CCMP was completed and approved by the Metro Council in September 2011. The CCMP development expenses totaled \$1.7 million, just under the established budget. The CCMP provided a clear blueprint for the process to realize bond goals.

Lessons Learned

The Comprehensive Capital Master Plan process was a deeply engaging process drawing on the expertise of zoo and other Metro staff and visitors' experience to envision a new zoo for people and animals. The CCMP took ideas and made them themes, then took themes and made them into schematics. Decisions made through the CCMP effort have direct land use implications. Completing a CCMP first is beneficial; running the CCMP and Conditional Use Master Plan/Land use permit efforts concurrently created some delays in the land use permit work.

5. Land Use, 2010–2013

The Oregon Zoo operates as a Conditional Use within the City of Portland’s Open Spaces zoning designation. Conditional Uses are uses that may be allowed by the city in a base zone in which they are otherwise not permitted, so long as impacts are managed and imposed conditions are met. As an institution that is more or less continually redeveloping, the Oregon Zoo utilized an alternative process for approval through the City of Portland’s Conditional Use Master Plan (CUMS), which allows a longer-term (10-year) window of development. The CUMS serves as the guiding land use and development master plan for the Oregon Zoo. The city originally approved a CUMS for the zoo in 1997, which remained in effect until 2013. By 2010, all of the projects originally identified in the 1997 plan had been completed or were in the process of being completed, thus necessitating a new conditional use master plan.

Early in the land use application process in 2010, Metro staff requested that the city consider other land use approaches, such as re-zoning the property to a less restrictive base zone or creating a Plan District, but after several meetings with city commissioners and senior city staff, it was determined those alternatives were unacceptable or infeasible.

The CUMS effort was led by Metro staff and the Office of Metro Attorney, and was supported by a multidisciplinary consulting team. An aggressive timeline estimate of two years was initially set to complete the process. Several known nonconforming land uses and high-priority issues were identified early on, including multimodal access and parking (including bicycle parking and parking lot landscaping), environmental impacts, and stormwater management. Given the complexity of these issues, staff recognized that timing of land use approvals could pose a threat to project construction schedules.

Concurrent with the CUMS process, a consultant team prepared the Oregon Zoo’s new Comprehensive Capital Master Plan (CCMP) (additional context is provided about the CCMP in the prior section). The CCMP provided increased detail around project scope, sequencing, sustainability initiatives, and general campus infrastructure improvements and served as the basis for the final CUMS application for City of Portland approval.

Through the work of the CUMS and CCMP planning processes, Metro decided to address land use requirements in three distinct phases to reduce risk to project timelines from possibly delayed land use decisions and, in the case of the West Parking Lot, to seek approvals with appropriate property owner partners. The three phases were:

- **Phase I Amendment to the prior CUMS:** To maintain the program’s construction momentum, Metro asked the city to allow work to proceed on the Elephant Lands project and the Condors of the Columbia project under the prior CUMS. One challenging aspect of this amendment was the Elephants Lands expansion into the environmental zone on the northeast side of the exhibit. Though filed three months behind schedule, this amendment was approved in March 2012.
- **Phase II New Conditional Use application for the West Parking Lot:** Up to this point, the West Lot did not have legal land use standing with the city. The West Lot land use application was for permanent use of the area as parking. This separate West Lot application allowed the zoo and its neighbors to focus on this discrete topic without jeopardizing timelines for other zoo bond projects. This application was approved November 2012.

- **Phase III New CUMS:** The new Conditional Use Master Plan laid out the growth plan for the next 10 years for the remainder of the specific bond projects and the overall master plan improvements. The CUMS reflected the needs of the bond projects as articulated in the Comprehensive Capital Master Plan and encompassed site planning and boundaries, current and future uses, development standards, and projected transportation and parking impacts. Though originally expected to be submitted the fourth quarter of 2011, the application for the new CUMS was submitted August 2012 and approved January 2013.

Concurrently with the CUMS process, the zoo was faced with the pending expiration of the zoo's 30-year lease of the Washington Park parking lot. Though the zoo attempted several times to negotiate a revival of the parking lot lease, the city was unwilling to do so. The confluence of the CUMS process with the return of the management of the parking lot to the City of Portland Parks & Recreation department had ramifications for institutions beyond the zoo itself.

Extensive partner and public engagement by the zoo resulted in the following changes:

- Parking management responsibilities were turned over to Portland Parks & Recreation
- Impacted parties formed the Washington Park Transportation Management Association (WPTMA)
- Paid parking for the shared lot and throughout Washington Park was implemented in January 2014
- In 2015 the WPTMA was renamed Explore Washington Park with a new website and branding.

The CUMS was a necessary but time-consuming effort. Metro assessed and changed tactics early on in the process, the city replied to each application with questions and sought additional information, and the consultant team facilitated extensive engagement with other entities present in Washington Park, adjacent neighborhood associations, and city and state partners. In the end, the land use process built a good working relationship with neighbors, established a whole new way of working with Portland Parks & Recreation, and prioritized improvements to Washington Park guest experience through the specific focus on coordinated access and parking. This process became a way to think systematically about all of Washington Park.

Throughout, the Oregon Zoo Bond Citizens' Oversight Committee took a keen interest in this project to ensure the risk-appropriate level of resources were dedicated to achieving the necessary approvals.

Lessons Learned

The Conditional Use Master Plan land use process was a necessary but time-consuming effort. This was in part due to the change in approach from creation of a Plan District to a zoo-specific land use permit. Having the land use strategy more concretely understood or decided before entering the bond implementation window would be beneficial.

The Conditional Use Master Plan process became a way to think systematically about all of Washington Park. Through the zoo's leadership, many long term changes began to take shape that not only improved the experience of all Washington Park visitors, but brought benefit to and strengthened the ties between all the institutions housed in the park. This foundation of collaboration and mutual support will serve the zoo and other Washington Park entities well as they consider future development and growth.

6. Penguin Life Support System Upgrade, 2012

The zoo's Penguinarium was built in 1959 and remodeled in 1982. It had an outdated water-filtration system that dumped millions of gallons of water each year into the city's sewer system. A constant flow of fresh water was required to keep the pool clean and free of scum that builds up from the oils in penguin feathers. Additionally, the 25,000-gallon pool was completely drained weekly for cleaning and then refilled.

The zoo completed a filtration upgrade at the Penguinarium in December 2011 with the goal of conserving water and improving water quality. The work was completed outside the expected timeframe, but the budget impact was negligible due to the contractor's responsibility to reimburse project expenses associated with the delay. The finished filtration system worked perfectly, cleaning and circulating clear water.

However, when keepers turned on the HVAC system in the Penguinarium in anticipation of the penguins' return, they found it wasn't working properly and couldn't control humidity levels in the exhibit. Modifications to the HVAC system were not part of the filtration system upgrade, and the moisture level of the exhibit air was not modified by the project.

The Zoo Facilities Maintenance department managed repairs and the zoo funded the HVAC system repair, not the bond program or zoo bond funds. The penguins remained housed at the polar bear exhibit (where they were housed from the beginning of the filtration upgrade) with no negative impact to animal health or welfare until November 2012, when the Penguinarium reopened to the public.

Zoo staff estimates that the new filtration system saves seven million gallons of water each year and that water use has decreased by more than 90 percent because the pool water is filtered instead of being regularly dumped and refilled.

Diversity in Contracting –

The project accomplished a COBID utilization rate of 6 percent; all 6 percent were emerging small businesses.

Infrastructure and Sustainability –

The water filtration and circulation systems installed as part of the Penguin Life Support System reuse water in the Penguinarium and significantly reducing fresh water consumption.



AWARDS

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7. Veterinary Medical Center, 2012

The grand opening of the Veterinary Medical Center (VMC) was celebrated in January 2012. The new building replaced the substandard veterinary and quarantine buildings with a new facility that offers dramatic improvements in animal holding, climate-controlled spaces, enclosure substrates to increase safety and comfort, reduced stress for animals, options for environmental enrichment, and ability to control communicable diseases.

Prior to construction the Association of Zoos and Aquariums (AZA) had deemed the zoo's former animal quarantine facility, built 45 years ago, substandard, noting inadequate lighting, heating, ventilation and drainage, rusty and crumbling walls and doors, surfaces that were difficult to sanitize because of degradation and floors that had the potential

to damage the hooves of some animals. Moving large animals in and out also proved difficult. It had been retrofitted several times but had reached a point where more was not considered feasible. Because of these issues, the Veterinary Medical Center was prioritized as the first bond project for animal health and safety with a budget of \$9.2 million.

Prior to bond passage, zoo staff and an external consultant team had performed a feasibility assessment. They evaluated the existing zoo veterinary medical program needs and operating requirements, including animal research and quarantine spaces. To better understand the features of a well-designed facility, visits were made to veterinary hospital facilities recently completed in Cincinnati, Detroit, Honolulu, and Milwaukee.

In addition, the team reviewed where to site the new building, with the primary locations considered being to the west and east of the existing veterinary medical offices at Gate J. The assessment concluded that the west side was the better location since the available footprint on the east side was much smaller, requiring a two-story building, and conflicted with the Center for Species Survival animal holding buildings.

In April 2009, Metro contracted with Peck, Smiley, Ettlin architects to lead a consultant team that would develop the building design and balance medical program needs with funds available. The team was directed to target LEED Silver as the minimum sustainable building design.

When the design development phase was complete, Metro submitted a Conditional Use Master Plan amendment to the City of Portland for the veterinary medical center and quarantine facility. On September 18, 2009, the city approved the amendment.

In July 2009, the consultant's cost estimator provided a direct site and building construction cost estimate of \$7.9 million based on design development documents. The project's estimate of \$2 million for soft costs and contingency brought the total project estimate to \$9.9 million, 8 percent over the target budget. The team remained optimistic that value engineering options could be identified to meet the target.

Around this same time, the project's geotechnical engineer advised that the proposed site location would require enhanced site stabilization to address underlying soil conditions and excavation needs. The team recommended that an extensive soil nail retaining wall be integrated into the back wall of the building as the best solution, albeit a relatively expensive one.

When the construction documents reached 85 percent completion another cost estimate was prepared. In November 2009, the updated construction cost estimate, plus estimated soft costs and contingency, came in at \$11.9 million, 29 percent (\$2.7 million) above the project's target budget.

2008 Zoo Bond Measure— Protecting Animal Health and Safety:

“The zoo’s veterinarians are top-notch, but they are working in outdated, substandard facilities which failed to meet the standards of the Association of Zoos and Aquariums...

Failure to bring these facilities up to standard could jeopardize the zoo’s national accreditation and seriously affect both the zoo’s reputation in the community and its ability to participate in critical breeding and species conservation programs.”

This budget shock caused the team to stop all construction document work and engage in a significant value engineering exercise over a five week period. This resulted in a major change in the design, reducing the size from 19,040 square feet to 15,443 square feet and relocating the building 100 feet to the west. These adjustments separated the retaining wall from the building and eliminated modifications to an existing back-up power generator that had been necessary under the previous design. Along with some other more modest changes, the cost estimate was reduced to \$9.6 million.

Staff, with input from the Bond Advisory Committee that had worked on the bond program development (the Zoo Bond Citizens' Oversight Committee did not convene until February 2010), presented the issue to Metro Council in January 2010. While it was obviously not optimal to have the first project under the program be over budget, staff recommended that the budget be increased to \$9.6 million rather than re-design the building with attendant delays and risks. The Council approved the increase and authorized the team to move forward with bidding. Critical to that decision was input from the zoo's lead veterinarian and other stakeholders that the value engineering options did not reduce the building's program and functional use.

Using a procurement method utilized by TriMet for light rail projects, Metro embarked on a two-step bid process. The first step involved a careful screening to identify qualified contractors based on their past performance, capabilities, project management techniques, and commitment to diversity. Contractors that passed this first step were invited to submit fixed-price bids for construction, with the award going to the lowest bidder.

The bid request for the project included an aspirational goal of 15 percent participation by COBID subcontractors. While not a mandatory goal for prime contractors, the aspirational goal did make clear Metro's commitment to diversity in its contracts.

Skanska USA was the successful bidder and was awarded the construction contract in June 2010. Since the bid amount was below the revised estimate, the project budget was revised downwards to \$9.46 million. This budget included a 15% contingency and remained unchanged for the balance of the project work.

Ground was broken in August 2010 and, almost immediately, a significant hurdle was encountered. Work on the soil nail retaining wall was stopped due to discovery of an ancient landslide that caused unstable soils. A geotechnical solution was designed, and work proceeded. The final cost to remediate the slide area was \$272,648 which was covered by the project contingency. Twenty-one working days were added to the construction schedule with completion reset for November 2011.

Additional change order work was approved, and also covered by the project contingency, with a total of 76 working days added to the original schedule. Construction was completed within this revised schedule and a grand opening celebration was held on January 19, 2012.

The final cost for the project was \$8,840,329, more than \$620,000 under budget and 6.8 percent less than the amount designated in the bond referral.

The VMC is a highly functional and complex animal facility designed for treatment of a wide range of animals. The back area houses a labyrinth of holding zones that flow around treatment rooms. The front constitutes a support wing, gracefully shaped with an "ark-like" curved glulam roof structure.

Oregon Zoo Foundation donors contributed \$460,000 to purchase state-of-the-art medical equipment for the new facility.

Animal Welfare - The building includes state-of-the-art equipment, including HVAC systems for both human and animal occupancy, as well as humidifiers and oxygen systems required for complex animal care. Rubberized flooring and padded walls keep hooved animals from injuring themselves, and aquatic animals have access to temperature-controlled pools as well as an indoor and outdoor holding area. A quarantine area provides a large and sturdy space for primates and carnivores. Perches, ropes and elevated beds accommodate the movement and sleeping needs of birds and primates. Vets can open rolling skylights to provide animals with fresh outside air and views of the sky.

Critically, the new facility more than meets the standards set by the Association of Zoos and Aquariums. The AZA's 2015 accreditation report for the Oregon Zoo stated: "The new Veterinary Medical Center is an excellent and comprehensive veterinary facility. Even more impressive is that the building is a LEED Gold-certified building, which also aligns with the zoo's mission and sustainability goals." The Oregon Zoo is now recognized as having one of the most advanced animal hospitals in the country.

Infrastructure and Sustainability - The building achieved LEED Gold certification and includes many environment-friendly features like a rainwater collection system, a water efficient landscape of native plants, solar-heated tap water, and an energy-saving electrical system. The VMC was the first bond-funded project to implement a water reuse system for non-potable water demands (rainwater harvesting).

Percent for Art - Stunning art elements are incorporated into the building. Portland-based artist Margaret Kuhn created inset glass and ceramic mosaics that illustrate, in x-ray view, the muscular structure of a rabbit and the intricate skeletal structure of a condor in flight. Others capture the markings of a leopard and the thoughtful gaze of the zoo's fondly remembered chimpanzee, Charlie. Seattle artist Steven Gardner's work includes terracotta tiles on the exterior walls in the entry plaza replicating the textures of zebra fur and snakeskin. Tinted glass tiles illustrate elephant blood cells as seen under the microscope and microorganisms that make up an animal's inner ecosystem.

Diversity in Contracting - Of the total contract value, the project achieved a 10 percent COBID utilization rate, with 4.8 percent spent with emerging small businesses, 4.4 percent with women-owned businesses, and 0.9 percent with minority-owned businesses. Nineteen COBID subcontractors participated in the project, representing \$733,095.

Note: Metro's calculation methodology at the time of this project was to exclude the cost of prime contractor self-performed work. Out of the \$4,214,163 available in subcontracts (i.e., work not performed directly by the prime contractor), 17 percent of the dollars went to COBID certified contractors.



AWARDS

2012 DJC Top Projects, First Place Award, Public buildings \$5.1M to \$15M

2012 Excellence in Concrete, Tilt Up

2012 LEED Gold

8. Condors of the Columbia, 2014

Condors of the Columbia officially opened in May 2014, providing the public their first opportunity in more than 100 years to see a condor in Oregon. The exhibit highlights the successful California condor breeding program at the Oregon Zoo's Jonsson Center for Wildlife Conservation, which is located on 52 acres of Metro-owned land in rural Clackamas County.

In 2003, the Oregon Zoo joined the U.S. Fish and Wildlife Service and other partners in a condor recovery project involving captive breeding and release in the wild. The Oregon Zoo's Jonsson Center is where that work is being done. The center began with 12 condors and currently houses 42. Since opening, they have hatched 95 chicks and sent 70 zoo-reared birds have been released in Arizona and California. The remoteness of the facility minimizes the exposure of young condors to people, increasing the chances for captive-hatched birds to survive and breed in the wild.

Condors of the Columbia features three condors from the Jonsson Center who are ineligible for release. Their aviary is more than 30 feet tall and 100 feet long so they can fly, and has a cascading water feature with a deep pool for condor bathing. There are two covered viewing areas, one elevated, where visitors can get rare up-close views of condors.

Groundbreaking took place on May 24, 2013, with a ceremony that included a Native American blessing by Agnes Pilgrim, Confederated Tribes of Siletz. Construction was completed on an amended schedule and under budget by \$412,983. The construction completion date was later than the estimated schedule in the Comprehensive Capital Master Plan, but approved and updated due to the need for a longer design and construction period and the discovery of hidden underground challenges on site.

Animal Welfare – The Condors of the Columbia exhibit offers an opportunity to fly for birds that cannot be released into the wild and provides the public with a rare opportunity to see this Northwest native bird, increasing awareness of the need to protect this highly endangered species.

Conservation Education – The interpretative features at the Condors of the Columbia exhibit are designed to illustrate the zoo's role in California condor conservation as well as to inspire audiences to take conservation action. Some tell the story of the near extinction of condors and the challenges these birds continue to face today from environmental threats such as lead and microtrash. Others guide visitors through the zoo's decade-long condor recovery effort in conjunction with the United States Fish and Wildlife Service and many other partners, including information on how condor chicks are raised and released. Visitors also learn how the physical features of condors reflect the role they play in our ecosystem.

An evaluation of the interpretive messaging and experience at Condors of the Columbia exhibit found it to be effective in increasing visitors' knowledge about history, threats and recovery efforts underway as well as the actions they could take to support the condors. Most important for conservation education, more than three-quarters of respondents said they were now more likely to pick up trash and support a voluntary switch to lead-free ammunition.

Infrastructure and Sustainability – The exhibit was not a candidate for LEED certification because it did not meet minimum building square-footage requirements.

Diversity in Contracting – Condors of the Columbia was a small and relatively simple project with few components, making it easier to bid and thus, more accessible to COBID firms. The project accomplished a COBID utilization rate of 25.8 percent; 18.5 percent were emerging small businesses and 7.3 percent were minority-owned businesses. The specialty netting scope was deemed ineligible for COBID firms, and the value was deducted from the calculation.



AWARDS

2015 Silver - Exterior Railings & Fences - Nonforged

9. Elephant Lands, 2015

Elephant Lands is the largest project the Oregon Zoo has ever developed. Construction of Elephant Lands and associated projects covered approximately 35 percent of the zoo grounds and lasted approximately three years. Associated projects included: 1) relocation of the train loop, 2) a new perimeter service road, 3) relocation of the Wild Life Live! program and 4) water and energy sustainability measures, including a new campus geothermal loop to reduce the use of fossil fuels for heating and cooling.

In recognition that elephants are the Oregon Zoo's signature species, Metro prioritized the on-site elephant habitat project in terms of timing and the financial resources dedicated to it. The project was substantially complete in December 2015, within its approved schedule and budget. The grand opening to the public was held on December 15, 2015, with several hundred people attending.

Two totem poles were displaced in the construction of Elephant Lands, creating an opportunity for a complete restoration by the Lelooska tribe and artist Ray Losey prior to relocating the poles. With significant engagement of the Native American community, the zoo hosted a well-attended totem pole rededication event in October 2014 to celebrate the Native American culture, history and meaning of the poles.

Elephant Lands also includes the second art installation commissioned through the zoo bond 1 percent-for-art program, created by Catherine Widgery, whose artwork welcomes guests to Forest Hall, the elephants' new indoor habitat.

The Wild Life Live! facility was displaced due to the construction of Elephant Lands. The bond program renovated an under-utilized animal holding facility at the zoo and successfully relocated the Wild Life Live! program. The relocation resulted in improved living quarters for the program animals.

The Elephant Lands project was completed using a Construction Management/ General Contractor (CM/GC) alternative procurement approach. A project of this size and scope would generally average change orders that increase costs by around 10 percent of the construction cost. The Elephant Lands' number was 5 percent of the guaranteed maximum price, due to the CM/GC working with the design team to fill in any gaps in the drawings prior to bid.

The project was divided into four distinct phases, which allowed each phase to be designed, permitted and competitively bid out to subcontracting firms early in the design process rather than waiting for the whole design to be complete. An early phase included the

construction of a new service road that enabled contractor teams to access the area without navigating trucks and construction equipment through congested visitor areas. Early bidding produced substantial savings in the robust construction cost escalation market. It also shortened the construction schedule. Hiring the CM/GC early in the process helped to set up the work so that visitor interactions and other revenue-generating events proceeded without construction interference. The most beneficial aspect of phasing was allowing the elephants into the first new habitat to test design features prior to construction of the other habitats. This saved time and money by identifying design changes, prior to material being ordered and additional structures being erected.

Elephant Lands has been awarded 17 awards for design, construction and sustainability, including the 2016 Top Project of the Year award from the Daily Journal of Commerce, the Associated General Contractors' Skill, Integrity and Responsibility award in 2017, and the Association of Zoos and Aquariums' Excellence in Exhibit Design award, a significant recognition from zoo peers. The elephant buildings and site earned Leadership in Energy and Environmental Design (LEED) Gold certification.

Animal Welfare - The Elephant Lands project significantly expanded the elephant habitat, from 1.5 acres to six acres. The site includes Forest Hall and the Elephant Barn, the North

Elephant Lands
site plan illustration



Meadow Habitat, Encounter Habitat and the South Habitat. It is designed to encourage activity, promote a diverse range of natural behaviors, offer increased opportunities for choice and social interaction, and provide biologically meaningful challenges for Asian elephants at the Oregon Zoo. Elephant Lands offers its resident animals flexible space with a variety of features to seek out and interact with, more choice, an increased level of self-directed control over their daily lives, and the opportunity to live in multigenerational matrilineal groups, which bulls can join occasionally as they would in free-ranging populations. The elephants cannot see the entire space from any one vantage point and get exercise simply by maneuvering through it.

A diversity of feeding methods provides foraging opportunities 14–16 hours per day, which more closely mimics the grazing habits of free-ranging elephants. Throughout the habitat, timed feeders release food at programmable intervals, overhead feeders require elephants to stretch and sometimes climb on logs, concrete herd feeders require reaching down, and other puzzle feeders demand manipulation to acquire food. The expanded habitat size allows for increased walking distances, and the hilly terrain, climbing features, and varied surfaces—including deep sand, hills of dirt, patches of grass and clay—provide stimulation and physical challenges. The habitat includes a 160,000 gallon pool big enough for the whole herd, a wading pool and a water cannon, which makes mud wallows. State-of-the-art heating and ventilation systems with open doors allow the herd to move inside and out as they please.

In order to evaluate the effectiveness of Elephant Lands in promoting animal welfare, the zoo research staff designed a four-year study, beginning in September 2012 before construction began, and ending in December 2016, one year after the new exhibit opened. Comparing the elephants' behavior and hormones in the old habitat, during the transition, and then in the new habitat allowed the zoo to monitor the welfare of the herd during the process and measure the impact of the new environment. Welfare indicators included distance walked through global positioning system (GPS) monitoring, reproductive and adrenal hormone analyses, and detailed behavior assessments.

Distance walked was measured with GPS data loggers worn as anklets on two females and two males for 24-hour periods, approximately every two weeks from June 2014 to December 2016. The results show that in Elephant Lands, elephants walk at least as far and possibly farther than their wild counterparts on a daily basis, and are utilizing the entire habitat regularly. In their new habitat, their movement is more self-directed; they have more choice and control.

The study also monitored adrenal activity, an adaptive response to a real or perceived stressor in which a suite of physiological and behavioral changes occur to help deal with the stressor and re-establish equilibrium. In addition, the on-going monitoring of reproductive hormones in both males and females continued during the study. All adult females in the herd continued regular cycling throughout the construction phase and in the new Elephant Lands habitat, indicating normal reproductive health for the herd in all phases of the project. All individuals exhibited the greatest variability in their adrenal activity during the periods of major changes, suggesting adaptive and normal adrenal responses to life changes, challenges and excitement.

The behavior study assessed Elephant Lands' effectiveness in providing increased opportunities for choice (social, food source, and resource use), increased activity, and

increased opportunity to express natural behaviors. Measurements of behavior included activity budgets (proportion of time spent performing behaviors), proportion of time performing active versus inactive behaviors, proportion of time in proximity of other elephants, and relative usage of resources in their habitat. Data was collected by video using a team of volunteers and coded onto data sheets.

Results of the behavioral study show increased activity, increased foraging, and increased choice and control over their environment, including with whom they spend time and how they interact socially. The elephants in Elephant Lands are exhibiting a diverse range of natural behavior and social dynamics of a healthy herd.

The ultimate goal for Elephant Lands is for each elephant to exhibit a full range of natural behaviors, living in a social, stable, multigenerational, matrilineal herd that is regularly integrated with bull elephants in a manner that meets or exceeds their biological, social, physiological, and psychological needs. The results of the animal welfare study are gratifying. The zoo is achieving its goals with Elephant Lands.

Conservation Education – Artwork, interpretive signs and other displays installed with the project provide the public with many opportunities to understand the impacts of human activities on wild elephant habitat and to get an up-close experience with these amazing creatures. The Elephant Lands interpretive experience has three main themes:

- Being an elephant: the mind, body and life of an elephant. This natural history content helps enrich guests' understanding of elephants as remarkable, unique creatures.
- Elephant Lands is the Oregon Zoo's vision for elephant care in practice. These highlights show how elements in and around the habitat enrich the lives of the zoo's elephant herd.
- Humans and elephants: a shared history. This exploration of the long, complex history that elephants and humans have shared includes current conservation issues and celebrates more than 60 years of elephants at the Oregon Zoo.

A life-sized wall graphic of Packy, the former senior male elephant, allows visitors to appreciate the height and size of an elephant, while a model of an elephant trunk allows them to experience its feel and texture. The Elephant Lands interpretive experience also includes the zoo's first smart phone application. Features of the app, released in December 2015, provide visitors with tools for identifying individual elephants in the herd.

In 2017 staff shared the outcomes of the Elephant Lands interpretives evaluation, which indicated that messaging in Elephant Lands about palm oil threats and human-elephant conflicts holds promise as an effective way to incentivize conservation action. Almost half of all respondents had never heard that these situations threatened elephants. As a result of their visit, 62 percent were more likely or a lot more likely to buy products that contain only wildlife-friendly palm oil. When asked about a series of local sustainability actions that would benefit elephants, about one-third of survey respondents were more likely to engage in all five actions as a consequence of their visit. Results of this summative evaluation demonstrate that the Oregon Zoo is effectively achieving its education goals for Elephant Lands.

Focus group participants and survey respondents perceived the overall design of the habitat as beneficial to elephant welfare and conducive to family fun. Elements throughout the habitat such as the feeding tower, sand substrate, and the shift doors intrigue visitors and impress upon them how much attention was given to detail during the construction

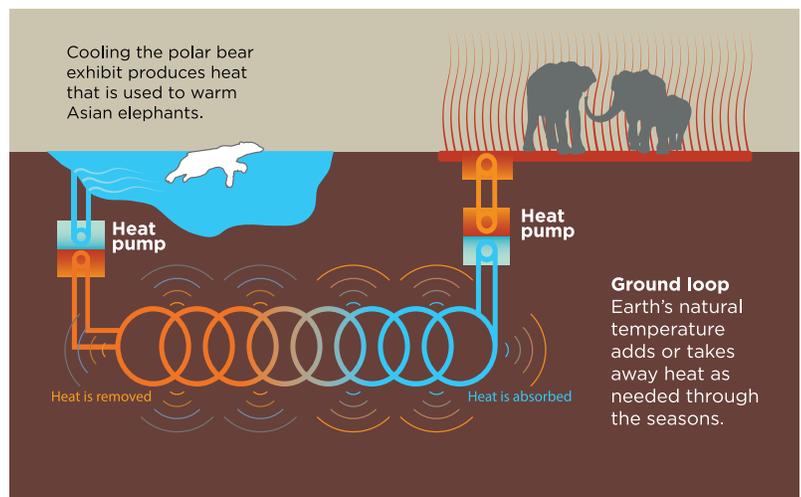
phase. Ninety-eight percent agreed or strongly agreed that this exhibit shows that the Oregon Zoo is committed to the welfare of elephants.

Public spaces that are designed to facilitate comfortable viewing contribute to a positive visitor experience. Forest Hall gives visitors an up-close look at elephants through visuals, sound and even odor, while offering an inviting space to warm up, dry off or have a snack. Interpretives about conservation issues such as elephant-friendly palm oil and the ivory trade invite visitors to become engaged. Sixty-six percent of those surveyed said they were more likely to urge companies to switch to wildlife-friendly palm oil. Focus group participants who voted to support the bond measure that funded Elephant Lands are satisfied that their taxes were well-spent and said they are willing to continue financial contributions to support additional habitat improvements. Whether comparing it to the old Oregon Zoo elephant habitat or exhibits at other zoos, there was consensus that Elephant Lands was superior.

Conservation education is also provided through the daily keeper talks at Elephant Lands, which are extremely popular. Volunteer Zoo Guides and Zoo Teens also provide interpretive talks. Finally, camp experiences that feature Elephant Lands have proved extremely popular in the Zoo Camp programs.

Infrastructure and Sustainability – Completion of the six-acre Elephant Lands project exemplifies the zoo’s commitment to sustainability through the incorporation of a variety of elements including energy efficiency, sustainable building materials, solar preheating hot water, use of daylighting, stormwater management, a water reclamation system for non-potable water (rainwater harvesting), and the first portion of the new geothermal “slinky” system that will redistribute heat created from cooling the polar bear exhibit and move it to Elephant Lands where it is needed to warm the elephants. The zoo received technical assistance and nearly \$150,000 in rebates and incentives from the Energy Trust of Oregon for energy efficiency investments at Elephant Lands. The zoo received LEED Gold certification for Elephant Lands.

In addition to the sustainability efforts specific to Elephant Lands, an underground stormwater storage facility was installed under the Elephant Lands encounter habitat that is capable of storing and slowly releasing storm runoff from the entire zoo in a ten-year rain event.



In 2015 the Portland Business Journal staff nominated Elephant Lands for a Portland Business Journal Better Bricks award, primarily for the project’s focus on sustainability and use of cross-laminated timber (CLT) for the roof of the Elephant Plaza restroom. This was the first commercial building in Oregon to use CLT, a new engineered wood product made of 2-by-6s glued together in huge sheets and crosshatched in three to nine layers. Made of a naturally renewable resource, CLT is considered a greener choice since it takes less energy to produce than steel and concrete and can be made of smaller, lower-grade timber that avoids cutting old-growth trees.

Infrastructure improvements in the Elephant Lands project include a new service road, which provides a safer environment for visitors by removing most service and construction vehicles from pedestrian paths and by improving emergency vehicle access. In addition, the zoo train tracks were rerouted to provide more space for the elephants and offer better views of the animals. Local food carts are featured in Elephant Plaza, contributing to the local economy, increasing revenue and providing visitors with more diverse food offerings. A souvenir outlet is located at the top of the concert lawn, and restrooms plus a modern nursing room were added to Elephant Plaza, with additional restrooms in Forest Hall.

The Elephant Lands Operating Outcomes Report, May 2018, discussed some challenges, highlights, and lessons learned in the first two years of operating Elephant Lands. In order to properly maintain Elephant Lands' new mechanical and electrical systems, the zoo's Facilities division added a new position—controls engineer—to handle the complex building automation systems. This provided the chance to tune up the operation of life support systems and modify some processes to save energy. The zoo has also recognized the value of standardizing equipment across the zoo in new projects and in the replacement of assets.

Elephant Lands was constructed with a number of sustainable features. The pools are on target to use 86 percent less water than the old pools—a decrease of over 13 million gallons of water annually. Water use and conservation are being managed by the automated backwash recovery system. The solar photovoltaic array on Forest Hall's roof generates around 34,000 kilowatt-hours a year. A solar hot water system preheats water for elephant bathing and other uses. Louvers on the walls and roof of Forest Hall reduce the energy needed for fans by about 75 percent.

The Elephant Lands project provided many lessons for the remainder of the bond-funded projects. One lesson learned is the recognition that some of the features that achieve water conservation require significant energy to operate. Another is the importance of designing for flexibility in anticipation of change in operating needs over the life of the facility. And new systems have implications for staffing.

Diversity in Contracting – Elephant Lands achieved a COBID utilization rate of 9.7 percent of the COBID-eligible contract value, with \$4.4 million going to COBID-certified firms. Due to the project's complexity, scale and specialization, the 15 percent COBID goal was harder to reach. Also, 25 percent of the subcontractors that bid on the project were COBID firms, but not all of them had the lowest bid, so some were not awarded the work. The scopes of work deemed ineligible for COBID firms, and deducted from the total construction contract amount to determine the base for the utilization rate calculation, include: elephant doors and gates, crane, elevators and specialty rock work.

The General Contractor performed extensive outreach to Minority, Women, and Emerging Small Business (MWESB at the time, now referred to as COBID) firms. The General Contractor also mentored numerous minority and women individuals through apprenticeship and office intern programs. One minority subcontractor, R&R General Contractors, was mentored through the RFP response and interview process for Elephant Lands. R&R was subsequently selected to construct the zoo's temporary picnic area valued at approximately \$500,000, and through the bid process, R&R was awarded the train track relocation scope of work valued at \$1.2 million. Mentoring R&R proved to be successful in that they have responded to and have been awarded projects from other agencies through the RFP process on their own accord.



AWARDS

Jurors' Favorite Award in the 2015 Excellence in Structural Engineering Awards

2015 Judges' Choice, "Elephun Day," Sand in the City sculpture contest award 2015 Better Bricks Award—Runner-up honors for Sustainable Project of the Year

2015 American Public Works Association Sustainability Award 2015 Sustainability Practices Award—Organization Category 2016 ACEC Excellence in Engineering—Honor Award

2016 DJC Newsmaker Award

2016 DJC Top Project of the Year Award

2016 DJC Top Project, People's Choice Runner-up Award 2016 DJC Top Project, Public Buildings First Place

2016 Excellence in Concrete, Commercial (Elephant Lands) 2016 Excellence in Concrete, Judge's Choice (Elephant Lands) 2017 Skill, Integrity and Responsibility Award

2017 Excellence in Concrete, Judge's Choice (Elephant Lands - Shotcrete)

2017 Association of Zoos and Aquariums excellence in exhibit design for Elephant Lands

10. Remote Elephant Center, deemed not feasible and cancelled February 2016

While a Remote Elephant Center was not included among the list of projects approved by voters when passing Measure 26-96, zoo and other Metro staff conducted feasibility analyses of potential sites, operational plans and financials, per the Metro Council's direction as stated in Attachment A of Resolution No. 08-3945, approved in 2008.

In February 2016 the Metro Council unanimously approved a formal resolution to suspend pursuit of the Remote Elephant Center project due to lack of financial viability, difficulty securing suitable property and the ability to achieve the zoo's vision for elephants through the new on-site Elephant Lands. Metro informed the public by issuing a press release and posting the decision on the zoo and Metro websites; the decision was covered by local media as well. In March 2017, the Metro Council reallocated the unspent Remote Elephant Center funds to the remaining bond projects, based on the recommendation from the committee.

11. Education Center, 2017

The Education Center opened on March 2, 2017. It is the fifth project to be completed under the \$125 million bond measure approved by voters in 2008 to enhance animal welfare, conservation education and sustainable infrastructure. It is a highly interactive facility that provides multiple avenues for learning about nature and conservation. The new buildings provide much-needed dedicated spaces for educational activities and programs that engage thousands of Oregon Zoo visitors each year. The Education Center includes the Nature Exploration Station (NESt), the Backyard Habitat, Insect Zoo, the Species Conservation Lab where western pond turtles are being raised for release, classrooms, teen space, a flexible events space, a café, offices, and tent pods. More than 3,600 people in the metro region were involved through online and site surveys in determining key interpretive themes and potential activities.

Construction began in September 2015 and had a significant impact on the visitor experience, zoo classes and camps, and zoo operations. Access in and out of the project site onto busy Washington Park roadways was a safety challenge and concern. Close coordination between construction and facility operations was required.

The Metro Council approved an alternative procurement for construction management by a general contractor (CM/GC). The CM/GC allowed zoo staff and the project architect to work with the general contractor early in the design phase, reducing both construction costs and the project timeline, as well as mitigating negative impacts to visitors and surrounding neighbors during construction. The CM/GC contract with Fortis Construction included Early Work Amendments (EWAs) for two purposes: to manage construction cost escalation and to expedite the construction schedule by approving early site work while the building permits were under review with the City of Portland. The first two EWAs included the construction of a new underground storm line (80 percent funded by the City of Portland) and the remaining bond-funded project-specific work (demolition, grading, utilities, asphalt paving, etc.). The third EWA was executed to begin construction of the Nature Exploration Station, the classroom building and train station based on the building construction bid package. Phasing construction allowed the CM/GC to effectively work around the zoo's scheduled activities, reduce impacts on revenue opportunities, and limit overall disruption to visitors.

The primary funding source for the Education Center project was the general obligation bond approved by voters as part of the Oregon Zoo's 2008 bond measure. However, one goal of the project was to leverage the bond investment for the public by creating partnerships. The train station, which was built as a part of the Education Center project, was funded by Oregon Zoo operations. The City of Portland primarily funded the design and installation of the South Entry underground storm water pipe. A PGE Renewable Development Fund grant provided the zoo an opportunity to expand the solar array system onto all three buildings: The Nature Exploration Station, the classroom building, and the train station.

The project was a true collaboration with external stakeholders and the funding sources reflect that. Metro Parks & Nature contributed \$65,000 for the development and installation of the Metro Parks Finder touch screen monitor in the Nature Exploration Station. Metro Solid Waste provided \$129,294 for the Backyard Habitat interpretive elements and the Wildlife Garden sculptures.

The Education Center has earned several sustainable design accolades and achieved Leadership in Energy and Environmental Design (LEED) Platinum certification from the US Green Building Council, the highest level of certification available.

Animal Welfare – The Education Center provides new improved facilities for the invertebrate collection at the Insect Zoo and western pond turtles at the Species Conservation Lab. In addition, the Nature Exploration Station’s message of taking small actions on behalf of wildlife benefits animal conservation and welfare worldwide.

Conservation Education – The Education Center creates a dedicated space for education programming at the zoo, allowing the zoo to increase capacity for conservation education. The Education Center is helping the zoo raise the visibility and support the work of more than 30 nature, conservation and sustainability organizations by connecting them with zoo audiences. The center increases the number of classrooms and tent space and hosts wildlife lectures, naturalist classes, citizen science trainings, Zoo Teen demonstrations in the insect zoo, and an early childhood pilot program.

The new zoo educational curriculum, developed in alignment with Metro’s environmental literacy framework, was launched with the opening of the Education Center. The Metro framework is connected to national science education standards and is the source of the interpretive vision for the Education Center, “Small Things Matter”:

- **Small animals matter.** While visitors to the zoo care about many larger animals such as elephants, orangutans and polar bears, Education Center exhibits and experiences —like the new, improved Insect Zoo—ensure they don’t forget the smaller and often underappreciated inhabitants of our world including insects, turtles and microorganisms which are critical to a functioning and healthy natural system.
- **Small habitats matter.** Small habitats found in gardens, stormwater basins, highway medians, parks and natural areas all over the region are important to a well-functioning ecosystem.
- **Small actions matter.** Small individual actions and choices can make a big difference. An exhibit in the Education Center’s Nature Exploration Station highlights “wildlife heroes”—everyday people who have taken action on behalf of wildlife and wild places. An adjacent “Take Action Now” exhibit encourages visitors to follow these heroes’ example and pledge to do more to help.

Each year, 95,000 kindergarten through 12th-grade students visit the zoo, and many attend zoo classes, which meet state science standards. Every third-grade student in our region’s Title I schools is invited to participate in a zoo field trip and an interactive live animal classroom program presented at the zoo (ZooSchool) and funded by the Oregon Zoo Foundation. In 2018, 6,000 third-grade students participated. The Education Center also accommodates the 3,500 students that attend zoo day camps, one of the largest day camps in the metropolitan area.

The Education Center offers seven classrooms (four dedicated rooms and three spaces within Conservation Hall). These include an early-childhood space and a dedicated lab space for middle and high school students. Classroom garage doors open to provide a connection to the outdoors. Two new tent pods were also added for a total of three. Conservation Hall, with seating capacity for 150 people and state-of-the-art audio-visual equipment, hosts lectures and documentary screenings. People attending events are able to

access the adjacent Nature Exploration Station, the main interpretive space. The sustainable features of the building are evident on Green Living Signs, as well as visible through the interactive sustainability dashboard exhibit.

The Education Center is a place where regional conservation education partners connect with each other and the community. Oregon Zoo has developed partnerships with more than 30 conservation organizations to deliver collaborative educational programs and access to office space in the new facility. Key partners include the U.S. Fish and Wildlife Service, which has dedicated staff and resources to provide ongoing year-round programming; the Intertwine Alliance, which uses the space to convene and plan among regional conservation education organizations; and Metro's Property and Environmental Services and Parks and Nature divisions, which provide content and resources for programs and exhibits on natural gardening, waste reduction and sustainability. Oregon State University Master Gardeners support the Wildlife Garden to foster awareness about backyard habitats. Dozens of additional partners participate in a partnership and programming advisory group.

The Education Center design process included input from a variety of sources. Metro Sustainability Center provided feedback on addressing diverse audiences in messaging and visitor experiences. Thirteen local school districts and more than 14 conservation education groups gave feedback on the design. Zoo visitors were invited to give feedback on early design plans, and 3,600 people responded to a public Opt In online survey on how to best connect with and benefit nature.

In May 2019, zoo staff presented the committee with a summative evaluation of the Education Center's programming and operations. In the first seven months of operation, 10,000 zoo visitors visited the Wildlife Garden for tips on making backyards more wildlife-friendly, partner organizations engaged with more than 20,000 guests at the Education Center, and a number of regional associations held meetings and symposia there. Camp enrollments and revenues were up and café sales and catering revenues exceeded projections by \$200,000.

The report also provided information on the effectiveness of the messaging and interpretative materials used at the Education Center. In general, this report showed strongly positive outcomes towards achieving the six stated goals. The information was gathered and analyzed by an outside expert and included a visitor survey, a timing and tracking study and short interviews with visitors. Highlights of this analysis included 96% of those interviewed agreed that they believe small actions can have an impact on wildlife and 83% of visitors agreed that they found the information needed to take conservation actions at home, school and work.

In November 2018, the zoo Secondary Collections Management Policy was approved. It outlines the basic policies guiding the development and care of the zoo's secondary (non-living) collections in a manner consistent with the missions of the Oregon Zoo, Metro, and the Association of Zoos and Aquariums, and the philosophy and practice of managing such collections in accredited zoo, aquarium, and museum environments.

The Educational Collection, which is used in on-site programs including volunteer interpretive stations, camps, and classes is covered by this policy, ensuring these items will be properly managed, protected, and preserved.

Infrastructure and Sustainability – The principle sustainability feature of the Education Center is its “net-zero” design. Net-zero means the building can operate without using non-renewable resources and does not contribute to greenhouse gases in the atmosphere. Building elements such as 760 roof mounted solar panels, high efficiency LED lighting, and digitally controlled energy saving HVAC systems all contribute to this aspect of the Education Center.

One of the goals of the Education Center project was to improve zoo operations, and to that end the Tiger Plaza structures were demolished. This is a portion of infrastructure work identified in the Master Plan to address stormwater and aging site utilities. Another goal was to generate revenue to offset operation costs through retail food sales and catering and to provide additional revenue generating space. The Education Center includes the new Discovery Plaza, with train ticket sales, Coffee Crossing Café, and infrastructure connecting Elephant Plaza and Central Plaza. Zoo catering shares new space in the Education Center.

The Education Center is a “building that teaches” with sustainable elements prominently on display. Green Living signs and a sustainability dashboard interpret the resource conservation efforts and outcomes of the new facility to visitors. The LEED-certified building features rain water reuse in restrooms, solar panels for energy production, bird-friendly glazing, Forest Stewardship Council-certified wood, and efficient heating and cooling systems. The Oregon Zoo Foundation and zoo staff developed a partnership with SolarWorld, the largest U.S. manufacturer of solar panels and a leader in solar technology, to provide solar panels at cost. Funding from Portland General Electric’s Renewable Development Fund supported the expansion of the solar panel installation to help seek a net-zero energy operations certification for the NEST building, along with visitor and revenue-generating amenities for Discovery Plaza. Offsets from solar arrays went to the project contingency fund.

Net-zero energy certification requires twelve months of data collection. During the first full year of operation, unusually cloudy and cool weather during the spring month caused several month when the building did not meet the criteria. The onset of COVID-19 and the closures associated with it occurred during the second full year of operations. The zoo intends to continue collecting data once operations return to normal and expects to achieve net-zero certification.

Diversity in Contracting – The zoo bond program greatly exceeded its 15 percent target for contract expenditures awarded to COBID firms in the Education Center project. The Education Center project closed with a 29.5 percent COBID utilization rate, based on COBID-eligible construction contract spending, and represents \$4.26 million paid to COBID-certified firms. The Education Center design team led by Opsis Architecture had a COBID utilization of 8 percent. Some of the success can be attributed to the use of CM/GC procurement. With CM/GC, the contractor can begin recruiting COBID-certified firms earlier and have more time to help them be ready by bid day. Breaking down the bid packages for subcontractors makes the packages more suitable for smaller firms to bid. And additional recruitment techniques can be used. For example, Fortis Construction, the Education Center CM/GC, hosted two recruitment workshops on site before bid day.



AWARDS

2017 DJC Top Projects Energy Trust of Oregon High Performance Building, New Construction Award

2017 DJC Top Projects People's Choice, Public - New Construction 2017
2017 DJC Top Projects Public - New Construction 2017, Third Place Award
Engineering Excellence 2018 Grand Award

2018 LEED Platinum (awarded 82 points)

2018 American Institute of Architects Portland Chapter "Architecture 2030 Award" for recognition of efforts to be Carbon neutral at the zoo Education Center ("For their exceptional effort to reduce the use of GHC-Emitting fossil fuels in the design of Oregon Zoo Education Center.")

2018 Engineering Excellence Grand Award from the American Council of Engineering Companies of Oregon

2019 American Institute of Architects Committee on the Environment (COTE) Top Ten Award (national award)

2019 Letter from Oregon Senator Jeff Merkley congratulating the Ed. Ctr. team on the AIA COTE Top Ten Award

2019 Sustainable Purchasing Leadership Council "Purchaser - Special Initiative" award for Education Center case study written by Kristin Shorey at Multnomah County

2020 US Woodworks Wood Design Award for Green Building with Wood

12. Electrical Infrastructure, 2019

Like the Water Main Building, much of the zoo's electrical infrastructure dates to the 1950s and 1960s. Electrical power is essential for all aspects of animal welfare as well as guest comfort and convenience. All of the bond projects contributed to improvements in the electrical system by replacing aged elements or installing new components. However, aspects of the central electrical distribution and emergency power systems were not addressed through this project-by-project approach.

In March 2017 when the Metro Council reallocated the remaining bond funds, it created a new Electrical Infrastructure project to replace two outdated emergency power generators, which were combined into one larger generator, and associated electrical infrastructure critical to servicing animal areas and supporting animal and guest safety. It includes six subprojects - each with its own scope, schedule and budget - that were managed by zoo Facilities Management and paid with zoo bond funds.

The six subprojects included:

- Lower Service Road Feeders
- Roundhouse Automatic Transfer Switch
- AfriCafé Panel Replacement
- Animal Nutrition Center Panel Replacement
- Middle Service Road Feeders
- Generator Replacement

As of December 31, 2017, the first four projects were substantially complete. The Middle Service Road Feeders and Generator Replacement were combined into one project and were completed in 2019. Zoo Facilities Management continued to direct the work on this final combined project but, due to its complexity and necessary coordination with the Polar Passage/Primate Forest/Rhino Ridge project, oversight was provided by the zoo bond construction manager.

In 2017 the zoo discussed a Dispatchable Service Generation partnership with Portland General Electric. PGE agreed to contribute \$576,000 to fund upgrades to the zoo's backup generation system for this partnership to go forward. Unfortunately, the actual cost of upgrading the generators exceeded the PGE contribution, so the plan was abandoned in early 2018 and the planned contribution was removed from the bond program resources.

In 2018, the Generator Replacement project was behind schedule, but some trench work on the middle service road was combined with the PPR Early Work Package, which resulted in cost savings for the Generator project.

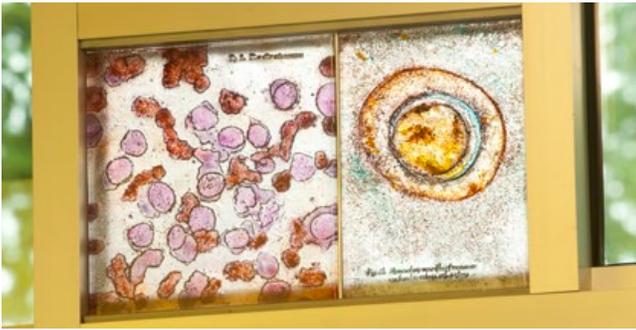
Work was completed in 2019

Diversity in Contracting - While the Electrical Infrastructure project was a relatively small project in terms of total construction dollars, the total participation by COBID-certified firms (woman-owned and emerging small business) was 35%, which was \$293,013 of a total COBID-eligible contract amount of \$844,976.

13. Percent for Art, 2011-2021

The zoo's public art program goal is to present art that complements and enhances the zoo's award-winning education programs and animal habitats, and inspires visitors to be aware of the zoo's inherent role in creating a better future for wildlife. The zoo bond program has contributed to the zoo's collection through the acquisition of art under Metro's 1 percent for art requirement. The zoo bond program has engaged the Regional Arts and Culture Council (RACC) to help administer the selection of art for all the major art pieces commissioned under the bond program.

The first commissioned art acquired under the zoo bond program was installed at the Veterinary Medical Center. In 2011, two artists, Steve Gardner and Margaret Kuhn, were selected and produced Inside/Outside (Gardner), a series of fused glass and acrylic pieces, and Outside/Inside (Kuhn), a series of mosaic floor tiles. The stunning art elements are incorporated into the building. Portland-based artist Margaret Kuhn created inset glass and ceramic mosaics that illustrate, in x-ray view, the muscular structure of a rabbit and



Outside/Inside by Steve Gardner and Margaret Kuhn

the intricate skeletal structure of a condor in flight. Others capture the markings of a leopard and the thoughtful gaze of the zoo's fondly remembered chimpanzee, Charlie. Seattle artist Steven Gardner's work includes terracotta tiles on the exterior walls in the entry plaza replicating the textures of zebra fur and snakeskin. Tinted glass tiles illustrate elephant blood cells as seen under the microscope and microorganisms that make up an animal's inner ecosystem.

Also in 2011, the Metro Council approved a programmatic approach to art spending, which allowed the art appropriation for the remainder of the construction projects to be pooled for the whole program to fund three major commissions at three plazas, in addition to the initial zoo bond art commission for the Veterinary Medical Center. At the same time, the Council created an Oregon Zoo Public Art Advisory

Committee (OZPAAC) and defined the process and criteria for the committee to select art.

OZPAAC was directed to advise Metro on the selection of artists and/or works of art in accordance with Metro's percent-for-art program and to develop a long-term public art strategy dealing with the zoo's existing public art collection. OZPAAC included a member of the Zoo Bond Citizens' Oversight Committee.

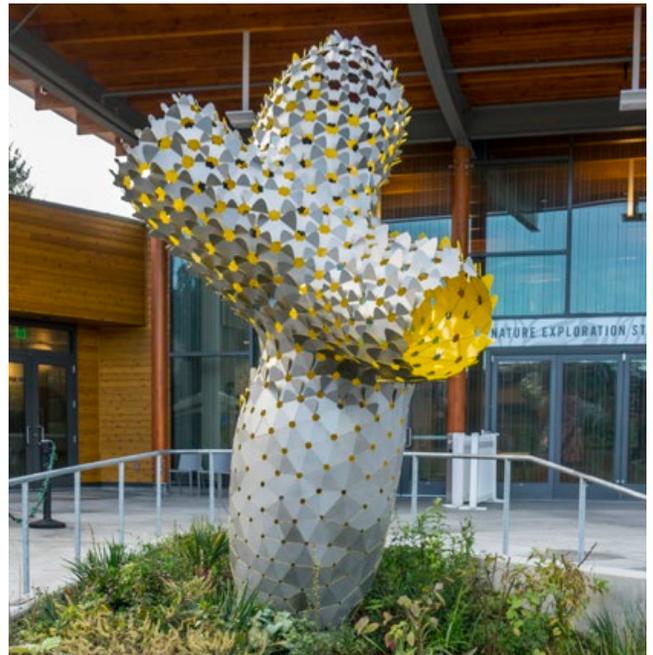
Since 2012 when the committee was formed, volunteer members met several times each year and spent many hours developing artist solicitations, reviewing hundreds of artist proposals, interviewing finalists, selecting artists to recommend, and working with artists to refine the art concepts. OZPAAC played a key role in successfully selecting art of high quality that represents the best in artistic skills, encourages public dialogue and understanding of art, enhances the aesthetic quality of the zoo site, and fulfills the zoo's public art program goal.

The second art installation commissioned through the zoo bond program was recommended by the OZPAAC and was created by artist Catherine Widgery. Ms. Widgery created Forest Lights for Elephant Lands and the east plaza, which opened in December 2015. She used dichroic glass and wood on the Elephant Lands Forest Hall façade to welcome visitors, and a related series of reflective vertical towers demarcating the concert lawn/Elephant Lands edge to help weave a sense of continuity between different elements on the site.



Forest Lights by Catherine Widgery

The third art commission was awarded to Rob Ley, a public artist from Los Angeles, to create art for the Education Center and west plaza project. Mr. Ley's art, titled *Ambiguous*, was installed in 2016 in Discovery Plaza, in front of the Education Center. His conceptual approach is based on the Education Center's interpretive theme that "small things matter," particularly how many small parts contribute to a whole, Mr. Ley created a sculpture composed of 2,500 triangles with 10,000 unique-angled bends and 15,000 rivets that turn all of these separate pieces into a singular, monolithic form.



Ambiguous by Rob Ley

The final major art commission selection process was completed in 2016 in coordination with the design of the new Polar Passage. Given the connection between polar bears and North American native populations, the OZPAAC members asked RACC's project manager to extend the solicitation outreach specifically to native artists. In addition to its routine outreach efforts, RACC contacted arts organizations based in Canada and Alaska and directly contacted a number of native artists, but did not receive any proposals from them.

OZPAAC selected the artist team of Edwin and Veronica Dam de Nogales of Ontario, Canada, out of 179 responses to the request for qualifications. The selected artists demonstrated significant personal knowledge of the plight of polar bears, and their presentation proposing the *Melting Ice Bear* sculpture promised to capture and convey both the majestic qualities of the polar bear and the precarious state of their survival.



Polar bear by Veronica and Edwin de Nogales

The cast aluminum sculpture, approved to proceed by the Metro Council in 2017, stands 9 feet tall and is complemented by two cast aluminum benches that capture the playful side of polar bears. Fabrication of the artwork was completed in December 2018. The sculpture and accompanying benches were delivered in July 2019 and stored locally until construction at Polar Passage was nearly complete. The sculptures were installed in February 2021. In December 2019, a resin replica of the *Melting Ice Bear* was temporarily installed in conjunction with the UN Climate Action Conference (COP25) in Madrid, Spain. Veronica and Edwin de Nogales attended the conference and connected with attendees about the artwork and the accompanying message that was provided by the Oregon Zoo.

In 2017, staff provided a report on the public art expenditures associated with the bond program. It showed that the program was on track to achieve Metro’s requirement to invest 1 percent of direct construction costs in public art. These investments further the zoo’s public art program goal.

OZPAAC held its last meeting in March 2018 and was ended after the Polar Passage commissioned artwork design was complete and in fabrication and a draft of the zoo’s Secondary Collections policy was reviewed. In December 2018, at the OZPAAC’s request, staff documented the program’s successful public art process in a draft report: Oregon Zoo Public Art Advisory Committee Summary Report. The 2019 final report can serve as a model for other projects and can be found on the [Oversight Committee meeting materials pages](#) on the zoo’s website.

OZPAAC encouraged the zoo to enhance its art condition assessment and maintenance program for its entire art collection, along with the newly commissioned artworks. In December 2018, the zoo issued its Secondary Collections policy that outlines the basic policies guiding the development and care of the zoo’s secondary collections—which includes its art collection—in a manner that is consistent with the missions of the Oregon Zoo, Metro and the Association of Zoos and Aquariums (AZA), and modern philosophy and practice of managing such collections in accredited zoo, aquarium and museum environments. The policy addresses the acquisition, care, and use of the secondary collections, and is designed to be both a practical guide for zoo staff and a public document explaining how the Oregon Zoo exercises stewardship of the secondary (non-living) collections assets in its care. A zoo Secondary Collections Steering Committee with zoo leadership has been established to oversee the zoo’s art collection and ensure that the artworks are assessed and maintained over time.

14. Polar Passage, 2021

The three final habitat projects—Polar Passage, Primate Forest and Rhino Ridge—are adjacent to one another in the heart of the zoo, and were managed as a single construction site. This approach was selected to reduce construction time and costs, make the whole undertaking more efficient, and reduce impacts on zoo operations and guest experience. The construction was completed in phases. The first phase had the largest footprint, encompassing all three future habitats as the zoo demolished old facilities. As projects were completed, the construction footprint shrank. Rhino Ridge was completed first, followed by Primate Forest, both in October 2020; Polar Passage was complete in February 2021.

Demolition and site grading began in July 2018. The former polar bear, sun bear and wild pig buildings were removed and selective demolition of the primate building was completed.

As the construction documents needed for permitting were assembled in November 2018, zoo staff anticipated that bids could exceed the budget for these final three projects due to construction cost trends. Before the bids were received, zoo staff advised the committee of this possibility and presented recommendations that the committee could adopt depending on the amount by which the budget might be exceeded. Bids were received in December 2018 and as predicted, exceeded the budget. In January 2019, the committee reviewed a recommendation for the Metro Council to reallocate existing program contingency allowances within the budget to cover the excess without affecting the overall bond budget.

The City of Portland issued building permits in June 2019 and construction progressed on schedule in 2020 and 2021, despite the additional challenges presented by the COVID-19 virus.

Completed in spring 2021, Polar Passage is a state-of-the-art habitat that fully meets the zoo's multiple goals for animal welfare, conservation and education. Covering approximately two acres, three times the size of the previous exhibit space, and custom-designed to support the needs of polar bears. Polar Passage includes more open and varied terrain, with hilltops offering the bears long vista views across the zoo and a variety of habitats to patrol, as polar bears do on ice floes and tundra in the Arctic.

The new habitats give the bears greater choice and control, encouraging them to engage in more natural behaviors while providing opportunities for keepers to visually monitor animals, enabling responsive care. The space provides viewers with more opportunities to see a range of behavior, including underwater views in one of the three new pools, which are saltwater for healthy skin, fur and eyes.

In evaluating the design of Polar Passage, staff took into account the rapid loss of polar bear habitat in the wild and the anticipated numbers of displaced animals needing sanctuary, and decided that a maternity den was not needed at this time. However, the space for the den and an outdoor maternity yard remains in the new habitat, in the event these facilities are needed in the future. Polar Passage now has capacity for five or six bears. The zoo's prior polar bear, Nora, arrived back at the zoo in March 2021 and is the sole occupant for now.

Polar Passage, Primate Forest, and Rhino Ridge site plan illustration



Animal Welfare – The new habitat expands the bears' access to natural substrate, a varied environment, and increases both land and pool space. A sophisticated water-filtration system saves both water and energy. As marine mammals, polar bears' eye and coat health is best served with access to saltwater and early decisions assured that all three of the pools have a saltwater system. New holding areas are equipped with high-efficiency lighting and ventilation, allowing for excellent animal care.

Manitoba, Canada's Polar Bear Protection Act and the regulations established under that Act set forth minimum requirements for facilities that receive an orphaned animal from Manitoba (Western Hudson Bay population/Churchill area). The regulations identify exhibit and off-exhibit space, holding area, pools, viewing distance, barrier heights, exhibit complexity, animal care, and enrichment and education requirements. The Association of Zoos and Aquariums' (AZA) Species Survival Plan for polar bears asks that all polar bear facilities aspire to the Manitoba standards. The Oregon Zoo has designed Polar Passage to adhere to AZA and the Manitoba standards; Polar Passage meets or exceeds Manitoba

Protocols for space requirements, water quality, and light and ventilation. Meeting these standards will qualify the zoo to receive polar bears from the Canadian province of Manitoba making Polar Passage a potential future home for orphaned or displaced bears.

The polar bear habitat provides visitors a close-up view of polar bear care and bring the zoo's research and positive reinforcement training activities to the forefront of the visitor experience. Oregon Zoo's polar bears Conrad and Tasul were the first captive bears to be trained to voluntarily give blood, with a creative cage design that allowed them to hold out their paw. This is a significant tool for monitoring and supporting animal welfare and health. Like Conrad and Tasul, bears in the new habitat will also be trained to use the new stainless steel swim flume which allows them to exercise as well as provide scientific data.

Conservation Education – As the primary threat to polar bear survival, climate change is the central theme of the visitor experience in the new Polar Passage. Through interpretive messaging, visitors learn about the polar bears' amazing adaptations to their Arctic habitat and the best ways to take meaningful action to reduce the influence of climate change for their future.

The new habitat also provides the Oregon Zoo the opportunity to educate guests about the conservation research the zoo conducts with polar bears to assess the impacts of climate change. Because polar bears are hard to follow and study in their natural habitat, the Oregon Zoo provides an environment suitable for zoo-based research that contributes to and supports field research aimed at helping wild bears survive. For example, in collaboration with the U.S. Geological Survey (USGS), keepers trained Oregon Zoo polar bear Tasul to wear an accelerometer collar that recorded data about her movements. Scientists videotaped her wearing this collar and matched the electronic signals with specific activities. Using this data, identical collars can be placed on wild bears, allowing researchers to record their activities remotely based on electronic signals. In another example, the swim flume metabolic chamber allows Oregon Zoo staff to collect metabolic data measuring the energetic costs of swimming. This data allowed USGS scientists to understand that polar bears are less adapted to an aquatic environment than truly aquatic mammals, and as sea ice melts with warming climate, the stress on polar bears will increase significantly as they swim more and walk less.

Interpretive messaging provides facts about climate change, polar bear conservation, and actions visitors can take to preserve polar bears and their Arctic habitat. Unique to Polar Passage, "Melting Ice Bear," the 9 foot tall cast aluminum sculpture installed outside the habitat's Arctic Science Center makes a visual case for conservation and climate change; the message is, "without the ice, the bear will cease to be". The polar bears will also be able to interact up close with visitors at a special port in the wall where the bears will be trained to explore a person's scent. As with all bond projects, the effectiveness of the interpretive exhibits with visitors will be assessed after the project has been open for at least a year.

Infrastructure and Sustainability – Infrastructure work associated with the polar bear project includes a public plaza with guest amenities, visitor path upgrades, and the final phase of upgrading utilities included in the bond program implementation. Glass windows in the exhibit are embedded with bars visible only to birds, reducing danger to flying birds. The polar bear project completes the geothermal "slinky" system installed during the construction of Elephant Lands to exchange heat and cooling between the habitats. This system saves energy by transferring energy used to cool Polar Passage pools to help heat Elephant Lands.

The three new pools at Polar Passage, totaling 115,000 gallons of saltwater, are connected to water filtration and recovery systems that significantly save on water utility costs. Polar Passage and Primate Forest buildings focus on energy efficiency with upgraded high efficient heating/ventilation/air conditioning (HVAC) system, LED lighting, and solar tubes for natural daylighting. Roofs in Polar Passage are made with Cross Laminated Timber (CLT), a regional product from sustainably managed forests, instead of metal or shingles. The most critical improvement is the demolition of the 1950s polar bear building and its antiquated systems.

Diversity in Contracting – Subcontractor bids for Polar Passage/Primate Forest/Rhino Ridge construction were received in late 2018. COBID contracting for design and construction is 14 percent or \$4.7 million of the \$34 million COBID eligible contracting total. The CM/GC conducted significant outreach in advance of the bid deadline to ensure COBID firms understood the project, had adequate information to develop a bid, and were encouraged to participate.

15. Primate Forest, 2021

The three final habitat projects—Polar Passage, Primate Forest and Rhino Ridge—are adjacent to one another in the heart of the zoo, and were managed as a single construction site. This approach was selected to reduce construction time and costs, make the whole undertaking more efficient, and reduce impacts on zoo operations and guest experience. The construction was completed in phases. The first phase had the largest footprint, encompassing all three future habitats as the zoo demolished old facilities. As projects were completed, the construction footprint shrank. Primate Forest was completed in October 2020.

Demolition and site grading began in July 2018. The former polar bear, sun bear and wild pig buildings were removed and selective demolition of the primate building was completed.

As the construction documents needed for permitting were assembled in November 2018, zoo staff anticipated that bids could exceed the budget for these final three projects due to construction cost trends. Before the bids were received, zoo staff advised the committee of this possibility and presented recommendations that the committee could adopt depending on the amount by which the budget might be exceeded. Bids were received in December 2018 and as predicted, exceeded the budget. In January 2019, the committee reviewed a recommendation for the Metro Council to reallocate existing program contingency allowances within the budget to cover the excess without affecting the overall bond budget. The City of Portland issued building permits in June 2019 and construction progressed on schedule in 2020 and 2021, despite the additional challenges presented by the COVID-19 virus.

The old primate building was scheduled to be demolished in a future phase of construction (Master Plan Phase II). In 2017, the Metro Council approved the removal of the primate building in this phase and construction of a new habitat in that space as part of the bond program projects. Zoo staff reviewed conservation and animal welfare goals to determine and identify the priority species for the new habitat: chimpanzees and orangutans. Primate Forest was designed to provide vastly improved habitat for an expanded family of chimps. Red Ape Reserve remains, but with updated displays and information about the effects of deforestation on orangutans, and guidance for visitors on how to take meaningful action. The old primate building, including Flooded Forest, was demolished.

Primate Forest was substantially complete on October 12, 2020 and the four resident chimpanzees moved in a few days later. A family of seven chimps is scheduled to arrive in October 2021.

Full completion of Primate Forest was delayed to address access for cleaning to the new outdoor platforms. The original plan to use movable ladders proved unworkable; designing, fabricating and installing new, attached metal ladders required input from multiple stakeholders and faced supply challenges due to COVID-19 as well as installation challenges in the already completed space. This work is scheduled to be completed in October 2021.

Animal Welfare – Chimpanzees thrive in groups large enough for individuals to choose with whom to spend time, and with latitude to move between groups. The new habitat addresses this need by expanding and significantly improving the space to accommodate a larger group of chimpanzees. Primate Forest includes a new inside dayroom, two new outdoor yards, a stream, a waterfall, large boulders and logs. Visibility is important to chimps—they monitor the location and behavior of others by sight and sound. The complex three dimensional features of the outdoor habitat—boulders, climbing platforms, separate yards, and even shallow caves for hiding—will be essential for peaceful social relations among a larger group. The outdoor climbing structures have multiple platforms and ropes between them, encouraging exercise for the chimps’ health and well-being. The two outdoor areas are separated but connected, allowing for the chimps to move and regroup throughout the day, much as they would in the wild.

The design of the new habitat provides enhanced opportunities for keeper interaction and enrichment activities which are essential to the health and well-being of chimpanzees. The new inside dayroom, visible from the viewer pathway is brightened by skylights and has five roof hatches to allow keepers to scatter food. Searching for food provides intellectual stimulation, as well as exercise. The floor is covered with three feet of mulch, providing a natural substrate to walk and sit on. There is a large simulated termite mound, with apertures that can be filled on an erratic schedule, encouraging natural foraging. Two 26-foot tall floor-to-ceiling climbing structures with hammocks that can be moved provide novelty and challenges.

Primate Forest is an innovative design that promotes chimpanzee well-being, by providing multiple forms of stimulation (intellectual, social, physical) while allowing visitors to observe and learn about these primates.

Conservation Education – At Primate Forest, visitors learn about the conservation challenges primates face from deforestation, particularly as their habitat is converted to palm oil plantations. Interpretive graphics describe how chimpanzees and orangutans are adapted for life in their forested habitats in Africa and Asia and the devastating impacts of deforestation and habitat loss on these large apes. Other information addresses how visitors can take action to reduce the human impact on rainforests and the animals who live in them, including a focus on selecting sustainable palm oil products from these forests.

Infrastructure and Sustainability – The overhanging roof in Primate Forest is constructed with CLT (cross laminated timber) which is sustainably harvested and regionally available. The glass used in Primate Forest windows is embedded with bars visible only to birds, averting avian deaths. Concrete walls for the dayroom are 13 inches thick providing insulation and energy savings. The most critical improvement is the demolition of the 1950s primate building and its antiquated systems. The project achieved LEED Silver certification.

Diversity in Contracting – Subcontractor bids for Polar Passage/Primate Forest/Rhino Ridge construction were received in late 2018. COBID contracting for design and construction is 14 percent or \$4.7 million of the \$34 million COBID eligible contracting total. The CM/GC conducted significant outreach in advance of the bid deadline to ensure COBID firms understood the project, had adequate information to develop a bid, and were encouraged to participate.

16. Rhino Ridge, 2021

The three final habitat projects—Polar Passage, Primate Forest and Rhino Ridge—are adjacent to one another in the heart of the zoo, and were managed as a single construction site. This approach was selected to reduce construction time and costs, make the whole undertaking more efficient, and reduce impacts on zoo operations and guest experience. The construction was completed in phases. The first phase had the largest footprint, encompassing all three future habitats as the zoo demolished old facilities. As projects were completed, the construction footprint shrank. Rhino Ridge was completed in October 2020.

Demolition and site grading began in July 2018. The former polar bear, sun bear and wild pig buildings were removed and selective demolition of the primate building was completed.

As the construction documents needed for permitting were assembled in November 2018, zoo staff anticipated that bids could exceed the budget for these final three projects due to construction cost trends. Before the bids were received, zoo staff advised the committee of this possibility and presented recommendations that the committee could adopt depending on the amount by which the budget might be exceeded. Bids were received in December 2018 and as predicted, exceeded the budget. In January 2019, the committee reviewed a recommendation for the Metro Council to reallocate existing program contingency allowances within the budget to cover the excess without affecting the overall bond budget. The City of Portland issued building permits in June 2019 and construction progressed on schedule in 2020 and 2021, despite the additional challenges presented by the COVID-19 virus.

The 2008 ballot measure asked for funds to improve the hippo exhibit, primarily the installation of a water-saving filtration system. The hippo pool was being dumped and refilled several times a week with millions of gallons of water being poured down the drain every year. The zoo began master planning after the ballot measure was approved and analyzed energy use across the entire zoo campus. Water pumps and filtration systems use the most power, which meant the zoo was about to install a water-saving hippo pool filtration system that would use a lot of energy.

Unlike hippos, rhinos don't require pools and pose no issues regarding water use or filtration. In addition, rhinos are better suited to the zoo's long-term species plan. The zoo's 20-year master plan calls for construction of an Africa savanna habitat shared by a number of large grassland species. Rhinos can share habitat with gazelles and giraffes.

Upon further analysis, including public opinion surveys, the zoo and Metro Council amended the project to focus on expanded habitat for critically endangered rhinos. This allowed for removal of the pool and prioritized conservation of the endangered black rhino. To prepare for the rhino habitat expansion, the zoo moved the hippos to a new home (Fort Worth Zoo) in the spring of 2018 and decommissioned the hippo pool.

On the advice of bond counsel, in 2018, bond funds were shifted away from the construction of the expanded rhinoceros habitat. Construction costs for Rhino Ridge expansion has been fully funded by the Oregon Zoo Foundation, using funds it had previously designated to build the maternity den at Polar Passage (which will not be constructed in this phase). Bond funds that were originally designated for the Rhino Ridge expansion have been redirected back to Polar Passage.

Rhino Ridge was completed in October 2020. Construction included the removal of the hippo pool, removal of the barrier between the rhino and hippo habitats, and regrading of both habitats for rhino use only. The habitat features: a mud wallow, timed feeders, a lowered viewing area to provide close-up encounters, a “rhino blind” built using an existing structure, a demonstration area where caregivers can train rhinos to participate in their own care, and information for about how the public can help rhinos in the rhinos’ native countries.

The zoo coordinated with Species Survival Plan Program and Association of Zoos and Aquariums on next steps in moving a breeding pair of rhinos into the habitat. Due first to the challenges of COVID, and then to the challenges of moving animals during hot weather months, the arrival of the new inhabitants of Rhino Ridge is scheduled for fall 2021.

Oregon Zoo Foundation donors contributed \$1.2 million to the project, covering the full cost of this project.

Animal Welfare – Rhino Ridge is now more than fifty percent larger, creating space that can be divided to better support future breeding opportunities for this highly endangered animal. The rhinos will have more choices over how and where they spend their day, and visitors will get more intimate views of the animals. The viewing area, however, includes a “rhino blind.” Rhinos generally prefer not to be in front of large crowds of people, and the rhino blind will allow visitors to see the rhinos without the rhinos seeing visitors. In addition to the expanded space to roam, the habitat also features mud wallows to help the rhinos keep cool and to protect their skin from sun and insects.

Conservation Education – The new encounter space designed into the habitat allows visitors the opportunity to get up close to an endangered rhino with a keeper and learn more about the threats to the species. The habitat also features information about the steps visitors can take to help protect rhinos in the wild.

Infrastructure and Sustainability – Rhino Ridge eliminates the outdated hippo pool, saving approximately 9.5 million gallons of water annually for the zoo.

Diversity in Contracting – Subcontractor bids for Polar Passage/Primate Forest/Rhino Ridge construction were received in late 2018. COBID contracting for design and construction is 14 percent or \$4.7 million of the \$34 million COBID eligible contracting total. The CM/GC conducted significant outreach in advance of the bid deadline to ensure COBID firms understood the project, had adequate information to develop a bid, and were encouraged to participate.

17. Interpretive Experience, 2010–2021

The zoo’s overall interpretive goals, including both bond project and non-bond project initiatives, are to create a more synergistic experience for guests across the entire campus and to position the zoo itself—its environmental resources and stewardship of those resources, husbandry and animal care practices, and conservation programs—as an essential part of that experience.

During the zoo bond program, the planning and development of interpretive materials transitioned from an individual project approach to a comprehensive approach—like the Percent for Art—to an approach where each project integrates the interpretive experience into the project planning, design and implementation. Each project has interpretive themes and goals developed via a research-based approach. Visitors are engaged as part of the front-end (goal setting), formative (design) and summative (effectiveness) evaluations. Animal welfare, sustainability/green living, and conservation education are common threads through each project’s interpretive elements.

In December 2018, zoo staff issued an Interpretive Experience Update report that spells out an Interpretive Framework with strategy and processes to inform interpretive design and keep interpretive graphics fresh, relevant to contemporary conservation concerns

and integrated with messaging across the zoo. The new Interpretive Framework was substantially completed in June 2019. It outlines the zoo’s new process for assessing and maintaining effectiveness of interpretive elements across the zoo, including bond projects. This includes an expanded governance structure with more involvement of zoo leadership. A formal policy on use of the Interpretive Framework was adopted in 2020 and it is being used to inform interpretive design

The best practices outlined in the Interpretive Framework align with the philosophy of the National Association of Interpretation that interpreters forge an emotional and intellectual connection between the interests of the audience and the meanings inherent in the resource.

Interpretive Outcomes

After the visit, zoo visitors will know:

- Oregon Zoo animals thrive under the respectful, science-based care provided by our professional staff.
- Oregon Zoo invests in local and global conservation as a natural outflow of our caring for wildlife.
- Together, we can create a better future for wildlife by making environmentally responsible choices both individually and as a community.



Visitor at Nature Exploration Station

18. Wayfinding, 2010–2021

The Oregon Zoo has a challenging campus that can be confusing to navigate. Also, as changes to the campus were made, the signs were not easily updatable. To address this issue, as part of the development of the comprehensive capital master plan, a new concept for Wayfinding was introduced.

The zoo campus was divided into hubs and spokes. The hubs provide guests a chance to rest, utilize guest amenities, and consult digital kiosks. The spokes guide guests through animal habitats. This update provided a more holistic system providing a consistent look and feel.

The new wayfinding introduced a digital component allowing for updates. The new digital component has presented some operational challenges. It must be updated manually and it is not integrated with other zoo information systems. A more robust and flexible content management system is being investigated.

Zoo maps were updated adding a numbered pylon system. Signage was simplified and less language-based, relying more on animal icons and color coding.

Installation of the campus wayfinding system was substantially complete in 2017. The final kiosk installation in Central Plaza was completed in February 2021.



Directional post design for new wayfinding system

APPENDIX B – DIVERSITY IN CONTRACTING

While not specifically called for in the ballot measure, setting and meeting goals for contracting opportunities for minority-owned enterprises, women-owned enterprises, emerging small businesses, and service-disabled veteran-owned enterprises (“COBID firms”) is an important Metro objective. Early in its inception, the committee made it an aspect of the bond projects to track and report.

The committee’s focus was centered on three elements:

1. Achieving an aspirational contracting goal for zoo bond-funded construction projects of 15 percent participation from COBID firms.
2. Using alternative contracting methods such as Construction Management by General Contractor (CM/ GC) as means to increase COBID participation.
3. Encouraging efforts by Metro and other local governments to increase equity and diversity in construction-related labor force and business ownership through public spending policies and programs.

Overall, the bond program has spent \$105.5 million on COBID-eligible construction contracts, and \$15.4 million, or 14.7 percent, of that went to COBID firms.

Program construction Totals	Amount	Percentage
Total Construction Contract	\$115,679,702	
Total COBID-Eligible Contract	\$105,597,825	
Total COBID Contract	\$15,480,918	14.70%
Minority-Owned Business Enterprise	\$4,141,489	3.90%
Women-Owned Business Enterprise	\$4,355,934	4.10%
Emerging Small Business	\$6,960,593	6.60%
Service-Disabled Veterans*	N/A	N/A

*Category not applicable to projects contracted prior to January 2016 when the state of Oregon began that COBID category.

For a variety of reasons, some projects were more successful than others in meeting the 15 percent aspirational goal for COBID participation, the table below shows that, for COBID eligible contracts, each project contributed to the program’s efforts toward meeting the goal overall.

Metro’s methodology for calculating COBID utilization deducts the value of the scopes of work deemed ineligible to COBID firms from the total construction contract amount to determine the base for utilization rate calculation. For example, for the Condors of the Columbia project, this methodology resulted in removing the specialized aviary mesh installation scope of work, with a subcontract value of \$157,845, from the base calculation. Only three firms nationwide provide the mesh installation, and none of them was a certified COBID firm.

To determine if a scope of work is ineligible, the Metro project manager and contractor contacted and searched the Oregon Procurement Information Network (ORPIN), State of Oregon COBID website, Oregon chapter of National Association of Minority Contractors

Oregon Zoo Bond Program Equity in Contracting By Project For services through June 30, 2021

Projects	Total Construction Contract \$	Total Eligible COBID Contract \$	Total COBID Contract \$	MBE \$	WBE \$	ESB \$
			COBID %	MBE %	WBE %	ESB %
Veterinary Medical Center	\$7,715,174	\$7,316,174	\$733,095	\$62,680	\$322,473	\$347,937
			10.0%	0.9%	4.4%	4.8%
Penguin Filtration	\$1,380,272	\$1,380,272	\$83,110	\$0	\$0	\$83,110
			6.0%	0%	0%	6.0%
Condor of the Columbia	\$1,566,777	\$1,408,932	\$363,502	\$103,294	\$0	\$260,208
			25.8%	7.3%	0%	18.5%
Elephant Lands	\$49,167,294	\$45,658,117	\$4,448,588	\$3,382,786	\$677,180	\$388,622
			9.7%	7.4%	1.5%	0.9%
Education Center	\$14,478,062	\$14,478,062	\$4,264,737	\$25,584	\$1,019,601	\$3,219,552
			29.5%	0.2%	7.0%	22.2%
Wayfinding (not complete)	\$533,315	\$533,315	\$533,315	\$0	\$533,315	\$0
			100%	0%	100%	0%
Electrical Infrastructure	\$844,976	\$844,976	\$293,013	\$0	\$83,151	\$209,862
			35%	0%	9.8%	24.8%
Polar/Primate/Rhino	\$39,993,832	\$33,977,977	\$4,761,559	\$567,145	\$1,720,209	\$2,451,303
			14%	1.7%	5.1%	7.2%
Program Totals	\$115,679,702	\$105,597,825	\$15,480,918	\$4,141,489	\$4,355,934	\$6,960,593
			14.7%	3.9%	4.1%	6.6%

MBE - Minority-Owned Business Enterprise; WBE - Women-Owned Business Enterprise; ESB - Emerging Small Business
SDV - Service-Disabled Veterans (category not applicable to projects contracted prior to January 2016)

and other organizations that work with minority contractors to determine if any vendors in the area were eligible to perform the specialized work. Metro’s procurement manager was required to approve any request for specialized work deemed ineligible to COBID contractors and was responsible for tracking and reporting COBID contractor utilization.

In addition to summarizing the COBID contract amount, the committee thinks it is important to recognize and record the program’s efforts over the years to increase these numbers by including evaluation during the procurement of goods and services, outreach to COBID firms to encourage participation, mentoring of COBID firms, and breaking down projects to increase accessibility to bid.

Improved recruitment strategies of COBID firms included:

- General contractor starts recruiting COBIDs earlier to help get them ready by bid day, and hosts workshops either at their office or on site before bid day.
- Breaking down bid packages for subcontractors so that they are not overwhelming for smaller firms to bid.

While COBID goals focused on business ownership, goals for creating greater labor force opportunities for women and people of color have not been addressed until recently. The committee raised this topic, which was well received by zoo bond staff and Metro.

With no goals in the original bond language to help measure workforce equity impacts, the committee has encouraged practices that increased opportunities for women and people of color on the final construction projects, including recommending the Metro Council approve alternative contracting methods such as Construction Management by General Contractor (CM/GC) for several zoo bond projects.

The Committee also provided encouragement through its annual report “commendations” (see Appendix C) to the meaningful collaboration among local governments to increase understanding of the impediments to real success in equitable public contracting activities.

The Zoo Bond Citizens’ Oversight Committee acknowledges that issues of equity and inclusion in public sector contracting and efforts to increase both business ownership and labor force development are complex and will require sustained, long-term actions that extend beyond the zoo bond in scope and time. The committee also recognizes that additional factors, such as a local market conditions, can exacerbate these challenges to making progress. Nonetheless, the committee appreciates and encourages the efforts by Metro, other government units and private sector entities to create sustainable programs that will make meaningful change over time. The committee also appreciates that the bond program staff worked hard to solicit and retain design and construction teams who are committed to these goals.

Through a series of quarterly reports and monthly updates, the committee monitored the bond program diversity in contracting efforts and outcomes. As the bond program neared completion, the committee asked that the data be fully integrated into Metro’s annual report on that topic. The final Equity in Contracting report for the zoo bond program can be found on the [Oversight Committee meeting materials pages](#) on the zoo’s website.

APPENDIX C – COMMITTEE COMMENDATIONS

Beginning with its 2014 annual report, the committee made note of efforts and activities by the bond team, zoo staff and Metro that were worthy of recognition because they demonstrated professionalism and commitment, advanced transparency, or modeled behavior other programs and projects could emulate.

2014 Annual Report (dated March 2015)

- The use of CMGC on this project has minimized risks, including the percentage of change orders. The low percentage of total construction cost for change orders for this large project is to be commended.
- The rededication of two totem poles was celebrated in the fall of 2014. The zoo hosted a well-attended event that celebrated the Native American culture, history and meaning of the poles.
- The committee extends its appreciation to the Portland Children’s Museum for its collaboration with zoo education and bond staff to provide alternative camp/class space during 2014 and 2015.
- The committee also appreciates the financial pledge from the Oregon Zoo Foundation to support enhancements to the teen space and interpretives, with a focus on fostering youth leadership development.
- The committee commends the bond program for keeping all bond projects on track, despite the change in zoo executive leadership.
- The committee commends the diligence of the bond team for completing Condors of the Columbia \$418,462 under budget.

2015 Annual Report (dated March 2016)

- The committee commends the bond program for continuing to keep all projects on track, despite the change in zoo executive leadership, and looks forward to meeting and working with Dr. Moore through the completion of the bond projects.
- The committee commends the Oregon Zoo Foundation, zoo bond staff and SolarWorld for developing a partnership to save funds on the procurement of solar panels.
- The committee commends the extensive outreach conducted by the CM/ GC contractor to secure MWESB subcontractors, surpassing the 15 percent aspirational goal.
- The committee commends the effectiveness of the Condors of the Columbia interpretives. Summative evaluation demonstrated that visitors learned about the impact of lead ammunition and microtrash on the survival of this endangered species, and visitors were willing to make changes to improve the odds of the condors recovering.
- The committee appreciates the support of the Oregon Zoo Foundation in funding the Elephant Lands app to enhance the visitors’ educational experience.
- The programmatic approach to investing in art on the zoo campus at three major plazas (instead of at each project) is a cost-effective and efficient model.
- The committee commends the thorough feasibility analysis conducted by staff and the Remote Elephant Center task force.

- The committee supports the REC task force’s recommendation not to pursue a Remote Elephant Center.
- The committee commends the zoo staff for the successful completion of Elephant Lands. The design and construction of the zoo’s largest and most complex project were successfully completed within the approved schedule and budget.
- The committee commends the creation of Elephant Lands and its success in providing for the welfare of the elephants with its natural habitat features, and a design that encourages natural elephant behaviors and nurtures family dynamics.
- The committee applauds the innovation of the Elephant Lands design and construction team in the first commercial utilization of cross-laminated timber in Oregon. The committee recommends the bond program continue to identify innovative sustainability investments.
- The committee commends the zoo for completing all projects to date, including Elephant Lands, within the approved budget and schedule.
- The committee congratulates and thanks the zoo bond program and all of its internal and external partners for successfully completing Elephant Lands.
- The committee congratulates and thanks the Oregon Zoo Foundation for its significant financial support of \$3.2 million to the Elephant Lands project.
- The committee and Metro Council supported the use of Construction Management by General Contractor (CM/GC) for the Polar Bear Habitat construction.
- The committee supports the continued consideration of alternative contracting methods.
- The committee commends the economy and efficiency with which the program has been run, and recommends its continuance.
- The committee commends the thoughtful financial feasibility analysis conducted by the remote elephant center task force and concurs with its recommendation not to proceed with the project.

2016 Annual Report (dated April 2017)

- The committee commends staff on their reflective process of analyzing what worked and lessons learned, accepting feedback and working to improve diversity in contracting, and recommends that they continue the successful approach of making data-driven decisions applied to future projects.
- The committee commends the bond program for continuing to keep all projects on track with a successful zoo executive leadership transition to Dr. Donald E. Moore.
- The committee appreciates Dr. Moore’s professional experience and background, his enthusiasm and support of the bond projects, and his interface with the committee.
- The committee commends the Oregon Zoo for developing many partnerships to support programming in the new Education Center.
- The committee commends the Oregon Zoo for continuing zoo operations throughout bond projects construction, with minimal negative impact to zoo operations.

- The committee commends inclusion of the following features in the Education Center to enhance infrastructure and sustainability, making the building a teaching tool:
 - Installation of 760 solar panels on the roof to help achieve net-zero energy operations
 - High-efficiency lighting and HVAC Energy-efficient radiant-floor heating
 - Forest Stewardship Council (FSC)-certified wood
 - Bird-friendly lights and fritted glass to help prevent and deter window strikes
 - Native plants for wildlife and reduced irrigation
 - Green roofs on the wildlife garden shelter and bee hotel Rain gardens to clean and detain stormwater
 - Material reuse: salvaged timbers from the old Elephant Museum building were used for garden shelter; salvaged Elephant Plaza concrete pavers were used in wildlife garden; redwood trees removed from site for construction were salvaged and used for outdoor tables and benches.
- The committee commends the zoo for updating and installing a new wayfinding system to support visitor navigation and trip planning on grounds.
- The committee commends the zoo for the successful restoration and reinstallation of the Willard Martin Mosaic at the new Education Center, funded in part from an Oregon Cultural Trust grant.
- The committee commends the successful art installation at the Education Center by commissioned artist Rob Ley.
- The committee commends the zoo for receiving several awards and recognitions for Elephant Lands, including LEED Gold certification and Daily Journal of Commerce Project of the Year Award.
- The committee commends Metro for its conservative fiscal policy that have resulted in a AAA bond rating from S&P and AAA from Moody's providing premiums on the sale of the bonds.
- The committee commends the Zoo for successful management of projects to date, including Elephant Lands and the Education Center, within the approved budget and schedule.
- The committee commends the Oregon Zoo Foundation and zoo bond staff for a successful application to PGE's Renewable Development Fund to expand the solar installation on the Education Center.
- The committee congratulates and thanks the Oregon Zoo Foundation for its significant financial support of \$6 million to date, \$4 million of which supported the Education Center and Elephant Lands projects. The committee recommends that staff seek the Foundation's input on allocation of the remaining \$2 million.
- The committee commends Zoo Bond staff for the successful contracting and project development through use of the alternate contracting methods.
- The committee recognizes that although difficult to quantify, using CM/GC contracting results in a better overall mission-driven project, supports diversity in contracting and results in cost savings from fewer change orders.

2017 Annual Report (dated April 2018)

- The committee commends Oregon Zoo director Dr. Don Moore for his work to illustrate critical conservation issues and to lead the zoo in developing an Integrated Conservation Action Plan.
- The committee commends the investment in sustainable infrastructure at the Oregon Zoo as a means to reducing utility and energy costs, which frees funds to support the zoo's core missions, and is in alignment with the zoo's conservation goals.
- The committee commends the zoo bond program for consistently improving their performance in expanding tools to advance COBID utilization.
- The committee commends Metro for the role it's taken to advance the regional work toward supporting women and people of color in the construction industry.
- The committee commends former deputy chief operating officer Scott Robinson for his dedication and hard work in establishing and maintaining high standards for the zoo bond program over the 10 years since the ballot measure passed. The committee appreciates his oversight encouragement and support of the Zoo Bond Citizens' Oversight Committee.
- The committee commends the forward thinking of the bond team to identify how to best utilize remaining funds to optimize goals associated with the remaining projects.
- The committee commends the zoo and Metro Council for prioritizing the removal of the old primate building in this phase of construction due to animal welfare priorities and to reduce ongoing costs by no longer operating a dilapidated building.
- The committee commends the zoo for continuing to recognize the need to monitor the impacts of construction and habitat changes on the affected animals.
- The committee commends zoo staff for analyzing the ongoing capacity and conservation priorities of the primate habitat, and supports the decision to reduce the number of species in order to enhance overall animal welfare.
- The committee commends the zoo for continuing to recognize the need to monitor the impacts of construction and habitat changes on the affected animals.
- The committee commends the integrated effort with the art design and interpretive focus of Polar Passage and recommends the zoo consider this integration in future art investments.
- The committee commends the zoo for being on track to meet Metro's 1 percent for art requirement and pooling art resources to enhance effectiveness in major visitor zones.
- The committee commends the zoo for winning the Association of Zoos and Aquariums (AZA) Exhibit of the Year award for Elephant Lands. The project has received 17 awards to date.
- The committee congratulates and thanks the Oregon Zoo Foundation for its significant financial support of \$3.2 million for Polar Passage, Primate Forest and rhino habitat.
- The committee appreciates the work the budget subcommittee did on the recommended reallocation of remaining funds and appreciates Metro for approving the reallocation.
- The committee commends zoo staff for the forethought and prudence of combining the three remaining projects to reduce construction costs and time. The committee also commends Metro for being open to and approving this innovative construction plan.

2018 Annual Report (dated May 2019)

- The committee commends the change in the name of two zoo departments: Education became Inspiration, Learning and Action and Living Collections became Care, Connection and Conservation. These changes demonstrate ongoing maturing commitments to conservation, which was a commitment of the zoo bond measure. They also ensure that all interpretive investments reflect conservation action priorities for the zoo.
- The committee commends the zoo for adding to its awards for the Education Center. It achieved Leadership in Energy and Environmental Design (LEED) Platinum certification from the US Green Building Council, the highest level of certification available. In addition, the Portland Chapter of American Institute of Architects awarded the Architecture 2030 Award to Opsis Architecture and the Oregon Zoo in recognition of their effort to reduce the use of greenhouse gas-emitting fossil fuels (net-zero operations), and the American Council of Engineering Companies of Oregon bestowed its Engineering Excellence 2018 Grand Award.
- The committee commends Metro for its role in commissioning the Portland Metro Region Construction Workforce Market Study that advanced public agencies' understanding of the challenges facing women and people of color in the regional construction industry, and for its leadership in developing strategies to overcome such challenges.
- The committee commends the zoo bond program for continuing its focus on COBID utilization and its work with its designers and contractors in expanding tools to advance COBID participation.
- The committee commends the staff and project team for cost-savings generated by value engineering to bring the project into budget, including removal of the maternity den that is not needed at this time and is consistent with animal welfare and conservation goals.
- The committee commends the zoo for maintaining its focus on animal welfare and conservation education while designing and budgeting for Polar Passage, Primate Forest and the Rhino Ridge.
- The committee commends the zoo for its partnership with the Oregon Museum of Science and Industry and the leverage of local knowledge in designing the climate action portion of the interpretives for Polar Passage. The committee recommends that the Oregon Zoo continue to identify and work with local organizations with relevant expertise in alignment with the zoo bond program's goals.
- The committee commends the zoo's ability to keep chimps and orangutans on site during construction with focus on animal welfare.
- The committee commends the flexibility of the Oregon Zoo Foundation to support the full cost of the Rhino Ridge.
- The committee commends the zoo's proactive planning to reduce disruption and embrace construction as part of the guest experience (e.g., creating windows in fencing to watch construction).
- The committee commends the zoo's significant preparations made in a timely manner to prepare for construction, including complex planning and successful animal transfers. The zoo transferred out 53 individual animals representing 17 species, and transferred in 63 animals representing 14 species, for a net increase of 10 animals.
- The committee commends the zoo on its progress in developing an Interpretive Framework and new governance structure to ensure interpretives remain relevant and current.

- The committee commends the zoo staff on its efforts to create a policy framework and mechanisms that ensure the zoo's art collection and other nonliving collections receive adequate and ongoing attention.
- The committee commends zoo Facilities Management and the zoo bond construction team for working together on the Middle Service Road Feeders and Generator Replacement to improve coordination and reduce costs.
- The committee commends the zoo for including in the bond program such a significant investment in infrastructure (including that contained in each project) that supports safety, animal welfare and facility future growth.
- The committee commends zoo staff on careful and strategic value engineering and monitoring of costs during the completion of final projects without sacrificing animal welfare or conservation efforts.
- The committee commends zoo staff for thoughtful planning and discussion around potential bid scenarios for the Polar Passage/Primate Forest/Rhino Ridge project.
- The committee commends the Oregon Zoo Foundation for their support and flexibility with funding the Rhino Ridge and a portion of Polar Passage and Primate Forest.
- The committee commends the zoo bond staff for a continuous history of completing all projects within the allocated budget.
- The committee commends staff and Metro for being receptive to and implementing the use of alternative contracting methods. The outcomes include cost savings, planning to minimize the construction impact to animals, visitors, and staff, flexibility to support innovation and partner fund contributions, and overall problem solving for constructibility.
- The Committee commends staff and the project team on their value engineering efforts to address continuing cost escalation without sacrificing animal welfare efforts or program goals.
- The committee commends Metro for reserving program contingency to ensure the final projects could be completed successfully despite the demand in the region's construction market.
- The committee commends Metro for capping central service administrative costs, which provided more certainty to the budget and reallocation process.
- The committee commends the Oregon Zoo director and staff for the Elephant Lands Operating Outcomes Report, especially the insights of lessons learned.

2019 Annual Report (dated May 2020)

- The committee commends the zoo staff for focusing the conservation education aspects of the bond projects to align with the Integrated Conservation Action Plan and for developing a framework for all zoo exhibits that will utilize this approach for all Zoo activities.
- The committee commends the zoo for its efforts and commitment to operating, maintaining and repairing the new bond facilities to meet the intended water, energy and sustainability performance of the design and equipment specifications.

- The committee is grateful to all bond program, zoo, and metro staff who have provided support to the bond funded projects and commends Dr. Donald E. Moore, Heidi Rahn, Jim Mitchell, Kate Giraud, and Linnea Nelson for their contributions to the bond program.
- The committee commends zoo director Dr. Don Moore, who has for many years worked closely with international colleagues on polar bear conservation, and the Oregon Zoo polar bear curator, Amy Cutting, and keepers, who have been recognized internationally for their research on polar bear nutrition and metabolism, for their generosity in sharing their knowledge and enthusiasm and to thank the zoo bond program staff for answering our seemingly endless questions over the last several years.
- The committee commends the project team and Metro for its efforts that allowed the artists to share the Melting Ice Bear at the UN Climate Conference in December 2019 held in Madrid, Spain.
- The committee commends Metro legal counsel and the Oregon Zoo Foundation (OZF) for their thoughtful consideration of the use of bond funds for construction of the expanded black rhinoceros habitat and for their creative solution to shift the construction costs for Rhino Ridge to full funding by OZF, using funds it had previously designated to build the maternity den at Polar Passage and redirecting bond funds that were originally designated for Rhino Ridge back to Polar Passage.
- The committee commends the zoo for its efforts to utilize alternative contracting methods for the bond projects and believes that ongoing consideration of alternative contracting methods for appropriate zoo construction project will be beneficial due to the unique geography, visitor presence and animal habitat needs inherent in those projects.
- The committee commends the bond program for its efforts to review other local bond issuance programs to make sure administrative costs continue to be comparable. The committee believes all Metro bond funded projects will benefit from periodically investigating and comparing administrative costs with other local public sector bond activities.

Final Report (dated November 2021)

- The committee commends the zoo on its efforts to develop, refine and adopt an Integrated Conservation Action Plan (ICAP), and hopes the ICAP will continue to be used as a guiding framework for the zoo's animal conservation efforts.
- The committee commends the zoo for refining and finalizing the Interpretive Framework and adopting a formal policy that will be used for development of future interpretives and updates of existing interpretives.
- The committee commends Metro Council for adopting the Construction Career Pathways policy and for the leadership role Metro played in the Construction Career Pathways Project Public Owner Workgroup, which was comprised of 16 public agencies and tasked with developing a regional approach to recruiting and retaining women and people of color in the construction trades.
- The committee commends Metro for implementing the Metro Auditor's recommendation to maintain clarity about roles, responsibilities, and lines of authority among and between the zoo bond program and zoo operations and for the careful attention to adjusting the bond program size and capacity as the projects and program activities increased and then decreased as the work came to a close.

APPENDIX D – COMMITTEE MEMBERSHIP

Current Committee Members

Susan Hartnett – Committee Chair

Susan Hartnett retired in 2019 after more than 26 years working in urban planning and development. Her career included more than 21 years with City of Portland bureaus, including planning, transportation, and water; her final position, the spectator venues program manager, was housed in the Office of Management and Finance. During her career, Ms. Hartnett also worked for the City of Tigard, Oregon Health & Science University, the City of Chicago and several private sector companies. She earned her Bachelor of Science in criminalistics from the University of Illinois and her master's in urban and regional planning from Portland State University.

Naomi Bishop – Committee Vice Chair

Naomi Bishop is a professor emeritus of anthropology at California State University, Northridge. A physical anthropologist with a specialization in primate behavior and ecology, Bishop's research focuses on the behavior and adaptations of both langur monkeys and humans to the high altitude environment in the Nepal Himalaya. Zoo observation projects have been an essential element in her teaching. Bishop has been a department chair and interdisciplinary program leader at both the University of Massachusetts Boston and California State University, Northridge, and has written and directed multimillion dollar grant projects in teacher education. She received an American Council on Education Fellowship in academic leadership for 2003–4, which was spent at Portland State University. She has a Ph.D. in anthropology from the University of California, Berkeley.

Daniel Aja

Daniel Aja is the senior vice president and chief medical officer at Banfield Pet Hospital, where he leads internal and external medicine initiatives at the world's largest veterinary practice. Prior to joining Banfield in 2014, Dr. Aja served as director of U.S. professional and veterinary affairs at Hill's Pet Nutrition. Previously, he owned and directed the Cherry Bend Animal Hospital in Traverse City, Michigan. Dr. Aja earned his veterinary medical degree from the college of Veterinary Medicine at Michigan State University, and has more than 33 years of experience, credibility and commitment to delivering the highest quality of veterinary medicine. He is a past president of the American Animal Hospital Association and served on the Michigan State Board of Veterinary Medicine. He is also the founding board member of Partners for Healthy Pets, a committee of the American Veterinary Medical Foundation created to ensure pets receive the preventative health care they deserve.

Laurel Brown

Laurel Brown has served as the assistant director of property management and zone maintenance at Portland State University since 2013, overseeing facility operations and maintenance of 29 buildings, including housing residences, a hotel, a student union and parking structures. She develops and administers 10 separate operational budgets totaling \$16 million and average annual capital expenditures of \$4.6 million. Previously she was a project manager with Ellis Ecological Services in Estacada, Oregon where she led environmental monitoring during construction activities for diverse clientele. Earlier, she was a front desk manager at Hart Road Animal Hospital in Beaverton and prior to that, managed her own property maintenance company in Portland for multiple property owners. She earned a B.A. in biology from Drury College in Springfield, Missouri.

Heidi Goertzen

Heidi Goertzen is a CERTIFIED FINANCIAL PLANNER™ professional at Becker Capital Management providing comprehensive wealth management and financial planning to clients. Prior to that, she served as chief compliance officer for Ferguson Wellman Capital Management, overseeing all company compliance policies and procedures. She began her career at RVK, Inc. working with large institutional clients. She earned a B.S. in finance from Linfield College and holds an MBA with a concentration in finance from the University of Portland's Pamplin School of Business.

Daniel C. Hauser

Daniel C. Hauser is a policy analyst for the Oregon Center for Public Policy where his research and advocacy addresses tax and housing policies. Throughout his career, Hauser has often focused on how various revenue structures, from income taxes to bonds, can be designed to address equity, adequacy and progressivity. He was previously selected as a Hatfield Resident Fellow at Portland State University's Center for Public Service and has worked at the Association of Oregon Counties as a Transportation Policy Analyst. Hauser holds a master's degree in Public Policy from Oregon State University. He also serves as the vice chair of Washington County's Urban Roads Maintenance District Advisory Committee.

Nan Heim

Nan Heim has more than thirty years of experience in association management and lobbying for a variety of clients. She has also managed several statewide ballot measure campaigns. Heim currently serves on the Oregon Zoo Foundation Board and the Oregon State Capitol Foundation Board.

Jill Mellen

Jill Mellen is a research biologist whose areas of expertise include animals, animal welfare and enhancing guest experiences in informal learning settings such as zoos and aquariums. Dr. Mellen has worked in the zoo and aquarium field for more than three decades. Most recently she was the education and science director at Disney's Animal Kingdom, where she researched a range of topics from elephant welfare to inspiring children to conservation action. Within the Association and Zoos and Aquariums, Dr. Mellen has held many leadership positions. Her current projects include coordinating studies on marine animal welfare. Early in her career, Dr. Mellen worked at the Oregon Zoo, and has moved back to Portland after her retirement from the Disney Company.

Javier Mena

Javier Mena serves as the affordable housing manager at the City of Beaverton. To ensure the City continues being the most diverse city in the state, he focuses on ensuring affordable rental and homeownership housing opportunities are available to all, especially marginalized communities and communities of color. Until July 2018, he was the assistant director of the Portland Housing Bureau at the City of Portland, where he had worked since 2010 in various roles, and most recently was implementing a \$258 million affordable housing bond measure program. He worked with the more than 40 nonprofits and service providers that partnered with the housing bureau to ensure the city's housing and rent-assistance programs were fulfilling their mission. Mena also has an extensive record in the finance industry, working for Wells Fargo until 2006 as an assistant vice president.

Chin See Ming

Chin See Ming is an attorney at the law firm of Gilbert Levy Bennett where he practices in the areas of construction defect and general business litigation, and insurance coverage law. A long-time resident of Portland, Oregon, he is a graduate of the University of Oregon School of Law and has previously served as Vice Chair of the Oregon Board of Bar Examiners. As the father of two adult children, he knows from first-hand experience the central role the zoo plays in the lives of young children and their parents in the Metro area! Ming enjoys riding his bicycle on the weekends.

Robyn K. Pierce

Robyn K. Pierce is a professional consultant with Pierce, Bonyhadi & Associates. She assists colleges, universities and school districts with planning, development, design and construction of academic, research, housing and student service facilities. She served eight years as the director of facilities and planning at Portland State University (PSU), where she managed a department of 160 staff and had an active role in more than 1.5 million square feet of campus growth and development, including nine LEED-certified buildings and three public-private and public-public partnership projects. She managed annual budgets exceeding \$100 million, including construction budgets. Pierce remains dedicated to supporting women and minority contractors in all facets of project development. She completed her undergraduate degree at the University of Oregon and master's degree at PSU.

Katherine A. Porras

Katherine A. Porras is the investment officer at Meyer Memorial Trust, responsible for monitoring and analyzing the foundation's investments, while researching environmental, social and governance factors on portfolio holdings to inform the alignment of the investment strategy to the organization's mission. Porras has experience working in finance, legal services, and performing arts. She earned an MBA with a focus in finance from Willamette University's Atkinson Graduate School of Management. She looks forward to contributing to the zoo, its staff and the Oregonian community at large.

Kevin Spellman

Kevin Spellman is a business consultant and trainer for construction contractors and industry professionals, following a 28-year career with commercial contractor Emerick Construction, including 18 years as president. In his Spellman Consulting, Inc. practice, he works with contractors on business strategies, development of contract management tools and techniques, and effective operational procedures. He has been an adjunct instructor in the Civil Engineering Department at Oregon State University, and at Portland Community College. He has served on several local boards, including Multnomah Education Service District, and currently chairs the Bond Accountability Committee for Portland Public Schools' bond program.

Dick Stenson

Dick Stenson retired in 2014 after 22 years as Tuality Healthcare president and chief executive officer. He was previously administrator of Straub Clinic & Hospital and Straub Health Plan in Honolulu, after working in San Francisco as administrator of Harkness Community Hospital and Upjohn Medical Group. He has a BS degree from the University of California, Berkeley and master's degrees in healthcare and business administration from Tulane and Loyola Universities in New Orleans. Stenson is a Fellow of the American College of Healthcare Executives and the American College of Medical Practice Executives. In 2018 he was appointed Entrepreneur in Residence for the Berglund Center for Innovation at Pacific University. He currently serves on the boards of the Portland Community College Foundation, Pacific University Oak Tree Foundation, Native American Rehab Association, Intel Community Advisory Panel, Vision Action Network of Washington County, Washington County Public Health Advisory Panel, Hillsboro Community Foundation, Tuality Healthcare Foundation and Tuality Health Alliance.

Emma Stocker

Emma Stocker is an emergency management professional with more than 10 years of experience in multihazard emergency management, specializing in higher education and campus environments. She developed a background in natural hazards planning, public policy, public involvement and social research through consulting and public sector positions in Portland and Eugene, including one year as an interim policy coordinator in the Metro Council Office. Stocker currently serves as director of emergency management at Portland State University. She has a master's in public administration (University of Oregon) and a bachelor's in sociology (Reed College).

Christine L. Taylor

Christine Taylor is an attorney with Miller Nash Graham & Dunn. In her practice, she works with public entities on matters including public contracting, construction contracting, and public meetings and records. In her spare time, she enjoys hiking with her dog and visiting the Oregon Zoo. She is also a huge polar bear fan!

Karen Weylandt

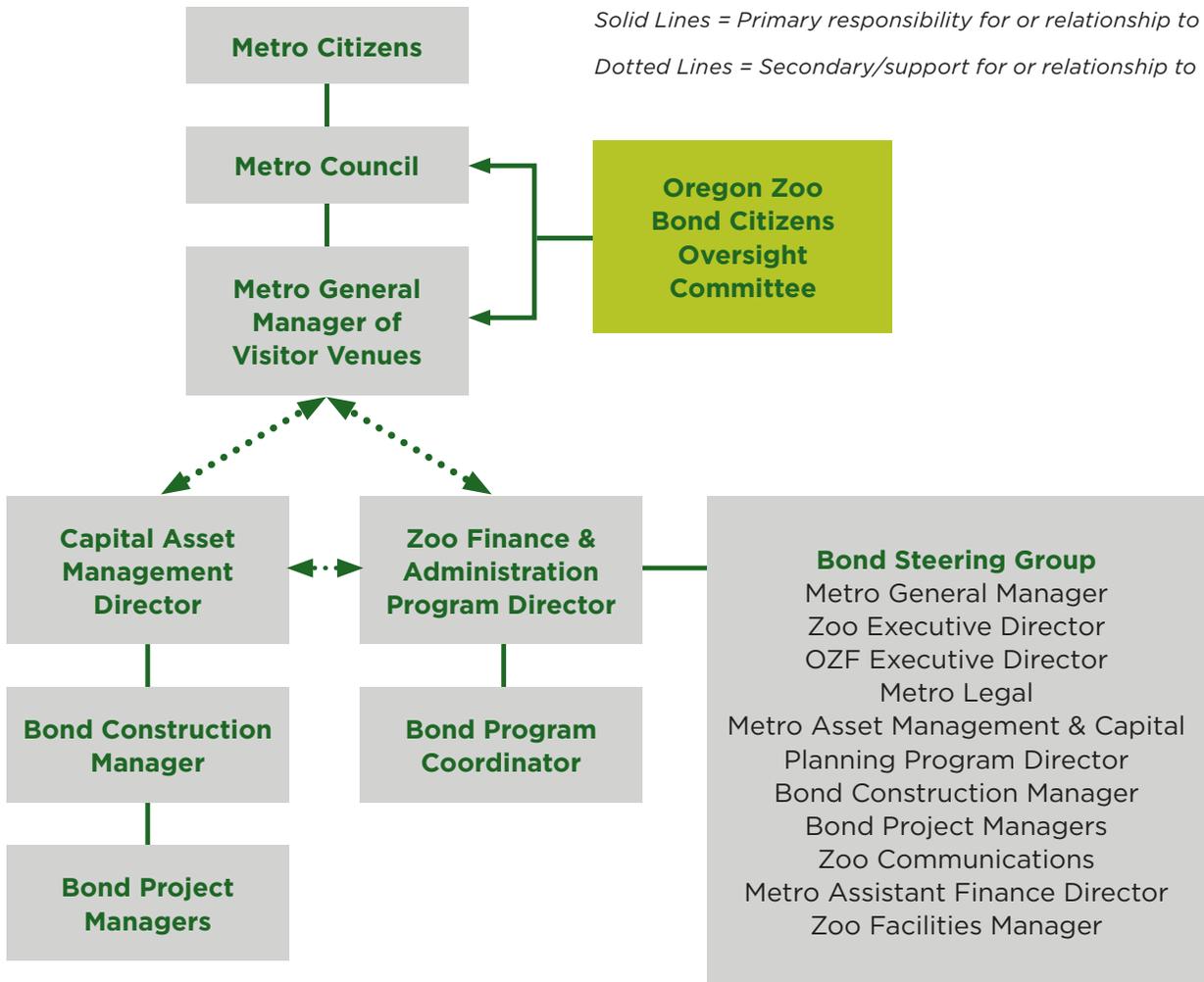
Karen Weylandt retired in March 2018 from Providence Health & Services after serving more than 25 years, most recently as the chief planning and design officer for the five-state health system. She has worked in the building, construction and improvement of Providence hospitals, outpatient clinics, surgery centers and educational facilities from Alaska to California. Her leadership for the planning and construction of Providence Newberg Medical Center resulted in the first hospital in the country to earn a LEED Gold designation. She also directed the planning and construction for the Providence Cancer Center in Portland. Weylandt earned a degree as a registered nurse and a master's degree in health care administration and currently serves on the Bond Accountability Committee for Portland Public Schools and the Building Committee for the Oregon Humane Society. Until July 2018 she served on the Oregon Facility Authority Board, and she also served several years on the Oregon Humane Society Board.

Previous Committee Members

Name	Years of Service
Marcela Alcantar	2010–2013
Jacqueline Bishop	2010–2013
Noah Bishop	2014–2017
Steve Bloom.	2010–2012
Tony Butchart	2014–2017
Linda S. Craig	2015–2019
David Evans	2010–2013
Greg Gahan	2010–2013
Gary Gamer	2010–2011
Ann Gravatt	2010–2013
Sharon Harmon.	2012–2015
Cynthia Johnson Haruyama . .	2018–2019
Deborah Herron	2014–2017
Jim Irvine	2010–2013
Benjamin Jackson.	2010–2012
Tony Jones.	2010–2012

Name	Years of Service
Bill Kabeiseman (Chair)	2012–2015
Deidra Krys–Rusoff (Chair) . . .	2010–2014
Mickey Lee	2014–2017
Carter MacNichol	2010–2014
Sheryl Manning (Chair)	2010–2013
John Mohlis	2010–2011
Daniel Morris	2014–2017
Kelly Peterson	2010–2011
Ray Phelps	2010–2013
Mike Schofield	2014–2017
Penny Serrurier	2010–2014
Michael Sestric	2010–2012
Ruth Shelly (Chair)	2014–2017
Bob Tackett	2010–2014
Tom Turnbull	2014–2017
Carol Welch	2010–2011

APPENDIX E – ZOO BOND PROGRAM ORGANIZATION STRUCTURE



External Consultant and Contractor Contributions

Bond Construction Projects: Design consultants and construction contractors managed by zoo construction and project managers.

Zoo Staff Contributions

Animal Welfare, Guest Experience, Facilities Impacts, Conservation Education, Grant Administration, Finance, Procurement, Marketing, and Public Relations and Involvement.

Oregon Zoo Foundation Contributions

Financial, Grant Administration, Donor Management and Communications.

Metro Contributions

Governance, Civil Engineering, Real Estate, Planning/Permitting, Program Delivery, Historical Investigations, Legal, Finance, Procurement, Human Resources, Sustainability, Diversity/Equity/Inclusion, and Risk

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