

Agenda Item No. 2.0

**ELEPHANT HABITAT AND RELATED
INFRASTRUCTURE**

Metro Council Work Session
Tuesday, Dec. 11, 2012
Metro, Council Chamber

METRO COUNCIL

Work Session Worksheet

Presentation Date: Dec. 11, 2012 Time: 9:45am Length: 25 minutes

Presentation Title: Elephant Habitat and Related Infrastructure - Budget Discussion and Recommendation

Service, Office, or Center: Oregon Zoo

Presenters: Kim Smith (503) 220-2450 & Craig Stroud (503) 220-2451

ISSUE & BACKGROUND

The Oregon Zoo has been designing a new elephant habitat as part of implementing the 2008 capital improvements bond. The project includes the elephant habitats and buildings, as well as associated infrastructure work; a new perimeter service road, relocating the zoo train route, relocating birds of prey mews and upgrading utilities. Over the past two months, project consultants have quantified bid results for the infrastructure and revised estimates for the elephant habitats and building components. The revised project plan costs exceed identified budget. This work session will provide background information and recommend options for balancing the project scope to budget.

As previously discussed with the Metro Council, the zoo campus has inherent geotechnical challenges. For the western half of the zoo campus, a series of improvements since the zoo opened in 1959 has mitigated and addressed geotechnical conditions. Master planning located the new expanded elephant habitat along the eastern edge of the campus. This location was the only option to meet the six acres size condition and has the least impact to existing animal habitats and other major existing improvements. This area of the campus has the least historic geotechnical condition information due to lack of construction over the past fifty years.

Throughout project design, Metro has contracted with geotechnical engineering firms to analyze site conditions through testing and analyses. This work informed the design and in response to findings the zoo modified pre-schematic designs to avoid problem areas and expensive mitigations.

As one would expect, the geotechnical mitigations for minor surface improvements are much less expensive than improvements that require deep footings, retaining walls, dewatering, and robust structural components adequate to safely house elephants and the other infrastructure work. Some improvements were more easily modified than others and current estimates reflect those realities. For example, the train track design to avoid visitor crossings by constructing an elevated trestle proved extremely costly because the original design of structural concrete footings was deemed inadequate to safely support the trestles and the revised designs include anchoring the trestle supports to soil and rock 70 feet below the surface. In addition, each trestle support requires 30 or more days of

settling time before the support can be finished. These types of challenges increased the plan costs significantly more than the design team expected.

The estimated construction costs were estimated by the design team to be \$13.1 million greater than the \$39.5 million construction budget.

OPTIONS AVAILABLE

Zoo staff and consultants immediately began identifying opportunities to reduce plan costs and balance the budget. Two primary options have been identified: 1) reducing project costs through scope reductions, and 2) adding resources to the project.

Reducing Project Costs

To frame the option of reducing project scopes, it is helpful to review the 2008 Bond Measure Explanatory Statement and Metro Council Resolution 08-0945 language pertinent to the elephant habitat project. The language states:

Measure 26-96 Explanatory Statement for the elephant habitat project

“Outdoor space will increase from 1.5 to 6 acres, adding watering holes, shade structures, large trees, and boulders, providing more outside exercise and offering a more natural environment.”

Metro Council Resolution 08-0945 elephant habitat excerpts

- Space increase from 1.5 to 6 acres
- Naturalized with watering holes, shade structures, large trees and boulders, with a thicket of bamboo as a backdrop
- Barn will be replaced with a larger building

All options presented comply with the explanatory statement and resolution commitments.

Zoo staff and consultants have identified \$9.2 million of scope reductions for relocating the train route and elephant habitats and buildings. Reductions were identified for the planned perimeter service road; however, staff believes the value of monetary savings do not outweigh the value the service road provides to construction of the elephant habitat and associated guest safety, as well as the road’s value to future campus operations and services. Therefore, no changes to the road are recommended. The relocated birds of prey mews required scope reductions; however, the revised cost estimates have been balanced to the target budget and this work session will not discuss that associated project.

The major changes proposed to the train route design include:

- Modifying the design to eliminate the overhead trestle. This means the track will remain at existing grade with a major visitor path crossing. To ensure guest safety for this crossing, the design has been modified to include robust safety barriers so that guests, particularly young children, are safely separated from the tracks. The trestle elimination will modify and possibly eliminate views from the train into the future polar bear habitat, but the views in the forthcoming Elephant Meadow remain. This change also requires the trains to ascend a steep slope to return to

the visitor station. Each of the zoo trains is uniquely constructed and has differing limitations for maximum slope. Solutions to assist the trains on this climb are being reviewed and have not been decided.

- Reducing the train storage and maintenance building scopes and size. This change will likely require a strategic change to the train maintenance and repair operations. Currently, train staff fabricates some parts on-site in a maintenance building that will be displaced by the new elephant habitat. Historically, this work has been procured from professional fabrication shops. Reducing the building scope and size may preclude the equipment and fabrication areas necessary to fabricate parts.

These changes allow the campus return loop trestle to remain in scope. This element is important to running the train during the winter ZooLights festival. In addition, the route to Washington Park remains in place. These routes are important and allow the train to continue to operate as a zoo revenue generating activity.

The major changes proposed to the elephant habitats and buildings include:

- Reducing the size of the elephant plunge pool and associated water filtration. The smaller pool is still significantly larger than the existing habitat's pool and will provide a great experience for the elephants and guests.
- Reducing the Forest Hall building square footage. The reduction is primarily in storage, amenity, and visitor spaces, although the hall will still have excellent visitor viewing. The large sand space for elephants remains at the target size.
- Modifying the demonstration yard through scope reductions and simplifications.
- Simplifying the visitor bridge that transects the habitat. The bridge maintains all functional requirements, but in a simpler, less costly manner.
- Numerous changes to design elements and finishes, most of which would be unnoticeable to all but the closest project stakeholders.

These changes maintain the elephant project vision and bond measure commitments. The project still includes multiple spaces for elephants, sand substrates, elephant activity and choice components, sustainability features (LEED Silver achievable), and extensive visitor experience opportunities.

Modifying the project design for the changes to the train and elephant habitats and buildings eliminates \$9.2 million of cost, leaving the estimated project construction costs \$3.9 million over the resources allocated in the Bond Implementation Plan.

It is important to note that the construction contingency funds set aside for the project remain intact and have not been used to help balance the budget. Staff recommends maintaining those funds to address unforeseen conditions that could arise during construction.

Further Reductions

Zoo staff and consultants have identified further scope reductions totaling \$3.9 million to bring the project costs into balance with the budget established in the Bond Implementation Plan. These reductions are more profound and erode the overall project vision by eliminating visitor access to Forest Hall; combining sub-habitats into a larger habitat, thereby, modifying staff management of spaces and the elephants within; reducing some sustainability features (LEED Silver at risk); eliminating elephant transfer

chutes between habitats which reduces flexibility of moving elephants; and reducing elephant activity and choice components. In addition, the reductions eliminate most of the train support buildings and would result in deferral of the campus return trestle loop, which would eliminate the ability to run the train during ZooLights.

Adding Resources to the Project

In May 2012, Metro issued \$65 million of bonds of the zoo's remaining \$105 million of bond authority. Given market conditions and Metro's excellent credit ratings, the bonds sold at considerable unanticipated premium. A premium is a condition where bonds sell for an amount greater than the published value of debt issued and required to be repaid. In this instance, Metro sold \$65 million of bonds and received a \$10.4 million premium, with proceeds totaling \$75.4 million. These unanticipated funds are not allocated to any specific bond projects and are being held as general program resources. A portion of these funds could be allocated to the elephant habitat and related infrastructure project.

IMPLICATIONS AND SUGGESTIONS

Staff recommends reducing the project costs by the \$9.2 million previously discussed and allocating \$3.9 million of the bond sale premium funds to balance the project budget to resources. This recommendation maintains the elephant habitat project vision, sustainability components, and visitor experiences. The Forest Hall would be maintained as an indoor visitor viewing area, allowing guests to see the elephants on cold, rainy days. For the train, the ZooLights loop and Washington Park routes could be maintained for visitors.

Allocating \$3.9 million of the \$10.4 million bond sale premium funds to the project reduces the amount available for future projects. With the completion of this project, the program will have completed more than half the dollar value of the bond measure projects. Each of the remaining projects has design, construction, and escalation contingency amounts budgeted and set aside. Using a portion of the unanticipated bond sale premium funds for the elephant habitat project does not put future projects at risk and maintains a considerable sum for remaining projects.

The geotechnical analyses for the elephant habitat project and related infrastructure design also informs the bond projects yet to be completed. Similar to changes to the pre-schematic design for the elephant habitat project, some changes to the pre-schematic design will likely be required for the future projects to avoid geotechnical risks and associated mitigation costs. Similar to the elephant habitat project, the animal welfare visions for each project will be the top priority and will guide design decisions.

QUESTION(S) PRESENTED FOR CONSIDERATION

Staff seeks Metro Council direction on balancing the project budget to resources. Council members can direct staff to implement the recommendation or suggest a different mix of options.

LEGISLATION WOULD BE REQUIRED FOR COUNCIL ACTION: Yes

DRAFT IS ATTACHED: No

Materials following this page were distributed at the meeting.

 **Metro** | *Agenda*

REVISED, 12/10/12

Meeting: Metro Council
Date: Thursday, Dec. 13, 2012
Time: 2 p.m.
Place: Metro, Council Chamber

CALL TO ORDER AND ROLL CALL

1. INTRODUCTIONS

2. CITIZEN COMMUNICATION

3. AUDITOR'S OFFICE REPORT: SPAN OF CONTROL

Flynn

**4. RECOMMENDED SLATE OF AWARDS FOR 2013 METRO CENTRAL STATION
COMMUNITY ENHANCEMENT PROGRAM GRANT CYCLE**

5. CONSENT AGENDA

5.1 Consideration of the Minutes for Dec. 6 2012

5.2 **Resolution No. 12-4395**, For the Purpose of Confirming the Appointment of
Members to the Oregon Zoo Bond Citizens' Oversight Committee.

6. CHIEF OPERATING OFFICER COMMUNICATION

7. COUNCILOR COMMUNICATION

ADJOURN

**EXECUTIVE SESSION HELD PURSUANT WITH ORS 192.660 (2) (i). TO REVIEW AND
EVALUATE THE EMPLOYMENT-RELATED PERFORMANCE OF THE CHIEF OPERATING OFFICER
OF ANY PUBLIC BODY, A PUBLIC OFFICER, EMPLOYEE OR STAFF MEMBER WHO DOES NOT
REQUEST AN OPEN HEARING.**

Television schedule for Dec. 13, 2012 Metro Council meeting

<p>Clackamas, Multnomah and Washington counties, and Vancouver, WA Channel 30 – Community Access Network <i>Web site:</i> www.tvctv.org <i>Ph:</i> 503-629-8534 <i>Date:</i> Thursday, Dec. 13</p>	<p>Portland Channel 30 – Portland Community Media <i>Web site:</i> www.pcmtv.org <i>Ph:</i> 503-288-1515 <i>Date:</i> Sunday, Dec. 16, 7:30 p.m. <i>Date:</i> Monday, Dec. 17, 9 a.m.</p>
<p>Gresham Channel 30 - MCTV <i>Web site:</i> www.metroeast.org <i>Ph:</i> 503-491-7636 <i>Date:</i> Monday, Dec. 17, 2 p.m.</p>	<p>Washington County Channel 30– TVC TV <i>Web site:</i> www.tvctv.org <i>Ph:</i> 503-629-8534 <i>Date:</i> Saturday, Dec. 15, 11 p.m. <i>Date:</i> Sunday, Dec. 16, 11 p.m. <i>Date:</i> Tuesday, Dec. 18, 6 a.m. <i>Date:</i> Wednesday, Dec. 19, 4 p.m.</p>
<p>Oregon City, Gladstone Channel 28 – Willamette Falls Television <i>Web site:</i> http://www.wftvmedia.org/ <i>Ph:</i> 503-650-0275 Call or visit web site for program times.</p>	<p>West Linn Channel 30 – Willamette Falls Television <i>Web site:</i> http://www.wftvmedia.org/ <i>Ph:</i> 503-650-0275 Call or visit web site for program times.</p>

PLEASE NOTE: Show times are tentative and in some cases the entire meeting may not be shown due to length. Call or check your community access station web site to confirm program times.

Agenda items may not be considered in the exact order. For questions about the agenda, call the Metro Council Office at 503-797-1540. Public hearings are held on all ordinances second read. Documents for the record must be submitted to the Regional Engagement Coordinator to be included in the decision record. Documents can be submitted by e-mail, fax or mail or in person to the Regional Engagement Coordinator. For additional information about testifying before the Metro Council please go to the Metro web site www.oregonmetro.gov and click on public comment opportunities. For assistance per the American Disabilities Act (ADA), dial TDD 503-797-1804 or 503-797-1540 (Council Office).

Oregon Zoo

Elephant Habitat and Related Infrastructure

Budget Discussion and Recommendations

Projects Discussed



Discussion Will Cover

- Situation assessment
- Two Options
 - Shift resources from bond premium sale (zoo recommendation)
 - Reduce scope to meet budget
- Feedback and direction

Situation assessment

Each project was allocated a budget from the total \$125 million bond.

After completing design development on the elephant habitat and receiving hard bids on all other related projects, costs exceed the budget identified for this project.

As a result, we need direction on which of two options to pursue to balance the budget.

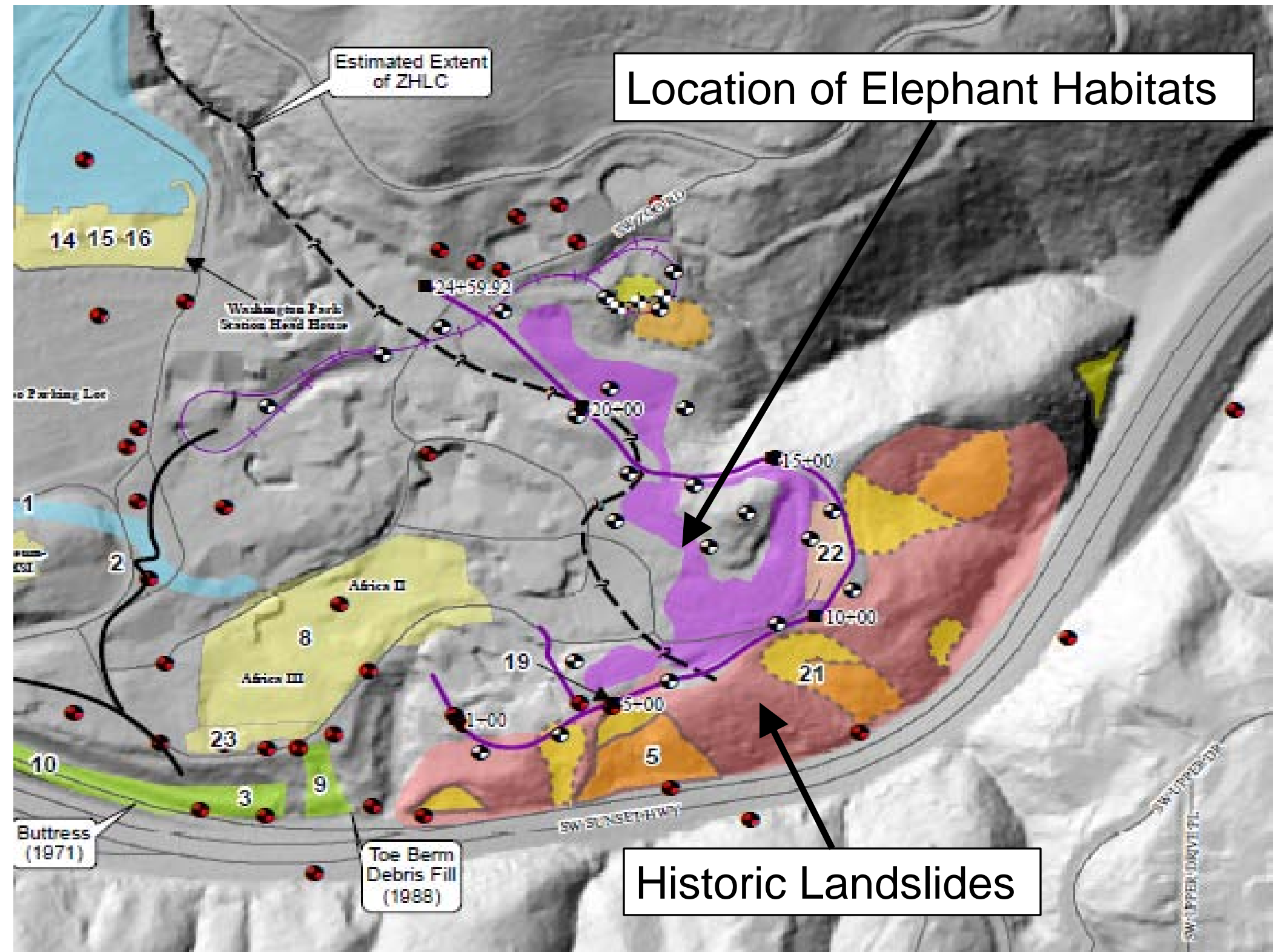
What changed?

Geotechnical design challenges

- Early design based on geotechnical assumptions
- Invasive testing identified need for expensive work
- Geotechnical assessment and project design performed concurrently

Geotechnical Conditions

- Areas in yellow, red, and orange are historic landslide areas.
- Recent testing and analysis concludes that geotechnical conditions and seismic risks exist that require mitigation across all project elements, including improvements that are substantial distances from the historic landslides and in previously developed areas.



Plan costs compared to original budget

	BUDGET	COST ESTIMATES	VARIANCE	
Wild Life Live	\$650,000	\$650,000	\$0	*
Zoo Train	\$4,000,000	\$7,300,000	(\$3,300,000)	*
Service Road	\$4,000,000	\$5,500,000	(\$1,500,000)	*
Elephant Habitats and Buildings	\$30,850,000	\$39,150,000	(\$8,300,000)	
Totals	\$39,500,000	\$52,600,000	(\$13,100,000)	

- These three subprojects were bid for construction in Oct. 2012. The resulting bids informed the elephant habitat and building estimates.

Options:

- **Shift existing bond resources to the project**
- **Reduce project scopes and related costs**

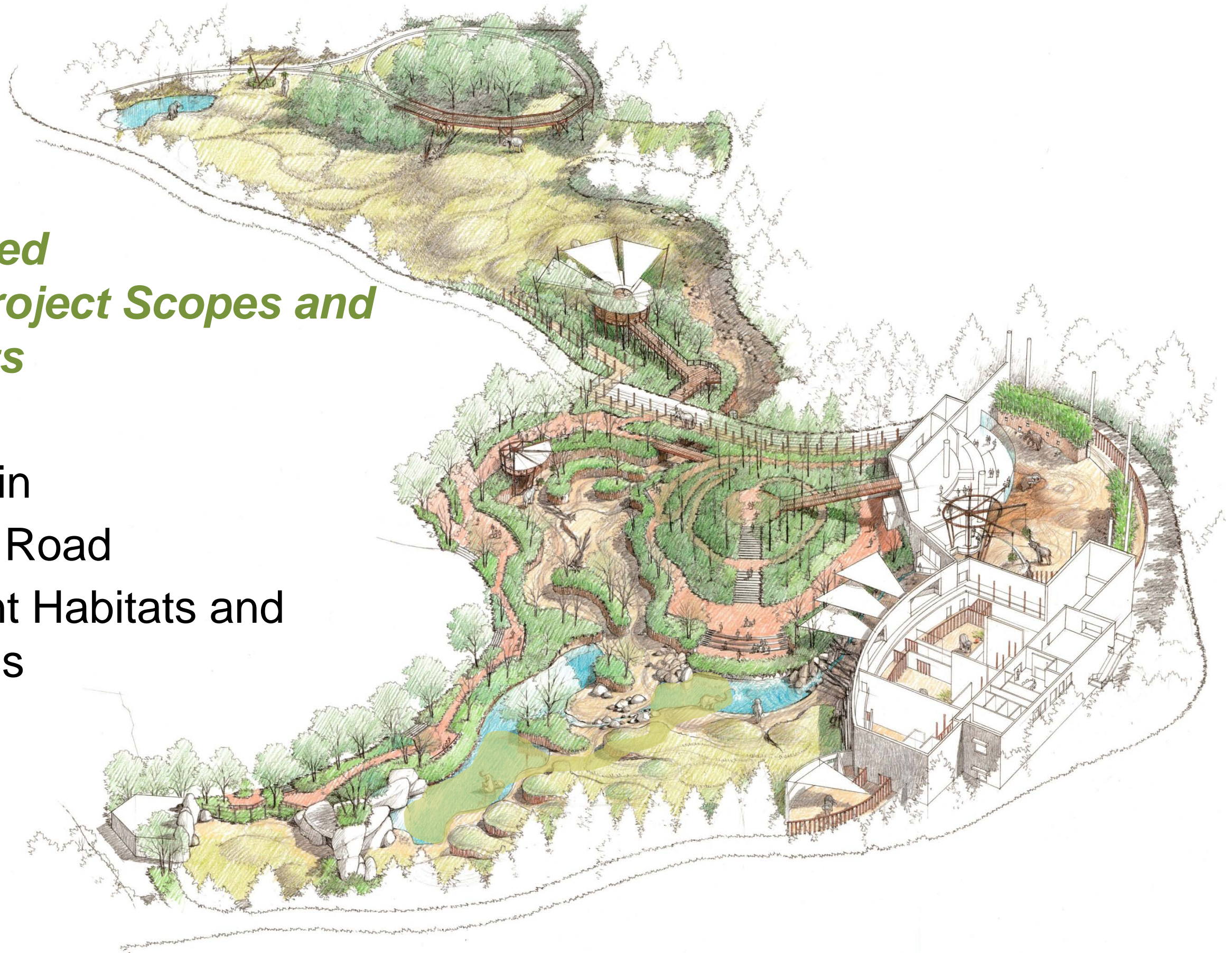
Both options deliver the bond commitment

What is the bond commitment?

- **Measure 26-96 Explanatory Statement for the elephant habitat**
 - “Outdoor space will increase from 1.5 to 6 acres, adding watering holes, shade structures, large trees, and boulders, providing more outside exercise and offering a more natural environment.”
- **Metro Council Resolution 08-0945 elephant habitat excerpts**
 - Space increase from 1.5 to 6 acres
 - Naturalized with watering holes, shade structures, large trees and boulders, with a thicket of bamboo as a backdrop
 - Barn will be replaced with a larger building

Recommended Reduction Project Scopes and Related Costs

- Zoo Train
- Service Road
- Elephant Habitats and Buildings



Zoo Train

Cost Summary

<i>Project Budget:</i>	<i>\$4,000,000</i>
<i>Construction Bid:</i>	<i><u>\$7,300,000</u></i>
<i>Variance:</i>	<i>(\$3,300,000)</i>

Scope Modifications Recommended

- Modify track design to use existing track and eliminate elevated trestle – maintain visitor track crossing.
- Improve safety barriers to protect visitors.
- Keep elephant meadow view from train and likely eliminate view into future polar bear habitat.
- Relocate maintenance/storage building, reduce size and consider change to maintenance strategy.
- Keep campus loop trestle to preserve a community tradition and ZooLights visitor experience.
- Trains will need mechanical assist to ascend/descend slopes. Research continues on implementation.

<i>Revised cost with reductions:</i>	<i><u>\$3,300,000</u></i>
<i>Variance to budget:</i>	<i>\$700,000</i>



Service Road

Cost Summary

Project Budget:	\$4,000,000
Construction Bid:	<u>\$5,500,000</u>
Variance:	(\$1,500,000)

Scope Reduction Options Considered:

Eliminate one or more road segments.
Segment elimination produces minimal cost savings.

Recommendation:

Keep entire road for visitor safety during construction and for future campus operating efficiency.



Elephant Habitats and Buildings

Cost Estimate Summary:

Project budget: \$30,850,000
Design estimate : \$39,150,000

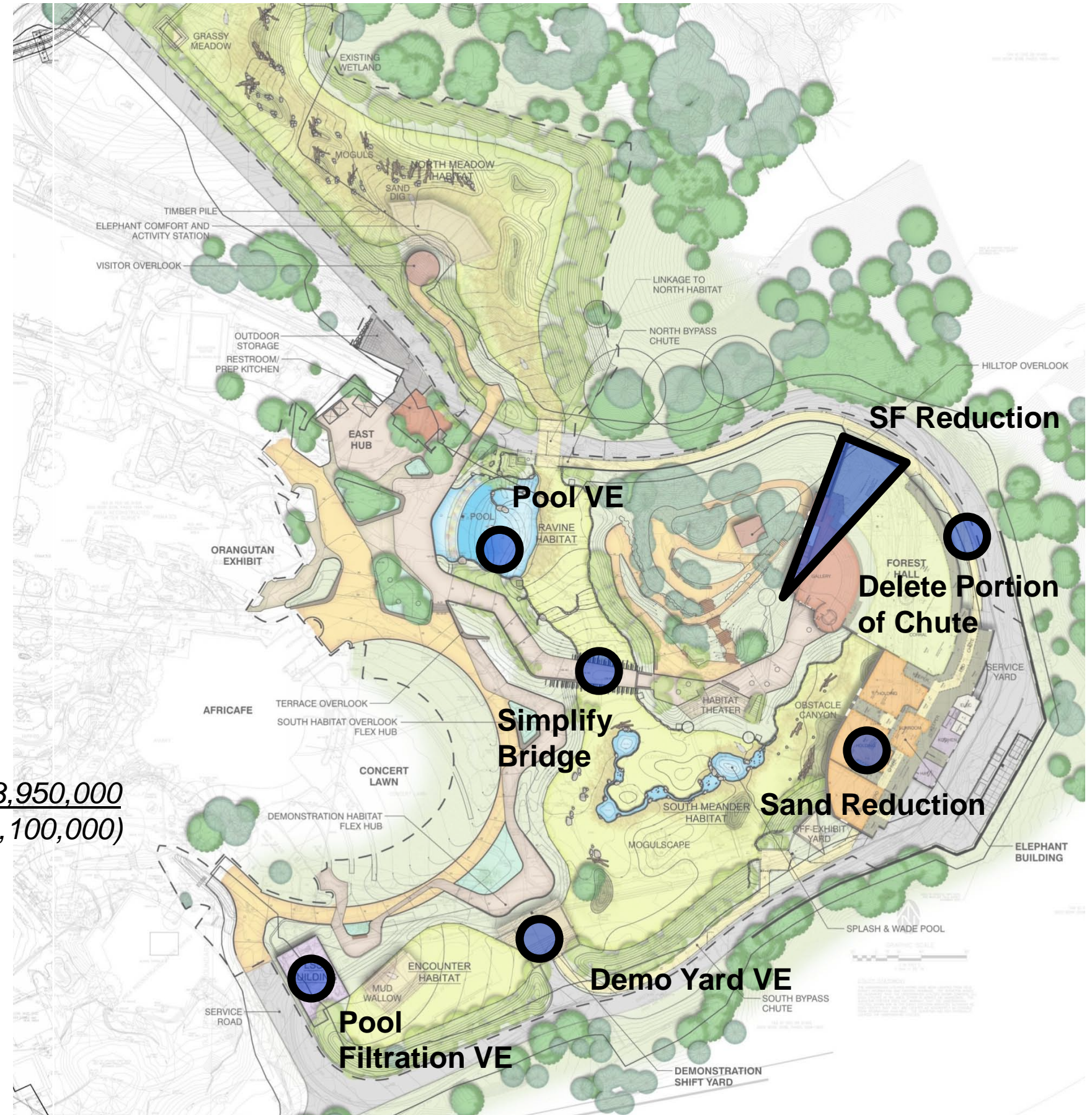
Recommended scope changes:

- Value engineering (VE)
- Avoidance of geotechnical risks where possible (see diagram)

Scope changes maintain project vision:

- Fulfills the bond measure commitments
- Habitat has multiple spaces for elephants
- Sand substrates
- Elephant activity and choice
- Sustainability features (LEED Silver achievable)
- Extensive visitor experience opportunities

Revised cost estimate with recommended changes: \$33,950,000
Variance to budget: (\$3,100,000)



Revised Budget Summary

Recommended Changes in the Prior Slides Reduce Gap to \$3,900,000

	BUDGET	COST ESTIMATES	VARIANCE
Wild Life Live	\$650,000	\$650,000	\$0
Zoo Train	\$4,000,000	\$3,300,000	\$700,000
Service Road	\$4,000,000	\$5,500,000	(\$1,500,000)
On-site Elephants	\$30,850,000	\$33,950,000	(\$3,100,000)
Totals	\$39,500,000	\$43,400,000	(\$3,900,000)

Project construction contingencies remain intact and have not been used

Decision Point

Option 1: Accept reductions that leave a \$3.9 million variance and shift available bond resources .

Option 2: Further reduce scope to achieve budget.

Zoo recommendation

- Reduce project scopes as outlined by staff for the train and the elephant habitats and buildings (with exception of the final \$3.9M of reductions).
- Use \$3.9M of the \$10.4M available premium funds to add resources to project.
- Direct staff to return to a future Council meeting with necessary actions to modify the previously adopted Bond Implementation Plan.

Further Reductions to Elephant Habitats and Buildings and Train:

Reductions Totaling \$3,900,000

Elephant Habitats and Buildings

- Elimination:
 - Forest Hall visitor access
 - Demo Yard and Separate Encounter Habitat
 - Storm water collection system
 - Green roof
- Reduction of:
 - Elephant transfer chutes
 - Activity elements for elephants

**LEED Silver Certification at risk*

Train

- Eliminate all new train buildings
- Defer campus loop trestle



Council Direction and Feedback