

Blend. Balance. Integrate.



COMPETITION BRIEF

Integrating Habitats.
A design competition.



Call to action



Dear Design Community,

Our region, state, nation and planet need YOUR innovative, cutting-edge ideas and designs to redefine the built environment in a way that increasingly protects and restores nature. Therefore, it is with great excitement and anticipation that I present *Integrating Habitats. A design competition.*

Your collaborative responses to the challenges herein will inspire us all to usher in a new era of design and development that creates sustainable, vibrant places for people, fish and wildlife to happily call home. The Metro Council, along with our partners, eagerly look forward to your contributions that will guide development and redevelopment toward balancing the health of people and the natural systems upon which we all depend.

Your creative energy will help preserve and enhance our quality of life and environment for this generation and those to come. Thank you for your leadership and participation.

Sincerely,

Brian Newman
Metro Councilor, District 2

As urban areas expand,
pressure of increased development
threatens natural areas, clean rivers,
streams and valuable fish and
wildlife habitat. How can we achieve
a balance between development
and conservation? What are the
best ways to accommodate growth,
while enhancing livability
for generations to come?

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We invite you to be a key contributor to answering these challenging questions. If you or your organization would like to be a corporate sponsor, contact Stacey Triplett at (503) 797-1882.

Sponsorship levels:



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Cover illustration and image above by Jeremy Weber and J Ho Lee for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

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Blend. Balance. Integrate.



By Mike Shannon for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

**Collaborate to redefine
the built environment
and restore nature**

The Integrating Habitats design competition calls for innovative, visionary proposals that combine design excellence, ecological stewardship and economic enterprise.

The Portland metropolitan region is known for its ecological sensitivities and aspirations. It has been a leader in energy conservation, recycling, growth policies, open space and natural area preservation, watershed planning, alternative transportation, green building, green streets and sustainable development. Entrants are challenged to build on this foundation to further integrate, blend and balance nature with urban form and development. The concepts and strategies generated through this competition will help shape future growth in the Portland metropolitan region and beyond, offering high standards and new possibilities for vibrant, sustainable growth. The competition will encourage people of all ages and backgrounds to explore, discuss, and collaborate to redefine the built environment and restore nature and natural systems, so as to foster regional identity, enhanced sense of place, community involvement and environmental stewardship.

The addition of one million new residents to the Portland metropolitan area over the next 25 years affords the opportunity to consider the following as one interrelated challenge:

- The introduction of model, “green” development that supports human needs and aspirations
- The protection and restoration of locally significant habitats, wetlands and streams that provide and improve multiple ecological benefits and functions
- The incorporation of nature-friendly, low impact development techniques and innovative stormwater management practices.

As the integration of built and natural environments is the focus of this effort, interdisciplinary, collaborative teams are strongly encouraged to participate. These may involve professionals and students from all relevant disciplines, including but not limited to: landscape architecture, architecture, planning, urban design, civil engineering, ecology, wildlife biology, stormwater management, soil sciences, development and construction.



Integrating Habitats Jury

Stefan Behnisch

Principal
Behnisch Architects
Stuttgart, Germany and Venice, California

Joan Nassauer

Professor of Landscape Architecture
University of Michigan
Ann Arbor, Michigan

Tom Schueler

Founder
Center for Watershed Protection
Ellicott City, Maryland

Susan Szenasy

Editor in Chief
Metropolis Magazine
New York, New York

Jim Winkler

President
Winkler Development Corporation
Portland, Oregon

David Yocca

Director
Conservation Design Forum
Elmhurst, Illinois

Integrating Habitats Competition Categories

The competition categories align an economically viable development type with a “signature” habitat type prevalent in the Portland metropolitan region. The categories include:

I. Development type: Mixed-use

Habitat type: Riparian forest

II. Development type: Commercial

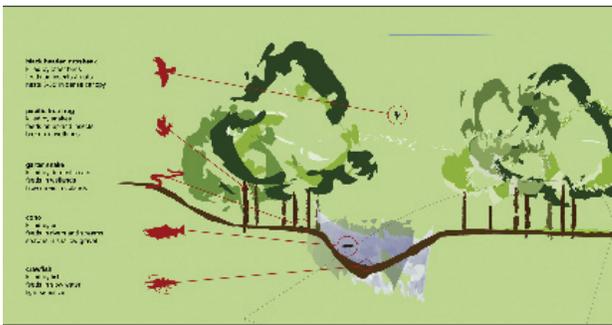
Habitat type: Lowland hardwood forest

III. Development type: Neighborhood residential infill

Habitat type: Remnant oak woodland and savanna

Each competition category includes:

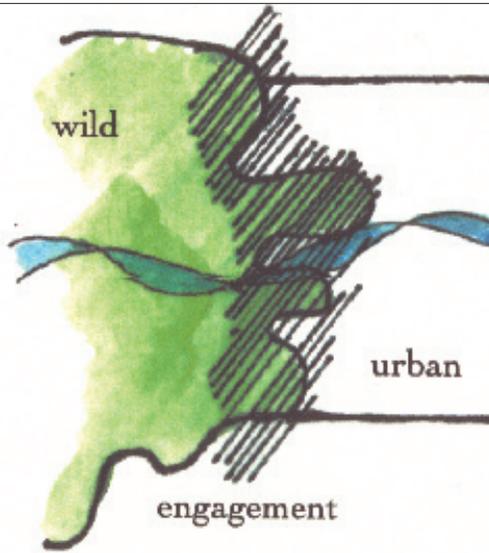
- a project description
- a habitat description
- a site description
- suggested development program
- applicable development code elements
- flexible site design options (from Metro’s Title 13 plan)
- design elements
- site images
- site context maps
- site plan



By Jeremy Weber and J Ho Lee for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

Category Assumptions

This competition features model sites typically found in the Portland metropolitan region in regard to natural resource value, function and service. The competition challenge is to create elegant and functional designs for these conceptualized sites and no commissions are to be realized as part of competition participation.



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Metro's Nature in Neighborhoods Program: Working With and Setting New Standards

Metro works in cooperation with the local jurisdictions to help ensure the region's wildlife and people thrive in a healthy urban ecosystem. People of the Portland metropolitan area are keenly aware of the interdependence of economic prosperity and environmental quality and greatly value high quality urban habitat, a high quality of life, and economic opportunities that are sustainable. Habitat and development-based goals for the Portland metropolitan region abstracted from Metro's Title 13 of the Urban Growth Management Functional Plan reflect these priorities:

Title 13 Habitat-based code requirements:

1. Protect urban stream and wetland water resources and improve function and quality of aquatic habitat via bank stabilization, riparian vegetation for future large wood recruitment, and stream shade.
2. Encourage development of large patches of terrestrial habitat such as interior and core forest and woodland habitat.
3. Provide connectivity corridors to water and other habitat areas.

Title 13 Development-based code requirements:

1. Allow and encourage nature-friendly development, while minimizing the impact on fish and wildlife habitat functions.

2. Provide incentives for protection and restoration of local and regional ecosystems during development.
3. Provide acceptable designs within jurisdiction evaluation standards for nature-friendly development practices during the land-use development review process.
4. Provide flexible mitigation standards for the replacement of ecological functions and values when high quality habitats are impacted or lost.

The Role of Habitat Conservation Areas (HCAs) in Integrating Habitats: Avoid, Minimize, Mitigate

Metro's Title 13 Plan offers innovative, flexible, incentive-based approaches and site design options that encourage nature-friendly development practices. Of primary focus in competition categories are the zones designated as habitat conservation areas (HCAs). HCAs are categorized under three levels: high, moderate and low quality. These designations are based on quality of vegetation, proximity to sensitive areas, and the economic value of the property. Site designs should *avoid* development in HCAs. If development cannot be avoided, site designs should *minimize* the development disturbance to the HCA. Where conservation of a portion of an HCA is not possible, *mitigation*, requiring the creation of like habitat elsewhere on site, is viewed as a 'last resort' option.

Deadlines

Registration:

June 15th through October 15th, 2007

Non-refundable fee: \$25, payable online at <http://www.metro-region.org/integratinghabitats> or via mail by check or money order made payable to Metro

Late Registration:

October 15th through December 17th, 2007

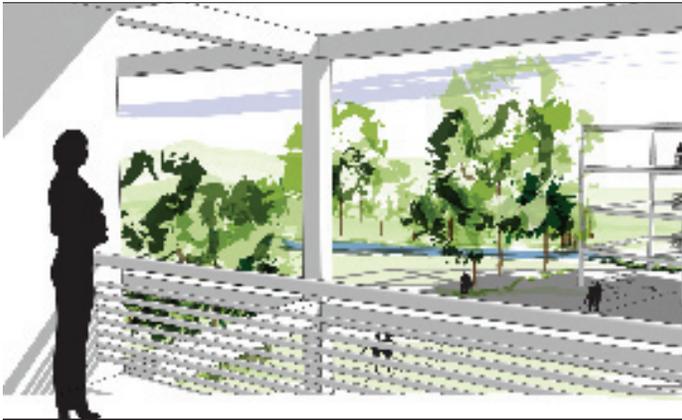
Non-refundable fee: \$125, payable online at <http://www.metro-region.org/integratinghabitats> or by check or money order made payable to Metro and included with submittal materials



By Paul Harman and Dennis Beyer for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

ENTRIES DUE:

All entries must be received physically (if hand delivered) or postmarked by 4:30 p.m. (16:30 PST) on Monday, December 17th, 2007. Late submissions will not be accepted. See page 9 for submission mailing address.



By Jeremy Weber and J Ho Lee for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

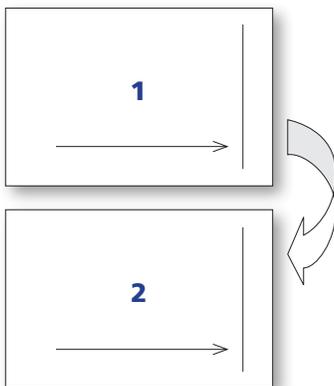
General Rules and Restrictions

Each team may submit only **one scheme per category**. A team may submit schemes for more than one category.

Metro assumes full use and copyright ownership of all submitted materials for Metro’s use and republication for any purpose as determined appropriate in Metro’s sole discretion. The ownership granted to Metro will not prevent the applicant from using its materials itself as it deems appropriate. If Metro publishes any images submitted by an applicant, Metro will appropriately credit that applicant in such publication.

1. Presentation Board Requirements

- Two 36" W x 24" H boards arranged like this:



- Individual boards (1 & 2) are landscape format and the presentation as a whole is portrait format.

2. PC-Compatible CD-ROM Requirements

To facilitate the creation of future publications and exhibitions, a PC-compatible CD-ROM must be provided with the following files in the formats specified. All images are to be saved in JPEG format without LZW Compression:

- One JPEG of entire entry at 300 dpi resolution (CMYK) saved as “EH.JPEG”
- One JPEG of entire entry at 72 dpi resolution (RGB) saved as “EL.JPEG”
- One JPEG of presentation board 1 at 300 dpi resolution (CMYK) saved as “1H.JPEG”
- One JPEG of presentation board 2 at 300 dpi resolution (CMYK) saved as “2H.JPEG”
- One JPEG of presentation board 1 at 72 dpi resolution (RGB) saved as “1L.JPEG”
- One JPEG of presentation board 2 at 72 dpi resolution (RGB) saved as “2L.JPEG”
- One “Merits of Submittal Statement” text file (400 words maximum). Explains in English how your presentation addresses the Design Elements (Section G) of the category in which it was entered. Include competition category entered and entry title. Save as a simple text file.

3. Presentation Content Requirements

Proposals should address design and planning strategies at multiple scales:

- **Site Planning Scale**, where proposals indicate overall site development potential, incorporate site context, and demonstrate exercise of flexible site design options as advocated through the Metro’s Title 13 plan, where relevant
- **Site Design Scale**, where proposals communicate design character, environmental sensitivity, and innovation in implementation of the suggested development program on the site
- **Human/Inhabitant Scale**, where proposals indicate human and non-human species’ experience, use of space, and where these two worlds connect and integrate.

Each entry must include:

- **Name of Competition Category**
- **Project Title**
- **Merits of Submittal Statement** that specifies key design elements and principles, including habitat based conservation concepts and building strategies that support livability and environmental response (400 words maximum in format detailed under PC-Compatible CD-ROM Requirements)
- **Site Plan** including illustration of how the plan has a thoughtful and meaningful relationship to site context.

Note: Please label all drawings and include a scale and north arrow

Additional, recommended presentation elements:

- *Site section(s)*
- *Diagrams* describing conceptual and functional aspects of your project scheme
- *Perspective drawings* describing experiential aspects of your project scheme
- *Detail drawings* of key design elements (plans, sections, elevations, etc.)
- *Inhabitant profiles* of human and non-human residents of the proposed project, indicative of community types and habitat types that have influenced the design scheme
- *Other representations* that are important in communicating key design principles.

4. Contact Information Requirements (Teams and Individuals)

Each entrant will submit the following information on a contact information sheet in a sealed envelope that will accompany each submittal. Names of entrants, whether individuals or teams, should not appear on the presentation boards or on any other materials except the contact information sheet. Contact information sheet must be sealed in an envelope and taped to the backside of one of the presentation boards.

Contact information sheets must include:

- Full contact information for all team members. Include name, firm or school name, address, telephone number and email address as they should appear in publication and exhibition materials.
- Invoice number (if you registered online for the competition or paid with a check or money order prior to submitting your entry) or \$125 non-refundable registration fee check or money order made payable to Metro.
- Entries that include any student contributions are eligible for an additional, separate jury review for student entries only. Please write STUDENT at the bottom of your contact information sheet in bold, capital letters.
- *Optional:* Team letter addressing Metro's Title 13 code requirements (pg 6), challenges, highlights, experiences and/or general commentary on *Integrating Habitats*.

5. Anonymity Requirements

All presentations boards and CD submittals will bear no identification, name, symbol, insignia, logo or mark that might serve to reveal the identity of the author(s) of the submission. Failure to comply with this rule will lead to immediate disqualification. No entrant may otherwise directly or indirectly reveal the authorship of any design concepts to any jurist,

competition staff member, competition consultant or member of the press. Such identification, occurring at any time prior to design award event, will be grounds for disqualification.

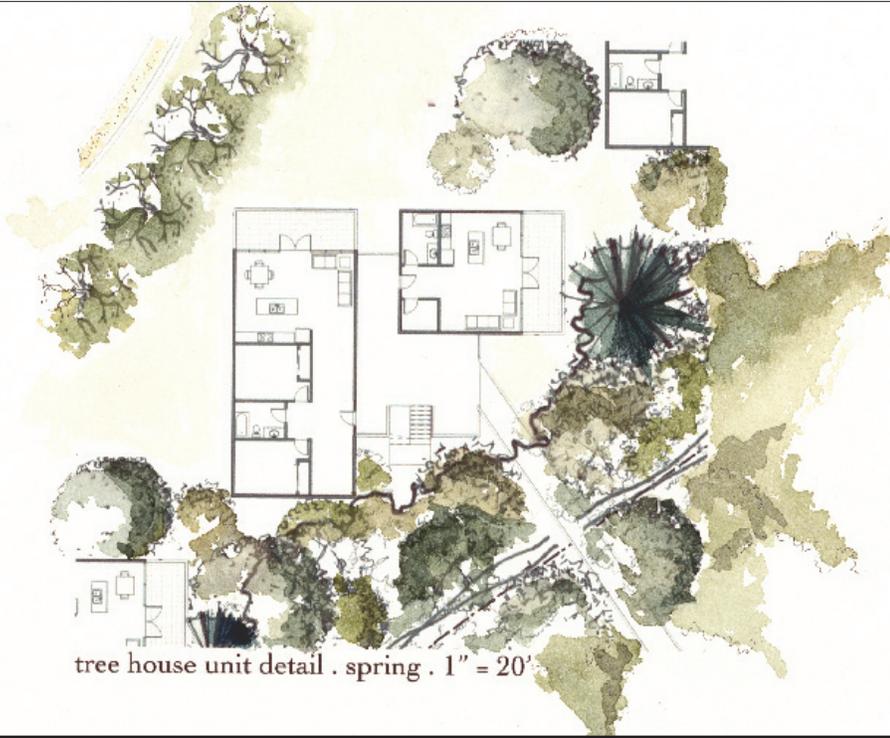
6. Submission Protocols

Presentations boards, CD and sealed envelope containing contact information sheet (taped to the backside of one of the presentation boards) must be postmarked by 4:30 p.m. (16:30 PST) on Monday, December 17, 2007, and sent to the following address:

Metro
Attn: Integrating Habitats
600 NE Grand Avenue
Portland, OR 97232-2736

Entrants bear responsibility for the proper and timely delivery of their submission. Metro, its employees, agents and consultants are not liable for the safe and timely delivery of the submissions. Metro and the competition staff assume no responsibility for lost or damaged competition entries.

Awards



By Mike Shannon for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

Up to three awards will be given in each category. Awards will also be given at the jurists' discretion for best overall competition designs. Prizes up to one thousand dollars may be offered per selected entry.

Winning designs will be announced to the press and public by the jurists at the design award event in February 2008.

Award winning designs will also be featured in the *Design Guide*, a publication which will be distributed throughout the Pacific Northwest and beyond to promote designs for nature-friendly development. It will serve as a definitive resource for building professionals on

design solutions which are protective and even restorative of nature for years to come. Winners will receive five copies of the *Design Guide*.

Post-award receptions, traveling interpretive displays and outreach events at academic institutions and schools, sponsor organizations, art galleries and other venues will continue throughout the years following the competition. Winning designs will be considered an asset to the region and may be displayed and/or showcased on Metro's web site for citizen input, voting and/or educational purposes.

Award Criteria

To determine the winning entries, the jury will use criteria such as:

- Integrated stormwater design
- Pairing design & science
- Collaborative and/or innovative partnerships
- Community stewardship/strategic community partnerships
- Nature inspired design
- Use of energy efficient design and green building products
- Biodiversity supported
- Transportation integration/connectivity
- Builder's preference.

The Design Elements (Section G) provided for each category serve as a baseline for the jury to evaluate competition entries, which should be addressed in your Merits of Submittal statement. However, the jury will recognize those proposals that exceed base criteria and provide evidence of a clear and strong design concept, offer innovation when relating natural and built features, and are graphically compelling.

V. COMPETITION CATEGORY 1:

Mixed-use Development/Riparian Forest Habitat

Category 1

A. PROJECT DESCRIPTION

This competition category calls for the design of a mixed-use development on a sparsely vegetated site adjacent to a regionally significant creek and associated riparian habitat. In this category, a developer has teamed with a local building association interested in nature-friendly development practices and ecological restoration associated with development. They are looking to promote this project as a highly desirable model for future development within the Metro area.

Primary goals for this category are to:

- Enhance interior forest and riparian habitat quality
- Improve habitat connectivity through the restoration of existing habitat and introduction of new habitat corridors
- Apply resourceful, creative stormwater management practices (minimizing the amount of stormwater generated on site and retaining the stormwater on site to the greatest practical extent)
- Provide for the housing, commercial and recreational needs of a diverse community
- Utilize materials and energy efficient design strategies that enhance livability
- Develop clear linkages to a light rail transit stop and a major recreational corridor/bike trail, both within walking and biking distance of the site.

The developer has been tracking a recent trend where “green” projects have sold at a premium in the Portland metropolitan area. The building association believes that numerous benefits (experiential, functional, and health) are to be derived from the presence of intact ecological systems adjacent to places of work and living. They also recognize that the thoughtful configuration of buildings can facilitate corridor connectivity and other ecological goals. This is intended to be a pedestrian-friendly development, where retail spaces are of an appropriate scale and character, presenting a ‘friendly face’ to the development and the neighborhood at large.



By Anna Hook and Heather Rusch for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

B. HABITAT DESCRIPTION

“Riparian” means the water-influenced area next to a river, lake, wetland or stream. In the Portland metropolitan region, trees are usually the most ecologically important riparian feature. Typical riparian trees include alder, Douglas Fir, dogwood species, big leaf maple, western red cedar, willow species, Oregon ash and black cottonwood. (A typical description of the types of tree and shrub species that characterize this habitat can be found in City of Portland’s *Portland Native Plants List*. See References and Resources, pg 36). Riparian forests protect and improve water quality by cooling the water, slowing and storing water to replenish groundwater, reducing urban runoff, and filtering out toxics and excess sediments. Riparian areas are biologically diverse, complex ecosystems that contain more plant, mammal, bird, and amphibian species than the surrounding upland areas. In the Portland metropolitan region at least 45% of all wildlife species depend on riparian habitat and 93% use riparian habitat at some point during their life cycle. In naturally forested areas near water and in site designs and new development, *every tree matters*.

V. COMPETITION CATEGORY 1:

Mixed-use Development/Riparian Forest Habitat

C. SITE DESCRIPTION

Refer to pages 17 and 18 for site context maps and site plan.

1. Site orientation and transportation

This site is approximately 6.8 acres and zoned for commercial/residential mixed-use development. It is bordered to the south by industrial uses, to the north by mixed-use/residential projects, and to the northwest by multi-family residential development. Significant existing retail and entertainment amenities associated with the mixed-use/residential development provide for the needs of the district's residents. The site is located near the intersection of a north-south running parkway (a 45-mile per hour, four lane road with a center boulevard) and an arterial street. A transit stop is located adjacent to this intersection, which has given rise to office complex development in the immediate vicinity. The northern edge of the site, along the arterial, is of high commercial value.

At present the site can be accessed by car from the north by the arterial and from the southwest by a north-south running street. Multi-use recreational trail systems run alongside the parkway across the stream from the site, and farther to the south of the site.

2. Habitat Conservation Areas (HCAs)

A significant perennial urban creek that once boasted historic steelhead runs borders the east side of the site. In the summer months, water flows are low and it is temperature limited (too hot to support fish populations) due to lack of stream shading. In the winter, the creek is subject to high peak flows due to urban stormwater runoff. The existing stream bank (riparian slope) is a 2:1 slope as it descends to the stream, and is covered with overstory trees and an understory composed primarily of native shrubs. The top of the bank is approximately 15 feet above the ordinary high water line, and is a 30-foot horizontal distance from the ordinary high water line edge.

The stream makes possible a valuable urban riparian corridor that extends through the City and beyond. To help protect this corridor, an area of land on site and adjacent to the stream's ordinary high water line has been designated as a high level HCA, and is composed of similar plant communities as those along the riparian slope, with the addition of Douglas Fir and a shrub understory composed of snowberry, Oregon grape, and other species tolerant of drier conditions in the upslope areas. Adjacent to the high level HCA is a vegetated area that has received a low HCA designation. While it is valuable as an HCA because of its proximity to the stream corridor, it is covered with invasive, non-native shrubs such as Armenian blackberry (*Rubus armenicus*). The rest of the site is a vacant lot, mainly consisting of non-native grasses.

3. Connectivity opportunities

The site is bordered to the west by an existing municipal nature park, which harbors a dense mixture of native deciduous hardwood and conifer overstory tree species. The species composition is similar to those found along the upslope areas of the urban creek, with the addition of greater proportions of Douglas fir and other species that tolerate drier conditions. The entire park open space has received a moderate HCA designation because of its intact native plant community. The park is linked to a significant upland forest wildlife corridor further west. The creation of forested habitat linking the creek/riparian habitat and the nature park provides a compelling site design opportunity.

4. Soil types and prevailing winds

All of the site area within the high HCA area slopes generally (<5% grade) towards the perennial urban creek to the east (also see description above for the steeper riparian slope area). Outside of the high HCA area, the site slopes generally (<5%) towards the arterial to the north. The entire property lies outside of the floodplain, and no wetlands exist on site. All soils, with the exception of the 2:1 riparian slope areas described in the HCAs section above, are buildable and/or capable of stormwater infiltration. Prevailing summer winds are from the west. Prevailing winter winds are from the north.

V. COMPETITION CATEGORY 1:

Mixed-use Development/Riparian Forest Habitat

D. SUGGESTED DEVELOPMENT PROGRAM

While it is encouraged that entrants include all programmatic elements, there is some leeway in determining the exact number of dwelling units, building footprints and floor area ratios. Entrants should offer scenarios that are economically feasible.

BUILDING PROGRAM	FLOOR AREA Square feet (SF)
Residential	
(36) 'family' residential units @ 1200 SF/unit	43,200
(48) 2 bedroom residential units @ 800 SF/unit	38,400
(60) studio residential units @ 600 SF/unit	36,000
Community	
Day Care Center*	2,400
Community Center	6,000
Enclosed bike storage	1,000
Commercial	
Small grocery	3,600
(8) Retail spaces @ 2,000 SF/space	16,000
Café**	2,000
Net Total Building Program (plus circulation, typically +/-10 to 15% of total building area)	148,600 SF

*the day care facility requires connected outdoor play space (this space may double with the shared open space below, as appropriate)

**the cafe requires connected outdoor space

PARKING, CIRCULATION AND PATH SYSTEM PROGRAM	FLOOR AREA Square feet (SF)
Residential	
(one space per unit x 144 units @ 350 SF/space, typical*)	50,400
Community	
(8400 SF x 1.5/1000 SF ratio = 13 spaces @ 350 SF/space, typical*)	4,550
Commercial	
(21600 SF x 1.5/1000 SF ratio = 32 spaces @ 350 SF/space, typical*)	11,200
Net Total Parking Program	66,150 SF

*includes parking spaces, aisles and access roads

Note: in addition to parking, site path systems should be incorporated into a strategy that links them up with nearby regional multi-use trail systems; the strategy may locate proposed trails within HCAs

SHARED OPEN SPACE
15% of the total site area must be devoted to shared outdoor use. This must be a combination of passive and active uses. Passive uses may be accommodated within HCAs as appropriate.

HABITAT-BASED DESIGN AND PLANNING*
The scheme should be consistent with Metro's Title 13 habitat-based goals (pg 6) and avoid and minimize (and mitigate only as a 'last resort') development in HCAs.

*see Metro's Title 13 Nature-friendly Development Practices Table for guidance (pg 33)



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V. COMPETITION CATEGORY 1:

Mixed-use Development/Riparian Forest Habitat

E. APPLICABLE DEVELOPMENT CODE ELEMENTS

Minimum lot setbacks for buildings, from property line	None
Maximum street and adjoining pedestrian area setbacks for buildings, from property line	10 ft
Maximum building height	45 ft
Stormwater*	Management of stormwater on site (e.g. infiltration through vegetated means, minimize impervious area)
Vehicular site access	2 points of access required
Parking lot landscaping requirements	For every 20 parking spaces, intersperse 100 SF of planting
Potential parking reduction credit**	10%

*see *Stormwater Management Overview for guidance* (pg 34)

**the project qualifies for a parking reduction credit if appropriate pedestrian connections to nearby public transportation are incorporated



By Paul Harman and Dennis Beyer for 2007 Muller/CerraWild Urbanism Studio at University of Oregon

F. FLEXIBLE SITE DESIGN OPTIONS (from Metro's Title 13 Plan)

Development disturbance of Habitat Conservation Areas (HCAs) is to be avoided. If disturbance is proposed, entrants must minimize these impacts with options listed below. As a last resort, impacts can be mitigated, which will require the creation of like habitat elsewhere on site.

1. On-site Density Transfer Option

- If you preserve a minimum of 50% of all designated HCAs (total of high and low HCAs on parcel), you can build an additional 30,400 SF of building area (25% of total HCAs).
- While additional built area proposed under the density transfer option above still requires parking, bike storage can substitute for half

of what the code would require. See Parking, Circulation and Path Program (pg 13).

- If you preserve a minimum of 50% of all designated HCAs, the maximum building height can be increased to 65 feet.

2. Flexible Landscaping Option

- Facilities that infiltrate stormwater on site may be placed within low level HCAs. If designed for infiltration, such facilities may include, but are not limited to, vegetated swales, rain gardens, vegetated filter strips, and vegetated infiltration basins. Only native vegetation may be planted in these facilities. See Stormwater Management Overview for guidance (pg 34).

3. Habitat Mitigation Option

- No more than 10% of high level HCAs within the parcel may be disturbed. Low level HCAs may be disturbed if necessary.
- For every acre of any HCA disturbed (high, moderate, or low), 1.5 acres of native plant restoration must be completed elsewhere on site, either within or contiguous to existing HCAs.

V. COMPETITION CATEGORY 1:

Mixed-use Development/Riparian Forest Habitat

G. DESIGN ELEMENTS

- **Overall Site Design:** Program elements are integrated in a manner that positively impact site ecological dynamics, community livability, and aesthetic character.
- **Nature-friendly Development:** Nature-friendly development practices are incorporated on site. The scheme demonstrates successful application of avoid, minimize and mitigate criteria (pg 6).
- **Habitat Features:** The scheme incorporates significant patches of forested habitat, locates other site uses sensitively with respect to habitat, and is linked to the existing riparian ecosystem. The scheme contends with on-site barriers to wildlife movement, restoring existing and/or introducing new wildlife corridors that enhance site connectivity and facilitate species migration and movement.
- **Stormwater Management:** Conceptual strategies minimize impervious area to reduce the need for stormwater treatment, integrate stormwater management facilities within the site design, treat stormwater on site, and protect stream and riparian habitat in the adjacent creek.
- **Site Character:** The scheme incorporates street trees, open space plantings, and other landscape architectural elements that elevate site attractiveness and function.
- **Transportation and Site Access:** The scheme incorporates paths, streets and parking areas that link to off-site recreation corridors and transportation networks, and are arranged logically with regard to safety and convenience.
- **Shared Community Outdoor Space:** The scheme incorporates and promotes shared community outdoor spaces that improve functionality and community identity.
- **Architectural Design Quality:** Building design and configuration respond to a diversity of occupant needs, contribute to ecological goals, take advantage of on-site resources (daylight, prevailing breezes, shade trees, etc.), and use passive climate conditioning strategies so as to reduce or eliminate the use of fossil fuels.



By Anna Hook and Heather Rusch for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

V. COMPETITION CATEGORY 1:
Mixed-use Development/Riparian Forest Habitat

H. SITE IMAGES



View of the perennial urban creek within the high level HCA



Low level HCA is composed mostly of invasive shrubs (Armenian blackberry)



Park adjacent to the study site has contiguous mixed conifer/hardwood canopy



Light industrial uses to the south of site



Multi-family housing to northwest of site



Mixed-use residential development north of the site



View of parkway to east of site



Transit stop on the opposite side of the parkway from the site



Transit stop detail view



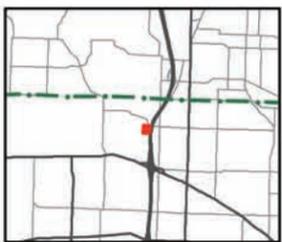
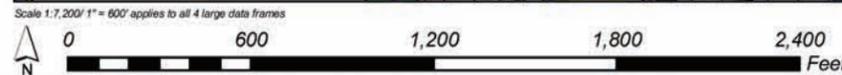
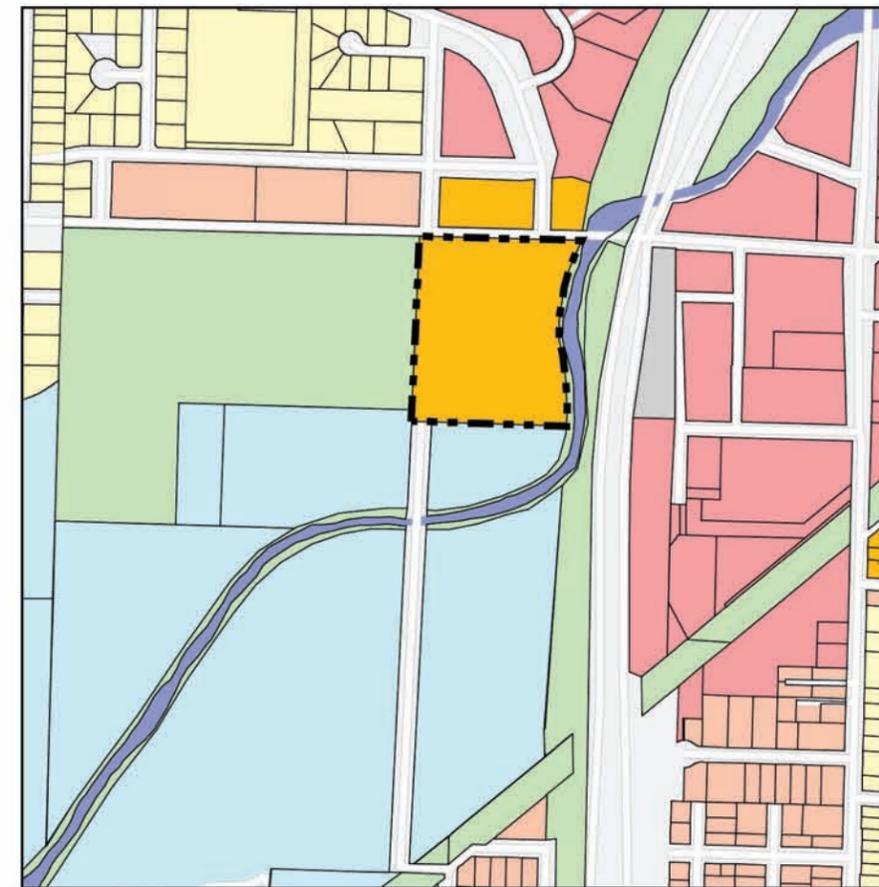
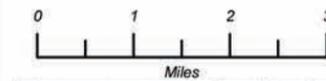
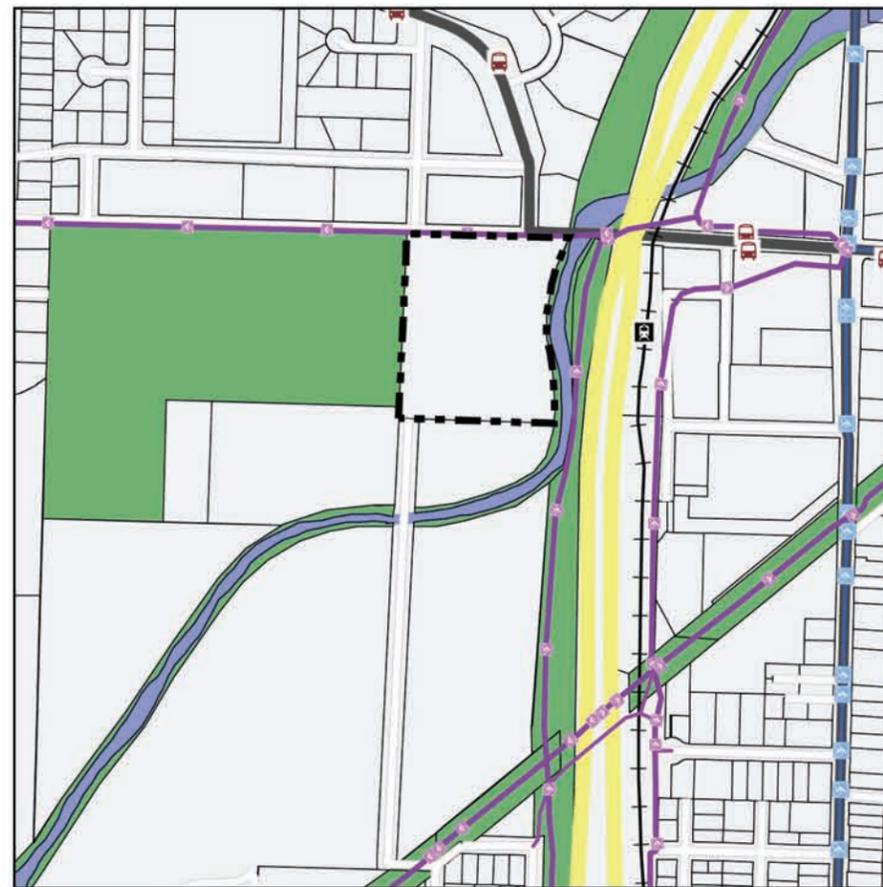
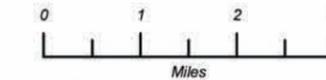
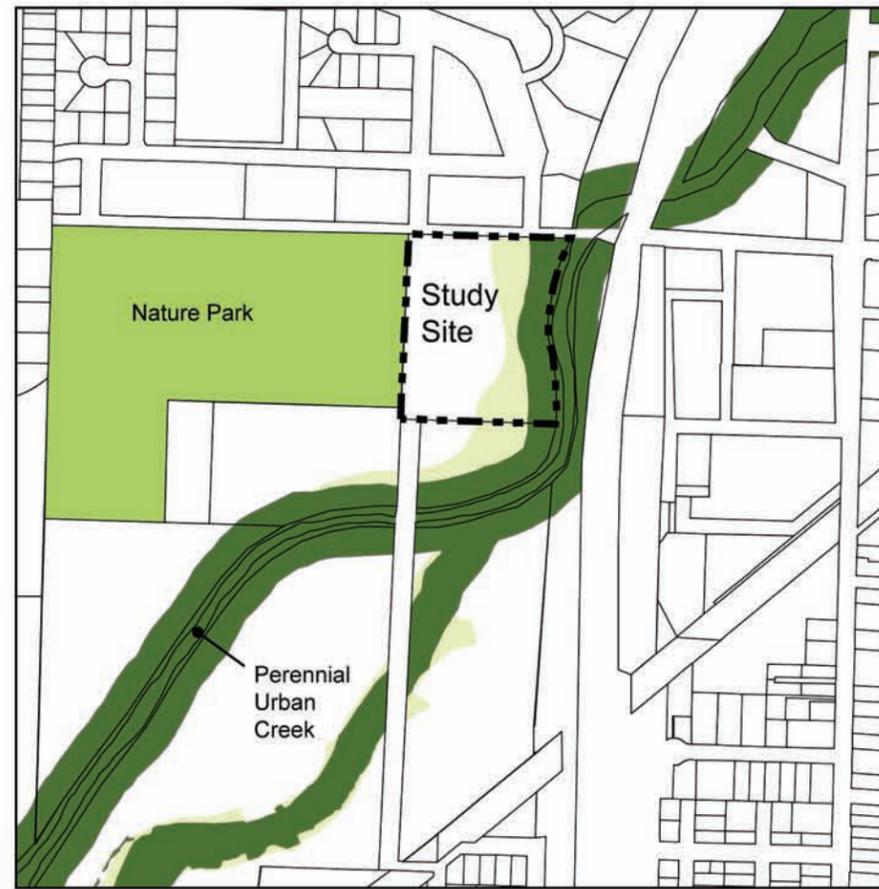
Nature in Neighborhoods

CATEGORY 1

Mixed-Use Development

Riparian Forest Habitat

J. SITE CONTEXT MAPS



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Nature in Neighborhoods

CATEGORY 1

Mixed-Use Development

Riparian Forest Habitat

K. SITE PLAN

Legend

- Site Boundary
 - Buildings
 - Low HCA Level
 - Moderate HCA Level
 - High HCA Level
 - Perennial Urban Creek
- General Land Use Designation**
- Commercial
 - Industrial
 - Multi-Family Residential
 - Mixed-Use
 - Transit Facility
 - Parks/Open Space
 - Single Family Residential

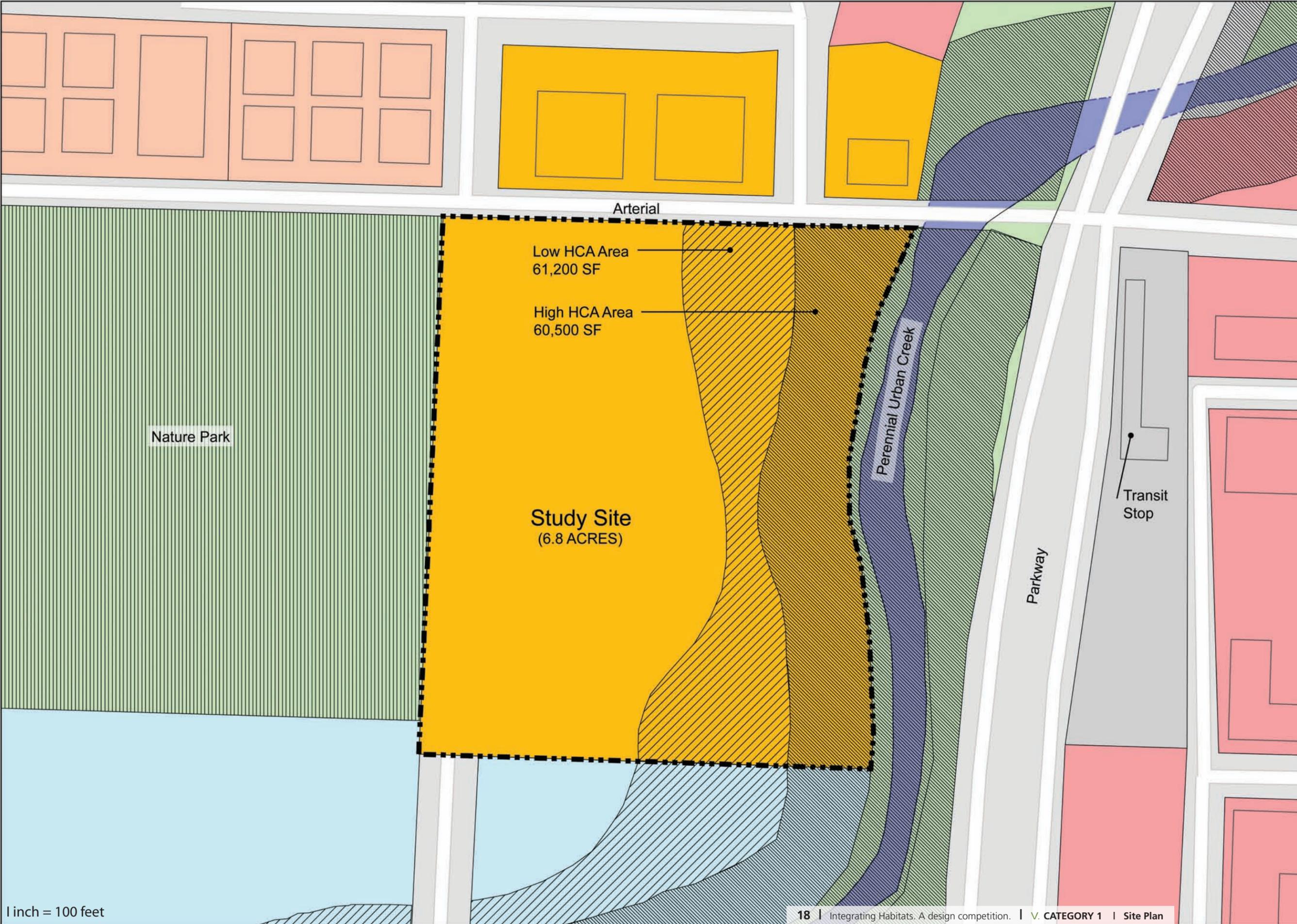


Location Map



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1 inch = 100 feet

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VI. COMPETITION CATEGORY 2:

Commercial Development/Lowland Hardwood Forest Habitat

Category 2

A. PROJECT DESCRIPTION

This competition category calls for site planning and design of a “green” home building center and other associated uses as an alternative to typical “big box” development. It emphasizes the integration of open space design, built form, and natural resource preservation, encouraging a new vision of commercial growth for suburban areas. The suggested development program provided is typical for a commercial development with this zoning and location. Related to this, the local municipal agency is promoting innovative stormwater practices for commercial development.

Primary goals for this category are to:

- Identify innovative, sensitive design strategies for reconciling economic demand and environmental quality. There are land-use review benefits for projects that exceed typical commercial development in this jurisdiction
- Protect significant wetland and riparian forest resources existing on site and connect them to a larger forested system that is increasingly constrained by commercial and residential development
- Create sustainable, functional and attractive parking lot design strategies given the large area of the suggested development program dedicated to parking and the presence of wetland resources on site
- Minimize the amount of impervious surface and associated stormwater runoff to protect fish habitat and improve water quality.

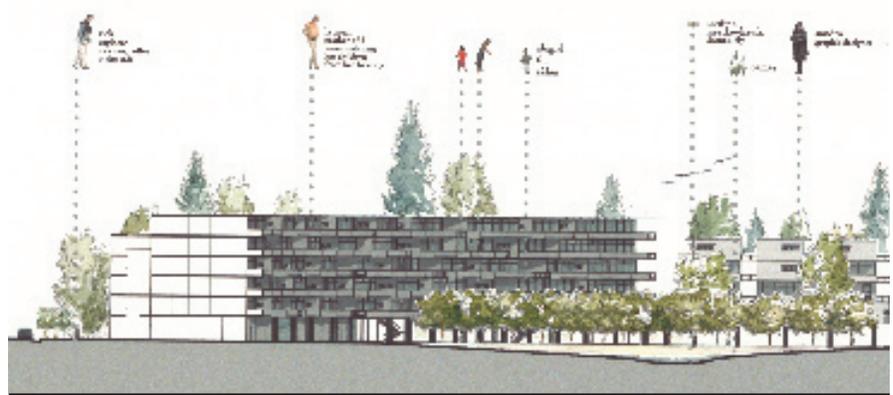
Although the focus for this competition category is innovative site scale planning, opportunities exist to introduce green design strategies at the building scale. Also important are the introduction of nature-friendly features that link up to the larger context. See Metro’s Title 13 Nature-friendly Development Practices Table for guidance (pg 33).



By Jeremy Weber and JHo Lee for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

B. HABITAT DESCRIPTION

Lowland hardwood forest habitats are found near wetland habitats, as well as bodies of water or where seasonal flooding occurs. They are a special type of riparian habitat. Water-loving species, such as sedges, rushes, willows, dogwoods, black cottonwood and Oregon ash, have adapted to grow in these environments. Wetland habitats are surrounded by hardwood forests composed of a combination of Oregon ash, black cottonwood, big leaf maple, and an occasional Oregon white oak (Garry oak). (A typical description of the types of tree and shrub species that characterize this habitat type can be found in City of Portland’s Portland Plant List. See References and Resources, pg 36). This habitat provides critically important breeding habitat and movement corridors for migratory songbirds such as the yellow warbler and yellow-breasted chat. New site designs and development that avoid floodplain areas and incorporate hardwood tree species will reduce flood damage to buildings, improve water quality and provide habitat for lowland species. It is estimated that lowland hardwood forest once covered about 8% of the region. Today, these forests cover about 1% of this historical expanse.



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VI. COMPETITION CATEGORY 2:

Commercial Development/Lowland Hardwood Forest Habitat



By Paul Harman and Dennis Beyer for 2007 Muller/CerraWildUrbanismStudioatUniversityofOregon

C. SITE DESCRIPTION

Refer to pages 25 and 26 for site context maps and site plans.

1. Site orientation and transportation

This approximately 10.7 acre site is bisected by a hardwood forest-wetland corridor that connects significant riparian and wetland resources to the north and south. On-site open spaces to the east and west of this corridor have been historically cleared and consist mainly of non-native grass species.

The site can be accessed from the south and east by a collector road and from the west by a local street. The site is zoned for commercial use. While commercial big box developments predominate in the vicinity of the site, areas zoned for multi-family housing and single-family residential development are present to the east, south, northwest, and northeast.

2. Habitat Conservation Areas (HCAs)

Wetlands are at the center of the high level HCAs found on site. The remaining HCAs have a low level designation and consist of hardwood forest canopies and shrub subcanopies. Wetlands within the project boundary are dominated with a mixture of emergent vegetation (rushes and sedges), shrubby vegetation (willows and dogwoods), or seasonal open water. All hardwood forest within 100 feet of marked wetlands has received a high HCA level designation. Some areas farther than 100 feet from wetlands have received a low level

HCA designation. These low value HCAs are generally drier than high level HCAs, and are composed of about 50% hardwood forest cover and 50% invasive shrubs (*Armenian blackberry*, *rubus armenicus*).

The rest of the site is a vacant lot, currently consisting of non-native grasses and forbs.

3. Connectivity opportunities

A highway corridor borders the north portion of the site, under which a new underpass will soon connect multiple-use trail systems on either side of the highway. This will provide access between residential neighborhoods and new commercial development, while improving wildlife movement and restoring wetland hydrology on either side of the highway.

4. Soil types and prevailing winds

The site slopes gently (<2% grade) towards the hardwood forest-wetland corridor. All areas outside of high level HCAs are not within the floodplain. All soils, with the exception of wetland areas, are buildable. Soils in low level HCAs and areas outside of low level HCAs are capable of storm-water infiltration. Provision of a hydrologic connection via the new underpass will not significantly change flooding conditions or buildability of any aspect of the site. Prevailing summer winds are from the west. Prevailing winter winds are from the north.

VI. COMPETITION CATEGORY 2:

Commercial Development/Lowland Hardwood Forest Habitat

D. SUGGESTED DEVELOPMENT PROGRAM

While it is encouraged that entrants include all programmatic elements, there is some leeway in determining the exact building footprint and floor area ratios. Entrants should offer scenarios that are economically feasible.

BUILDING PROGRAM	FLOOR AREA Square feet (SF)
Green Home Improvement Center	70,000
Garden Center with Greenhouse	25,000
Café	4,000
Other Commercial 1	12,000
Other Commercial 2	12,000
Net Total Building Program (plus circulation, typically +/- 10 to 15% of total building area)	123,000 SF

PARKING, CIRCULATION AND PATH SYSTEM PROGRAM	FLOOR AREA Square feet (SF)
123,000 SF X 3/1000 SF ratio = 369 spaces @ 350 SF/space, typical*)	129,150 SF
Net Total Parking Program	129,150 SF

*includes parking spaces, aisles and access roads

Note: in addition to parking, site path systems should be incorporated into a strategy that links them up with nearby regional multi-use trail systems; the strategy may locate proposed trails within HCAs

HABITAT BASED DESIGN AND PLANNING*

The scheme should be consistent with Metro’s Title 13 habitat-based development goals (pg 6) and avoid, minimize (and mitigate only as a ‘last resort’) development in HCAs.

*see Metro’s Title 13 Nature-friendly Development Practices Table for guidance (pg 33)



By Paul Harman and Dennis Beyer for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

E. APPLICABLE DEVELOPMENT CODE ELEMENTS

Minimum lot setbacks for buildings from property line	Front-20 ft Side-10 ft
Maximum building height	35 ft
Stormwater*	Management of stormwater on site (e.g. infiltration through vegetated means, minimize impervious area)
Vehicular site access	2 points of access required
Parking lot	Perimeter areas require landscaping. Additionally, for every 20 parking spaces, intersperse 100 SF of planting.
Potential parking reduction credit**	10%

*see Stormwater Management Overview for guidance (pg 34)

**the project qualifies for a parking reduction credit if appropriate pedestrian connections to nearby public transportation are incorporated



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VI. COMPETITION CATEGORY 2:

Commercial Development/Lowland Hardwood Forest Habitat

F. FLEXIBLE SITE DESIGN OPTIONS (from Metro's Title 13 Plan)

Development disturbance of Habitat Conservation Areas (HCAs) is to be avoided. If disturbance is proposed, entrants must minimize these impacts with options listed below. As a last resort, impacts can be mitigated, which will require the creation of like habitat elsewhere on site.

1. On-site Density Transfer Option

- If you preserve a minimum of 50% of all designated HCAs (total of high and low level HCAs on parcel), you can build an additional 35,000 SF of building area (25% of total HCAs).
- While additional built area proposed under the density transfer option above still requires parking, bike storage can substitute for half of what the code would require. See Parking, Circulation and Path Program, above.
- If you preserve a minimum of 50% of all designated HCAs, the maximum building height is increased to 50 feet.
- If you preserve a minimum of 50% of all designated HCAs, building setbacks from streets and boundaries are not required.



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Wild Urbanism Studio at University of Oregon

2. Flexible Landscaping Requirements

- Facilities that infiltrate stormwater on site may be placed within the low HCA. If designed for infiltration, such facilities may include, but are not limited to, vegetated swales, rain gardens, vegetated filter strips, and vegetated infiltration basins. Only native vegetation may be planted in these facilities. See Stormwater Management Overview for guidance (pg 34).
- If you protect a portion of a HCA equivalent to the area required for parking lot landscaping, you are exempted from the parking lot landscaping requirement (at your discretion). See Applicable Development Code Elements: Parking lot landscaping requirements, section E.

3. Habitat Mitigation Option

- No more than 10% of high level HCAs within the parcel may be disturbed. Low level HCAs may be disturbed if necessary.
- For every 1.0 acre of HCA disturbed (high, moderate, or low), 1.5 acres of native plant restoration must be completed elsewhere on site, either within or contiguous to existing HCAs.
- In this category, no wetlands within the parcel may be disturbed.

VI. COMPETITION CATEGORY 2:

Commercial Development/Lowland Hardwood Forest Habitat



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G. DESIGN ELEMENTS

- **Site Character:** The scheme incorporates street trees, open space plantings, and other landscape architectural elements that elevate the attractiveness, character, and function of the site.
- **Nature-friendly Development:** Nature-friendly development practices are incorporated on site. The scheme demonstrates successful application of avoid, minimize and mitigate criteria (pg 6), preserves habitat, and provides for a diversity of habitat types.
- **Habitat Connectivity:** The scheme enhances habitat connectivity by reinforcing existing habitat corridors and (re)introducing new corridors where appropriate. Barriers to movement are reduced or eliminated to improve species movement across the site.
- **Stormwater Management:** Conceptual strategies employed minimize impervious area to reduce the need for stormwater treatment, treat and manage stormwater on site, are sensitive to habitat features, contribute to habitat diversity, and elevate site identity.
- **Parking/Access:** The scheme introduces parking areas that are designed sensitively and functionally with respect to other program elements. It provides path and street systems that connect on-site development elements with larger (off-site) recreation corridors and transportation networks.
- **Architectural Design Quality:** Building design, configuration and siting contribute to ecological goals, take advantage of on-site resources (daylight, prevailing breezes, shade trees, etc.), and use passive climate conditioning strategies so as to reduce or eliminate the need for fossil fuels.
- **Education and Experience:** The scheme positively supports visitor experience with regard to site features. The scheme incorporates interpretive, educational elements that enable visitors to understand the sustainable design of the site.

VI. COMPETITION CATEGORY 2:

Commercial Development/Lowland Hardwood Forest Habitat

H. SITE IMAGES



The high HCA consists of mixed emergent and scrub-shrub wetlands surrounded by a hardwood forest canopy



The hardwood forest that composes the high HCA has mostly Oregon ash and bigleaf maple canopy, with a diverse shrub layer below



The low HCA consists of about 50% hardwood canopy cover with an invasive Armenian blackberry shrub layer below



On either side of HCA the site is relatively flat and empty



Typical commercial development



Typical parking arrangement for "big box" development



Collector road adjacent to site



Multi-family housing near site and adjacent to a wetlands



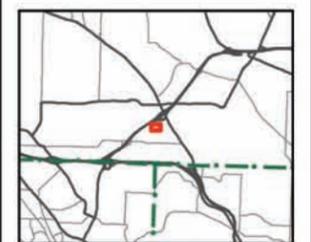
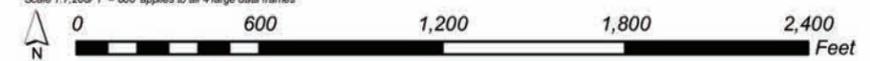
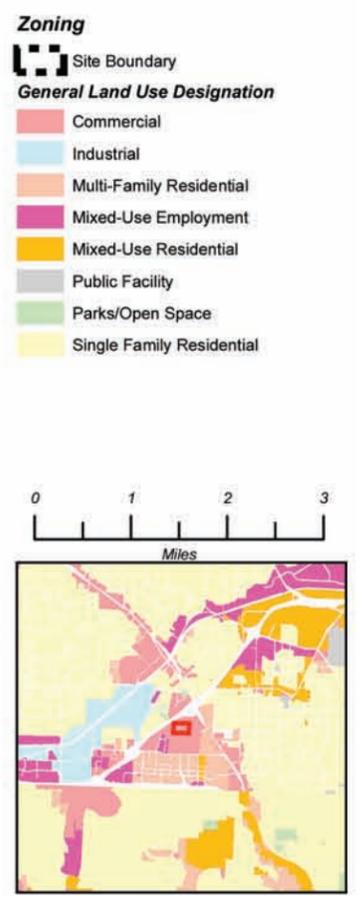
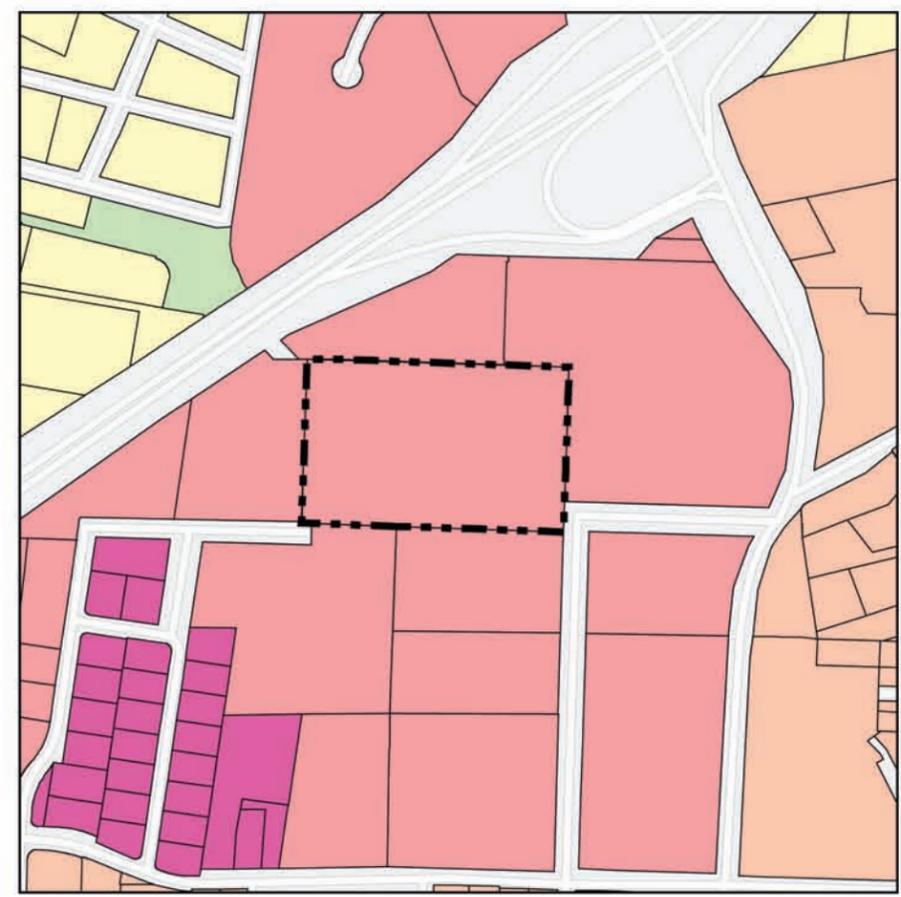
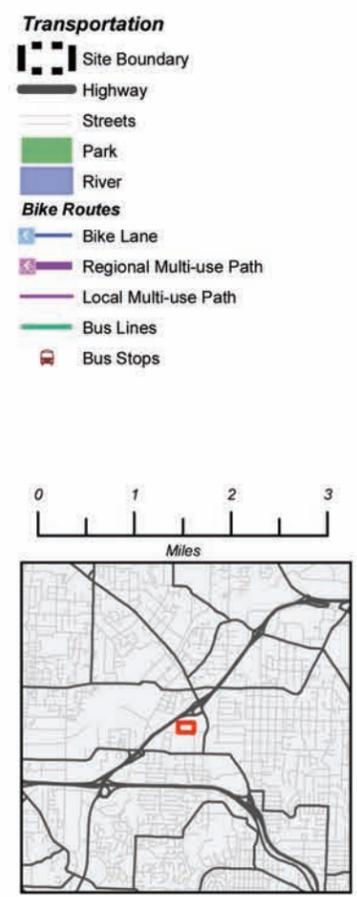
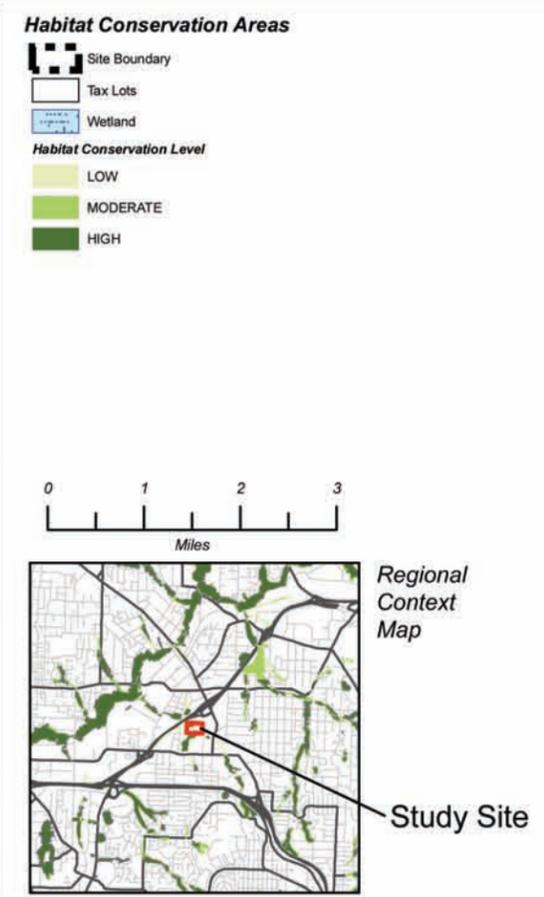
A 50's era single-family residence in neighborhood near site

CATEGORY 2

Commercial Development

Lowland Hardwood Habitat

J. SITE CONTEXT MAPS



CATEGORY 2

**Commercial
Development**

**Lowland
Hardwood
Habitat**

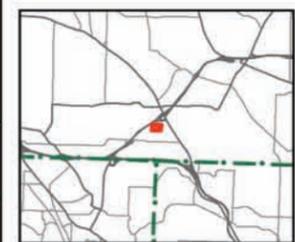
K. SITE PLAN

Legend

-  Site Boundary
-  Wetland
-  Low HCA Level
-  High HCA Level
-  Buildings

General Land Use Designation

-  Commercial
-  Industrial
-  Multi-Family Residential
-  Mixed-Use Employment
-  Mixed-Use Residential
-  Public Facility
-  Parks/Open Space
-  Single Family Residential

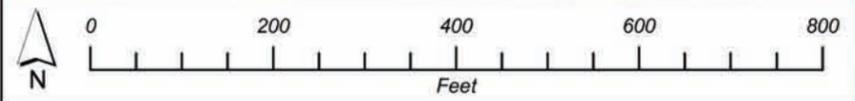
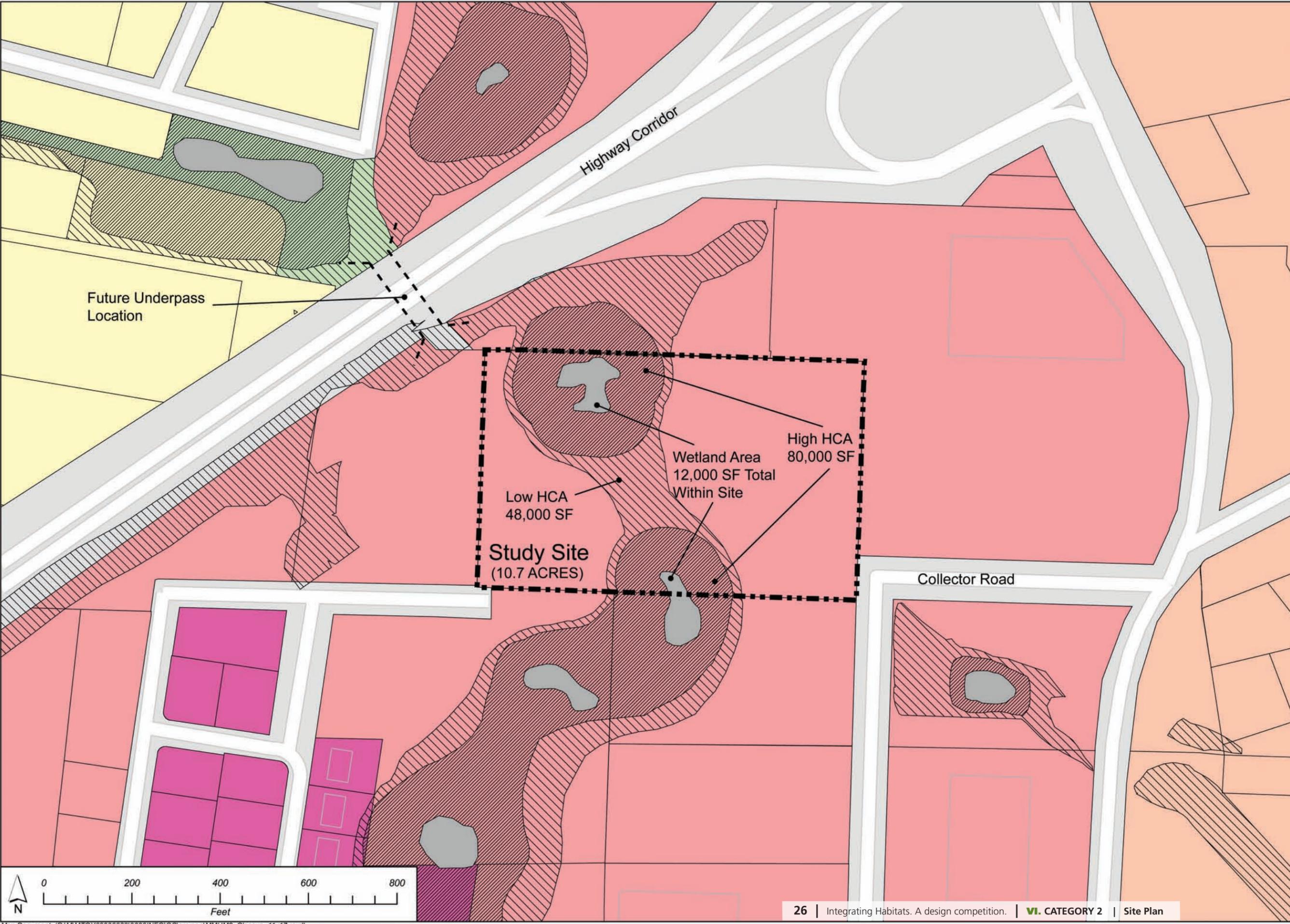


Location Map



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VII. COMPETITION CATEGORY 3:

Neighborhood Residential Infill Development/Remnant Oak Woodland and Savanna Habitat

Category 3

A. PROJECT DESCRIPTION

This category combines residential infill development with oak woodland habitat reestablishment in a mature, urban, residential neighborhood. Entrants are asked to propose secondary dwelling units along an alleyway of a city block (or alternative infill strategies) while also responding to government interest in establishing a resident stakeholder program for enhancing Oregon white oak (*Quercus garryana*) habitat and canopy connectivity. The study block lies within Portland's urban growth boundary in a neighborhood that enjoys high property values, in part due to its close proximity to downtown employment. In this category, the neighbors on the block have received nominal support for restoration efforts and sustainable neighborhood development through a grant from the Metro Nature in Neighborhoods program. The grant award provides some financial support for resident stakeholders to collaborate with a community design center to generate strategies for realizing high quality, nature-friendly housing while simultaneously engaging in a voluntary venture to conserve landscape-scale corridor features. Stakeholders in this category have chosen contiguous oak canopy as a block-scale restoration focus. In addition to habitat benefits, the landowners in this category appreciate the sense of place that oak canopies provide in terms of shade, branching pattern, and space-making.

Primary goals for this category are to:

- Encourage infill growth that limits commuter traffic over far distances
- Foster community relationships and establish a voluntary community program that cultivates knowledge and stewardship of resident's immediate environment
- Protect local and regional habitat connections
- Provide affordable housing for a diverse and growing population.

Given these goals, the site is particularly well-suited for residential infill development. This category looks to integrate two seemingly disparate issues as one integrated solution:

1. Recognition of the need to protect Oregon white oak habitat and restore oak canopy connectivity. The majority of oak habitats in Oregon's Willamette Valley have disappeared over the past two centuries. Division of land into many parcels has been an ongoing obstacle to effective land stewardship and reestablishment of oak habitat connectivity.
2. Recognition of unmet housing needs for a growing percentage of the population. Small, well-designed infill housing within cities is one desired growth model that can help meet this demand in a manner that maintains environmental quality and community identity.

B. HABITAT DESCRIPTION

Native oak savanna habitat consists of scattered Oregon white oak trees rooted in native prairie grasslands. Oak woodland habitat is similar, but with a higher percentage of white oak trees. (A typical description of plant species that characterize this habitat type can be found in Bruce Campbell's, *Restoring Rare Native Habitats in the Willamette Valley*, Appendix A. See References and Resources, pg 36). Oaks and oak canopy provide primary habitat and connectivity benefits for pollinators, neotropical migrants, white-breasted nuthatch, Western gray squirrel, and many other species. These species depend on white oaks and their

populations have declined as oak habitat has been replaced with housing. Oak woodland and savanna plants are also among the state's most endangered plant species. Site designs that incorporate even one or two mature oak trees can provide multiple ecological benefits for both people and oak-dependent species that include cooling and shading the air, improving water quality and providing habitat and food for native wildlife. It is estimated that less than 1% of the historical extent of this habitat still exists in small, scattered patches (hence the word 'remnant' in the habitat name).



VII. COMPETITION CATEGORY 3:

Neighborhood Residential Infill Development/Remnant Oak Woodland and Savanna Habitat

C. SITE DESCRIPTION

Refer to pages 31 and 32 for site context maps and site plans.

1. Site orientation and transportation elements

The site is a 200 ft x 400 ft block with a 12-foot wide, north-south running alley bisecting it (characteristic of the neighborhood), providing access to all lots. Residential streets with low traffic volume surround the site. There are 16 lots on the study block, each 50 ft wide x 100 ft deep. One to two-story street-facing, primary residences exist on all lots. Two adjacent lots, each with a condemned house, have been purchased by the City (see Community Space Program below). Two other lots have existing alley-facing, secondary dwelling units on them (see Site Plan, pg 32).

2. HCA elements and connectivity opportunities

The study block is positioned between a park with significant oak woodland habitat to the southwest and an escarpment, and adjacent ‘Triangle Park’ with significant oak woodland habitat to the east. At one time, an intact oak landscape corridor connected the oak woodland canopy in the park to oak woodland habitat along the escarpment and beyond, but now only a few remnant, legacy (mature) oaks exist, including several on the study block (see Site Plan, pg 32).

3. Soil types and prevailing winds

The site has a neutral slope with no overall aspect. The entire study block lies outside of the floodplain, and no

wetlands exist on site. The entire area harbors soils that are buildable and/or capable of stormwater infiltration. Prevailing summer winds are from the west. Prevailing winter winds are from the north.

D. SUGGESTED DEVELOPMENT PROGRAM

It is encouraged that entrants include all programmatic elements. However, there is some leeway in determining how increased densities can be achieved in a manner that ensures habitat quality and habitat connectivity, and also retains property values. Entrants should offer scenarios that are economically feasible.

1. Building Program

- Entrants are asked to design a total of 12 secondary dwelling units along the alley. Residential designs should be flexible and provide for a diversity of occupant needs (elderly couples, single parents with children, couples with children, couples with no children, unrelated housemates, singles, etc).

2. Community Space Program

- The City has requested proposals for the development of the two adjacent parcels with condemned dwellings for use by the community (as open space or as otherwise proposed by the collaborative efforts of neighbors and the community design center).

3. Habitat and Landscape Design Program

- Provision of residential landscape design concepts that meet the privacy, character and enjoyment needs of residents.
- Development of block-scale residential oak woodland that provides urban oak habitat features, habitat restoration and enhancement opportunities as well as future canopy connectivity between local oak habitat locations. See Metro’s Title 13 Nature-friendly Development Practices Table for guidance (pg 33). Also see Resources and References:
 - Chapters 4 and 12 of Apostol and Sinclair’s *Restoring the Pacific Northwest: the Art and Science of Ecological Restoration in Cascadia*; Hellmund and Smith’s *Designing Greenways: Sustainable Landscapes for Nature and People* (pg 37)
 - “Conservation Corridor Planning at the Landscape Level – Managing for Wildlife Habitat” in the United States Department of Agriculture’s *National Biology Handbook* (pg 37)
 - Chapter 2 and Appendix A of Bruce Campbell’s *Restoring Rare Native Habitats in the Willamette Valley* (pg 36).

VII. COMPETITION CATEGORY 3:

Neighborhood Residential Infill Development/Remnant Oak Woodland and Savanna Habitat

E. APPLICABLE DEVELOPMENT CODE ELEMENTS

Max. accessory dwelling unit (ADU) size	800 SF
Min. size private exterior space adjacent to ADU	250 SF
Max. height of ADU	35 ft
Side yard setback for ADU	0 ft
Rear Yard/alley setback for ADU	5 ft
Off street/off alley parking	1 space

F. FLEXIBLE SITE DESIGN OPTIONS (from Metro's Title 13 Plan)

See section E for all applicable development code elements for this category.



By Paul Harman and Dennis Beyer for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

G. DESIGN ELEMENTS

- **Nature-friendly Development:** Nature-friendly development practices are incorporated on site. The scheme preserves and reestablishes oak habitat and canopy connectivity across the site area and context, and reintroduces associated, native plant communities using innovative landscape design.
- **Architectural Design Quality:** Dwellings use materials efficiently, are healthy for occupants, take advantage of on-site resources (solar access, prevailing breezes, shade trees, etc.), and incorporate passive climate conditioning strategies so as to reduce or eliminate the need for fossil fuels.
- **Livability and Experience:** Building design and configuration support community and ecological goals, with the building design informed by the landscape character and experiential potential of dwelling within oak habitats.
- **Stormwater Management:** Conceptual strategies minimize impervious area to reduce the need for stormwater treatment, integrate stormwater management facilities within the site design, treat and manage stormwater on site, and employ stormwater features as a resource helping to integrate outdoor spaces and pedestrian pathways.
- **Alley Character:** Secondary dwelling units along alleys contribute to a functioning, memorable alley space.
- **Community Development:** The scheme offers a rationale for how neighborhood residents and other stakeholders will work together to rehabilitate ecological networks on the block, providing a model for future efforts throughout the neighborhood and the Metro region. The scheme also provides a compelling solution for the two adjacent lots that the City has purchased for use by the community.

VII. COMPETITION CATEGORY 3:

Neighborhood Residential Infill Development/Remnant Oak Woodland and Savanna Habitat

H. SITE IMAGES



Nearby oak escarpment



Triangle park along escarpment



Oak woodland canopy in the nearby neighborhood Park



One of the surrounding streets of the study block in question



The north-south running alley



A 1.5-story 20's era house typical of neighborhood



Typical 20's era 1-story primary residence on the study block



Typical 40's era 1-story primary residence on the study block



Condemned house on lot that has been purchased by the City



One of the two accessory dwelling units that currently exist on the block



Oregon white oak



The branching patterns of Oregon white oaks



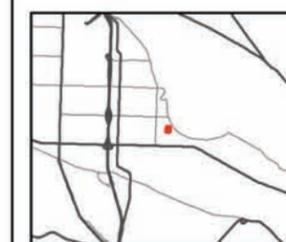
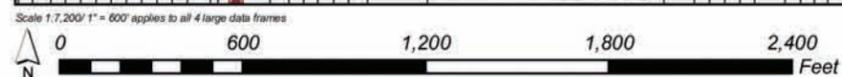
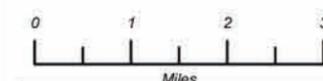
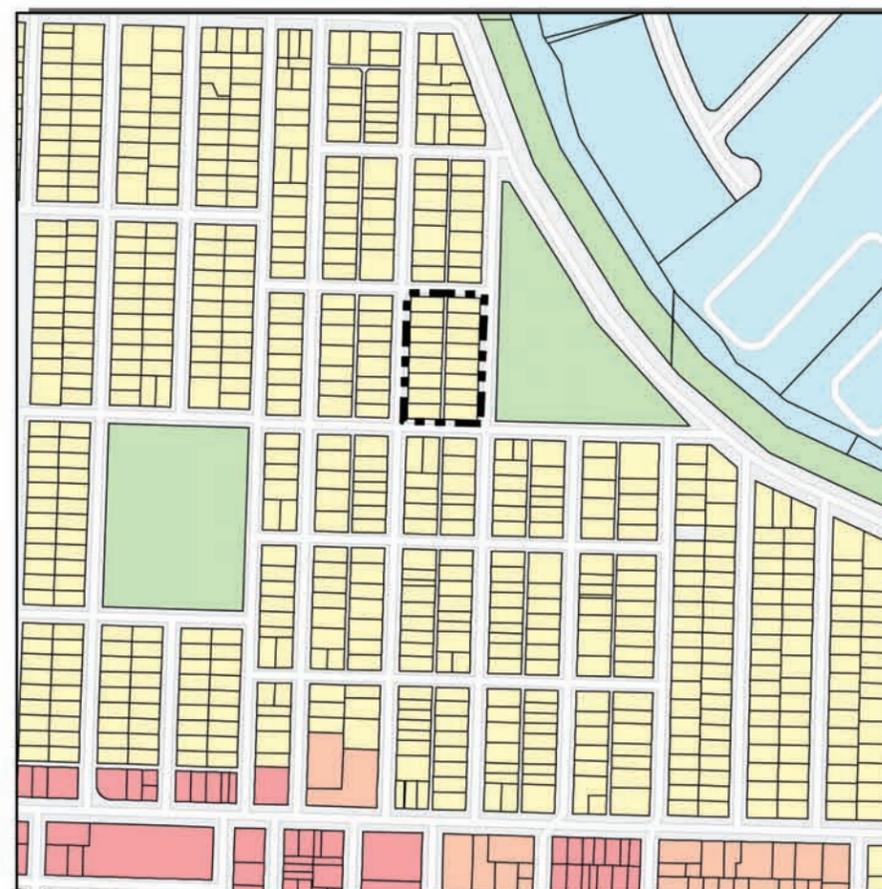
Nature in Neighborhoods

CATEGORY 3

Neighborhood Residential Infill Development

Remnant Oak Woodland

J. SITE CONTEXT MAPS



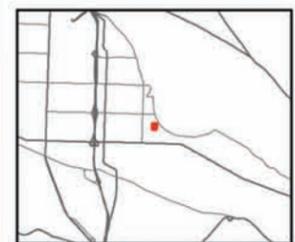
Location Map



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- Legend**
-  Site Boundary
 - Building Types**
 -  Dwelling
 -  Accessory Dwelling
 -  Condemned Properties
 -  Oak Canopy Trees
 - General Land Use Designation**
 -  Commercial
 -  Industrial
 -  Multi-Family Residential
 -  Mixed-Use Employment
 -  Multi-Use Residential
 -  Public Facility
 -  Parks/Open Space
 -  Single Family Residential

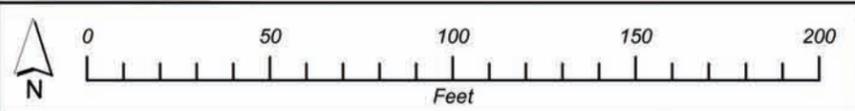


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Study Site



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VIII. METRO'S TITLE 13 NATURE-FRIENDLY DEVELOPMENT PRACTICES TABLE

Table

PART (A): DESIGN AND CONSTRUCTION PRACTICES TO MINIMIZE HYDROLOGIC IMPACTS

1. Amend disturbed soils to original or higher level of porosity to regain infiltration and stormwater storage capacity.
2. Use pervious paving materials for residential driveways, parking lots, walkways, and within centers of cul-de-sacs.
3. Incorporate stormwater management in road right-of-ways.
4. Landscape with rain gardens to provide on-lot detention, filtering of rainwater, and groundwater recharge.
5. Use green roofs for runoff reduction, energy savings, improved air quality, and enhanced aesthetics.
6. Disconnect downspouts from roofs and direct the flow to vegetated infiltration/filtration areas such as rain gardens.
7. Retain rooftop runoff in a rain barrel for later on-lot use in lawn and garden watering.
8. Use multi-functional open drainage systems in lieu of more conventional curb-and-gutter systems.
9. Use bioretention cells as rain gardens in landscaped parking lot islands to reduce runoff volume and filter pollutants.
10. Apply a treatment train approach to provide multiple opportunities for stormwater treatment and reduce the possibility of system failure.
11. Reduce sidewalk width and grade them such that they drain to the front yard of a residential lot or retention area.
12. Reduce impervious impacts of residential driveways by narrowing widths and moving access to the rear of the site.
13. Use shared driveways.
14. Reduce width of residential streets, depending on traffic and parking needs.
15. Reduce street length, primarily in residential areas, by encouraging clustering and using curvilinear designs.
16. Reduce cul-de-sac radii and use pervious vegetated islands in center to minimize impervious effects, and allow them to be utilized for truck maneuvering/loading to reduce need for wide loading areas on site.
17. Eliminate redundant non-ADA (American Disability Act) sidewalks within a site (i.e., sidewalk to all entryways and/or to truck loading areas may be unnecessary for industrial developments).
18. Minimize car spaces and stall dimensions, reduce parking ratios, and use shared parking facilities and structured parking.
19. Minimize the number of stream crossings and place crossing perpendicular to stream channel if possible.
20. Allow narrow street right-of-ways through stream corridors whenever possible to reduce adverse impacts of transportation corridors.

PART (B): DESIGN AND CONSTRUCTION PRACTICES TO MINIMIZE IMPACTS ON WILDLIFE CORRIDORS AND FISH PASSAGE

1. Carefully integrate fencing into the landscape to guide animals toward animal crossings under, over, or around transportation corridors.
2. Use bridge crossings rather than culverts wherever possible.
3. If culverts are utilized, install slab, arch or box type culverts, preferably using bottomless designs that more closely mimic stream bottom habitat.
4. Design stream crossings for fish passage with shelves and other design features to facilitate terrestrial wildlife passage.
5. Extend vegetative cover through the wildlife crossing in the migratory route, along with sheltering areas.

PART (C): MISCELLANEOUS OTHER HABITAT-FRIENDLY DESIGN AND CONSTRUCTION PRACTICES

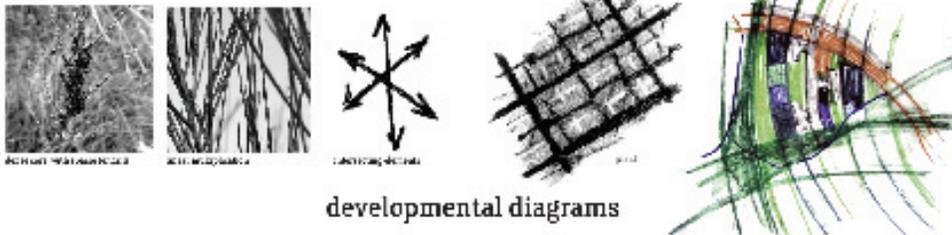
1. Use native plants throughout the development (not just in HCA).
2. Locate landscaping (required by other sections of the code) adjacent to HCA.
3. Reduce light-spill off into HCAs from development.
4. Preserve and maintain existing trees and tree canopy coverage, and plant trees, where appropriate, to maximize future tree canopy coverage.

Stormwater

The following notes pertain to conceptual, on-site stormwater treatment strategies and/or design elements referenced in each category.

- Schemes should generally show spatial locations and sizes of on-site stormwater management facilities, but complex grading and utility connection schemes are not required. General existing grades have been described in the Site Description (Section C) for each category. It is reasonable to assume that slopes could be easily re-graded to accommodate your stormwater management strategy
- Below is an excerpt of the City of Portland’s Stormwater Manual, describing the Simplified (SIM) Approach to stormwater management:

“The simplified approach is a relatively easy process for selecting and designing pollution reduction and flow control facilities, intended to save the project developer and the City time and expense. Combination facilities can be more practical to build than separate pollution reduction and flow control facilities. Facilities sized using the simplified approach retain stormwater near the ground surface, which provides a number of benefits, including pollution reduction, groundwater recharge and protection, peak flow reduction, and volume reduction. Rather than detaining stormwater and releasing it off-site at increased post-developed volumes, these facilities help infiltrate or retain water on site. In areas with surface drainage ways and streams, on-site retention lessens the “flashy” high- and low-flow impacts created by development in watershed basins. Stream erosion and temperature impacts are also decreased. In combination sewer areas, on-site retention facilities decrease the rate and volume of stormwater that flows through the system, decreasing the risk of combined sewer overflows and basement flooding. Overall, these facilities help mimic the natural hydrologic cycle by slowing and infiltrating stormwater.”



developmental diagrams

By Anna Hook and Heather Rusch for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

A. QUICK STORMWATER FACILITY SIZING

- The Quick Sizing Form (pg 35), also called Form SIM, provides an excellent way to conveniently size on-site stormwater management facilities when developing a conceptual stormwater management strategy. While the facility sizes recommended in this approach typically require stormwater disposal following treatment by on-site infiltration facilities, for the purposes of the category exercises this will not be necessary. Therefore, stormwater disposal requirements need not be specifically met for category submittals. You may assume that on-site facilities sized using this form are large enough to completely infiltrate stormwater, and/or that an accessible public storm sewer connection exists nearby. For example, you may assume that public stormwater sewer connections are present on all streets near the study site.
- General descriptions of the Impervious Area Reduction Techniques and Stormwater Management Facilities referenced in the Quick Sizing Form can be found in the Portland Stormwater Manual. (See References and Resources, pg 36).

Note: the “Tree Credit” option referenced in the Manual is not available for use in the Category 1 and Category 2 exercises

IX. STORMWATER MANAGEMENT OVERVIEW

B. QUICK SIZING FORM

Form SIM: Simplified Approach for Stormwater Management

The city has produced this form to assist with a quick and simple approach to manage stormwater on-site. Facilities sized with this form are presumed to comply with pollution reduction and flow control requirements. Stormwater disposal requirements per Section 1.4 must still be met.

New or Redeveloped Impervious Site Area

Box 1

(do not include roof areas that will be infiltrated on-site with drywells or soakage trenches)

Column 1 Column 2 Column 3

INSTRUCTIONS

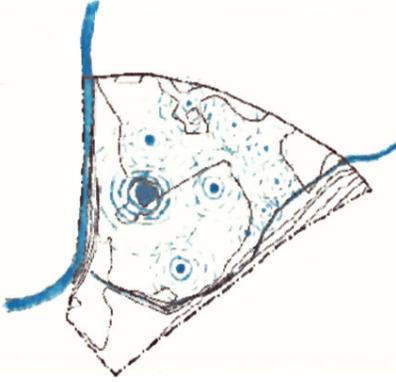
1. Enter square footage of new or redeveloped impervious site area in Box 1 at the top of this form.
2. Select impervious area reduction techniques from rows 1-2 to reduce the site's resulting stormwater management requirement. Tree credit can be calculated using the tree credit worksheet on the next page.
3. Select desired stormwater management facilities from rows 3-9. In Column 1, enter the square footage of impervious area that will flow into each facility type.
4. Multiply each impervious area from Column 1 by the corresponding sizing factor in Column 2, and enter the result in Column 3. This is the facility surface area needed to manage runoff from the impervious area.
5. Total Column 1 (Rows 1-9) and enter the resulting "Impervious Area Managed" in Box 2.
6. Subtract Box 2 from Box 1 and enter the result in Box 3. When this number reaches 0, stormwater pollution reduction and flow control requirements have been met. Submit this form with the application for permit.
7. If Box 3 is greater than 0 square feet, add square footage or facilities to Column 1 and recalculate, or use additional facilities from Chapter 2.0 of the Stormwater Management Manual to manage stormwater from these remaining impervious surfaces.

Impervious Area Reduction Technique					
1) Eco-Roof / Roof Garden	_____	sf			
2) Contained Planter	_____	sf			
Note: Pervious Pavement areas do not need to be included in Box 1					
Stormwater Management Facility	Impervious Area Managed	Sizing Factor	Facility Surface Area	Unit	
3) Infiltration Planter	_____	sf x 0.06	=	<input style="width: 50px;" type="text"/>	sf
4) Flow-Through Planter	_____	sf x 0.06	=	<input style="width: 50px;" type="text"/>	sf
5) Vegetated Swale	_____	sf x 0.09	=	<input style="width: 50px;" type="text"/>	sf
6) Grassy Swale	_____	sf x 0.12	=	<input style="width: 50px;" type="text"/>	sf
7) Vegetated Filter Strip	_____	sf x 0.2	=	<input style="width: 50px;" type="text"/>	sf
8) Vegetated Infil. Basin	_____	sf x 0.09	=	<input style="width: 50px;" type="text"/>	sf
9) Sand Filter	_____	sf x 0.07	=	<input style="width: 50px;" type="text"/>	sf

Total Impervious Area Managed **Box 2**

Box 1 - Box 2 **Box 3**

Resources



By Mike Shannon for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon



By Paul Harman and Dennis Beyer for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

ONLINE RESOURCES AND REFERENCE MATERIAL

Stormwater management techniques

Portland, City of. *City of Portland Stormwater Management Manual*. Bureau of Environmental Services and Clean River Works, 2004.

See: <http://www.portlandonline.com/shared/cfm/image.cfm?id=55791>

- Stormwater Management descriptions and guidance: pages 2–3, 2–5, 2–35 to 2–52 and 2–57 to 2–99 (Chapter 2)
- Quick Stormwater Facility Sizing and Quick Size Form guidance: pages 2–35 to 2–52 and 2–57 to 2–99 (Chapter 2)

Hinman, Curtis. *Low Impact Development: A Technical Guidance Manual for Puget Sound*. Puget Sound Action Team, Washington State University Pierce County extension, Washington, January 2005. See:

http://www.psat.wa.gov/Publications/LID_tech_manual05/lid_index.htm

Fryer, Barbara. *Habitat Friendly Development Practices Guidance Manual*. City of Beaverton Planning Services Division, December 2006.

See: http://www.beavertonoregon.gov/departments/CDD/Planning/habitat/docs/Final_Guidance_2_16_06.pdf

Native plants and habitat restoration

Portland, City of, *Portland Native Plants List*. 2004. See:

<http://www.portlandonline.com/shared/cfm/image.cfm?id=52482>)

- Category 1 (Riparian forest): pages 9–15 listed under “*Western Hemlock-Douglas-Fir forest*”
- Category 2 (Hardwood forest): pages 17–20 listed under “*Mixed Coniferous/Deciduous Riparian Forest*”
- Category 2 (Wetlands): pages 33–35 listed under “*Scrub-Shrub Wetlands*”

Campbell, Bruce H., *Restoring Rare Native Habitats in the Willamette Valley: A Landowner’s Guide for Restoring Oak Woodlands, Wetlands, Prairies, and Bottomland Hardwood and Riparian Forests* (Washington, D.C.: Defenders of Wildlife) See: http://www.ser.org/sernw/pdf/DefOWild_willamette_hab_restore_manual.pdf

- Category 3 (Oak woodland and savanna): pages 5–11 (Chapter 2) listed under “*Enhancing Existing Oregon White Oak Stands*” and “*Restoring Historic Oregon White Oak Stands*”
- Category 3 (Oak woodland and savanna): pages 71–85 (Appendix A) listed under “*Common and Scientific Names of Plants and Habitats Where They Commonly Occur*”

United States Department of Agriculture, Natural Resources Conservation Service, *Conservation Corridor Planning at the Landscape Level – Managing for Wildlife Habitat*. See: <http://www.nrcs.usda.gov/technical/biology.html>. Look for the downloadable PDF of Part 613 in Subpart B Conservation Planning

Green building

United States Green Building Council, *Leadership in Energy and Environmental Design*, LEED and LEED ND Program. See: <http://www.usgbc.org/>

Cascadia Region Green Building Council, *Leadership in Energy and Environmental Design for the Pacific Northwest*, Green Building and Living Building Challenge. See: <http://www.cascadiagbc.org/> or <http://www.cascadiagbc.org/lbc/Lb-challenge-v1-2>

Additional Ecology and Nature-friendly Site Development reference material

Apostol, Dean, and Sinclair, Marcia, eds., *Restoring the Pacific Northwest: the Art and Science of Ecological Restoration in Cascadia* (Washington, DC: Island Press, for Society for Ecological Restoration International, 2006)

- Category 3 (Chapter 4: pages 63–96, Chapter 12: pages 279–297)

Campbell, Craig S. and Ogden, Michael H., *Constructed Wetland in the Sustainable Landscape* (New York: John Wiley and Sons, 1999)

Forman, Richard T.T. and Godron, Michel, *Landscape Ecology* (New York: John Wiley & Sons, 1986)

Hellmund, Paul Caewood, and Smith, Daniel Somers, *Designing Greenways: Sustainable Landscapes for Nature and People* (Washington, D.C.: Island Press, 2005)

Higgs, Eric, *Nature By Design: People, Natural Process and Ecological Restoration* (Cambridge, MA: MIT Press, 2003)

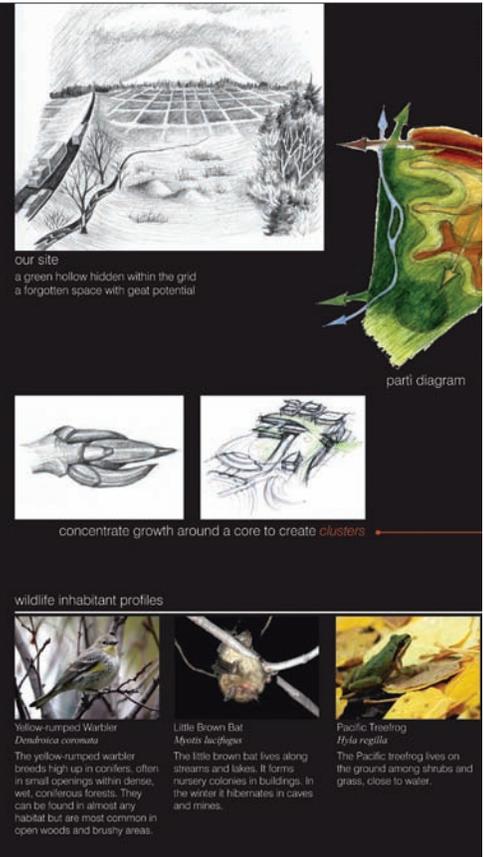
Houck, Michael C., and Cody, M.J., eds., *Wild in the City: A Guide to Portland's Natural Areas* (Portland: Oregon Historical Society Press, 2000)

Girling, Cynthia, and Kellett, Ronald, *Skinny Streets and Green Neighborhoods: Design for Environment and Community* (Washington, D.C.: Island Press, 2005)

Lyle, John Tillman, *Design for Human Ecosystems* (Washington, D.C.: Island Press, 1999)

Nassauer, Joan Iverson, ed., *Placing Nature: Culture and Landscape Ecology* (Washington, D.C.: Island Press, 1997)

Rudd, Hillary; Vala, Jamie; and Schaefer, Valentin, *Importance of Backyard Habitat in a Comprehensive Biodiversity Conservation Strategy: A Connectivity Analysis of Urban Green Spaces*, *Restoration Ecology* 10:2, 2002, pp. 368–375



By Paul Harman and Dennis Beyer for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon



By Mike Shannon for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon



By Jeremy Webber and JHoLee for 2007 Muller/Cerra Wild Urbanism Studio at University of Oregon

Green Buildings

Brown, G.Z., and DeKay, Mark, *Sun, Wind & Light: Architectural Design Strategies*, 2nd Edition (New York: John Wiley & Sons, 2001)

Kwok, Alison, AIA, and Grondzik, Walter T., PE., *The Green Studio Handbook: Environmental Strategies for Schematic Design* (Oxford, UK: Elsevier/ Architectural Press, 2007)

Lechner, Norbert, *Heating, Cooling, Lighting: Design Methods for Architects*, Second Edition, (New York: John Wiley & Sons, Inc. 2001)

Stein, Benjamin; Reynolds John S.; Grondzik Walter T.; and Kwok, Alison G., *Mechanical and Electrical Equipment for Buildings*, 10th Edition (New York: John Wiley & Sons, 2006)

Van der Ryn, Sim, and Cowan, Stuart, *Ecological Design* (Washington, D.C.: Island Press, 1996)

Other Related

Benyus, Janine M., *Biomimicry: Innovation Inspired by Nature* (New York: Harper Collins, 1997)

Braungart, Michael, and McDonough, William, *Cradle to Cradle: Remaking the Way We Make Things* (New York: North Point Press, 2002)

Kellert, Stephen R. *Building For Life: Designing and Understanding the Human-Nature Connection* (Washington, DC: Island Press, 2005)

XI. HOSTS AND PARTNERS

Integrating Habitats. A design competition

Project team

HOST:



Metro

Metro is the directly elected regional government that serves 1.3 million people who live in the 25 cities and three counties of the Portland metropolitan area and provides planning and other services that protect the nature and livability of the region. Metro's Nature in Neighborhoods program brings the region's residents and government together to ensure a healthy urban ecosystem. Clean air, clean water, thriving economies and good transportation do not stop at city limits or county lines and voters asked Metro to help with regional challenges. Metro is the only government entity of its kind in the nation.



CO-HOSTS:



ENVIRONMENTAL SERVICES
CITY OF PORTLAND

working for clean rivers

City of Portland Bureau of Environmental Services

A bureau of the City of Portland, Environmental Services protects public health, water quality and the environment for Portland residents. Environmental Services supports a healthy economy by providing excellent service, being cost effective, and demonstrating environmental leadership. Committed to leaving a clean river legacy, they work to create healthy watersheds where sustainable stormwater management practices such as ecoroofs, raingardens and green streets are integral.

CleanWater  Services

Clean Water Services (CWS)

CWSA public utility committed to protecting water resources in the Tualatin River Watershed, Washington County, Oregon. Nearly 500,000 customers enjoy clean water and healthy rivers and streams through innovative wastewater and stormwater services, river flow management, water quality and stream enhancement projects, fish habitat protection, and more. These services are crucial to the region's public health, environmental protection and economic vitality.



WATER ENVIRONMENT SERVICES

Clackamas County Water Environment Services

Committed to maintaining a clean environment and protecting water resources, WES provides wastewater collection and treatment and biosolids reuse for seven cities and several unincorporated areas in Clackamas County, Oregon. WES' mission is to provide sustainable wastewater and stormwater management services that create community value.



PORT OF PORTLAND

Port of Portland

The Port of Portland's mission is to enhance the region's economy and quality of life by providing efficient cargo and air passenger access to national and global markets. In support of this mission, the Port manages natural and developed riverbanks as well as lands in the greater Portland area.



City of Gresham

The fourth largest city in Oregon, the City of Gresham's mission is to create community wealth with smart growth, smart kids and smart industries. Gresham's community image and amenities depend on a financially sustainable future, open spaces, parks, community events, quality commercial and industrial development, and an excellent infrastructure system.

NON-PROFIT PARTNER:

Salmon-Safe

Salmon-Safe is an independent Portland-based organization devoted to restoring agricultural and urban watersheds so that salmon can spawn and thrive. Their core purpose is to foster land management practices and a culture of sustainability that successfully balances the health and prosperity of people, salmon and the natural and created systems that surround them.



PROJECT ADVISORS:

Josh Cerra, David Evans & Associates

Brook Muller, University of Oregon School of Architecture and Allied Arts

Integrating Habitats. A design competition.



Collaborate to redefine the built environment and restore nature.

Integrating Habitats is a premier international design competition aimed at generating innovative ideas and site designs that protect and enhance water quality, as well as fish and wildlife habitat. The competition challenge is to create elegant, functional designs for conceptualized sites that blend natural area access, site planning, environmental preservation and resource conservation in construction and development.

Competition Jurists:



Stefan Behnisch
Principal
Behnisch Architects
Stuttgart, Germany
and Venice, California



Tom Schueler
Founder
Center for Watershed
Protection
Ellicott City, Maryland



Joan Nassauer
Professor of Landscape
Architecture
University of Michigan
Ann Arbor, Michigan



Susan Szenasy
Editor in Chief
Metropolis Magazine
New York, New York



David Yocca
Director
Conservation
Design Forum
Elmhurst, Illinois



Jim Winkler
President
Winkler Development
Corporation
Portland, Oregon

Submission Deadline:

December 17, 2007

www.metro-region.org/integratinghabitats

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