

People's choice

CATEGORY

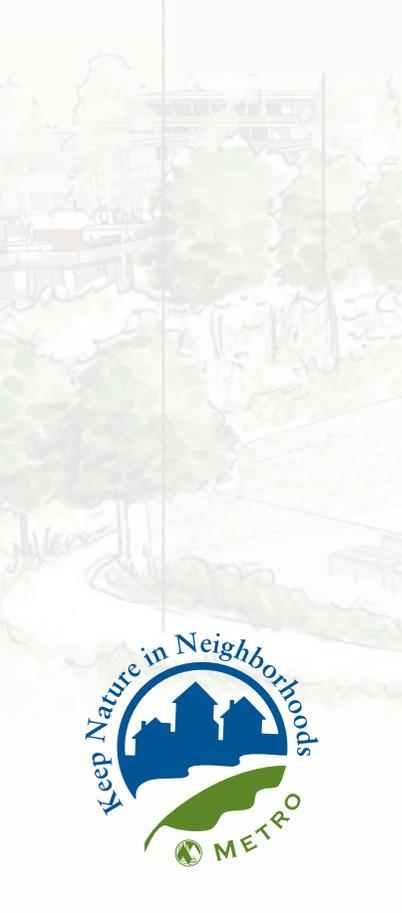
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Nature in Neighborhoods:
Integrating Habitats Winners Series

Commercial development and lowland hardwood forest

The Green Spine

Backbone of a new commercial commons



Invite nature in

Rainwater reflections

Organic orchard + treehouse cafe

Energy harvest

Active transportation

Discovery Center

Park(ing) lots





Snapshot of a winner

Bold ideas can lead to new types of development that enhance water quality and fish and wildlife habitat, while improving human health and well-being. In the Green Spine, structures breathe, parking lots bloom, and rooftops harvest water and sunlight from the sky. Imagine a ‘big box’ commercial site where built infrastructure and natural systems evolve together and each feature and resource perform multiple functions that benefit people, pocketbooks and the planet...



③ Organic orchards + treehouse cafe

An organic orchard with an integrated pest management (IPM) system produces pesticide-free fruits and nuts for the treehouse cafe’s seasonal menus. Boardwalk planters and roof gardens help supplement the cafe’s delicious offerings, minimizing transportation needs, production costs, and environmental impacts. This central location is a hub of economic activity that also promotes a healthy environment for people and wildlife.



⑤ Active transportation

Bike, run, walk, bird. Customers enjoy an extensive network of interconnected trails, parks and natural areas that provide recreation, as well as a way to transport large purchases via rental bike wagons.

The Green Spine:

A central, vegetated wildlife corridor and wetland comprise the core elements of the site plan

Inhabitant profiles



Spirea, red-wing blackbird nest, rough-skinned newt

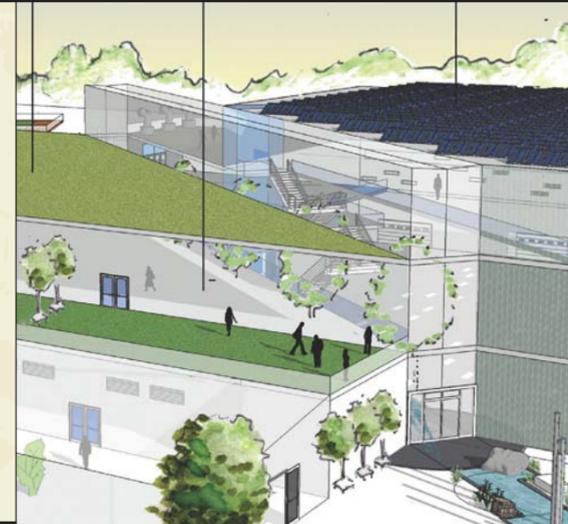


② Rainwater reflections

The reflecting pond at the north entry transforms built elements into more natural ones. Rainwater cascades from the roof down the glass wall, eventually filling the pond and an interior stream. The pond’s water level ebbs and flows, symbolizing the cyclical nature of the surrounding wetlands’ water cycle. As in nature, surface ripples eventually wear and round the pond’s edges.

“These designs raise awareness and communicate the idea that green development can improve our communities, our health and our economy.” – David Yocca, jurist

“We really have to rethink the integration of neighborhoods, design, nature, architecture and planning and how all these things make our lives work for us.” – Susan Szenasy, jurist



⑥ Discovery center

Engaging interpretive programs allow people to discover the natural world, observe wildlife, and see green product or sustainable behavior demonstrations.

① Invite nature in

Every part of the built environment has been designed to protect and showcase the site’s ecosystem services and natural assets. Green infrastructure, a preserved wetland, and internal water features, plants and trees create a place-based shopping experience. These features also connect visitors to the natural resources and systems that enable the production of sustainable building supplies and improve water and air quality.



④ Energy harvest

Wind cowls — a hoodlike covering for increasing the draft of a chimney or ventilator — act as the lungs of the building, drawing in cool western breezes in the summer and releasing warm air from within. Other building features that harvest or capture energy from natural systems include solar panels, a greenhouse and vegetated walls. The extensive green roof system also provides shelter where wildlife can rest and feed.



⑦ Park(ing) lots

Parking lots double as gardens and stormwater treatment facilities, reducing the heat-island effect, improving water quality and turning vast slabs of asphalt into more pleasant, park-like spaces.

Big box stores: destinations for people and wildlife

The Green Spine shows a new vision for integrating a site's constructed and natural elements. All aspects of this design aim to change big box 'norms.' As green infrastructure in the built environment matures, it becomes an important, functional part of the preserved and existing natural systems that contribute to the site's ecological health. Space once devoted solely to consumerism and cars is transformed into one that supports sustainable food production, vibrant wildlife habitat, use of recycled construction materials and active transportation alternatives like biking and walking.

Team member

- University of Arizona Tucson, Ariz.
- Laura Bolyard e-mail: bolyard@email.arizona.edu
- Kimberly Creagan
- Rachel Hill
- Jenny Leijonhufvud
- Steven Steinberg

"The most compelling entries demonstrate how active collaboration can suggest simple but profound alternatives to the systems that hamstring urban landscapes."

- Joan Nassauer, jurist

Jurists

- Stefan Behnisch, principal Behnisch Architects Stuttgart, Germany and Venice, Calif.
- Joan Nassauer, professor Landscape architecture University of Michigan Ann Arbor, Mich.
- Tom Schueler, founder Center for Watershed Protection Ellicott City, Md.
- Susan Szenasy, editor-in-chief Metropolis Magazine New York, N.Y.
- Jim Winkler, president Winkler Development Corporation Portland, Ore.
- David Yocca, director Conservation Design Forum Elmhurst, Ill.



Can we envision a world in which stores are destinations for both shoppers and wildlife?

Can we design human habitats that blend into the ecological context?

Can we create consumerist spaces that also produce?

THE GREEN SPINE: BACKBONE OF A NEW COMMERCIAL COMMONS

Submitted to the Integrating Habitats Design Competition in the Category of Commercial Development

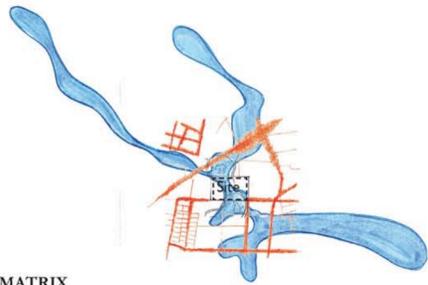
The structures breathe, the parking lots grow, the rooftops lap water and sunlight from the sky... This is the Green Spine, backbone of an integrated Commons. The concept breaks the "big box" to weave it seamlessly into the fabric of a natural, unbroken system. The integration of human uses into natural habitat is not limited to the visual or spatial incorporation of 'green' elements into the built, nor merely by the preservation of important existing open spaces. The Green Spine shows a new vision for integrating constructed and natural elements; here the built system is evolving, increasingly becoming a part of the natural system, and a component of the site ecology.

THE CHALLENGE
 Plan and design a green home building center and commercial complex in a lowland hardwood forest and wetlands habitat including:
 70,000 sq. ft. of green improvement center.
 25,000 sq. ft. of garden center with green house.
 4,000 sq. ft. cafe.
 24,000 sq. ft. of other commercial space.
 The mission of the competition is the integration of human and natural habitat while developing a new vision for commercial growth in suburban areas.

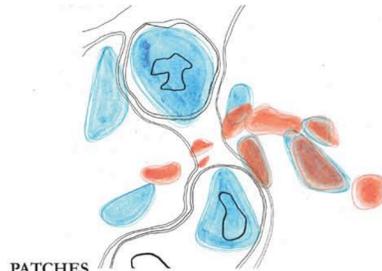


WHAT EXISTS NOW?
 The site is bisected by an important corridor of lowland hardwood forest and wetlands. Disturbed areas to the east and west of this corridor are covered mainly in non-native grasses. Access points are two roads to the southeast and southwest, and a future bicycle and pedestrian corridor from the northwest. The area is zoned for commercial use, and is surrounded by various dense residential zones and commercial big box stores.

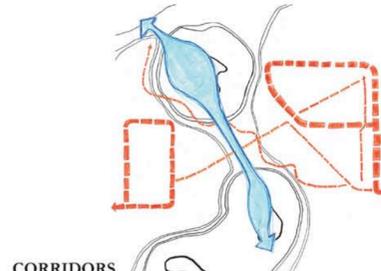
CONFRONTING THE PARADIGM
 The mention of "Big Box" recalls cavernous, confusing spaces, vast swaths of parking, and a firm disconnect between production and consumption. Confronting this prevailing pattern, the Green Spine concept works towards a replicable new paradigm of commercial development that:
 - Prioritizes the functions of natural systems.
 - Is designed specifically for the site.
 - Minimizes its ecological footprint.
 - Is pedestrian oriented.
 - Focuses on the provision of green transportation alternatives for people and goods.
 - Reveals and interprets the natural/human interface on the site.



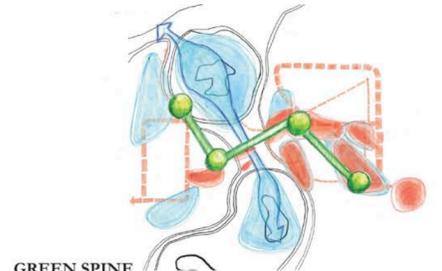
MATRIX
 The ecological matrix underlying the area was once a lowland hardwood forest/wetland system. Remnants of this structure still exist in patches between developments, but the fundamental matrix is shifting to a human matrix. Instead of further encroaching on what used to be, the Green Spine respects the wetland and looks at points of intersection of the two matrices as places to emphasize conservation, interpretation and mitigate impact.



PATCHES
 Site development should be based on a system of a series of both human and ecological patches. Human nodes provide variety and functions, as well as strong public transportation links. Wildlife patches, as they overlap with human uses, must be protected and interaction must be mitigated.



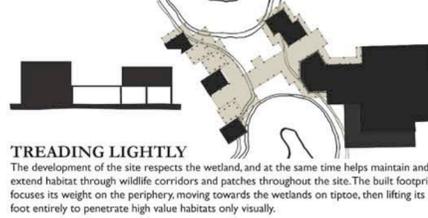
CORRIDORS
 Human and wildlife corridor movement must be protected, supported and maintained on the larger scale. The bike routes link, forming community-wide circuits. The wetland site connections must be emphasized at a large scale throughout the region. Where the human matrix has severed those ties, development should seek to revive them. Human and ecological corridors are the ties holding seemingly disparate systems together.



GREEN SPINE
 The Green Spine model not only respects regional ecological functions, but also explores the possibility of transforming human developments from separate and destructive to integrated and productive parts of the larger ecosystem. The form of the Green Spine connects human patches and corridors while protecting the integrity of wildlife patches and corridors.



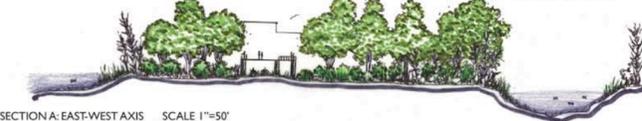
INFILTRATION BASINS
 Infiltration basins placed between rows of parking filter and slow stormwater runoff, cleansing water as it percolates through the soil. Shade, cover and visual interest provide a pleasant parking lot experience for the shopper.
 When the small basins fill, the excess water is channeled into a large basin that becomes an ephemeral wetland. Native sedges, rushes, black cottonwoods and Oregon Ash extend wildlife habitat into the built environment. The larger triangular basin and adjoining parking can serve as a multi-use space for events, demonstrations or interpretation.



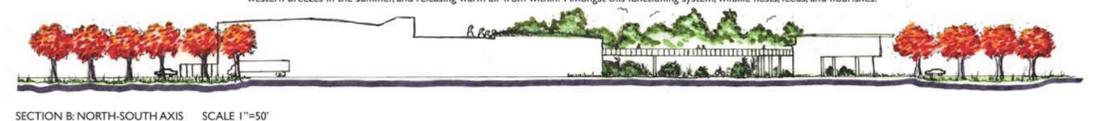
TREADING LIGHTLY
 The development of the site respects the wetland, and at the same time helps maintain and extend habitat through wildlife corridors and patches throughout the site. The built footprint focuses its weight on the periphery, moving towards the wetlands on tiptoe, then lifting its foot entirely to penetrate high value habitats only visually.
ECO-ROOFS
 Eco-roofs form a skin for the building. Planted with native wildflowers, Sedum, Slender Hairgrass, Wild Strawberry, and Kinnikinnik, the roofs provide multiple benefits including:
 - Preempting stormwater runoff.
 - Reducing the usual warming impact of stormwater on wetland areas.
 - Improving air quality.
 - Insulating the building.
 - Providing habitat for wildlife.
 - Inspiring customers to buy materials to construct their own.
 Roof Gardens provide:
 - Appealing views from cafe.
 - A break from shopping.
 - Produce served in the cafe.



WORKING WITH THE LANDSCAPE
 Living walls, green roofs, and terracing help the built environment blend into and partner with the landscape. Active and passive solar systems include trombe walls, southern glazing and solar panels. The greenhouse sun space harnesses solar energy to produce natural ventilation and heat for the main building. Wind cowls act as the lungs of the building, bringing in cool western breezes in the summer, and releasing warm air from within. Amongst this functioning system, wildlife nests, feeds, and flourishes.



SECTION A: EAST-WEST AXIS SCALE 1"=50'



SECTION B: NORTH-SOUTH AXIS SCALE 1"=50'



NORTHERN BIKE HUB
 Low-impact transportation alternatives are encouraged through mass transit, and pedestrian and bicycle connections. The provision of "zip" trucks and bicycle wagons for rent also facilitates and encourages alternative transport uses. These two amenities can have significant ripple effects by allowing a consumer to easily transport even large or heavy purchases without the use of their car.



TREEHOUSE CAFE
 The organic orchard produces fruit and nuts for sale in the cafe. Planters on the boardwalk and roof gardens also help supplement the cafe's food service. Food produced on-site minimizes transportation and production costs, both monetarily and ecologically. The cafe's central location serves as a hub of activity overlooking the wetland.



PARKING GARDEN
 The axis of the spine continues visually with brilliant red hues of maples in the fall. Where the maples meet the infiltration basins, pedestrians can access footbridges that guide them to the heart of the complex. Interpretive signs along the path instill deeper understanding of the surrounding ecosystem. Parking spaces are composed of permeable paving, while the roadway a durable, low maintenance impervious surface.



THE BOARDWALK
 The boardwalk along the central spine connects pedestrians to opposite commercial nodes. The focus, through orientation and movement, is continual on the wetland and the pedestrian. Through these binding elements, the built environment is connected and integrated into the larger system of the site.



CORRIDORS:
 Preserved Hardwood Forest
 Multi-Use Path
 Boardwalk
 The Green Spine
 Infiltration Basins
PATCHES:
 Preserved Wetlands
 Preserved Hardwood Forest
 Organic Orchard
 Green Roofs
 Bio-Sponge Wall
 Infiltration Basins
 Ephemeral Wetland

STORM WATER MANAGEMENT

Surface Type	Area (sq. ft.)	Impermeable Surfaces	Area (sq. ft.)
Parking	48,096	Roads	91,180
Pedestrian	33,193	Roofs	72,660
Total permeable	80,713	Total impermeable	163,840
Management Tool		Management Tool	
Infiltration Basins	32,918 (14,745 Sq. Ft. needed)	Green roofs, roof gardens	31,700



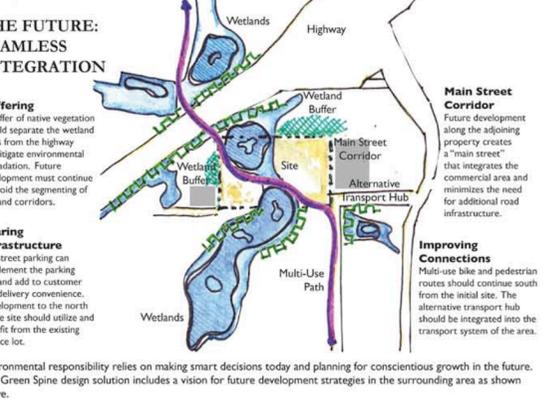
THE HEART
 The reflecting pond at the north entry represents the melding of built elements into nature. Rainwater cascades from the roof down the glass wall, eventually filling the pond and the interior stream. A pump creates a central pulse of water sending ripples across the surface and symbolizing the expanding influence of the new paradigm. Where the ripples hit the square's edges they will be worn down and rounded.



SHOPPING BY THE STREAM
 Flowing water, plants, boulders, ponds filled with lilies and sedges, turtles and fish... the garden experience doesn't stop at the door. The trees reach towards the glass ceiling beside the aisles of tools, hardware and appliances. Shopping is a walk in the woods.



GARDEN CENTER ENTRY PLAZA
 Accessed directly from the bus stops, the pedestrian plaza is also the garden center. Here a pond is the terminus of the harvested stream running through the building. The water flows back into the ground for collection in an underground storage cistern for the garden center. A direct sight-line along the Green Spine leads into the atrium of the building. After passing through the garden center, a new shopping experience begins.



THE FUTURE: SEAMLESS INTEGRATION
Buffering
 A buffer of native vegetation should separate the wetland areas from the highway to mitigate environmental degradation. Future development must continue to avoid the segmenting of wetland corridors.
Sharing Infrastructure
 On-street parking can supplement the parking lots and add to customer and delivery convenience. Development to the north of the site should utilize and benefit from the existing surface lot.
Improving Connections
 Multi-use bike and pedestrian routes should continue south from the initial site. The alternative transport hub should be integrated into the transport system of the area.
Environmental responsibility relies on making smart decisions today and planning for conscientious growth in the future. The Green Spine design solution includes a vision for future development strategies in the surrounding area as shown above.

Metro regional government

serves 1.4 million people who live in the 25 cities and three counties of the Portland metropolitan area. Metro's Nature in Neighborhoods initiative brings the regional government and local jurisdictions together to help ensure that the region's wildlife and people thrive in a healthy urban ecosystem.

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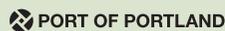


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Nature in Neighborhoods: Integrating Habitats Winners Series

Blend. Balance. Integrate.

Collaborate to redefine the built environment and restore nature.

More than 100 teams from around the world submitted entries to the Integrating Habitats design competition, proving that every space in which we live, work, shop and play can create places for both people and nature. These designs redefine current standards of environmental sustainability. The award winners illustrate new types of nature-friendly designs that balance development, human needs and the health of natural systems we all depend upon.



www.oregonmetro.gov/integratinghabitats

“The work from Integrating Habitats will translate into informing and enriching the way we treat one another and create healthier environments.” — Brook Muller, project advisor