Graphic Visualizations of Urban Ecological Corridors in Reallocated Road Space

PREPARED BY: VIOLA (QIANQIAN) ZHAO, UBC MASTER OF LANDSCAPE ARCHITECTURE

PREPARED FOR: JO FITZGIBBONS, ENVIRONMENTAL SPECIALIST, CITY OF VANCOUVER

REPORT COMPLETED ON AUGUST 15TH, 2025

DISCLAIMER

This report was produced as part of the UBC Sustainability Scholars Program, a partnership between the University of British Columbia and various local governments and organisations in support of providing graduate students with opportunities to do applied research on projects that advance sustainability and climate action across the region. This project was conducted under the mentorship of the City of Vancouver staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of the City of Vancouver or the University of British Columbia.

The designs included in this report are hypothetical, and do not represent plans for any approved or funded project. They have been created to illustrate how an ecological corridor could theoretically be achieved in real-world street conditions, using a local street for demonstration purposes.

ACKNOWLEDGEMENTS

The author acknowledges that the work for this project took place on the unceded ancestral lands of the xwməθkwəy̓ əm (Musqueam), Skwxwú7mesh (Squamish), and Səlílw̓ ətaʔ/Selilwitulh (Tsleil-Waututh) Nations.

The author gratefully acknowledges the following City of Vancouver staff for providing mentorship and constructive feedback on this report:

Real Estate, Environment and Facilities Management - Ecological Services:

Jo Fitzgibbons

Angela Crampton

Engineering - Streets Design:

Ross McFarland

Matthew Callow

Planning, Development and Sustainability - Community Planning:

Gurraj Ahluwalia

Michelle Pollard

Engineering - Green Infrastructure Implementation:

Julie McManus

Sheri DeBoer

Integrated Sewers and Drainage Planning:

Cameron Owen

Park Board - Urban Forestry:

Jocelle Smith

Engineering - Street Activities:

Marie Pudlas

EXECUTIVE SUMMARY

This report presents the findings of a design study exploring how ecological corridors can be achieved using road space reallocation. Ecological corridors are natural pathways that connect natural areas such as parks, forests, waterbodies and shorelines. They are envisioned as linear park-like streets that include blue-green infrastructure, natural vegetation, high tree canopy, and opportunities for active transportation and interaction with nature. They are a crucial component of Vancouver Plan's 100 year Ecological Network Vision, and can contribute to multiple community benefits including clean air and water, flood and rainwater management, pollination, climate regulation, and spaces for recreation and mental wellbeing. This report outlines key principles to inform ecological corridor design, and demonstrates them using a hypothetical concept design for Nootka Street.

The report contains two parts:

1. **Background Research**

   Literature Review

   This section identifies the ecological and social challenges posed by impervious surfaces and explores the benefits of ecological corridors.

   Design Principles

   This section summarizes key suggestions and principles to follow when designing an ecological corridor.

   Case Studies

   This section analyzes two local precedents of road space reallocation projects that created enhanced ecological areas.

2. **Nootka Street Design Brief**

   Nootka from 14th to 16th (Forest Inspired)

   The Forest segment is a car-free park-like space with layered native forest plantings, culturally significant species, educational signage, and outdoor learning opportunities.

   Nootka from 16th to 19th (Woodland/Meadow Inspired)

   The Woodland section is a car-light design featuring plant combinations that support pollinators and emphasize seasonal changes, social gathering places, and play structures.

   Nootka from 19th to 20th (Woodland/Wetland Inspired)

   The Wetland section is a car-light design adjacent to Renfrew Community Park. This stretch, addresses Still Creek Enhancement Plan, contains rain gardens and plantings that thrive in wetland conditions.

TABLE OF CONTENTS

GLOSSARY OF TERMS

Area Effect The principle that larger habitat areas tend to support greater biodiversity because they provide more resources, niches, and stability for species over time.

Age Effect The influence of time on an ecosystem's development. Older habitats typically have more complex structures, greater species diversity, and more stable ecological interactions than newly established ones

Cues to Care Visible signs in a landscape that indicate intentional design, maintenance, or human stewardship. These cues help communicate that a naturalistic or wild-looking space is cared for, which can increase public acceptance.

Decommissioned Road A street or road segment that is repurposed for alternative uses such as green space, pedestrian paths, or habitat restoration.

Distance Effect The concept that the farther a habitat patch is from a source of species (such as a larger natural area), the lower the likelihood of species successfully reaching and colonizing it.

Ecological Corridor Natural pathways that connect natural areas such as parks, forests, waterbodies and shorelines. They are envisioned as linear park-like streets that include blue-green infrastructure, natural vegetation, high tree canopy, and opportunities for active transportation and interaction with nature.

Edge Effect Ecological changes that occur at the boundary between different habitat types (e.g., forest and urban edge). These zones often have higher levels of disturbance, increased predation, and altered microclimates, which can affect sensitive species.

Ecological Processes Natural functions and interactions within ecosystems, including nutrient cycling, pollination, seed dispersal, predation, and decomposition, which are essential for maintaining ecosystem health.

Ecological Niche The specific role or position a species occupies within an ecosystem, including its habitat, resource use, and interactions with other organisms.

Genetic Bottlenecks A reduction in genetic diversity that occurs when a population becomes very small. This can lead to inbreeding, reduced adaptability, and higher extinction risk.

Gene Flow The exchange of genetic material between populations of the same species, often facilitated by connected habitats or ecological corridors. Gene flow increases genetic diversity and population resilience.

Soil Porosity The proportion of empty space between soil particles, which determines how well soil can hold air and water.

INTRODUCTION

Much of Vancouver's natural ecosystems such as streams, forest, and natural shoreline have been lost as a result of urban development. Restoring the city's ecosystems will require a variety of strategies to bring nature back into the urban environment, improve environmental quality, build climate resilience, support the revival of Indigenous cultural practices, and ensure equitable access to natural spaces. The Vancouver Plan identified a long-term Ecological Network Vision to protect our remaining natural areas, and connect them by creating ecological corridors. Ecological corridors are envisioned as linear park-like streets that include blue-green infrastructure, natural vegetation, high tree canopy, and opportunities for active transportation and interaction with nature.

A central strategy the city is exploring is to achieve ecological corridors from road reallocation, which involves transforming underused or decommissioned local roads into other community uses. By repurposing paved areas, the city can create functional habitat and reconnect natural systems within the urban fabric. Ecological corridors offer multiple benefits, such as expanding access to nature, cooling the urban environment through vegetation, improving rainwater infiltration, and supporting local species. While this is a complex challenge in a densely populated city, Vancouver is working to reduce the extent of paved surfaces for practical reasons, including lowering infrastructure maintenance costs and enhancing environmental performance. In select locations, routine infrastructure renewal can create valuable opportunities to replace paved surfaces with restored natural systems that contribute to a healthier and more resilient urban landscape.

POLICY CONTEXT

Several City of Vancouver and Park Board policies support the creation of a connected network of green corridors throughout the city. These are summarized in the table below.

Policy	Summary
Vancouver Plan	Vancouver Plan provides a long term, unified vision for the growth of Vancouver in the next 30 years. Guided by the three fundamental principles of **reconciliation, equity, and resilience**, Vancouver Plan hopes to achieve equitable housing and complete neighborhoods, an economy that works for all, and climate protection and restored ecosystems. Vancouver Plan is also a Land Use Strategy that establishes a high-level guide for the flexible growth of the city. Vancouver Plan is built upon six city building blocks and layers including neighborhoods, homes, economy, transportation, ecology, and equity + resilience. The ecology layer envisions that, by 2100, Vancouver has reshaped its relationship to nature and restored its ecological health. **4 Directions:** 1. Embed Ecosystems in Planning 2. Make Space for Nature 3. Protect Nature 4. Provide Access to Nature
Biodiversity Strategy	The goal of the Biodiversity Strategy is to support biodiversity and enhance access to nature by improving the ecological quality of natural areas in Vancouver. Along with the Urban Forest Strategy, the Rewilding Vancouver Plan, and the Vancouver Bird Strategy, the Biodiversity Strategy establishes a foundation for protecting and restoring natural areas in the neighborhood. **The main objectives include:** 1. Restore habitats and species. 2. Support biodiversity within parks, streets, and other City-owned lands. 3. Protect and enhance biodiversity during development. 4. Celebrate biodiversity through education and stewardship. 5. Monitor biodiversity to track change and measure success.

POLICY CONTEXT

Policy	Summary
VanPlay	VanPlay is a master plan outlining key priorities for citywide provision of parks and recreation services.The “Nature” section of VanPlay Playbook highlights the importance of protecting, restoring, and expanding natural areas across Vancouver to support biodiversity, climate resilience, and community well-being. **Key Focus Points include:** 1. Shoreline + Waterway Integrity 2. Freshwater Resources 3. Ecological Network 4. Connection to Nature 5. Urban Forest
Rain City Strategy	The Rain City Strategy establishes a long-term roadmap to enhance Vancouver’s rainwater management. It focuses on the health of receiving waterbodies, reducing flood risk, creating spaces for water in our city and advancing water harvest and reuse. **The primary goals of the Rain City Strategy are:** 1. Improve and protect Vancouver’s water quality; 2. Increase Vancouver’s resilience through sustainable water management; and 3. Enhance Vancouver’s livability by improving natural and urban ecosystems.
Urban Forest Strategy	The Urban Forest Strategy provides guidelines to the management, protection and expansion of a diverse, resilient, and beautiful urban forest in the City of Vancouver. **The Urban Forest Strategy has 5 goals:** 1. Manage trees for health and safety 2. Protect the urban forest 3. Engage residents in the urban forest 4. Monitor the status and condition of the urban forest 5. Expand the urban forest

IMPACT OF IMPERVIOUS SURFACE

BENEFITS OF ECOLOGICAL CORRIDORS

Impervious surfaces are areas that prevent the absorption of water. While they can occur naturally, such as exposed bedrock, most impervious surfaces are the result of urban development and the expansion of infrastructure such as paved roads, buildings, parking lots, and more (Santamouris, 2015).

Road space reallocation means changing how we use part of a road. Sometimes the new use is a bus lane, plaza, or other use that does not necessarily reduce impervious area. When we restore natural soils, vegetation, and hydrology in these reimagined spaces, many additional benefits can be achieved.

Urban Heat

Impervious surface is one of the primary contributors of urban heat island effect. The common material that is made up of impervious surfaces are asphalt and concrete which have a higher ability to absorb and store heat (Santamouris, 2015).

Simply removing heat-retaining materials like asphalt can significantly reduce local heat. The cooling effect is further enhanced when natural elements such as trees and GRI are introduced, which buffer temperature extremes due to evapotranspiration and shade. Removing hard surfaces also expands trees' root zone, allowing bigger and healthier trees to grow, contributing to cooler and more comfortable public spaces (Day et al, 2010).

Soil health

Impervious surfaces prevent air, water, and organic matter from reaching the soil beneath. Over time, the weight of pavement and pressure from vehicles and foot traffic compresses the soil, reducing pore space and limiting the movement of water and oxygen. Compacted soil has low permeability, poor drainage, and reduced microbial activity, which restricts root growth and weakens plant health (Gregory et al, 2006).

Removing pavement and restoring natural soil structure allows deeper root penetration and increased availability of oxygen, nutrients, and water, which are crucial for vegetation growth. In addition, healthier soil supports diverse communities of bacteria, fungi, and invertebrates that promote nutrient cycling and decomposition (Day et al, 2010).

Water quality and aquatic ecosystems

Excessive runoff from paved roads carries pollutants like oil, suspended solids, heavy metal, and other urban contaminants that will end up in nearby waterbodies. In addition, impervious surfaces affect nearby streams by raising their temperature. Water run-off from paved roads generally has higher temperature than natural streams and therefore disrupts the aquatic ecosystem (British Columbia Ministry of Environment, 2001).

Vegetated areas act as natural filters by removing pollutants such as sediments, heavy metals, and leached nutrients before run-off reaches downstream water bodies. Restored soil, with improved porosity and structure, absorbs and retains water rather than allowing it to remain on impervious surfaces, where it accumulates and acts as a carrier for pollutants (Davis, 2007).

IMPACT OF IMPERVIOUS SURFACE

BENEFITS OF ECOLOGICAL CORRIDORS

Biodiversity

Species that are particularly sensitive to habitat loss, such as amphibians, ground-nesting birds, pollinators, and small mammals, are especially vulnerable in urbanized environments. Roads, parking lots, and other hardscaped areas hinder movement, reduce access to food and nesting grounds, and create inhospitable microclimates (Liu et al, 2016).

Corridors can be designed to restore essential ecological processes and functions. Strategic planting creates diverse vegetation layers, such as canopy, understory, and groundcover, providing ecological niches to different species and further improving ecological interactions. In addition, ecological corridors provide shelter and safe passage for animals, enabling foraging, mating and seasonal migrations that are critical for maintaining healthy populations (Gilbert-Norton et al, 2010).

Connectivity

Infrastructure like roads and buildings break natural landscapes into smaller, isolated patches, reducing connectivity and placing stress on wildlife populations (Liu et al, 2016). These effects are often cumulative. Over time, habitat patches shrink and become increasingly isolated, limiting their ability to support diverse and healthy populations of species. This fragmentation disrupts ecological functions and results in area, edge, distance, and age effects* (Gilbert-Norton et al, 2010).

**See glossary for definitions.*

Ecological corridors are natural areas that restore linkages between natural landscapes that were fragmented by development. Restoring connectivity helps increase reproductive success and reduce genetic bottlenecks (Benide et al, 2015). For example, riparian corridors along de-paved streambanks and greenways integrated into transportation infrastructure (like rail lines or bike paths) can provide continuous or semi-continuous pathways for terrestrial and aquatic species, as well as humans. Corridors especially benefit mobile and urban-tolerant species groups such as bees, some birds, bats, and small mammals (Gilbert-Norton et al, 2010).

Hydrology and flooding

Areas such as paved roads and parking lots reduce natural water infiltration because water cannot pass through those surfaces. During a storm event, impervious surfaces can cause sudden surges in flow volume, which can overwhelm infrastructure and lead to flooding. This can result in urban flooding because stormwater rapidly flows over hard surfaces rather than being absorbed into ground (Mangangka, 2015).

Ecological corridors can provide permeable areas that act as sponges to mitigate flood risk by slowing down and absorbing excess water. This can also help to stabilize stream flow by supporting gradual water release into waterways, rather than sudden pulses caused by runoff from paved areas. This helps maintain base flow during dry periods and prevents erosion during high flows. Stabilized stream flows reduce bank erosion, protect aquatic habitat, and support more consistent water quality and temperature conditions (Davis et al, 2012).

Economic Benefits

By enhancing the aesthetic and ecological value of neighborhoods, ecological corridors contribute to Vancouver's urban identity and appeal. Tree-lined streets, greenways, and nature-integrated corridors enhance property values and attract tourism. In workplace contexts, access to green space has also been linked to increased employee productivity, job satisfaction, and reduced absenteeism. Ecological corridors thus support both the local economy and long-term economic resilience.

Source: https://worldlandscapearchitect.com/823-congress-pocket-patio-dwg/?v=5435c69ed3bc

Health and wellbeing

Because decommissioned roads are typically embedded within or adjacent to residential neighborhoods, converting them into ecological corridors creates highly accessible green spaces that directly serve local communities. Studies have shown that access to green space is closely tied to mental well-being (Twohig-Bennett et al, 2018). Ecological corridors can help soften urban fabric and offer outdoor experiences that reduce stress, improve daily mood, and foster a sense of space.

Source: https://www.bbc.co.uk/newsround/52823058

Culture

Ecological corridors can contribute to cultural resilience by supporting Indigenous land-based practices and knowledge sharing. They provide space for culturally significant activities such as harvesting traditional foods and medicines, as well as opportunities for education and storytelling. These corridors can also serve as venues for public art, cultural interpretation, and community engagement, helping to foster a shared sense of identity and belonging while advancing reconciliation goals.

Source:https://www.rainway.ca/

ECOLOGICAL CORRIDOR DESIGN PRINCIPLES

Building on precedent guidelines such as Barcelona's Greenery and Biodiversity Charter and the Surrey Biodiversity Design Guide, this section presents design principles for urban green spaces that enhance biodiversity through considerations of typography, soil, vegetation, water, materials, landscape interest, and human interactions.

1. Topography

Topographical variations not only create visual interest but also support diverse habitats and direct water flow. Therefore, incorporating topography into design is essential. Specific principles include:

1.1 Incorporate Existing Topography

- Restore the natural topography where feasible, avoiding modifications that could damage existing vegetation or potential habitats.
- Work with the current topography and make "micro" adjustments, such as mounds and channels, to create varied habitats, microclimates, and facilitate natural water flow.

1.2 Physical Stability

- Design low-gradient topography to reduce erosion risks and avoid dramatic grading differences. Low-gradient typography usually refers to slopes that are less than 5%, which creates gentle slopes and visually flat terrains.
- Plant densely to enhance soil stability. Plant roots create a network that binds soil particles together, increasing the soil's cohesion and reducing erosion by wind and water. Deep-rooted plants "anchor" soil layers. As roots grow and expand, they also push soil particles together.

2. Soil

Restoring and maintaining healthy soil is crucial for ecological corridors because it serves as a physical base and nutrient source for vegetation, a filter for water quality, and a driver of biomass production. In urban areas, soil is a scarce resource, so balancing soil and paving ratios in design is essential.

2.1 Soil Quality

- Reuse soil where feasible. To determine viability of soil reuse:
    1. Conduct soil testing and identify necessary amendments to meet project requirements.
    2. Send soil samples to a laboratory to confirm they are free from contamination.
    3. Make sure that the soil does not contain invasive species or weeds.
    4. Identify an appropriate location for stockpiling soil and implement measures to prevent erosion.
- During the design phase, include areas specifically intended to accumulate organic matter, such as leaf litter, which will improve the soil's nutrient content and support greater biodiversity.

2.2 Permeability

- Use permeable paving materials to enhance water drainage and reduce surface runoff.
- Maintain porous soil to boost infiltration capacity:
    1. Avoid soil compaction by reducing foot traffic.
    2. Incorporate organic matter, such as mulching, to increase water-holding capacity.
    3. Maintain a balanced soil texture (mix of sand, silt, and clay) to create a network of pores that ensures good aeration and water retention.

3. Vegetation

Plant communities play a crucial role in improving urban climate adaptability. Beyond regulating the environment, diverse plant compositions create different habitats, enhancing species richness and ecological resilience.

3.1 Synergy with Surrounding Plant Systems

- Design with an understanding of how the site's planting relates to surrounding green spaces and the city's broader natural infrastructure to support connectivity.

3.2 Structural Complexity

- Maximize the combination of vertical and horizontal vegetation strata to create open, semi-open, and closed habitats for fauna.
- Establish horizontally diverse plant groupings to create a mosaic landscape that facilitates species movement.
- Promote plant continuity to strengthen ecological networks and wildlife mobility.

3.3 Species Selection

- Do not plant invasive species.
- Include a blend of large trees, shrubs, and groundcover plants to create multi-layered habitat.
- Use native species that support pollinators and provide food for local fauna. Each pollinator species is drawn to a unique combination of plants, influenced by the size, shape, and color of the flowers. Diverse blooms hence help to attract diverse pollinators.
- Strategically place and arrange plants to enhance ecological functions and interactions. For example, early bloom and food plants can be placed near nurse logs and designated nesting areas.
- Select plant and tree species that offer nesting opportunities for birds. For example, Western red cedar (Thuja plicata) provides dense foliage that many songbirds use for nesting and cover, while Pacific dogwood (Cornus nuttallii) offers both nesting sites and seasonal food from its berries.
- Combine species with different root structures to help stabilize soil.
- Choose species that contribute to organic matter, such as leaf litter, to the system. This helps enhancing soil fertility, supporting soil organisms, and improving the soil's structure and water retention capacity.

3.4 Habitat Structure

- Incorporate features like mud puddles, decaying wood (such as nurse logs), habitat hotels(such as bird nesting boxes or bee hotels,) and perches to create microhabitats.
- Design designated nesting sites for overwintering insects.
- Plant shade-tolerant ground covers and shrubs to provide additional nesting and foraging opportunities.

ECOLOGICAL CORRIDOR DESIGN PRINCIPLES

3.5 Design for Focal Species

A focal species is a species that you choose and make design choices that reflect their habitat needs. Choosing a focal species for the site and researching what they need in an environment to thrive can help you design a corridor that is ecologically functional and that supports a diversity of species.

Select a focal species that is realistic for the site conditions, and naturally present in the type of ecosystem you are trying to emulate. Focal species may also be chosen based on their cultural importance. For instance, many Indigenous communities' stewardship and cultural practices are rooted in relationships with specific plant and animal species, so returning those species to the land can also support the survival of cultural practices.

Urban Adaptors

Urban adaptors are generalist species that take advantage of the unique conditions found in cities. These resilient organisms have successfully established ecological niches within human-altered landscapes. They may live in and around buildings, and forage for food in garbage bins or home gardens. Some urban adaptors exploit other species, and can actually reduce overall biodiversity when they become overabundant. For example, crows are nest predators that prey on the eggs and chicks of other birds, so having more crows in an area may mean less abundant and diverse songbirds. Because they are so tolerant of urban conditions, adaptors may not need specific consideration in corridor design. On the other hand, they are highly tolerant of human activity, so attracting safe adaptors like Anna's Hummingbird can provide rich access to nature and wildlife viewing experiences for people.

American Crow

Common Raccoon

Anna's Humming Bird

Coyote

ECOLOGICAL CORRIDOR DESIGN PRINCIPLES

Urban Tolerators

Urban tolerators are species that persist in cities despite urban infrastructure degrading their preferred habitat conditions. Creating habitats for urban tolerators is important because these species represent a broader range of biodiversity that cannot thrive on heavily paved or simplified urban landscapes alone. While not as sensitive as urban avoiders, urban tolerators depend on natural vegetation to provide reliable food sources, nesting environments, and shelter from predators. By designing ecological corridors that accommodate their needs, cities can expand habitat availability beyond the most resilient adaptors and begin to restore more complex and functional ecosystems. Supporting tolerators enhances ecological diversity, strengthens food webs, and improves the overall ecological quality of urban spaces.

Mallard

Bald Eagle

Cedar Waxwing

Douglas' Squirrel

Urban Avoiders

Urban avoiders are species that usually do not tolerate urban environments because they need larger, more contiguous habitats to thrive. When they are found in cities, it is usually in parks, ravines, or riparian areas where they can escape from urban stressors such as vehicles, noise, and light pollution. In most cases, ecological corridors in local roads will lack the scale, depth, and isolation required to support urban avoiders. Urban corridors are likely to be edged by buildings, experience some disruption from traffic and human activity, and may increase exposure to stressors such as invasive species, diseases, or predators. Avoiders are less able to adapt to such stressors, and are hence better protected in larger natural areas.

American Beaver

Great Blue Heron

4. Water

Water management is essential in urban green space design to support city livability and resilience, especially as climate change leads to scarcer water and more intense rain events. Sustainable water use reduces flooding, boosts biodiversity, and improves urban comfort. Water also shapes landscape identity and provides vital habitats for both freshwater and marine species, making it a valuable ecological and cultural resource.

4.1 Sustainable Drainage

- Implement sustainable drainage system that mimic natural drainage processes, such as rain gardens, bioswales, and permeable paving.
- Aim to infiltrate as much water as possible to recharge aquifers and improve soil permeability, reducing stormwater runoff to sewers.

4.2 Habitat Opportunities

- Create naturalized water retaining areas such as ponds, ravines, and wetlands, with variable depths and infiltration to support different plant and wildlife communities.
- Design naturalized water areas to attract wildlife and enhance enjoyment.

5. Materiality

Materiality is a key element in urban green space design, shaping both ecological performance and user perception. Thoughtful use of permeable, natural, and recycled materials supports habitat creation, soil health, and water management, while fostering a sense of care and intentionality. These materials also encourage connections between people and nature.

5.1 Permeable Surfaces

- Use permeable paving (e.g., permeable asphalt, porous concrete, open-joint pavers) for paths and gathering areas to allow water infiltration and reduce runoff.
- Stabilized gravel or crushed limestone can offer a natural aesthetic while remaining accessible for pedestrians, cyclists, and maintenance vehicles.

5.2 Natural and Recycled Materials

- Incorporate logs, boulders, and stumps to create additional habitat features.
- Materials from removing impervious surfaces, such as crushed concrete or asphalt, can be reused.

5.3 Designed Structures

- Include nurse logs, bee hotels, birdhouses, or bat boxes to create nesting areas.
- Incorporate plazas and benches to create social gathering areas
- Consider adding wildlife crossings such as amphibian tunnels or wildlife-friendly culverts at intersections where an ecological corridor crosses a busier road.

5.4 Cues to Care

- Use contrasting materials for edging, borders, and transitions to clearly define paths and planting zones.
- Integrate stone, wood, or corten steel signage and interpretive elements that highlight ecological processes and cultural narratives.

6. Landscape Interest

Landscape interest enriches urban biodiversity design by engaging people's senses, fostering place attachment, and enhancing ecological value. Seasonal planting, varied textures, and multisensory elements create dynamic, immersive experiences throughout the year, while thoughtful spatial arrangement adds depth and visual intrigue.

6.1 Seasonality and Sensory Engagement

- Select plant species that highlight seasonal transitions. Use a combination of deciduous and evergreen species to ensure year-round landscape interest.
- Choose plants with different foliage kinds to create a variety of texture. Thoughtfully arrange plants to create dimensional views. For example, plants with smaller leaves can be placed farther to create a false perception of depth.
- Add elements that create different sounds and smells. Consider sounds in nature and sounds from human interaction (such as leaves rustling, bird chirping, and footsteps on different pavement material such as wood and gravel.)

6.2 Site Identity

- Incorporate cultural and biogeographic features to honor the site's unique identity.

6.3 Scenic Backgrounds and Surroundings

- Consider views of mountains, water bodies, or forests when designing corridors.
- Design edges of the corridor to integrate seamlessly with adjacent land uses.

7. Human Aspect

Human aspects in biodiversity design balance access and protection by guiding movement along inclusive paths and using educational signage to build awareness and stewardship.

7.1 Human Access Management

- Focus pedestrian, pet, and cyclist activity onto designated lanes and pathways to minimize impact on sensitive plantings and other habitat features.
- Follow established standards and best practices to support physical accessibility for all people, including those with visible and invisible disabilities.

7.2 Signage and Education

- Install interpretive signs to educate the public about how the corridor supports key species, the water cycle, heat mitigation, and other benefits.

IMPLEMENTATION CONSIDERATIONS

Designing and implementing ecological corridors from reallocated road spaces involves a range of planning, social, technical, and environmental factors. The following considerations help ensure successful integration into the urban fabric:

Decision Making

Ecological corridors may contain a variety of asset types that are delivered and maintained by different city departments. Coordination and collaboration across departments such as engineering, planning, and parks can help support efficient, cost-effective and holistic implementation that aligns ecological goals with broader infrastructure and land use plans.

Public Engagement

Meaningful public engagement helps ensure the corridor reflects community needs and values. Engagement strategies may include community workshops, co-design sessions, youth activities, and online feedback platforms. Early involvement fosters trust, incorporates local knowledge, and can lead to stronger long-term stewardship that can support maintenance.

Temporal Changes

Ecological corridors are dynamic systems that change over time. Plant growth, soil development, and wildlife use evolve gradually. Accounting for plant growth, soil development, and shifting patterns in wildlife use can enhance both short-term functionality and long-term ecological succession.

Access to Surrounding Neighborhoods

Corridors that connect meaningfully to adjacent parks, schools, streets, and transit routes are more likely to become vibrant and inclusive public spaces. These connections support active transportation, increase everyday use, and strengthen the corridor's role in the broader urban network. Designing with accessibility in mind can also foster more equitable use across age groups and abilities.

Underground Utility Conflicts

Many reallocated road spaces contain subsurface infrastructure that may limit excavation or planting depth. Identifying these utilities early and working with providers to assess opportunities or constraints can prevent costly delays, minimize ecological disruption, and support creative design solutions. In some cases, planting strategies can be adapted to accommodate root barriers or shallow soil layers, while still achieving biodiversity goals. Removing pavement may also sometimes facilitate easier utility access and maintenance.

Human-Wildlife Interactions

Inviting wildlife into urban spaces contributes to biodiversity but also requires thoughtful management. Certain species may cause concern among residents, or vulnerable species may be disturbed by high human traffic. Establishing buffer zones, clear signage, and public education campaigns can help balance habitat protection with human enjoyment.

Disruption to Existing Trees

Existing mature trees along reallocated road spaces offer immediate ecological benefits, such as carbon sequestration, shade, cooling, and habitat value. Retaining them can also maintain neighborhood character and cultural identity. Where tree removal is unavoidable due to utility conflicts or site grading, implementing a robust replanting plan with diverse species can help restore canopy coverage and ecological function over time.

Emergency and Service Vehicle Access

Some ecological corridors may need to accommodate emergency or maintenance vehicles. Design solutions can include reinforced turf paths or strategically placed permeable surfaces that maintain ecological integrity while allowing occasional access.

IMPLEMENTATION CONSIDERATIONS

Long-Term Maintenance and Care

Ecological corridors require ongoing maintenance to manage invasive species, support plant establishment, and adapt to environmental changes. Sustainable maintenance plans and clear ownership responsibilities are critical for long-term success.

Public Safety

Well-designed corridors contribute to both perceived and actual safety. Maintaining clear sightlines, ensuring lighting where appropriate, and designing passive surveillance (e.g., homes or public spaces that face the corridor) can increase comfort for users. Selecting plant species and arranging vegetation to avoid dense, hidden areas helps prevent concealment and improves the overall user experience.

Integrated Implementation with Compatible Infrastructure

Ecological corridors can perform multiple functions when planned in coordination with other infrastructure projects. For instance, integrating green rainwater infrastructure, cycling paths, or low-impact transportation systems can amplify co-benefits such as flood reduction, urban cooling, and mobility. Assessing site-specific factors, such as slope, road width, and surrounding land use, can inform design choices that enhance both ecological and social outcomes.

Equity

Access to green space is uneven across the city, with some neighborhoods lacking safe, nearby natural areas. Neighborhoods with limited green space access often face higher temperatures, air pollution, and climate vulnerability. By introducing ecological corridors in these areas, cities can enhance access to nature, improve microclimates, and support mental and physical well-being. Ensuring that corridors are accessible to all communities can support reconciliation and foster more just urban environments.

CASE STUDIES

ST. GEORGE RAINWAY

Designed by City of Vancouver

Location: Vancouver

Type: Blue-green corridor and greenway created through road space reallocation

Built: Completed from 5th Ave to 8th Ave at time of writing.

Context and Background

Historically, a creek flowed along the area where St. George Street now sits, flowing toward False Creek. It was piped and buried over a century ago as the area developed. The St. George Rainway was originally envisioned by a group of dedicated community volunteers who sought to reintroduce urban nature into the streetscape while fostering opportunities for public art, educational programming, and community connection.

Project Overview

The St. George Rainway is a blue-green corridor that repurposes road space into a continuous sequence of green rainwater infrastructure. The design principles of St. George Rainway are:

1. Nature: let nature lead the design
2. Mobility: design for all ages and all abilities
3. Community: focus on function and accessibility
4. Learning: integrate formal and informal learning

Photo Taken by Jo Fitzgibbons

CASE STUDIES: ST. GEORGE RAINWAY

Design Features

Rain gardens

Native plants

Utility clearance requirement

Accessible pedestrian environment

Accessible seating

Improved safety, comfort, and accessibility

Traffic circles

Emergency vehicle access

Access to residences, businesses, driveways, and lanes

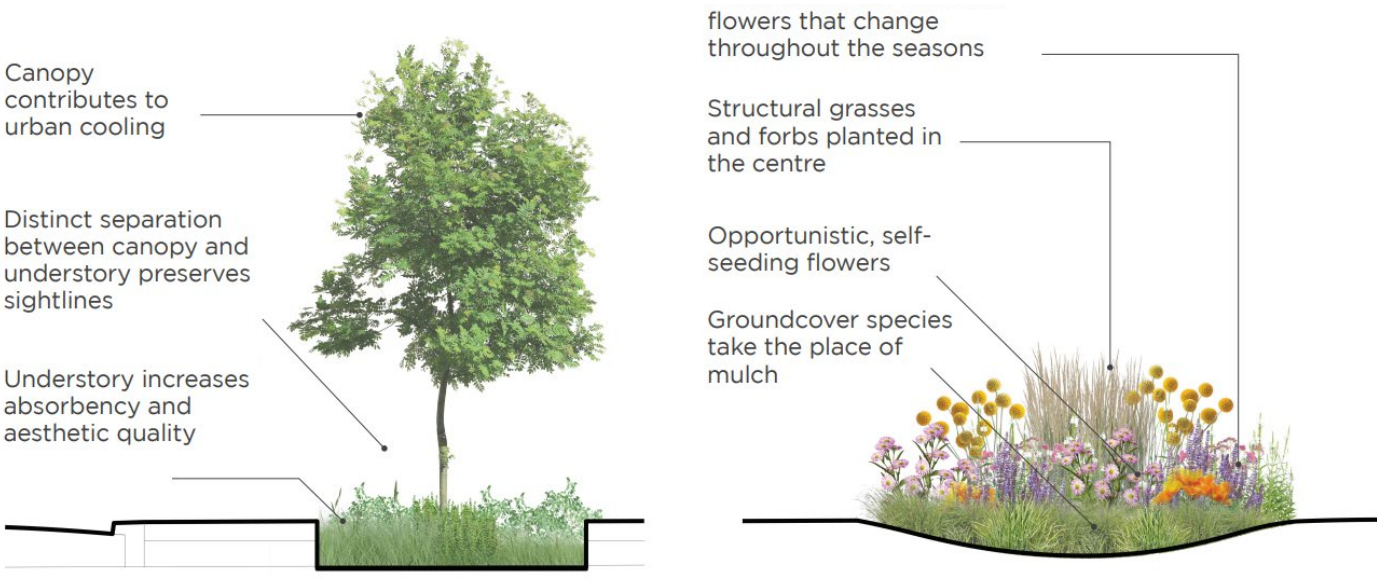
Parking

Planting Strategy

1. Adaptive naturalized plants and informal planting
    - In addition to native plants, many species that are not from Coast Salish territory are still beneficial to humans and animals. Including these adaptive plants can help enhance ecological functions.
2. Planting for pollinator habitats
3. Plant “good plants with a bad rap”
    - Though some plants are commonly identified as weedy, they have the potential to thrive in rain gardens and contribute meaningful ecological value by supporting pollinators, stabilizing soil, and enhancing biodiversity.
4. New trees to maximize canopy
5. Evergreen plants to manage water year-round
6. Planting for all four seasons to make sure the gardens look beautiful throughout the year
7. Planting strategically according to typography
    - Lowest planting zone: receives the most water; supports plant species that tolerate standing water and fluctuating water levels.
    - Middle or side slope: drier than lowest zone, support plant species that tolerate fluctuating water levels.
    - Outer zone or edge: tolerate drought and pollution.

CASE STUDIES: ST. GEORGE RAINWAY

8. Tree selection
    - Tree selection should prioritize species that tolerate local growing conditions and maintain sightlines. Chosen species should not be prone to branch failure, tree fall, or pests, should pose no significant nuisance issues, require minimal maintenance, and meet utility offset requirements.



Source: St. George Rainway Detail Design Board

Materials and "Cues to care"

1. Defined Edges
    - Different types of edgers
        - Edgers are physical elements used to create a clear boundary between different landscape materials or zones, such as between lawn and planting beds, mulch and pavement, or gravel paths and vegetation. Edgers prevent materials from spilling into adjacent areas. They also provide clean and intentional boundaries between naturalized plants and hardscapes, signaling that the landscape is maintained.
2. Public Art
    - Designed walls include inset patterns of coastal plants such as bracken, salal and trailing blackberry that appear like shadows from the past while symbolizing the rainway's future ecological renewal. As time passes, moss and algae will naturally take hold in the patterned crevices, reflecting the ecosystem's vitality and growth.
3. Designed Landscape Features
    - Nurse logs
        - The two nurse logs decay gradually to support mosses, insects, other animals, and plants. Nurse logs represent care and interconnection in community because they function as a nursery for growth and regeneration.
        - The nurse logs were also designed with art installations such as sculptures of mushrooms to demonstrate the function of nurse logs. The intentional design features remind people that these nurse logs did not fall due to natural processes, but were placed there as an act of stewardship, to provide habitat and enrich the soil as they decay.
    - Gathering spaces and ground planes
        - A series of gathering spaces is unified by a meandering curvilinear sidewalk that evokes the memory of the historic creek. These patterns illustrate moments of pooling, swirling, rushing, and splashing, expressed through dynamic lines that weave around the seating areas.
4. Artificial Structures
    - Granite blocks, boulders, and artificial concrete pieces
        - Intentionally arranged granite blocks, boulders and concrete pieces create additional structures for habitats and also invite people to walk, sit, and engage with the space.
    - Corten steel check dam
        - While managing rainwater, artificial dams also visually frame water movement and erosion control while offering aesthetic appeal.
    - Paved sidewalks
        - Rather than natural dirt paths, paved paths offer a smooth, stable circulation that indicates the space is inclusive and meant to be used and enjoyed. Paved paths also clearly mark the boundary between path and planted areas, helping the space look neat and maintained.

CASE STUDY: ST.GEORGE RAINWAY

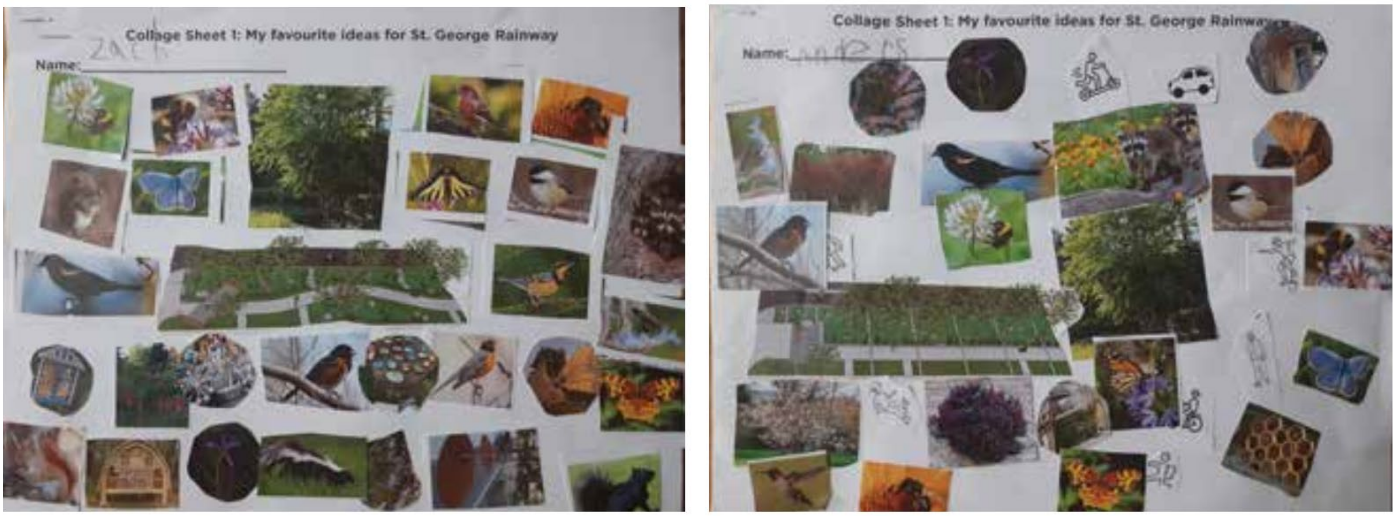
CASE STUDIES: ST. GEORGE RAINWAY

Community Engagement

St. George Rainway implemented a robust and creative public engagement process starting early in the project's development and continuing through to post-construction. The city used a variety of tactics including online surveys to gather initial community values, collaborative idea workshops, youth engagement through school activities, and a public celebration event ("Let it Rain!") to showcase the final design. To extend involvement beyond design, they also hosted BioBlitzes before and after construction to monitor biodiversity and foster learning. Community input helped shape priorities such as letting nature lead the design, ensuring accessibility and safety, addressing future parking needs, and making space for Indigenous knowledge.

Lessons Learnt from St. George Rainway

St. George Rainway sets a good example of repurposing residential streets into a blue-green corridor that highlights ecological function, accessibility, rainwater management, and public engagement. First, it proved that even narrow or constrained urban spaces can be retrofitted into meaningful green corridors with creative design and strong policy support. Repurposed streets should also maximize their functions. St. George Rainway is not only a rain garden, but also a habitat corridor, a gathering space, and a pedestrian and cyclist friendly street. Lastly, public engagement is crucial to the success of St. George Rainway. Early and ongoing community involvement builds ownership, enhances relevance, and improves long-term stewardship of public ecological spaces.



Source: St. George Rainway Enagaement Board

CASE STUDIES

LILLIAN TO PARK

Designed by Vancouver Park Board

Location: Vancouver

Type: Park and greenway created through road space reallocation and property acquisition

Built: 2015

Context and Background

Located at the northeast corner of West 17th Avenue and Yukon Street, this 0.15-hectare park was developed to address a deficiency in accessible green space within walking distance for local residents. The site included a former residential lot and a section of the 3200 block of Yukon Street. With nearby amenities like Mount Pleasant Park and Simon Fraser Elementary School, the site was well-positioned to serve families and active transportation users along the Yukon Bikeway.

Project Overview

Lillian To park is a neighbourhood-scale green space created through repurposing a segment of residential road and acquiring an adjacent property. By incorporating the Yukon Street right-of-way into the park footprint, the project doubled the usable area, enhanced safety for pedestrians and cyclists, and created a flexible, low-maintenance public landscape.

Photo Taken by Jo Fitzgibbons

CASE STUDIES: LILLIAN TO PARK

Design Features

Natural play features

Passive lawn areas for informal play

Pollinator-friendly gardens

Seating and shade trees

A bike repair station

Walking path integrated with Yukon bikeway

Traffic calming features

A shallow ditch to help with rainwater drainage

Planting Strategy

1. Support pollinator species
    - The planting areas use a mix of flowering perennials and shrubs that bloom at different times of year, ensuring continuous food sources for bees, butterflies, and other beneficial insects. In addition, the perennial gardens require low maintenance.
2. Preserve important trees and maximize canopy coverage
    - Preserving the existing large maple tree protects the mature roots, avoids tree removal cost, and provides habitat structure. Maximizing tree canopy enhances habitat connectivity and provides shade.
3. Naturalistic and layered planting:
    - Naturalistic and layered planting mimics natural ecosystem habitat structures. It helps improve soil health and biodiversity.

CASE STUDIES: LILLIAN TO PARK

Materiality and “Cues to Care”

1. Use of multiple materials and clear thresholds
    - Wood, stone, mulch, and passive lawns create a diverse, earthy palette for the park. Soft surfaces such as cork wood and lawns provide safety for playing. The use of different materials also creates clear thresholds between each area, indicating transitions.
2. Intentional and natural play elements
    - Logs and boulders are strategically placed throughout the site to enhance habitat complexity while encouraging informal play, such as climbing and exploration. A saucer swing and cork wood surfacing further signal designated play areas.
3. Passive lawns and mounds
    - The passive lawn with defined edges indicates that the area is maintained. It also provide social gathering area. Mounds not only add typographical variation but also contribute to aesthetic views.

Community Engagement

Community engagement was central to the creation of Lillian To Park, with two open houses guiding a design that reflected local needs. The first event featured interactive activities that encouraged residents to share ideas, leading to a design vision focused on natural play, pollinator habitat, green open space, and accessible walking paths. A second open house showcased a refined plan shaped by this feedback, receiving broad public support. Collaboration with local organizations further strengthened trust, built community ownership, and ensured the park embodied shared values.

Lessons Learned from Lillian To Park

Lillian To Park demonstrates how a pocket park can deliver social and ecological value through thoughtful and meaningful community engagement. Together, the reallocation of road space and creation of a park responded directly to local calls for more green space in a park-deficient neighborhood, and its design reflects input gathered from residents during planning stages. Nature-based play elements like logs, boulders, and a shallow rain channel support both play and ecological awareness. Variation in surface materials, play structures and defined edges highlight cues to care and foster a sense of safety and stewardship. Community engagement was essential in shaping Lillian To Park, ensuring the design reflected local needs, built community support, and fostered a strong sense of ownership.

Design Brief for Nootka Street

Site Plan: 14th to 15th

Expanded Still Creek riparian corridor identified in Still Creek Enhancement Study

2-way Bike Permeable Path

Seating Area

Potential Public Art Display Area

Plantings that Mimic Forest Habitats

*Properties and setbacks are hypothetical and consider potential re-development scenarios. They do not reflect specific policies, requirements, or planned developments

Site Plan: 15th to 16th

Plant Strategy: Forest Inspired

Support Pollinators
Habitat Structure
Drought Tolerant
Food Plant
Culturally Important

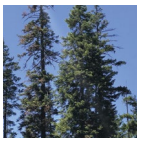

Vine maple


Red alder


Bigleaf maple


Sitka spruce


Western red cedar


Grand fir


Oregon grape


Coastal strawberry


Salmonberry


Thimbleberry


Oceanspray


Western sword fern


Deer fern


Common snowberry


Osoberry


Salal

The section between 14th and 16th Street is closed to vehicle traffic and reimagined as a pedestrian- and cyclist-friendly forest corridor, prioritizing native biodiversity and ecological function. This area supports the formation of a layered forest habitat with coniferous and deciduous tree species. These canopy and mid-story trees provide critical shelter, foraging, and nesting areas for wildlife year-round.

The understory features a variety of native shrubs and groundcovers, offering seasonal berries and nectar to support birds, pollinators, and small mammals.

For ground-level structure and moisture retention, native ferns that are shade-tolerant contribute to soil stability, humidity regulation, and aesthetic continuity throughout the seasons.

Several of these species, including bigleaf maple, western red cedar, sword fern, and salmonberry, hold deep cultural significance for local Indigenous communities. Their presence creates opportunities for interpretive signage, outdoor education, and community storytelling, especially meaningful given the proximity of an elementary school.

Focal Species

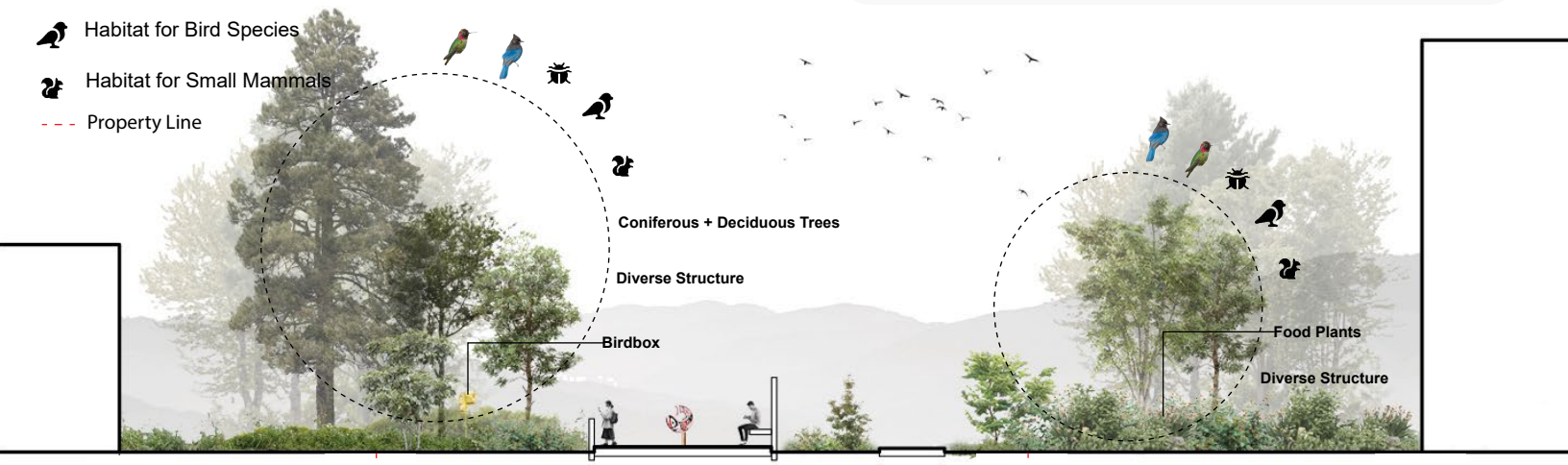
Steller's Jay

Supported by tall trees like Sitka spruce and Western red cedar for nesting, and berry-producing shrubs such as salmonberry for seasonal food and cover.

Anna's Hummingbird

Attracted to early-blooming nectar plants like salmonberry and coastal strawberry, with vine maple and ocean spray offering ideal nesting structure.

Habitat for Anna's Hummingbird
Habitat for Steller's Jay
Habitat for Insect Species
Habitat for Bird Species
Habitat for Small Mammals
Property Line

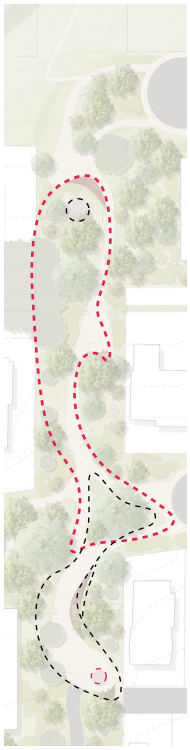


Section A

Forest Habitat Planting | Public Art | Plantings | Pedes -trian Path | Plantings | Private Enhanced Open Space Setback

0m 5m

Design Inspiration



The path within the forest segment is designed to echo the form of two swimming fish, symbolizing the vitality of the corridor and its connection to Still Creek, while evoking a sense of vibrancy and movement.

Function

The Forest segment of the ecological corridor not only serves as an important habitat stepping stone connecting urban green space to Still Creek, but also functions as a vibrant, multi-use space for cyclists, pedestrians, students, and nearby residents.
Located near schools and residential areas, this segment also acts as an outdoor classroom, offering opportunities for place-based learning about native plants, ecological processes, and cultural values.

Materiality


Wood


Cement


Gravel

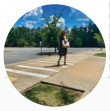

Colored Cement


Permeable Paving

Cues to Care

- Benches and rest areas invite people to pause, observe, and connect with nature.
- Paving changes indicate transitions between zones (e.g., gathering areas, walking trails, or educational spaces) and improve wayfinding.
- Art installations or sculptural elements reflect local identity or ecological themes, encouraging emotional connection and curiosity.
- Educational signage highlights native species, ecosystem benefits, and cultural stories, supporting learning and environmental awareness.
- An Indigenous planting demonstration area showcases culturally significant species and traditional ecological knowledge, offering a space for storytelling, learning, and reconciliation through landscape.

Site Plan: 16th to 17th



Raised Crossing

Meadow-like Plantings

17th

Two-way Bike Lane

Car Flow

Property Line

Understory Plants

New Trees

Existing Trees

1 m Elevation Contour

Section B (pg. 37)

Woodland Plantings

N

4m 12m 20m

Standard Private Setback

Retractable Bollard

Site Plan: 17th to 19th

Plant Strategy: Woodland/Meadow Inspired

Support Pollinators
Habitat Structure
Drought Tolerant
Food Plant
Culturally Important


Pacific crabapple


Broadleaf lupine


Fireweed


Baldhip rose


Nootka rose


Western wild ginger


Yarrow


Coastal strawberry


Salmonberry


Thimbleberry


Oceanspray


Western sword fern


Deer fern


Red huckleberry


Red flowering currant


Salal

The segment from 16th to 19th Street runs through a primarily residential area with limited space for large-scale greening and potential utility conflicts. As a result, selected species here are low-maintenance and shallow-rooted, emphasizing perennials, understory shrubs, and small to mid-sized trees. The planting strategy combines woodland and meadow habitat types to enhance ecological value while remaining compatible with infrastructure constraints.

Native plants such as coastal strawberry, nootka rose, and ocean spray provide seasonal flowers, berries, and dense cover. A mix of herbaceous species contribute color, pollinator support, and seed sources throughout spring and summer. Ground-level diversity is further enriched with ferns, sedges, and native asters, creating a continuous structure and seasonal interest. This stretch also includes gathering areas for residents to rest, socialize, and enjoy nature. The selected plants enhance these public spaces through seasonal blooms, textures, and layered greenery.

Focal Species

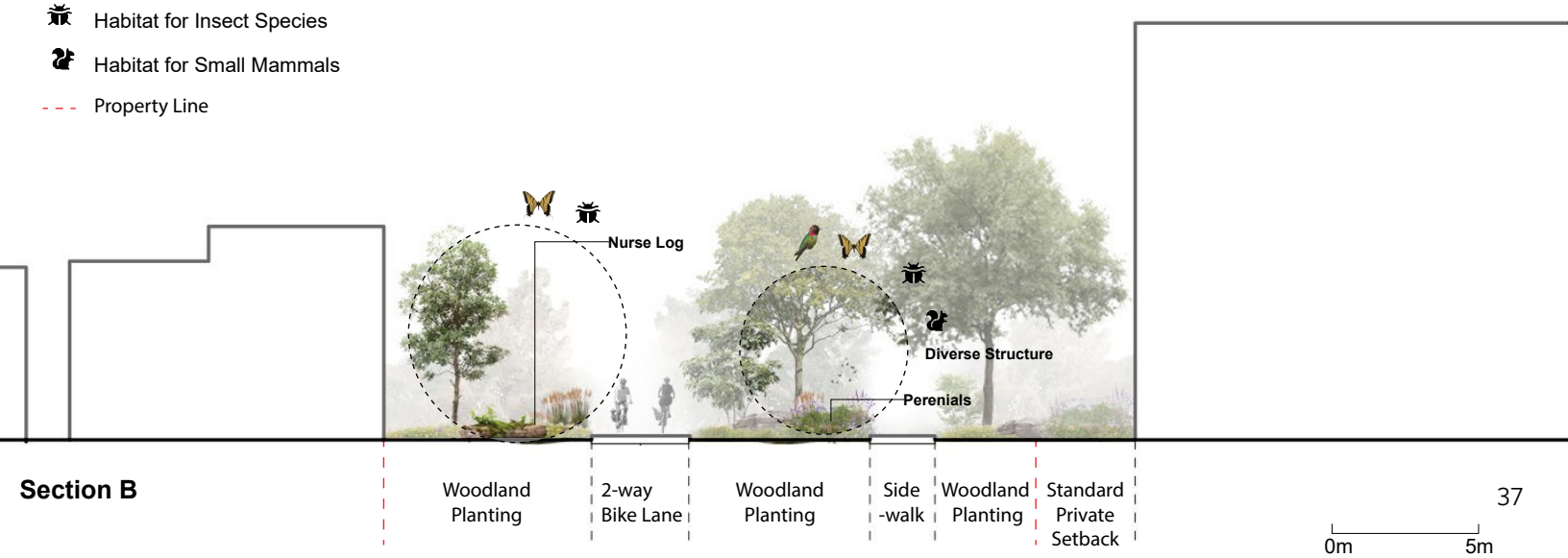
Anna's Hummingbird

Attracted to early-blooming nectar sources such as red flowering currant, salmonberry, coastal strawberry, and baldhip rose, and benefits from dense shrubs like salmonberry and oceanspray for nesting.

Western Tiger Swallowtail

Supported by nectar-rich flowers such as fireweed, lupine, goldenrod, wild rose, and tickseed, as well as host plants like pacific crabapple for egg-laying and larval feeding.

Habitat for Western Tiger Swallowtail
Habitat for Anna's Hummingbird
Habitat for Insect Species
Habitat for Small Mammals
Property Line



Section B

Function

The Woodland section of the ecological corridor features gathering areas and visually rich plantings that enhance the sensory experience of passersby. Located near an elementary school, this area includes playful elements such as mushroom step stones to spark curiosity and exploration among children. In addition, the design considers spaces for parents and caregivers to comfortably wait during school pick-up times, creating a welcoming and functional environment for all ages.

Cues to Care

- Designed boulders for informal seating blend seamlessly into the woodland setting while encouraging people to pause, observe nature, or chat with others.
- A mini gathering plaza serves as a social anchor and a natural pause point. Its defined edges and integration into the planting design signal that the space is welcoming and maintained.
- Nurse logs serve both as species nesting areas and interactive features.

Materiality

Rock Brick Wood

Site Plan: 19th to 20th

Meadow Plantings

Bioretention

Section C (pg. 40)

Plaza Slightly Above Rain garden
(Same level with sidewalk)

Renfrew Community Park

Rain Garden

Existing Underground Utilities

Drain Inlet

Interpretive Signage

Wetland Plantings

Entrance Plaza with Seats

Car Flow

Property Line

Understory Plants

New Trees

Existing Trees

1 m Elevation Contour

N

4m 12m 20m

Plant Strategy: Wetland Inspired

Support Pollinators
Habitat Structure
Drought Tolerant
Food Plant
Culturally Important


Camas


Sharp fruited rush


Soft rush


Tufted hairgrass


Slough sedge


Douglas Iris


Western sword fern


Western buttercup


Red osier dogwood


Pacific crabapple


Broadleaf lupine


Fireweed

The stretch from 18th to 20th Street incorporates rain gardens and stormwater collection features and aligns with the goals of the Still Creek Enhancement Project. Designed to slow, filter, and absorb runoff, this section features a planting palette of native wetland and moisture-tolerant species that enhance both hydrological function and biodiversity.

Plantings include a rich mix of sedges and rushes—such as slough sedge, sawbeak sedge, chamissio sedge, sharp-fruited rush, and soft rush—which improve water infiltration and stabilize soils. These are complemented by tufted hairgrass and Douglas iris, which add height, seasonal texture, and pollinator value. Flowering species like yellow marsh marigold, camas, and western buttercup bring spring and early summer color to the corridor while supporting beneficial insects.

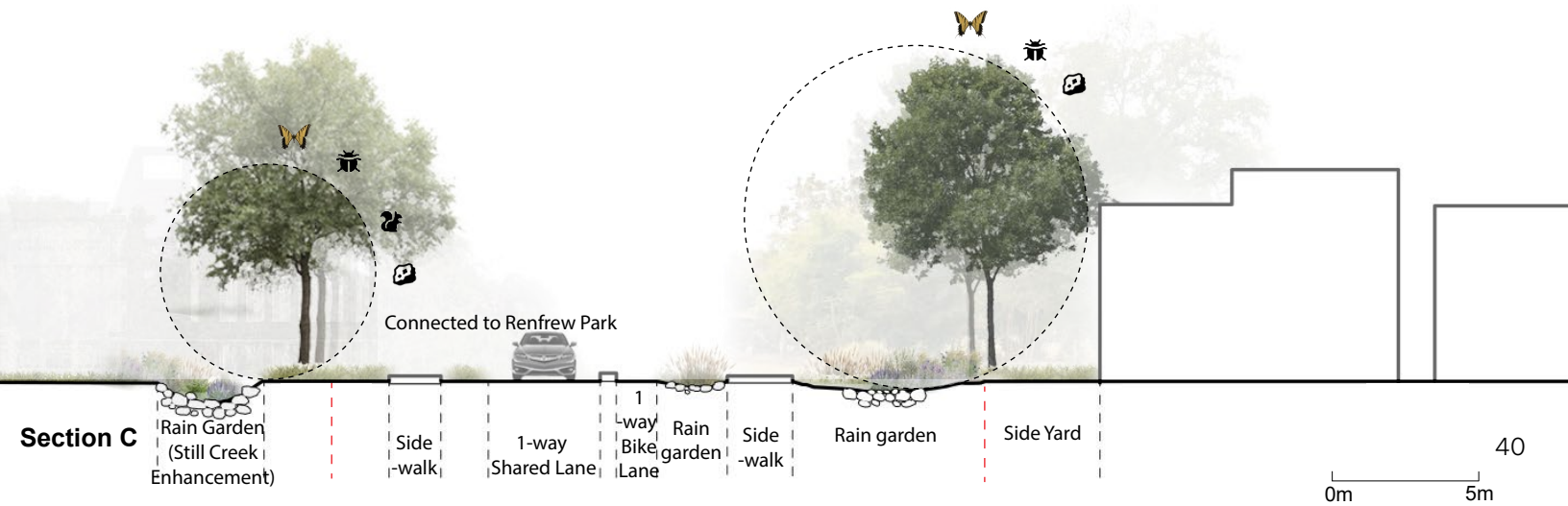
Red osier dogwood provides structure, seasonal interest, and nesting cover, especially at rain garden edges and transitional zones. This planting palette creates a dynamic and functional landscape that both treats stormwater and supports urban biodiversity.

Focal Species

Western Tiger Swallowtail

Western Tiger Swallowtail benefits from abundant nectar-rich flowers such as camas, while nearby native shrubs and trees may serve as larval host plants and perching areas. The moist conditions also support puddling behavior (butterflies and other insects gather on moist surfaces to drink fluids rich in salts and minerals), which is important for male butterflies to absorb minerals necessary for reproduction.

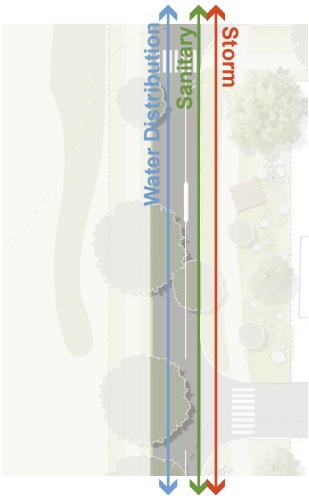
Habitat for Western Tiger Swallowtail
Rocks for Creating Complex Habitat Structure
Habitat for Insect Species
Habitat for Small Mammals
Property Line



Section C

Utility Constraints

To minimize utility conflicts, the west side of this segment remains mostly unchanged because the water distribution utility is located beneath it. The east side serves as the primary corridor with the storm utility aligning with rain gardens.



Function

The Wetland-inspired segment features engineered rain gardens and bioretention basins designed to manage stormwater runoff while supporting biodiversity. Adjacent to Renfrew Community Park, this stretch plays a dual role as a natural filtration system and an accessible green space.

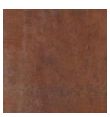
To maintain clear sightlines for parents watching their children play sports or during drop-offs, the west side is selectively revegetated with low-growing shrubs and herbaceous species.

Materiality


Rock


Brick


Wood


Corten Steel

Cues to Care

- Rain gardens visibly demonstrate how designed structures like drain rocks or corten steel dams efficiently absorb stormwater.
- Drainage systems (like inlets) are left partially visible to communicate water management and reassure the public that flooding is being addressed. This builds trust in the landscape's function.
- Educational signage explains how stormwater is filtered through soil and plants, what species are used, and how this system connects to the broader watershed. It invites learning for both adults and children, especially near the park and community areas.

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2. Biodiversity Strategy
3. VanPlay
4. Rain City Strategy
5. Urban Forest Strategy
6. Barcelona's Greenery and Biodiversity Charter
7. Surrey Biodiversity Design Guide
8. City of Vancouver Indicator Species Technical Report
9. Blue Green System Typology Study
10. Still Creek Enhancement Study

REFERENCES: PLANT LISTS

1. Green Infrastructure Approved Plant List
2. Green Streets Program Plant Recommendations
3. Coastal Salish Culturally Important Species: Recommended Species from Previous Projects with Musqueam, Squamish and Tsleil-Waututh Nations (internal resource)
4. Internal project-specific plant lists provided by Urban Forestry

APPENDICES

Table 1: Recommended Plants for Nootka Street Design Brief

Common Name	Scientific Name	Habitat	Ecological Roles	Coastal Salish Culturally Important
Trees				
Vine maple	Acer circinatum	Forest/ Woodland	Habitat structure, Drought tolerant	Yes
Red alder	Alnus rubra	Forest	Habitat structure	Yes
Bigleaf maple	Acer macrophyllum	Forest	Habitat structure	
Pacific crabapple	Malus fusca	Woodland	Habitat structure, Food plant	Yes
Sitka spruce	Picea sitchensis	Forest	Habitat structure	Yes
Grand fir	Abies grandis	Forest	Habitat structure	Yes
Western red cedar	Thuja plicata	Forest	Habitat Structure	Yes
Shrubs				
Oregon grape	Majonia nervosa	Woodland/ Forest		
Coastal strawberry	Fragaria chiloensis	Woodland/ Forest	Pollinator support, Food plant, Drought tolerant	
Baldhip rose	Rosa gynmocarpa	Woodland	Pollinator support, Food plant, Drought tolerant	
Woodland strawberry	Fragaria vesca	Woodland	Pollinator support, Food plant	Yes
Ocean spray	Holodiscus discolor	Woodland/ Forest	Drought tolerant	Yes
Nootka rose	Rosa nutkana	Woodland	Pollinator support, Drought tolerant, Food plant	Yes
Salmonberry	Rubus spectabilis	Woodland/ Forest	Pollinator support, Food plant	Yes
Red osier dogwood	Cornus sericea	Wetland	Pollinator support	Yes
Thimbleberry	Rubus parviflorus	Woodland/ Forest	Pollinator support, Food plant	Yes
Western wild ginger	Asarum caudatum	Woodland	Food plant	Yes
Common Snowberry	Symphoricarpos albus	Woodland/ Forest	Food plant, Drought tolerant	
Osoberry	Oemleria cerasiformis	Woodland/ Forest	Food plant, Drought tolerant	

Common Name	Scientific Name	Habitat	Ecological Roles	Culturally Important
Perennials				
Broadleaf lupine	Lupinus latifolius	Woodland/ Meadow	Habitat structure, Drought tolerant	
Fireweed	Chamerion angustifolium	Woodland/ Meadow	Pollinator support, Habitat structure, Food plant, Drought tolerant	Yes
Yarrow	Achillea millefolium	Meadow	Pollinator support	Yes
Sawbeak sedge	Carex stipata	Woodland	Pollinator support	
Slough sedge	Carex obnupta	Woodland		
Pacific rhododendron	Rhododendron macrophyllum	Woodland	Pollinator support, Drought tolerant	
Red flowering currant	Ribes sanguineum	Woodland	Pollinator support, Drought tolerant	
Yellow marsh marigold	Caltha palustris	Woodland		
Goldenrod	Solidago canadensis	Woodland	Pollinator support, Drought tolerant	
Tick seed	Coreopsis	Woodland	Pollinator support, Drought tolerant	
Baldhip rose	Rosa gynmocarpa	Woodland	Pollinator support, Food plant, Drought tolerant	
Grass/Sedge/Rush				
Sharp fruited rush	Juncus acuminatus	Wetland	Pollinator support	
Soft Rush	Juncas effusus	Wetland	Pollinator support	
Tufted hairgrass	Deschampsia Cespitosa	Wetland		
Slough Sedge	Carex obnupta	Wetland	Pollinator support	
Chamissio Sedge	Carex pachystachya	Wetland	Pollinator support	
Douglas Iris	Iris Douglasiana	Wetland	Urban tolerant	
Western wild ginger	Asarum caudatum	Woodland/ Forest	Shade tolerant	Yes

APPENDICES

Common Name	Scientific Name	Habitat	Ecological Roles	Coastal Salish Culturally Important
Perennials				
Western sword fern	Polystichum munitum	Woodland/ Forest	Shade tolerant	Yes
Deer fern	Blechnum spicant	Woodland/ Forest	Shade tolerant	Yes
Bracken fern	Pteridium aquilinum	Woodland/ Forest	Shade tolerant	Yes
Bulbs				
Camas	Camas Quamash	Wetland		Yes