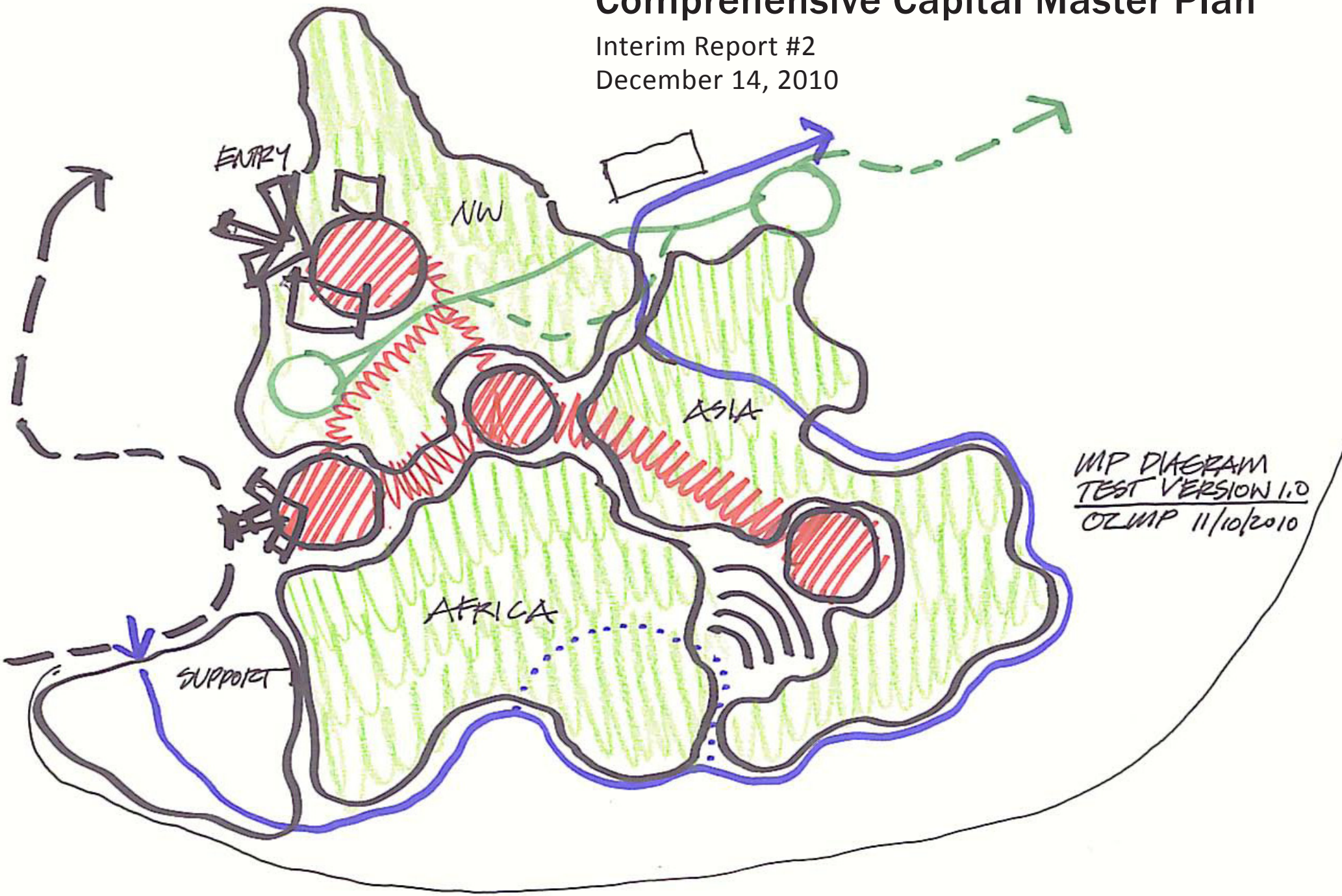
Oregon Zoo
Comprehensive Capital Master Plan

Interim Report #2
December 14, 2010



Oregon Zoo

Comprehensive Capital Master Plan

Interim Report #2
December 14, 2010 DRAFT

Note: This Interim Report #2 contains draft outline information that will evolve into the final master plan report.

MASTER PLAN VISION

To provide a framework for the Master Plan work, the team developed a series of draft Master Plan Vision statements based on what they heard from Zoo staff and leadership. These statements will continue to be vetted:

- Be 'game changers' by implementing the $125 Million bond responsibly and creatively, and by pushing the boundaries in exhibit design, sustainability and Conservation Education.
- Establish a culture of animal welfare, sustainability and Conservation Education that is apparent and engaging for all stakeholders throughout every aspect of the zoo.
- Develop enriched indoor/outdoor environments that provide choices for the animals to show they are intelligent, active, and thriving members of complex ecosystems.
- Build a campus that pioneers innovative solutions at every level, enhancing Portland's reputation for sustainability and inspiring our guests to take personal meaningful action.
- Create a cohesive physical and educational campus that is a valued model for our neighbors, Washington Park, our city and the world.
- Pioneer holistic exhibits that highlight cultural legacy as well as the success and science of conservation programs.
- Maximize revenue opportunities to sustain the Zoo's mission to support animal welfare, sustainability and Conservation Education.

Executive Summary

INTRODUCTION

This is the second of four interim reports that the design team will produce and present to the Oregon Zoo Bond Advisory Group to communicate progress, costs, decisions and next steps.

OVERALL PROGRESS TO DATE

Workshop 2 was held November 8-10, 2010. To develop the master plan, the focus of the workshop was on land use, the elephants exhibit, interpretive and conservation education, and sustainability. There were also short discussions about each of the Bond projects to understand how they might fold into the master plan ideas. During the three days, the design team made a presentation of the first interim report as an update to the Oregon Zoo Bond Advisory Group, and introduced the team and scope of work to the Oregon Zoo Bond Citizens' Oversight Committee.

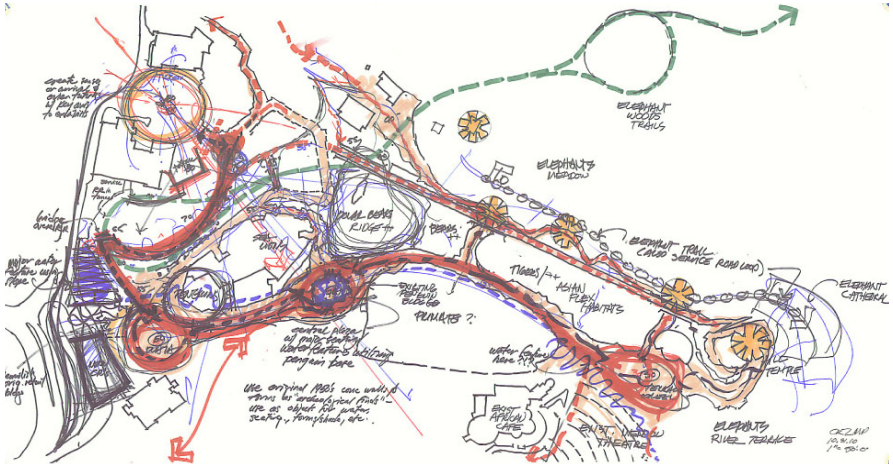
The goals of Workshop 2 were to:

- Test Master Plan concept options about site organization and identify a preferred direction
- Develop a preferred concept option for the on-site elephant exhibit
- Develop Zoo-wide interpretive messages
- Develop Sustainability initiatives with the EcoDistrict overlay

LAND USE

The master plan design is being driven by the natural land forms of the site and utilized to improve and clarify circulation throughout the zoo.

Pedestrian circulation - From the Zoo entry, it is a 40' drop down to the main part of the zoo. The natural, level ridge along the site of the original zoo provides an opportunity to create a primary circulation spine as an organizing element with visitor amenities and a framework for water movement, recycling and filtering through the Zoo. Hubs with visitor amenities occur at the west end at the Conservation Discovery Zone, at the central intersection that connects to the Northwest exhibits, and at the east end of the spine at the new Elephants exhibit and concert lawn. Smaller paths wind off the primary spine to the various exhibit zones and the visitor can always find their way back to spine and understand where they are in the Zoo.

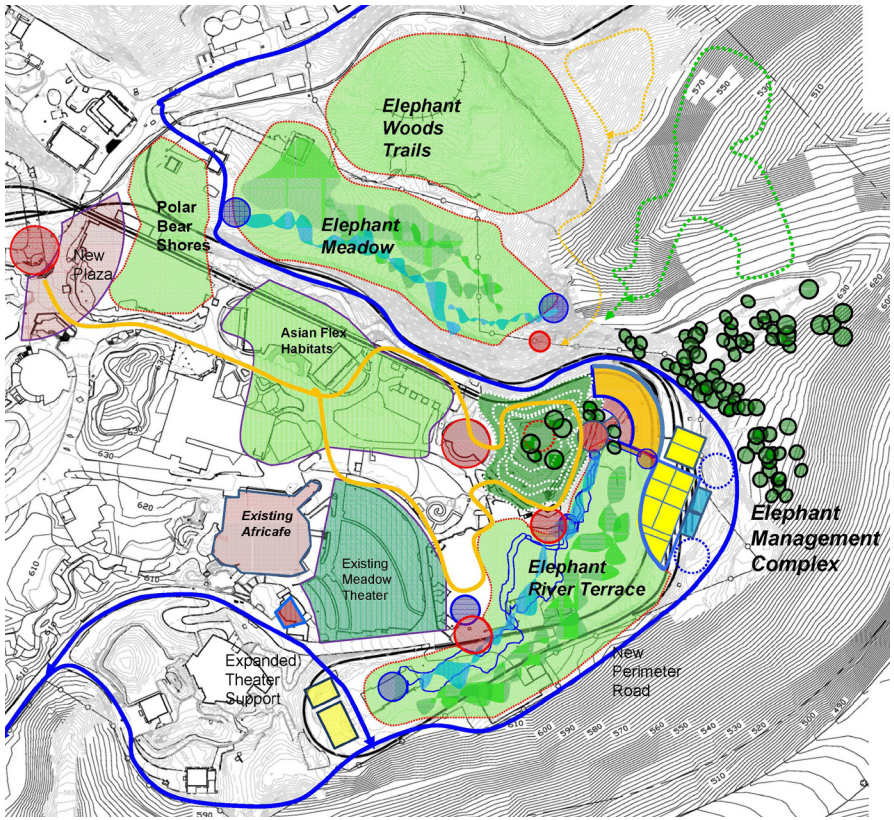


Train - The train is a beloved institution at the Zoo and a revenue generator. It has two loops - a short one through the Zoo and a long one through Washington Park to the Rose Garden. The route through the Zoo is back of house, does not allow visitors visual access to the exhibits, and is not particularly pleasant except during Zoo Lights. It is also occupying valuable land that is needed to expand the elephant exhibit space to 6 acres. The team looked at options to adjust the Zoo loop and is proposing a solution that is shorter, but enhanced with views into animal exhibits. A new turnaround is proposed in the location of the old trestle, just below the old Vet hospital. A new train barn needs to be located.

Perimeter Road - A new perimeter road that runs south around Predators, is highly desirable to get service and construction vehicles off of the visitor circulation path between Predators and the Bandshell, where dangerous conditions for pedestrians exist currently. The area is being surveyed and assessed by geotechnical engineers to understand the viability.

Concert Lawn - The community loves the summer concert series and it is a revenue generator for the Zoo. It's current location works well. The other possible location is at the Elk Meadow, but there are difficult access issues. The concert lawn, in it's current location, can be enhanced, and the design team is studying this area concurrent with the development of the new exhibit areas around it.

Elephants - CLR has developed ideas for the expanded elephant exhibit that include a variety of spaces and activities for the elephants. A Great Elephant Hall merges an indoor visitor experience and a transitional indoor/ outdoor habitat for the elephants with views of the forest beyond. The new elephant habitat occupies the zoo train loop and the elk meadow. Visitors will be treated to intimate views of the elephants as trainers walk them along the new service road and trails.



The Elephant Museum might be repurposed, expanded, and enhanced to tell the story of the elephants at our Zoo, and how much the community is involved in their well-being.

Flex Asia zone - A flexible exhibit space is proposed to be located near the elephants to tell the bigger Asia story.

Polar Bears - A new polar bear exhibt is being studied to double in size, and be adjacent to it's current location.

BOND PROJECTS

At Workshop 2, each of the Bond projects was discussed as to how they relate to the Master Plan. Schematic Design for each of the Bond projects begins in earnest in January.

Conservation Discovery Zone - At the west hub, the Conservation Discovery Zone needs a big idea with the same power as the Great Elephant Hall at the east hub. It should be a hub of activity, a draw to the general visitor as well as to school groups and kids in summer camps, with animal interactions and links to conservation projects within our community and beyond.

Condors - This new exhibit will be easier to build on a slope. The Zoo is talking to Native American tribes about their cultural history and recovery. There are cultural, historical and scientific stories that need to be told. This exhibit can be an icon for restoring balance and telling the 'sustainability' story. It might be nice to locate it close to Conservation Discovery Zone.

Primates - The chimps and mandrills are primary. There was an idea to anchor the African primates together off Conservation Discovery Zone, and to separate the Asian and African primates in their appropriate zones. Demolish the existing primate building, except the new Red Ape exhibit.

Polar Bears - Polar bears can share a holding area with the Sun Bears, or the Sun Bears can move to the Flex Asia zone. Polar Bears love to patrol, and need a high point in their exhibit area to see out beyond their confines.

Hippos - A decision was made to increase the herd to four, to sustain the herd. The existing barn is not big enough. There will be no underwater viewing as it takes too much water. There was discussion about combining, or visually combining the habitats of hippos, rhino, zebras, giraffe. The rhino may or may not stay.

Elephants - With the expansion of the elephant exhibit to the elk meadow area, the elk will move to another home outside the Zoo. The design team is testing other locations for the wolves in the Cascade area.

Infrastructure - This Bond project was discussed in the sustainability session.

INTERPRETIVE / CONSERVATION EDUCATION

Main Street Design presented and reviewed an outline of proposed interpretive and informational opportunities organized by location in the Zoo; a diagrammatic analysis of functional requirements and potential interpretive features for Conservation Discovery Zone; and a broad range of reference images illustrating a variety of methodologies and possible stylistic approaches for interpretive and informational components.

Several Zoo wide interpretive themes have emerged. They can be expressed in different ways along the spine, at the hubs, and at secondary paths.

» Animal well-being and human-animal relationships

» Conservation and stewardship

» Sustainability in action

» Water systems, use and resources

The Conservation Discovery Zone needs to be a must see/must do. The design team is looking for ways to connect what is happening here to be felt throughout the whole zoo.

SUSTAINABILITY

The Zoo could act as a model of how we deal with our resources. The master plan involves a close look at sustainability in a number of categories:

» Community Vitality

» Access and Mobility

» Energy

» Air Quality and Carbon

» Water

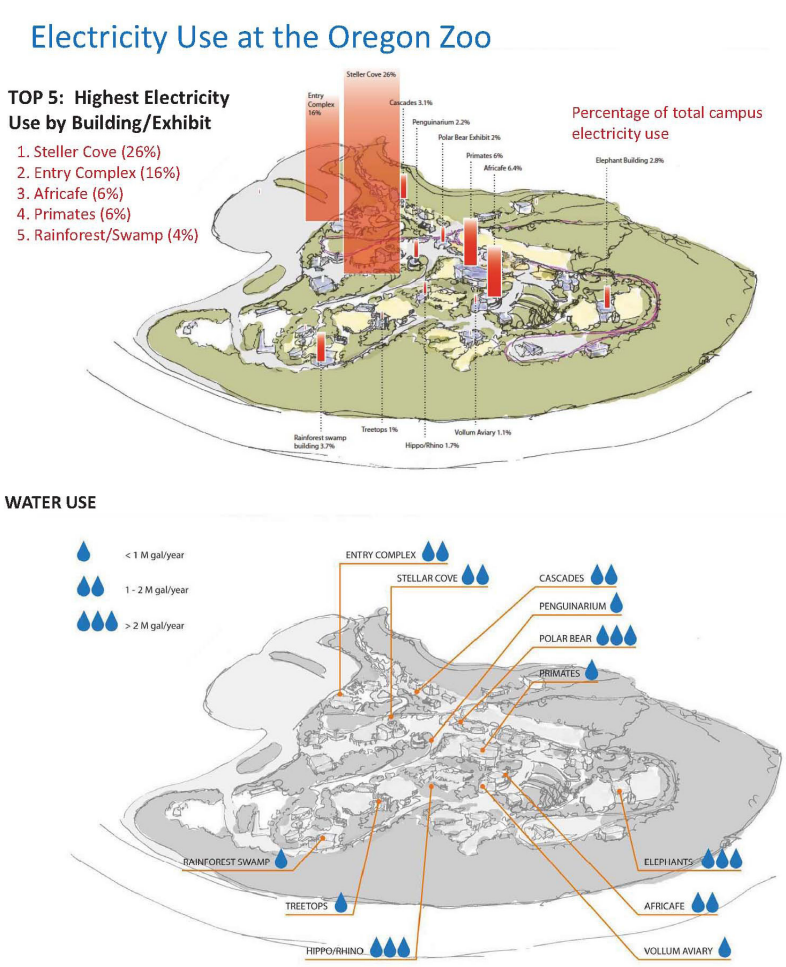
» Habitat and Ecosystem Function

» Materials Management and Food Systems

The design team presented a draft of a "Sustainability Matrix" to the Zoo Sustainability Focus Group. The format was inspired by the organization of the EcoDistricts framework document, with the intent to coordinate the extensive team effort with a clear, common interface. PAE presented an energy and carbon analysis of the Zoo that illuminated energy inputs, outputs and infrastructure. Atelier Dreiseitl described the relevant watersheds, the history of Tanner Creek, a current zoo water use analysis, and a preliminary site stormwater concept. 67% of water use is labeled simply as "other," which made clear the necessity of tracking currently unmetered water to find major uses and potential leaks.

A commitment to the Metro Sustainability Plan was stated by the Zoo and Metro. The goals, targets, and strategies therein were deemed integral and to be incorporated into the Sustainability Matrix. It was suggested that an additional category be added to address toxics as described by Metro's plan.

Key contacts in each sustainability category were identified from the design team, the Zoo, and Metro.



ELEPHANTS

CLR facilitated a focused worksession to help advance the on-site elephant facility program. Mike Keele and Kim Smith shared images and ideas from thier recent tour of zoos in Europe. Overall, the preliminary ideas discussed for the habitats, trails, barns, shelters, and other vision concepts, were well received by the Zoo team. Lots of natural light and natural substrates, for interior spaces are preferred, while dark interior spaces with lots of exposed dark concrete, excessive rockwork, and full views of clunky support zones is less desirable. Elephant feeding, with interpretation (how does the trunk work?) could be a nice encounter and experience at the new facility.

CLR was directed to revise the original program to test converting individual cow stalls to one larger area with some flexibility to partition zones if needed. While the 4 bull stalls should be maintained, the new direction is to allow the cows and calfs to stay together rather than be isolated at night. The directive is to expand the herds, and do more herd management.

Overall, circulation patterns, from stall to yard, from stall to chute, from building to trail, etc. need to be developed as the overall plan advances with more detail. Visitor access to the building needs to be reviewed.

SCHEDULE

The current schedule is included in this report. There is no change.

BUDGET

The development of a soft costs budget is underway to determine what construction dollars are available. Budgets will be developed for each of the Bond Projects, and will be updated throughout the master plan process to keep the project on track and to test the economic viability of each project being considered.

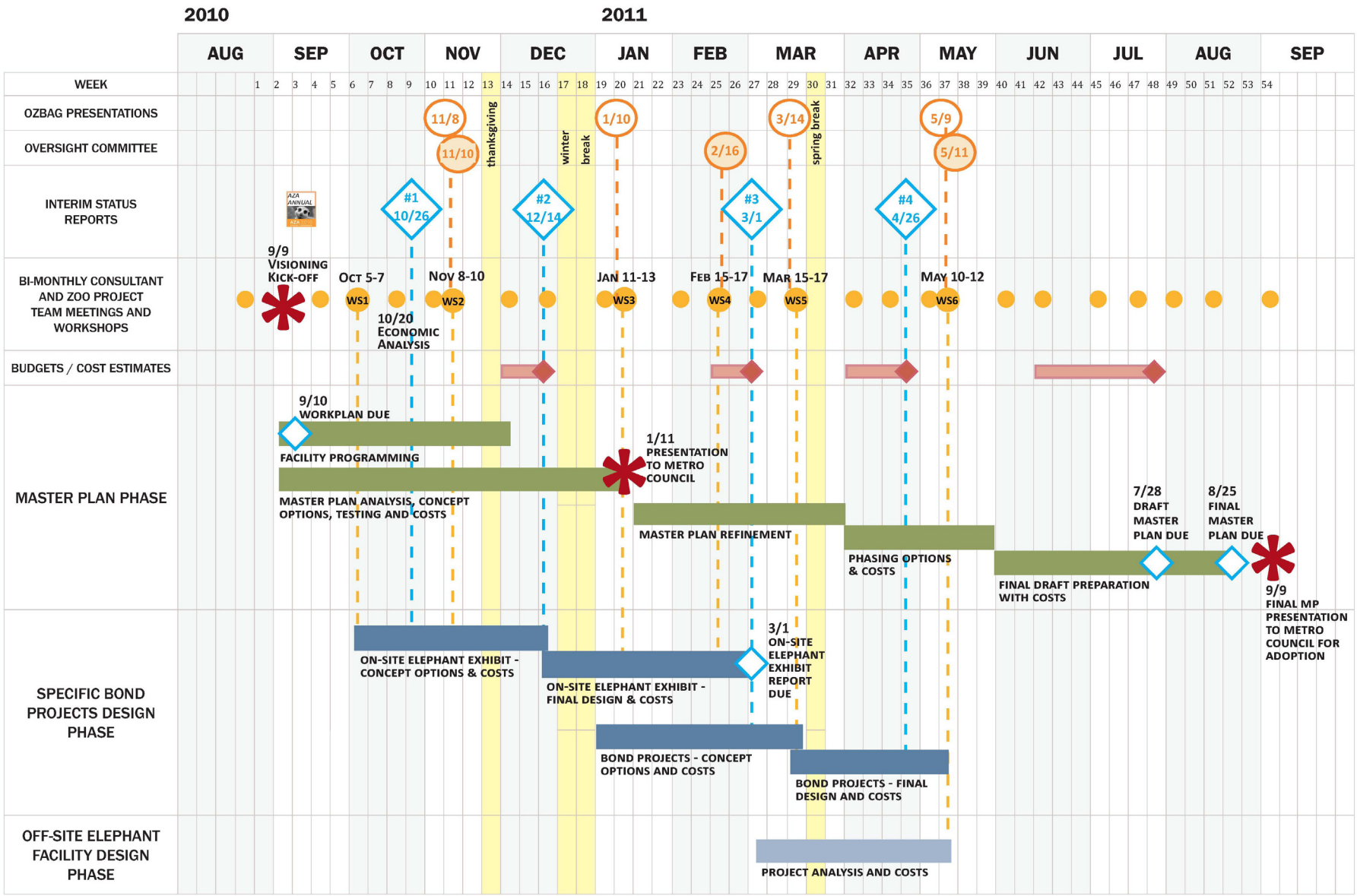
NEXT STEPS

The design team is working towards Workshop 3, which will be held January 11-13, 2011. In addition, the team will update the Oregon Zoo Bond Advisory Group on January 10th, and make an interim presentation to Metro Council on January 11th.

Our goals for this workshop are to:

- Refine Master Plan site organization and circulation
- Confirm train alignment
- Refine On-site Elephant and Polar Bears design direction
- Develop concept direction on other Bond Projects
- Resolve CDZ program and concept direction
- Refine Zoo-wide interpretive messages
- Develop and confirm direction of Waterscape and Infrastructure
- Refine Sustainability Initiatives
- Update on Land use issues
- Develop budget model for each Bond project for minimum compliance

OREGON ZOO MASTER PLAN Project Schedule - Revised 11.23.10



DESIGN TEAM

SRG PARTNERSHIP, INC., Architects

Jon Schleuning, FAIA, Principal In Charge

Hussain Mirza, AIA,Project Manager

Jocelyn Bates, AIA, Assistant Project Manager

Emily Dawson, AIA, Project Architect

Jennifer Gentry, Project Assistant

CLR DESIGN, Zoo Designers

Gary Lee, AIA, Senior Principal

Greg Dykstra, AIA, Principal In Charge

Gregg Leicester, ASLA, Project Manager

Larry Dame, Exhibit Designer

ATELIER DREISEITL, Landscape Architects

Gerhard Hauber, Landscape Architect, Stormwater Mgmt

Eric Bode, ASLA, Principal In Charge

Nathan Hilmer

MAIN STREET DESIGN, INC., Interpretive Design

J. Tevere MacFadyen, Principal, Senior Interpretive Planner

Michael Mercadante, Principal In Charge

PAE CONSULTING ENGINEERS, Mechanical and Electrical

Paul Schwer, PE, Mechanical Engineer

Scott Bevan, PE, Electrical Engineer

KPFF CONSULTING ENGINEERS, Civil

Paul Dedyo, PE, Principal

Evan Eykelbosch

EQUILIBRIUM, Structural

Ed Quesenberry, SE, Principal

THE BOOKIN GROUP, Land Use Planning

Beverly Bookin, AICP, Planner

Rebecca Woods, Associate Planner

RIDER LEVETT BUCKNALL, Cost Estimators

Graham Roy, Principal

TJP ENGINEERING, Life Support

Terri Johnson, PE

Appendix

Workshop 2 Agenda

Workshop 2 Notes

- SRG
- CLR
- Main Street Design

Presentation Slides

Selected Slides

Sustainability Presentation Slides

ARCHITECTURE PLANNING INTERIORS
621 SW Morrison Street, Suite 200 Portland, Oregon 97205
T : 503.222.1917 F : 503.294.0272

S R G P A R T N E R S H I P I N C

OREGON ZOO
COMPREHENSIVE CAPITAL MASTER PLAN

Workshop 2 Agenda
November 8, 9, 10, 2010
Oregon Zoo – Classrooms 1-2 (unless noted otherwise)

Workshop Goals:
- Test Master Plan concept options about site organization. Identify preferred direction.
- Develop preferred concept option for the on-site elephant exhibit.
- Develop Zoo-wide interpretive messages,
- Develop Sustainability initiatives with EcoDistrict overlay

Sunday, November 7, 2010

Arrivals

Monday, November 8, 2010

7:30AM – Team meet at SRG

9:00AM – 10:00AM **Workshop Kick-off**
Review Workshop Agenda & Goals; concerns
Location: Admin Bldg.
Present: Kim Smith, Mark Williams, Chris Pfefferkorn, Craig Stroud, Mike Keele, Chris Massey
Design Team: Hussain, Jocelyn
Materials: Agenda

10:00AM – 12:00PM **Bigger Zoo Group**
Master Plan options – criteria charts, 3 schemes of how to organize the site – train, visitor and service circulation
Elephant options – 3 ideas

Present: SRG, CLR, AD, kpff, PAE

12:00PM – 1:30PM **Brown bag lunch discussion (Zoo provide lunch for design team)**
Optional for Bigger Zoo Group who would like to stay for casual discussion.

12:00PM - 1:30PM ***OZBAG Presentation***
Location: Cascade Building
Present: Kim, Craig, Hussain, Greg, Eric

WS 2 agenda

1:30PM – 5:00PM **Small Zoo Group**
More detailed discussions about how Bond Projects fold into the Master Plan options.

Present: Kim Smith, Mark Williams, Chris Pfefferkorn, Craig Stroud, Mike Keele, Chris Massey, Lee Campbell, Bob Lee, Jim Mitchell, David Shepherdson, Brent Shelby, Kelli Walker, Michael Illig, Anne Warner, Jennifer Payne, Gilbert Gomez, Amy Cutting, Doug Strickler, Molly Chidsey, Mark Perkins, *representing Division Managers, Curators and Subject matter experts for: Conservation Education, Elephants, Hippos, Condors, Polar Bears, Primates*
Infrastructure (primary discussion on Tuesday morning)

SRG, CLR, AD, kpff, PAE

5:30PM –7:00PM **Team Work Session**
Location: SRG
Present: Design Team

Tuesday, November 9, 2010

8:00AM to 1:00PM **Small meetings with project teams**

8 to 10 - Zoo-wide Interpretation/Conservation Education

9:30 to 11:30 - Sustainability Initiatives/Infrastructure/EcoDistricts

11 to 1 - Elephant Programming

1:30PM –6:30PM **Team Work Session**
Location: SRG
Present: Design Team

Wednesday, November 10, 2010

8:00AM – 11:30AM **Team Work Session**
Location: SRG
Present: Design Team

11:30PM –1:30PM **Bigger Zoo Group**
Team presents Sustainability initiatives, discuss MP and elephant preferred options.
Present: SRG, CLR, AD, kpff, PAE

1:30PM – 2:00PM **Workshop Wrap-up / lunch for design team**
Present: Zoo: Kim Smith, Mark Williams, Chris Pfefferkorn, Craig Stroud, Mike Keele, Chris Massey
SRG: Hussain, Jocelyn
Decisions, next steps

3:00PM - 3:40PM ***Oregon Zoo Bond Citizens' Oversight Committee introduction***
Location: Cascade Building
Present: Kim, Craig, Greg, Hussain, Eric

4:00PM –5:00PM **Design Team Wrap-up**

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S R G P A R T N E R S H I P I N C

MEETING NOTES

PROJECT NAME:	DATE:	REVISED DATE:	SRG PROJECT NO.:
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN	**12.7.2010**		**210027**

TO:	FROM:
Craig Stroud, Doug Strickler	**Emily Dawson**

SUBJECT:

Workshop #2 Notes

DISTRIBUTION:	ATTACHMENTS:

Monday November 8th – 10:00-12:00am – Master Plan and Elephant Options – Bigger Zoo Group

Greg – intro
- honing in on land use, zones and circulation

Jon – circulation
- 40 ft drop in elevation from entry to main part of zoo
- Focused on spine, showed sketch
- Looking for organization, clarity for visitor
  - Hubs as anchors for food and visitor amenities
  - Showed examples – Venice, Branly Olympic Sculpture Park

Eric – waterscape framework drawings, examples

Gregg – train loop options
- Option "E" favored
  - Gets perimeter road and enhanced exhibit views
  - Current zoo lights ride is 12 minutes
  - Logistics with shorter ride to avoid long line waits. Need multiple trains running at same time. Ride cannot be less than 10 minutes.
    - Issues with loading and unloading on same side – new strategy?
    - Check with WA park regarding new turnaround (near water tower?)
  - Service road favorably received.
  - Must have both a short and long loop
  - Consider rethinking zoo lights to not include train

Greg – Master plan ideas
- Keep concert lawn, add service for animals and other enhancements for visitors
- History – Africafe cut into concert lawn – that is why stage is not aligned to center of concert lawn
- Elephants – scheme with 6 acres
  - Hill centerpiece
  - Barn central
  - Max expansion and max activity

- Asian Zone – flex asia exhibit area nearby
    - Knit elephants into the bigger Asia story
- Polar Bears – expand/double in size
    - Lots of opportunities for 180 degree views

Comments

Lee – need thematic break between elephant meadow and polar bears and cascade

- Consider logistics of not moving elephants during construction

Mike – likes elephant concepts – supports zoo vision

- Males on trails can see females
- Share service road with visitors in electric cart – only planned visits

Kim – zoo should be planned experience – clean

Greg – elephant cathedral – merge forest with inside space (transitional indoor/outdoor habitat) for elephants and visitors

Kim – incorporate history of elephant museum, family donors

Design based on land form

Elephant Barn/Habitat

- 3 – 6 instead of 1 – 1
- 63 possible combinations

Greg – museum – repurpose and expand/enhance

Tevere – tell story of elephants at our zoo and how much the community is involved

- If there is a vocabulary through the site, i.e. water, then the glossary is at Conservation Education

Monday November 8th, 1:30 – 5:00 – Bond Projects Discussions – smaller zoo group

Conservation Discovery Zone

- Need BIG IDEA – with power and draw of elephant cathedral
- Need a “theme” to sell to donors/ iconic value
- Global animal health
- Environmental Stewardship
- A hive of activity, a clubhouse, something always going on, a hub that reaches out to zoo and community
- Link to NW conservation projects
- Place to interact with animals – human/animal interaction
- Youth passionate about insect zoo
- Butterfly house/lab/garden
- Condors
- Needs to be a game changer too

Condor

- Easier to build on a slope

- Live video connect to off-site facility
- No “bird on a stick”
- Upward lift turbine so condor could soar
- Zoo is talking to tribes about their cultural history and recovery
- Kids and staff rappel as part of research
- Science stay
- Icon for “restoring balance” in sustainability
- Conservation discovery zone
- They feed on pinnepeds – historically on coast - near stellar cove

Primates

- Demo building
- African
  - Mandrill
  - Chimps – add 3 females for breeding
  - Colobus and swamp monkeys and Debrazzas
  - Guenons and Langurs
- Asian
  - Red Ape – keep
- Anchor African primates together off Discovery Zone
- South American zone – where primates are now?
  - Ocelots
  - Primates

Polar Bears

- Share holding area with Sun Bears, or move Sun Bears to flex asia
- Polar Bears love to patrol
- “tundra buggy” classroom
- Perceive exhibit as panorama, undivided, but easily dividable for seasonal group dynamics
- Split view windows – not usually totally underwater

Hippos

- Hippo River
- Filtration a high priority
- Barn reusable but too small
- 2 hippos now – add 2
- Rhino could potentially stay
- No underwater viewing – too much water use

Questions/comments on post-it notes

- Stellar Cove not sacred – most costly and energy hog.
  - Can it go away? 10 years life left – millions to replace life support systems
- Can visitors go into elephant barn?
  - Not necessarily – Craig and Mike say no, except occasional VIP, special, behind-the-scenes

MEMORANDUM

- What do we give up with elephant expansion?
- Keep wolves – find a place
- Elk goes
- Hyenas – add to predators? Could rotate dogs, cheetahs and hyenas
- Landscape – natural NW vs. native habitat of species

Elephants

- Need places for 4 bulls and 6 cows (if off site facility not available)
- With current population, need 4 separate outdoor areas
- C-Zone overlay – talk with city, get their response
- CLR's sketches need to get more defined to understand grades and precise areas – acreage and trails
- To the visitor – where are the elephants? GPS?
- Browse on barn rooftop to feed the elephants
- In Europe, elephants are housed together at night, not in separate "bedrooms"
- Warm water pool
- Back of house should look good, be unique for VIP
- There must be keeper transparency somewhere, but not everywhere

Tuesday, November 9th, 8:00-10:00am – Interpretation

Tevere – we are looking for ways to connect what is happening at the Conservation Discovery Zone to be felt throughout the whole zoo

- Zoo-wide interpretive themes
- Animal well-being and human/animal relationships
- Conservation and stewardship
- Sustainability in action
- Water systems, use and resources
- Hubs – these themes pop up, i.e. water

Major walkways

- Native plant species identification and interpretation, identify invasive species
  - Tribe will pay for/have asked for
- Sneak peeks into exhibits
- Citizen science "observation stations" scattered across zoo (Ann Warner's group already working on). "Zoo Scope" – OR Zoo did years ago and won AZA award

Secondary paths

- Add habitat immersion, adventure play experiences (fewer people than on a major path)
- Somewhere hidden, fun to find

Conservation Discovery Zone

- Place for planned camps and school visits, and for general admission people to visit

Train

- Interpretive opportunities

- Expand ideas to shuttle bus

Nature Exchange™ (or our own version) and "Library" for kids to look stuff up

- Kids can bring in art, journal entry, photo, or object from nature
- Physical and virtual
- Design to bring people back every couple months
- Non-trademark version, incorporate Intertwine
- Take citizen-science idea out to other Intertwine locations
- Use smart phones to engage people and measure

Plan how to show closed out exhibits – plan for unintended use – mitigated risk

Entry

- Make a "place"
- Need OR Zoo sign
- Need weather protection and integrated seating
- Nice to meet someone – greeting staff

Zoo map needs to show topography and water flow so people can be oriented – current map is flat and people get lost.

- Use phone GPS too

Create tactile surfaces for everyone, not just for ADA

Water features – Tevere showed slide of vapor fountain in Japan

Interpretive play

- Climbing trees and logs and ropes
- Brookfield Zoo had place where kids could build forts and dams in river – lasted one year. Too much maintenance cost and wear and tear, unintended use, extra staff

Fire Pit

- For campers, storytelling, zoo-lights
- In Africa zone

Balance technology (use only if a useful tool) and real, authentic experience

Treehouses – as classroom spaces, overnight, VIP observation

Conservation Discovery Zone

- Make it a must-see/must-do
- Gary
  - Kids Safari Lodge theme – treetops
  - Base camp – where you outfit for your adventure
  - Conservation in-residence
  - Visitor sees when they drive up
  - Each exhibit area contains themed place for educational opportunities
- Everyone loves above idea – also equips people for Intertwine
  - Theme it NW, connect to Cascade bldg design – send kids out for an adventure around the world
- Condors – enter high from Cascade bldg, and low from Conservation Discovery Zone
- Green roof

MEMORANDUM

- Expand ideas to shuttle bus

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- Butterflies
- Summer camps – 40 kids, 4 staff
- Summer – 2 to 3 - 20 minute blocks per day – kids more in and out – their base camp. Kids stuff left there, craft stuff, etc.
- Winter – maybe 60 minute blocks
- Classrooms different for different age groups
- Can't stagger arrival times
- Camp makes $1 million. Each classroom nets $65k/yr
- Existing 9 education spaces on campus, 2 rented = 11
- Could use 12 for camp
- Need 14 to accomodate other classes which they canceled during summer due to lack of space
- School programs are growing, mostly K-4
- Overnights could expand – currently 75, use classrooms 1-4
- Having big, flexible, dividable spaces would be great – 4-5 classrooms turn into 1 multipurpose space

Tuesday, November 9th, 9:30-11:30am – Sustainability Initiatives/Infrastructure

Zoo as a model of how we deal with our resources
Presentation of team organization in the form of a matrix
Metro wants to track visitor and staff travel emissions
Zoo goal: 100% electric or biodiesel on-site vehicles
Chris Massey is now on Metro Climate Change Steering Committee

- Water savings can happen now
- Start getting info on each building from Energy Trust of Oregon/Lockheed for audit

67% "other" water use – what is this composed of?
20% of exhibit use is pools
Need metering on wash-downs

- Zoo in process of documenting hosing
- Metering would find leaks

Parking lot lease expires 2014 – good time for negotiations
Target: exceed every goal.

Matrix to be updated based on comments from the group, and to more closely align with the Metro Sustainability Plan

Established contact info for each sustainability target area

SRG to set interim meeting with this group before workshop #3
Kim, Chris Pfefferkorn to discuss veterinary standard for reusing water, grey water, bathwater.

MEMORANDUM

Tuesday, November 9th, 11:00-1:00pm – Elephant Programming

Kim and Mike – presentation of slides from trip

- Europeans ahead in herd management
- Not done in US – but we need to
- Indoor areas covered with skylight – natural light
- Rock placement allows ways to add gates and make smaller yards
- Controlled public feeding – great experience!
- Goal is to touch more people with the awesomeness of these animals. They do now with Chandra, but only with a few people
- Natural substrate indoors, sand
- Herd births
- Cows laid down on sand to sleep
- Keepers make sand piles, hid food inside
- Few stalls only for training or separation (small). Night stalls not used
- Kim wants herd management 24/7 and be able to train to be able to pull one out for vet checks, and to allow bulls in and out
- CLR – program changes -
    - Need covered radiant heated areas at far ends of sites so they don't just hang around the barn all the time.
    - No cow stalls – small area good for birthing
    - Flex zone is another good place for isolation
    - Keep 4 bull stalls
    - Cathedral = large arena
    - Need to have separate area for elephants to walk by each other, bypass
    - All spaces in building should be bull compatible, bull-proof

CLR to develop more detail for next workshop. Have GoToMeeting with elephant staff prior to ws3, send refined drawings to group ahead of time.

Wednesday, November 10th, 11:30-1:30pm – Wrap-up with Bigger Zoo Group

Confirmations:

- Elephants
- Train
- Spine (anchors and central hub)
- Perimeter service road (must carry an 18-wheeler)
- Amphitheater location – stays in current location, enhanced

Bond projects

- All respond to land form

- Hippos – zone, mixed species, could keep rhinos or not
    - With panoramic view
    - Increase herds
- Primates
    - Chimps and Mandrill primary
    - Could be clustered concept with multiple African primates in one exhibit'
    - Could put new anchor exhibit in future in bottom corner (below bats)
    - Zoo think about what it could be
- Polar Bears
    - Will come back with options in this critical intersection
    - Multiple things to resolve: train, pedestrians, polar bears, cascade, elephant
- Condors
    - Tie to discovery zone and cascade
    - Will test and come back with idea
- Conservation Discovery Zone
    - Make as cool as elephants
    - Develop clear linkages to satellite locations in zoo
    - Develop flexible
    - Link entry to CDZ and elephants
        - Along perimeter edge/fence – frontage message – we will propose improvements
    - CDZ a place for kids and adults – an activity hub
    - should have animals – high profile

Sexy infrastructure

- Collecting data
- Establishing contacts within design team and zoo
- Set achievable targets
- Develop strategies to simplify operations, save energy and money
- Water – reuse grey water for animals – push ourselves

Next steps

- Train and road
- Discovery Zone push
- Parking lot
- Budget – ranges for bond projects – Kim wants realistic numbers
- Zoo tasks
    - Water standards
    - Train – new business model
    - Drawings of built facilities – SRG to visit archives
- Schultz and Williams starting work with Foundation in January – testing donors

END OF MEMORANDUM

DESIGN

ARCHITECTURE • LANDSCAPE ARCHITECTURE • EXHIBIT DESIGN

mark e. beauchamp, asla • gregory j. dykstra, aia • gary h. lee, aia • john s. rodgers, aia • jón stefánsson, asla

MEMO

To:	Jocelyn Bates, SRG
From:	Gregg Leicester, CLR
Project:	Oregon Zoo Master Plan
Subject:	Workshop #2 Meeting Notes, November 8 – 10, 2010
Date:	December 2, 2010
Copies:	Emily, Hussain
Via:	Email

A. <u>10:00 AM – 12:00 PM 11/8/2010 Session – MP Overview</u>

1. Master plan overview presentation to the large zoo group (30+ staff including executive staff and representatives from each department). This session included a summary presentation of the inventory and analysis information documented to date, and an overview of new ideas and concepts developed for Zoo review and critique during the 3-day workshop. The overview was presented by the full design team including SRG, CLR, AD, KPFF, and PAE
2. The design team presented (from a powerpoint presentation) new site/systems analysis information, and proposed concepts related to visitor circulation, service circulation, animal circulation, water systems, train circulation, exhibit land use, interpretive overlays, energy/power analysis, and existing infrastructure. Overall, the big ideas/master plan drivers of circulation, land form, and land use, were well received by the group.
3. A 45 minute wait for the train ride during Zoo Lights is not that uncommon. December is the busiest month.
4. The concept of a new, and drastically improved, train ride was well received by the group. If the train ride is shortened, it was suggested by the Zoo team that 12 minutes should be the minimum ride time.
5. Initial consensus from the group was that the existing zoo train ride south and east of the current polar bear exhibit, could be eliminated with the caveat of a much improved train ride experience resulting from this change. Several preliminary ideas for how to improve the train ride were discussed including new animal exhibit views, zoo lights, and interpretation. The train ride experience is a major Master Plan driver and this subject will need to be reviewed in greater detail throughout the planning process.
6. This decision to eliminate the existing train route that runs from polar bear to elephants, is a critical one that will allow for a completely new and improved land use at the eastern side of the Zoo, which will provide the opportunity to realize the visions and programs discussed for elephants and polar bears in particular.

B. <u>8:00 AM – 10:00 AM 11/9/2010 Session – Interpretation Education/Conservation</u>

1. Presentation by Tevere – Main Street.
2. Oregon Zoo won an AZA award for animal behavior study publication.
3. The notion of "measuring" conservation action, in some way, was well received by the group.
4. Consider nature programs, specific to OZ's urban context.
5. Test the idea of education tree houses that integrate education, interpretation, and exhibit/animal encounters.
6. Energize/enhance/integrate new conservation/education/discovery concepts at the west end and entry with attractions such as condors and/or butterflies.

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C. <u>11:00 AM – 1:00 PM 11/9/2010 Session – Elephant Programming</u>

1. CLR facilitated a second work session with this core group to help advance the on-site elephant facility program, and overall vision and concepts.
2. Mike and Kim presented images from their recent tour through several European Zoos, and they discussed likes and dislikes to help steer the planning and design for the new OZ facility.
3. Overall, the preliminary ideas discussed for the habitats, trails, barns, shelters, and other vision concepts, were well received by the Zoo team.
4. Lots of natural light and natural substrates, for interior spaces are preferred.
5. Dark interior spaces with lots of exposed dark concrete, excessive rockwork, and full views of clunky support zones is less desirable.
6. Elephant feeding, with interpretation (how does the truck work?) could be a nice encounter and experience at the new facility.
7. Comments on CLR building/barn diagram:
    - Test converting individual cow stalls to one larger area with some flexibility to partition zones if needed.
    - Maintain 4 bull stalls.
    - Leave flex stall similar to what's shown.
    - Static chute between bull stalls may be required.
    - Overall, circulation patterns, from stall to yard, from stall to chute, from building to trail, etc. need to be developed as the overall plan advances with more detail.
    - Visitor access to the building (VIP or everyday guests?) needs to be reviewed.
    - Test ways of creating a more transparent, and/or green façade, to create a positive guest experience and viewing from the Hill to the barn.

D. <u>11:30 AM – 1:30 PM 11/10/2010 Session – MP Overview and Sustainability Initiatives Summary</u>

1. Master plan overview presentation to the large zoo group (30+ staff including executive staff and representatives from each department).
2. Zoo is open to the idea of testing mixed species habitats. For example: Hippo/rhino, and/or rhino/savanna hoofstock, chimps/hippos??
3. Currently there is no long-term vision for rhinos. When the hippo renovation and expansion work happens, rhinos will be displaced. Consider how rhinos can fit in to short and long term MP vision.
4. Test a grand vision for African Primates in the master plan and consider the site at the southwest corner of the Zoo. It was discussed, just as an idea to consider, that the Zoo may want to hold off on any major bond project renovation/relocation work, for primates, till the big vision is established.

These notes represent CLR's best recollection of the conclusions reached at the meetings and observations made on site. Please provide written notification of any comments or corrections to these minutes.

38 Cameron Avenue
Cambridge, Massachusetts
02140

Main Street Design

Memo

date	15 November 2010	
to	Jocelyn Bates, SRG Partnership *for distribution*	
cc		
from	Tevere MacFadyen	
project	Oregon Zoo Master Plan	job no. OZ1010
re	Workshop 2 Meeting Notes	

At Master Plan Workshop 2 (November 8 – 10, 2010) Main Street Design presented and reviewed with the client team an outline of proposed interpretive and informational opportunities organized by location; a diagrammatic analysis of functional requirements and potential interpretive features of the proposed Conservation Discovery Zone; and a broad range of reference images illustrating a variety of different methodologies and possible stylistic approaches for interpretive and informational components. Key workshop outcomes are outlined below.

Interpretive and Informational Priorities
The client team endorsed the following interpretive and informational initiatives as master planning priorities:

• Arrival, welcome and orientation, and on-site visit planning support, including but not necessarily limited to:
  – Improved vehicular directional signage between Rt. 26 and the Zoo entrance;
  – Improved vehicular and pedestrian directional signage or environmental graphics linking the new Conservation Discovery Zone group entrance with the Zoo's public entrance;
  – An enhanced entrance plaza experience including prominent welcome and orientation and visit planning graphics, a clearer and simpler ticketing and entrance sequence, changeable programs and special events announcements capability, interpretive play opportunities, and designed-in program presentation capabilities, possibly including live animal presentations.

• Development of attractive, effective, and flexible Zoo wayfinding and directional signage systems, including secondary visit planning support components at major choice points or intersections.

• Interpretation of core Zoo mission-related themes, both within and beyond live animal exhibit settings, to focus on:
  – Animal welfare and human-animal relationships, encompassing Zoo animals, wild populations, and domesticated species and pets;
  – Conservation and stewardship, including habitat and ecosystem protection and preservation locally, regionally, and globally;
  – Strategies for sustainable living, with a particular focus on Zoo-based demonstration projects at a variety of scales from individual/residential to community/regional;
  – Water resources and systems, both natural and human-made, with a dual emphasis on celebrating the essential role of water in shaping the natural history and cultural heritage

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of the Pacific Northwest and on improving the efficiency of our water use and management systems.

• Development of the proposed Conservation Discovery Zone as both an efficient operational hub for Zoo's educational programming and conservation science research activities and a compelling "must see, must do" destination for general Zoo visitors, with linkages to a range of clearly related "satellite" components located throughout and beyond the Zoo.

• Development of enhanced experiential opportunities for young children, including inter-generational and multi-generational interpretive play.

• Development of a more robust and visible presence (for general Zoo visitors) for Zoo conservation science and research activities.

Zoo-Wide Interpretive and Informational Opportunities
Main Street Design presented a preliminary analysis of interpretive and informational opportunities organized by type of location within the Zoo. The purpose of this exercise (outlined below and broadly endorsed by members of the client team) was to begin to define the parameters of an interpretive and informational "overlay" to be developed in conjunction with the facility master plan.

• Major locations (or types of locations) for interpretation and information at the Zoo include:
  – Entrance plaza
  – Major circulation hubs
  – Secondary circulation hubs/intersections
  – Major walkways
  – Secondary pathways
  – Live animal (and habitat) exhibits
  – Conservation Discovery Zone
  – Zoo train
  – Retail/foodservice
  – Zoo website

• Interpretive and informational elements within the entrance plaza might include:
  – Zoo identity signage
  – Orientation and visit planning (core installation)
  – Wayfinding and directional signage (system overview: what to look for, how to use it)
  – Changeable programs and events announcements (core installation)
  – Introduction to Zoo-wide interpretive themes
  – Flexible program presentation/live greeter/animal contact venue(s)
  – Interpretive play opportunities

• Interpretive and informational elements at major circulation hubs might include:
  – Wayfinding and directional signage
  – Orientation and visit planning (supporting installations)
  – Selected interpretation of Zoo-wide themes
  – Flexible presentation/live animal contact venues
  – Sculptural and/or naturalistic water features
  – Interpretive play opportunities

• Interpretive and informational elements at secondary circulation hubs or intersections might include:
  – Wayfinding and directional signage
  – Sculptural and/or naturalistic water features

• Interpretive and informational elements located along major walkways might include:
  – Selected interpretation of Zoo-wide themes
  – Flexible program presentation/live animal contact venues
  – Sculptural and/or naturalistic water features
  – Interpretive play opportunities
  – Native plant species identification and interpretation
  – Interpreted "sneak peaks" into adjacent exhibits/habitats
  – Citizen science "observation stations"

• Interpretive and informational elements located along secondary pathways might include:
  – Sculptural and/or naturalistic water features
  – Native plant species identification and interpretation
  – Interpreted "sneak peaks" into adjacent exhibits/habitats
  – Habitat immersion/adventure play experiences (trails or turn-outs)
  – Citizen science "observation stations"

• Interpretive and informational elements developed in conjunction with live animal and habitat exhibits might include:
  – Themed environments
  – Interpretive overviews and advance organizers
  – Species identification and natural history interpretation
  – Conservation action feature exhibits (graphics, interactives, media)
  – Citizen science "observation stations"
  – Flexible program presentation venues
  – Keeper contact opportunities (live or virtual)
  – Interpreted back-of-house access (by invitation only)
  – Parallel play opportunities

• Interpretive and informational elements incorporated into the "public" portions of the Conservation Discovery Zone would be intended to showcase the Zoo's conservation education and scientific research activities; to provide visitors with access to in-depth interpretation and information about core Zoo-wide themes; and to enlist guests as active supporters of the Zoo's conservation mission. Public experience components developed as part of this zone might include:
  – In-depth, interactive introduction to/interpretation of Zoo-wide themes
  – Flexible program presentation/live animal contact venues (interior and exterior?)
  – Live animal exhibits (insect zoo, butterfly lab?)
  – Water features (sculptural and/or naturalistic)
  – Interpretive play opportunities
  – Hands-on activities/workshop/learning lab (scheduled and/or drop-in)
  – Zoo "conservation research-in-progress" showcase
  – Reading room/library
  – Citizen science "mission control" (aggregation and display of observations/data)
  – Nature Exchange™ (or similar)

• "Classroom" spaces are underutilized for much of the day as groups conduct activities in the zoo. However, these spaces remain "occupied" even when the students are elsewhere, since they provide storage for coats, lunches, and others materials.

• If possible, flexible workspaces developed for the CDZ should accommodate as wide a range of activities as possible, from messy hands-on craft projects to wet biology to desktop exercises to lecture or seminar settings.

• The Oregon Zoo has made a deliberate decision to merge its educational and scientific research activities at both a philosophical and an operational level. This integrated approach should be made evident to both CDZ users and general Zoo visitors.

• Conservation education at the Zoo should focus on experiences and learning opportunities that are unique to the zoo setting, in particular direct engagement with live animal and habitat exhibits and animal care and/or conservation science staff. The Zoo has no interest in building a "school" that's effectively separated from the rest of the campus.

• The client team expressed a strong desire to blur the lines between private (scheduled group) functions of the CDZ and public experiences intended to engage general Zoo visitors. Ideally, this would be a place that all guests would either come to or pass through in the course of their Zoo visit.

• Consistent with this goal, the client team and the consultants are challenged to develop a conceptual vision for the "public experience" at the CDZ that is intuitively compelling, exciting and attractive – something a visitor would see on her way into the Zoo and be motivated to visit.

• Beyond the concept level, several suggestions emerged for possible public experience features at the CDZ. (Note: These ideas have not yet been tested or evaluated for architectural space requirements or operational feasibility.) Could the CDZ:
  – Be a place where visitors are guaranteed to be able to touch a live animal (or at least to get "up close and personal" with an animal) no matter when they visit?
  – Be a place where there is always a range of hands-on activities happening, that are available on a drop-in or first come, first served basis?
  – Serve as a kind of central gathering place for on-site and off-site nature observations, constantly being revised and updated, sort of a "news center" for environmental information in the region served by the Intertwine?
  – Include a public "reading room" capability where folks could do natural history research, answer their own questions, or find a quiet place to read to their kids?
  – Include active interpretive play opportunities for very young children?
  – Include permanent live animal exhibits with direct conservation science connections (i.e., insect zoo/butterfly lab)?
  – Include short-term changing displays of Zoo conservation (or animal husbandry) work in progress?
  – Include retail and/or food service capabilities?
  – Be the place where public programs and guided tours of the Zoo would begin and end?

Next Steps
In preparation for Workshop 3 (January 11 – 14, 2011) Main Street Design will focus on the following:

• Analyzing and clearly defining the scope of interpretive planning and design efforts required for compliance with the approved parameters of each designated bond project.

• Developing a baseline architectural space program and conceptual design direction (in collaboration with other consultant team members) for the Conservation Discovery Zone.

• Developing a preliminary proposed interpretive and informational component organization and distribution diagram, based on facility master planning directions developed by the consultant team.

• Developing test concept studies for interpretive or informational elements for several critical locations or types of locations, such as:
  – Zoo entrance plaza
  – Major circulation hubs
  – Major walkways
  – Secondary pathways
  – Elephant exhibit
  – Condor exhibit
  – Polar bear exhibit
  – Conservation Discovery Zone

• Developing preliminary implementation budget parameters for proposed interpretive and informational master planning recommendations.

end/JTM

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WORKSHOP #2 11. 8. 2010

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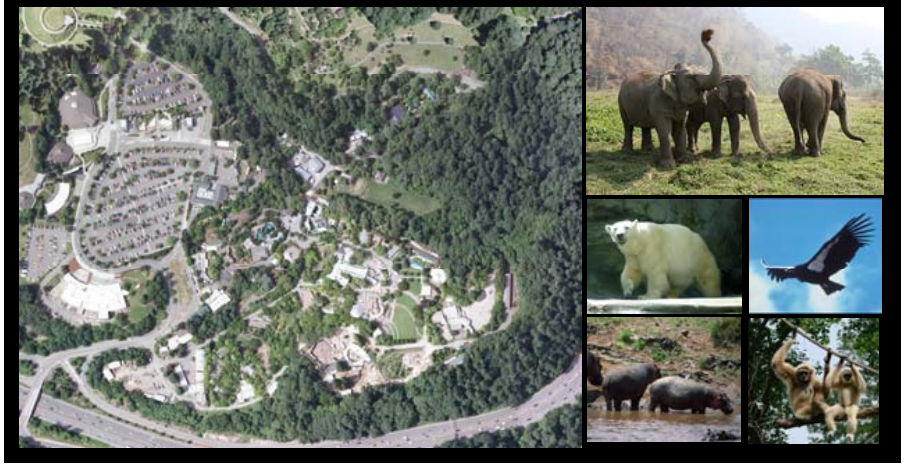

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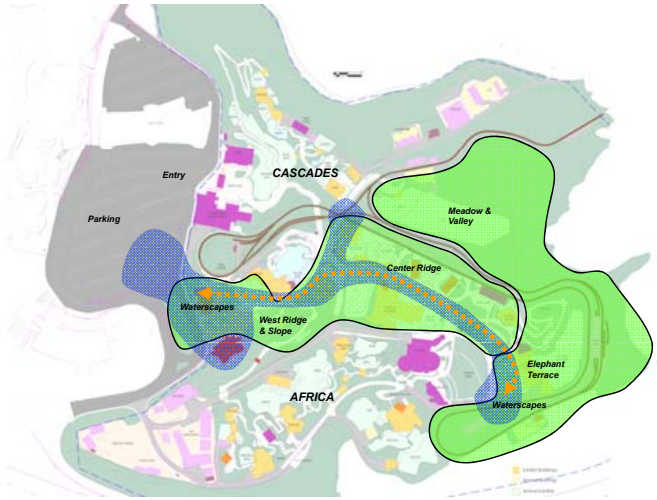
- **Site, Land Use, Circulation**
- **Waterscapes**
- **The Train**
- **The Master Plan Test**
- **Bond Projects**
- **Conservation Education**
- **Summary**

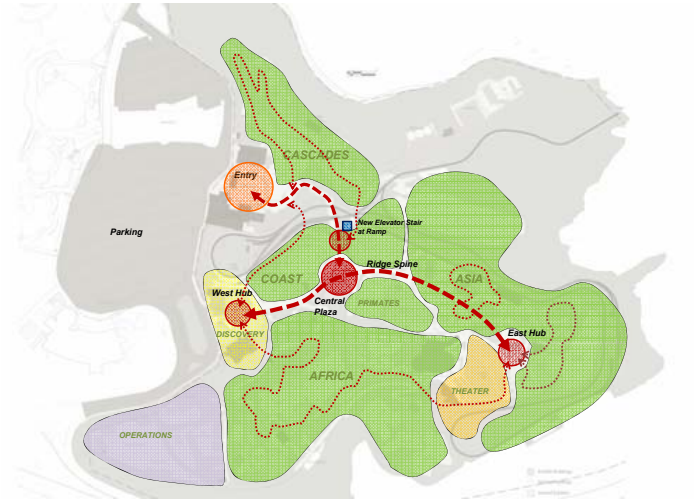
EXHIBIT PRIORITIES

1. Elephant Habitats to 6 Acres w 4- 6 Habitats
2. Polar Bear Ridge Habitat Looking NE to .75 Acre?
3. Asia Ridge w Tigers, Sun Bears, Primates @ 1 Acre Adjacent to Elephant?
4. Condor Canyon @ Lower Cascades? .25 A
5. Adjust Savanna for Panorama Views for Hippo, Hooftstock & Primates
6. Penguins Relocated adjacent to Cove
7. Discovery @ E Tiger Terrace?

PRIORITY DEVELOPMENT ZONES

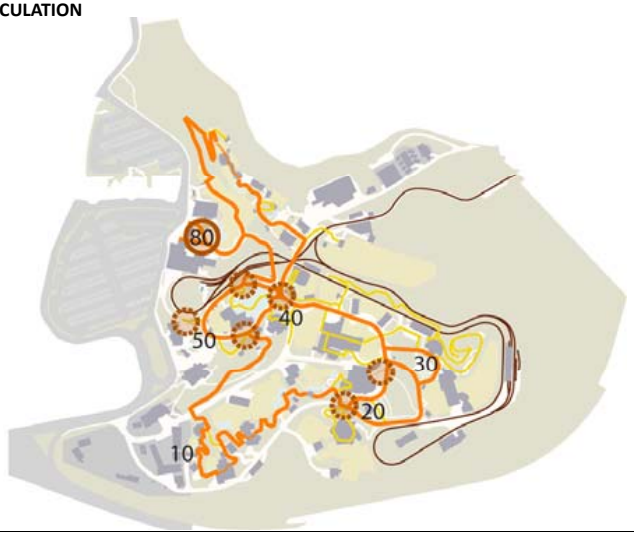


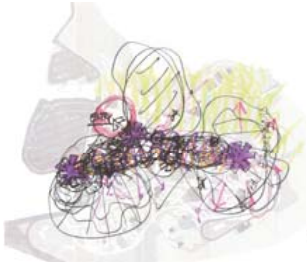
PROPOSED CIRCULATION AND SITE ORGANIZATION TEST



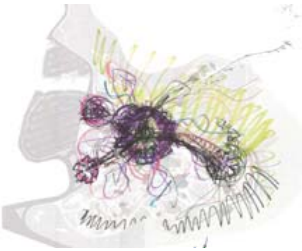
EXISTING CIRCULATION

EXISTING CIRCULATION



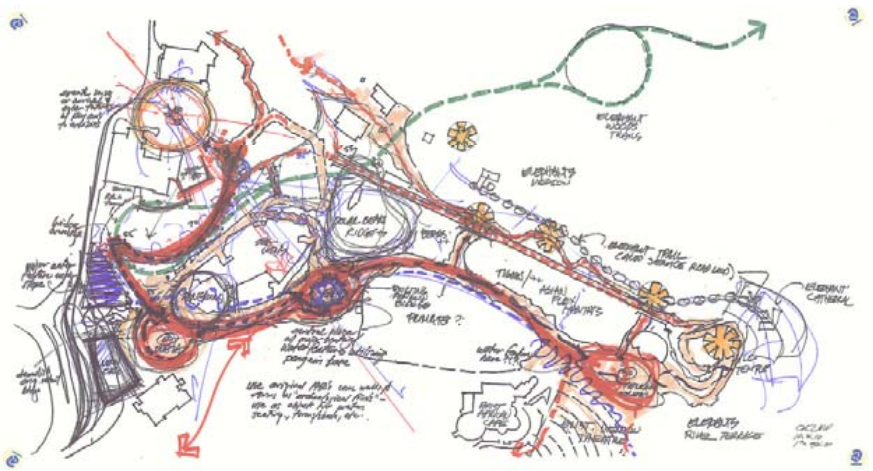


SCHEME A "SPINE/RAMBLAS"



SCHEME B "PICADILLY"

SCHEME C "INTERNET"



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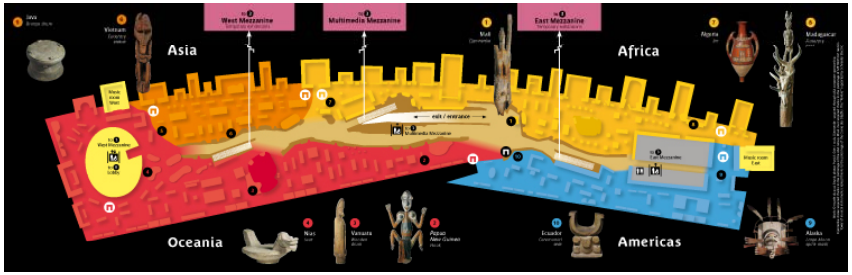

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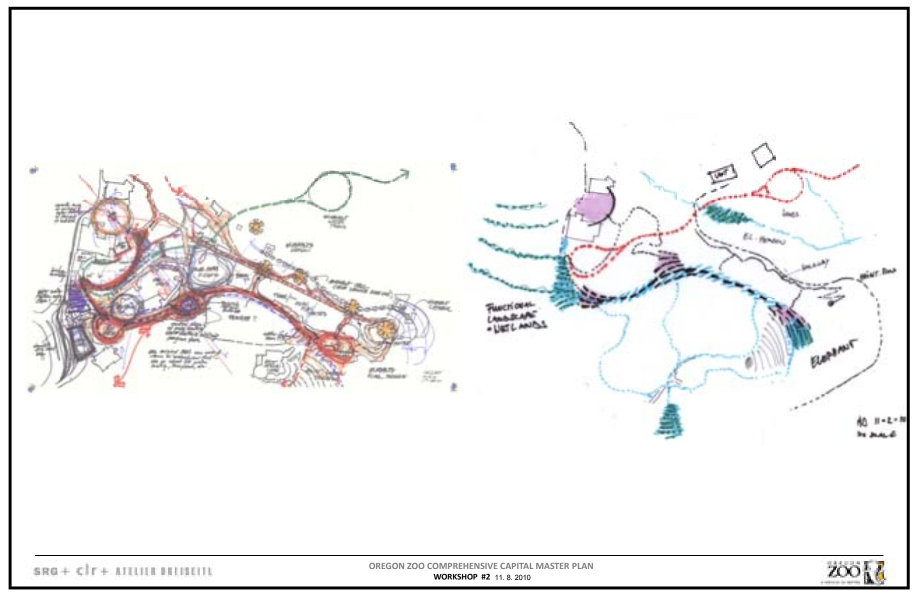
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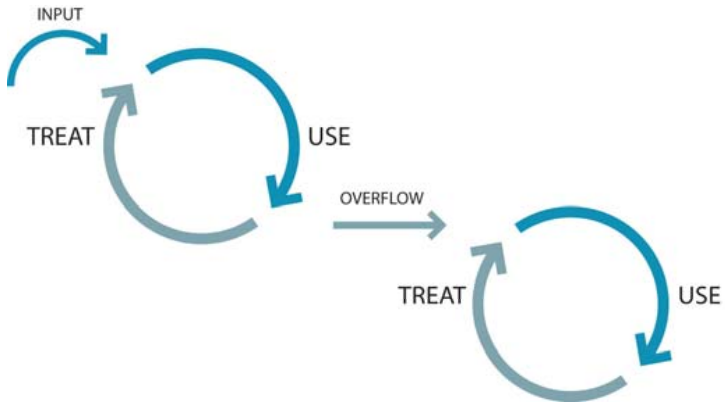
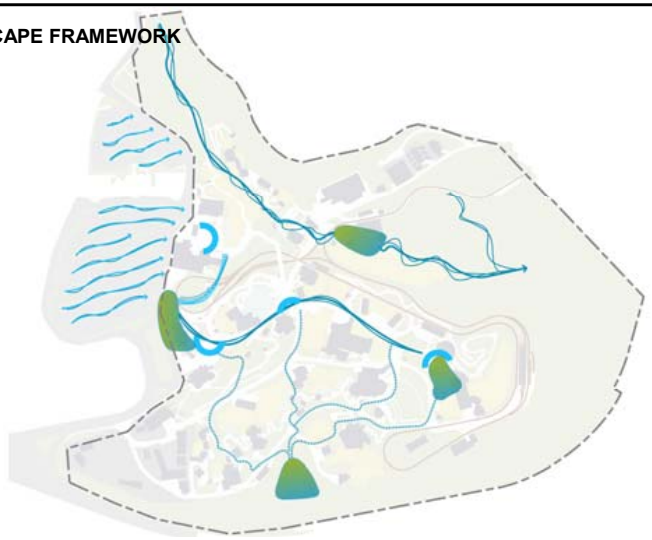
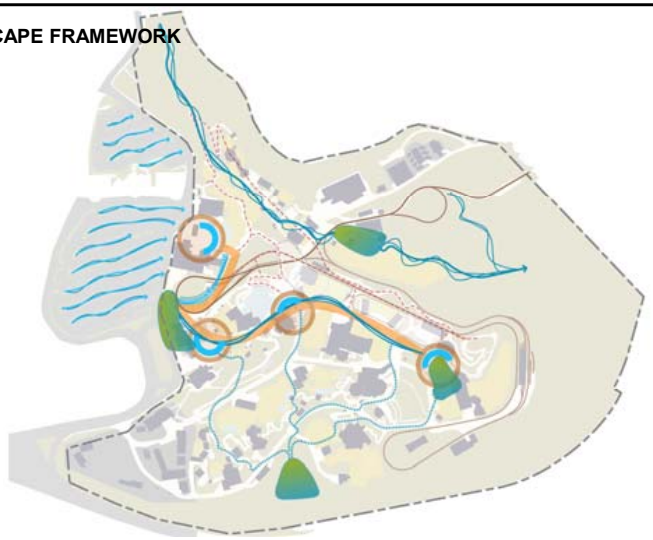
WATERSCAPE FRAMEWORK CONCEPT



WATERSCAPE FRAMEWORK



WATERSCAPE FRAMEWORK



WATERSCAPE FRAMEWORK

FUNCTION
(WHAT DOES IT DO?)

COMPONENTS
(WHAT IS IT COMPOSED OF?)

CHARACTER
(WHAT DOES IT LOOK LIKE?)

WHAT DOES IT DO?

creates opportunities for play, exploration and education

WHAT DOES IT DO?

creates an opportunity to better engage the Tanner Creek ecosystem

WHAT DOES IT DO?

activates pathways, stairways and exhibits

WHAT DOES IT DO?

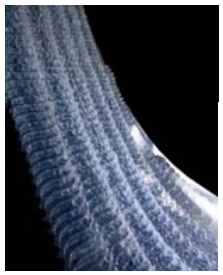
functions in concert with the Zoo's interpretive and wayfinding media to structure a patron's Zoo experience

WHAT DOES IT LOOK LIKE?

BUILT NATURALIZED

it spans the continuum between built infrastructure and restored habitat

WHAT DOES IT LOOK LIKE?



AT REST MOVING

the structure of the water system and the movement of water parallels and reinforces the visitor experience

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COMPREHENSIVE CAPITAL MASTER PLAN

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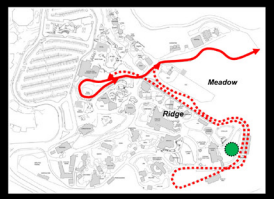
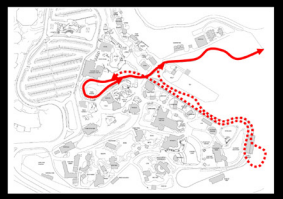
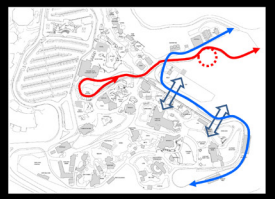
TRAIN LOOP OPTIONS



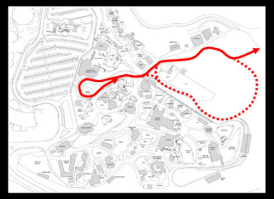
Existing Train



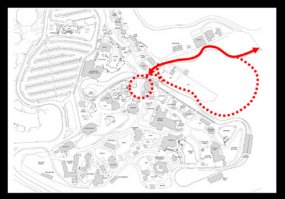
Train A: Shortened Zoo Loop



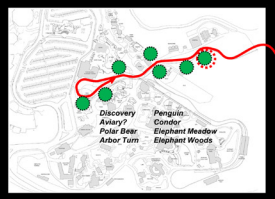
Train B: ExistingTrestle as Loop



Option C: New Trestle Loop



Option D: Land Grab: New Station



Option E: Enhanced Experience

OREGON ZOO
A SERVICE OF METRO

COMPREHENSIVE CAPITAL MASTER PLAN

WORKSHOP #2 11. 8. 2010

SRG + clr + ATELIER DREISEITL
Main Street Design KPFF PAE Equilibrium

- Site, Land Use, Circulation
- Waterscapes
- The Train
- The Master Plan Test
- Bond Projects
- Conservation Education
- Summary

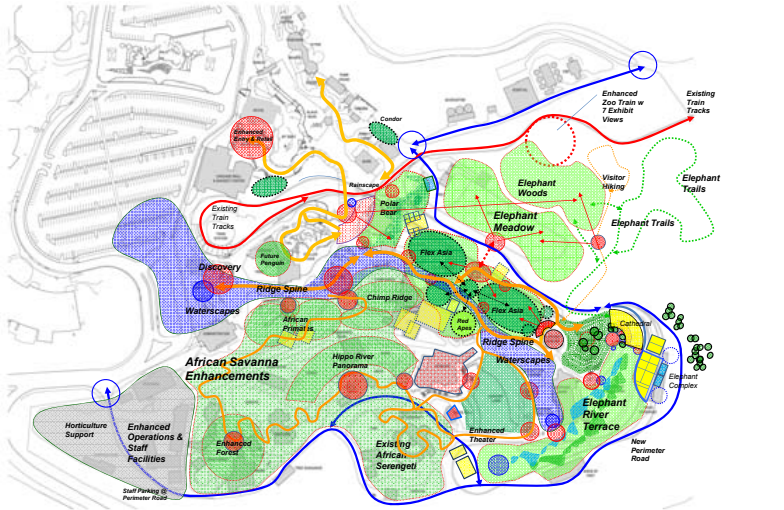


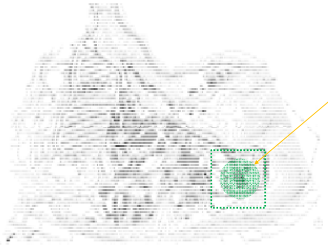
EXHIBIT DESIGN CRITERIA: Asian Elephants

From ORZ "Pre-Design Specifications"

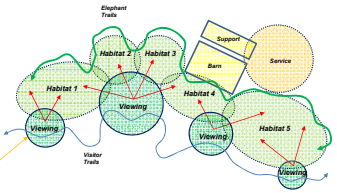
Species	Habitats	Yards	Barn	Support	
Asian Elephants Target Collection: 10 Elephants	4-5 Habitats 6 Acres	4-5 Various Sizes; Interconnected Direct Access to Barn Varied Terrain	7,200 SF (4 Bulls) 7,200 SF (6 Cows) 1 Isolation Stall Transfers @ 15'W	Keeper Vet Mechanical Storage	2,000 SF 300 SF 900 SF 4,000 SF
			Rough Total:		25,000 – 30,000 SF

Objective

The expansion and upgrade of the current exhibit will improve the physical and social wellness of the Asian Elephants through fluid indoor/outdoor experiences, herd versus individual enrichment, and a strong program vision demonstrating a journey through Asia.



KEY MAP & TEST STUDY SITE
Not to scale



FUNCTIONAL DIAGRAM
Not to scale

Looking N
Possible Barn Site

Looking NW
Track as Trail

OREGON ZOO
A SERVICE OF METRO

COMPREHENSIVE CAPITAL MASTER PLAN

WORKSHOP #2 11. 8. 2010

SRG + clr + ATELIER DREISEITL

Main Street Design KPFF PAE Equilibrium

- Site, Land Use, Circulation
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- Summary

ASIAN TRAILS 1.0

Elephant Trails
Meadow & Terrace Habitats
Hiking Trails for Elephants AND Visitors
Elephant Cathedral as Group Showplace
Male & Cow Barns & Cathedral Group Room
Hill Temple View Trailscape
Hill Theater View & UW lookout
Water Pools & Creeks Throughout

Flex Asia: Tigers, Sun Bear, Leopard
Red Apes & Primates OH Links
Museum as Gateway & Interpretive

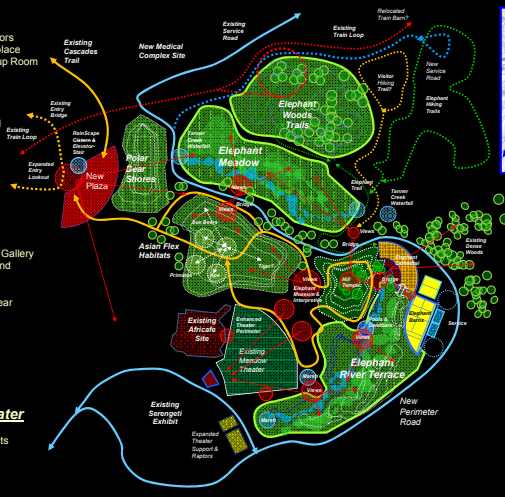
Perimeter Service Road
Truck Access thru to Tundra
Expanded Service for Theater

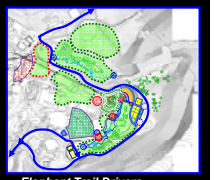
Polar Bear Shores
Tidal Stream Edge & UW Views
Polar Bear Perimeter Viewing & UW Gallery
Long views to Headland Ridge Beyond

New Lookout Plaza
Expanded Entry Lookout Views to Bear Ridges & Beyond
New Elevator & Stairs W Cistern

Waterscapes
Cisterns, Wetlands & Fountains
Weather Activated Gargoyles
Wind Vanes, Turbines & Solar

Enhanced Meadow Theater
Expanded Support Holding
Enhanced Special View Zones-Events
Relocated Catering
Expanded Truck Loop Access

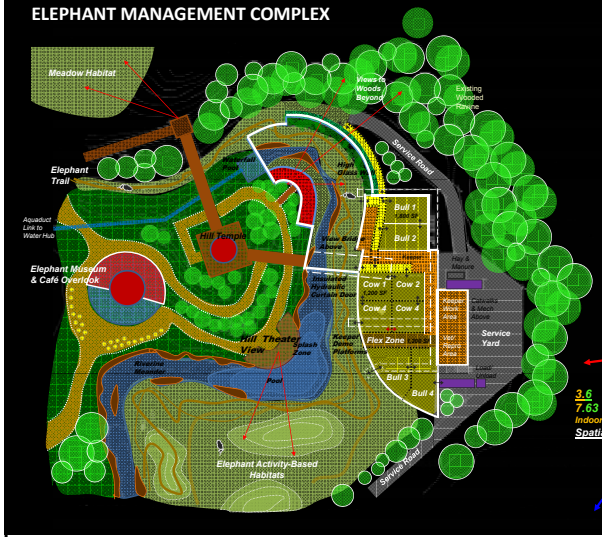




Elephant Trail Drivers
Train Routing
Elephant Program
Hill Panoramic Hub
Perimeter Service

SRG + clr + ATELIER DREISEITL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010

ELEPHANT MANAGEMENT COMPLEX



Elephant Management Complex

Elephant Cathedral @ 10,500SF
Bull & Cow Flex Barns @ 18,500 SF (w Transfers)
Keeper, Med. & Support @ 2,500 SF

Total SF 31,500 SF

Site Features

Hill Temple View Trail & Landscapes
Ravine Bridges thru to Viewing Towers & Trails
Extensive Browse Trails & Harvesting by Elephants
Hill Theater View & UW lookout Panorama
Extensive Riverine Waterfalls, Pools & Sandbars

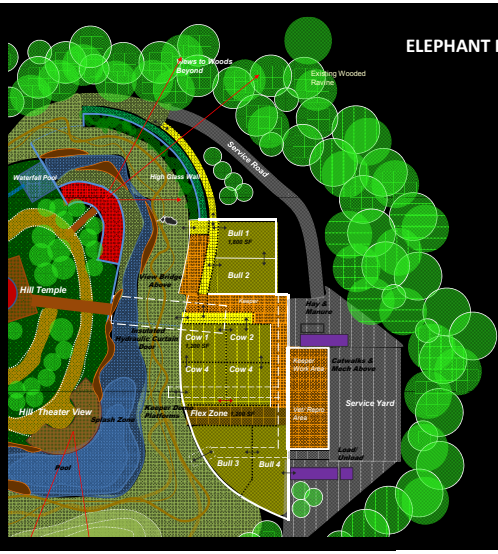
Perimeter Service Road

Limited Truck Access thru from Gate A
Use managed Concurrently w Elephant Trail

3.6
7.63
Indoor. Outdoor
Spatial Index

SRG + clr + ATELIER DREISEITL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010

ELEPHANT MANAGEMENT COMPLEX



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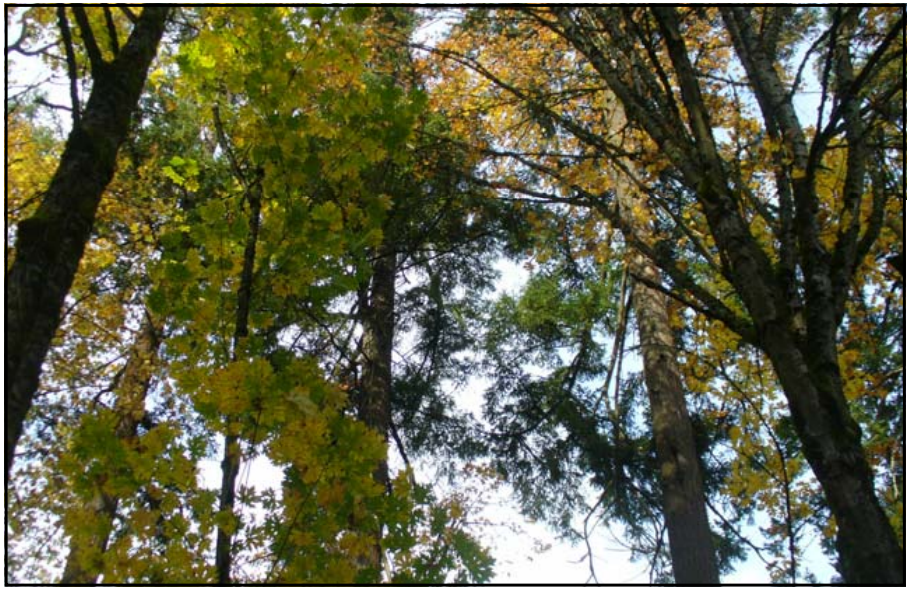
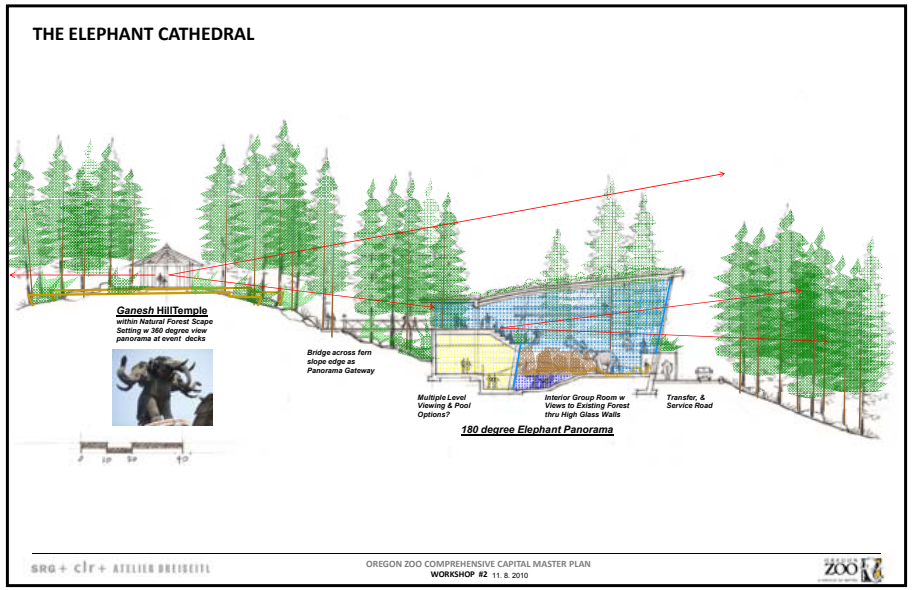
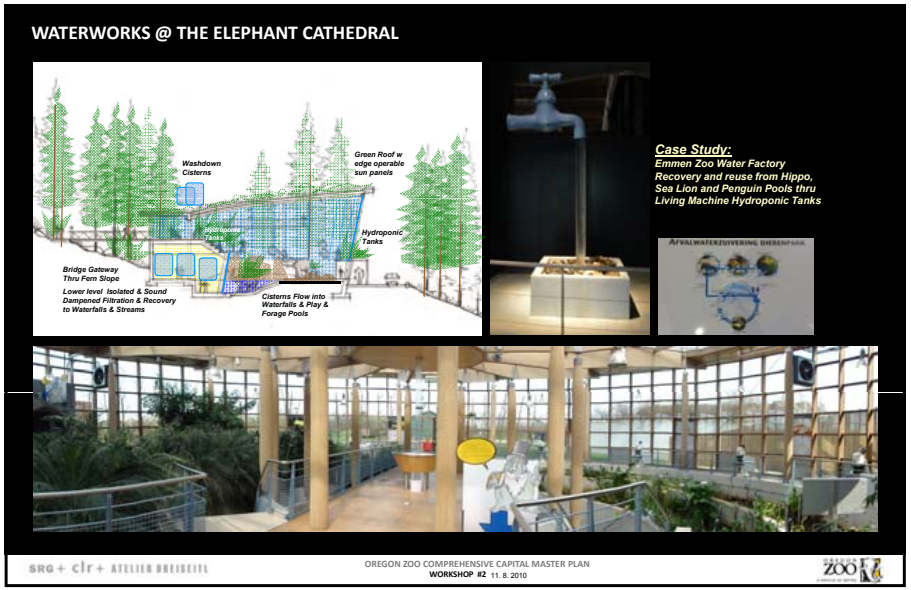
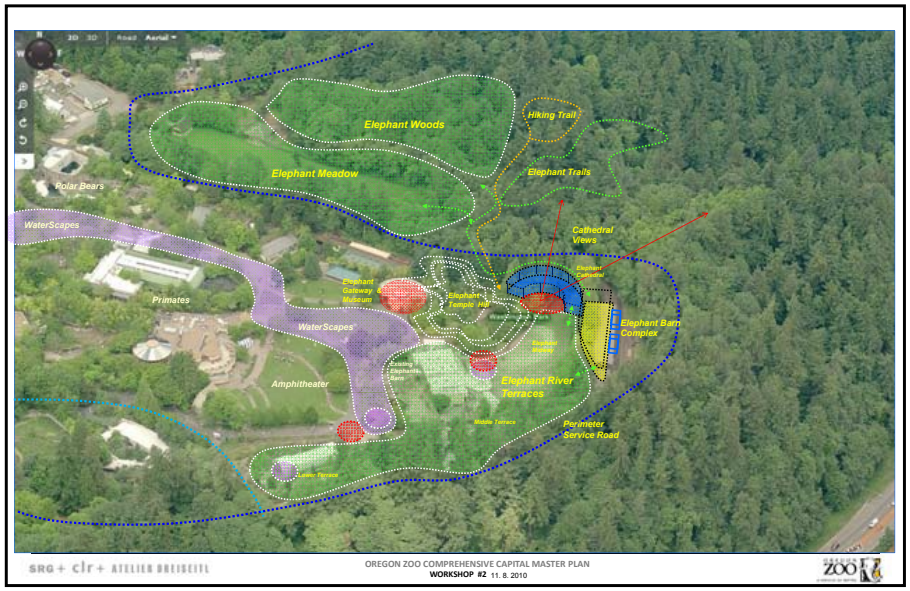
SRG + clr + ATELIER DREISEITL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010

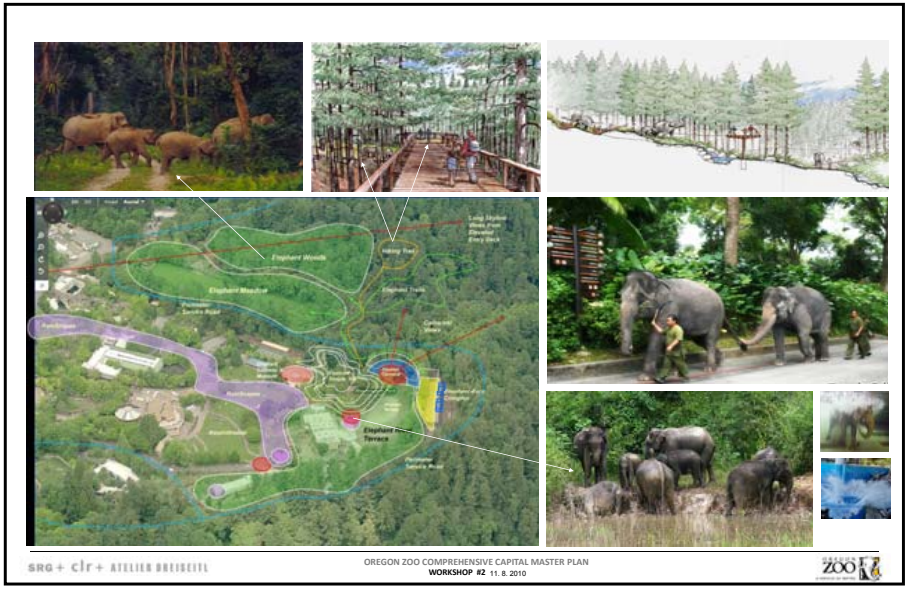



THE ELEPHANT CATHEDRAL
Ganesh HillTemple
within Natural Forest Scape
Setting w 360 degree view
panorama at event decks
Bridge across fern
slope edge as
Panorama Gateway
Multiple Level
Viewing & Pool
Options?
Interior Group Room w
Views to Existing Forest
thru High Glass Walls
Transfer, &
Service Road
180 degree Elephant Panorama
SRG + clr + ATELIER DREISEITL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010

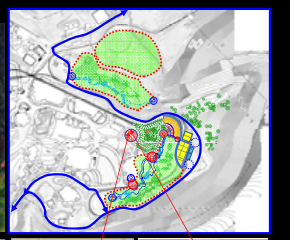

WATERWORKS @ THE ELEPHANT CATHEDRAL
Washdown
Cisterns
Green Roof w
edge operable
sun panels
Hydroponic
Tanks
Bridge Gateway
Thru Fern Slope
Lower level Isolated & Sound
Dampened Filtration & Recovery
to Waterfalls & Streams
Cisterns Flow into
Waterfalls & Play &
Forage Pools
Case Study:
Emmen Zoo Water Factory
Recovery and reuse from Hippo,
Sea Lion and Penguin Pools thru
Living Machine Hydroponic Tanks
SRG + clr + ATELIER DREISEITL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010


Elephant Woods
Hiking Trail
Elephant Meadow
Elephant Trails
Polar Bears
WaterScapes
Cathedral Views
Primates
Elephant Gateway Museum
Elephant Temple
Elephant Barn Complex
WaterScapes
Amphitheater
Elephant River Terraces
Perimeter Service Road
SRG + clr + ATELIER BRELSFEIL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010
ZOO


SITE CONCEPT 1.0 – Existing Site & Trail to Meadow
Elevated Train @ +655
Zoo Ridge Path @ 645
Lower Train @ 635
Meadow @ 625
SRG + clr + ATELIER BRELSFEIL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010
ZOO


SRG + clr + ATELIER BRELSFEIL
OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010
ZOO

ASIAN TRAILS ELEPHANT 1.0 – Hill Panoramas to Terrace, Meadow & Woods Trails

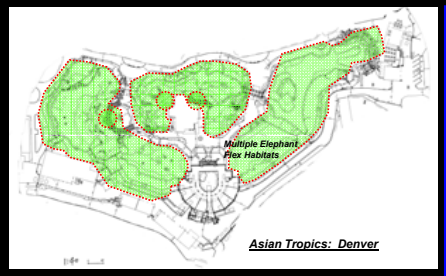


Test Partial UW View thru Water Hub Splash ?

River Terrace, Meadow & Woods Trail Habitats

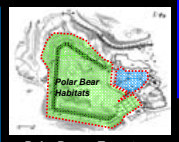
Reuse and Expand Museum as Gateway and Ganesh Interpretive Center

ASIA & COASTAL SHORES – Case Studies



Asian Tropics: Denver

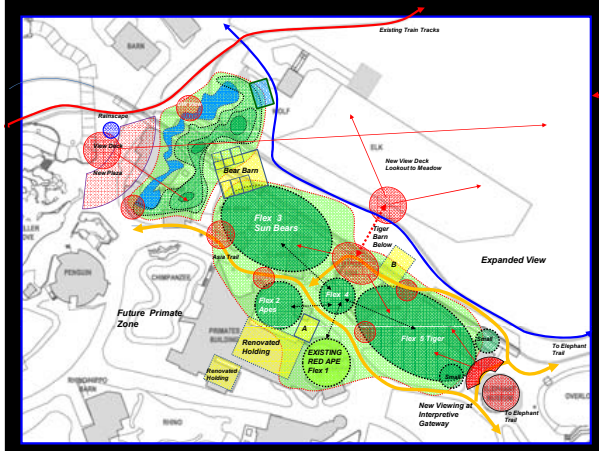
Rocky Shores: Salt Lake City

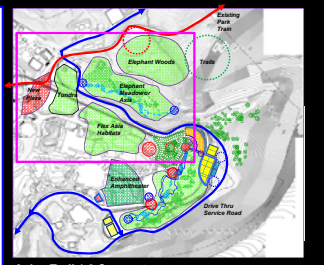


Polar Bears: Toronto

Asian Trails 1.0 ORZ 2010 Planning

FLEX ASIA & POLAR BEAR – Test Concept





Asian Trail 1.0 Concept

Flex Habitat Options (5)

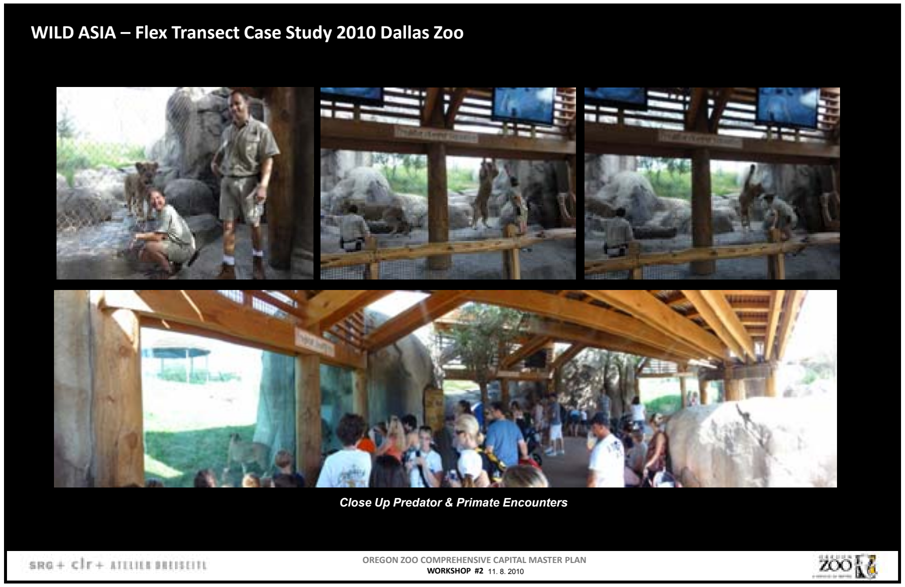
Mesh Habitat Sequence anchored by existing RED APES
Species flex thru 5 Habitat Options
Reconstructed Holding New (ABC) and Renovation
Visitor Flow Loop utilizes existing Museum as Gateway & Viewing

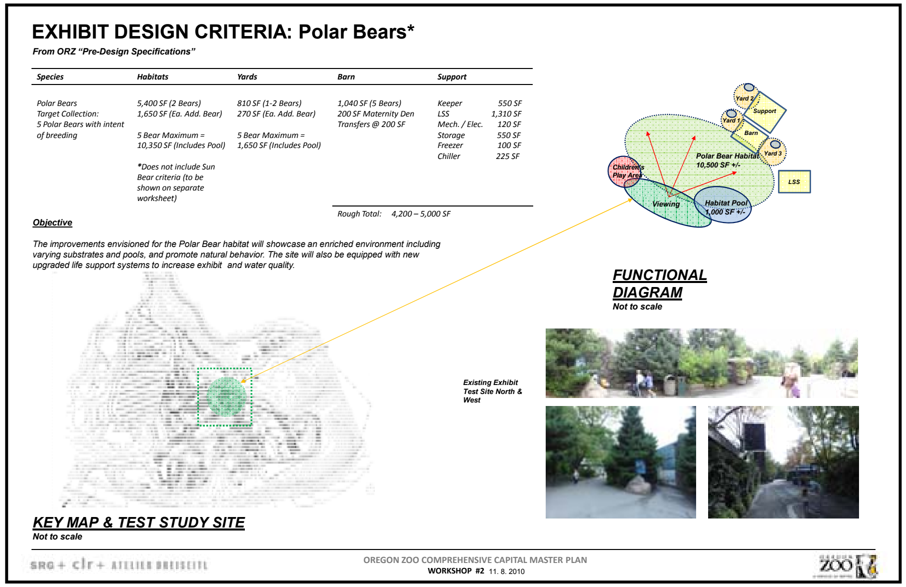
Predators: Tiger, Sun Bear, Leopard, Small Cats
Primates: Orangutans, Gibbons, Langurs , etc.
Other?: Muntjac, Lizards, Snakes, Turtles, Birds?

Polar Bears: Headland Ridge & Bay Habitat

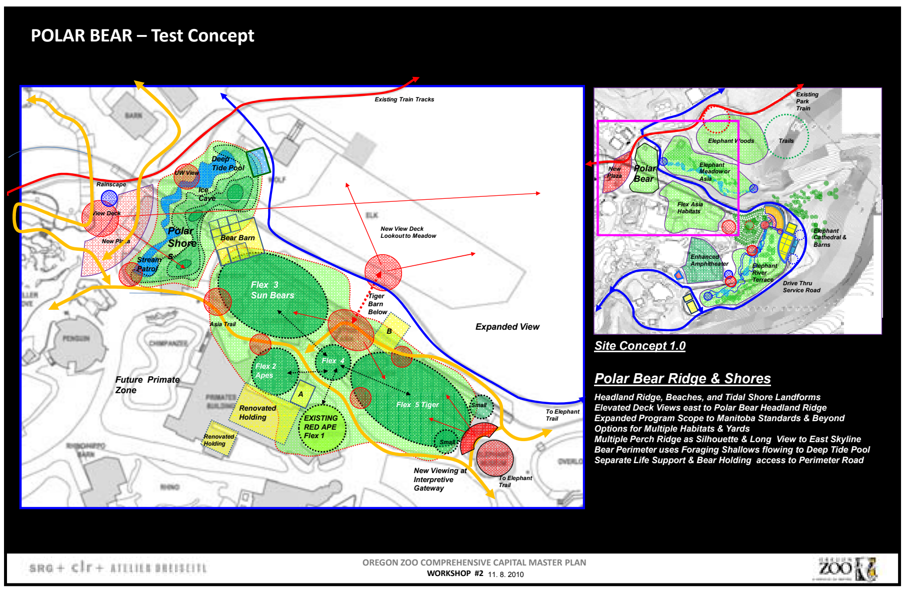
WILD ASIA – Flex Transect

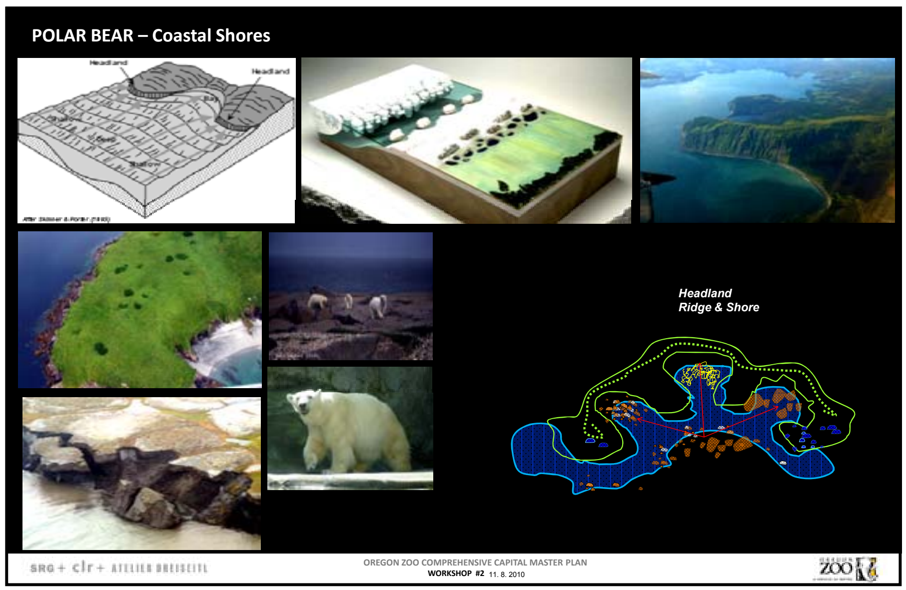
Gibbon
Tiger
Dragon
Babirusa
Orangutan
Sun Bear



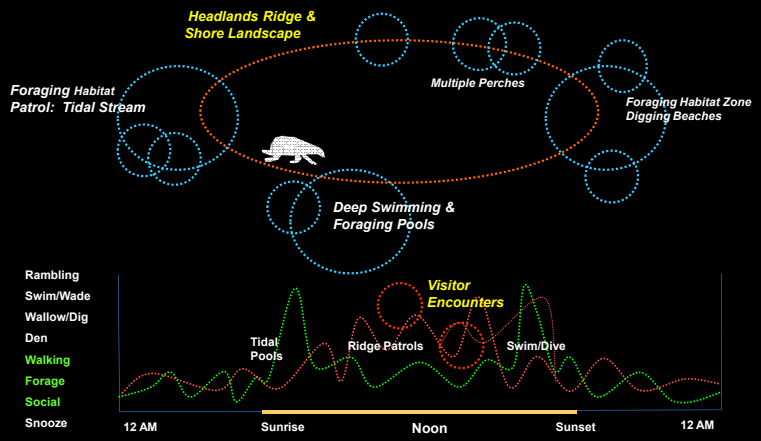


Species	Habitats	Yards	Barn	Support
Polar Bears Target Collection: 5 Polar Bears with intent of breeding	5,400 SF (2 Bears) 1,650 SF (Ea. Add. Bear) 5 Bear Maximum = 10,350 SF (Includes Pool) *Does not include Sun Bear criteria (to be shown on separate worksheet)	810 SF (1-2 Bears) 270 SF (Ea. Add. Bear) 5 Bear Maximum = 1,650 SF (Includes Pool)	1,040 SF (5 Bears) 200 SF Maternity Den Transfers @ 200 SF	Keeper 550 SF LSS 1,310 SF Mech. / Elec. 120 SF Storage 550 SF Freezer 100 SF Chiller 225 SF

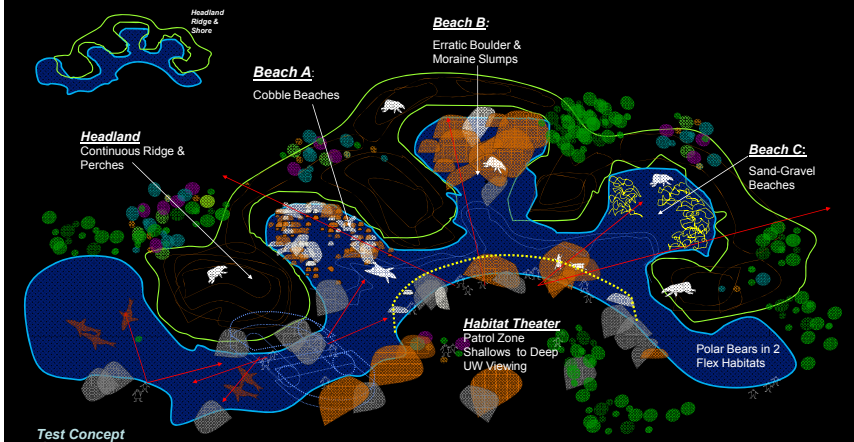




POLAR BEAR – Coastal Shores Hardware Software

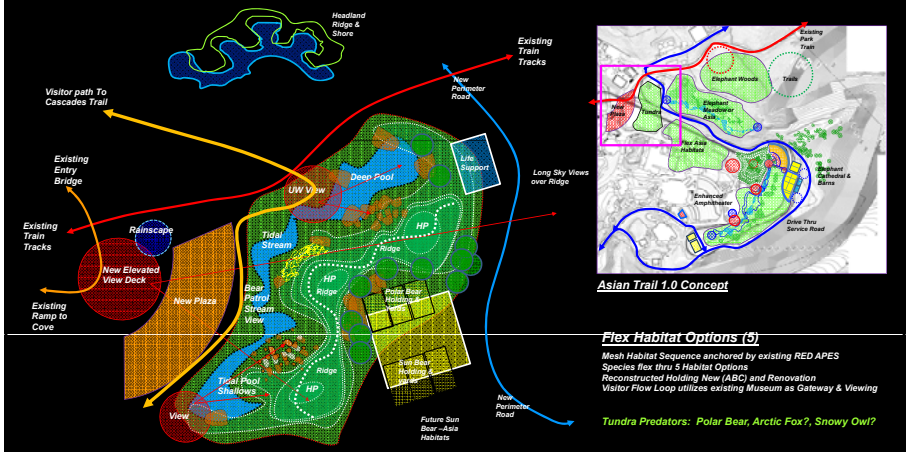


POLAR BEAR – Coastal Shores

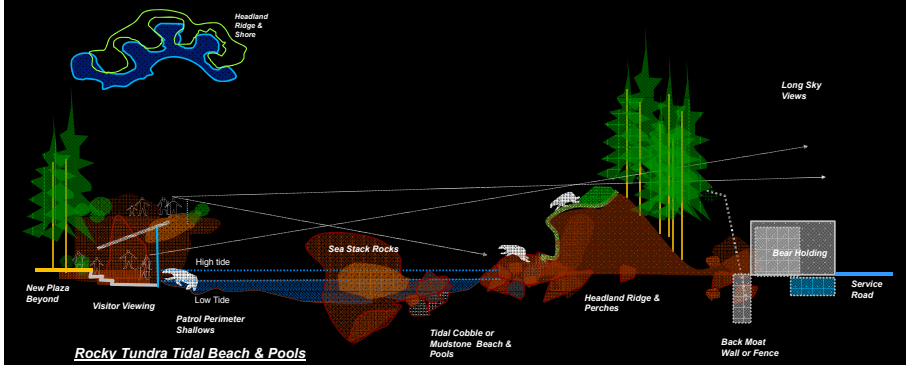


POLAR BEAR – Case Study: San Diego Zoo

POLAR BEAR – Coastal Shores Test Concept



POLAR BEAR – Coastal Shores



SITE CONCEPT 1.0 – New Overlook & Plaza

Gamechangers
- Enhanced Train & New Perimeter Rd
- Ridge Spine Landscapes
- Waterscape Ecology
- Activity Based Exhibits
  - Elephant Cathedral & Hill
  - Flex Asia
  - Polar Bear Ridge
  - New Penguins

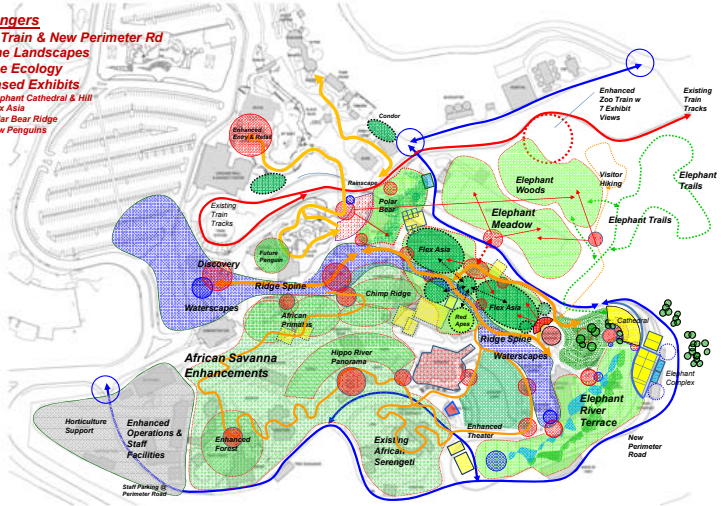


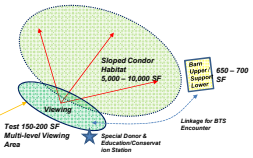
EXHIBIT DESIGN CRITERIA: Condors

From ORZ "Pre-Design Specifications"

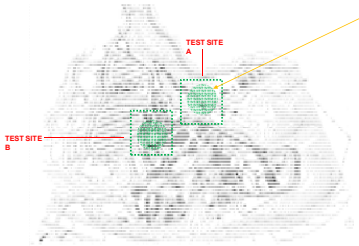
Species	Habitats	Yards	Barn	Support
Condors Target Collection: 3 Birds	100' x 100' x 30' Tall 5,000 – 10,000 SF Sloped Site 2-3 High Perch Areas Water Feature Natural Foliage Sunlight Service Access	None	(4) 10' x 10' x 8' Stalls (Total = 400 SF) 2 Story structure to provide high access Condor entry Rough Total: 650 – 700 SF	Food Prep 80 SF Central Area 80 SF Pump Room 100 SF Storage Office

Objective

*The Condor exhibit will serve as an extension of the zoo's existing conservation and public awareness efforts. Here, the visitors will **see** and **experience** the program's success through a holistic approach that embodies the physical and cultural importance behind this impressive species.*



FUNCTIONAL DIAGRAM
Not to scale



Looking SE
Test Site A at NW Entry

Looking NW
Test Site A at Slope

KEY MAP & TEST STUDY SITES
Not to scale

SITE CONCEPT 1.0 – Case Study: SDZ Condor Ridge

High Volume Mesh Aviary @ SS Woven Wire Mesh
Interpretive Viewing Shelter Below

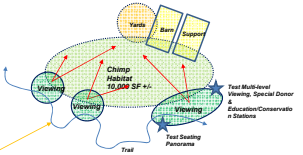
EXHIBIT DESIGN CRITERIA: Primates*

From ORZ "Pre-Design Specifications"

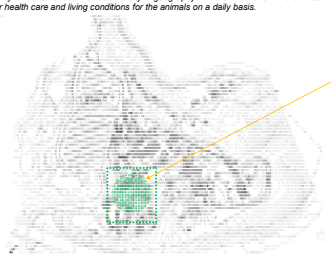
Species	Habitats	Yards	Barn	Support
Chimps (Target Collection: 8 Chimps - 2 Groups)	10,000 SF (8 Chimps) 2" x 2" Mesh Enclosure Water Feature *Does not include Mandrill or smaller Asian Primate criteria (to be shown on separate worksheets)	2,000 SF	600 SF (6 Cages) 1,000 SF (1 Cage) 320 SF Nursery Rough Total: 3,500 – 4,000 SF	Keeper 1,000 SF Food Prep 400 SF Pump Room 270 SF Storage 460 SF Mech./Elec. 80 SF

Objective

The rebuilt exhibit will integrate the Chimps with appropriate species under a forest canopy that provides flexibility in movement as well as diversity in geography. The new facilities will allow zookeepers to provide better health care and living conditions for the animals on a daily basis.



FUNCTIONAL DIAGRAM
Not to scale



KEY MAP & TEST STUDY SITE
Not to scale

Existing Exhibit

Existing Savanna
Test Site Northwest of this Location

EXHIBIT DESIGN CRITERIA: Hippos

From ORZ "Pre-Design Specifications"

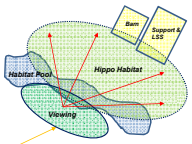
Species	Habitats	Yards	Barn	Support
Hippos (Target Collection: 4 Hippos – 2 Currently)	Expansion Project 4x Existing Size 2,000 SF Pool (70,000 Gallons)	None	Multiple holding at >30 x 40 1 Isolation Room w/ Pool 4 Pools at 20 x 20 (15,000 Gallons Each) Rough Total: Expand Barn to 10,000 SF +/-	Keeper 64 SF Food Prep 100 SF Visitor Gallery 225 SF Electrical 100 SF LSS 3,300 SF Composting 200 SF Storage Restrooms

Objective

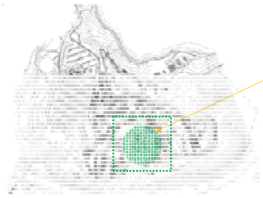
A sustainable approach will be used to expand and renovate the Hippo exhibit. The new systems will emphasize water treatment and recycling, waste composting, and passive heating for pools.

Key Test Criteria

- *Remodel / expand Hippo habitat*
- *Relocate / displace Rhino habitat & holding*
- *Redesign / expand Barn*
- *Other features include Pygmy Goats, Vollum Aviary, and Tree Tops Walkway*



FUNCTIONAL DIAGRAM
Not to scale



KEY MAP & TEST STUDY SITE
Not to scale

Existing Habitat and Pool

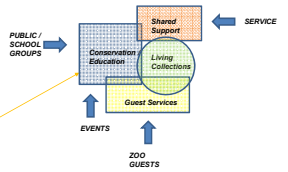
EXHIBIT DESIGN CRITERIA: Conservation Discovery Center

From ORZ "Pre-Design Specifications"

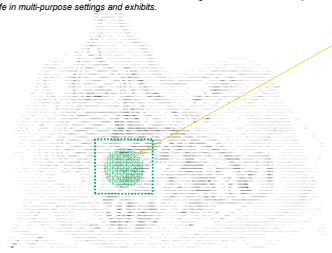
Program Element	Program Spaces
Conservation / Education	Public Space, Nature Exchange, Reception, Meeting Rooms, Auditorium, Catering Kitchen, Classrooms, Offices, Storage, Restrooms, Playground, Campground, Possible Childcare
Shared Support	Event Space, Garage, Laundry Room, Staff Facilities, Library, First Aid, Video Lab, Storage, Recycle Area, Stroller / Bicycle Parking
Living Collections	Butterfly and Insect Labs, Public "Behind the Scenes", Education Animals, Greenhouse, Outdoor Animal Exercise Area, Animal Food Storage / Kitchen
Guest Services	School Group Reception and Locker Room, Public Restrooms, Public Food Service, Custodial Closets, Education Retail Store, Vehicle Parking / Drop-off

Objective

The Conservation Discovery Center will intertwine visitors of all ages with nature through hands-on experiences. The community will have access to learning facilities that strive to inspire and educate about wildlife in multi-purpose settings and exhibits.



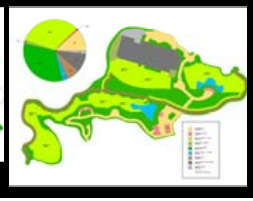
FUNCTIONAL DIAGRAM
Not to scale



KEY MAP & TEST STUDY SITE
Not to scale

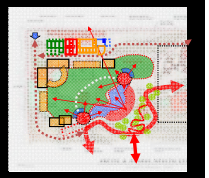
Test Study Site at Existing Administration Vicinity

ELEPHANT – Case Studies



Asia: Elephant Trails 1.0 ORZ 2010 Planning

POLAR BEAR – Case Study: Rocky Shores – Utah's Hogle Zoo



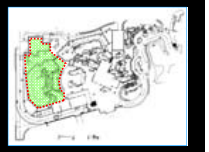
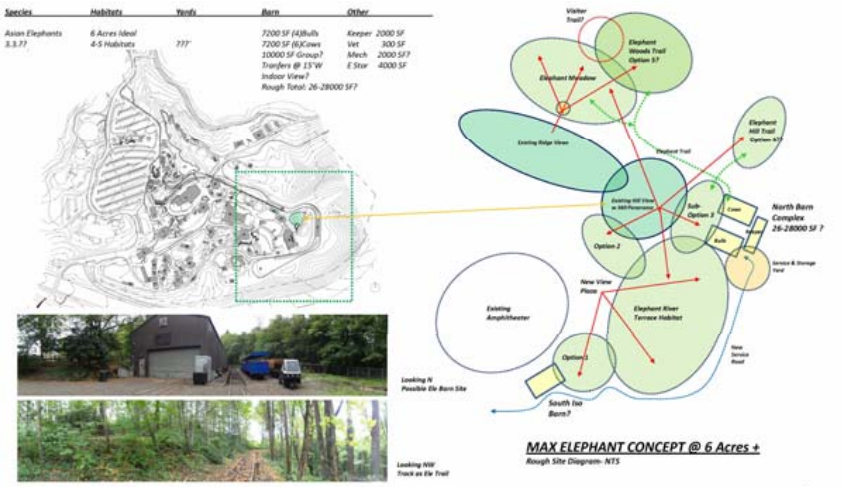


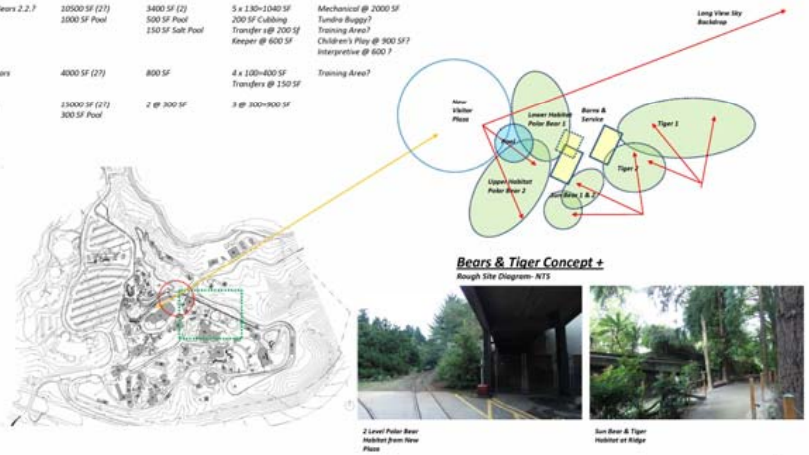
EXHIBIT DESIGN CRITERIA – Asian Elephants



Oregon Zoo Master Plan

Exhibit Design Criteria: Polar Bears Sun Bears & Tigers

Species	Habitats	Yards	Barn	Other
Polar Bears 2.2.?	10500 SF (2?) 1000 SF Pool	3400 SF (2) 500 SF Pool 150 SF Salt Pool	5 x 130=1040 SF 200 SF Cubbing Transfer s@ 200 SF Keeper @ 600 SF	Mechanical @ 2000 SF Tundra Buggy? Training Area? Children's Play @ 900 SF? Interpretive @ 600 ?
Sun Bears	4000 SF (2?)	800 SF	4 x 100=400 SF Transfers @ 150 SF	Training Area?
Tigers	13000 SF (2?) 300 SF Pool	2 @ 300 SF	3 @ 300=900 SF	



Bears & Tiger Concept +

Rough Site Diagram- NTS

2 Level Polar Bear Habitat from New Plaza

Sun Bear & Tiger Habitat at Ridge

2

OREGON ZOO
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COMPREHENSIVE CAPITAL MASTER PLAN

WORKSHOP #2 11. 8. 2010

SRG + clr + ATELIER BREISEITL
Main Street Design KPFF PAE Equilibrium

- Site, Land Use, Circulation
- Waterscapes
- The Train
- The Master Plan Test
- Bond Projects
- Conservation Education
- Summary

INTERPRETIVE AND INFORMATIONAL OPPORTUNITIES

Main Street Design

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ZOO

INTERPRETIVE AND INFORMATIONAL OPPORTUNITIES

ZOO-WIDE INFORMATIONAL PRIORITIES

- Welcome and visit planning
- Wayfinding and orientation

Main Street Design

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ZOO

INTERPRETIVE AND INFORMATIONAL OPPORTUNITIES

ZOO-WIDE INTERPRETIVE THEMES

- Animal well-being and human-animal relationships
- Conservation and stewardship
- Sustainability in action
- Water systems, use and resources

Main Street Design

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ZOO

ZOO-WIDE INTERPRETIVE AND INFORMATIONAL OPPORTUNITIES

- Entrance and arrival
- Major circulation hubs
- Secondary circulation hubs/intersections
- Major walkways
- Secondary pathways

ZOO-WIDE INTERPRETIVE AND INFORMATIONAL OPPORTUNITIES

- Live animal and habitat exhibits
- Conservation Discovery Center
- Train ride
- Retail/foodservice
- Zoo website

ENTRANCE AND ARRIVAL

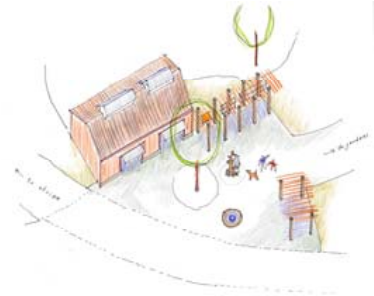
- Identity signage
- Orientation and visit planning (core installation)
- Programs and events announcements
- Wayfinding and directional signage (system overview)
- Introduction to Zoo-wide interpretive themes
- Interpretive play opportunities

MAJOR CIRCULATION HUBS

- Wayfinding and directional signage
- Orientation and visit planning (support)
- Zoo-wide themes (focused interpretation)
- Flexible program presentation/live animal contact venues
- Water features (sculptural and/or naturalistic)
- Interpretive play opportunities

SECONDARY CIRCULATION HUBS/INTERSECTIONS

- Wayfinding and directional signage
- Water features (sculptural and/or naturalistic)



MAJOR WALKWAYS

- Zoo-wide themes (focused interpretation)
- Flexible program presentation/live animal contact venues
- Water features (sculptural and/or naturalistic)
- Interpretive play opportunities

MAJOR WALKWAYS

- Native plant species identification and interpretation
- Interpreted “sneak peaks” into adjacent exhibits/habitats
- Citizen science “observation stations”

SECONDARY PATHWAYS

- Water features (sculptural and/or naturalistic)
- Native plant species identification and interpretation
- Interpreted “sneak peaks” into adjacent exhibits/habitats
- Habitat immersion/adventure play experiences (trails or turn-outs)
- Citizen science “observation stations”

CONSERVATION DISCOVERY CENTER

- Interpretation of Zoo-wide themes (in-depth, interactive)
- Flexible program presentation venues (interior and exterior?)
- Live animal contact venues (interior and exterior?)
- Live animal exhibits (insect zoo, butterfly lab)
- Water features (sculptural and/or naturalistic)
- Interpretive play opportunities

CONSERVATION DISCOVERY CENTER

- Hands-on activities/workshop/learning lab (scheduled and/or drop-in)
- Zoo "conservation research-in-progress" showcase
- Reading room/library
- Citizen science "mission control" (aggregation and display of observations/data)
- Nature Exchange™ (or similar)
- Portal to Intertwine

TRAIN RIDE

- Unique live animal viewing opportunities
- Native habitat viewing opportunities
- Audio programs and/or live interpretation

RETAIL/FOODSERVICE

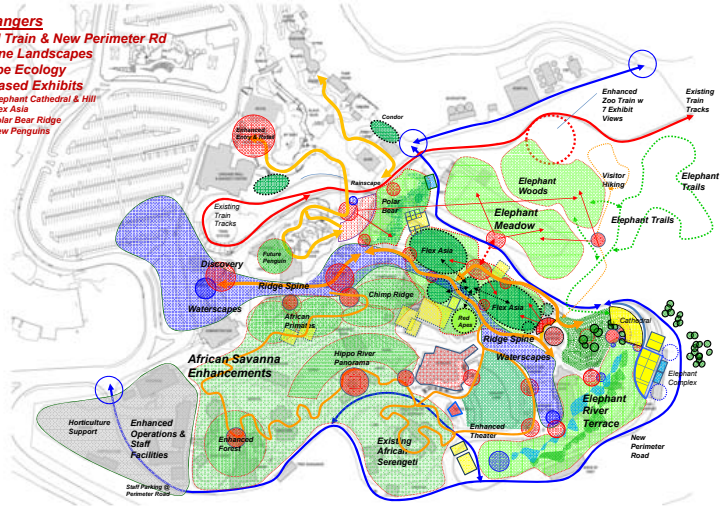
- Themed environments
- Changing exhibits (Zoo work-in-progress, "What's new at the Zoo?")
- Curated menu and merchandise selections
- Display and informational graphics

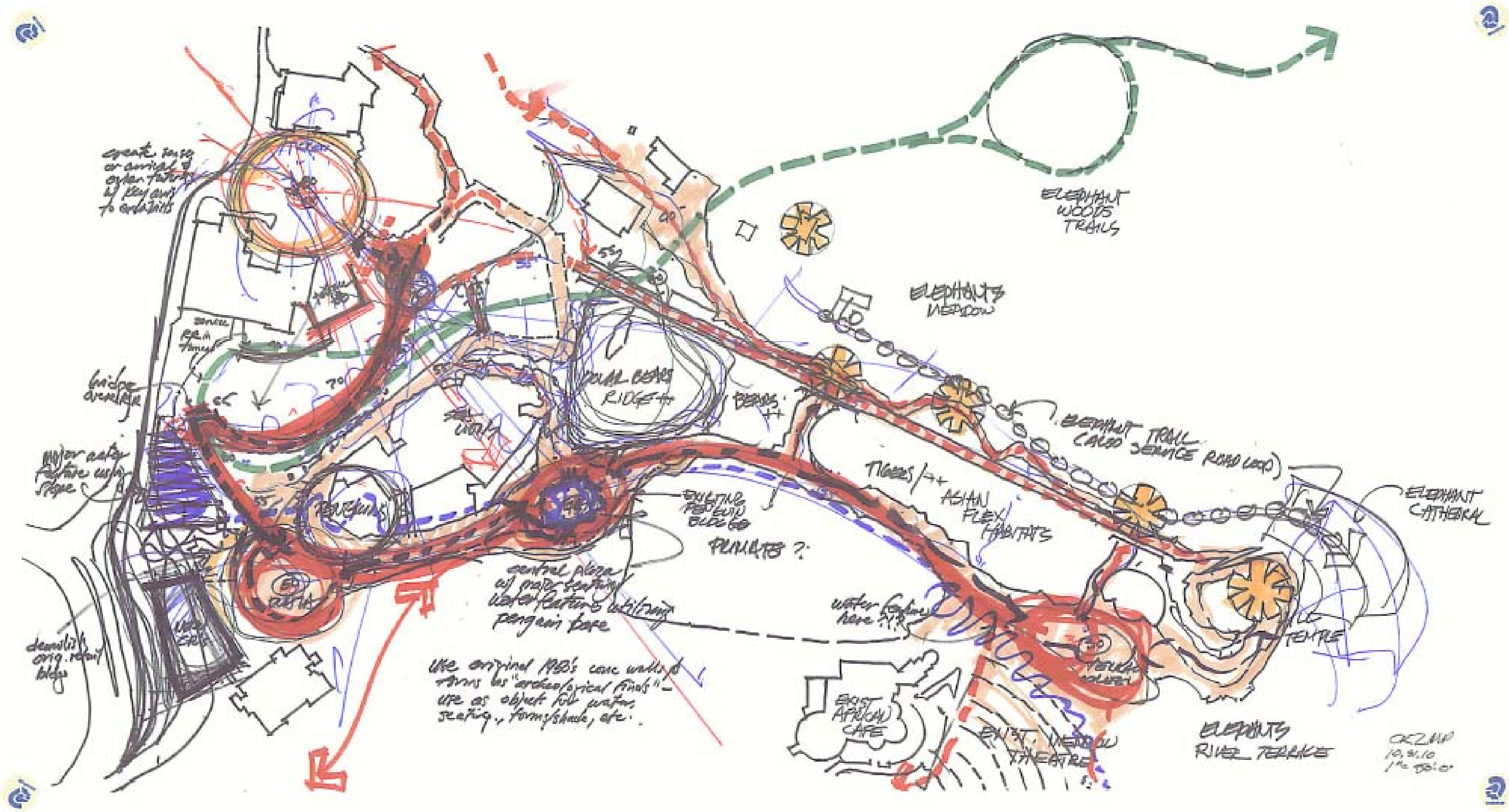
OREGONZOO.ORG

- Access to in-depth information
- Keeper and staff interaction and communications
- Links to local and global conservation initiatives
- Citizen science “social network” hub

- Site, Land Use, Circulation
- Waterscapes
- The Train
- The Master Plan Test
- Bond Projects
- Conservation Education
- Summary

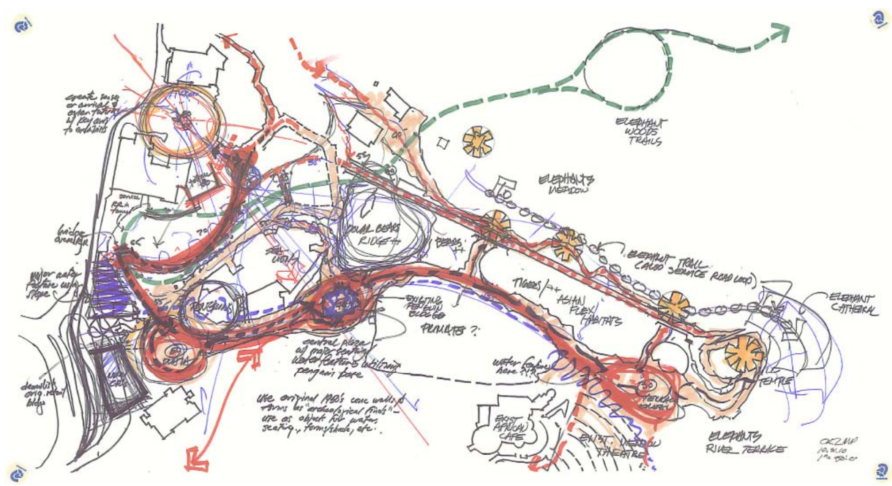
Gamechangers
Enhanced Train & New Perimeter Rd
Ridge Spine Landscapes
Waterscape Ecology
Activity Based Exhibits
Elephant Cathedral & Hill
Flex Asia
Polar Bear Ridge
New Penguins

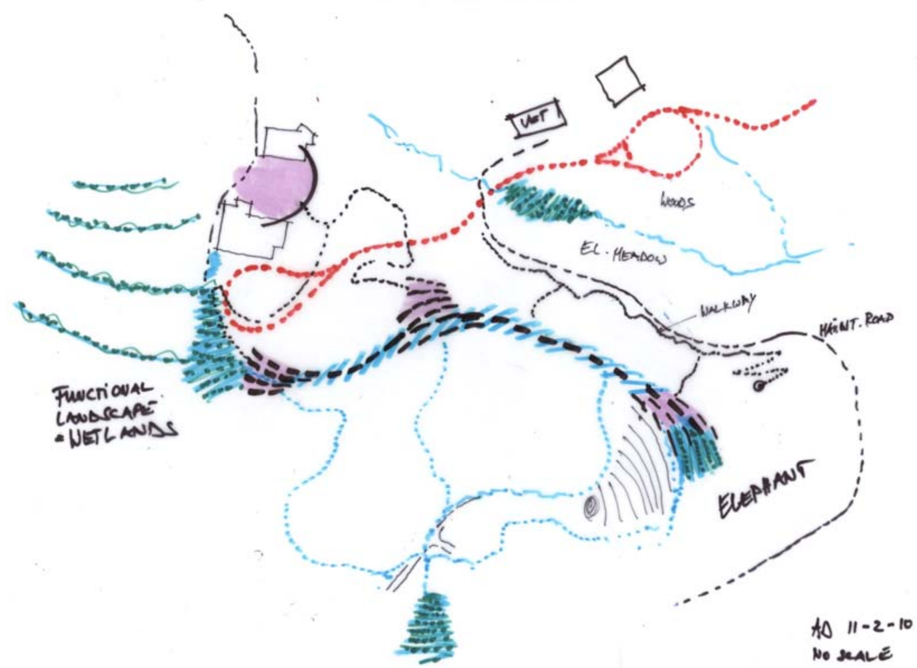




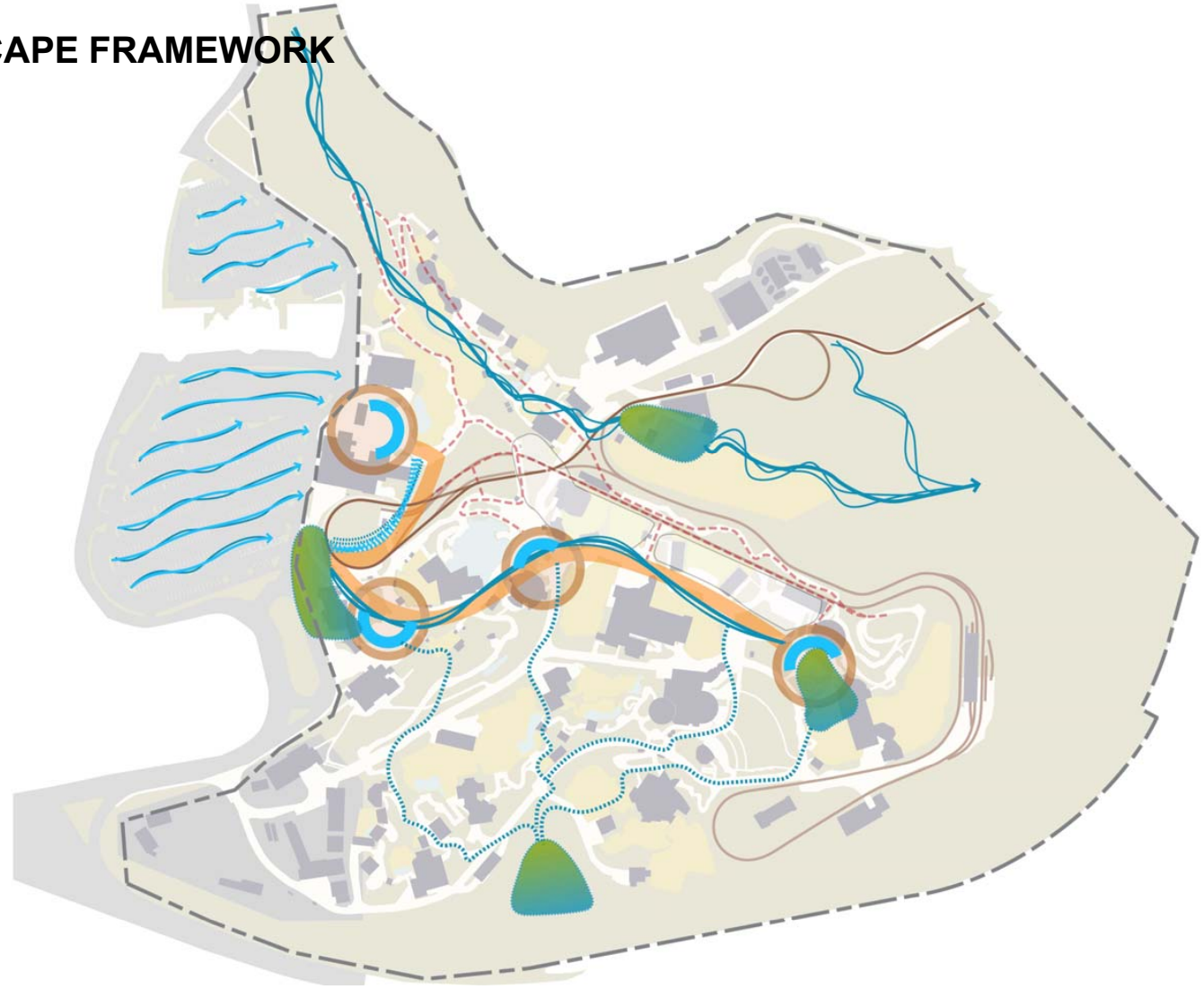
SRG + clr + ATELIER DREISEITL

OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010

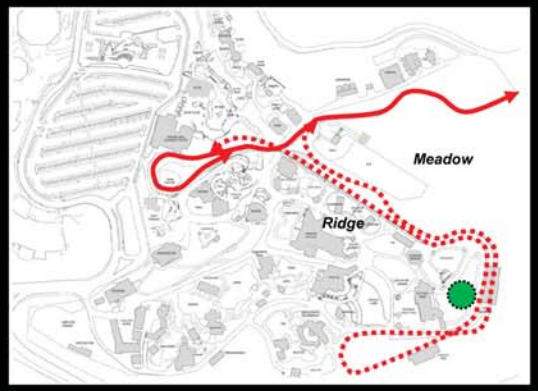

ELEPHANT WOODS TRAILS
ELEPHANTS MEADOW
ELEPHANT CATHEDRAL
ELEPHANTS RIVER TERRACE


VET
WOODS
EL. MEADOW
WALKWAY
MAINT. ROAD
FUNCTIONAL LANDSCAPE + WETLANDS
ELEPHANT
AO 11-2-10
NO SCALE

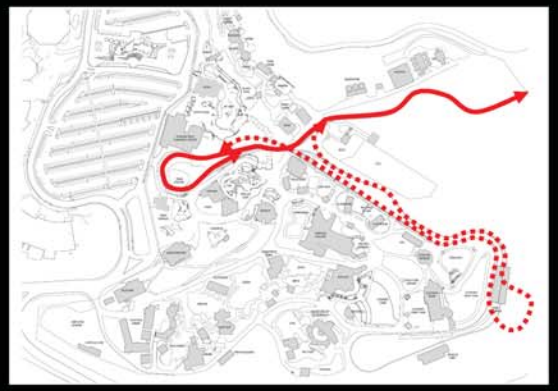
WATERSCAPE FRAMEWORK



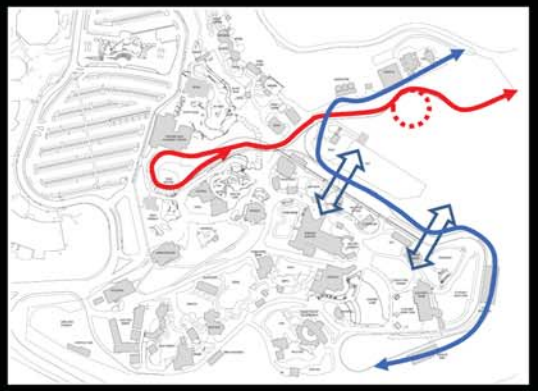
TRAIN LOOP OPTIONS



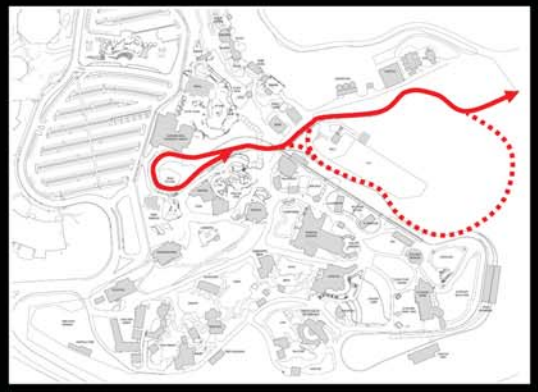
Existing Train



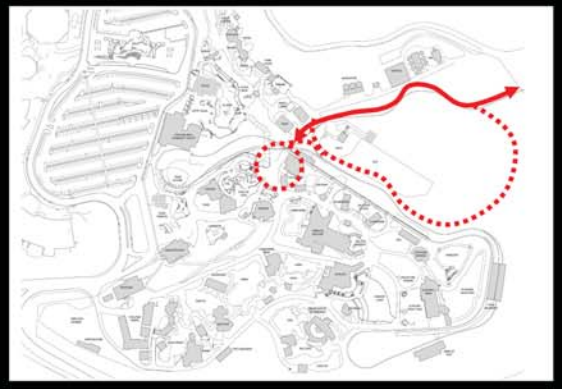
Train A: Shortened Zoo Loop



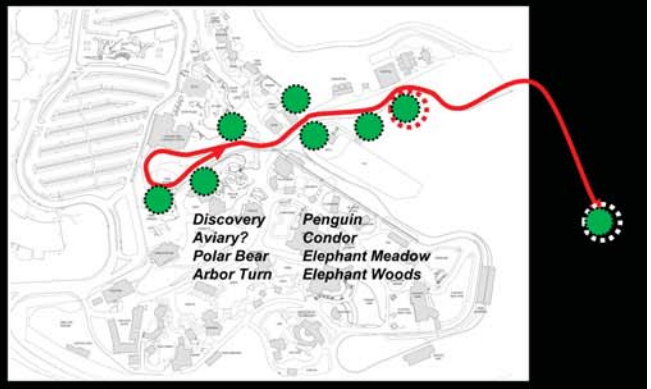
Train B: ExistingTrestle as Loop



Option C: New Trestle Loop



Option D: Land Grab: New Station



Option E: Enhanced Experience

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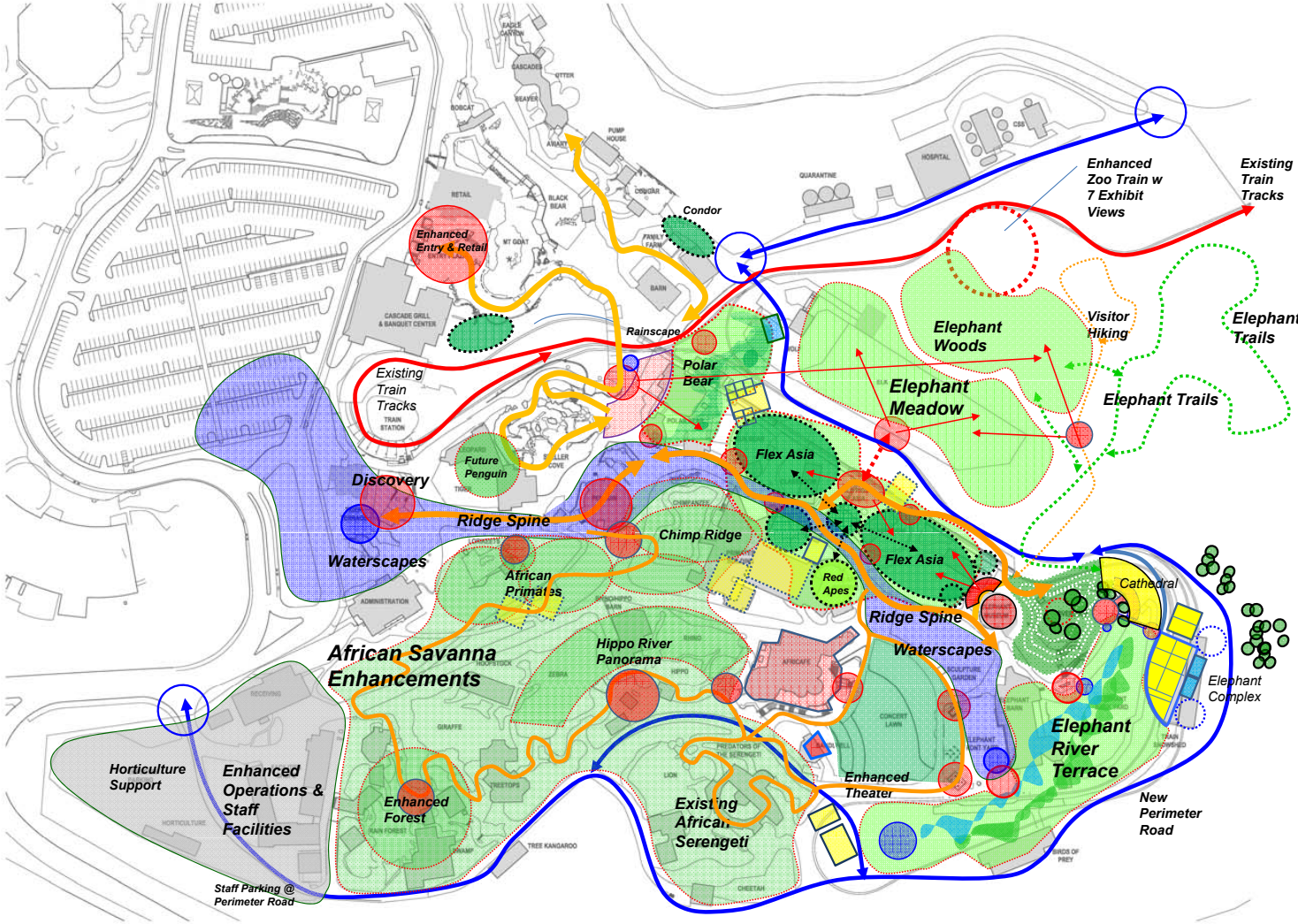
WORKSHOP #2 11. 8. 2010

OREGON ZOO
A SERVICE OF METRO


Enhanced Zoo Train w 7 Exhibit Views
Existing Train Tracks
Condor
Enhanced Entry & Retail
Rainscape
Visitor Hiking
Elephant Trails
Elephant Woods
Polar Bear
Elephant Meadow
Elephant Trails
Existing Train Tracks
Flex Asia
Future Penguin
Discovery
Ridge Spine
Chimp Ridge
Flex Asia
Waterscapes
African Primates
Red Apes
Cathedral
Ridge Spine
Hippo River Panorama
Waterscapes
African Savanna Enhancements
Elephant Complex
Elephant River Terrace
Horticulture Support
Enhanced Operations & Staff Facilities
Enhanced Forest
Existing African Serengeti
Enhanced Theater
New Perimeter Road
Staff Parking @ Perimeter Road

ASIAN TRAILS 1.0

Elephant Trails
Meadow & Terrace Habitats
Hiking Trails for Elephants AND Visitors
Elephant Cathedral as Group Showplace
Male & Cow Barns & Cathedral Group Room
Hill Temple View Trailscape
Hill Theater View & UW lookout
Water Pools & Creeks Throughout

Flex Asia: Tigers, Sun Bear, Leopard
Red Apes & Primates OH Links
Museum as Gateway & Interpretive

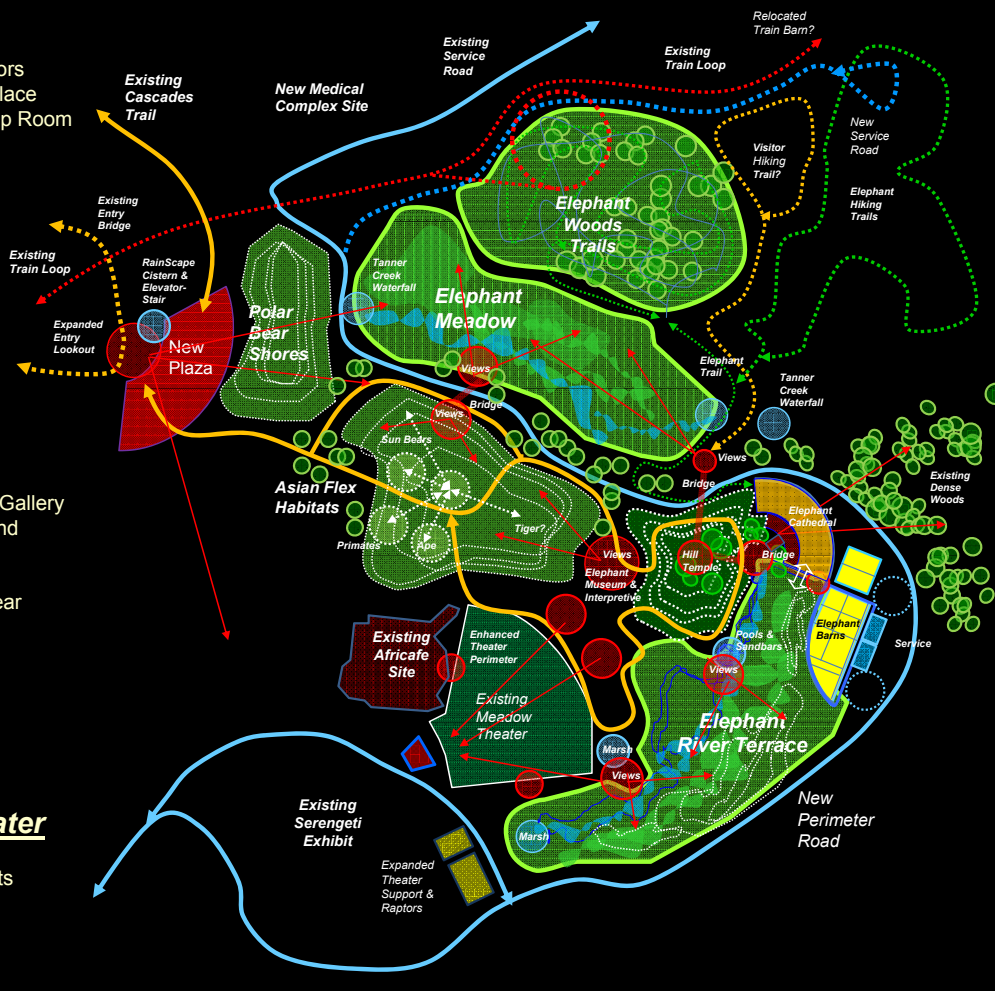
Perimeter Service Road
Truck Access thru to Tundra
Expanded Service for Theater

Polar Bear Shores
Tidal Stream Edge & UW Views
Polar Bear Perimeter Viewing & UW Gallery
Long views to Headland Ridge Beyond

New Lookout Plaza
Expanded Entry Lookout Views to Bear Ridges & Beyond
New Elevator & Stairs W Cistern

Waterscapes
Cisterns, Wetlands & Fountains
Weather Activated Gargoyles
Wind Vanes, Turbines & Solar

Enhanced Meadow Theater
Expanded Support Holding
Enhanced Special View Zones-Events
Relocated Catering
Expanded Truck Loop Access



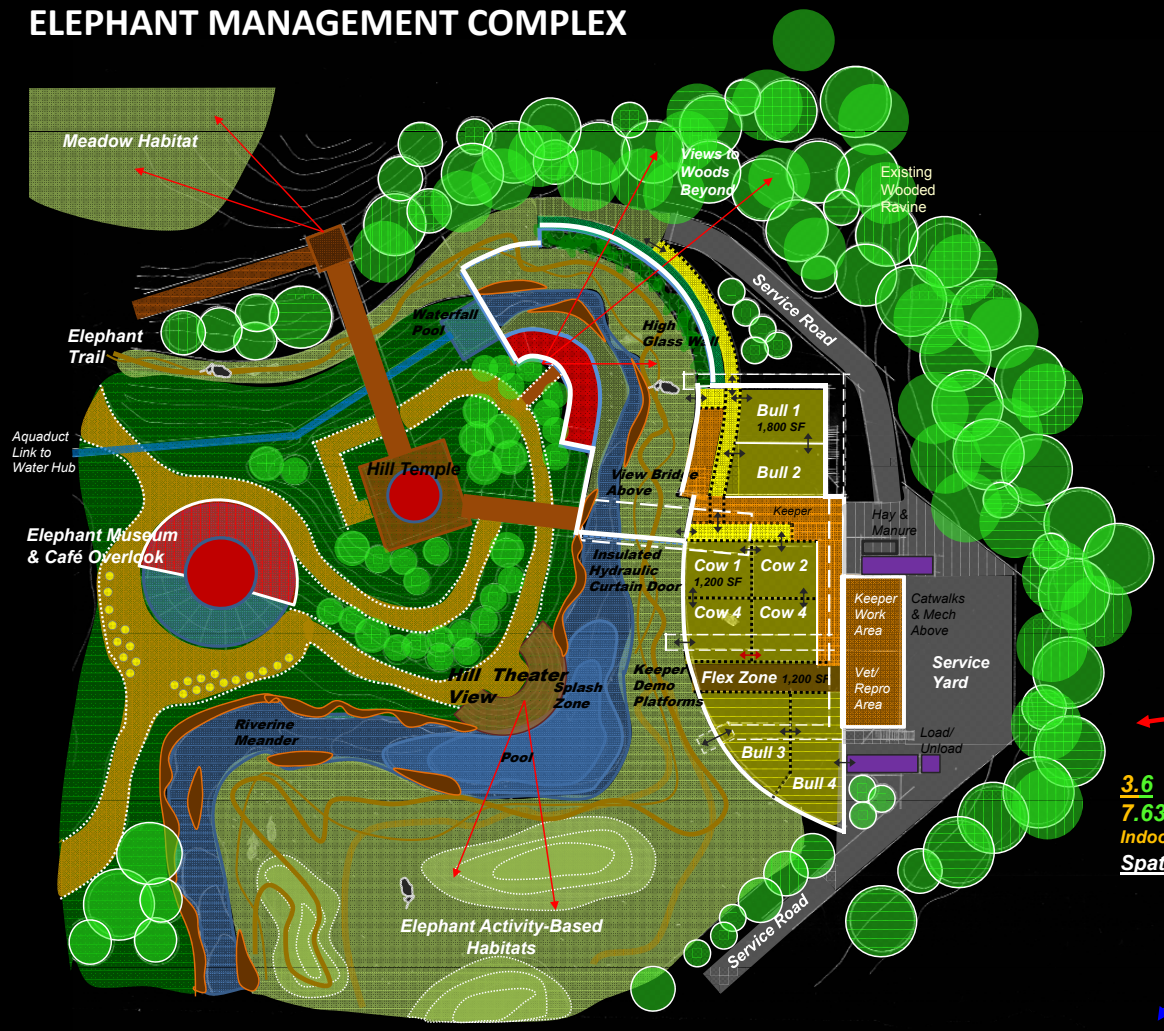
Elephant Trail Drivers

Train Routing
Elephant Program
Hill Panoramic Hub
Perimeter Service

SRG + clr + ATELIER DREISEITL

OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010

ELEPHANT MANAGEMENT COMPLEX



Elephant Management Complex

Elephant Cathedral @	10,500SF
Bull & Cow Flex Barns @	18,500 SF (w Transfers)
Keeper, Med. & Support @	2,500 SF
Total SF	31,500 SF

Site Features

Hill Temple View Trail & Landscapes
Ravine Bridges thru to Viewing Towers & Trails
Extensive Browse Trails & Harvesting by Elephants
Hill Theater View & UW lookout Panorama
Extensive Riverine Waterfalls, Pools & Sandbars

Perimeter Service Road

Limited Truck Access thru from Gate A
Use managed Concurrently w Elephant Trail

3.6
7.63
Indoor. Outdoor
Spatial Index

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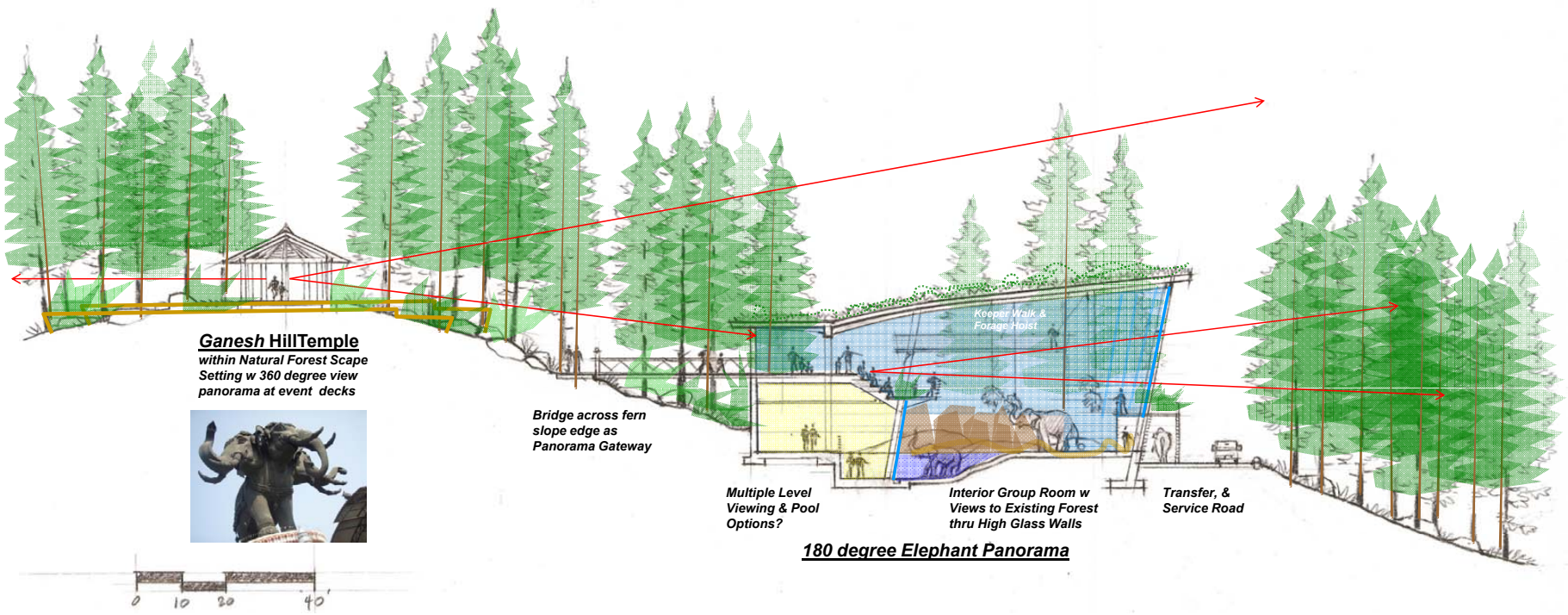
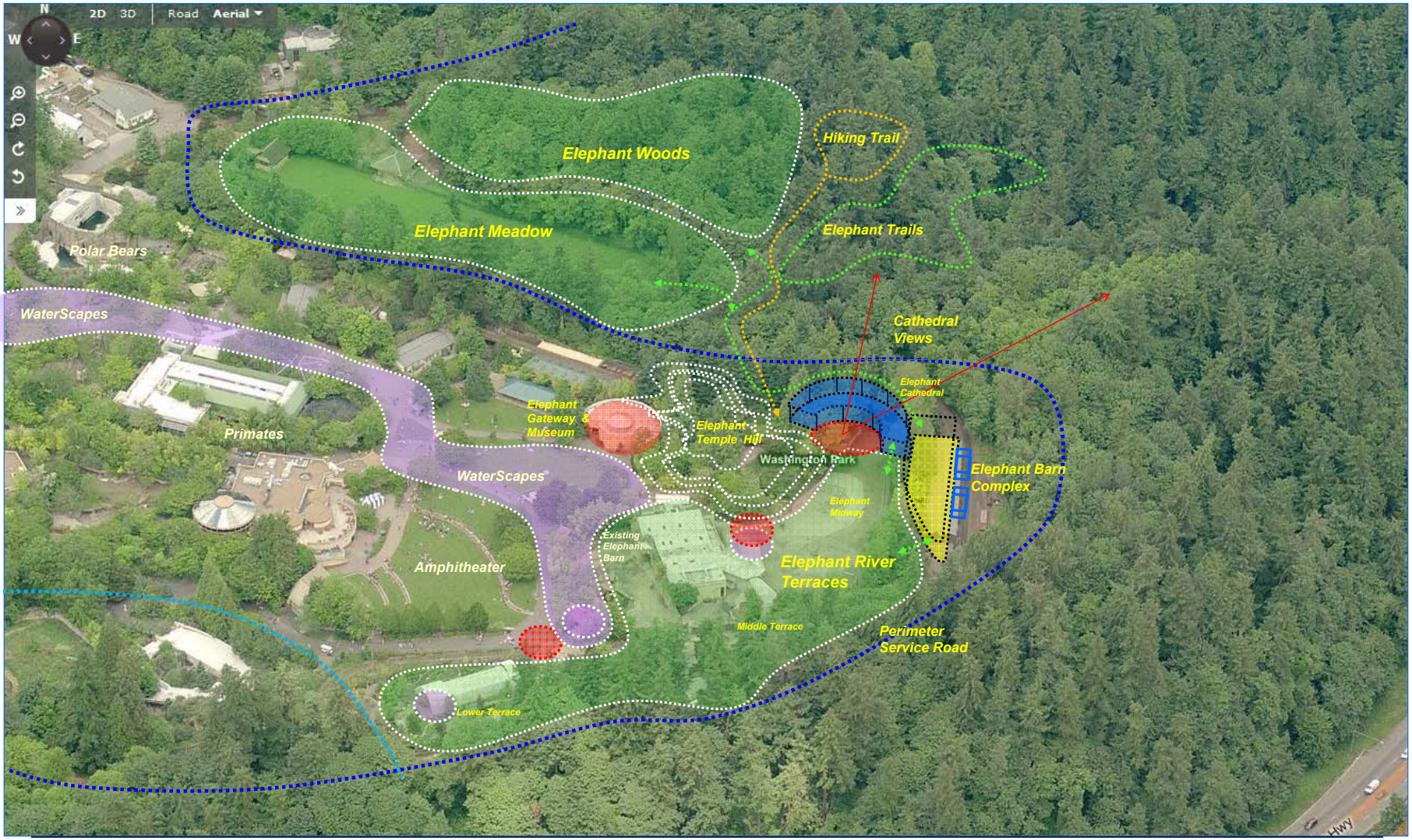
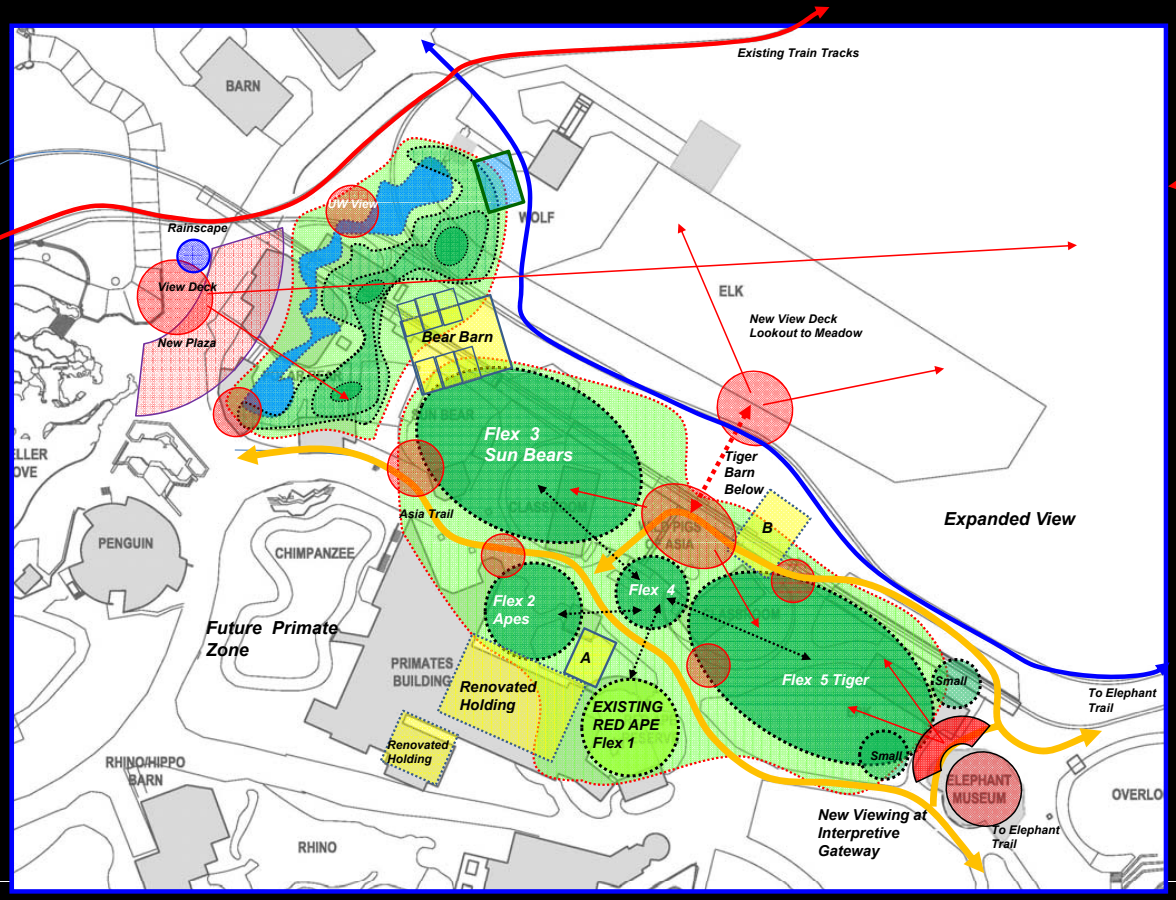
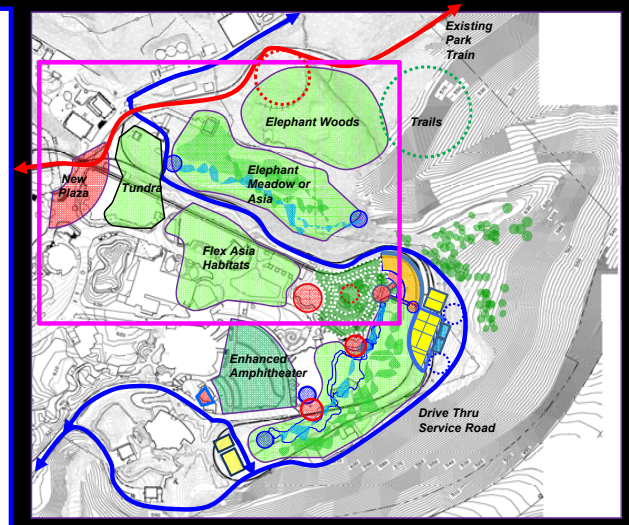
THE ELEPHANT CATHEDRAL




N
W
E
2D
3D
Road
Aerial
Elephant Woods
Hiking Trail
Elephant Meadow
Elephant Trails
Polar Bears
WaterScapes
Cathedral Views
Elephant Cathedral
Elephant Gateway & Museum
Elephant Temple Hill
Primates
Washington Park
Elephant Barn Complex
WaterScapes
Elephant Midway
Existing Elephant Barn
Amphitheater
Elephant River Terraces
Middle Terrace
Perimeter Service Road
Lower Terrace
Hwy

FLEX ASIA & POLAR BEAR – Test Concept





Asian Trail 1.0 Concept

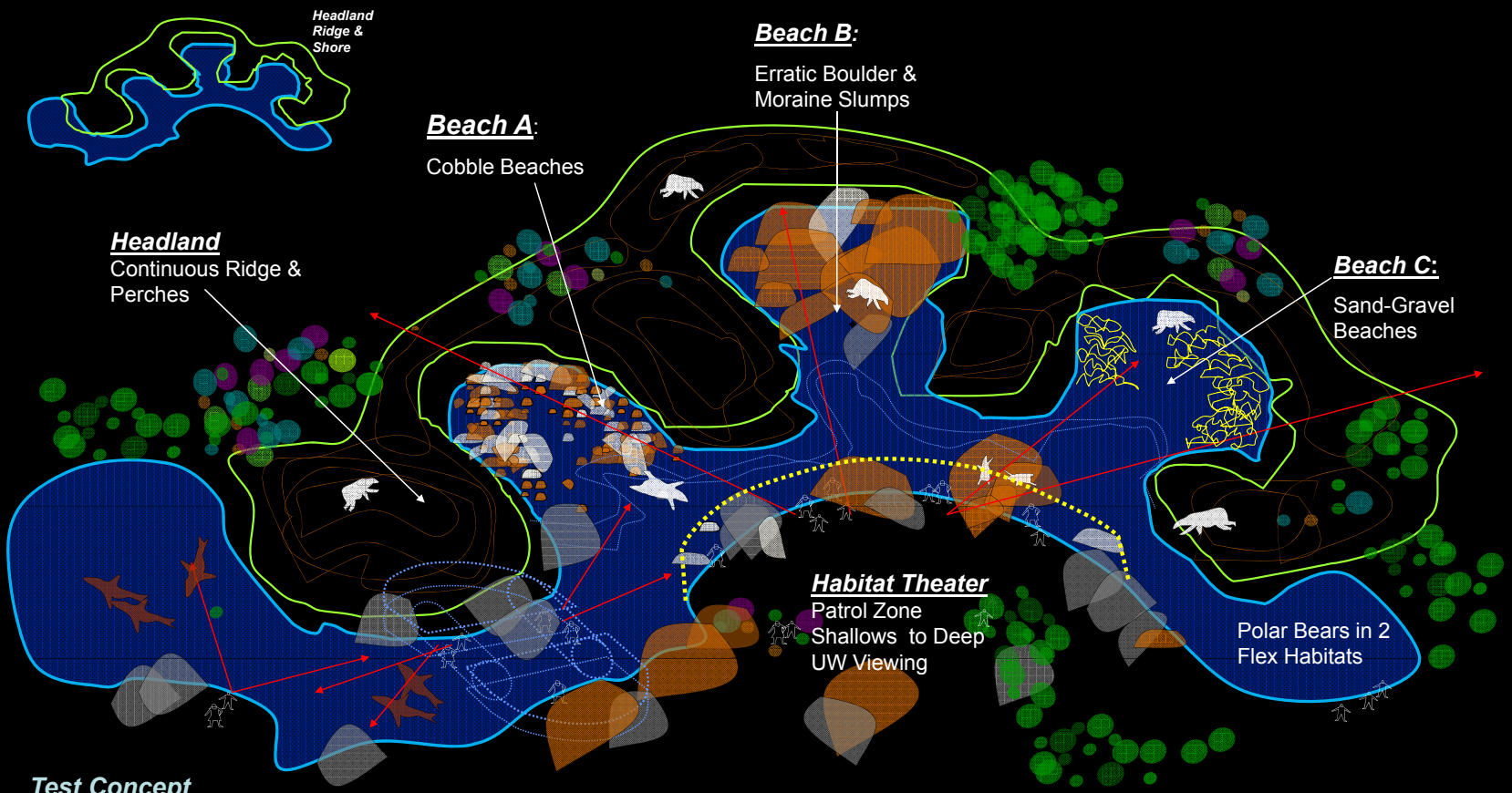
Flex Habitat Options (5)

Mesh Habitat Sequence anchored by existing RED APES
Species flex thru 5 Habitat Options
Reconstructed Holding New (ABC) and Renovation
Visitor Flow Loop utilizes existing Museum as Gateway & Viewing

Predators: Tiger, Sun Bear, Leopard, Small Cats
Primates: Orangutans, Gibbons, Langurs , etc.
Other?: Muntjac, Lizards, Snakes, Turtles, Birds?

Polar Bears: Headland Ridge & Bay Habitat

POLAR BEAR – Coastal Shores



Test Concept

Complex Headland-Beach

SUSTAINABILITY
+
INFRASTRUCTURE
Workshop #2

TOPICS

1. Community Vitality
2. Access + Mobility
3. Air Quality + Carbon
4. Energy
5. Water
6. Habitat + Ecosystem Function
7. Materials Management/Food Systems

AIR QUALITY + CARBON

Metro sustainability value

We are leaders in demonstrating resource use and protection in a manner that enables people to meet current needs without compromising the needs of future generations, and while balancing the needs of the economy, environment and society.

Adopted by Metro Senior Leadership Team July 2010

TRIPLE BOTTOM LINE

Metro's goal is to

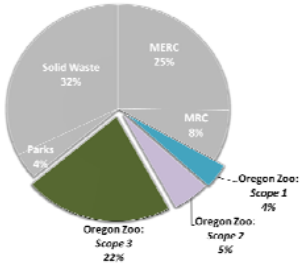
Reduce direct and indirect greenhouse gas emissions (CO_2e) 80% below 2008 levels by 2050.

Greenhouse Gas Emissions at the Oregon Zoo

Scope 1 Emissions: Vehicle and non-mobile fuel combustion (natural gas); refrigerants

Scope 2 Emissions: Electricity

Scope 3 Emissions: Business travel; embodied emission in material goods purchased and services contracted; landfilled solid waste; employee commute



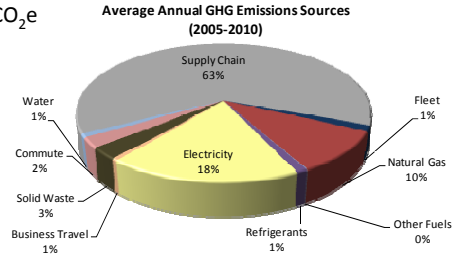
Zoo contributes 31% of Metro's total greenhouse gas emissions

Equivalent to 3,300 cars on the road for one year

Greenhouse Gas Emissions at the Oregon Zoo

Largest Contributors

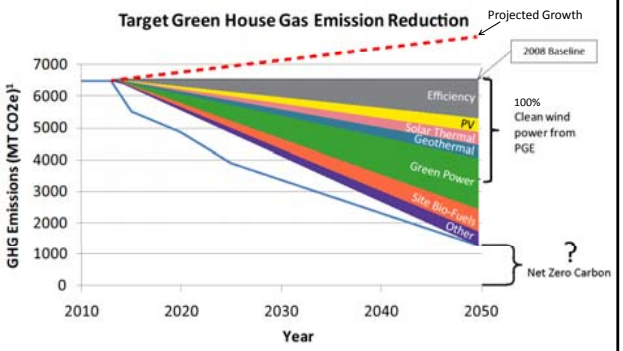
1. Supply Chain (Scope 3): 11,000 MT CO_2e
2. Electricity (Scope 2): 3,119 MT CO_2e
3. Natural Gas (Scope 1): 1,763 MT CO_2e



Greenhouse Gas Emissions at the Oregon Zoo

Target Reduction (Non-Supply Chain Only)

2013: Zero increase
2015: 15% reduction compared to 2008 levels
2020: 25% reduction compared to 2008 levels
2025: 40% reduction compared to 2008 levels
2050: 80% reduction compared to 2008 levels



(MT CO2e) = Metric Tons of CO2 Equivalent

Greenhouse Gas Emissions at the Oregon Zoo

Potential Carbon Reduction Strategies

Energy Efficiency

Offsite Green Wind Power

Solar Thermal

On-Site Renewable Energy

Combined Heat & Power

Geothermal

Waste to Energy

ENERGY

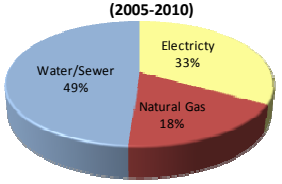
Annual Energy Use and Cost

Utility	Avg Annual Use	[1]Avg Annual CO2e Emission (MT)	Avg Annual Cost	% of Total Cost
Electricty	7,571,000 kWh	3,119 MT	$ 572,896	33%
Natural Gas	311,400 Therm	1,763 MT	$ 317,415	18%
Water/Sewer	75,195,000 Gal	156 MT	$ 852,381	49%
Total			*$ 1,742,693*	

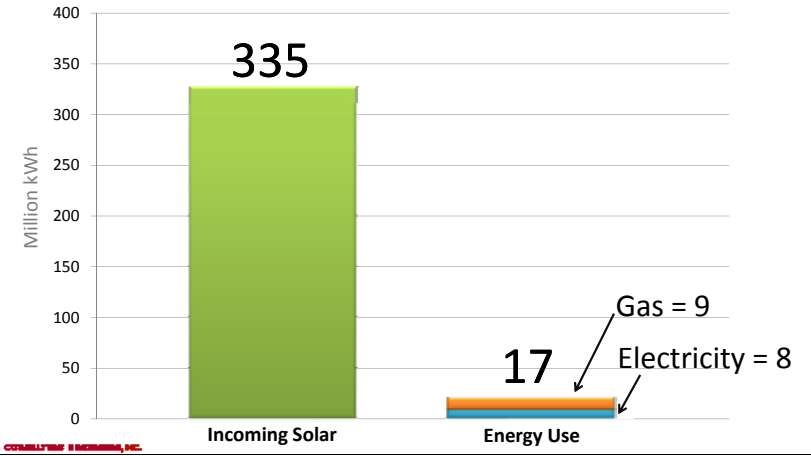
PGE
Portland General Electric

NW Natural®

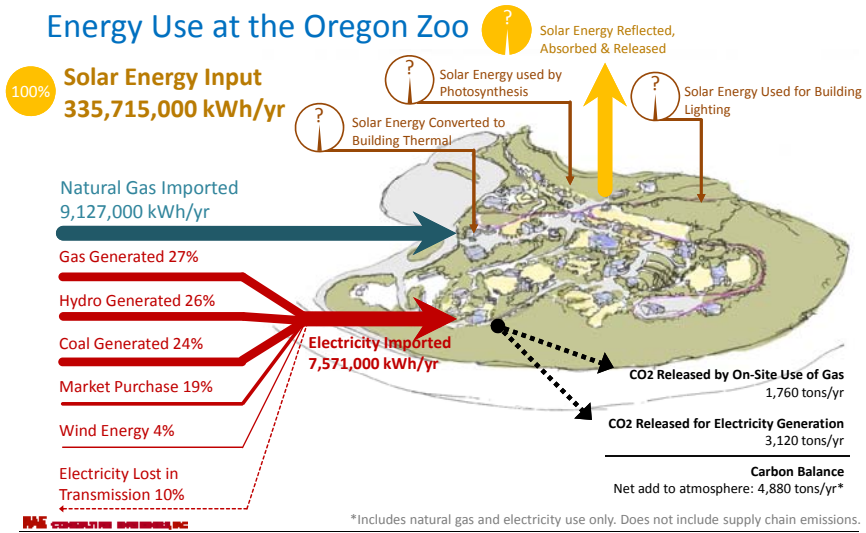
Average Annual Utility Cost Percentages (2005-2010)



Solar Budget at the Oregon Zoo



Energy Use at the Oregon Zoo



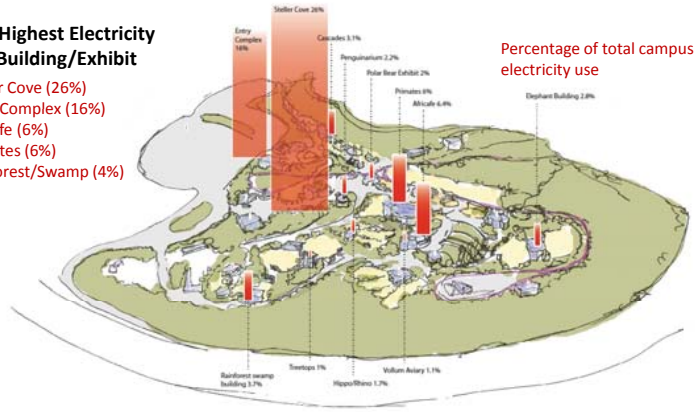
*Includes natural gas and electricity use only. Does not include supply chain emissions.

Electricity Use at the Oregon Zoo

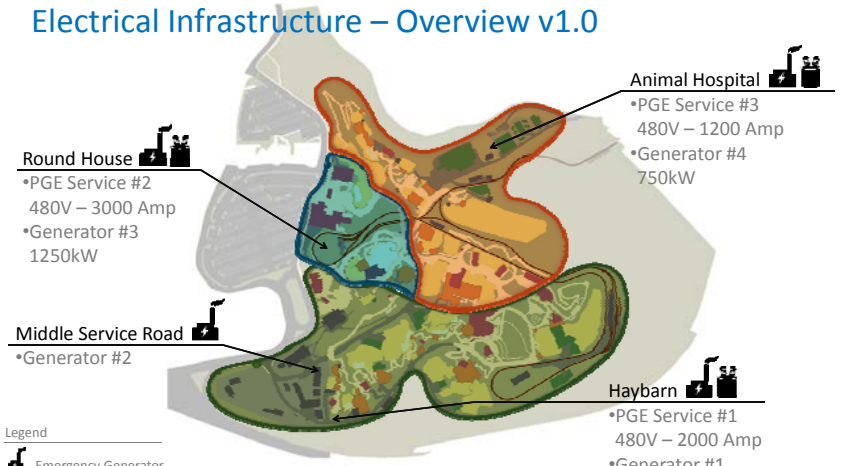
TOP 5: Highest Electricity Use by Building/Exhibit

1. Steller Cove (26%)
2. Entry Complex (16%)
3. Africafe (6%)
4. Primates (6%)
5. Rainforest/Swamp (4%)

Percentage of total campus electricity use

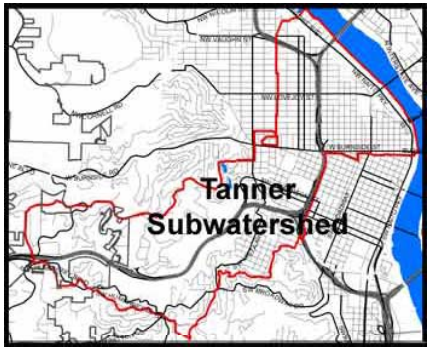


Electrical Infrastructure – Overview v1.0



WATERSHED CONTEXT

the subwatersheds of Portland's Willamette watershed, BES, http://www.portlandonline.com/bes



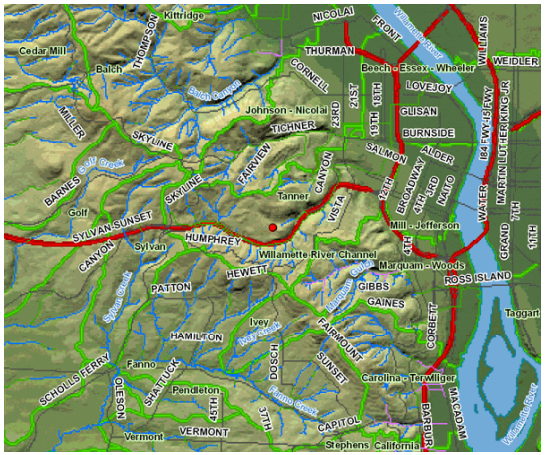
Tanner Creek subwatershed, BES, http://www.portlandonline.com/bes

HISTORIC COURSE OF TANNER CREEK

1866 map of Portland showing historic course of Tanner Creek, BPS, http://www.portlandonline.com/bps

TANNER CREEK SEWER

TANNER CREEK – CURRENT CONDITIONS



current watersheds and surface waters, COP GIS, http://www.portlandmaps.com

UPSTREAM DRAINAGE BASINS

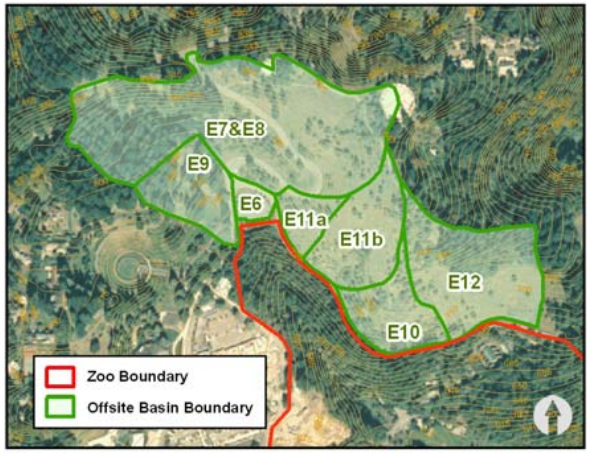
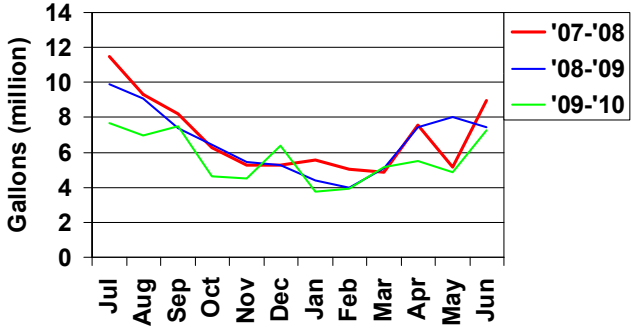
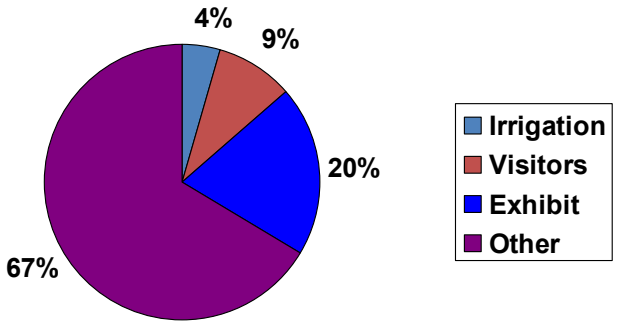


Figure 4-2: Offisite Contributing Areas, p. 39, *OZSWMP*

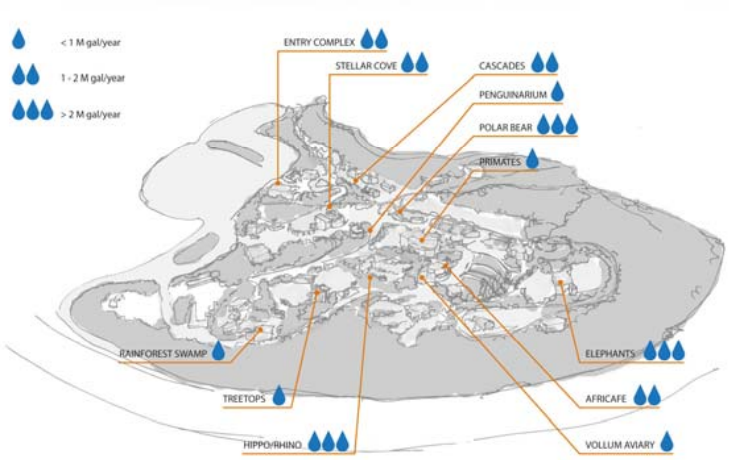
MONTHLY WATER USE



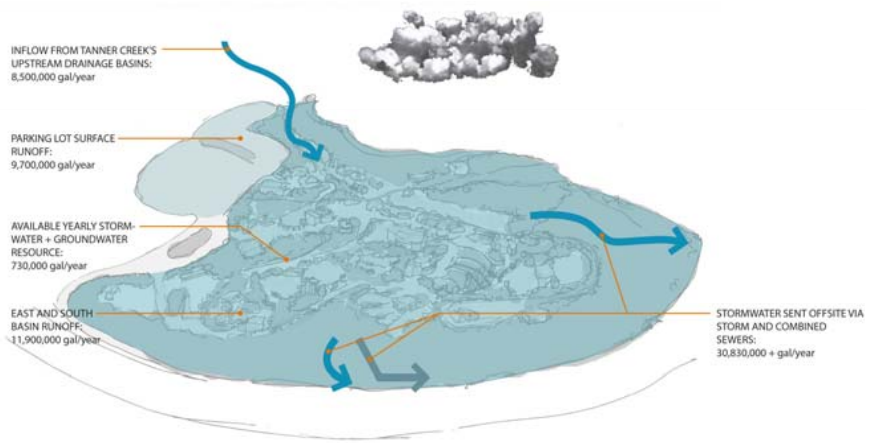
2007/2008 WATER USE ALLOCATION

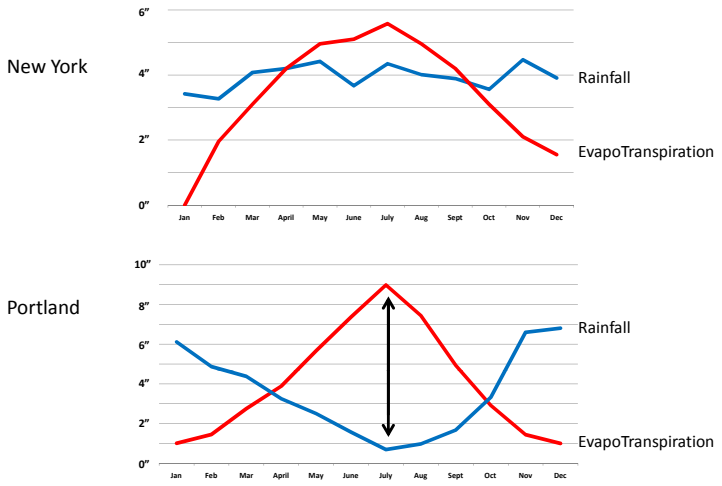


WATER USE



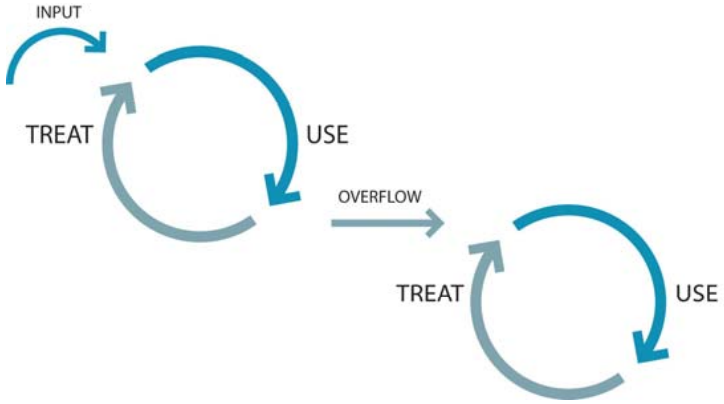
YEARLY WATER RESOURCE



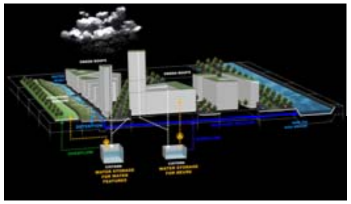


WATERSCAPE FRAMEWORK

WATERSCAPE FRAMEWORK CONCEPT



NETWORKED WATER RESOURCE



OREGON ZOO COMPREHENSIVE CAPITAL MASTER PLAN
WORKSHOP #2 11. 8. 2010

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	Vision	Intent	Goals	Contacts	Targets	Strategy
Community Vitality	Healthy, equitable and vital communities with active and diverse participation	Relationships between social and physical infrastructure for the well being of the community	Fair investment and development distribution. Promote social infrastructure	**•SRG - Emily Dawson** • Metro - Jonathan Sheehan (Cons Ed) • Zoo - Doug Strickler, Chris Massey	• XX% of construction contract with Oregon-owned companies • Partnerships with adjacent institutions to enhance visitor experience and strengthen sense of community.	
Access + Mobility	Healthy, clean and affordable transportation options	Effective active and shared transportation options to zoo for all demographics	Prioritize active transportation, reduce vehicle miles, increase clean, low carbon transportation access	**•SRG - Emily Dawson** • AD - Nathan Hilmer • Metro - Tom Kloster (Regional Travel), Lake McTighe (Active Trans) • Zoo - Ivan Ratcliff, Doug Strickler, Chris Massey	• Increase active and shared transportation access by XX% by 20XX • Reduce necessary car parking	
Air Quality + Carbon	Beyond carbon neutrality and healthy air quality	Have no negative impact on climate change and local airsheds	Reduce CO2 emissions to 80% below 2008 levels by 2050	**•PAE - Scott Bevan** • AD - Nathan Hilmer • SRG - Emily Dawson • Metro - Molly Chidsey • Zoo - Chris Massey	• 2013: Arrest GHG emissions • 2015: 15% reduction in GHG emissions • 2020: 25% reduction in GHG emissions • 2025: 40% reduction in GHG emissions	• Reduce GHG emissions from building operations, maintenance, and siting trough energy efficiency and resource conservation. • Purchase green power (clean wind) from PGE • Fossil-fuel free? • Policy
Energy	Net Zero energy usage annually	Provide energy resources to eliminate all negative impacts associated with energy use.	A realizable, detailed strategy to reduce net energy use over a given timeline	**•PAE - Scott Bevan** • SRG - Emily Dawson • TJP • Metro - Molly Chidsey • Zoo - Chris Massey	• Net zero energy use by 2050	• Energy efficiency • Purchase green power (clean wind) from PGE • On-site renewable energy • Bio-fuels • Waste to energy strategies
Water	Water, in all its forms, meets both natural and human needs	Achieve a balance between natural and human water needs that does not compromise watershed health	Reduce water consumption, reuse water resources, manage storm and sanitary discharge	**•KPFF - Paul Dedyo** • AD - Nathan Hilmer • TJP • Metro - Molly Chidsey • Zoo - Lee Campbell, Chris Massey	• Reduce water use 50% below 2008 levels by 2025 • Reduce water usage at Hippo & Penguin Exhibits 80% below 2008 levels • Separate storm water from sanitary flows • Reduce water usage by 60% below 2008 levels by 20XX (~86.4M gallons per 2010 Stormwater Master Plan) • Establish water tracking and reporting system. Include all submeters. • Maintain or improve watershed health of Tanner Creek	• Maximize water conservation • Modify and improve O&M procedures • Implement visible and integrated water management strategies • Separate on-site stormwater to mitigate new discharge to Tanner creek and supplement water source • Meet 100% non-potable water demands with on-site systems • Landscape: native, drought tolerant • Exhibits - closed loop water systems • Improve existing infrastructure to improve efficiency
Habitat + Ecosystem Function	Integrate built and natural environments for healthy local ecosystems	Achieve a balance between natural and human needs that does not compromise ecosystem health	Protect, regenerate, and manage habitat and ecosystem function at all scales, within and beyond the zoo	**•AD - Nathan Hilmer** • KPFF - Paul Dedyo • Metro - Jonathan Soll (science + stewardship), Heather Kent (Neighborhoods) • Zoo - Brent Shelby, Chris Massey	• Zero net loss of biodiversity and productive, healthy habitat for forests and riparian areas by 2025 • Arrest and begin to reduce effective total impervious area. • Create a habitat master plan with specific metrics and management strategies	• Zero net gain in effective impervious area • Constructed wetlands and non-exhibit native plant environments
Materials Management/Food Systems	Recover all waste for recycling or composting, and reduce overall generation of waste.	Eliminate negative environmental impacts of materials and products that flow through the zoo	Eliminate waste producing practices, minimize virgin materials and toxins, use salvaged and recycled materials, capture organic waste potentials	**•SRG - Emily Dawson** • AD - Nathan Hilmer • KPFF - Paul Dedyo • PAE - Scott Bevan • Metro - Paul Ehinger (solid waste) • Zoo - Michael Weatherman, Chris Massey	• Recover 50% waste for recycling or compost by 2013 • Recover 75% waste for recyling or compost by 2015 • Reduce waste generated 10% from baseline by 2015 • Recover 90% waste for recycling or compost by 2020 • Recover 100% waste for recycling, compost or other sustainable waste treatment method by 2025.	• bio-filtration, nutrient utilization • wate to energy • Establish monthly waste and recycling reporting by 2013 • Develop long-term waste generation targets by 2015 • Advance efforts to reduce overall waste generation by 2020
Toxics	Zero discharge of persistent, bioaccumulative, toxic chemicals	Eliminate the use or emissions of PBT's and other priority toxic and hazardous substances	Zero discharge of persistent, bioaccumulative, toxic chemicals	**•Zoo - Michael Weatherman, Chris Massey** • Metro - Paul Ehinger (solid waste) • SRG - Emily Dawson • AD - Nathan Hilmer	• 45% reduction in percentage of chemical products that have ingredients with a 3 rating in one or more hazard catagories by 2015. Products with a 3 rating in all categories no longer in use. • No chemical products with 3 rated ingredients by 2020 • All chemical products are designated preferable or earn a 1 rating in all categories by 2025	• Complete inventory with current ingredient information obtained for all chemical products in use, including quantity used. Include products used by contractors on Metro property by 2013 • Develop process to quantify use of less toxic preferable products and establish interim targets by 2013. • Advance efforts to reduce toxic emissions, and establish quantative interim targets for reducing these emissions. Increase procurement of less-toxic preferable products by 2015.