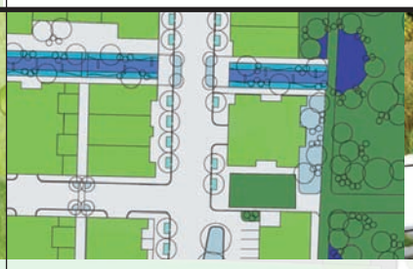
Third place

CATEGORY 1

Nature in Neighborhoods:
Integrating Habitats Winners Series

Mixed-use development and riparian forest

Daily Migrations



Common daily journeys

Eco-corridors

Climatic site design

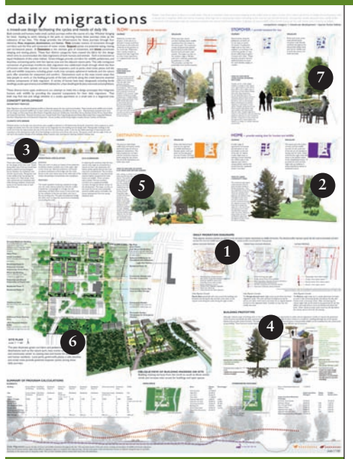
Buildings that function like trees

Daycare nature garden

Restored natural buffer

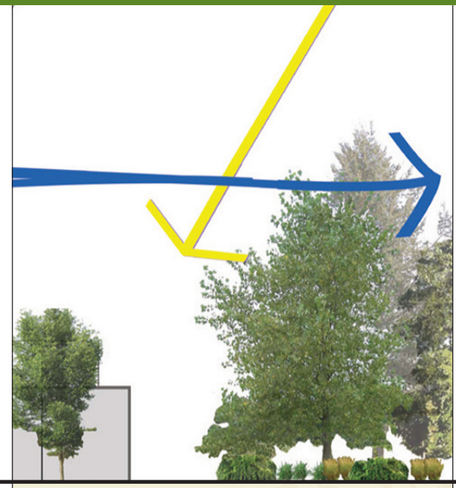
Seasonal wetland

Keep Nature in Neighborhoods
METRO



Snapshot of a winner

Does your day-to-day routine connect you to nature? Daily Migrations presents a mixed-use design that supports the daily, cyclical journeys and needs of both humans and wildlife. Everyday activities like eating, commuting, working, relaxing and returning home can happen in spaces that improve water quality, provide food, shelter and water for wildlife, and create opportunities to experience nature in our neighborhoods.



③ Climatic site design

In places where winters are dark and cold, increased access to sunlight is welcome. Exposure to warm solar rays and shelter from cold northern winds are integrated into the site and building design, improving energy efficiency. Clustering taller buildings towards the north end helps protect the rest of the site from cold winter winds, while improving the solar orientation of the development itself. During winter, the low angle of the sun will warm the southern facades of the buildings.

⑤ Daycare nature garden

Children spend the day exploring the nature rain garden, planting native flowers and observing rough-skinned newts, tree frogs and butterflies. The garden is watered with the building's roof runoff.

Daily Migrations: *Humans and animals migrate, making constant, cyclical journeys throughout the course of day.*

Inhabitant profiles

Sword fern, Belted kingfisher (U.S. Fish and Wildlife), Meadowhawk dragonfly

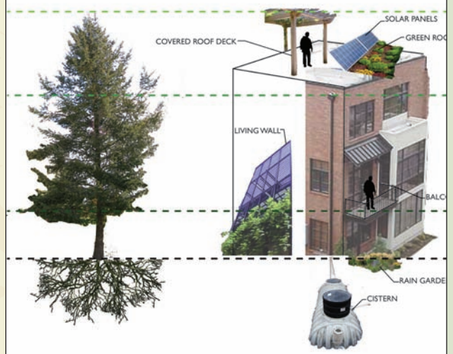
① Common daily journeys

Built and green infrastructure supports the common, everyday journeys of humans and wildlife and features four design elements: flow, stopover, destination and home. Flow provides safe movement and travel. Stopover provides intermediate places for eating, resting and recreation. Returning from a destination, home is the place for sleeping, nesting, privacy and retreat. These shared needs and activities overlap and form the substance of everyday living.

② Eco-corridors

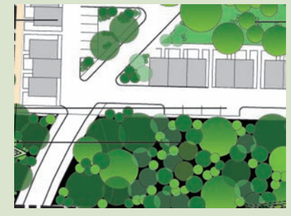
Green pathways link wildlife, pedestrians and bicyclists to riparian areas, parks and retail spaces. The safe, contiguous connection of greenways transforms daily migrations into celebrated rituals through which the movements and encounters of humans and other species can occur. Stopover places for humans and wildlife are amenities for enjoyment and comfort, as well as essential for rest and refuge.

> "The peaceful coexistence between nature and humans, encouraged by this design, is especially appealing. We need desperately to relearn these connections. Schemes like this one will help us get there." – Susan Szenasy, jurist



④ Buildings that function like trees

Just as trees protect soil, improve air and water quality and provide shelter for wildlife, so too can buildings. A moderate footprint, ecoroofs, living walls, raingardens, water cisterns and solar capacity are features that minimize a building's environmental impacts and resource use. The roof simulates a canopy, intercepting rainfall, creating a cooling effect and supporting birds, insects and other species.



⑥ Restored natural buffer

A 100-foot vegetated buffer is a lush corridor connecting the stream and nature park. Relatively undisturbed by pedestrians or traffic, it is visually pleasing and allows more sensitive species to inhabit the area.

⑦ Seasonal wetland

Next to the cafe patio, the wetland is a stopover for humans and wildlife like the great blue heron. Nearby alders and cottonwoods provide shade and a roost.

PEOPLE'S CHOICE

CATEGORY 1

Third place

Mixed-use development and riparian forest

Healthy habitats for daily journeys

Daily Migrations features a balanced perspective, tracking the daily interactions and movements of humans and wildlife throughout a common space. Patterns of flow, stopover, destination and home showcase simultaneous use of habitat by many diverse species. Eco-corridors are formed by rain gardens, vegetated swales and wetlands that also manage stormwater. Natural areas, parks and trails weave through the built environment, integrating ecological networks within pedestrian-oriented development and enabling inhabitants to complete their daily journeys.

Team members

University of Arizona
Tucson, Ariz.

Brent Jacobson
e-mail: brentjac@email.arizona.edu
Melisa Kennedy
Sarah Kosir
Kate Dinsmore
Roby Babcock

"What is extremely thoughtful and extraordinary is that the designers really thought about designing for all of the organisms on the site, so they thought about habitat in complex ways. I think that's how we will achieve the most effective urban habitats."

– 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.

Keep Nature in Neighborhoods METRO

Nature in Neighborhoods:
Integrating Habitats Winners Series

daily migrations

People move from place to place on a daily basis. They go to and from work, sometimes stopping at the coffee shop to enjoy a pastry and a warm cup of tea, or visiting the local grocery only to bump into a neighbor. With this chance encounter they linger for a conversation before retreating to the security and warmth of home. During their travels, pleasant views unfold of the natural and built landscape, inspiring connection between the natural world and humanity. A glimpse of native wildlife offers further pause on the walk home and a moment of delight.

competition category 1: mixed-use development / riparian forest habitat

a mixed-use design facilitating the cycles and needs of daily life

Both animals and humans make small, cyclical journeys within the course of a day. Whether foraging for food, heading to work, relaxing in the park, or returning home, these journeys make up the substance of our lives. This design provides the infrastructure for these journeys through four elements: **flow, stopover, destination,** and **home**. **Flow** includes notions of movement through corridors and the flow and movement of water onsite. **Stopover** points are potential eating, resting, and recreational places. A **Destination** is the ultimate goal of movement, and **Home** constitutes sleeping and nesting places. These four distinct categories have created the fabric for this design which aims to accommodate the daily migrations of both humans and animals. Each is envisioned as equal inhabitants of this urban habitat. Green linkages provide corridors for wildlife, pedestrians, and bicyclists, connecting parks with the riparian area and the adjacent nature park. This safe, contiguous connection of greenways transforms daily migrations into celebrated rituals through which the flow of humans and other species can occur. Human stopovers, such as parks, retail areas, plazas, and the café, and wildlife stopovers, including green roofs, tree canopies, ephemeral wetlands, and the nature park, offer amenities for enjoyment and comfort. Destinations such as the mass transit stops that take people to work, or the feeding grounds of the bats and birds along the creek, become essential midway components of daily migration. A variety of homes have been designated, including family dwellings, studio apartments and wildlife habitats for urban dwelling birds, bats, mammals and amphibians.

These diverse home types underscore our attempt to make this a design prototype that integrates humans with wildlife by providing the essential components for their daily migrations. That both may find rest and refuge whether in a studio apartment or a small nest in a dogwood tree.

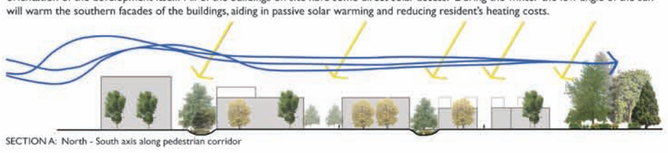
CONCEPT DEVELOPMENT

INHABITANT PROFILES

Daily Migrations uses selected inhabitant profiles to illustrate species the site could accommodate. These include aerial wildlife such as birds, bats, and insects, terrestrial wildlife such as deer, rodents, and amphibians, and different human users. Representative potential aerial users for the design are Mourning Doves, Blue Dasher Dragonflies, American Goldfinches, Great Blue Herons, Bushtits, Winter Wrens, Myotis Bats, and Great Horned Owls. Potential terrestrial users include Pacific Tree Frogs, Rough-skinned Newts, Black-tailed Deer, Long-tailed Weasels, Northern Flying Squirrels, and Townsend's Chipmunks. Human profiles include Young Singles, Couples, Nuclear Families and Retirees.

CLIMATIC SITE DESIGN

Portland winters can be dark and cold, and any extra sunlight is welcome in a Portland home during the wintertime. Extra exposure to warm sunlight and shelter from the cold northern winds can be integrated into the building and site design itself. Massing taller buildings at the north end of the site helps protect the rest of the site from the cold winter winds. It also has the added advantage of improving the solar orientation of the development itself. All of the buildings on site have some direct solar access. During the winter the low angle of the sun will warm the southern facades of the buildings, aiding in passive solar warming and reducing resident's heating costs.



SECTION A: North - South axis along pedestrian corridor

VEHICULAR CIRCULATION

There were several options considered for the design of the main road. Roads along either side of the site would have placed a physical and psychological barrier between the residential units and the natural areas. Placing the road in the middle of the site allowed for the creation of a "Main Street" lined with commercial and residential units while allowing residents unrestricted access to the natural areas on each side of the site.

PEDESTRIAN CIRCULATION

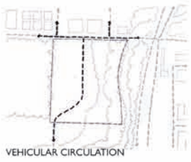
EXISTING
Once the road is in place, an analysis of the pedestrian circulation reveals a problem area at the upper right corner of the site. Vehicular, pedestrian, and bicycle circulation bottleneck at the bridge over the creek. Access to the main transit stop on the other side of the stream and parkway is inconvenient and roundabout.

PROPOSED

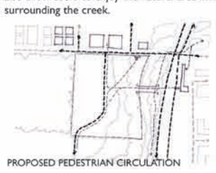
The simple expedient of placing a pedestrian bridge over the creek reduces pedestrian-vehicular conflict. A pedestrian crossing light or a bridge over the expressway will allow direct access to the transit stop for the residents of the site and others who live in the surrounding area. The path and pedestrian bridge also allow users to enjoy the natural area immediately surrounding the creek.

ECO-CORRIDORS

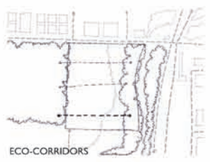
In exploring the numerous ways the two natural areas might be connected by a natural corridor, user experience and habitat quality quickly became the most important considerations. The corridors needed to be placed in a way that would improve habitat connections for both human and wildlife. Three corridors were created. The two northern corridors act as pedestrian/wildlife corridors through the denser section of the development. The larger corridor at the south end serves more potentially sensitive wildlife species and buffers the human development from the nearby industrial zone.



VEHICULAR CIRCULATION



PROPOSED PEDESTRIAN CIRCULATION



ECO-CORRIDORS

FLOW - provide corridors for movement

HUMAN

Pedestrian corridors link all parts of the site. It is a leisurely 5 minute stroll from the houses on the south end of the site to the grocery on the north side. Pedestrians have a variety of paths to choose from that range from an urban street experience to a vegetated path near the creek.

WILDLIFE

Three east-west natural corridors facilitate direct wildlife movement from the stream to the nature park. The continuous canopy and generously planted ground plane provide shelter and food for birds and other small animals. The largest corridor on the southern edge is 100 feet wide and is relatively undisturbed by pedestrians or traffic. This provides a corridor for potentially more sensitive species.

VIEW ALONG NORTHERN ECO-CORRIDOR

The eco-corridors provide important connections for wildlife and for pedestrians. They also offer scenic greenway amenities for surrounding businesses and residences. Here, a young professional returns from work and is joined by an American Goldfinch in his commute. Single residents will likely be younger professionals or college students living in studio apartments. Their needs include easy access to mass transit, take-out food, and entertainment. The American Goldfinch might live on the edge of the nature park and use the corridors to travel to nearby parks and plazas to find crumbs and insects.

STOPOVER - provide locations for rest

HUMAN

Several points along the pedestrian corridors act as rest stops or points of interest. A pedestrian might stop to chat with a neighbor out working in the community garden, or stop by the coffee shop to grab a croissant and a latte. Plazas, benches, and parks become additional places to pause for active families, singles, or couples.

WILDLIFE

Parks, back yards, street trees, planted patios and green roofs liberally scattered throughout the site provide shelter, food, and rest for wildlife such as birds, bat, insects, and small mammals.

VIEW OF CAFE PATIO OVERLOOKING EPHERMAL WETLAND

Couples out for a walk, college students, or people on their way to work might stopover at the cafe for quick bites to eat, a coffee to go, or a few hours of work before heading off to their daily destinations. For the Great Blue Heron, the ephemeral wetland feature serves as a potential stopover point to hunt for food or rest in a wet location before continuing on its seasonal migration or returning to a roost nearby. Possible nesting sites for the Heron include large riparian trees such as Alders and Cottonwoods near the creek. Couples might live in studios or two bedroom units and utilize the pedestrian pathways for joint recreational activities. Living close to mass transit and the opportunity to spend quality time outdoors or eating at a nearby restaurant are priorities.

DESTINATION - design places to go to

HUMAN

The grocery, retail shops, coffee shop, community center, and transit stops all serve as pedestrian destinations. The web of pedestrian corridors and the convenient stopover points along the way ensure that all of the destinations are within easy reach.

WILDLIFE

Areas with diverse food sources are regarded as wildlife destinations. Gardens, green roofs and parks can provide good sources of water and food for many species of wildlife.

VIEW OF DAYCARE OUTDOOR PLAY SPACE AND NATURE GARDEN

After walking as a family to the community center, parents drop their children off for daycare. The children might head out to the nature garden to explore the rain gardens out back. The gardens, fed by downspouts from the building, effectively retain and infiltrate stormwater. The water creates a wildlife garden that Rough-skinned Newts, Pacific Tree Frogs, and Blue Dasher Dragonflies might consider their home during the rainy season. As summer settles in, they might move to the wetter conditions of the ephemeral wetlands or creek. Needing quieter, more secure environs, families would likely live near the large community parks and the community center to utilize its resources.

HOME - provide nesting sites for humans and wildlife

HUMAN

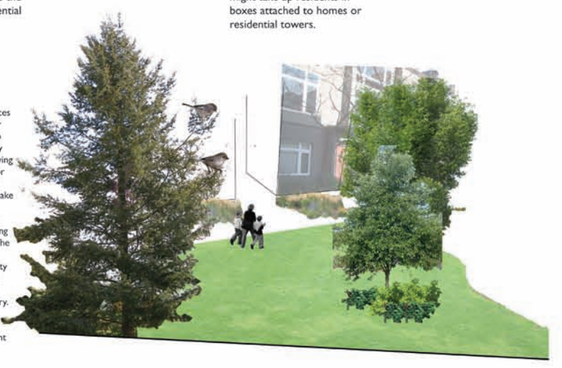
A wide range of apartments and houses provide places to rest and shelter at the end of the day. An elderly couple might enjoy an evening at home watching the children play in the adjacent park while a young student watches the sunset from her residential tower's roof deck.

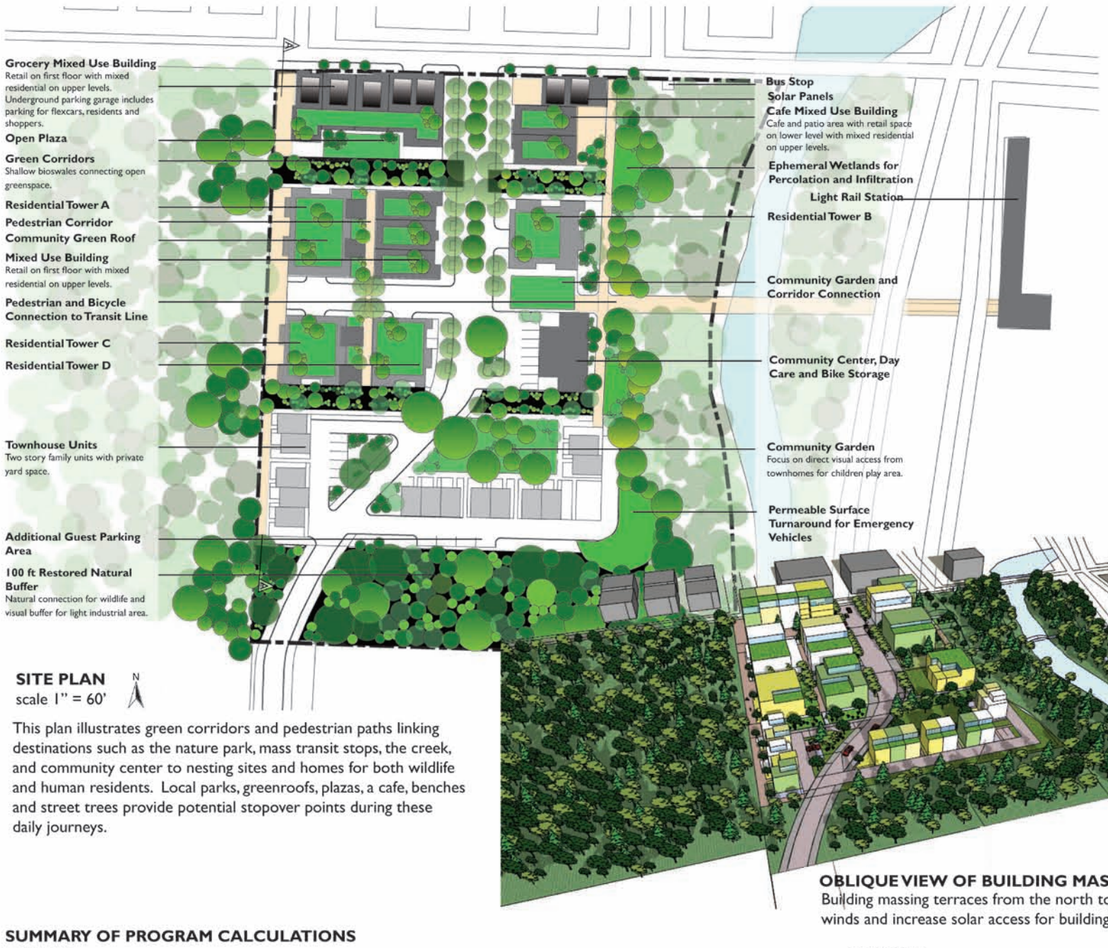
WILDLIFE

The nature park, the stream corridor, and the wildlife corridor on the south end of the site are all intended as nesting sites for birds. Other small animals might make their home in the shallow waters of the rehabilitated stream. If provided for, birds and bats might take up residents in boxes attached to homes or residential towers.

VIEW OF LARGE COMMUNITY PARK

The community open spaces create potential niches for birds and other animals to finding nesting spots. They also supplement human living spaces by creating outdoor rooms for recreation and gathering. Two Bushtits make a Douglas Fir their home and watch a family return to their townhouse fronting the neighborhood park. The birds nest in groups and might live in the community park because of its mixed woodland feel, evergreen trees, and shrub understory. Using nearby corridors, the Bushtits might travel throughout the site to hunt for insects on foliage.





SITE PLAN

scale 1" = 60'

This plan illustrates green corridors and pedestrian paths linking destinations such as the nature park, mass transit stops, the creek, and community center to nesting sites and homes for both wildlife and human residents. Local parks, greenroofs, plazas, a cafe, benches and street trees provide potential stopover points during these daily journeys.

OBLIQUE VIEW OF BUILDING MASSING ON SITE

Building massing terraces from the north to south to block winter winds and increase solar access for buildings and open spaces.

DAILY MIGRATION DIAGRAMS

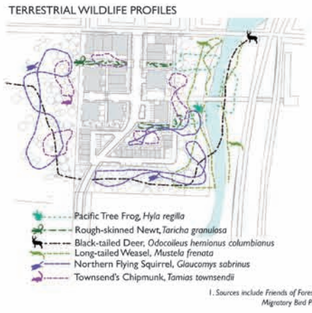
These diagrams represent potential use patterns of the site based on habitat requirements by wildlife and humans. The selected profiles represent species the site could accommodate and were derived from bird and wildlife lists of similar ecosystems.[1] Sample profiles are provided for three groups.

AERIAL WILDLIFE PROFILES

Daily Migration Example:

Myotis Bats potentially will roost around the buildings and forested area during the day and then move down to the riparian areas along the creek during the night to feed.

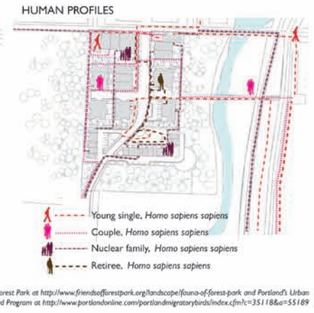
TERRESTRIAL WILDLIFE PROFILES



Daily Migration Example:

The **Rough-skinned newt** might move up and down the linear vegetation swale. The newt searches throughout its day for worms and other small insects and tends not to migrate beyond its home in the vegetated swale. It prefers to stay near the muddy wet areas.

HUMAN PROFILES



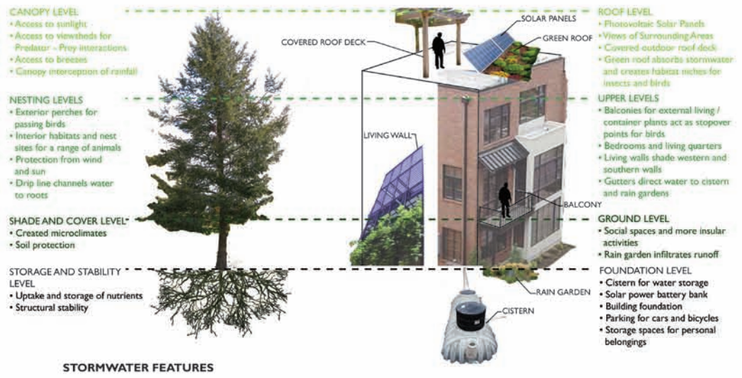
Daily Migration Example:

The **Retiree** might wake up in a studio apartment and head to work in the community garden and discuss the day with friends at the community center. After volunteering, the retiree might walk up the street to buy groceries for the day before returning home to sit on his balcony and watch the birds. Other nearby errands could round out the day before the retiree returns home for the evening.

1. Sources include Friends of Forest Park at http://www.friendsofforestpark.org/landscape/fauna-of-forest-park and Portland's Urban Migratory Bird Program at http://www.portlandonline.com/portlandmigratorybirds/index.cfm?c=35118&a=55189

BUILDING PROTOTYPE

Although a diverse range of buildings exist on this site, each of them has an opportunity to utilize natural organization models to improve the 'greenness' of the structure and benefit the daily movement of individuals on site. A Douglas fir tree is shown as a model for a building, although any of the riparian habitat trees provide similar functions. The diagram below details how the different functions a tree provides wildlife can be translated into the construction of any building. These functions include habitat creation, provision of stopover points, efficient use of resources.



SUMMARY OF PROGRAM CALCULATIONS

ELEMENTS

Building	Grocery/Mixed Use Building	Café/Mixed Use Building	Residential Tower A	Mixed Use Building	Residential Tower B	Residential Tower C	Residential Tower D	Community Center	Townhome Units	TOTAL
Use	Grocery, Retail, Residential	Café, Retail, Residential	Residential	Retail, Residential	Residential	Residential	Residential	Community Center and Day Care	Residential	N/A
Floors	5	4	3	varies - 3 or 4	4	3	3	3	2	N/A
Square Footage	49,500	24,000	15,000	24,000	19,100	12,758	11,475	10,050	21,000	186,883
Retail Units	3	3	0	3	0	0	0	1	0	9 retail units, with cafe
Family Units	3	3	3	3	5	2	2	0	14	35
Two Bedroom Units	20	6	4	5	5	4	4	0	0	48
Studio Units	20	14	2	11	5	4	4	0	0	60
Underground Parking	68	0	0	0	10	0	0	0	0	78[2]
Above Ground Parking	9	11	17	7	1	13	11	14	24	107
Bike Storage	0	0	0	0	200 sq ft	200 sq ft	0	600 sq ft	0	1000 sq ft.

2. Underground parking includes 4 flex-car spaces. Total of all parking on site is 175 spaces which meets the 170 space requirement for the site after factoring in the parking reduction credit. Credit earned by ensuring connections to mass transit.

OPEN SPACE

Area	Square Feet	Percentages
Total Site Area	277,200 SF	
High HCA	55,400 SF	
Low HCA	55,600 SF	
Total HCA	111,000 SF	
Impacted High HCA	2,600 SF	4.69%
Impacted Low HCA	30,900 SF	55.58%
Total Impacted HCA	33,500 SF	30.18%
Building Area	9,300 SF	8.38%
Shared Open Space	44,950 SF	16.21%
Native Plant Restoration Areas	53,100 SF	

STORMWATER FEATURES

New or Redeveloped Impervious Site Area	113,540 SF		
Impervious Area Reduction Technique	**Impervious Area Managed**	**Sizing Factor**	**Facility Surface Area**
Eco-Roof / Roof Garden	39,100 SF		39,100 SF
Infiltration Planter	20,830 SF	0.06	1,250 SF
Flow-Through Planter	54,830 SF	0.06	3,290 SF
Vegetated Swale	75,885 SF	0.09	6,830 SF
Vegetated Filter Strip	30,050 SF	0.2	6,010 SF
Vegetated Infiltration Basin	53,610 SF	0.09	4,825 SF
Total Impervious Area Managed	274,305 SF		

Daily Migrations ensures the *flow* of human and wildlife movement throughout the site. This east-west section of the plan shows resulting vertical layers of wildlife and human migrations. Birds and terrestrial animals might utilize different vegetation layers to complete their daily journeys. Shrubs, trees, green roofs and balconies function as *stopovers* along the way to a possible *destination* at the nature park or along the creek. The corridors facilities reverse motion back *home* from the destination.

scale 1"=20'

Co-hosts, partners and sponsors

Environmental Services City of Portland
working for clean rivers

Water Environment Services

Clean Water Services

Port of Portland

Salmon Safe

DJC The Daily Journal of Commerce

Metropolitan Land Group MLG

Uncage the Soul Productions

Newland Communities • KPFF
PB • Otak • ESA Adolfson

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

"It's not just about restoration or making urban habitats pristine; it's about understanding the behavior of organisms. The designers really understood how to think about that." **– Joan Nassauer, jurist**

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.

Printed on 100% recycled-content paper; 50% post-consumer fiber. 08289

Metro

600 NE Grand Ave.
Portland, OR 97232-2736
www.oregon**metro.gov**

PRSRT STD
US POSTAGE PAID
PORTLAND OR
PERMIT NO. 1246