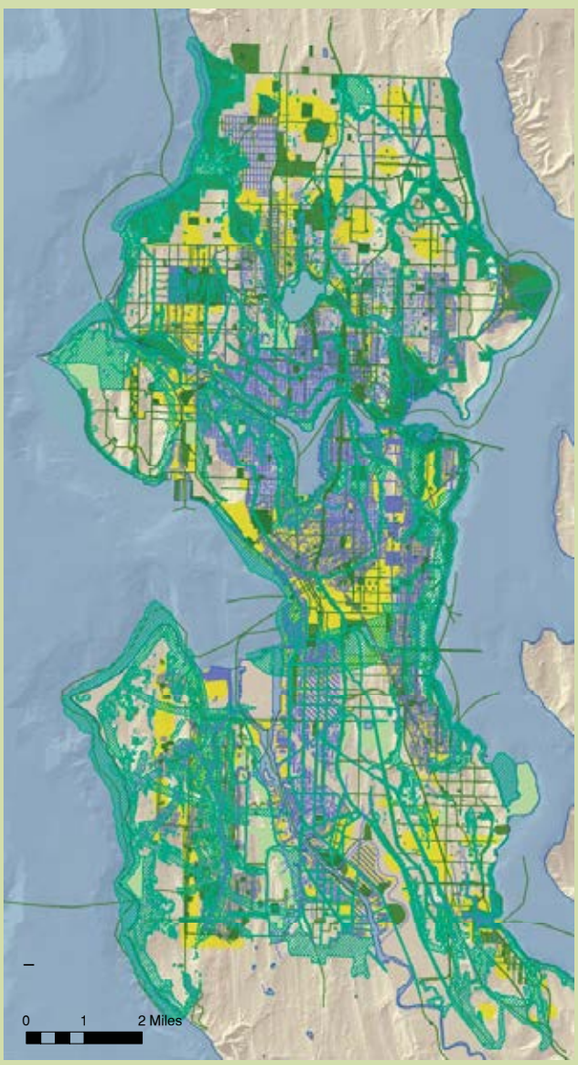
ENVISIONING SEATTLE'S GREEN FUTURE

Visions and Strategies from
The Green Futures Charrette
February 3-4, 2006



a publication of the Open Space Seattle 2100 Project
Department of Landscape Architecture
College of Architecture and Urban Planning
University of Washington
July 2006

Nancy Rottle and Brice Maryman
Co-directors, Open Space Seattle 2100

Report Layout and GIS
Elizabeth Umbanhower, Betsy Severtsen
and Students in Landscape Architecture 504/402

Content generated by participants in the Green Futures Charrette

this report can be downloaded at www.open2100.org

PROJECT SUMMARY

Within the next century, at least another half-million people will need to fit within Seattle's city limits, a doubling of our current population. How will the city retain its famed livability, while accommodating and attracting new residents away from sprawling over our last farms and forestlands? Further, how will we achieve the carbon-neutral status that the City is aiming for, restore our salmon runs, and cope with the impacts of global climate change and post-peak oil prices?

If Seattle is to be the vibrant ecological city we earnestly want it to be, it will only get there through careful and visionary planning. While our steps may be incremental, the vision must be clear, unwavering and bold, so that we know what we want to be and can seize opportunities to get us there. That is the premise of Open Space Seattle 2100 and the departure point for the participants of the Green Futures Charrette.

This planning endeavor enlisted the talents, skills and dedication of over 300 people, to whom future Seattle citizens will be deeply indebted. The high level of participation by professionals, citizen activists and students allowed every part of the city to be considered from multiple perspectives. Our approach reflected the 100-year time frame, dividing the city into its underlying, immutable topographic and watershed basins--not unlike the Olmsted Brothers' plan of a hundred years ago that marked ravines, ridgelines, shorelines and peninsulas to preserve as open space.

These plans are the result of a two-day charrette, but they represent almost a year of careful preparation and study by our Guidance Committee and students, and in several cases are next iterations of long-formed community groups' visions. As in any plan, these ideas need additional refinement, ground-truthing and public input, but they are a very solid beginning.

The Open Space Seattle work provides a spatial template for developing an integrated green infrastructure for all of Seattle. Taken as a whole, the proposals also suggest a framework of green urbanism policies that propel us toward civic action. The big planning moves that all 23 teams advocated are clear:

First, create an integrated, connected "green infrastructure" that supports urban functions without damaging the atmosphere or water: bikeways, green freeways, natural drainage filtration, and tree canopy cover are all part of that system.

Second, plan for density and community, by focusing development into urban nodes that contain civic spaces, local identities, walkable amenities and abundant public transit.

Third, strive for ecological open spaces, in both public and private realms, that restore ecological functions and promotes biodiversity on land and in our waters. Growing healthy, connected urban forests, restoring streams and shorelines, and reclaiming earthquake and hazard zones as greenbelts are examples.

Finally, provide democratic access to open space, so that all people, in all neighborhoods, can reap the benefits of a multi-faceted open space system.

We invite you to explore the ideas for each study area contained herein to learn how and where to make those planning and design moves at the neighborhood scale.

This work will only come to fruition with the memory and continued support of city officials and staff, professional planners and citizen activists to advance next phases of planning. With this bold plan for Seattle's Green Infrastructure in hand, the process of verifying and vetting the vision needs to continue, watershed by urban watershed. Also, the City's beginning efforts at interdepartmental collaboration need to be broadened if we are to achieve an efficient and integrated green infrastructure. Perhaps most important, funds for acquisition, development and restoration must be allocated–through finding interagency efficiencies in existing budgets and renewal of our expiring levies–so that the visions can begin to be implemented before the opportunities escape. And, all of this will require constant citizen advocacy and hard work.

But it will be worth it. As one young citizen wrote after seeing our exhibit of this work, "This is the Seattle I want for my future."

Nancy Rottle and Brice Maryman
Co-Directors, Open Space Seattle 2100
University of Washington, Department of Landscape Architecture
July 2006

TABLE OF CONTENTS

Executive Summary 5

Table of Contents 7

Acknowledgements 8

Goal and Guiding Principles 10

Project Description and Background 12

Themes and Strategies 14

2025 and 2100 Green Infrastructure Composites 16

Linkages and Greenways 2100 20

Introduction to the Watershed Study Area Proposals 21

Central

Madison Transect 25
Magnolia/Interbay/Queen Anne 37
Lake Union 49
Downtown 65
Arboretum 71
Lake Washington 79

North

Northwest 91
Thornton Creek 101
Sandpoint/Laurelhurst 111
Ballard/ Ship Canal 123
Greenlake 139
Greenlake/University District 149
University District 159

South

West Seattle 167
Longfellow Creek 173
Duwamish 185
Rainier Valley 195
Rainier Beach 209
Taylor Creek 215

Implementation Strategies 220

Appendices 223

Charrette Themes Matrices 224
Ecological Scorecard 226

ACKNOWLEDGEMENTS

Sincere thanks go to the multitude of supporters of the Open Space Seattle 2100 process, without whom this project and report would not have been possible:

founders

City of Seattle

UNIVERSITY OF WASHINGTON

Urban Land Institute

benefactors

Alternative Foundation

patrons

ASLA
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
WASHINGTON CHAPTER

GGLO
architecture | interior design
landscape architecture
urban design & planning
www.gglo.com

Olmsted
Friends of Seattle's Olmsted Parks

supporters

ANCHOR ENVIRONMENTAL, L.L.C

The Berger Partnership, PS
Landscape Architecture

MITHŪN

JONES
JONES

WEISMAN DESIGN GROUP
LANDSCAPE ARCHITECTURE
2329 EAST MADISON ST.
SEATTLE, WA 98112-5416
PH 206.322.1732/FAX 206.322.1799
INTERNET WWW.WDGINC.COM

CITY PLANNING
citydesign

GROUNDSWELL NW

SEATTLE PARKS AND RECREATION

fellows

Groundswell Northwest • Magnusson Klemencic Associates
IBI Group • Mr. KookHyun Moon and Professor Ki-Ho Kim
Hough Beck and Baird • Hartson Photography
Seattle Parks Foundation • SvR Design
Swift and Company Landscape Architects
Sustainable Ballard • Johnson Braund

ACKNOWLEDGEMENTS

EXECUTIVE COMMITTEE

Nancy Richardson Ahern, Seattle Public Utilities
John Barber, Parks and Open Space Advocates
Ken Bounds, Department of Parks and Recreation
Gene Duvernoy, Cascade Land Conservancy
Anne Fiske-Zuniga, Seattle Department of Transportation
Kathy Fletcher, People for Puget Sound
Davidya Kasperzyk, Groundswell NW
Nancy Keith, Mountains to Sound Greenway
Anne Lennarz , Seattle Urban Nature Project
David Levinger, Feet First
Kelly Mann, Urban Land Institute Seattle
Michael McGinn, Sierra Club, Greenwood Community Council
Steve Nicholas, Office of Sustainability and Environment
Iain Robertson, University of Washington, Department of Landscape Architecture
Charles Royer, Urban Health Initiative
Susan Sanchez, Seattle Department of Transportation
Yvonne Sanchez, Department of Neighborhoods
Gregory Smith, ULI Seattle/Urban Visions
Peter Steinbrueck, Seattle City Council
Chantal Stevens Sustainable Seattle
Diane Sugimura, Department of Planning and Development

GUIDANCE COMMITTEE

Catherine Anstett, Seattle Parks Department
Matt Anderson, Heartland LLC
Denise Andrews, Seattle Public Utilities, Resource Planning Division
Jerry Arbes, Friends of Seattle's Olmsted Parks
Lynne Barker, Department of Design, Construction and Land Use
Jeff Bash, Seattle Urban Nature Project
Don Benson, WASLA
Tom Berger, The Berger Partnership
Bill Blair, Department of Parks and Recreation
Jim Brennan, JA Brennan Associates PLLC
B. J. Brooks, Department of Parks and Recreation
Tom Byers, Cedar River Associates
Michelle Caulfield, Sustainable Seattle
Nate Cormier, Jones and Jones
Barb Culp, Bicycle Alliance
Carrie Culp, WASLA
John Daley, Trust for Public Land
Rebecca Deehr, Feet First
Shane DeWald, Seattle Department of Transportation, Urban Forestry
Richard Gelb, Office of Sustainability and Environment
Barbara Gray, Seattle Department of Transportation, Mobility Management
Bert Gregory, Mithun
Deb Guenther, Mithun
Don Harris, Department of Parks and Recreation, Parks Real Estate Management
Peter Hummel, Anchor Environmental
Michael Kattermann, Washington Chapter of the American Planning Association
Diana Kincaid, Parks and Open Space Advocates, Seattle Community Council Federation
Kas Kinkaid, Cascade Design Collaborative
Cheryl Klinker, Thornton Creek Alliance
Anne Knight, Friends of Seattle's Olmsted Parks
Pete Lagerwey, Seattle Department of Transportation, Bicycle and Pedestrian Program
David Levinger, Feet First
Dick Lily, Seattle Public Utilities
Richard Macdonald, Department of Neighborhoods, P-Patch Program
Milenko Matanovic, Pomegranate Center
Dan McGrady, Vulcan
Mark Mead, Department of Parks and Recreation, Urban Forestry Unit
Matt Mega, Seattle Audubon
Guy Michaelson, The Berger Partnership
Beth Miller, Piper's Creek, Environmental Learning Center
Steve Moddemeyer, Seattle Public Utilities, Corporate Policy and Performance
Dave Moore, Sierra Club
T. J. Moore, Seattle Greenmap
Joyce Moty, Parks and Open Space Advocates
Chip Nevins, Cascade Land Conservancy
John Owen, Makers
Julie Parrett, Charles Anderson Landscape Architecture, People's Waterfront Coalition
Duane Penttila, Department of Parks and Recreation, Horticulture and Forestry Services Administration
Stephanie Pure, Seattle City Council
Janet Stephenson, EDAW
Jim Reinhardsen, Heartland LLC
Guillermo Romano, Department of Planning and Development, Urban Design
Kent Scott, GGLO
David Spiker, Collis Woerman, Seattle Design Commission
Peg Staeheli, SvR Design Company
Barbara Swift, Swift and Company
John Taylor, Restore Our Waters
Chris Towne, Seattle Parks Foundation
Heather Trim, People for Puget Sound
Woody Wheeler, Seattle Parks Foundation
Barbara Wright, DPH - Environmental Health Services Division, King County
David Yeaworth, Allied Art

SPECIALIST TEAM

Marina Alberti, University of Washington, Department of Urban Design and Planning
Emily Allen, Bicycle Advisory Board
Lyle Bicknell, Department of Planning and Development, City Design
Jim Diers, University of Washington, Educational Partnerships
Cheryl Eastberg, Department of Parks and Recreation, Office of the Superintendent
Tom Hauger, Department of Planning and Development
Kristina Hill, University of Washington, Department of Landscape Architecture
Grant Jones, Jones & Jones
Alan Justad, Department of Planning and Development
Sarah McKearnan, Seattle Public Utilities
Dennis Meier, Department of Planning and Development, Seattle Design Commission
Tracy Morgenstern, Office of Sustainability and Environment
Judith Noble, Seattle Public Utilities, Corporate Policy and Performance
John Pehrson, Belltown Housing and Land Use Company
Ray Schutte, P-Patch Trust
Robert Scully, Department of Planning and Development
Sheryl Shapiro, Seattle Public Utilities
Tracy Tackett, Seattle Public Utilities
Lish Whitson, Department of Planning and Development

COALITION ORGANIZATIONS

Allied Arts, Seattle
American Society of Landscape Architects, National and Washington Chapter
Anchor Environmental
Charles Anderson Landscape Architecture
The Berger Partnership
Bicycle Alliance of Washington
Cascade Design Collaborative
Cascade Land Conservancy
EDAW
Feet First
Friends of Seattle's Olmsted Parks
GGLO
Greenwood Community Council
Groundswell Northwest
Heartland LLC
Jones & Jones Architects and Landscape Architects
King County Department of Public Health Urban Health Initiative
Makers Architecture and Urban Design
Mithun Architects, Landscape Architects and Planners
Mountains to Sound Greenway
Parks and Open Space Advocates (POSA)
People for Puget Sound
People's Waterfront Coalition
Pomegranate Center
Ravenna Creek Alliance
City of Seattle
Seattle Audubon Society
Seattle Department of Parks and Recreation
Seattle Department of Planning and Development
Seattle Department of Transportation
Seattle Department of Neighborhoods
Seattle Design Commission
Seattle Community Council Federation
Seattle Greenmap
Seattle Office of Sustainability and the Environment
Seattle Parks Foundation
Seattle Public Utilities
Seattle Urban Nature Project
The Sierra Club
Swift and Company
Sustainable Seattle
Thornton Creek Alliance
Trust for Public Land
University of Washington College of Architecture and Urban Planning, Praxis
University of Washington Department of Landscape Architecture
University of Washington, Educational Partnerships
Urban Land Institute
Gregory Broderick Smith, Urban Visions
Washington Chapter of the American Planning Association

TECHNICAL PANELISTS

Marina Alberti, University of Washington
Barb Culp, Seattle Department of Transportation
Karen Daubert, Seattle Parks Foundation
Mark Huppert, Catapult Development
John Marzluff, University of Washington
Steve Nicholas, Seattle Office of Sustainability and Environment
Greg Smith, Urban Visions
Heather Trim, People for Puget Sound

PUBLIC LECTURERS

Mark Childs, Associate Professor, University of New Mexico
Patrick Condon, Associate Professor, University of British Columbia
Mike Houck, Urban Greenspaces Institute, Portland State University
Robert Garcia, Center for Law in the Public Interest

CHARRETTE RESOURCE TEAM

Jerry Arbes, Friends of Seattle's Olmsted Parks
Catherine Anstett, Department of Parks and Recreation
Bill Blair, Department of Parks and Recreation
Shane DeWald, Seattle Department of Transportation
Richard Gelb, Office of Sustainability and Environment
Barbara Gray, Seattle Department of Transportation
Don Harris, Department of Parks and Recreation
Mike Houck, Director, Urban Greenspaces Institute
Ann Knight, Friends of Seattle's Olmsted Parks
David McDonald, Seattle Public Utilities
Adam Parast
Eric Shulenberger, UW Professor of Multidisciplinary Research Development

EXHIBIT AND REPORT ASSISTANCE

UW Students:
Kent Straub-Jones, Landscape Architecture
Elizabeth Umbanhowar, Landscape Architecture
Tauschia Copeland, Community Environment Program
Noriko Marshall, Landscape Architecture
Nicole Mikesh, Landscape Architecture
Ada Rose Williams, Architecture
Carlos Gimenez, Architecture

CHARRETTE VOLUNTEERS

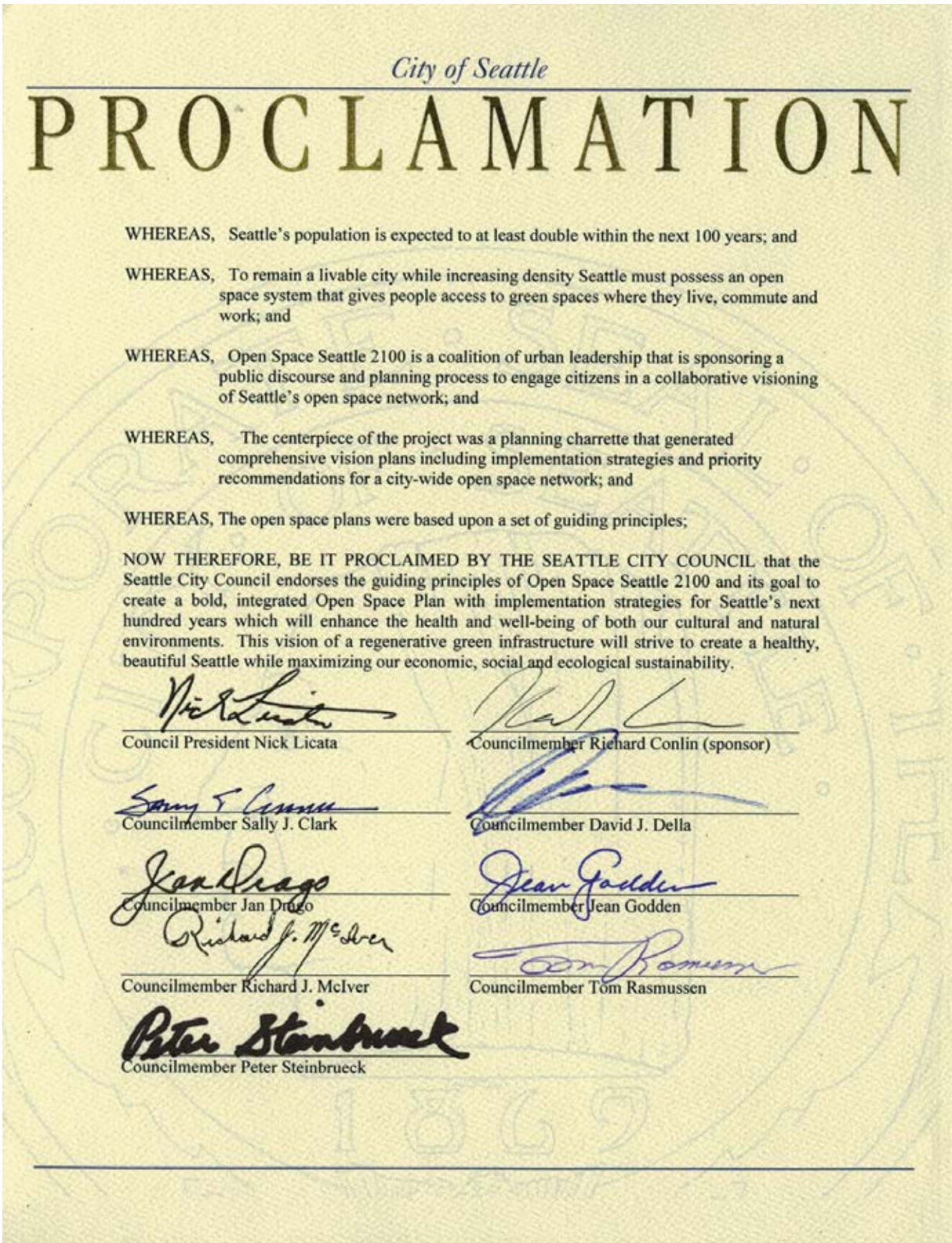
Julie Beall
David Beestock
Kadie Bell
Ray Bernstein
Phoebe Bogert
Becky Chaney
Marissa Dolin
Tamara Driscoll
Ande Flower
Matthew Gossen
Ann Martin
Susie Philipsen
Dulce Setterfield
Gabe Shulman
Amy Shuman

OTHER SUPPORT

Website: David Minnery, University of Washington
GIS: Betsy Severtsen, University of Washington

WITH SPECIAL THANKS TO

Diane Sugimura, Department of Planning and Development, City of Seattle
Peter Steinbrueck, Seattle City Council
Richard Conlin, Seattle City Council
David Della, Seattle City Council
Fritz Wagner, College of Architecture and Urban Planning



City of Seattle

PROCLAMATION

WHEREAS, Seattle's population is expected to at least double within the next 100 years; and

WHEREAS, To remain a livable city while increasing density Seattle must possess an open space system that gives people access to green spaces where they live, commute and work; and

WHEREAS, Open Space Seattle 2100 is a coalition of urban leadership that is sponsoring a public discourse and planning process to engage citizens in a collaborative visioning of Seattle's open space network; and

WHEREAS, The centerpiece of the project was a planning charrette that generated comprehensive vision plans including implementation strategies and priority recommendations for a city-wide open space network; and

WHEREAS, The open space plans were based upon a set of guiding principles;

NOW THEREFORE, BE IT PROCLAIMED BY THE SEATTLE CITY COUNCIL that the Seattle City Council endorses the guiding principles of Open Space Seattle 2100 and its goal to create a bold, integrated Open Space Plan with implementation strategies for Seattle's next hundred years which will enhance the health and well-being of both our cultural and natural environments. This vision of a regenerative green infrastructure will strive to create a healthy, beautiful Seattle while maximizing our economic, social and ecological sustainability.

Council President Nick Licata

Councilmember Richard Conlin (sponsor)

Councilmember Sally J. Clark

Councilmember David J. Della

Councilmember Jan Drago

Councilmember Jean Godden

Councilmember Richard J. McIver

Councilmember Tom Rasmussen

Councilmember Peter Steinbrueck

In May 2006, the Seattle City Council endorsed the principles of the Open Space Seattle 2100 project.

PLAN GOAL AND GUIDING PRINCIPLES

Plan Goal

To create a bold integrated Open Space Plan with implementation strategies for Seattle's next hundred years, which will enhance the health and well-being of both our cultural and natural environments. This vision of a regenerative green infrastructure will strive to create a healthy, beautiful Seattle while maximizing our economic, social and ecological sustainability.

Guiding Principles for the Open Space Plans

1. REGIONAL RESPONSIVENESS

Consider Seattle's role as an ecological, economic, and cultural crossroads; its location in one of the world's great estuaries and between two dramatic mountain ranges; its critical position as a threshold to two major watersheds (Cedar and Green/Duwamish); and its relationship to salt and fresh water bodies throughout the city.

2. INTEGRATED AND MULTI-FUNCTIONAL

Integrate a variety of types of open space within a unifying, coherent structure. Incorporate considerations for streets, creeks, parks, habitat, urban forests, trails, drainage, shorelines, commercial and civic spaces, back yards and buildings. Consider layering multiple functions and uses within green spaces to create high-functioning, high value open spaces.

3. EQUITY AND ACCESSIBILITY

Within a network of open spaces provide equitable access for all persons to a variety of outdoor and recreational experiences. Distribute appropriate open space types to every neighborhood, in order to address the needs of diverse population groups. Prioritize public access to water.

4. CONNECTIVITY/COHERENCE

Create a wholly connected system that facilitates non-motorized movement, enhances habitat through connectivity, links diverse neighborhoods, and is easy to navigate and understand. Connect these in-city amenities to surrounding communities, trails and public lands.

5. QUALITY, BEAUTY, IDENTITY and ROOTEDNESS

Use Seattle's many natural strengths to create an exemplary, signature open space system. Build on intrinsic qualities, both natural and cultural; reflect, respond to and interpret geographic, ecological, aesthetic and cultural contexts; address emotional and spiritual needs; and inspire a deep connection to place.

6. ECOLOGICAL FUNCTION AND INTEGRITY

Expand the quantity and quality of natural systems in the city: Provide quality habitat for all appropriate species, with a special emphasis on the waters' edge. Design for hydrological health (water temperature, water quality, water regimes, stormwater), and consider appropriate water and resource conservation strategies. Connect to regional ecosystems in order to achieve integrity, resiliency and biodiversity in the face of climate change.

7. HEALTH AND SAFETY

Continue to make the city a safe and healthful place to live. Reduce the risk of natural hazards (slides, flooding, earthquake, soil and water contamination) while reclaiming and treating previously toxic sites. Provide multiple opportunities for exercise, physical activity, and a connection to nature to be integrated into daily lives.

8. FEASIBILITY, FLEXIBILITY AND STEWARDSHIP

While visionary, the plan should be lasting and feasible, with a complementary set of near-term implementation strategies that include mechanisms for both public and private investment that are achievable in incremental steps and adaptable over time. (e.g. codes, funding sources and incentives). It should be maintainable, inspiring shared stewardship between public agencies, private businesses, and individual citizens to foster pride, purpose and community.

PROJECT DESCRIPTION AND BACKGROUND

Open Space Seattle 2100 and The Green Futures Charrette

In the early days of February 2006, over 300 of Seattle's citizens participated in the Green Futures Charrette to create a long-range vision for Seattle's open space network. Over the course of two full days and many weeks of preparation, twenty-three charrette teams composed of planners, designers, environmentalists, city officials developers, artists, and open space advocates envisioned livable, ecologically-healthy and socially-robust urban watersheds and neighborhoods for the city's sustainable future.

Teams envisioned Seattle as a dense, magnet city that would accommodate twice Seattle's current population. Each team focused on a distinct watershed-based study area delineated by the natural ridges in the city's topography, crossing neighborhood boundaries to weave green infrastructure within and between communities. Taken together, the plans reach from the city limits to the downtown core, creating a comprehensive network of parks, civic spaces, streets, trails, shorelines, creeks, natural drainage features and urban forests. This collaborative vision binds neighborhoods to one another, provides ecological conduits from the city's ridgelines to its shorelines, and proposes a wealth of green spaces for all of Seattle's future citizens to enjoy.

Developing Visions for Seattle's Living Lattice

Charrette teams worked on two time scales, first envisioning what their study area's open space layout might be a full century from now and then proposing 20-year plans with near-term priorities and implementation strategies. Every team was given a set of predicted future scenarios i.e., over a million people living within the city limits, changing climatic conditions and water supply regimes, elevated oil prices, and new transportation modes.

To assist in these visioning exercises, graduate and undergraduate students in the UW Regional Planning and Neighborhood Design Landscape Architecture studios served as co-team leaders with professionals on each study area team. After the charrette, these students worked tirelessly to refine and digitize their teams' plans using Geographic Information Systems (GIS) software. They were then able to create detailed maps representing the 100-year and 20-year plans. These same students further developed ideas seeded in the charrette process, and illustrated them in the contexts

of their charrette teams' proposals. Students have herein described their design work and their teams' ideas and plans in sections representing each of the city's eighteen separate watershed areas.

With plans digitized into GIS databases, we were able to combine the eighteen study areas into the overall Green Infrastructure Visions for 2025 and 2100 that are presented in this document. These combined visions are further detailed in maps that explain contributing components: Parks and Community Spaces, Habitat, Water Interventions, Urban Centers, and Green Transport.

Focusing and Preparing for the Discourse

While visionary, this work was not done in a pie-in-the-sky vacuum. Rather, careful research, broad public input, multiple public education events and a year of intense process and participation firmly grounded the charrette work in real conditions, existing planning, and environmental science. We began by identifying issues, needs, players and existing work by conducting focus groups with city and non-profit representatives. Five separate sessions targeted advocates of environmental, non-motorized transportation, green design, parks, and real estate development. We then invited professionals, city staff and officials, non-profit and citizen advocates to serve on the project's advisory committees, which involved over 100 individuals representing over 50 organizations and agencies. This body met to craft Goals and Guiding Principles for the charrette, advise on our process, and review our preliminary research and the resulting charrette products.

Students in the UW Landscape Architecture department provided significant preparation for the charrette. In the fall of 2005, graduate seminar students engaged readings and guest speakers to discuss ecological urban patterns, open space issues and benefits, challenges presented by global climate change and dramatically rising "peak oil" prices. A team of students conducted a focus group with representatives of minority and underserved populations, while others gathered and created an annotated bibliography of almost a hundred relevant existing plans, compiled available Seattle map resources, and created an interactive digital map that delineated the city's watershed and topographic study areas for the charrette. Concurrently, students developed components of a Green Futures Toolkit, which can be found online at www.open2100.org. This document became a resource for participants during the Green Futures Charrette, and includes case studies on exemplary open space systems, typologies of outdoor spaces, and successful funding mechanisms.

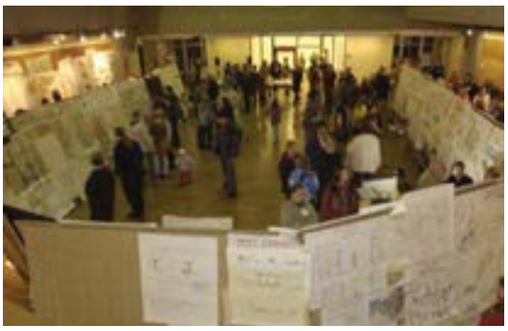
During the 2006 winter term, we were joined by an undergraduate landscape architecture studio and five urban planning students. Research on open space systems and types continued, and expanded to explore more open-ended questions regarding such topics as urban ecosystems, future transportation modes, earthquake susceptibility and urban forestry. Pairing into groups, students became experts on their study areas, gathering, analyzing and producing maps and "dossiers" to provide essential information for their charrette team's planning process, and leading team tours of their study areas. They also created "Opportunity Maps" by synthesizing existing GIS data on: habitat, parks and gaps in parks access, water bodies and buried streams, sewers and drainage, critical and sensitive areas such as earthquake faults and steep slopes, demographics, bike trails and green streets, and designated urban hubs and villages.

We also sponsored or co-sponsored several public lecturers who informed the discourse around key issues. Mark Childs from University of New Mexico presented research on civic open space, arguing for multi-use, multi-benefit public infrastructure; Mike Houck of Portland State's Urban Greenspaces Institute relayed Portland's strategies for urban ecology and livability, and Robert Garcia from The Center for Law in the Public Interest (CLIPI) addressed social equity issues related to urban parks. In addition to these outside experts, a panel of seven local researchers and professionals addressed Seattle-specific considerations for aquatic and terrestrial habitat, historic open space patterns and connectivity, global climate change implications, scenario building, transportation and green development. In a rousing speech, Patrick Condon from the University of British Columbia gave the keynote lecture on urban green infrastructure, presenting model strategies for dense, hydrologically-stable communities in British Columbia.

Keynote speaker Patrick Condon

Lessons from the Green Futures Design Process

The creativity, commitment and breadth of the charrette teams' proposals provide rich fodder for developing a rubric of strategies to achieve ecological, equitable, and functional green infrastructure. We have mined the twenty-three teams' work to find the richest common themes and strategies that can inform policy and planning for Seattle and other cities around the world. These themes are described on the following pages.



Next Steps for Seattle's Green Infrastructure

These plans require continued development, study and vetting with citizens, business owners and neighborhood residents. The Open Space Seattle 2100 Implementation Committee has recommended that a follow-on planning process further engage residents in planning for the integrated green infrastructure of their watersheds, and that a multi-departmental task force is established in order to oversee this process and institutionalize an integrated planning body for Seattle's open spaces.

The overall vision plans that result from the Green Futures Charrette do provide starting points to discern where systems of connective corridors and patches for people and wildlife might cohere, on regional, city and watershed scales. The plans suggest locations for new trails and bikeways, street thoroughfares that can be converted into multi-functional spaces, streams to restore and reveal, and opportunities for rain gardens to clean stormwater before entering our creeks and lakes: in short, a connected green infrastructure that functions as a system, as do our power lines, streets, and sewer pipes. In these optimal plans, every neighborhood and watershed has access to a variety of open spaces and to movement corridors that encourage walking, biking, exercise, and enjoyment of Seattle's living environment. Identifying these potential systems can help us to rethink how we travel, reduce carbon emissions, revitalize neighborhood centers, restore our waters, and reforest our city. The visions illustrate pathways to an idealized future, one that may be essential if our children and grandchildren are to inherit the beauty and resources of our region and a city that is eminently prosperous and livable.

Photo Credits: Hartson Photography

THEMES AND STRATEGIES FROM THE GREEN FUTURES CHARRETTE

Seattle's Living Lattice of Green Infrastructure

Integrated, Connected Green Infrastructure

Create an Integrated Green Infrastructure to allow natural systems to support human needs:

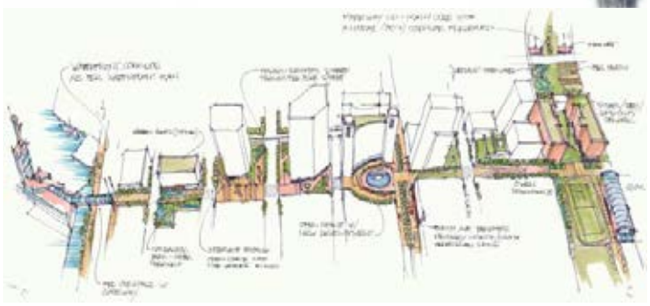
- Aggregate Open Space to Create Connections and Urban Greenways: Stitch together a green network of spaces for human mobility and wildlife, forming loops, connecting uplands to shorelines, linking backyards, and connecting to regional trails.

- Create Multi-functional Open Space: Recognizing the premium on land within the urban environment, maximize the uses and benefits of every parcel. For example, multiple-use street rights-of-ways could include transit, water purification, stream corridors, and recreation.

- Redefine Transportation Corridors to include more green spaces and ecosystem functions in the rights-of-way, as we move away from a car-dependent society and transition to new transport methods. Lid freeways to create new urban space and join neighborhoods.

- Recreate Natural Drainage to Restore our Waters. Use pervious surfaces, raingardens, restored wetlands and bioswales to clean and detain water before entering streams, lakes and Puget Sound, and in many neighborhoods, to provide cost-effective prevention of combined sewer overflows.

Rainier Valley



Downtown

Density and Community

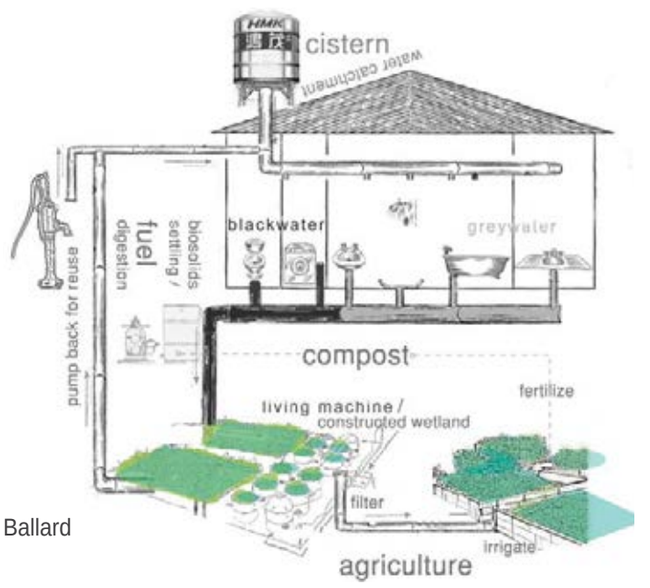
Focus development in the urban core to protect outlying farms and forests, reduce the impacts of sprawl to lakes and streams, climate and air:

- Create New Urban Villages with Civic Hearts: Numerous dense, walkable urban villages with mixed residential, commercial, public amenities and civic gathering spaces would accommodate the city's predicted doubling of population while creating magnet communities. Charrette teams typically located new urban nodes on ridgelines, with views corridors preserved.

- Employ Green Roofs and Walls: Green surfaces on residential and commercial buildings would reduce the city's heat island effects, detain stormwater, create habitat and provide green relief to users.

- Encourage Decentralized Self-sufficiency: Several teams proposed localized power generation, water treatment, and agriculture to reduce dependency and impacts on outside resources, along with integrated eco-industry that provides local employment in proximity to population centers.

Madison Transect



Ballard

Ecological Open Space

- Understand the City as Watersheds, to repair water-based ecological corridors and to connect neighborhoods. One charrette team proposed the concept of “neighborsheds” that weave natural threads through the cultural fabric of the city.

- Respect Underlying Natural Conditions to honor the existing ecology and minimize damage from natural disasters. Many teams based their 100-year plans on the assumption that a major earthquake would cause steep slopes and liquifaction zones to fail, creating opportunities for home buyouts and future connected open space in these sensitive and hazard zones.

- Re-establish Historic Streams that are now buried in pipes. Bringing water to the surface and restoring riparian corridors can assure that salmon will always have a place in our city, and express natural water flows on urban streets.

- Restore Shorelines for Habitat. Seattle sits at a critical threshold of two major Puget Sound watersheds–Lake Washington-Cedar-Sammamish and the Green-Duwamish–for salmon migrating to and from spawning grounds. Therefore, restore lake and river shorelines for habitat and human use, and reclaim waterfronts as climate-change induces rising estuarine waters.

- Establish and Protect Greenbelts and Habitat Networks: Protect and acquire steep slopes and riparian zones to extend existing greenbelts, with potential wildlife, forestry and recreational uses. Secure, restore and plant urban forests to provide optimum habitat and support biodiversity.

Democratic Access and Use

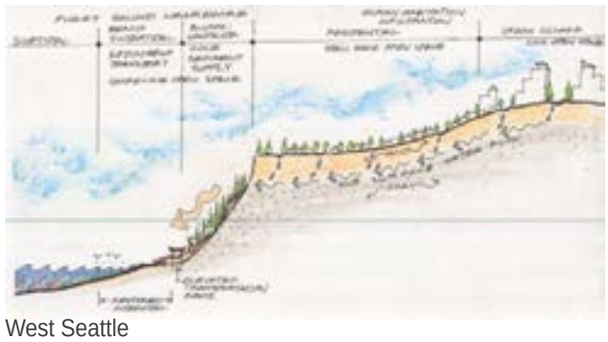
- Provide Equality in Accessibility: Provide democratic access to open space for all citizens, addressing diverse cultural needs and environmental justice.

- Give Increased Access to Water: Seattle is surrounded by water, yet little is available to public access. Therefore, provide equitable access to water from every neighborhood with waterfront.

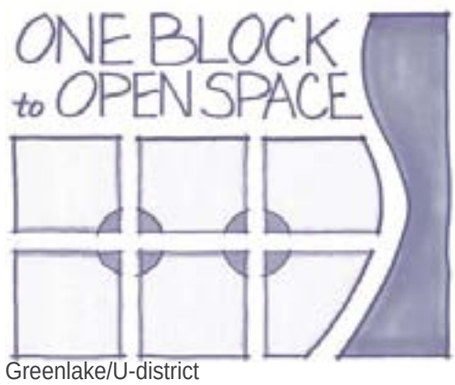
- Use Open Space for Education/Schools for Open Space: Many charrette teams recommended incorporating schoolyards as community open space, and creating learning spaces such as gardens, views, interpretive trails and eco-revelatory features.

- Provide a Hierarchy and variety of open spaces: For every area of the city, ensure there is a variety and hierarchy of open spaces, including natural areas, large parks, playgrounds, P-patches, trails and pocket parks.

Magnolia/Interbay/Queen Anne



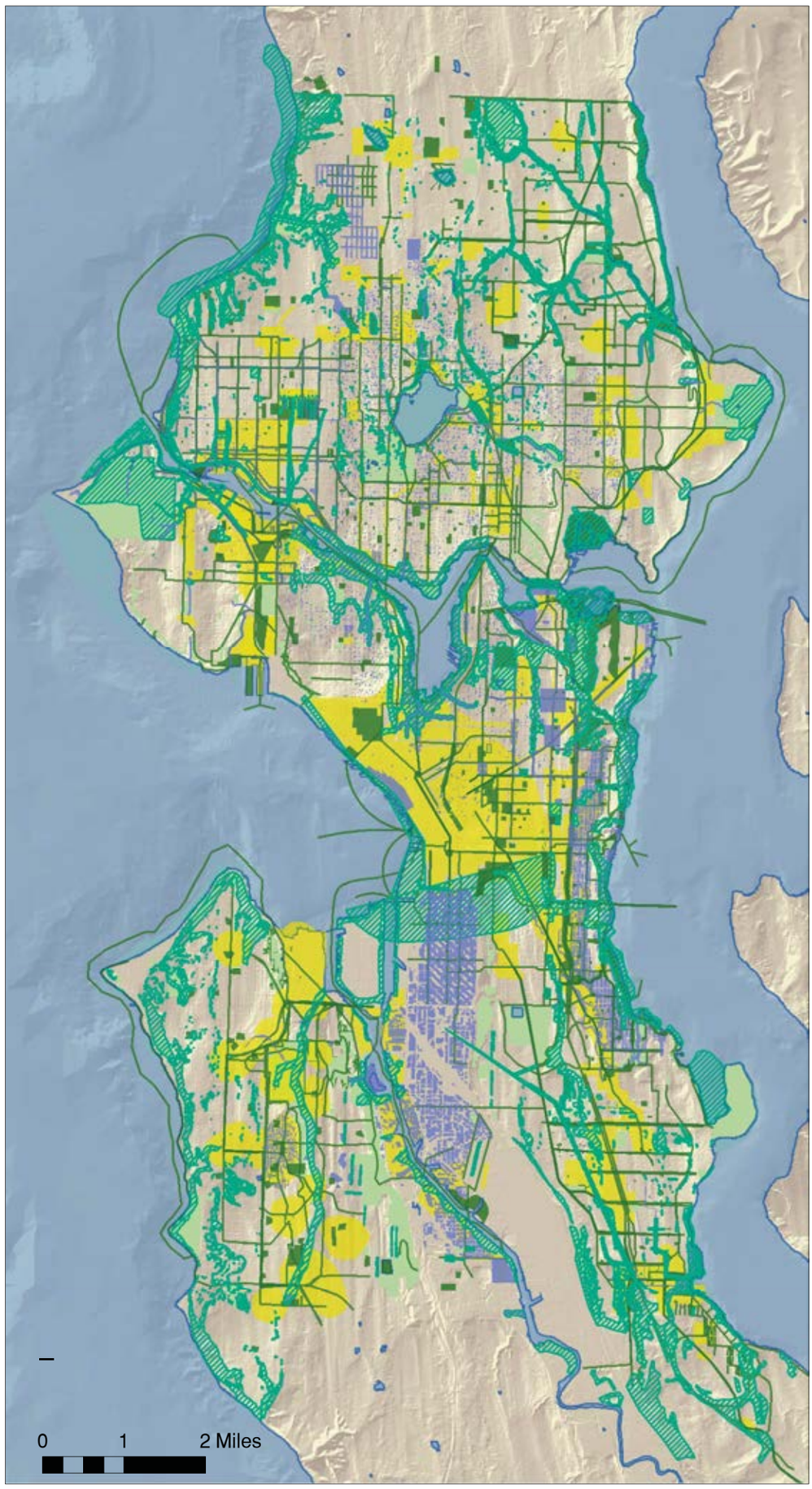
West Seattle



Greenlake/U-district

Taylor Creek

2025 GREEN INFRASTRUCTURE COMPOSITE

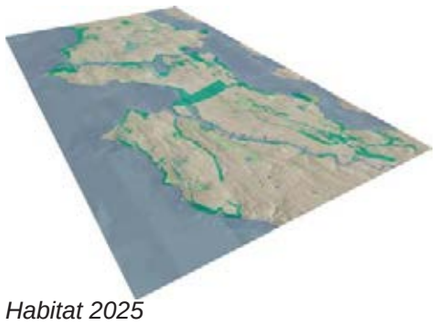


These 20- and 100-Year Plans for Seattle's Green Infrastructure represent the combined work of all twenty-three Green Futures Charrette teams. UW student leaders created digital maps of each team's ideas for their individual study areas, which were then joined together to create these all-city plans. GIS composite drawings by Betsy Severtsen.

Parks & Community Space 2025

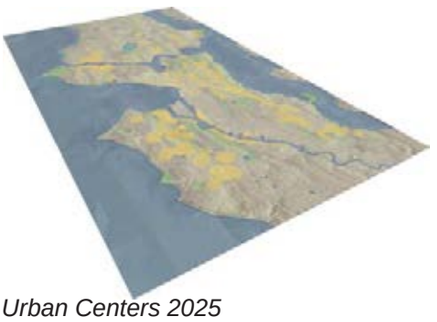
These maps provide greater detail to the categories illustrated in the 2025 Green Infrastructure Composite map.

Parks and Community Spaces provide a variety of landscape amenities used by urban dwellers. Wildlife is served through *habitat* additions. *Green transport corridors* provide not only opportunities for active transportation and mass transit corridors but also use streets for natural drainage (green streets). *Urban centers* provide civic hearts for specific neighborhoods. *Water interventions* include daylighting historic streams and providing other opportunities for natural storm-water drainage.

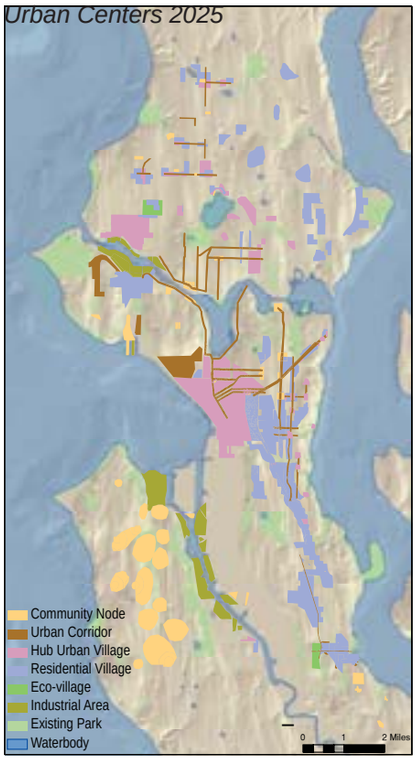


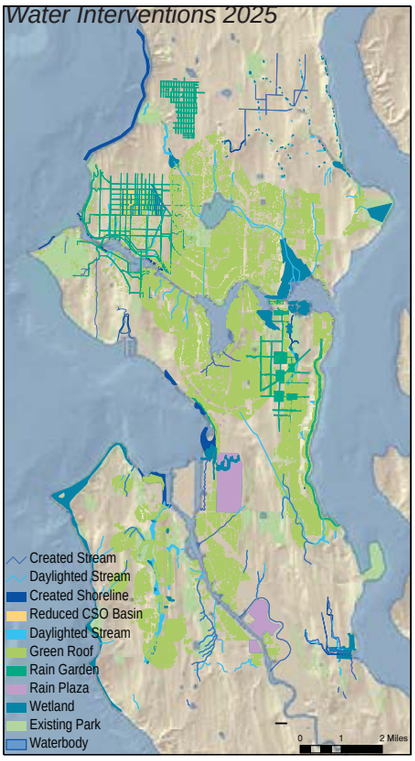
Habitat 2025

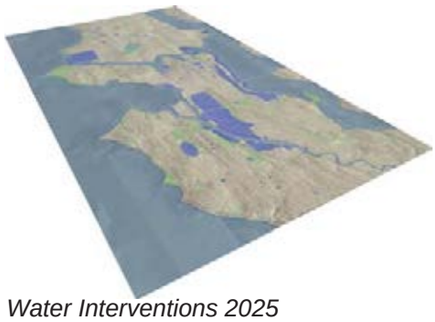
Green Transport Corridors 2025



Urban Centers 2025

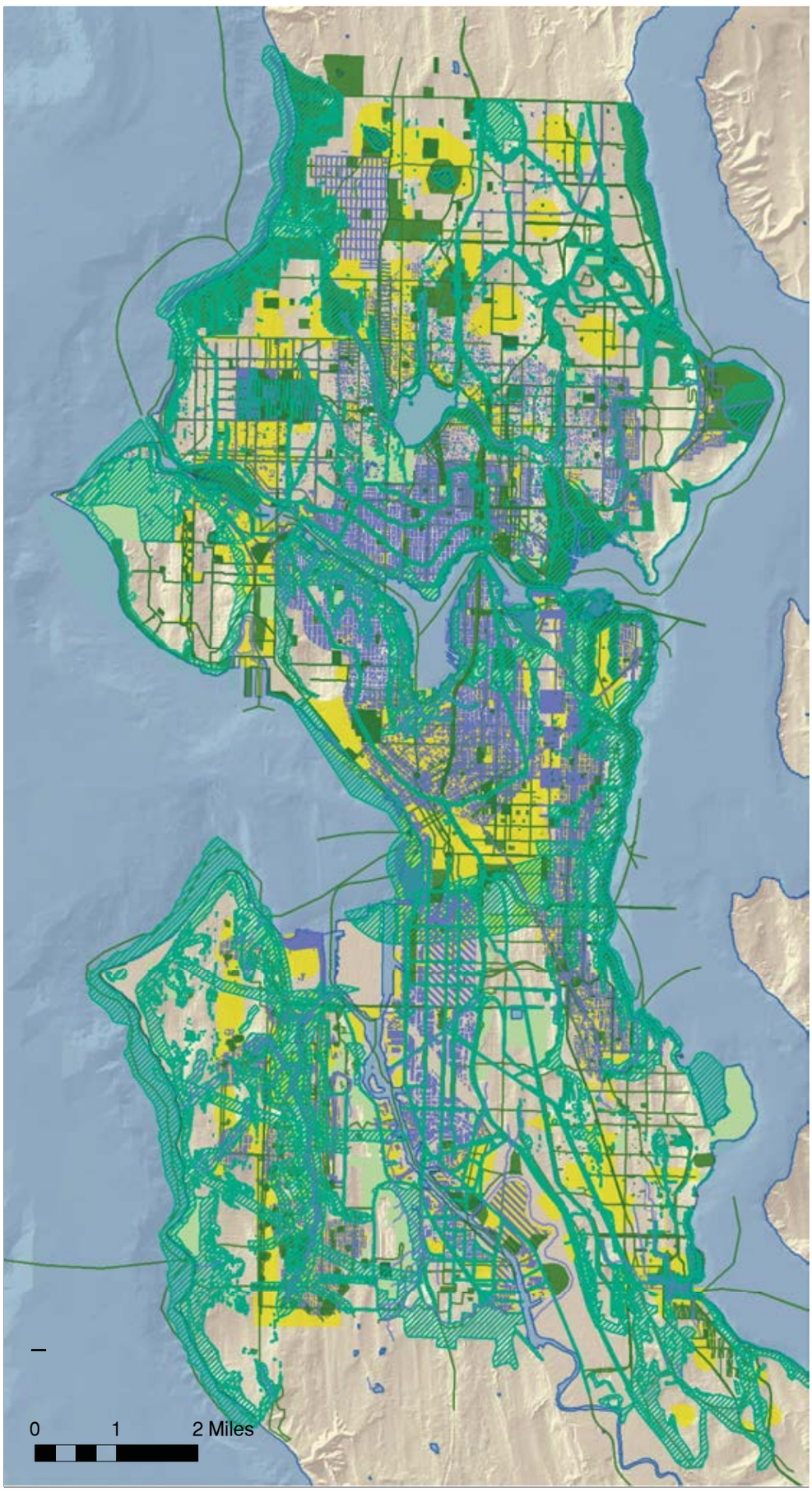






Water Interventions 2025

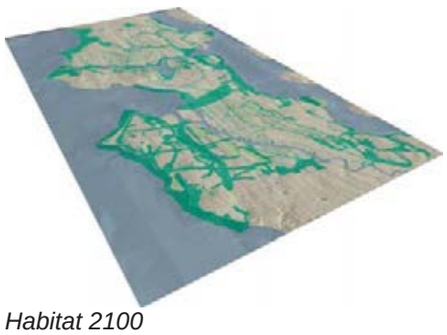
2100 GREEN INFRASTRUCTURE COMPOSITE



Parks & Community Space 2100

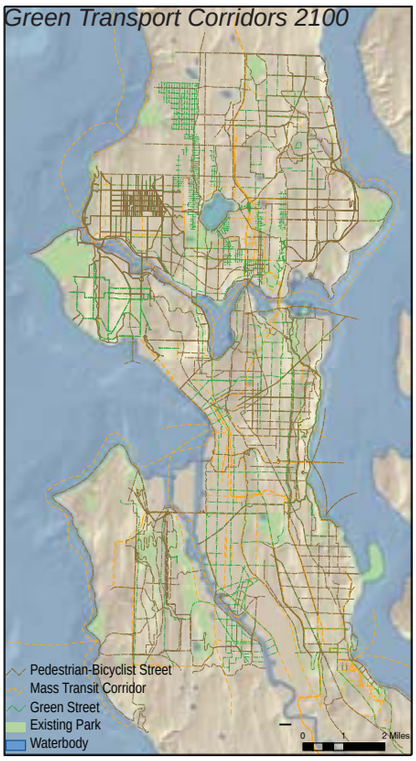
These maps provide greater detail to the categories illustrated in the 2100 Green Infrastructure Composite map.

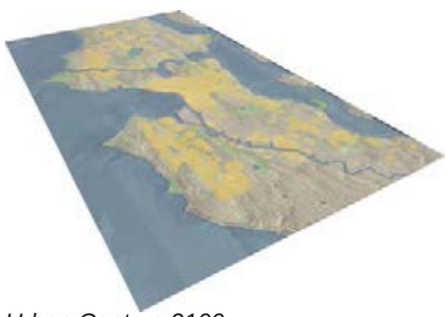
Parks and Community Spaces provide a variety of landscape amenities used by urban dwellers. Wildlife is served through *habitat* additions. *Green transport corridors* provide not only opportunities for active transportation and mass transit corridors but also use streets for natural drainage (green streets). *Urban centers* provide civic hearts for specific neighborhoods. *Water interventions* include daylighting historic streams and providing other opportunities for natural storm-water drainage.



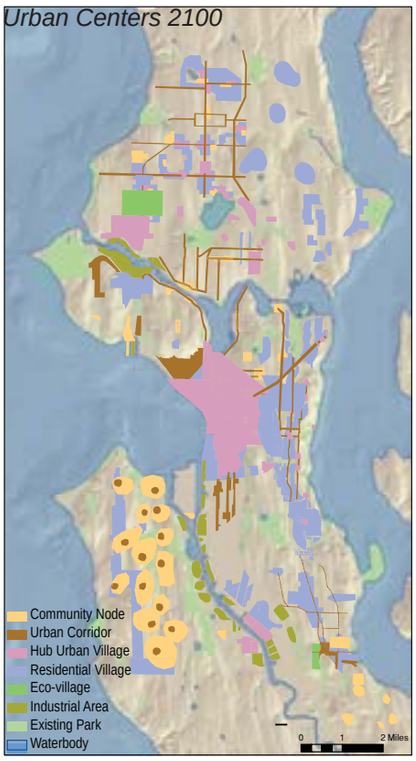
Habitat 2100

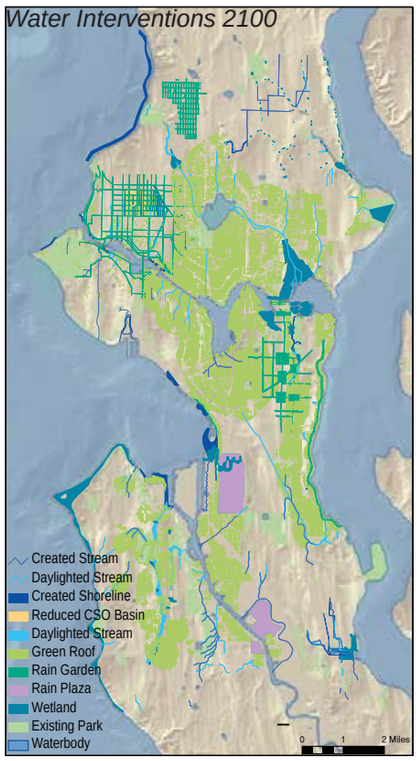
Green Transport Corridors 2100

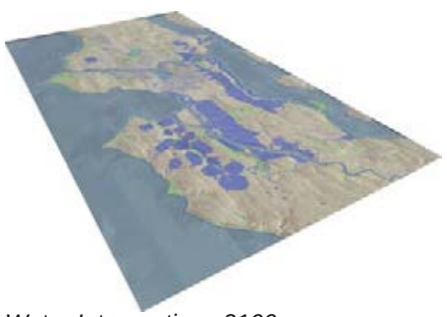




Urban Centers 2100

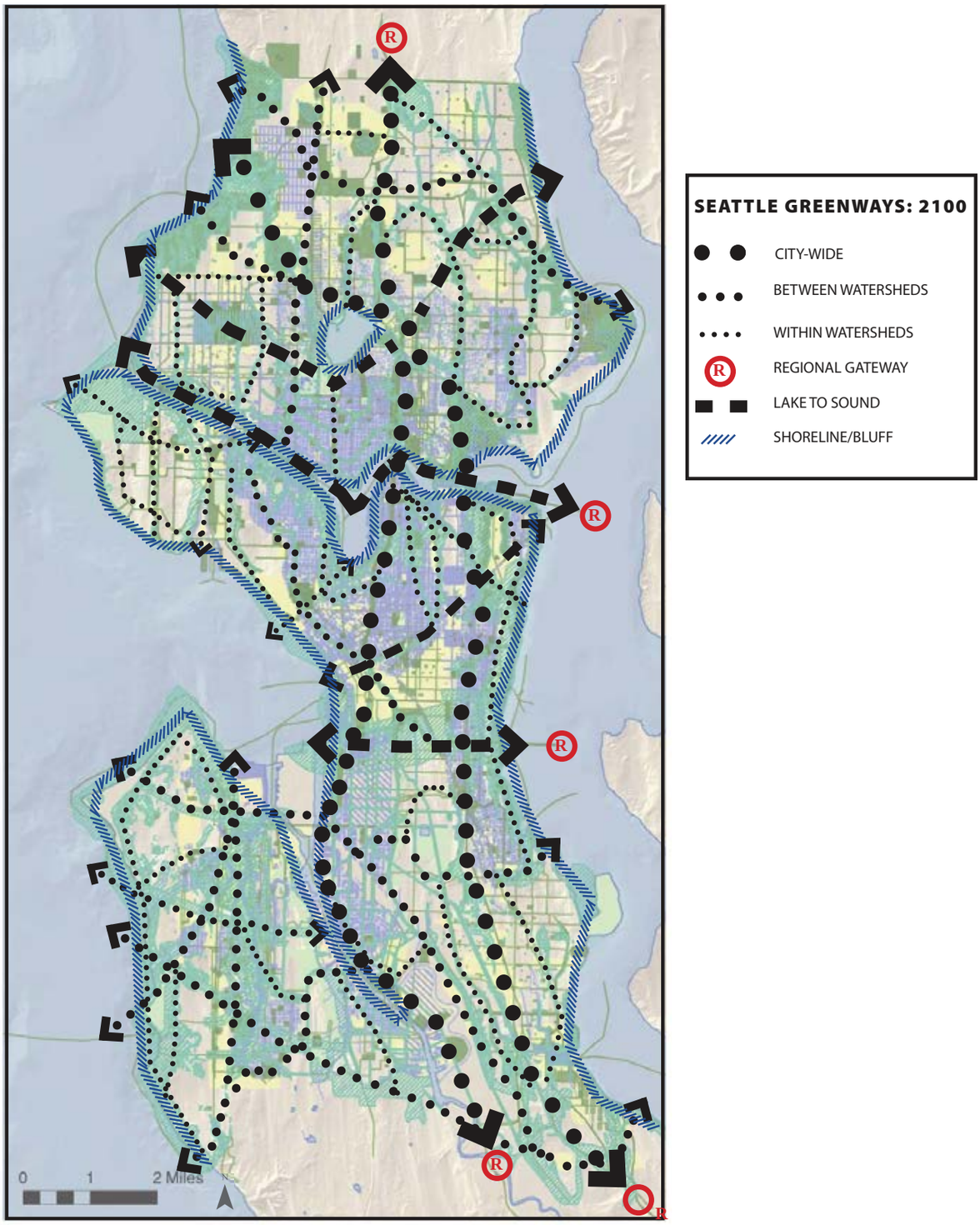






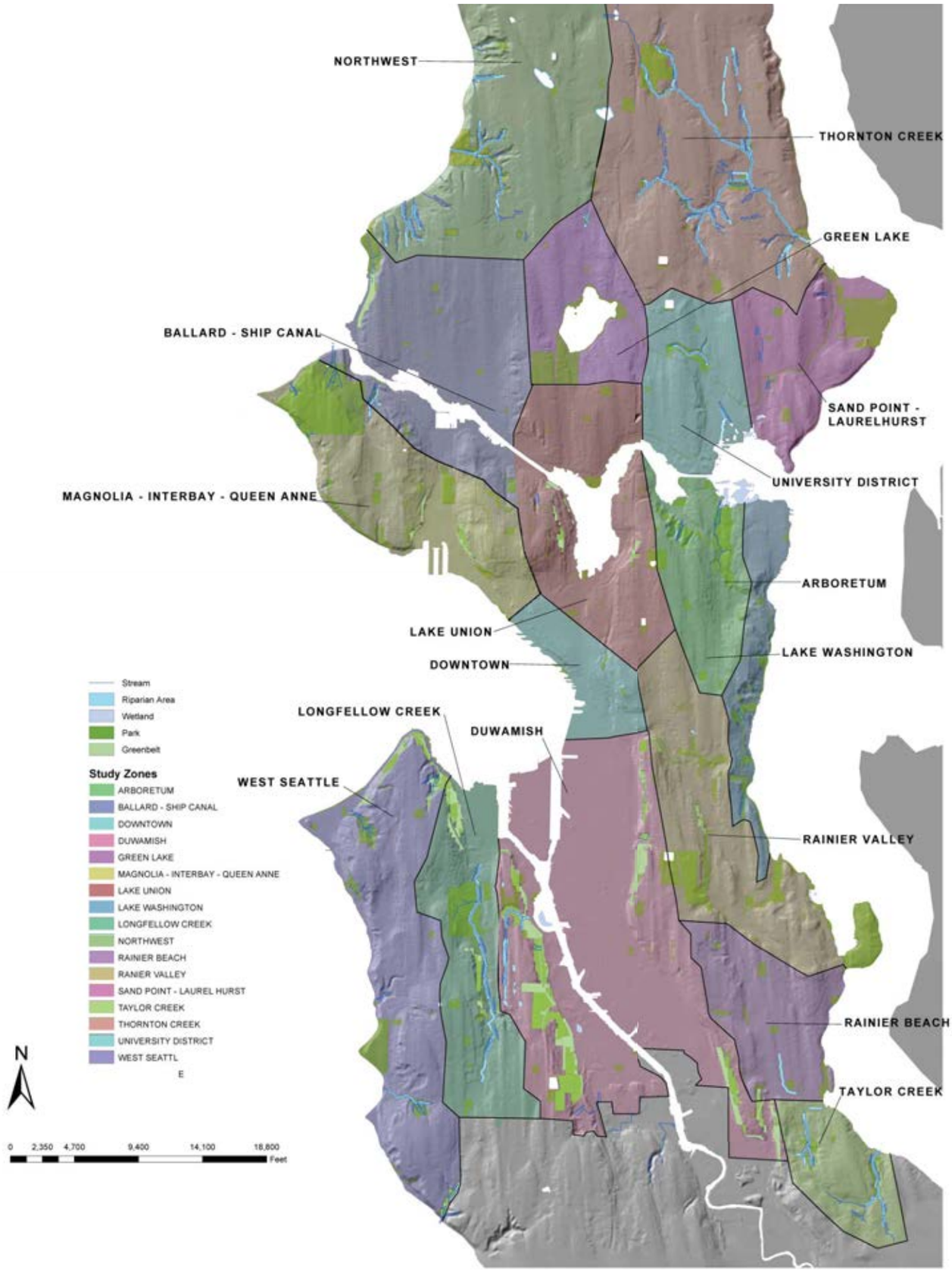
Water Interventions 2100

LINKAGES: SEATTLE GREENWAYS 2100



Upon completion of the 2100 city-wide Green Infrastructure map, possible greenway linkages were identified. City-wide linkages spanning large proportions of Seattle as well as smaller connections between and within watersheds were highlighted. Many of these greenways could act as a regional gateways to surrounding population centers. Some of the connections between watersheds could also provide important linkages between Lake Washington and Puget Sound. A common theme among the proposals was the use of shoreline and bluff areas for contiguous greenways within the City.

INTRODUCTION TO THE WATERSHED STUDY AREA PROPOSALS



Seattle divides neatly into topographic watershed areas, delineated by major ridgelines and drainages. Green Futures Charrette participants worked on the study areas shown on this map to develop long-range and near-term proposals for their selected watershed. Twenty-two teams tackled these eighteen watershed study areas, with an additional team working on a transect that cuts across four study areas along Madison Street.

Teams based their ideas on existing site conditions, completed city and neighborhood plans, predicted population figures, anticipated changes in transportation modes, and climate disruption and other potential natural hazard impacts. UW student team leaders refined, extended and illustrated their teams' ideas, mapped them using GIS software and created the following pages as records of their teams' extraordinary and visionary work.

CENTRAL STUDY AREAS

MADISON TRANSECT

Team Leader: Lee Copeland
Student Team Leader: Paul Chasan
Team Members: Paul Anseeuw (Stantec), Jeff Benesi (Hewitt Architects), Amy Cragg (Mithun), T. Frick (Mithun), Drew Gangnes (Magnuson Klemencic), Bert Gregory (Mithun), Deb Guenther (Mithun), Kristine Kenney (Mithun), Robert Leykam (Mithun), Rob Matthews (Mithun), Robin McKennon-Thaler (Magnuson Klemencic), Jon McNamara (Weinstein Design Group, Inc.), Scott Melbourne (Charles Anderson Landscape Architects), Steve Moddemeyer (Department of Planning and Development City of Seattle), Jim Mueller (JC Mueller, LLC), Susan Olmsted (Mithun), Steven Paget (Olympic Associates), John Paul Peterson (Stantec), Sara Raab (Mithun), Craig Skipton (Mithun)

Study Area

CHARRETTE GOALS AND PRINCIPLES

To create a bold integrated Open Space Plan with implementation strategies for Seattle's next hundred years which will enhance the health and well-being of both our cultural and natural environments. This vision of a regenerative green infrastructure will strive to create a healthy, beautiful Seattle while maximizing our economic, social and ecological sustainability.

Guiding Principles

Regional Responsiveness
Consider Seattle's role as an ecological, economic, and cultural crossroads.

Integrated and Multi-functional
Integrate a variety of types of open space within a unifying, coherent structure. Consider layering multiple functions and uses within green spaces to create high-functioning, high value open spaces.

Equity and Accessibility
Within a network of open spaces provide equitable access for all persons to a variety of outdoor and recreational experiences.

Connectivity/Coherence
Create a wholly connected system that facilitates non-motorized movement, enhances habitat through connectivity, links diverse neighborhoods, and is easy to navigate and understand.

Quality, Beauty, Identity and Rootedness
Use Seattle's many natural strengths to create an exemplary, signature open space system.

Ecological Function and Integrity
Expand the quantity and quality of natural systems in the city: Provide quality habitat for all appropriate species, with a special emphasis on the waters' edge.

Health and Safety
Continue to make the city a safe and healthful place to live.

Feasibility, Flexibility and Stewardship
While visionary, the plan should be lasting and feasible, with a complementary set of near-term implementation strategies that includes mechanisms for both public and private investment that are achievable in incremental steps and adaptable over time.

THE MADISON TRANSECT

The Madison Transect is a microcosm of Seattle's diversity. It connects freshwater to saltwater; industrial to residential; downtown towers to single family homes; littoral zones to forest zones; and crosses neighborhoods with inhabitants from a range of ethnic and economic backgrounds. This diversity compelled and challenged the charrette team to study this corridor and explore how public space design can respond to social, economic and ecological equity.

MADISON TRANSECT: GOALS

Build on the strengths of diversity

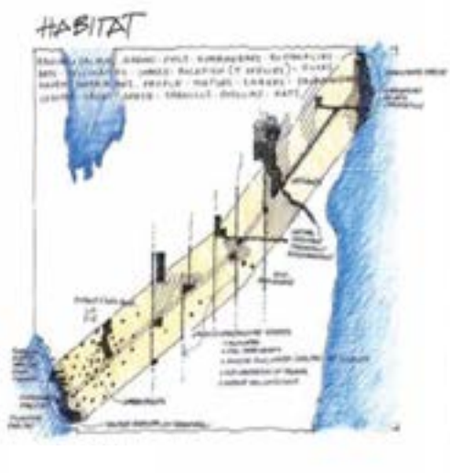
- Make daily life easier for low income residents – co-locate open space with transit hubs, daycare centers, social services, affordable housing
- Link cultural gathering places with open space – babershops, places of worship, plazas as the suburban family “great room”
- Explore pairing shared to encourage interaction between school district open space
- Encourage community ownership: interest and investment in open space
- Retain and support the existing diverse physical character of the “cores” and the spaces in between the “cores”
- Incorporate art as a vehicle for community involvement as well as aesthetic reinforcement of the cultural and ecological characteristics of the transect

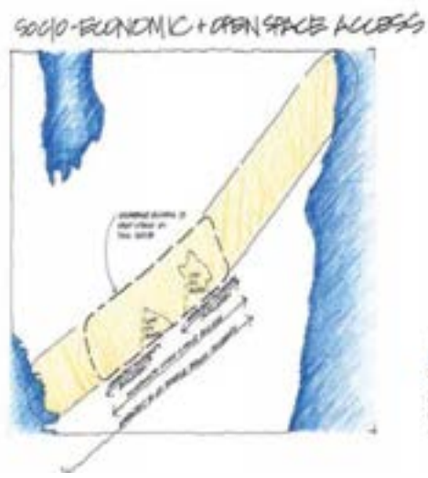
Integrate the ecological and economic equation

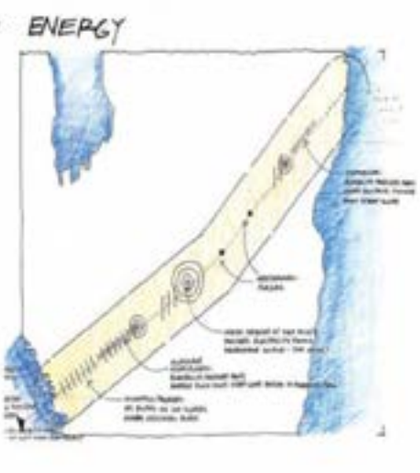
- Reinforce awareness of watersheds
- Increase pervious surfaces
- Propose implementation tools that would support public-private partnerships to achieve systems-based infrastructure
- Eliminate CSO at north end of Madison Street through the stated strategies
- Increase riparian communities where possible
- Retain, manage and increase tree canopy cover
- Protect, conserve and produce natural resources
- Use all public and private surfaces and spaces within and adjacent to the street to achieve goals

Prioritize the quality of the human experience

- Make beautiful places
- Protect solar access and impact on the quality of the space
- Promote continuous level of quality along the street
- Design spaces that can be used temporarily, daily, seasonally, and that can adapt to changing circumstances
- Protect and expand on the visual relief provided by the triangular remnant open spaces







Habitat

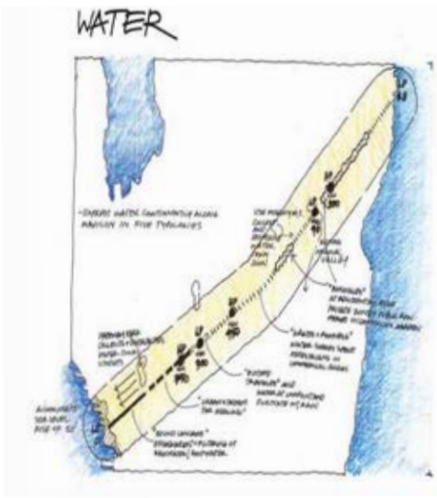
The team found a variety of opportunities to increase viable habitat along the corridor. Strategies such as green roofs for downtown towers, creation of habitat rich littoral zones in Lake Washington, restoration of the riparian area at the Arboretum and addition of street trees could be employed to create varied habitat and biodiversity. Access to shelter, water and food within the urban fabric offers respite to birds, insects, fish and butterflies; increases biodiversity; contributes to the health of the ecosystem; and connects people with nature on a daily basis.

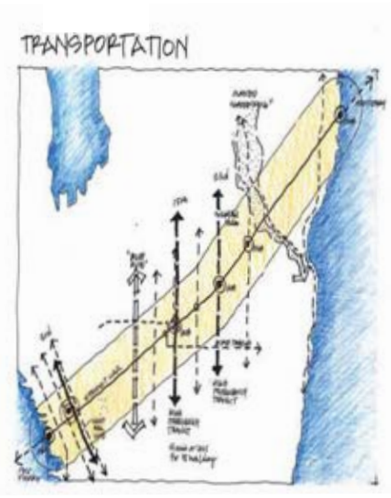
Socio-Economic and Open Space Access

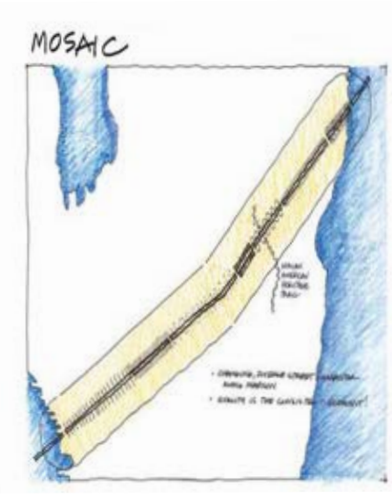
Social sustainability is represented in the diversity of economic conditions, ethnic diversity and land uses along the corridor. The Seattle Parks Department's GAP analysis shows that the Madison corridor has areas that severely lack access to open space. The team looked at opportunities to combine public open space with transit stops, social services, schools, daycare, retail and affordable housing in order to simplify daily life and reduce reliance on personal transportation. Schools are often the place where new immigrant families connect with the community. The Madison Transect covers nine elementary schools, one middle schools and two high schools and Seattle Community College. Open space typologies were also considered in a cultural context. Although reluctant to make assumptions about cultures, the team's web surfing resulted in research suggesting parks serving African American and Hispanic communities should accommodate multiple large groups for family gatherings that span long time frames with multi-generational users.

Energy

Madison Street itself was looked at as a resource for energy production. In the right-of-way, natural systems that have energy potential, like wind and water, are harnessed to generate energy. Public spaces serve as loci for the production of this energy. At the highest point on Madison urban turbines capture wind energy and downtown building facades are used for small wind turbines. At the water's edge, windmills march along the waterfront in lines that echo the alignment of the old piers. The movement of water down Madison's steep hills is taken advantage of to create a mini-hydropower feature on the western incline into Freeway Park. Plazas include geothermal heat production systems that take advantage of the earth's core temperatures. Downtown buildings could be cooled using a closed-loop deep-water cooling system. The natural rhythm of the tides could even be used to generate energy for downtown buildings. Through these strategies, Madison Street could become a prototype for sustainable urban energy generation.







Water

The topography along the transect includes multiple watersheds, three ridges, two valleys and two water edges. Water is proposed to be continuously celebrated in a variety of ways within the public right-of-way. This will enhance the pedestrian experience by adding character to places and accentuating changes in topography. The incorporation of pervious surfaces and natural drainage strategies such as bioswales, trench drains, and troughs can conserve potable water resources, reduce runoff rates, and improve water quality.

Transportation

Madison Street serves as an important transportation connector across the city. A historic streetcar once traveled Madison's length, which is reinstalled in this plan. The streetcar brings people from Puget Sound ferries to a passenger ferry on the Lake Washington side of Madison Street, completing the water-to-water connection for pedestrians. Madison becomes a key link in a regional public transportation system. At key intersections along Madison, like 23rd Avenue, transportation hubs are developed that connect this transect to important North-South transit routes in the city. These hubs also serve as major public open spaces and service centers along Madison.

Mosaic

Madison Street has a number of 'cores' where the community gathers to shop, recreate and worship. The cores and the spaces in between these cores each have a distinct character that is a valuable asset to retain and build upon. Together, the previous strategies build upon these aspects of the street to form an urban mosaic of systems that create a sustainable corridor and could grow outward from Madison Street to create a more sustainable city. In this vision, the streets of the city can be treated as important open spaces for the public. In a city that will grow denser with time, our streets can be developed to serve as more than just transportation corridors. They can serve as producers of energy, habitat corridors, water management infrastructure, and vibrant public spaces. Making small-scale moves for sustainability on the scale of the street adds up to large changes at the scale of the city and works to create a more sustainable future that involves social, economic, and ecological equity .

Madison Transect Plan

Elliot Bay | *East Edge Neighborhood* | *Madison Ridge*

Madison Transect Plan in Detail

Connection to the Elements

- Wind turbines on axis of docks atop tunnel
- Deep water cooling system runs up Madison to service Cherry Hill Downtown
- Tidal energy generation on flexing floating docks
- Green roofs and solar collectors throughout

Waterfront Park
along Post Alley

The Waterfront
- Shoreline retreats to just west of First Avenue due to sea-level rise
- Promenade along shore
- Sloping natural beach
- Passenger-only ferry dock established
- Alaskan Way tunnel becomes shallow water habitat

Downtown Cascade
6th Avenue to Western Avenue

Downtown
- Water cascades integrated into sidewalks of Madison
- Fourth Avenue becomes green street
- Third Avenue transit only
- Pocket parks, plazas and dynamic people places

East Edge Neighborhood
9th Avenue to 6th Avenue

- Expanded lid on I-5
- Collects and distributes water captured and flowing along Madison
- Arboretum plants
- Interpretive and event center
- Development on west edge of lid linking to downtown

Cherry Hill Village
on First Hill Broadway to Boren

Regeneration
- Healing neighborhood
- Visually linked open spaces
- Green space corridors connect hospitals to open space
- Reinforce multiple uses along Madison
- High-density residential throughout

Arboretum Village *Madison Park* *Lake Washington*

Madison Ridge
12th to Broadway

- Water storage park west of 12th Avenue collecting run off from surrounding urban watershed
- Mixed-use development facing onto the park

Madison Ridge
15th and Madison

- Village green at Madison and Pike/Pine with transit hub
- High-density mixed-use facing onto village green
- Pocket parks from 15th to 12th Avenue east
- Visible rainwater conveyance and ponding in the pocket parks

Madison Ridge
17th and Madison

- Mixed use 20- and 30-story residential towers at city high point visible around region
- Sculptural designs with spires, wind turbines, and cascading water flowing east and west down Madison Avenue
- High-density residential mid-rises transitioning out to lower density neighborhood

Madison Transect Plan in Detail

Madison Junction
at 23rd and Madison

Mixing and Mingling
- People collecting and connecting
- Building plazas facing onto intersection
- High density work/live/play spaces
- Dynamic business district

Junction
- Transit hub east/west and north/south
- Identity pacing to distinguish junction

Collection and Conveyance
- Building-integrated solar collection
- Wind gathering and utilization
- Water collecting, cascading and distribution

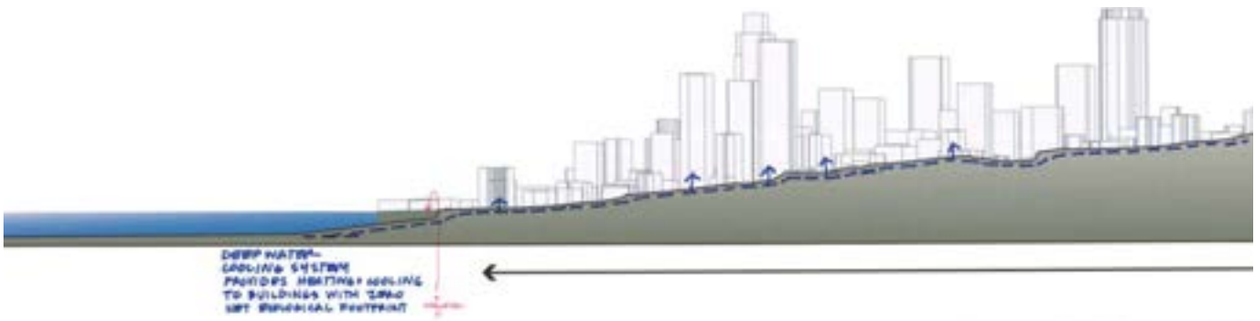
Arboretum Village
in Madison Valley

Urban village along Madison Avenue
- Village square and transit stop at Madison Avenue and Martin Luther King Jr. Boulevard
- High-density, mixed-use transitioning to lower density multifamily and single family residential in vicinity of Madison Avenue and at Lake Washington Park Boulevard

Arboretum Village
Madison Avenue Bridge
- Trestle bridge spanning Arboretum Creek
- Street car and personal vehicle route
- Pedestrian walks connecting ends of the Madison Valley urban village
- Exposing the historical stream channel
- Creating a wetland reservoir to feed the stream and reuse in the surrounding community

The Village Green
- Connection between Arboretum and urban village
- Green streets conveying and expressing water on its way to the Arboretum
- Terraced gathering place, playground, strolling paths

Madison Transect Section

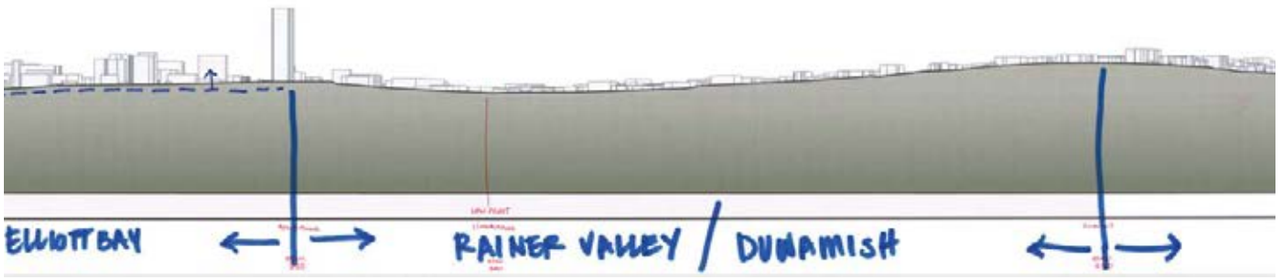


3

Madison Park
at Madison Park

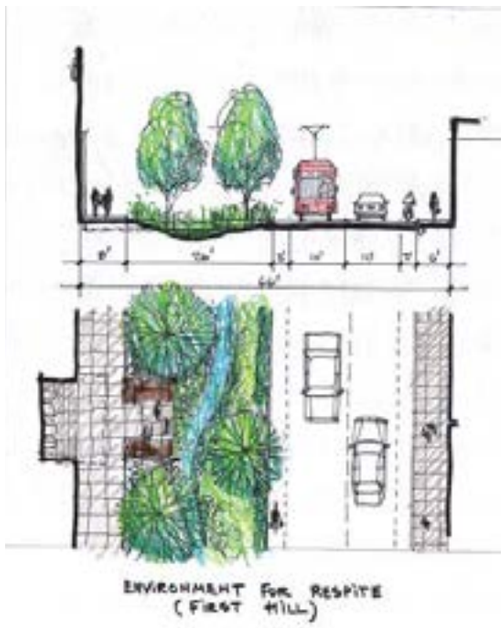
Ferry Terminal
- Street car terminus
- Ferry dock as public water park
- Passenger ferry for foot traffic
- Connection to points east, south, west and north

Waterfront Park
- Removal of 43rd Avenue and connecting upper and lower parks
- Removal of residences and connecting waterfront parks
- Regeneration of natural shoreline
- Introduction of submerge habitat island



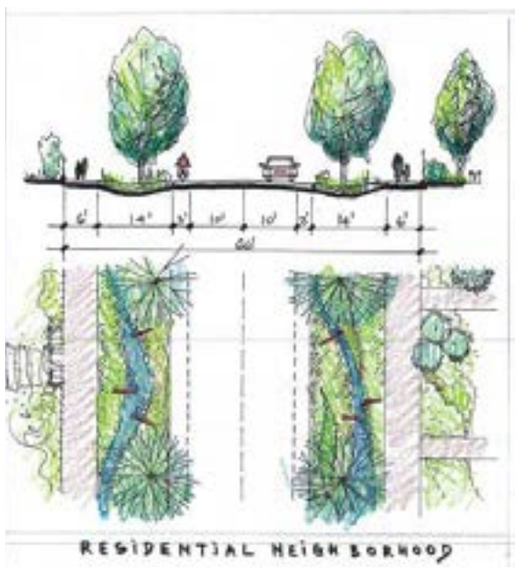
Madison

DOWNTOWN CASCADE

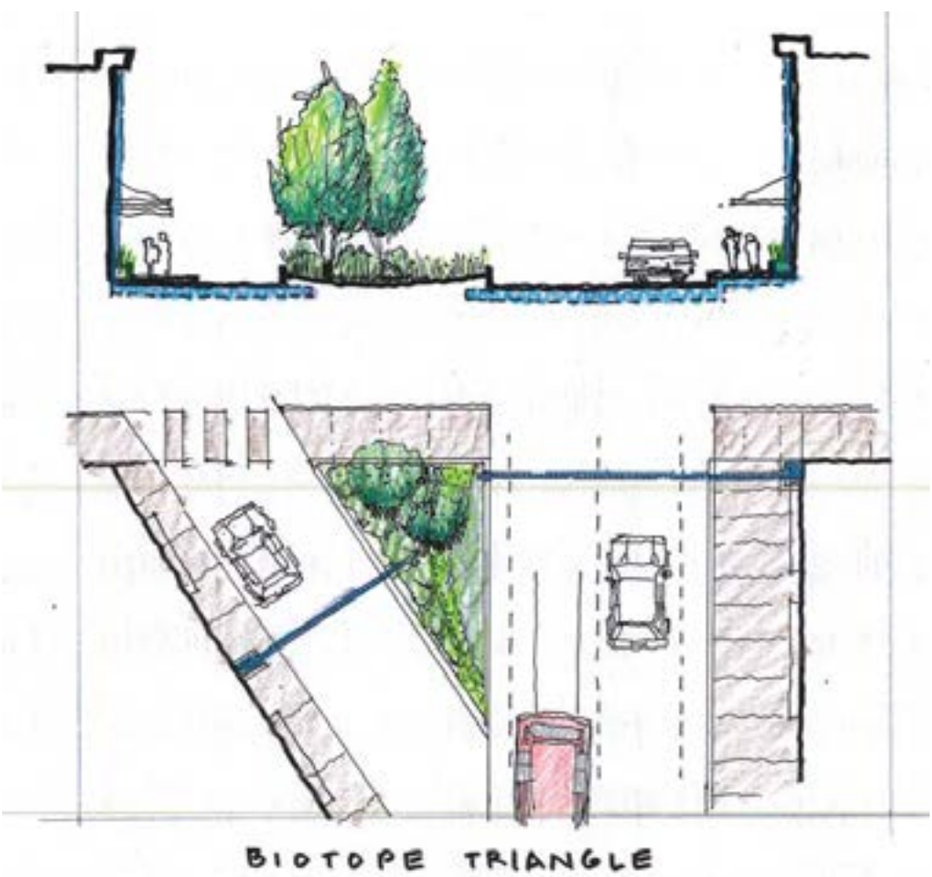


ENVIRONMENT FOR RESPITE
(FIRST HILL)

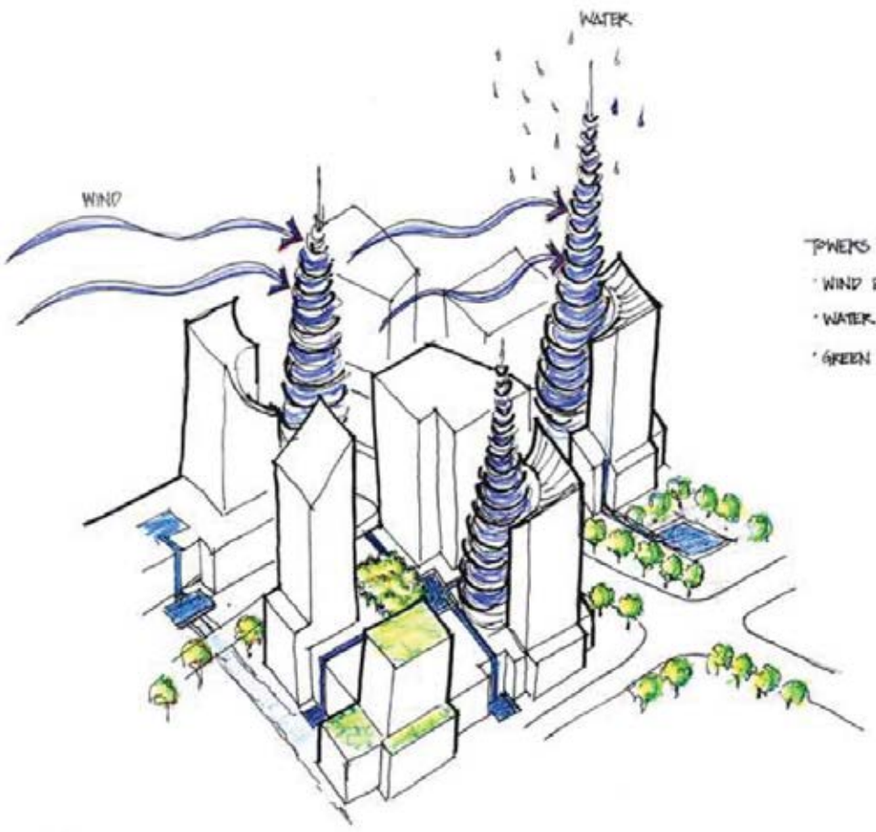
URBAN VILLAGE



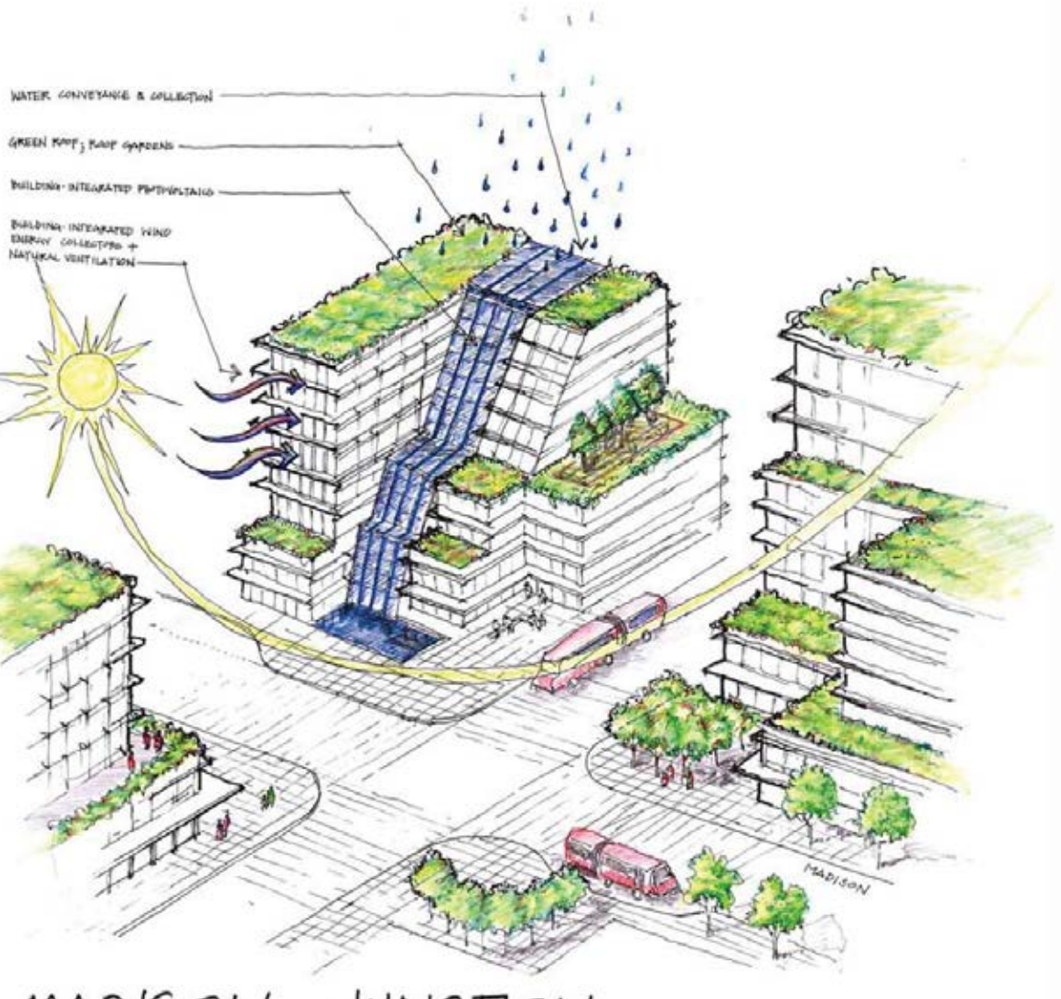
RESIDENTIAL NEIGHBORHOOD



BIOTOPE TRIANGLE



MADISON TOWERS



MADISON JUNCTION

MAGNOLIA, INTERBAY, QUEEN ANNE

Team Leaders: Don Harper, Marilee Stander, and Darby Watson
Student Team Leaders: Mitchell Coleman, Jeremy Fichter, Alyse Nelson
Team Members: Allisa Carlson, Chris Stoll, Jane Yin, Jean Sunborg, Jeff Caudill, Jennifer Carlson, John Coney, Keith Biever, Michael Jerrett, Peter Hockaday, Ray Schutte, Sandy Fischer, Steve Keyser, Susan Casey, Thomas Palm, Donna Kostka, and Elizabeth Campbell

INTRODUCTION

The Green Futures Charrette provided the Magnolia, Interbay and Queen Anne communities a unique opportunity to come together to explore open space opportunities for the next 100 years. This chapter summarizes the work of the charrette team, as well as individual site plans developed following the charrette.

The Magnolia/Interbay/Queen Anne study area presented the group with a number of challenges and opportunities, which we classified into three categories: water, connectivity and green integration. Goals for each opportunity area were then established, as shown below.

Water

Opportunities

- The water bodies that surround the area - Salmon Bay, Lake Union and Elliott Bay - are inaccessible to the public in most locations.
- Streams formerly located in the northern portion of the study area are now in subsurface drainage systems.

Key Goals

- Increased public access to the shoreline
- Integrate water into urban areas
- Reduce the impact of stormwater
- Restore natural conditions

Connectivity

Opportunities

- Magnolia is isolated from the rest of the City due to the presence of rail infrastructure in the Interbay area.
- The presence of steep slopes and lack of paths make pedestrian travel difficult in many locations.

Key Goals

- Develop multi-modal greenways (functioning for both people and habitat)
- Create community gathering spaces
- Increase local access to open space
- Transform Interbay's identity (becomes "The Zipper")

Green Infrastructure

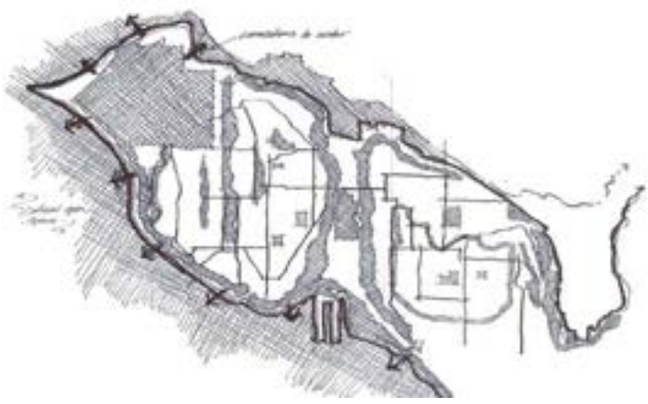
Opportunities

- Natural land cover is limited to small, fragmented patches dispersed throughout the area.
- Shorelines are highly modified and no longer provide high-quality habitat.

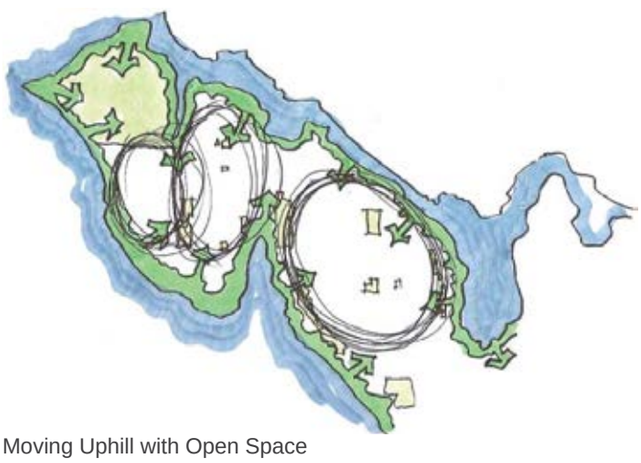
Key Goals

- Incorporate green infrastructure
- Foster urban agriculture
- Increase and improve habitat within the urban network
- Promote green building and techniques

"Moving Uphill with Open Space and Reclaiming Seattle's Water" was the overall theme for our group. This theme, together with the above-mentioned goals guided the development of our 20- and 100-year plans and our individual site plans, as presented herein.



Reclaiming Seattle's Water



Moving Uphill with Open Space

NEAR-TERM PRIORITIES AND IMPLEMENTATION STRATEGIES

Five-Year Action Plan

Waterfront
Develop a plan for waterfront restoration and access and require easements for public access to the water's edge as a condition of new development.

Hazard Areas
Secure funding for acquiring parcels located in hazard areas and strengthen the Critical Areas Ordinance to discourage development on steep slopes.

Revitalize Existing Parks
Improve trail systems to create better access to and within Kinnear Park. Maximize the use of the Elliott Bay trail with better connections to Magnolia and Queen Anne. Continue reforestation efforts and create better kayak access along Discovery Park.

Create New Parks
Acquire parcels in strategic locations to be designated as parks (e.g., parcels adjoining Seattle Center, proposed Monorail station property)

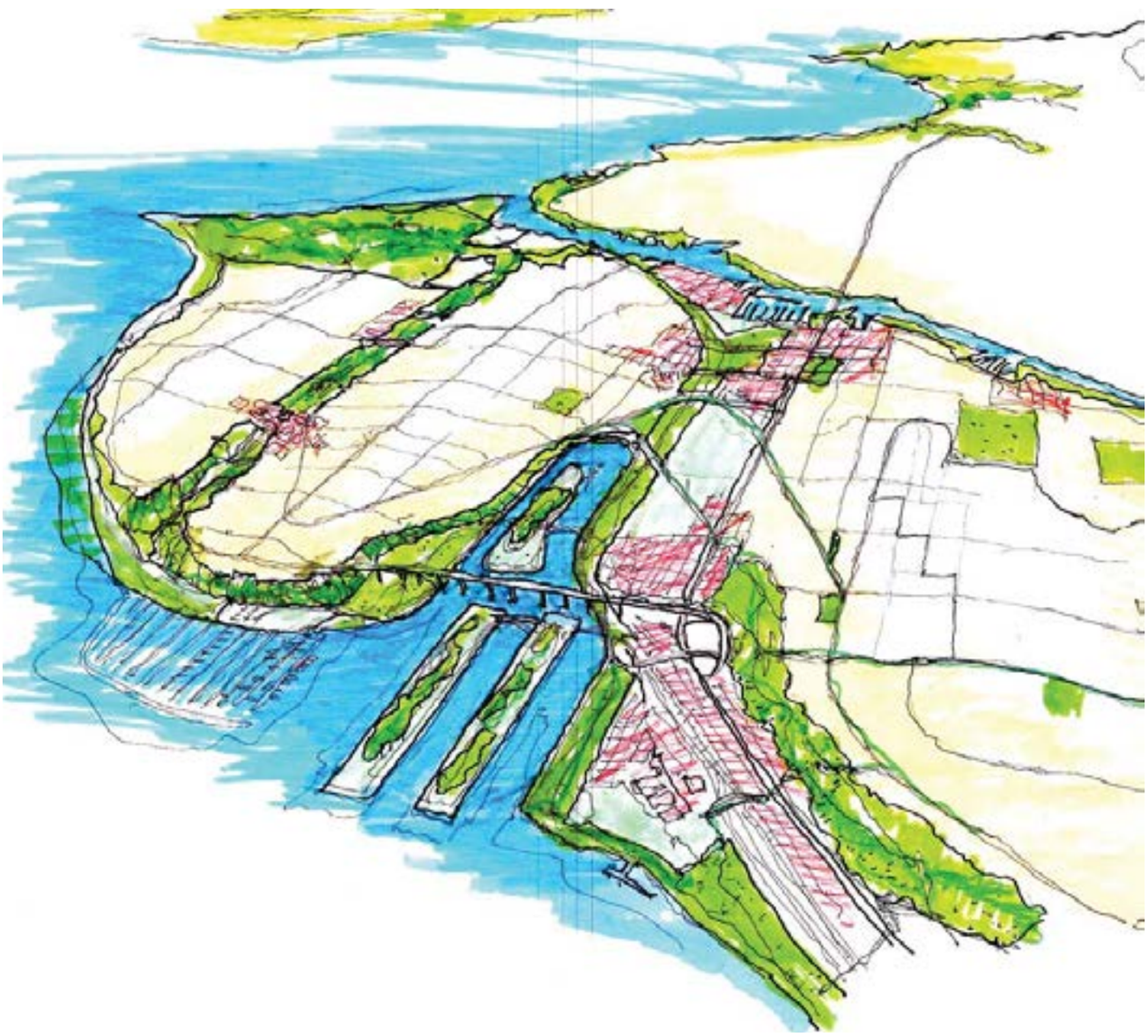
Re-Think Public Right-of-Ways
Develop an inventory of public right-of-ways to determine existing opportunities for open space in leftover spaces (i.e., roundabouts, parking and planting strips, street ends, and alleys). This inventory might lead to a program to create opportunities for parking strip enhancement, roundabout plantings, and right-of-way improvements or modifications to "green" neighborhood streets.

Encourage Environmental Stewardship
Create a program to encourage the stewardship of private open spaces and land by residents and landowners. Such programs might encourage and provide funds for creating backyard habitat, vegetated green spaces, stormwater retention and filtration areas, and green roofs.

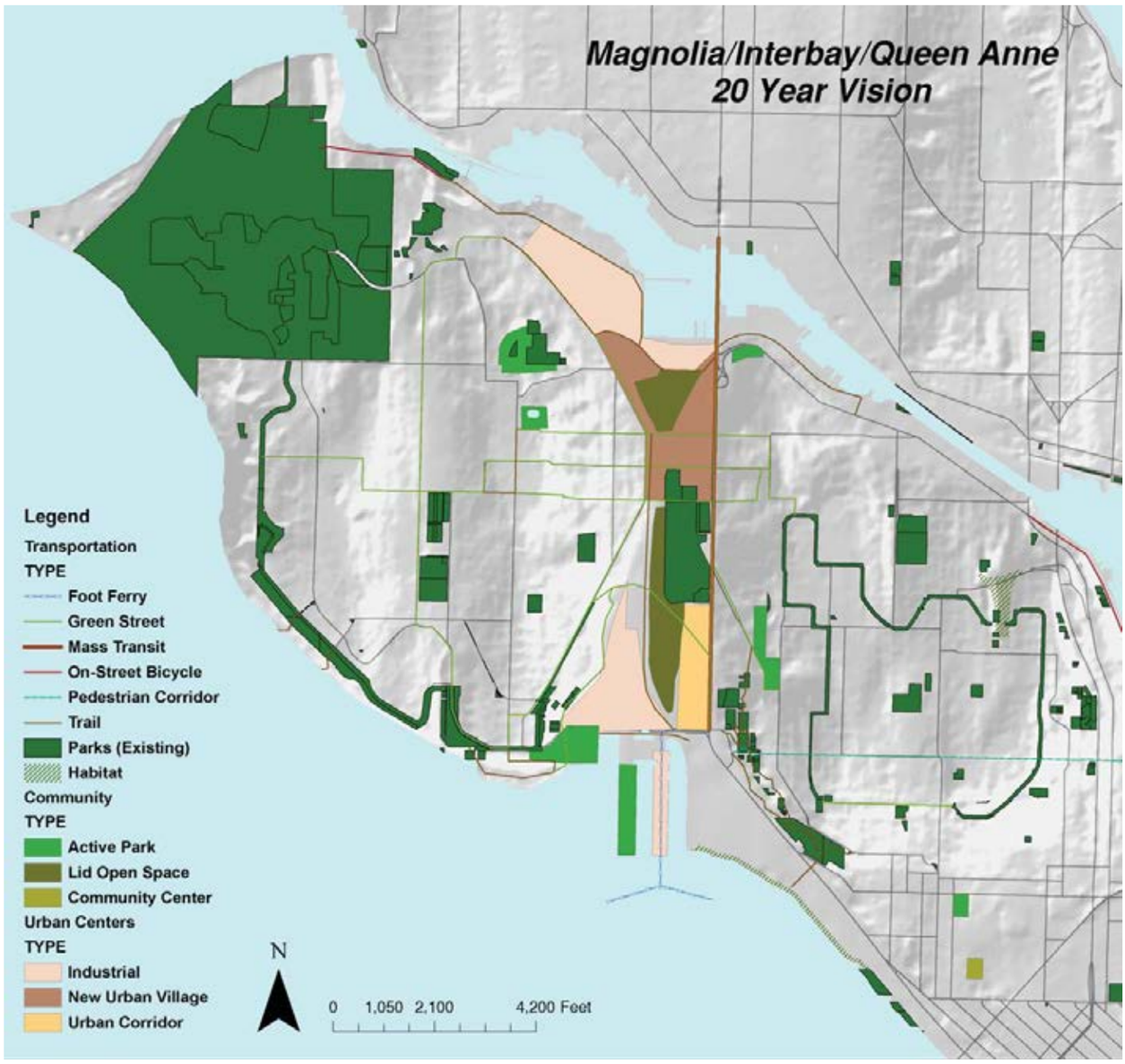
Development Incentives and Regulations
Consider providing developer incentives as a way to encourage usable and diverse open spaces that function for both humans and the natural environment. These incentives could be phased into the land use code over time.

Implementation Strategies

- Hazard mitigation fund
- Density bonuses for open space provision by developers
- Neighborhood matching funds
- City-wide parks levy
- Transfer of development rights (TDR)
- Local improvement districts (LID)
- Department of Ecology grant funds/ City of Seattle funds for ecological restoration
- Expedited permitting for green building
- Establish green streets as a requirement
- Private donations
- Secure easements for shoreline access
- Develop a rights-of-way inventory and plan



CHARRETTE CONCEPTS: 20 YEAR AND 100 YEAR VISIONS



20 YEAR STRATEGIES

Water

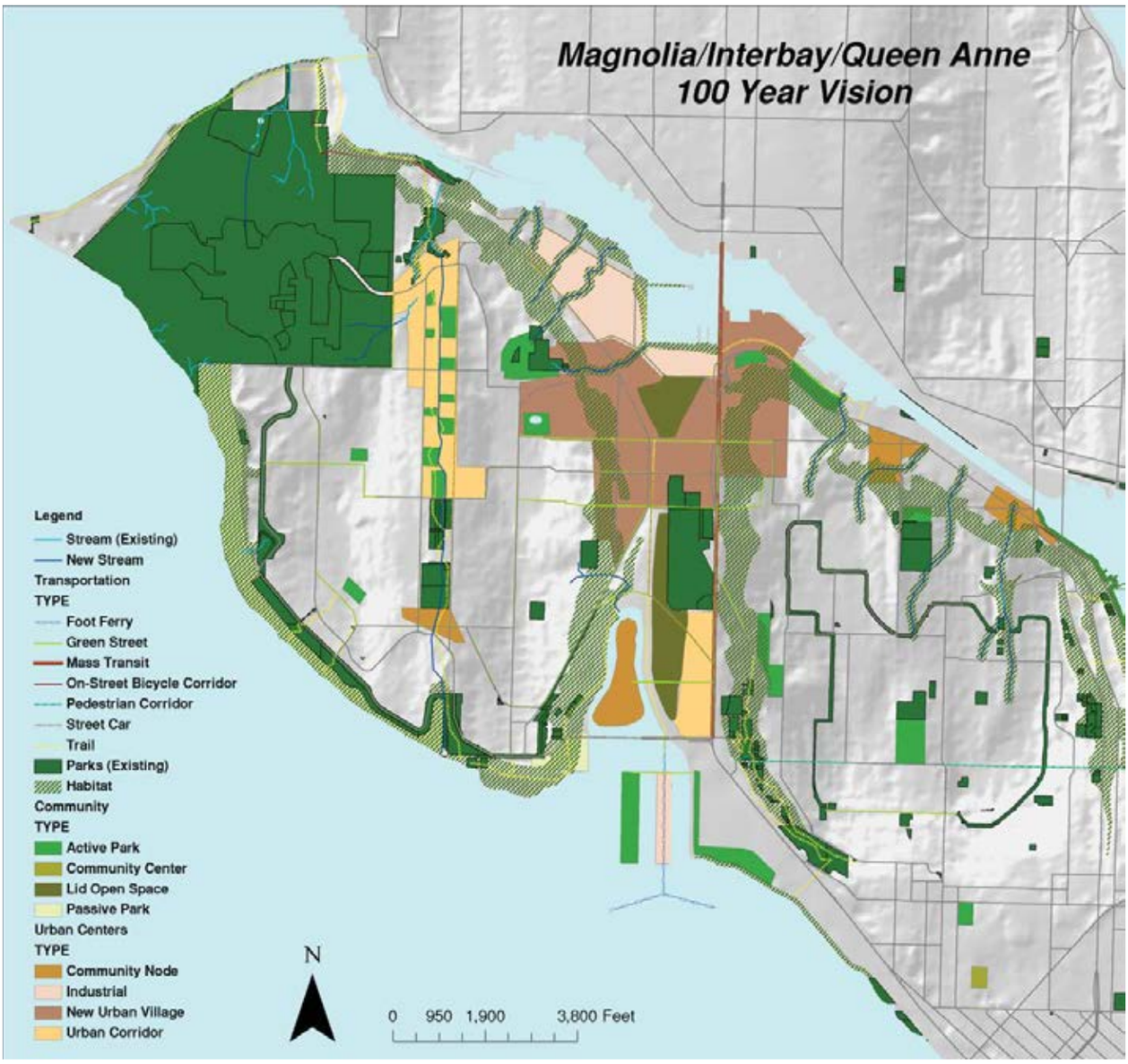
- Establish access points along the west shoreline of Magnolia
- Construct pedestrian overpasses to Myrtle Edwards Park
- Establish open space along the Lake Union shoreline
- Convert street ends to shoreline access points or viewpoints
- Maintain public view corridors along shorelines
- Restore shoreline habitat along Myrtle Edwards Park
- Daylight historic streams in existing undeveloped areas
- Provide open areas for stormwater infiltration and retention, and incorporate multiple uses (trails, habitat corridors, views)
- Encourage the use of rainwater catchment systems
- Maintain native vegetation on steep slopes

Connectivity

- Develop a cohesive network of multi-modal paths, trails, and greenways throughout the district, focusing on access to transit and open space
- Increase bike and pedestrian links to transit corridors (i.e., connections to west slope of Queen Anne hill)
- Incorporate open space into new development throughout the district
- Establish pocket parks within existing neighborhoods to ensure easy access for residents
- Strengthen the historic Olmsted park boulevard systems in Queen Anne and Magnolia
- Direct new development to locations well served by transit and other alternative transportation infrastructure
- Utilize greenways to connect habitat for local wildlife
- Use bus stops as pocket parks and/or small community gathering spaces
- Establish foot ferry for travel throughout inland waterways

Green Integration

- Establish additional P-patches for local use in Magnolia
- Utilize traffic circles, planting strips, and other public spaces for native vegetation and urban agriculture
- Provide incentives for the incorporation of green building techniques in new development
- Use existing surface parking lots for multi-functional open space
- Provide improved bicycle facilities, such as secured bicycle storage and maintenance facilities
- Encourage habitat enhancement in private yards and spaces



100 YEAR STRATEGIES

Water

- Remediate shoreline pollution in target areas to increase swimming opportunities
- Establish public swimming area in the Ship Canal
- Maintain public view corridors along shorelines
- Ensure multiple access points to Smith Island and restored cove
- Re-establish tidal marsh at southern end of Interbay
- Daylight historic streams as redevelopment occurs
- Increase fish and wildlife habitat along west wall of Fisherman's Terminal

Connectivity

- Place lid over rail yards and use these areas for community gathering space, recreation facilities, and new mixed-use development
- Place lid over Aurora Avenue to develop link between Queen Anne and South Lake Union
- Establish a Counterbalance system for movement of people up and down Queen Anne Hill
- Use area underlying Counterbalance transport for parks and open space
- Reconnect the grid to Queen Anne and Magnolia in Interbay area
- Use a Hazard Mitigation Program to acquire lands along the shoreline for public use and to restore ecological functioning
- Establish foot ferry for travel throughout inland waterways

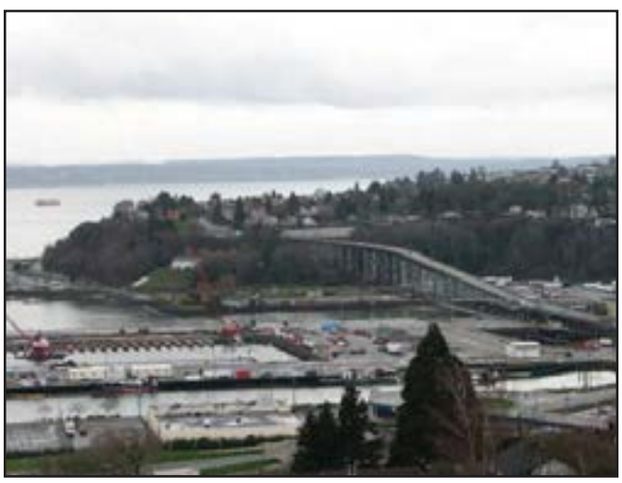
Green Integration

- Use pervious surfaces for roadways and trails
- Require all new buildings to meet green building standards
- Eliminate minimum parking requirements
- Reclaim rights-of-way for pedestrian use (i.e., narrow streets with wide sidewalks in commercial areas and "shared streets" where pedestrians are prioritized in residential areas)

SUB-AREA VISIONS

Queen Anne

- The Queen Anne area will work to build upon the Olmsted legacy over the next 100 years. This will be achieved through a series of open space and built space improvements, including:
- Connect the Queen Anne boulevard system as a green street, pedestrian-friendly corridor
- Enhance existing open space through acquisition and recapture of built environments, when available through abandonment or based on public demand
- Improve linkages with the water, including new parks along the shoreline and enhanced connections to Elliot Bay, Lake Union and the Ship Canal
- Improve uphill and cross-hill connections by providing improved trails in the Galer Street corridor and through the existing greenbelt. This may include the development of a counterbalance conveyance up Queen Anne Hill
- Improve connections between the Seattle Center, South Lake Union, and Myrtle Edwards Park
- Improve surface water runoff from Queen Anne hill, through the use of innovative stormwater capture and treatment techniques, to improve water quality on the shores of Queen Anne
- Improve water quality of the open water/open space of Lake Union and Elliot Bay, with the goal of making these waters accessible to water-related recreation



Interbay

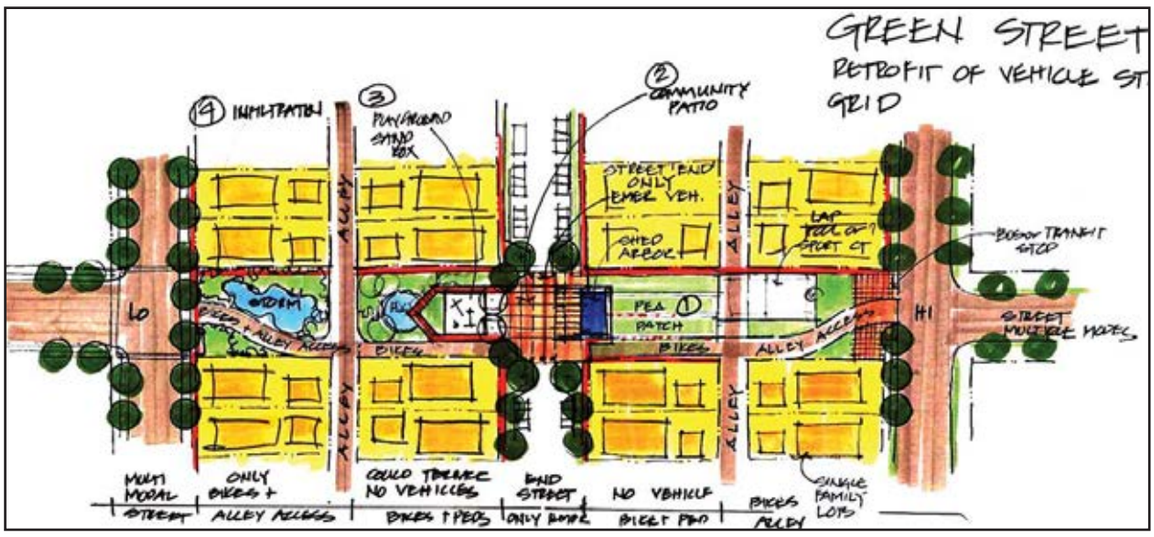
- Over the 100-year planning period, the Interbay area will emphasize green development, accommodate a mix of uses, and will create a better connection between Queen Anne and Magnolia neighborhoods through:
- New mixed-use development at increased densities within the 15th Avenue/Elliot Avenue North corridor
- Open, extended green spaces to support restorative, recreational, and urban agricultural activities
- Roof gardens and play areas located atop new and existing development
- Capture and treatment of surface run-off
- Lidding surface railroad facilities for open space and improved connections to Queen Anne and Magnolia
- A new water body in the south end
- Redesign of Thorndike and Dravus Streets
- Increased pedestrian and bicycle access

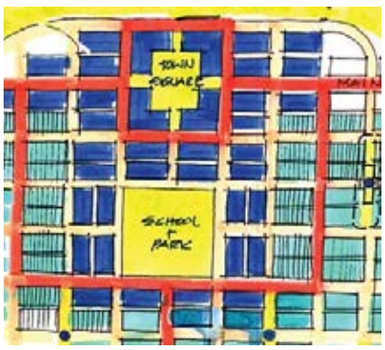
Magnolia

The parks and open space network of Magnolia will take advantage of existing assets such as Discovery Park. In the next one hundred years, parks and open space will become more accessible in the neighborhood by:

- Increasing bike path connections internally and to Ballard, Queen Anne, and downtown
- Creating the Central Magnolia Greenway along 32nd and 34th Avenues as a centerpiece for open space and recreational activities
- Improving and expanding parks and trails along the western shoreline of Magnolia Hill
- Establishing a multi-modal trail system, including a water trail
- Development of new pocket parks and urban agricultural opportunities throughout the district
- Habitat improvements within Fisherman's Terminal through increased habitat connectivity and with Salmon Bay

CHARRETTE CONCEPTS: GREEN STREET PROTOTYPE





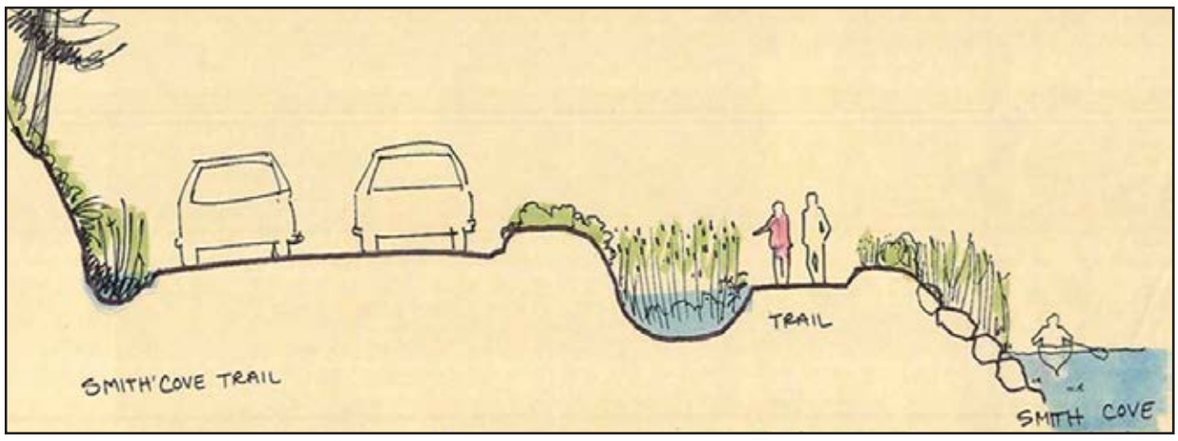
Yellow open space
Dark Blue dense/infill residential
Light Blue single-family residential
Red main streets
Yellow with blue circle location of green street

The above plan is a prototypical example that would work well in any Queen Anne or Magnolia single-family neighborhood. The street grid would be retrofitted with one lane being closed entirely for traffic and the other functioning more as a "woonerf" with pedestrians having priority, but local traffic being allowed to travel through. A bike lane could travel through the area and this lane could double as alley access when necessary. This would maintain a 300 feet block system for bikes and pedestrians, but only 600 feet for vehicles. The above plan shows potential uses of a pea patch, community patio or outdoor living room, play area, and stormwater pond for infiltration. This retrofit solution will better serve the community needs for outdoor space in 100 years, as well as prioritizing walking and bicycling as a means of transportation. As single-family homes transition into townhouses and apartments, this type of street will be even more important since residents will have less private open space.

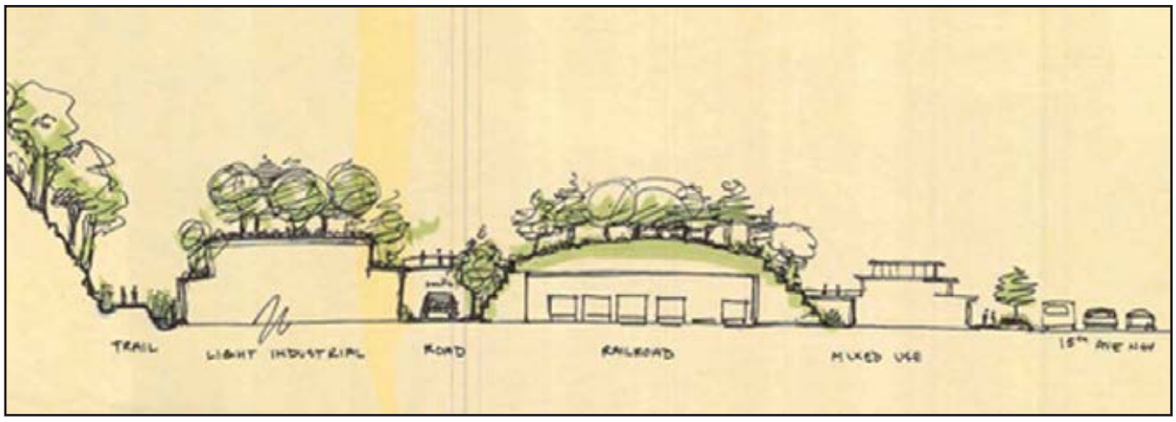
Cross Section of a Green Street

A variety of uses could be found in a neighborhood green street, such as children's play areas, urban agriculture patches, community patios, and stormwater infiltration areas.

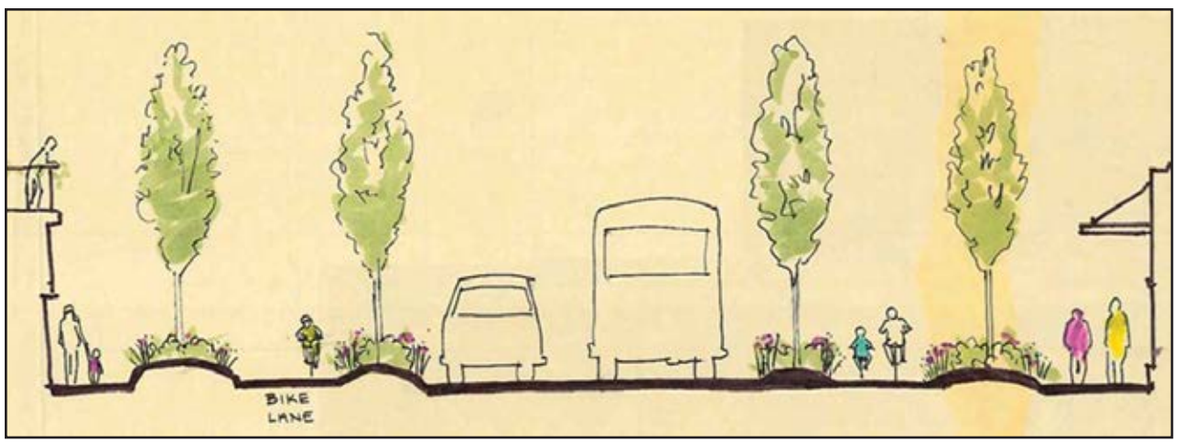
CHARRETTE CONCEPTS: GREEN STREET SECTIONS



Armory Way and Smith Cove Trail



Potential Lid Structure over Railroad in Interbay



Potential green street sections for Thorndyke (top) and Dravus (bottom)

The charrette team decided to design green streets within the Magnolia/Interbay/Queen Anne area. Thorndyke would be an ideal street for separated bicycle and pedestrian pathways as it is currently very wide. Dravus might be redesigned to have two one-way streets with a wide, meandering "Lombard" like path for pedestrians with spaces for urban agriculture and pocket parks throughout. A lid over the rail lines in Interbay could be a space to reconnect Magnolia with Queen Anne, create green space and habitat, and add some development.

SOUTH MAGNOLIA URBAN CENTER DAYLIGHTING OF WOLF CREEK

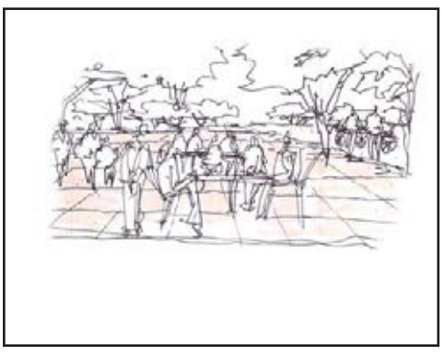
Mitchell Coleman; University of Washington Landscape Architecture

As the population increases, the existing city infrastructure will be put to the limit of meeting these new demands.
To relieve the pressure on stormwater collection and sewage treatment plants, the historic Wolf Creek running through central Magnolia will be daylighted to handle this runoff. The creek will act like a filter, to remove sediment and other contaminants before reaching Salmon Bay to the north and Elliot Bay to the south.

My Individual study area is located in the south Magnolia Urban Center between West Magnolia Park to the North and West McGraw Street to the south. The design looks at using the creek for filtration and as a visual/acoustical element in the landscape. In the future it is going to be vital that we use the natural environment to solve urban issues such as flood control, stormwater and filtration.

This creek will also provide wildlife habitat for insects, small rodents and birds. As Wolf Creek runs through the south Magnolia urban center, it will be adjacent to mixed-use commercial/residential buildings. The pedestrian space along the creek will provide a nice place to sit and enjoy what Wolf Creek has to offer.

Context Map of Individual Study Area

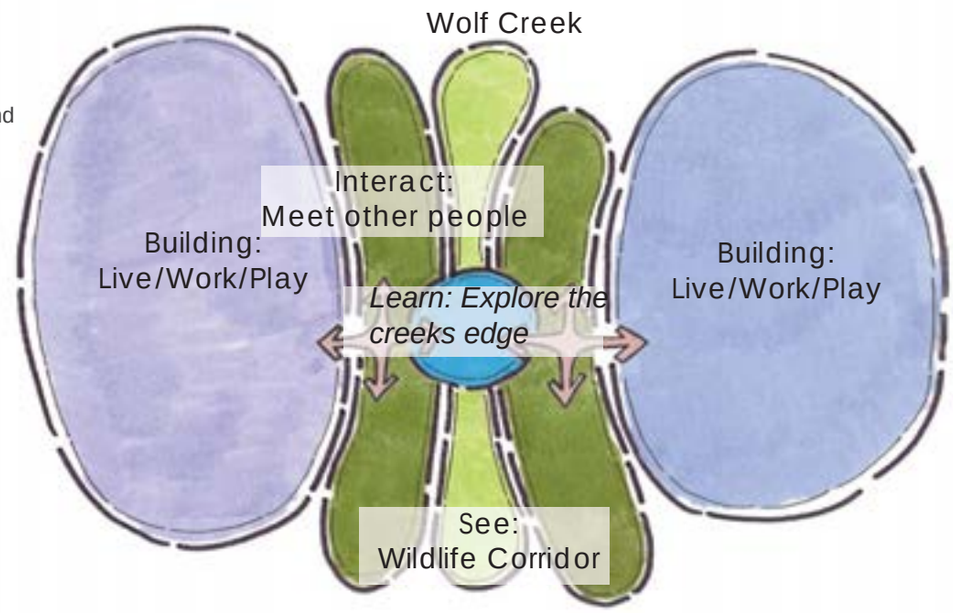


Wolf Creek will be used to filter sediment and contaminants before reaching a fish bearing body of water.

Creek will provide habitat for insects and birds.

Wolf Creek will be a nice visual and acoustical feature in the urban landscape.

Concept Diagram
This diagram illustrates the connections between the different elements on site and the intended uses for each one.



South Magnolia Urban Center Green Corridor Plan

The site is comprised of a central green corridor, approximately 60 feet in width by 300 feet in length. This plan creates a wildlife corridor throughout the urban center and also be a collector of stormwater runoff from the adjacent hills and buildings. There are spots to interact with Wolf Creek by the means of pedestrian bridges and steps that can be use as seating to view the creek. The buildings adjacent to Wolf Creek are mixed-use (commercial/residential) with green roofs.

The plan allows there to be room for outdoor cafes and seating areas for people to enjoy this outdoor setting among a highly urbanized environment.

The Key Features of This Plan:

- The removal of a two block section of road (33rd Ave West) between West Magnolia Park and West McGraw Street.
- The placement of vehicle bridges where the streets cross over Wolf Creek.
- The planting of trees and vegetation on the creek banks to provide shade and nesting habitat.
- Multiple pedestrian bridges for easy access over the water and viewing.
- A central seating area (steps) that allows access to the creek's edges.
- Along the water's edge are interpretive signs explaining the importance of Wolf Creek to the Magnolia neighborhood.

Section View of Site- Looking north along the current alignment of 33rd Ave West

URSULA JUDKINS VIEWPOINT/SMITH COVE PARK

Jeremy Fichter, University of Washington Master of Urban Planning and Design

The study area includes two parcels of land recently purchased by the City of Seattle, and two additional parcels: one parcel with an existing residence, owned by the Navy, and the West Yard, owned by the Port of Seattle. The proposed plan includes the acquisition of the non-City-owned parcels and conversion to public park land within the 20-year time frame.

The site plan seeks to capitalize on two prime assets: views and shoreline. Improvements on the upper site include a covered picnic area and two viewing platforms with excellent views of downtown and Elliott Bay. Two foot trails connect the upper and lower sites. The portion of Marina Place that currently bisects the lower site will be removed, and a new road will be constructed at the base of the hill. Walking paths meander throughout the site, providing access while preserving open areas for recreational activities. A new pocket beach will be constructed to provide shoreline access and improved intertidal habitat. The existing residence will be maintained and converted to a community center or museum.

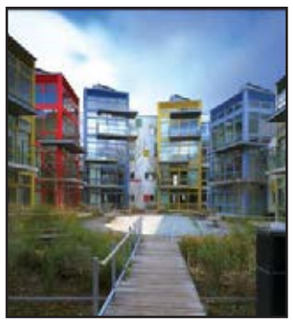
Context Map

Schematic Plan

Section View (facing north)

SMITH ISLAND: REINTRODUCING INTERBAY'S HISTORIC SHORELINE

Alyse Nelson, University of Washington Master in Urban Planning and Design



Where the Historic Past meets the Sustainable Future

Smith Island was born from the charrette vision to reintroduce the historic tidal marsh within southern Interbay. Development along the island would help pay for the cost of recreating the historic shore and provide a unique place to showcase Seattle's efforts in the sustainability movement.

Interbay in 100 years:

- A mixed-use core that connects Queen Anne and Magnolia.As a place for habitat and people, with easy access to the shore and tidal marsh.
- A link between two regional parks: Discovery Park and the Seattle Center.
- A transportation hub, with light rail, buses, and a pedestrian foot ferry connecting residents with the greater Seattle region.
- A hub for the cruise ship industry, tourists, and Seattleites alike.

Smith Island could be a model for sustainability in 2100, looking toward past projects such as the Malmo, Sweden Western Harbor development. The island development would be encompassed by a green ring of public trails and parks. Smith Island would be a place that functions for both people and nature, featuring sustainable elements on the site, including green buildings, renewable energy sources, and a neighborhood form that maximizes space and encourages sustainable behavior.

Context Map

Magnolia / Interbay /Q. Anne

Vignette of Residential Interior Courtyard

Bird's Eye Perspective of Smith Island

Diagrammatic Site Plan

LAKE UNION

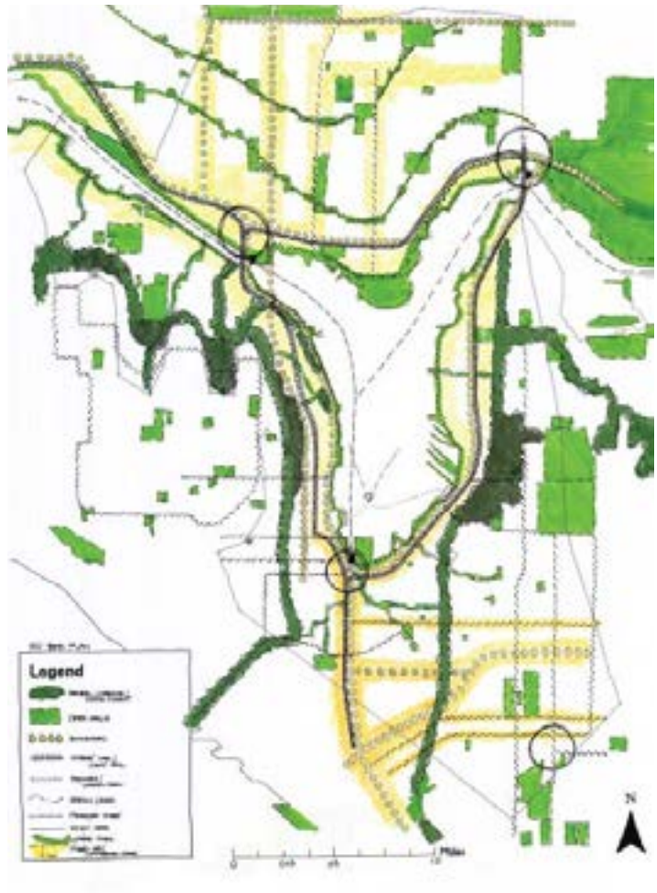
Team Leaders: Rachael Watland, Andy Mitton, Jason Henry, John Logan and Kristin Kildall
Student Team Leaders: Garrett Devier and Dara O'Byrne
Team Members: Linda Frkuska, Jeff Hepinstall, Wes Simmonds, Rich McDonald, Chris Gronbeck, Mike Ruby, Brian O'Sullivan, Susana Musi, Brian Ramey, Art Tuftee, Tom Berger, Gary Zak, Brent Chastain, Genevieve Vayda, David Knight, Karen Bech, Guy Michaelson, Makie Suzuki, Jessie Chou, Kimberly Bowen, Erin Parker, Steve Haluschak, and Chris Towne.

LAKE UNION TEAM A

100 Year plan

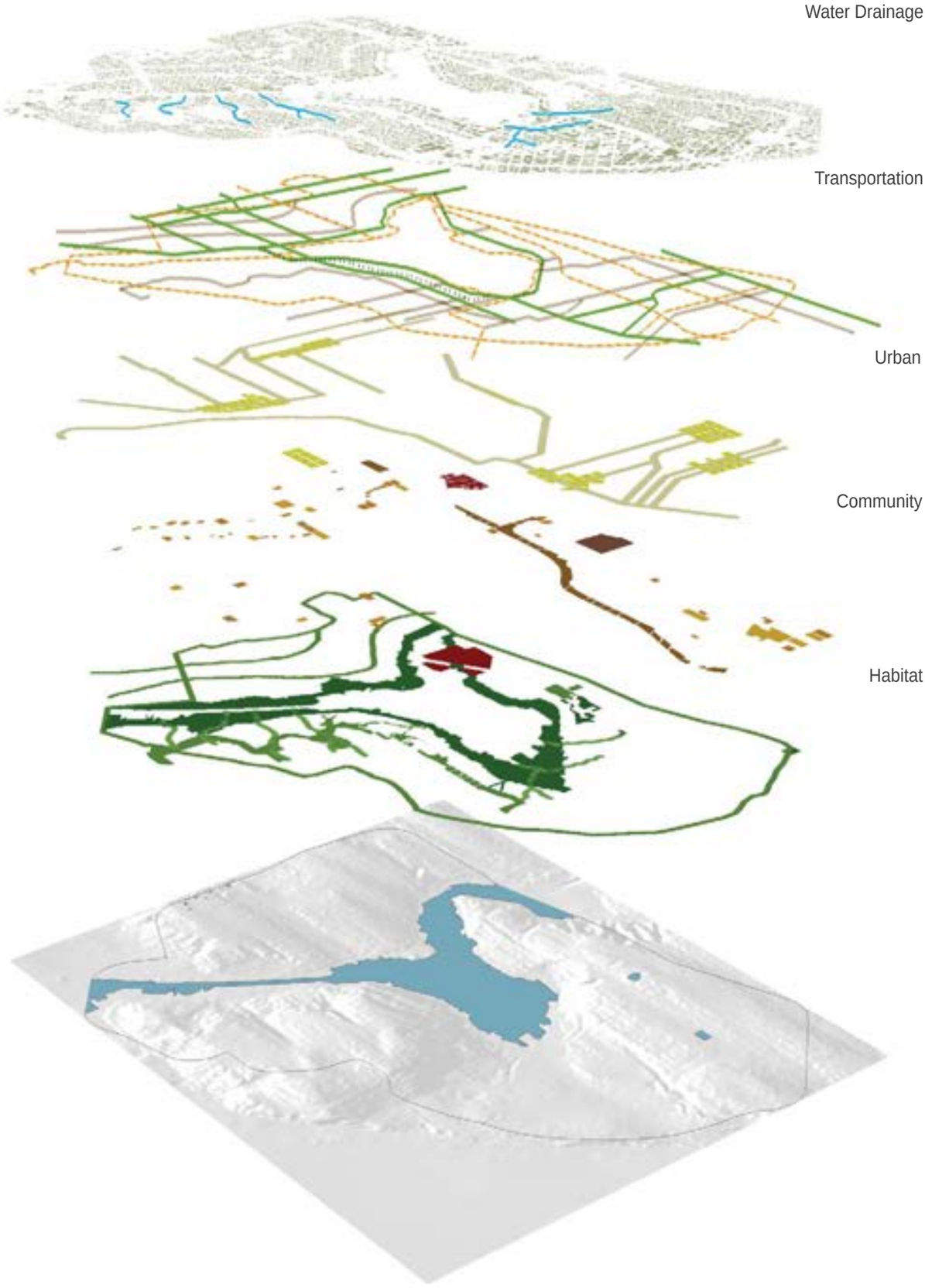
Key Concepts: Growth is targeted to urban corridors and community nodes. Transportation is split into a hierarchy of transit corridors, boulevards, and pedestrian paths. A loop trail around the lake is added as well as a number of linear parks connecting key open spaces. Natural corridors and urban forests are added in steep slope and other hazardous areas. Streams are daylighted and buffered with habitat in an overall goal to improve water quality.

LAKE UNION TEAM B



100 Year plan

Key concepts: The Lake Union Basin will be encircled by two rings. The first ring will be a designated "Green Zone" around the shoreline of Lake Union. The second ring will be a pedestrian, bicycle and habitat corridor that follows the ridge line of the Lake Union Basin. A network of parks, habitat, corridors, and other open spaces will be used as links between urban cores and the shoreline.


Water Drainage
Transportation
Urban
Community
Habitat

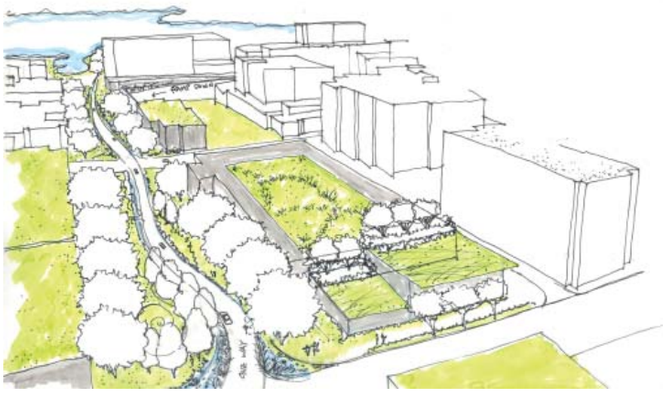
GOALS FOR LAKE UNION IN 100 YEARS

Target Growth in Urban Villages

- Increase density in targeted areas throughout the study area
- Continue to provide a variety of housing types

Improve Awareness of Lake Union Sub-Basin

- Create more physical access to shoreline and provide for public use
- Protect and enhance view corridors



Create a Citywide Open Space Network

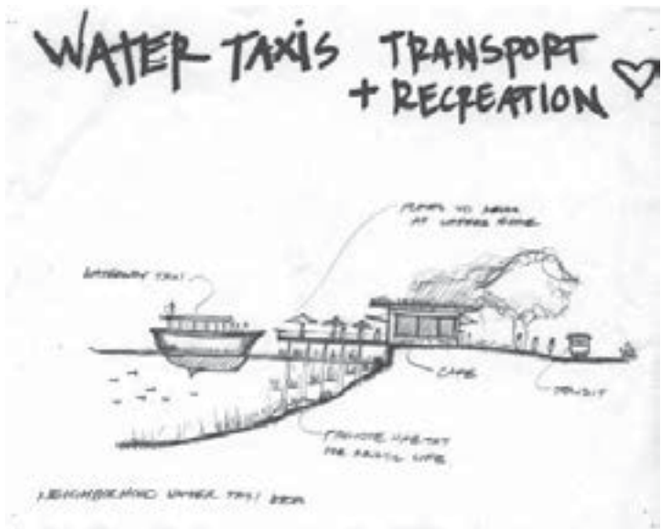
- Develop a system of open space corridors or routes to connect neighborhood, community, and regional open space.
- Create open space rings around the study area – one around the perimeter of the lake and one around the ridge-line of the basin
- Facilitate pedestrian and bicycle travel throughout the open space network
- Use this network to unify cultural and ecological values, economic and natural resources, and recreational opportunities

Commons for Everyone

- Provide accessible open space in under-served areas
- Distribute green space equitably among communities
- Provide neighborhood level, community level, and regional open spaces
- Reduce acreage consumed by the auto to provide more area for open space

IMPROVE CONNECTIONS AND ACCESS

- Develop multi-modal transportation systems that increase connections and access to open space
- Improve connections within and between neighborhoods
- Integrate open space with the systems of pedestrian, bicycle, and mass transit routes
- Bury or lid I-5 to connect the communities on both sides and to improve access to Lake Union

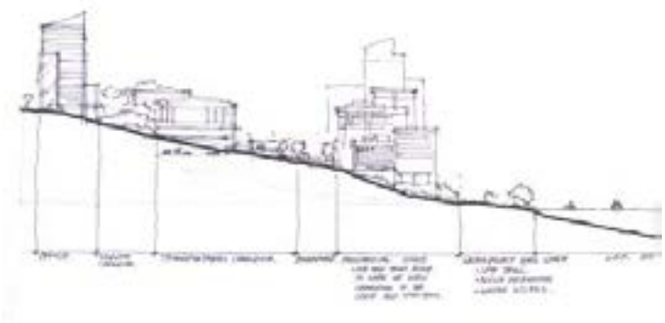


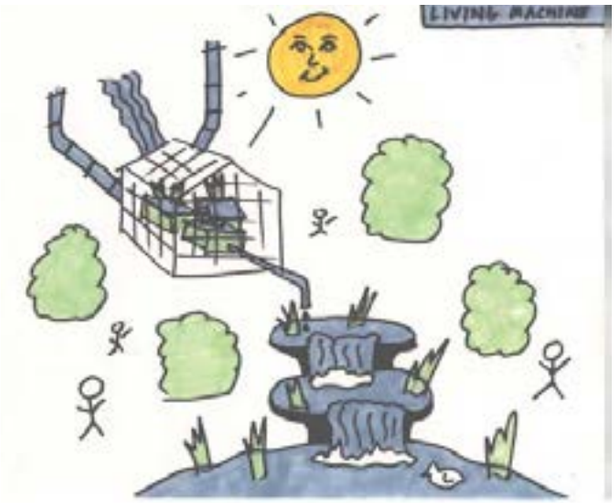
SUPPORT COMMUNITY WITH OPEN SPACE

- Create space for gathering and interaction, such as plazas, pea patches, parks, segments of broad commercial sidewalks, etc.
- Design open space that enhances community identity, serves as landmarks, and reflects local culture.
- Enhance the quality of life by creating a more beautiful environment
- Serve the older population and local demographics with connections to the outdoors

Enhance the Local economy

- Improvements should be attractive to visitors and tourists in appropriate locations
- Open space may be an amenity to local commercial districts, and local customers



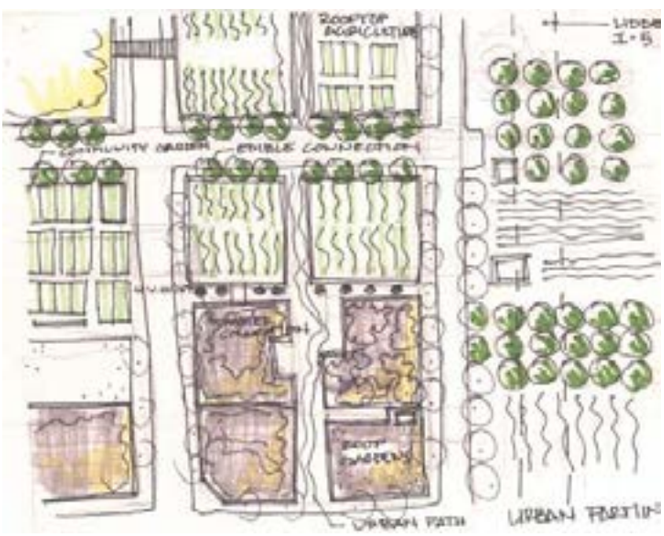


Design for Environmental Sustainability

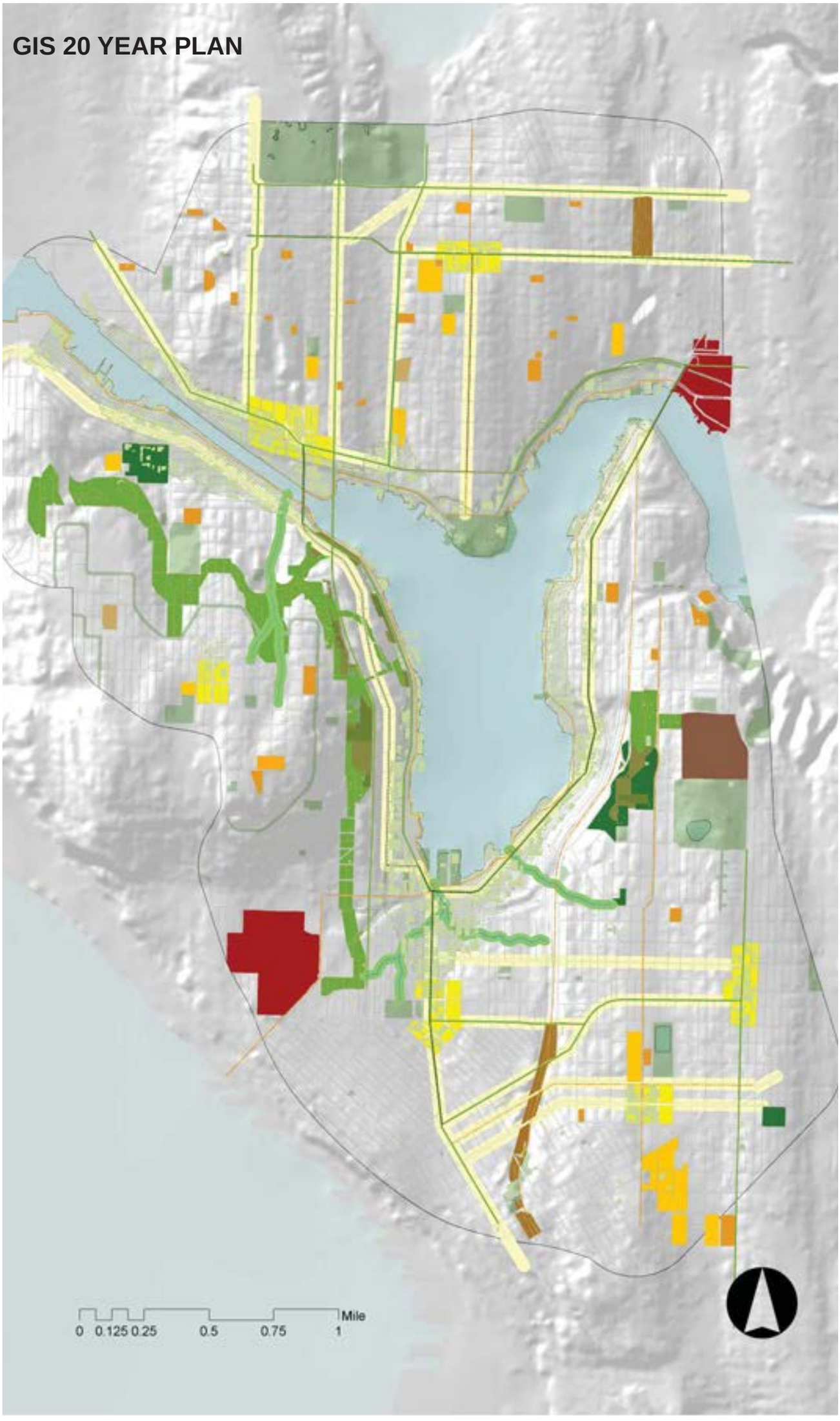
- Convert Lake Union basin into a healthy watershed
- Improve the ecological function of existing and new open space
- Decentralize energy production and move toward resource self sufficiency
- Treat stormwater through natural systems within open space and right-of-ways and increase permeability to soils
- Create an interconnected system of green roofs
- Restore habitat

Create and Support Opportunities for Personal Food Growing

- Support private and public urban agriculture
- Increase area dedicated to pea patches and other urban agriculture



GIS 20 YEAR PLAN



Urban

- Community Nodes
- Urban Corridors

Community

- Active Parks
- Playfields
- Passive Parks
- Farmers Markets
- Lidded Open Space
- Cemetary
- Civic Space
- Existing Parks

Habitat

- Stream Riparian Area
- Habitat Corridor
- Mini Woodlot
- Urban Waterfront Habitat
- Existing Green Belts

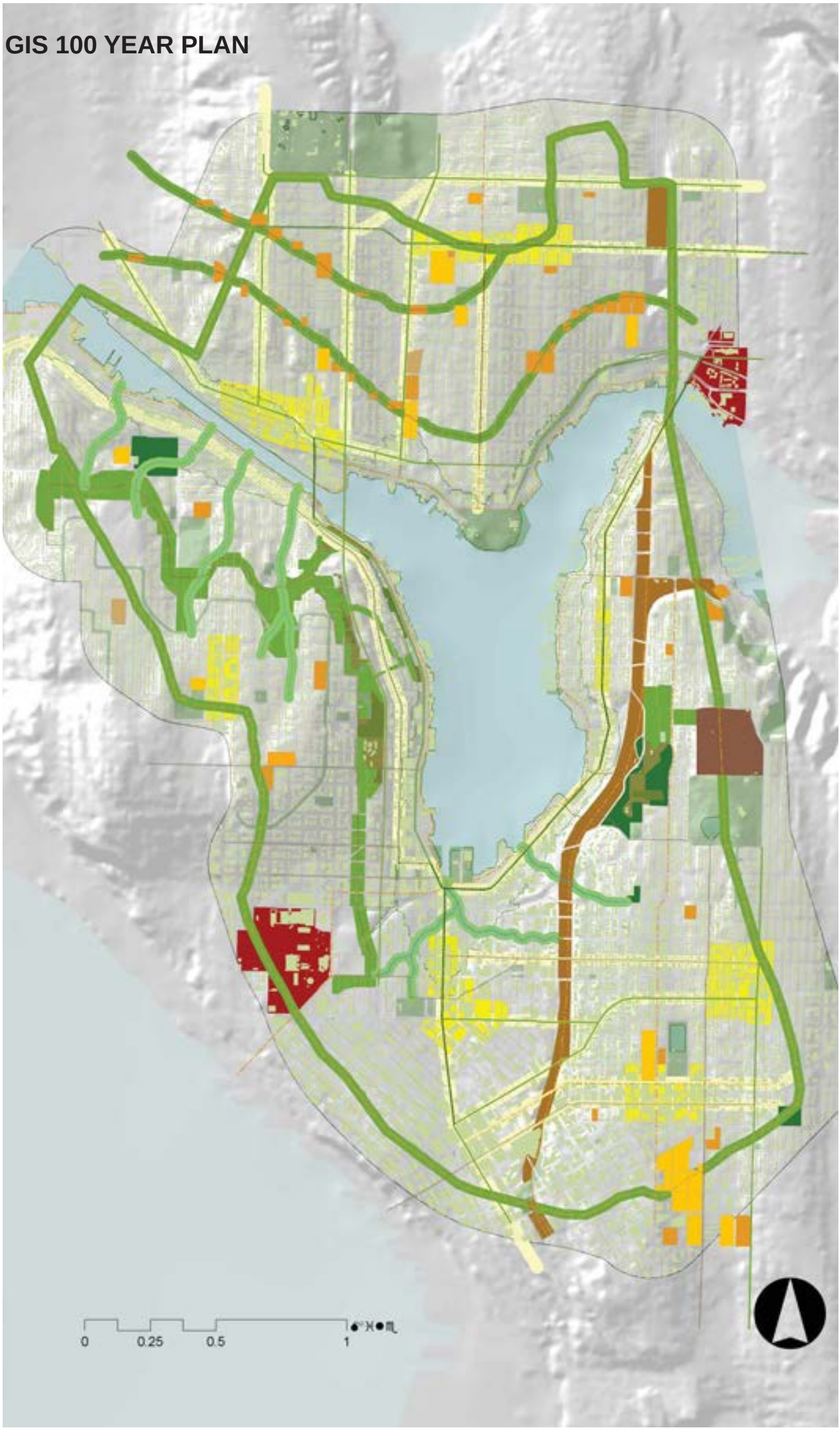
Water Drainage

- Green Roofs
- Created Streams
- Daylighted Streams

Transportation

- Street Car
- Water Taxi
- Pedestrian Corridor
- Designated Bicycle Corrid
- Green Streets

GIS 100 YEAR PLAN



Urban

- Community Nodes
- Urban Corridors

Community

- Active Parks
- Playfields
- Passive Parks
- Farmers Markets
- Lidded Open Space
- Cemetary
- Civic Space
- Existing Parks

Habitat

- Stream Riparian Area
- Habitat Corridor
- Mini Woodlot
- Urban Waterfront Habitat
- Existing Green Belts

Water Drainage

- Green Roofs
- Created Streams
- Daylighted Streams

Transportation

- Street Car
- Water Taxi
- Pedestrian Corridor
- Designated Bicycle Corrid
- Green Streets

THE GREEN ZONE: 100% IN 100 YEARS!

The goal is to have 100% contiguous green space within 100 years around the shoreline of Lake Union. This area will be a mixed use zone that combines public and private uses. An equal mix of uses that are economically robust, ecologically sustainable and also provide equitable access to zone amenities by the community will be promoted and eventually required.

In order to implement the green zone in 100 years, this zone could be given a unique designation by the city. The zone could have its own tax base and guiding body that helps makes decisions about the area. An incentive program could be started to help ensure that new developments will contribute to the visions of this unique area.

In order to keep the Green Zone a mix of public and private use, acquisition strategies will focus on two objectives:

1. Address DNRs current land management of Lake Union shoreline
2. Build a list of properties of interest for public acquisition and continue targeting over 100 years and list should be reviewed and updated every 5 years

http://walkermacy.com/images/projects/landscape/swater-front2.jpg

http://www.what-means.com/encyclopedia/Tram

FUNDING STRATEGIES

Funding strategies will be driven by the key idea that funding mechanisms that encourage and create opportunities for change or that create long term revenue streams, will be utilized most actively.

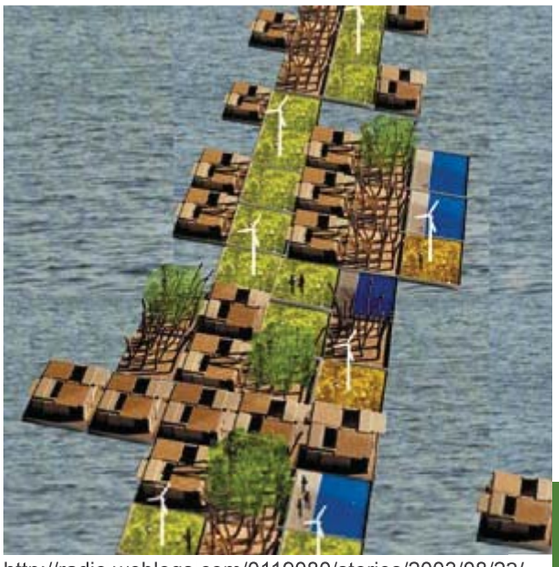
1.Creative use of small neighborhood L.I.D.s
Example: cul-de-sac could apply for an LID, but to be eligible it would need to agree to implement 1 - 3 projects that would support or connect them to the Green Zone such as using green roofs or creating a public access trail
2. T.I.F.s
3. Ecological compensation measures
4. Tax revenues
5. Levy's from long-term capitol campaign

IMPLEMENTATION STRATEGIES

1. Create developer incentives to build city infrastructure as part of developments.
(Height for open space, green roofs, low income, etc.)
2. Rewrite cistern versus water-take legal definition to match runoff volume of natural conditions.
(coordinate with WA DOE and State legislators)
3. Generate cash (taxes) by quit claim deeding unused ROW and/or selling unused properties to purchase key parcels.
(open space, other key systems, or land in trust for open space)
4. Develop public/private joint venture partnerships.
5. Pursue private open space/uses.
(Toll roads, toll sites, etc).
6. Inventory all public lands and identify multiple use opportunities.
7. Perform a hard surface audit and identify which surfaces can be eliminated or resurfaced.
(Grey to green)
8. Coordinate with Seattle School District to identify which properties have open space potential/value, including surplus properties.
9. Emphasize the water in zoning, ordinances, codes, and all plans.
10. Create zoning overlay of open space needs based on Dept. of Parks and Recreation Gap Analysis.
- Include public and private open space in the overlay.
- Include physical and visual access to Lake Union as an open space selection criterion.

www.futurehi.net/archives/000084.html

www.asla.org/.../awds02/chicagocityhall.html



http://radio.weblogs.com/0119080/stories/2003/08/22/galleryOnTheWaterfront.html

STONE WAY: CONNECT RESTORE CELEBRATE

By 2106, Stone Way will serve as a commercial, mixed-use corridor connecting neighborhoods and open spaces. The right-of-way currently dedicated to automobiles will be dedicated to a daylighted stream, pedestrians, and bicycles. Vegetated swales will line the streets intersecting Stone Way, allowing clean water to flow into the stream. A street-end park will provide residents access to the lake where the stream will terminate and flow into Lake Union.

Connect

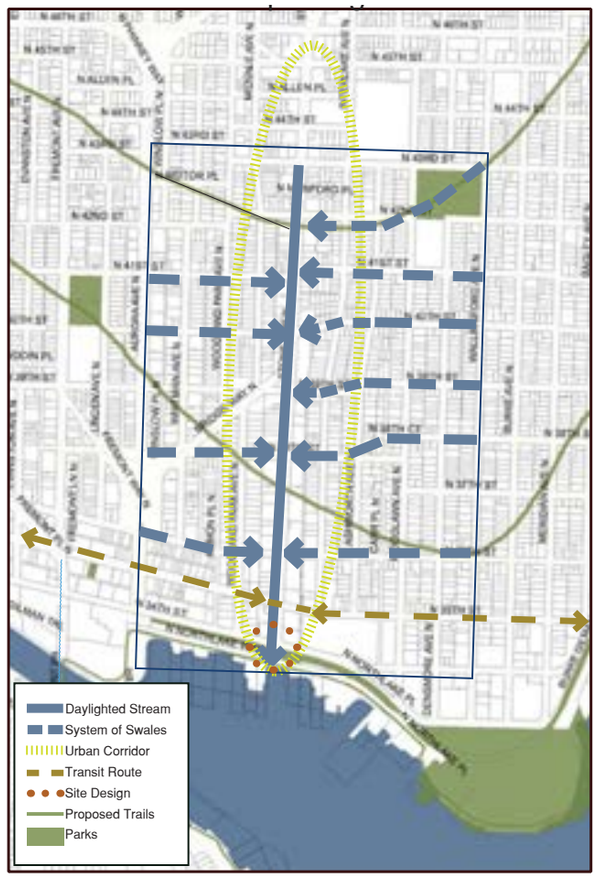
Urban villages Wallingford to Fremont
Parks Woodland Park to Waterfall Park and Gas Works Park
Water filtering swales to Stoneway Creek to Lake Union

Restore

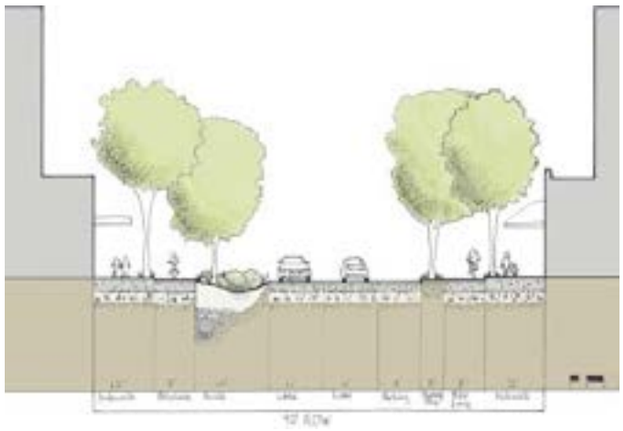
Stream ecological function and natural habitat
Lake Union green shoreline and clean runoff

Celebrate

Water visual celebration of scarce resource
People linear park creates community gathering space



Twenty years: 2026



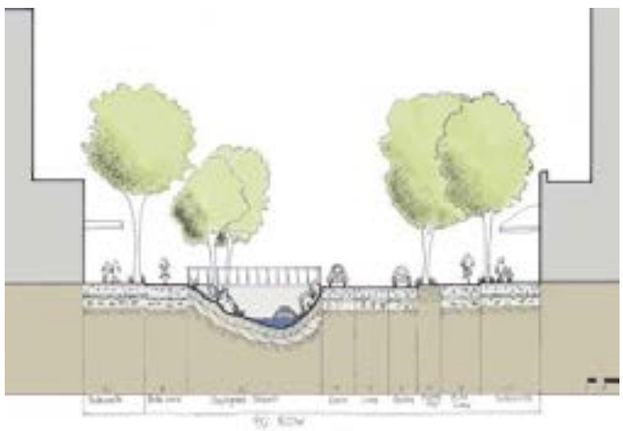
Assumptions

- People travel by automobile for a majority of trips but insignificant mode shifts have occurred.
- Fuel used for automobiles is non-polluting and is increasingly expensive.
- Densities in Wallingford and Fremont are increasing.

Scenario

- The amount of road space designated for automobiles is reduced to two lanes of traffic and one lane for parking
- Two grade-separated bike lanes allow Stone Way to become a key north/south bicycle route Vegetated swales filter and treat stormwater going to Lake Union
- All surfaces are permeable including permeable pavement on sidewalks and roads

Fifty years: 2056



Assumptions

- Automobiles are used less frequently because of improved transit like the streetcar and light rail
- Automobiles are significantly smaller due to increasing fuel prices
- More attention is paid to water quality as the scarcity of this resource is beginning to be realized
- Stone Way is a main commercial corridor with high density mixed-use development

Scenario

- The use of skinny cars allows lanes to become narrower so less right-of-way is designated for automobile use
- The historic stream is daylighted and habitat restoration has begun

STONE WAY:
CELEBRATE! A STREAM RESTORED, A NEIGHBORHOOD CONNECTED

one hundred years: 2106

Stone Way street-end: Waterfall Park

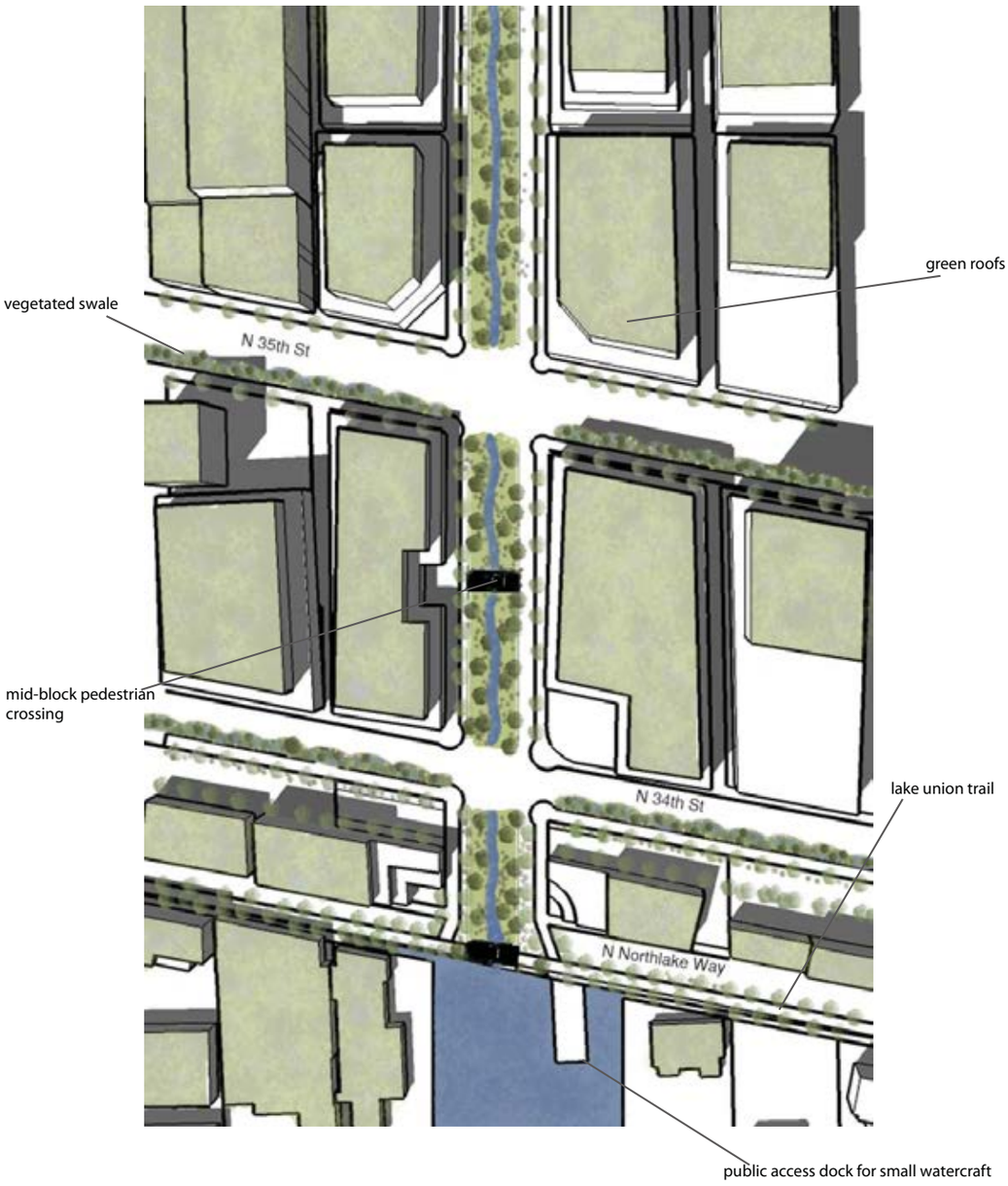
Assumptions

- Automobiles are used sparingly due to high fuel costs and efficient alternatives
- Public transit, biking, and walking are the primary form of transportation
- Increased densities create a high demand for open space and connections to nature
- Extreme weather events are more common due to global warming

Scenario

- All lanes for automobile traffic are removed from Stone Way
- The restored stream has improved habitat
- Filtering swales are added to both sides of the stream to filter sediment and prevent negative environmental impacts of extreme storm events

Stoneway Daylighted Stream Corridor

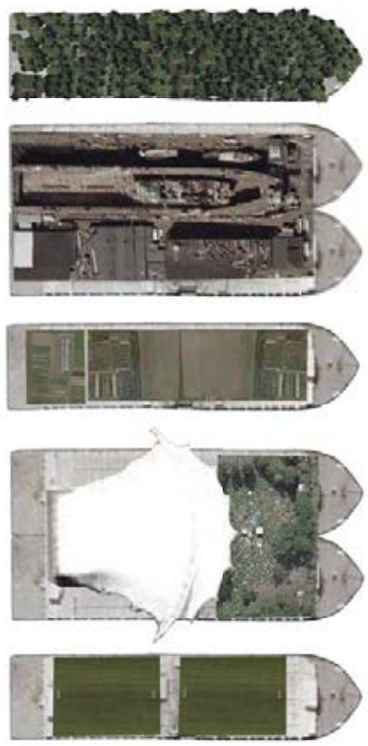


Lake Union

SHORELINE TO RIDGELINE

Open Space Armada

On the Eastlake shoreline barges anchored offshore can be used to provide seasonal open space opportunities. Like a naval convoy these barges will be escorted by forested buffer ships to buffer sight lines and noise. Different uses can include; urban agriculture, sports fields, concert venues, and light marine industrial uses. These floating open spaces can be used at large or small street end parks along the shores of Lake Union and Lake Washington.



Fairview and Eastlake

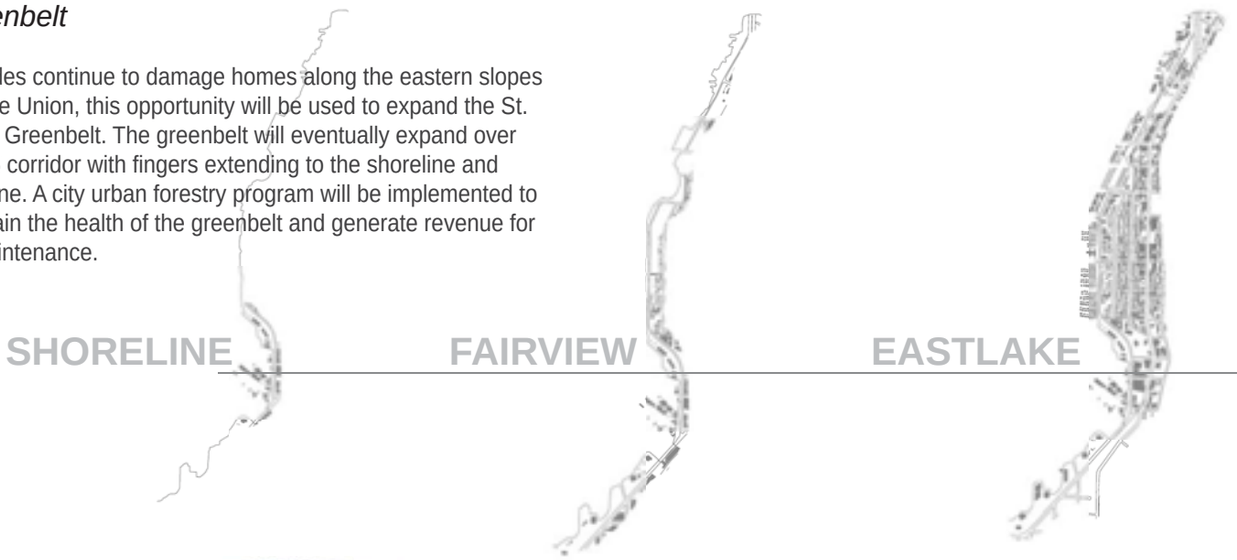
Fairview along the shoreline will serve as a pedestrian and bicycle priority street, with car use for local residents. Eastlake will serve as the main transportation route and include a light rail system. In order to prevent the further widening of Eastlake, the use of smaller "smart" cars will be encouraged.

I-5 Corridor

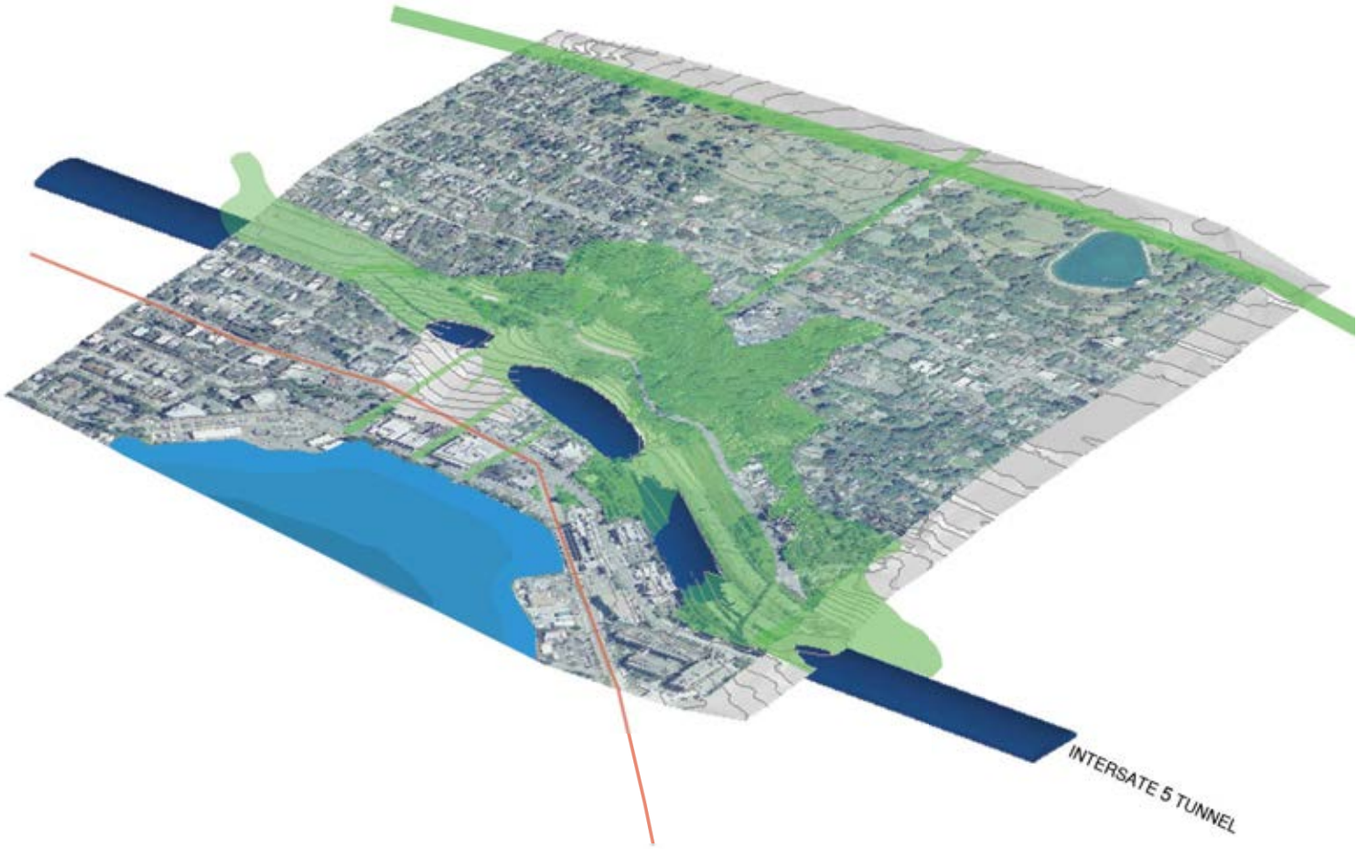
The I-5 corridor will eventually tunneled and capped. In the bowl below the St. Marks Greenbelt the tunnel will remain exposed. Over time the slide potential slopes of the St. Marks Greenbelt will sluff over the tunnel enhancing connections over the I-5 corridor.

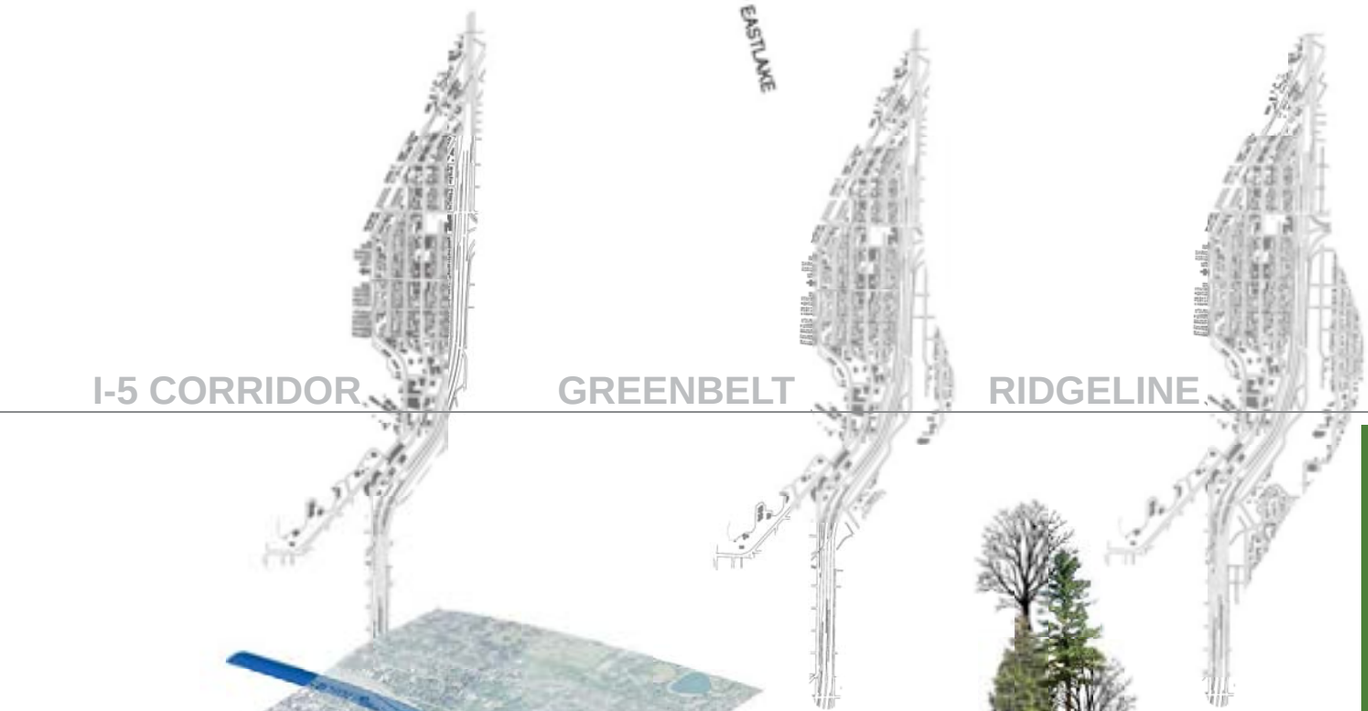
Greenbelt

As slides continue to damage homes along the eastern slopes of Lake Union, this opportunity will be used to expand the St. Marks Greenbelt. The greenbelt will eventually expand over the I-5 corridor with fingers extending to the shoreline and ridgeline. A city urban forestry program will be implemented to maintain the health of the greenbelt and generate revenue for its maintenance.

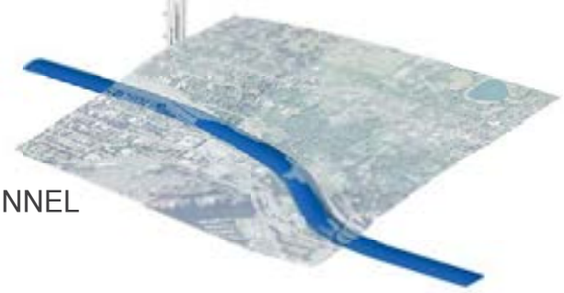


Lake Union



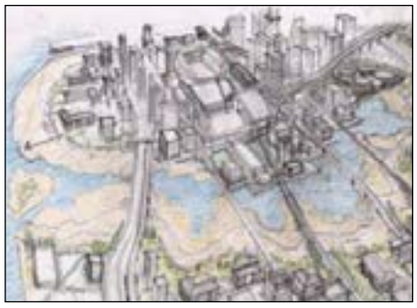


Lake Union



TUNNEL

EXISTING SITE

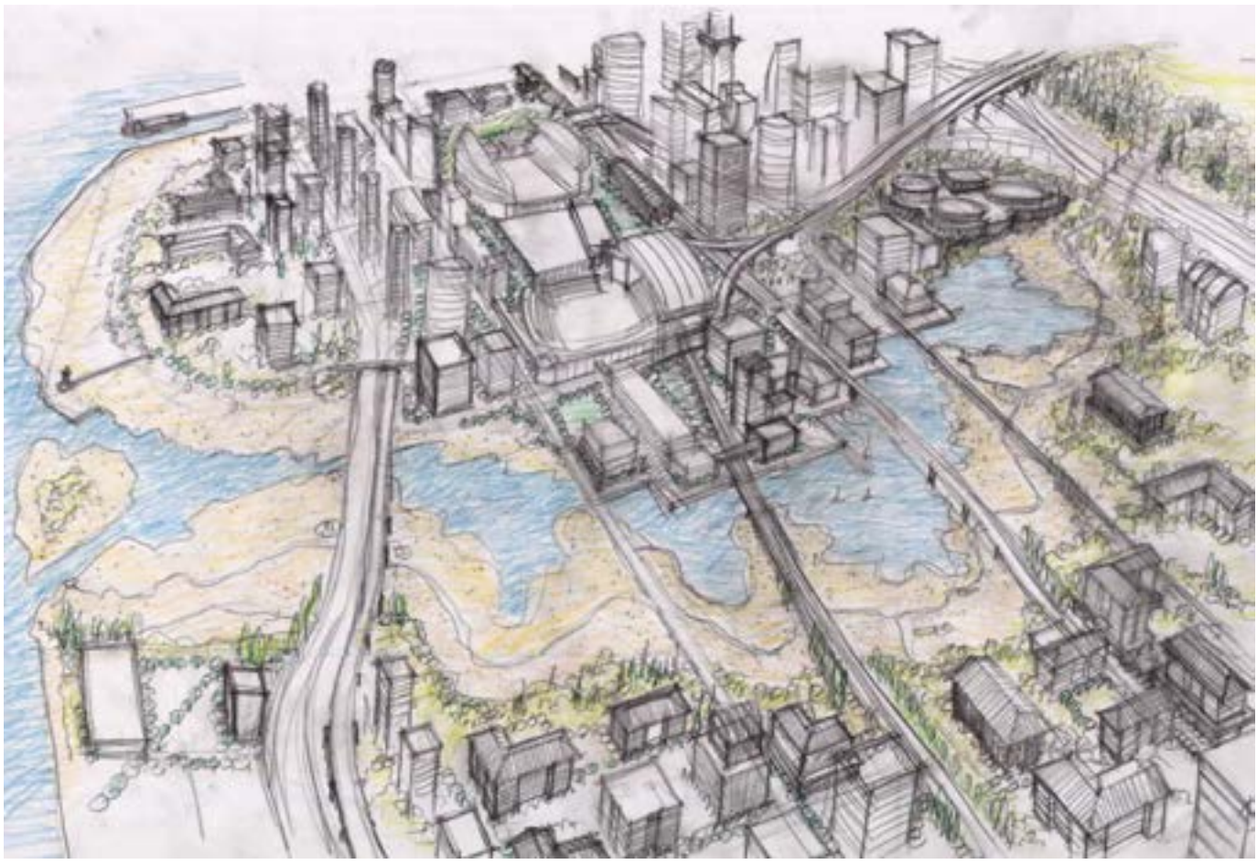


DOWNTOWN

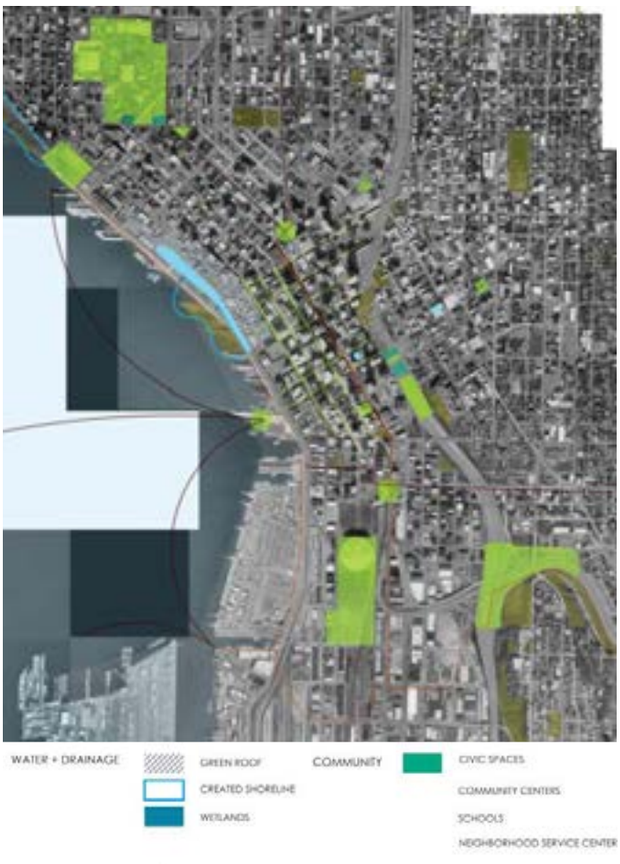
Team Leaders: Paul Crane, Stefani Lakey, John Owen
Student Team Leaders: Nathan Brightbill, Diego Velasco
Team Members: Lauren Briel, Terri Dobrich, Sarah Dooling, Kelly Mann, Kenichi Nakano, Pietro Potesta, Laura Raymond, Daniel Spiess, Jacob Struiksma, Heather Trim, David Yeaworth, Amalia Leighton, D. Allen, Annie Breckenfeld, Daniele Spirandelli, David Guthrie, Karin Link, Elise Menard, Justin Fogle, Benjamin Barret, Justin Mcconachie, Yousif Farjo, Joel Egan

DOWNTOWN A: BLUE AND GREEN WEB / HABITAT WEAVE

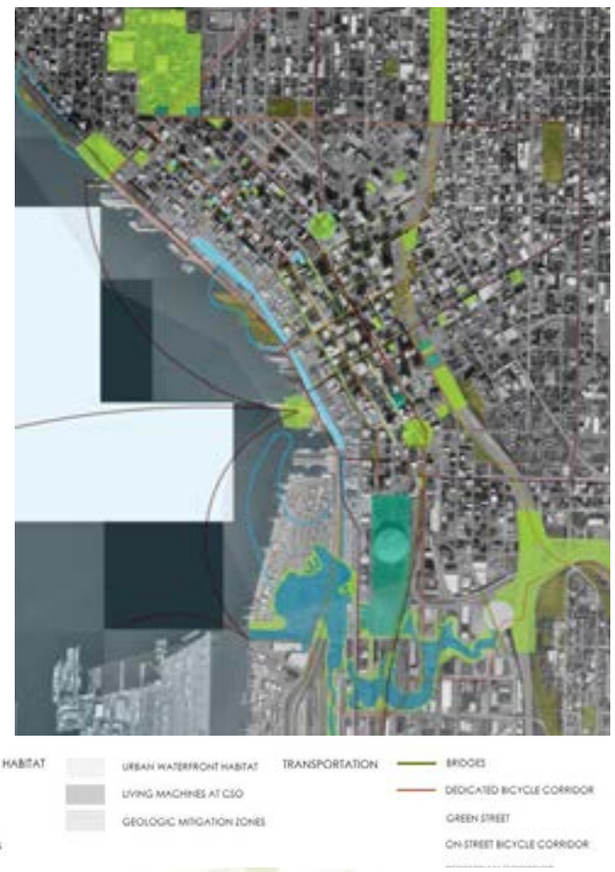
DOWNTOWN B: BIO-VERDE



20 - YEAR PLAN



100 - YEAR PLAN



Vision: Blue + Green Web / Habitat Weave

We accepted that by 2100, Downtown Seattle will remain a vital, urban center and that the urban street grid will not disappear. Our proposal is based on the notion of a web of existing and projected green open spaces, large and small, in addition to green boulevards and streets, running north-south, which are crossed by a series of east-west green and blue streets, created by the capture of storm water. These would include smaller and larger water features and ponds and would be engineered to allow for water re-use and purification.

We saw the waterfront as an amphitheater with Elliott Bay as a natural stage. The notion is to weave natural vegetation as well as water, storm drainage and pure water into the landscape of the city, while also incorporating the waterfront into the urban web of Downtown more closely. At the same time, important view corridors to the water and into the Downtown would be maintained or enhanced.

In addition, we envisioned two long green spines. The western one is the continuous spine along the waterfront, with major nodes at the Seattle Art Museum Olympic Sculpture Park (to the north) and a newly created park and natural habitat in the northern portion of the Pier 46 site. Part of the earth dredged out from the creation of the Viaduct tunnel could be used to create a natural promontory in the park - a reference to Seattle's tradition (exemplified by the work of Seattle engineer R.H. Thomson) of moving large amounts of earth to create new and re-graded topographies (also with a gesture to Kite Hill at Gas Works Park). In lieu of the present seawall, a curving, sculptural wall (in plan), which steps up in section, would take into account sea level changes. It would be engineered to allow the entire shoreline to be habitat friendly.

The second spine involves the area along I-5. The structure of I-5 is currently not in the best condition. While it may remain in similar form to what it is now in 2030, by 2100, we suspect that it will be tunneled or gone altogether at the level of Downtown Street. Therefore, by 2100, the site of I-5 would become a long green park area. Easy east-west connections would be created by the frequent green streets and green-blue streets. Since the transportation costs for produce are likely to become an increasingly serious factor, we envision that within the network of open spaces there will be a large number of public P-patches. We also see a variety of additional green spaces on rooftops.

Another serious consideration is the Seattle Fault, which occurs in our area, roughly along Dearborn Avenue. The area in the vicinity of the fault will be devoted to low density development / park area, since heavy building density would clearly be a hazard. At the same time, a variety of parks and open spaces will be assigned as "earthquake safety zones", depending on the possible source of the earthquake. As part of the sustainability goals and the goal to provide a variety of experience in Downtown, existing buildings of historic interest will be maintained amidst the "green-blue" fabric of the city. Many will have been retrofitted to a standard that will allow them to withstand earthquakes as easily as more recent buildings.

We see Downtown Seattle as a place where social, economic and environmental sustainability can be fostered. We also see the Downtown of 2100 as part of a much larger and continuous web encompassing all of Seattle. Green streets and boulevards which occur in Downtown will continue into neighboring areas. In the same way, rapid transit lines will create a continuous loop which also ties the Downtown seamlessly with the rest of the city. A water taxi service will tie the Downtown to points along the Puget Sound and a similar service will allow transport across Lake Union. Our 20-year vision begins to put in place our major green boulevards, green and blue streets, as well as incremental changes to the waterfront, while the 2100 scheme takes all of these much further, with the creation of an increasingly green downtown, which incorporates new vegetation and fauna as well as a major green central park.

Vision: Bio-Verde

Recognizing the unique nature of downtown as a regional economic, social and transportation hub, the primary goals for our downtown plan are to support diversity and maintain flexibility in a resilient way.

By diversity we mean diversity in the types of open spaces, users, ecological habitats / functions, and purposes. By flexibility we mean the active participation by communities in the creation and stewardship of the sites, the ability to respond to changing needs and unknown events, and the provision of infrastructure that allows for changes over time. We also propose that an experimental approach be taken, with a feedback loop through monitoring (perhaps benchmarked at the 20 year point). Integration of economic, social and ecological qualities in the city is key, with equitable and balanced values attached to each. The ecological function should be built into the fabric of the city. Finally, downtown should be a space that can be used 24/7, affording a good sense of safety and different uses at different times of day.

Community Hub

We have been charged with creating a bold open space plan with implementation strategies for Seattle's next 100 years, which will enhance the health and well being of both our cultural and natural environments. This vision of a regenerative green infrastructure will strive to create a healthy, beautiful Seattle while maximizing our economic, social and ecological sustainability.

100-Year Plan Features

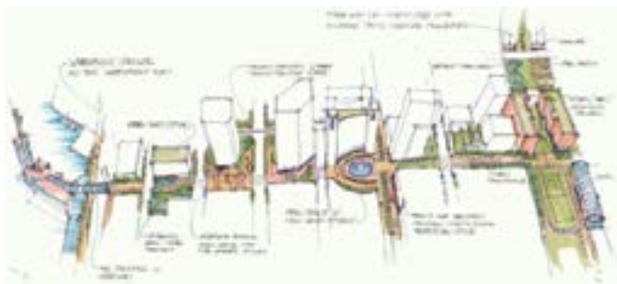
Green Streets / 'Ladders'
Enhanced Intersections
Basketball Courts
Pocket Parks
Community Hub
Market
Building Walls
Gardens
P-Patches
School Yards
Green Roofs
'Blue' Streets
I-5 Lid
Plazas
Passive Parks
Water Features
Dog Parks
Concert Places
Pedestrian Streets
View Corridors
Multi-Use Right-of-Way
SoDo Redevelopment Area / Habitat Restoration Area
Waterfront Park / Habitat Restoration Area
Large Central Park

Multi-Use Right-of-Way

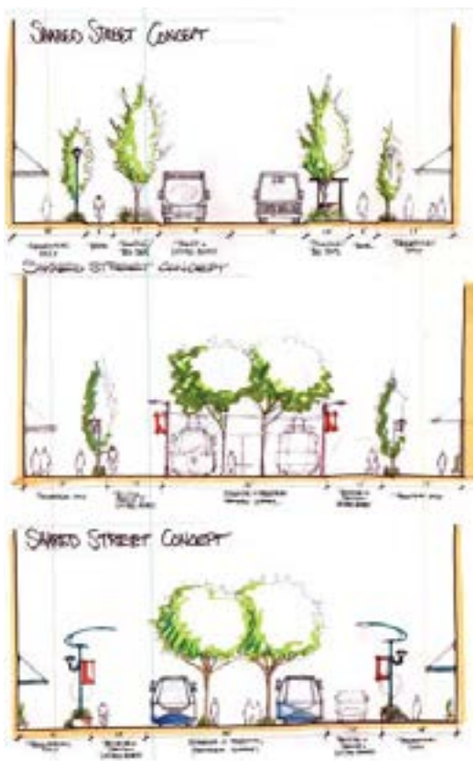
Goals

- confluence of social, economic and environmental sustainability
- preservation and enhancement of downtown as urban center of city
- interconnectedness: (1) a system of large, interconnected open spaces; (2) interconnectedness of land use, transit and access
- tie into Olmsted Legacy
- hierarchy of open spaces
- identify the spine
- more accessible open space model
- opportunities for mobility that promote a healthy lifestyle
- open space that facilitates social interaction
- a front stoop environment, which includes places to sit down and play games
- a balance between technology ethic and environmental ethic, which are authentic to Seattle
- starting to blur what is open space
- a sense of place
- maintain and enhance cultural
- features and historic legacy
- a balance of open space and density
- open spaces that allow for diverse and multiple uses
- community building
- economic vitality - a place where people want to live
- sufficient affordable housing for all income levels
- reverse the gridlock by creating transit and pedestrian ways and open spaces that flow together
- manage storm water to save money on major CSO capital expenditures and down the road cleanup costs
- zero sum resource usage
- allow for assisted mobility (elderly and young included).

Urban Waterfront Park and Habitat Restoration Area



Green Street/Blue Street



Garden - P-Patch - Green Ladder

DETAILED SITE DESIGN: SoDo HABITAT RESTORATION

PHASING

When new projects are constructed individual stormwate detention and treatment areas are implemeted on or near the site to with the overall vision in mind.

Gradually this stormwater network is connected to become the wastewater treament system.

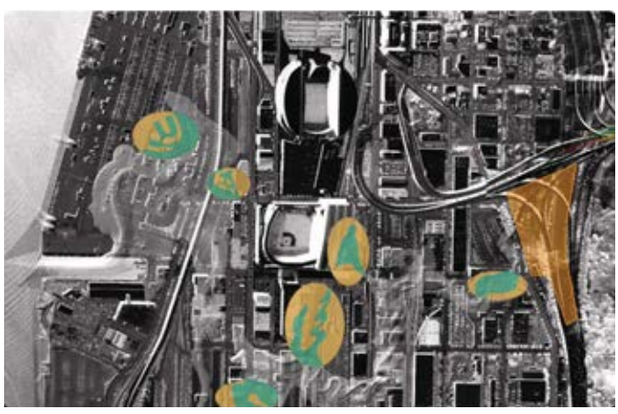
As Seattle's population increases a new wastewater treatment plant may eventually be necessary. By connecting it to this larger stormwater system, the actual wastewater treatment plant can be smaller.

New technologies will allow the plant to be more efficient and flexible in size as needs change.

Westpoint Treatment Facility (left) and potential new treatment site (right). Main facility may only use a fraction of the site.

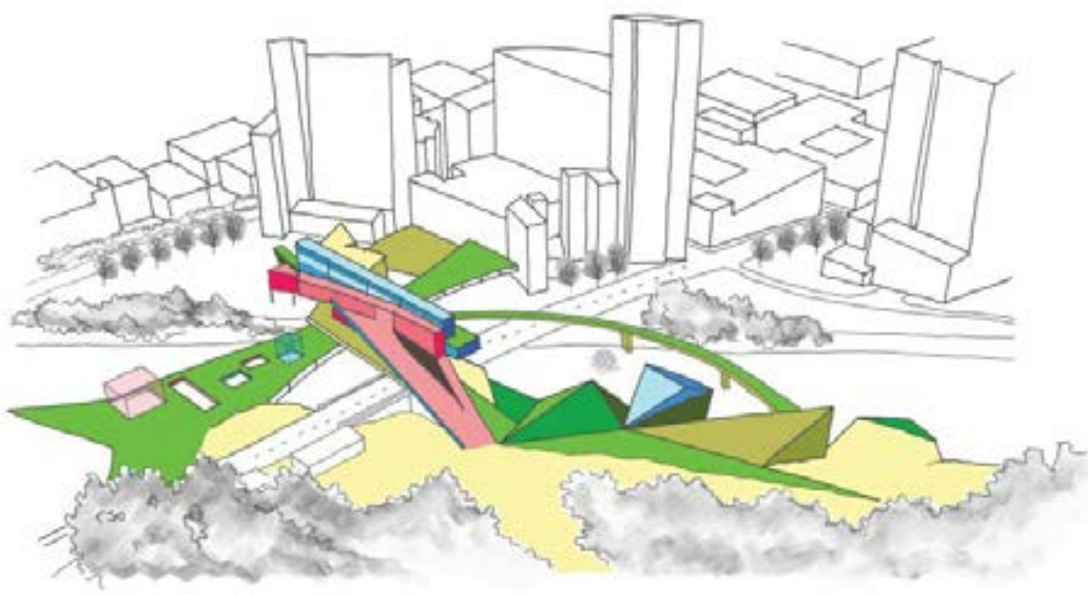
IMPLEMENTATION

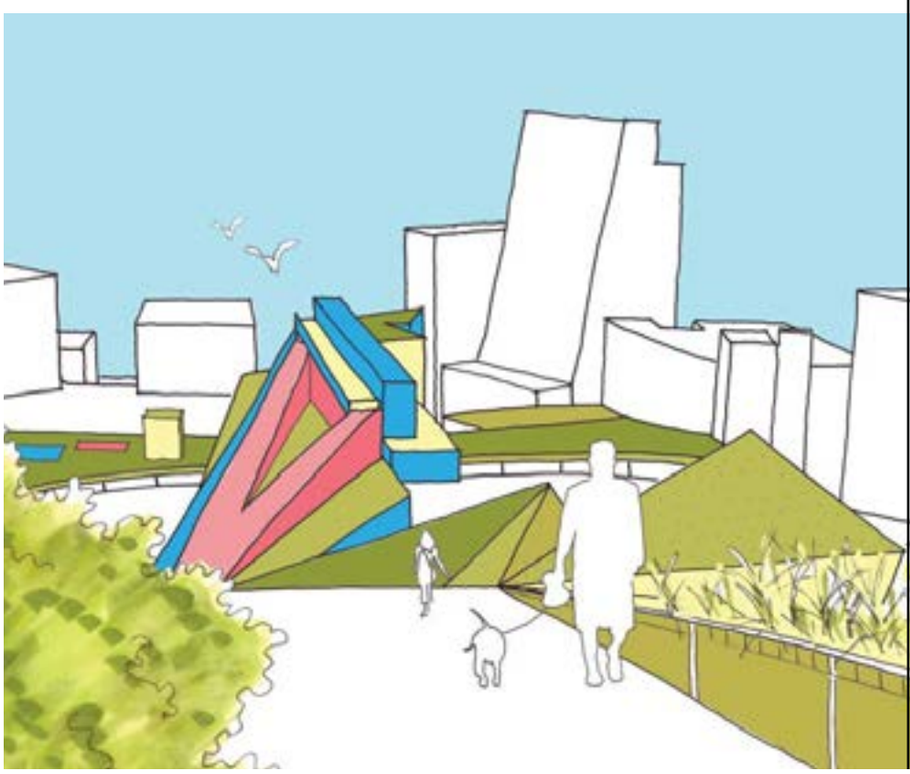
- Density bonuses applied to affordable housing and open space
- Infrastructure fee waivers for onsite stormwater treatment within designated wetland zone
- Distributed system and water efficiency reduces costs for facility size and allows payment in increments



DETAILED SITE DESIGN: i-5 LID

A lid over i-5 should push our understanding of the street system by proposing new ways of moving through, across, along and within streets. The proposed project is not simply a 'lid' or shield, but a new way of interacting with the freeway. It tests our notions of transit corridor by fragmenting our relationship with the freeway, always providing new views, positions, and activities with the freeway. At the same time, the project is a resting space, a living space, and a working space.





IMPLEMENTATION

- public / private partnerships
- part of neighborhood plan
- coordination with adjacent uses
- I-5 redevelopment authority
- form-based codes
- covenants to create shared spaces and uses
- coordination with seattle public utilities and dept. of ecology
- start with areas that already have good connections across I-5, improve these
- incremental process
- tie together with bike paths and pedestrian walkways

ARBORETUM

Continuous Urban Ecosystems (CUE)

Team Leaders: Ryan Lambert and Mary Russel
Student Team Leaders: Kayla Lowber and Zack Smith
Team Members: Mari Jalbing, Mary Lou Smith, Leslie Price, Ellen Sollod, Corrie Watterson, Liz Westbrook

CHARRETTE PROCESS AND PRINCIPLES

PRINCIPLES

Layers
Design spaces for multiple simultaneous uses including various modes of transportation, commercial activity, storm water management, habitat connections and community space

Mixing
- Mix size, types and functions of housing, green space, street design, and transportation
- Meet needs of diverse cultural and economic groups, children, the elderly

Green Connections
- Incorporate green space into everyday journeys
- Integrate ecological functions into the street grid

Equalized Access
- Increase open spaces in under served areas
- Create green connections to large open spaces

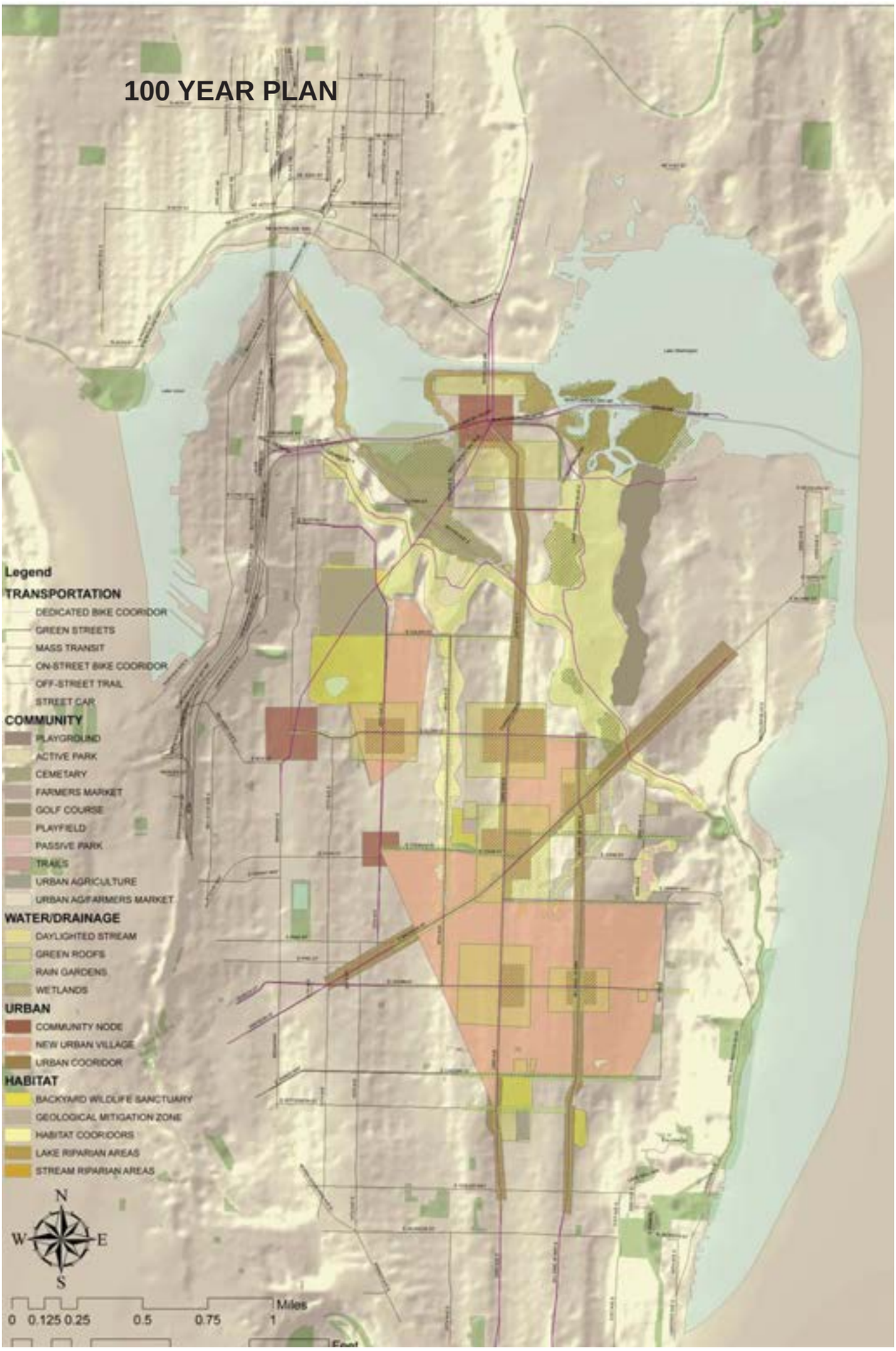
Community Building
- Blur of public and private boundaries
- Promote community ownership of open space
- Adapt open space to fit unique community needs

Honoring Historic Fabric
- Maintain Olmsted legacy
- Preserve historic neighborhood districts while adapting historic structures to meet current needs.

Unique Elements

Wetlands
Return low-lying flood prone areas to their natural state as wetlands to address the predicted additional precipitation. Wetlands also act as a crucial element of the natural drainage system and provide essential habitat. The Parkway storm water management system will take advantage of grade and feed into wetlands.

Historic Residential Area
Build off the legacy of the historic Olmsted plan and maintain the area surrounding Volunteer Park by designating as a preservation district. However, to accommodate future density and land value, increased incentives will be provided so that historic structures can be adapted to serve as multi-family housing.


100 YEAR PLAN
Legend
TRANSPORTATION
DEDICATED BIKE COORIDOR
GREEN STREETS
MASS TRANSIT
ON-STREET BIKE COORIDOR
OFF-STREET TRAIL
STREET CAR
COMMUNITY
PLAYGROUND
ACTIVE PARK
CEMETARY
FARMERS MARKET
GOLF COURSE
PLAYFIELD
PASSIVE PARK
TRAILS
URBAN AGRICULTURE
URBAN AG/FARMERS MARKET
WATER/DRAINAGE
DAYLIGHTED STREAM
GREEN ROOFS
RAIN GARDENS
WETLANDS
URBAN
COMMUNITY NODE
NEW URBAN VILLAGE
URBAN COORIDOR
HABITAT
BACKYARD WILDLIFE SANCTUARY
GEOLOGICAL MITIGATION ZONE
HABITAT COORIDORS
LAKE RIPARIAN AREAS
STREAM RIPARIAN AREAS
N
W
E
S
0 0.125 0.25 0.5 0.75 1
Miles

TRANSFORMING STREETS INTO PRODUCTIVE SPACE

The width of city streets and the bordering public domain and sidewalk space is under utilized. By rethinking the street layout, a much more productive, layered, and valuable open space can be created.

Street-side Permaculture

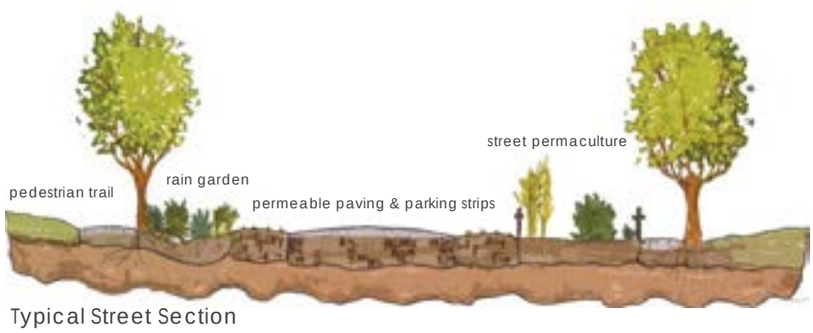
- Open public space adjacent to street to community agriculture plots to significantly increase the value of community open space
- Promote community building through stewardship and care for plots
- Educate youth and adults alike
- Enhance food production

Green Streetscape

- Shift street design toward a green street model and thereby gain a higher value on the streetscape.
- Encourage slower and safer vehicular traffic through neighborhoods
- Create a dedicated pedestrian thoroughfare
- Soften and enliven streetscape
- Provide habitat
- Create open/green spaces

Rain Gardens

- Create a rain garden buffer between pedestrian trails and residential yards as an easy and effective way to enhance open space along the street and increase its value
- Use storm water treatment and mediation
- Enhance greater infiltration
- Foster stewardship for space
- Create habitat
- Encourage extension of eco-friendly plantings into residence, blending public and private space



Typical Street Section

RETHINKING INFRASTRUCTURE AS OPEN SPACE

Steps to create open space within infrastructure can be easily accomplished. The results can improve connectivity, create productive space, and provide many eco-friendly opportunities.

Productive Alleyways

- Transform a currently barren alley space into a green connection can be very beneficial to community and environment.
- Use plantings and permeable surfaces to allow for infiltration and storm water management
- Create green pedestrian connections to soften and enliven space
- Improve pedestrian connectivity
- Open spaces for productive uses

Multi-Use Parking Lots

- Rethink parking lots, which are often very under-used, even wasted open space that serve only one purpose. Opening parking lots to a multiple of uses can greatly increase their value. Additionally, permeable paving can battle storm water and plantings can reduce the harshness of the space.
- Open parking lots for community events/markets/fairs/ concerts
- Treat stormwater
- Promote active recreation through creation of sport courts, basketball hoops

Mixed Use Development and Public Open Space

- Require development to include a mix of uses and public open space within its plans could greatly increase amount and variety of open space.
- Encourage green materials
- Treat green rooftop runoff
- Improve accessibility to public open space

Arboretum

COMMUNITY NODES

23rd and Madison and the Public Square

Design Elements

High density mixed use development. Large condos and apartments with residences on the top floor and commercial on the ground floor. Each building will be unique with height, color, and material variations to maintain the quality of the Capital Hill neighborhood.

Green Roofs

All buildings will be developed standard with green roofs and solar panels.

Bio-Swales and Rain Gardens

- Madison and 23rd Avenue will both have center medians with bio-swales to infiltrate storm water runoff and act as habitat corridors
- All parks and gardens either public or private will also function as rain gardens
- All paving including streets will be pervious to all the filtration of water to decrease storm water runoff

Boulevard System

Madison and 23rd will be converted into boulevards. Madison will be closed to vehicular transportation and have a street car, dedicated bicycle lanes, and wide sidewalks. 23rd will continue to be open to personalized motor vehicles, but is designed to adapt as use changes, so as to allow for the expansion of the center bio-swales and sidewalks if transportation methods shift.

23rd and Madison Site Plan

Madison Street Car

Madison section

Creating a vibrant and ecologically-considerate commercial and residential node

The Public Square

Madison and 23rd will become much more than a traditional transportation intersection. It will be a place where layers of different activities, cultures, transportation types and ecological functions come together. The Public Square will become one of the hearts of the Capital Hill neighborhood. The main goal of this space is to create a pedestrian focused space, while providing other uses as well.

Square Functions

Civic Zone

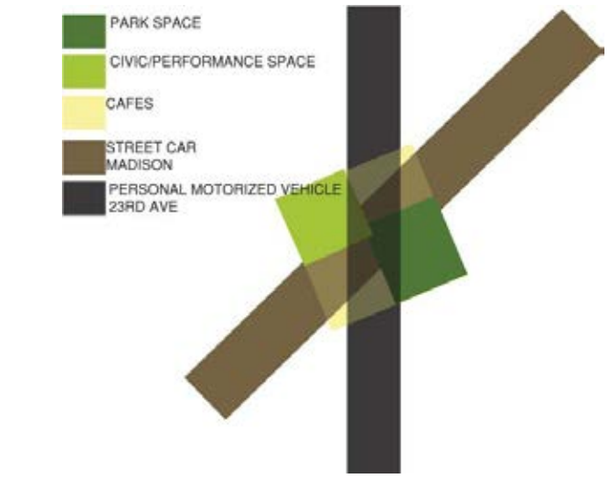
The civic zone of the square features ample space for a variety of different activities. The space is predominantly open for this reason. There is seating and permanent art fixtures. The key feature of the site are translucent overhead structures to provide light and shelter. The art fixtures are square translucent columns which are lit with fiber optics. This is also continued in the center of the square in a grid formation. The column symbolizes the strong urban forms of the city and beckons to the public square. This space also is open for outdoor concerts, street performances and art installations.

Passive Recreation Zone

The passive recreation zone is the park feature of the site. This space also uses the strong form of square for planter boxes and water features. All of the gardens double as infiltration gardens and a portion of the water features are retention ponds.

Outdoor Cafe Zone

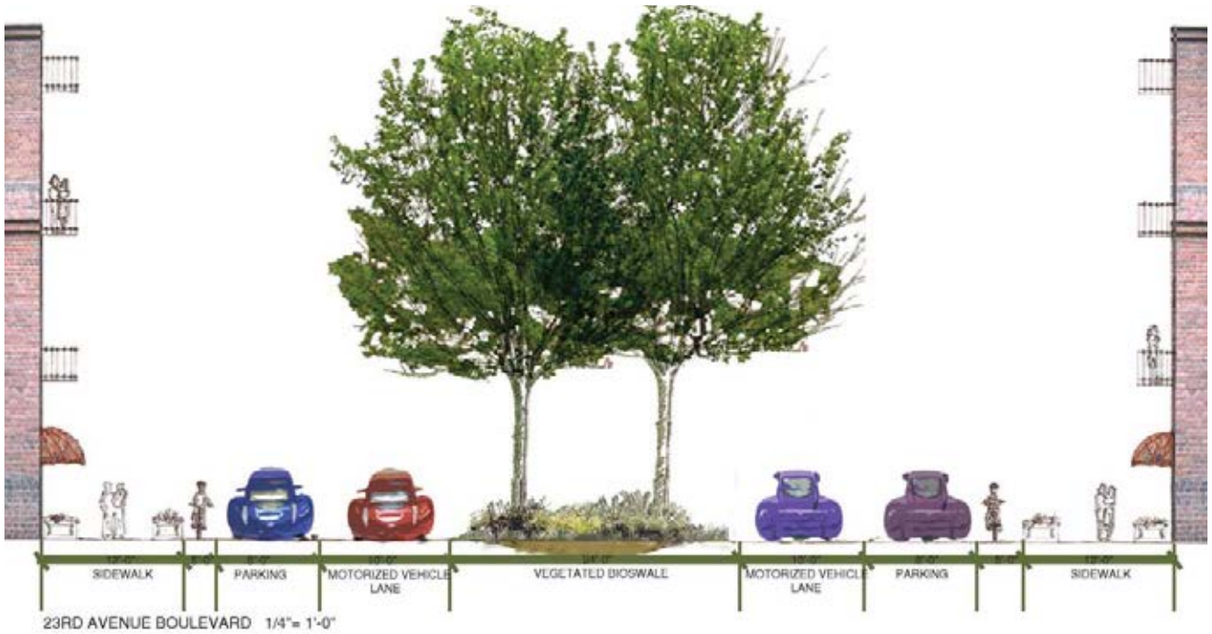
The Cafe zone is the heart of the square. It is filled with street vendors and outdoor cafes. People spill into this space while shopping and walking and take a break to rest and get a bite to eat or an espresso.



Functional diagram

Bird's eye view

Node Diagram



23rd Section

CHARRETTE IMPLEMENTATION STRATEGIES

Implementation Strategies

Building off the legacy of maintaining the historic Olmsted plan, the area surrounding Volunteer Park will be designated as a preservation district. However, to accommodate future density and land value increased, incentives will be provided so that historic structures can be adapted to serve as multi-family housing.

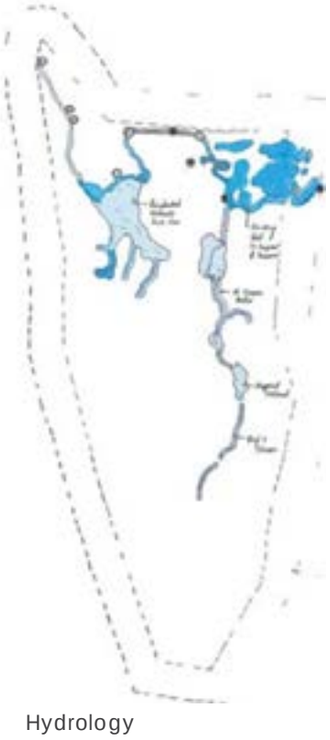
Implementation (3 To 5 Year Priority Actions)

- Start infiltration garden program. Public education program to teach residents about storm water treatment at the lot level. Seattle Public Utilities will provide incentives for garden implementation by homeowners and condominium buildings.
- Acquire vacant lots in the Central District to begin the Urban Open Space Network. Lots can be designed as P-Patches, playground space, or pocket parks.
- Instigate natural drainage system through Seattle Public Utilities purchase of condemned houses near 30th and Thomas. This location could be used as a retention pond for storm water in the short term, but converted to model urban wetland over time.
- Buy empty lot on southwest corner of the intersection of Union and 23rd. Plan for the development of a catalyst project of a mixed-use building with active uses on the ground floor. Parking should be below grade and pedestrian connections from the surrounding neighborhood to the site should be enhanced.

Habitat and green connections

Circulation

Hazards



Hydrology

LAKE WASHINGTON

Emerald Communities

Team Leaders: Caroline Kreiser, Osama Quotah and Laura Tudor
Student Team Leader: Alison Blake
Team Members: Royal Alley-Barnes, John Barber, Emily Bennett, Lisa Beyeler, Kelly Carson, Zach Heupel, Anne Hirschi, Dana Spradley, Scott Stcherbinine, Barbara Wright

Historic Photographs

Existing conditions

If only one thing is to be learned from the Lake Washington study area, it needs to be that a hundred-year open space planning effort can indeed have a hundred year effect. This study area, which runs south from Madison Park to Mount Baker, is rich in parks, beaches, scenic vistas, and habitat, much of which stems from the original Olmsted plans.

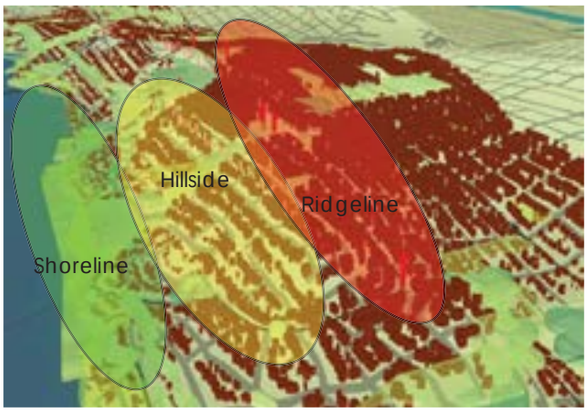
Thus, extensive new parks are not necessary within this area. What is needed most is increased access to the existing open spaces, especially for Seattle residents who live in areas that lack extensive open spaces and accessible shoreline.

This vision for the Lake Washington area is derived from three basic elements community, ecology and mobility, and how they can be integrated within the three predominant topographic zones: shoreline and ravines, hillsides, and ridgelines. Each element is addressed within each zone in different manners and degree of emphasis so as to create a diverse, flexible and functional system that responds to the needs of people and the environment.

LAKE WASHINGTON: *past and future*

We envision an outdoor environment that encourages residents to get out and walk (bike, kayak, etc) with rewards for doing so and ample opportunities to commune with nature in many different forms and to enjoy a myriad of recreations: a great variety of public and privately owned open spaces of different sizes and shapes. The premier spaces will be along our waterways, but all residents will live within easy walking distance of a park. The next hundred years will witness the evolution of a healthy environment of integrated systems with opportunities for all citizens to be physically active with clean air, land and water for everyone.

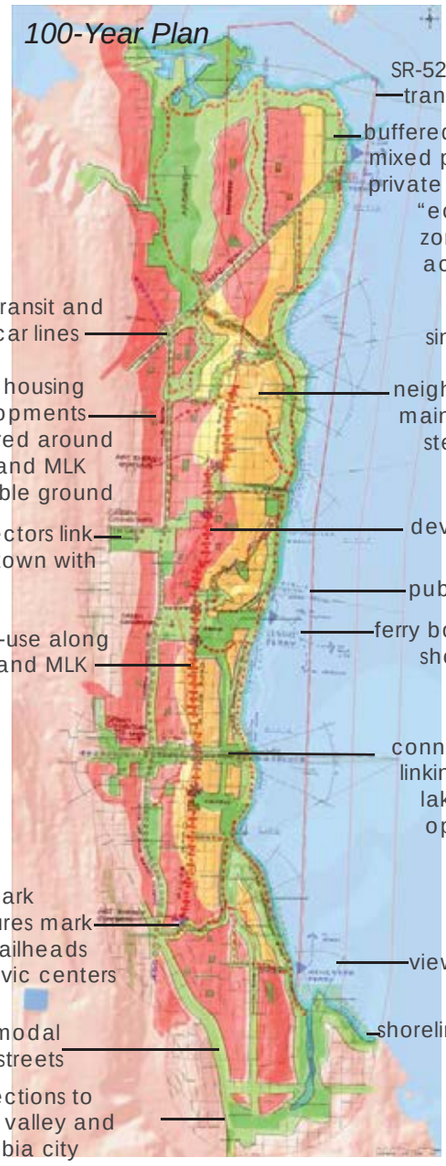
Current Photographs



Dominant topography of study area showing topographic zones

Concept diagram:
weaving Systems

Schematic diagram:
linking open spaces with
ridgeline development



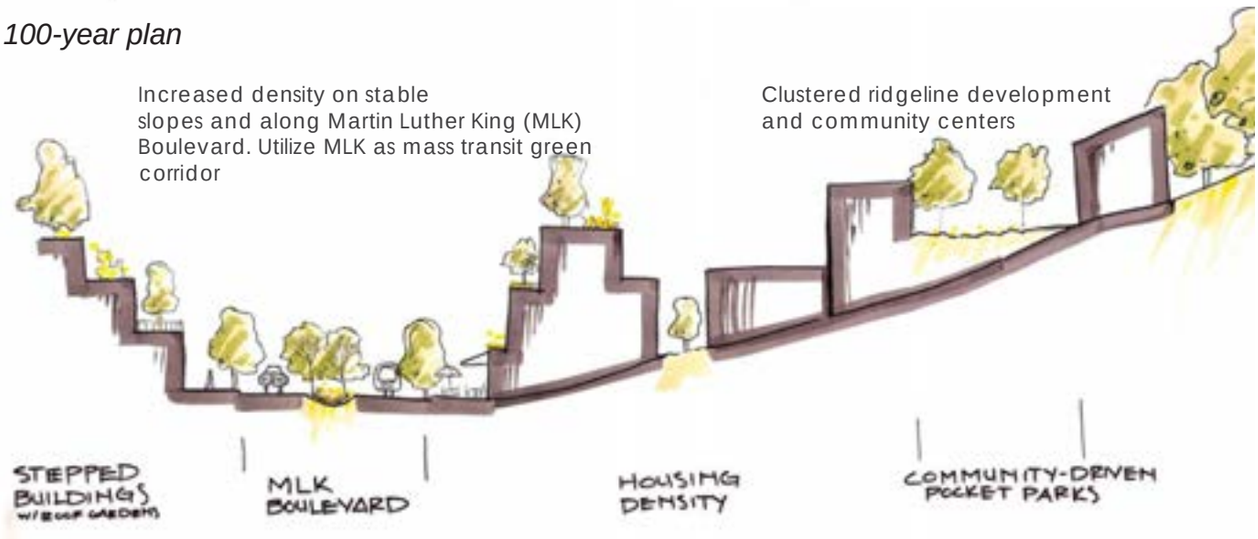
EMERALD COMMUNITIES:
Concept Development and Key Elements

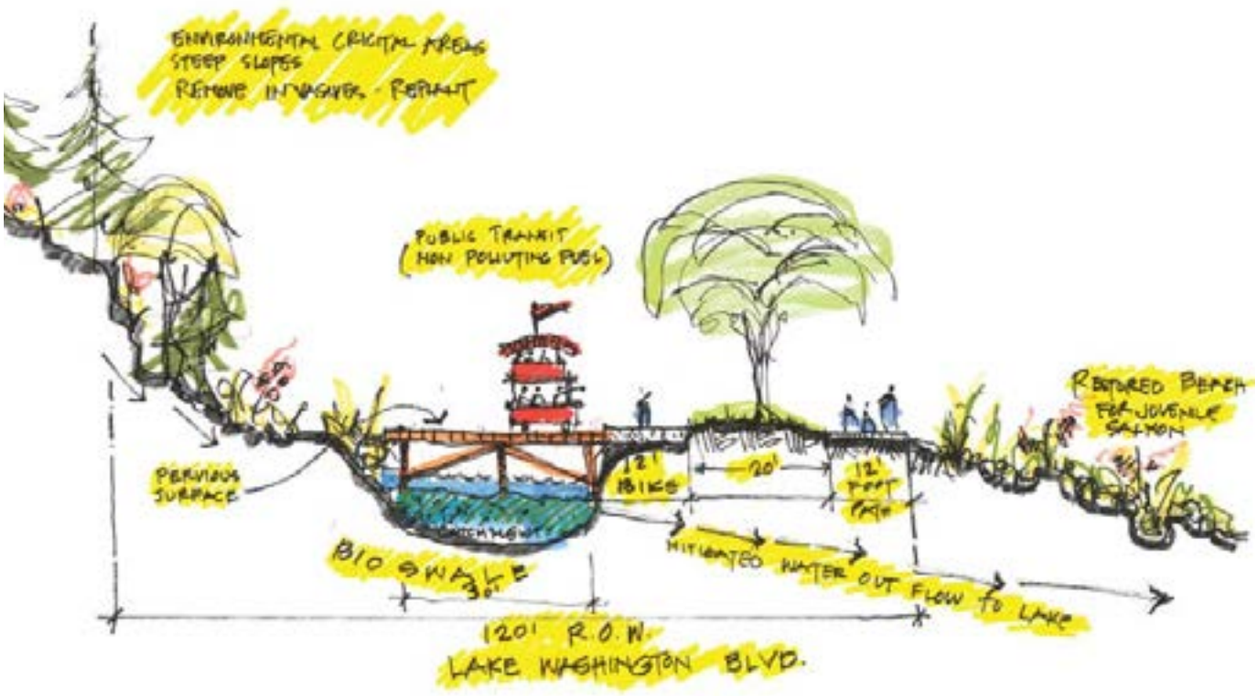
shared shorelines: ecological and social, connecting people and nature

100-year plan

Increased density on stable slopes and along Martin Luther King (MLK) Boulevard. Utilize MLK as mass transit green corridor

Clustered ridgeline development and community centers



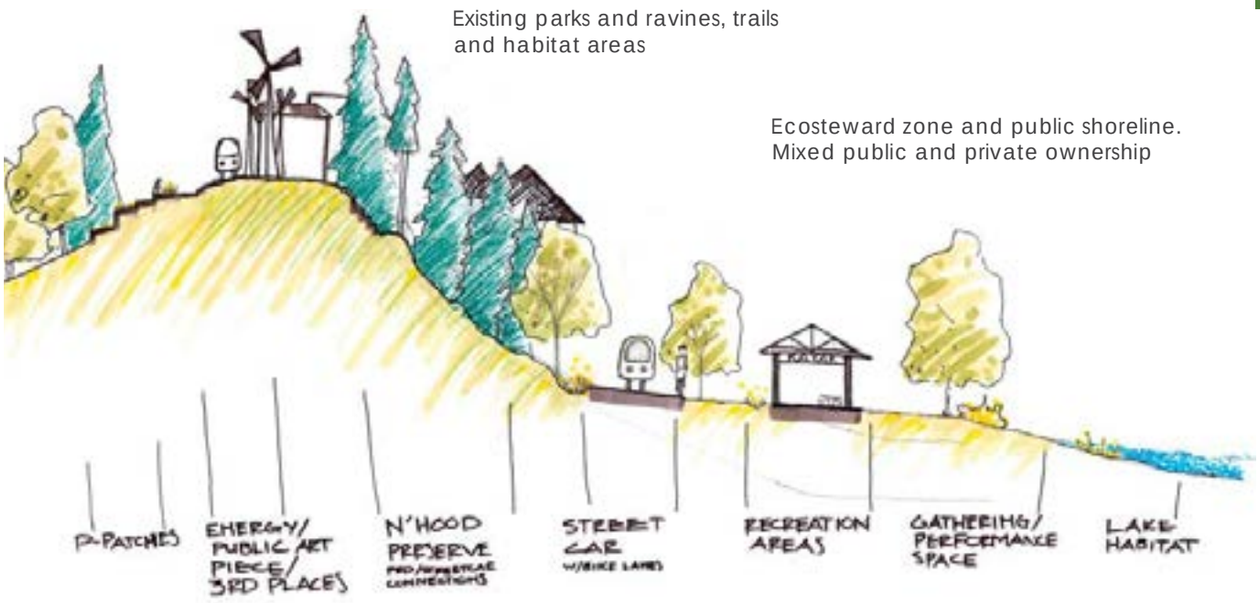


Lake Washington Boulevard section, showing rain gardens and designated bike path

Example of a creek daylighting and habitat restoration

Existing parks and ravines, trails and habitat areas

Ecosteward zone and public shoreline. Mixed public and private ownership



COMMUNITY

GOALS

- Support increasing density while expanding community spaces and facilities to improve livability
- Empower local community to take back, use, and enjoy open spaces around them
- Integrate a diversity of open spaces within neighborhoods
- Use open space to connect and provide access to civic centers Make open space flexible, with temporally shifting uses to meet the needs of all (both human and non-human)
- Ensure open space and the built environment will reflect local and regional culture while facilitating healthy and environmentally beneficial ways of life.

STRATEGIES

- Foster interactions between nature and people; incorporate nature into everyday life
- Promote mixed use, mixed income developments along ridgelines and Martin Luther King Boulevard cluster community centers in these stable and accessible areas
- Ensure new developments and open spaces reflect and celebrate local cultures, environment and identity
- Cluster community facilities (schools, shopping areas, libraries, etc) within neighborhoods for easy access
- Retain single family neighborhoods on the currently-developed eastern slopes as connection to the history of the area
- Develop public shoreline facilities such as a public canoe, kayak rental facility and boat launch
- Make shoreline accessible to all
- Open all street ends by 2020, shoreline is publicly owned by 2100
- Create landmarks at ridgeline trailheads to encourage use and access of lakeside parks and shoreline

ECOLOGY

GOALS

- Every section of waterway, including streams, is nature-friendly or has some nature-friendly aspect like a fish shelf or dappled shade
- Every shoreline street end is open for public benefit, and an aggressive acquisition program strategically purchases shoreline, ravine and streamside properties
- Sustainable and ecological features will be built into the landscape.
- Water conservation and filtering methods, energy conservation devices and small scale agriculture are designed into landscapes, as much as possible addressing multiple uses.

- *STRATEGIES*
- Promote shoreline stewardship through incentives and regulations
- Ecosteward zones promote green roofs, emission-free vehicles only, mature tree protection, and backyard wildlife sanctuaries
- Transfer of development rights to redirect growth from ecologically sensitive areas & hazard zones to urban villages.
- Filter all runoff before it enters lake Washington by creating rain gardens and swales along lake Washington blvd.
- Link existing and acquired open spaces to create habitat corridors.
- Green streets, emission-free mass-transit, clean energy sources and the promotion of green building techniques clean the soil, water and air for a healthy environment
- Spaces that enjoy both cultural and ecological value can be shared temporally, or have access restricted during certain times of day or seasons
- Institute and celebrate seasonal closures of habitat-sensitive areas (e.g. nesting areas during breeding season)
- Set up mechanism to allow transfer of development rights from natural disaster-damaged properties (earthquakes) to facilitate rebuilding in "safe" urban village zones.
- Use acquired damaged land for open space and habitat

GOALS

- Al residents are able to walk everywhere they need to go (work, school, shopping, parks, etc) on a daily basis
- Mass-transit and streetcar nodes within walking distance for all residents, allowing access to the rest of the city
- Personal vehicles will only be necessary for exceptional (weekly, monthly) trips
- Lake Washington parks and open space will be easily accessible for all Seattle residents

STRATEGIES:

- Strengthen and create east-west pedestrian, bike and streetcar paths, trails and corridors to allow universal access to community centers and, open spaces, and shorelines.
- Limit automobile traffic on Lake Washington Boulevard to commute-hours and weekends only by 2020 and by 2100, only streetcar traffic and emission-free vehicles allowed.
- Expand bicycle Saturdays and Sundays further north along Lake Washington Boulevard to Madrona Beach and increase the number of bicycle-only days
- Start a community shuttle to Lake Washington beaches with shuttles running every 20 minutes and picking up passengers from a designated pick-up point in Rainier Valley (and/or other areas) and stopping at the beaches along the lake.
- Develop mass-transit on SR520 and by 2020, make the bridge "HOV" only. Access to 520 will run down Madison, rather than through Montlake or the Arboretum.
- Run emission-free commuter ferry across Lake Washington with additional tourist-oriented sightseeing ferry along the lakeshore as well.
- Streetcar will run along Lake Washington Boulevard, the ridgeline, and at key, east-west points streetcar will run along Lake Washington Boulevard, the ridgeline, and at key, east-west points

DESIGN PREMISE

- By 2100, all power generation will be occur at the neighborhood scale
- Solar and wind will be the primary power types and density will be focused on the ridgeline

GOAL

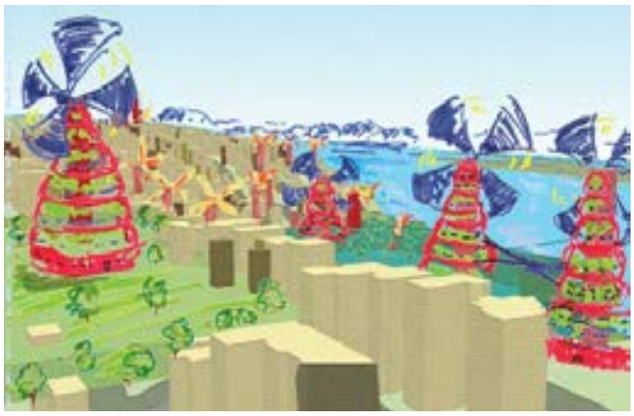
To integrate the infrastructure needed for local power generation in to the urban environment and using it to meet other community needs

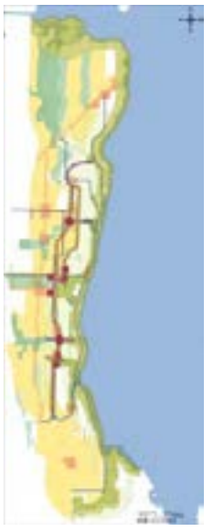
OPPORTUNITIES AND EFFECTS

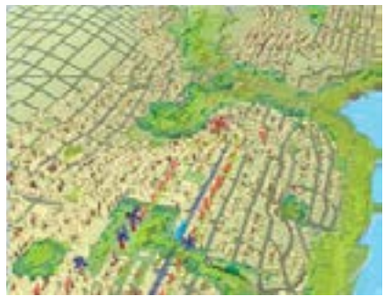
- Space requirements: linear ridgespace
- New structures needed
- Decentralization promotes clustered, denser development
- (for the power stations to serve)
- Main stations can serve as nodes

GENERATING FOR GENERATIONS

Integrating power production into the daily environment and daily life



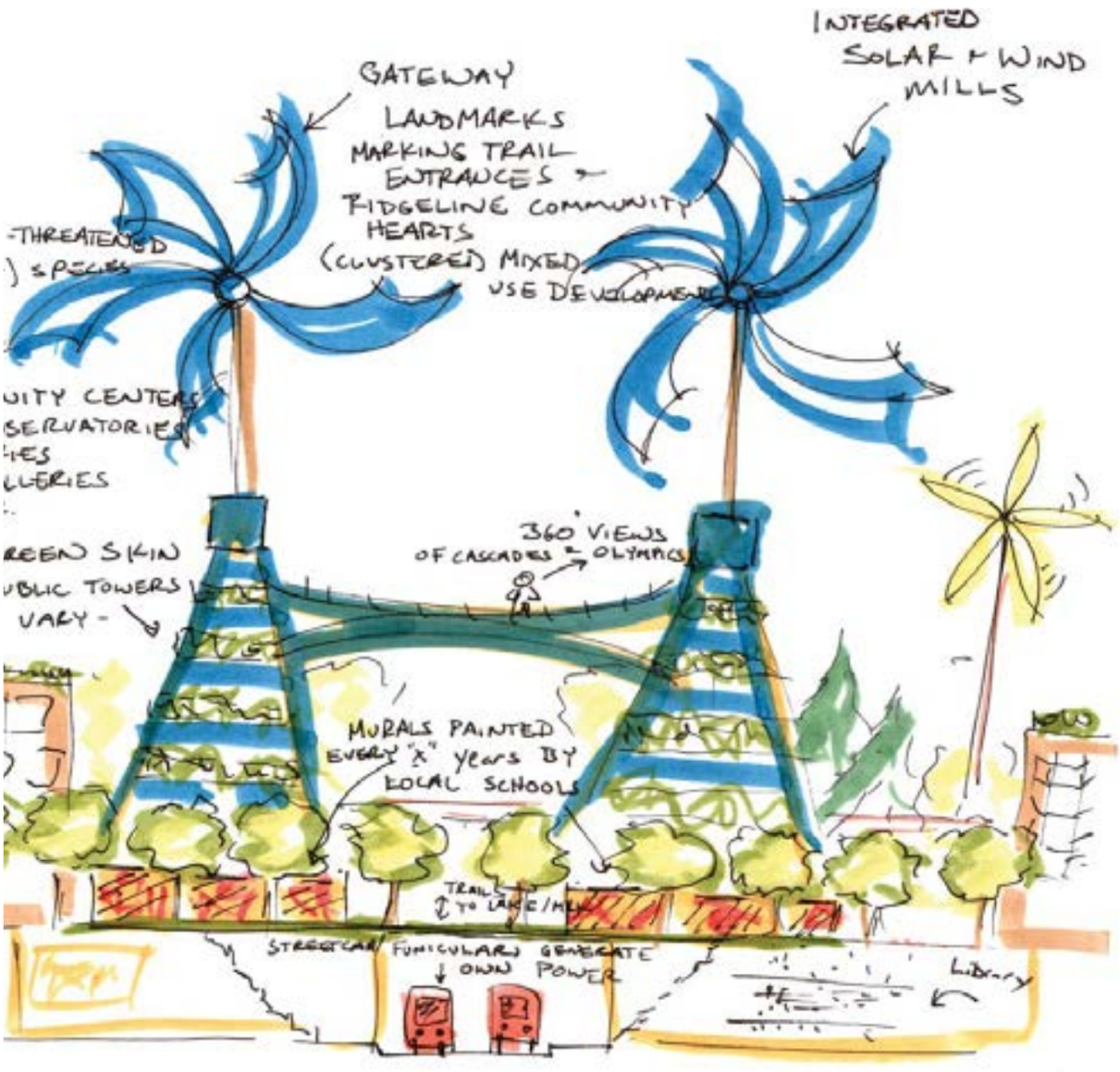




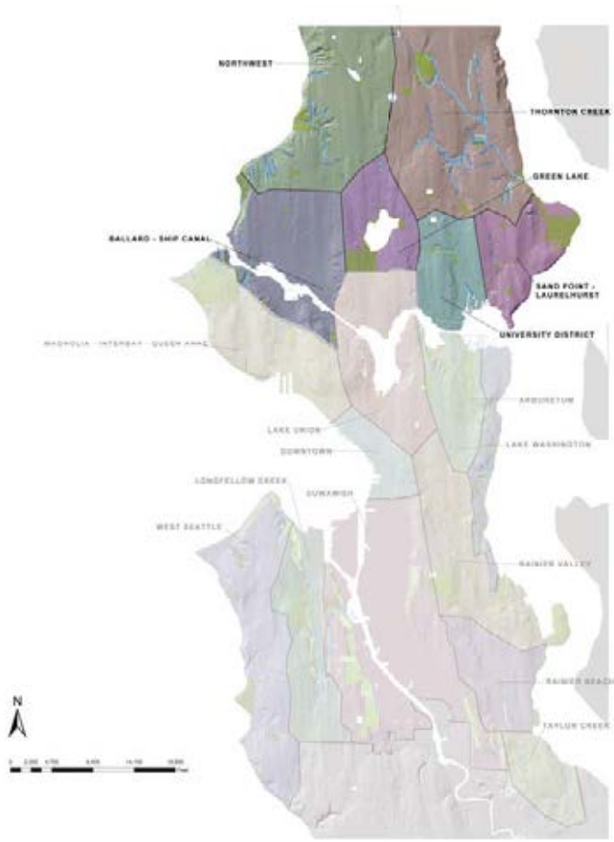
Study views showing density increase along the ridgeline and (shown approximately 6-8 story developments) and how linear and landmark towers would integrate within and enhance the landscape

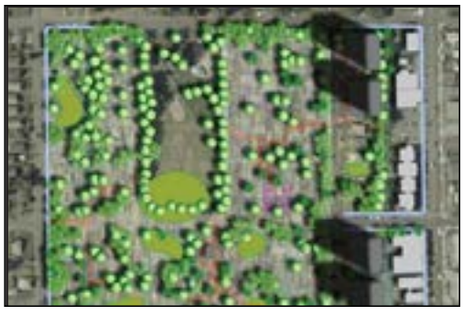
Ideal ratio of average building height to height of small scale towers is 4:5

Ideal ratio of average building height to height of landmark towers is 2:3



NORTH STUDY AREAS





NORTHWEST

Team Leaders: Kate Martin, Michael Oxman
Student Team Leaders: Kent Straub Jones, Michael Michalek, Dylan Yamashita
Team Members: Tom Balderston, Jan Brucker, Patricia Chase, Rich Ellison, Peggy Gaynor, David Gow, Grace Haynes, Beth Miller, Michael Perfetti, Shelley Retchless, Alexandra Stone, Katherine Sutalo

NORTHWEST

Crown Hill, Greenwood, Bitter Lake, Broadview, Phinney

All-city concept

100 percent accessible three-tiered hierarchical open space system
with neighborhood and regional multi-modal mobility

Key elements

Rebog the 'bog'

- Returning it to a more ecological state
- Reclaiming it as area for habitat and recreation

Recapture the shoreline

- Beach to bluffs
- View corridors

Champs d'Aurora

- Improve streetscape
- Reduce to pedestrian scale/safety

Enhancing East-West connections

- Perforate I-5 at multiple spots, moving both over
- and under the highway

Honor the water

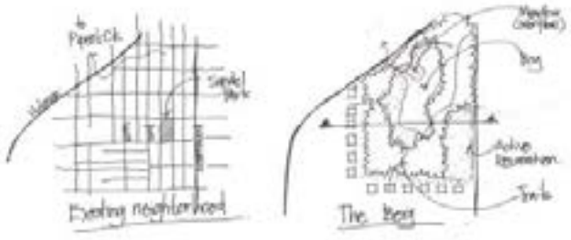
- Acknowledge the storm flows, drainage paths
- Reclaiming area around lakes and waterways
- Containing and controlling water runoff with living,
- Green streets

Create an open space development hierarchy

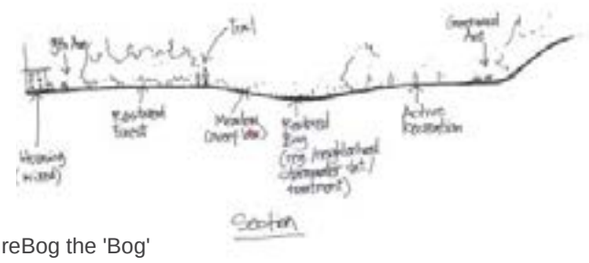
- Regional scale
- Neighborhood, metro scale
- Confetti parks- similar to pocket parks that are
- Easily accessible

Multi-modal intra-neighborhood transportation

- People movers
- Mass transit using new and improved I-5 corridor



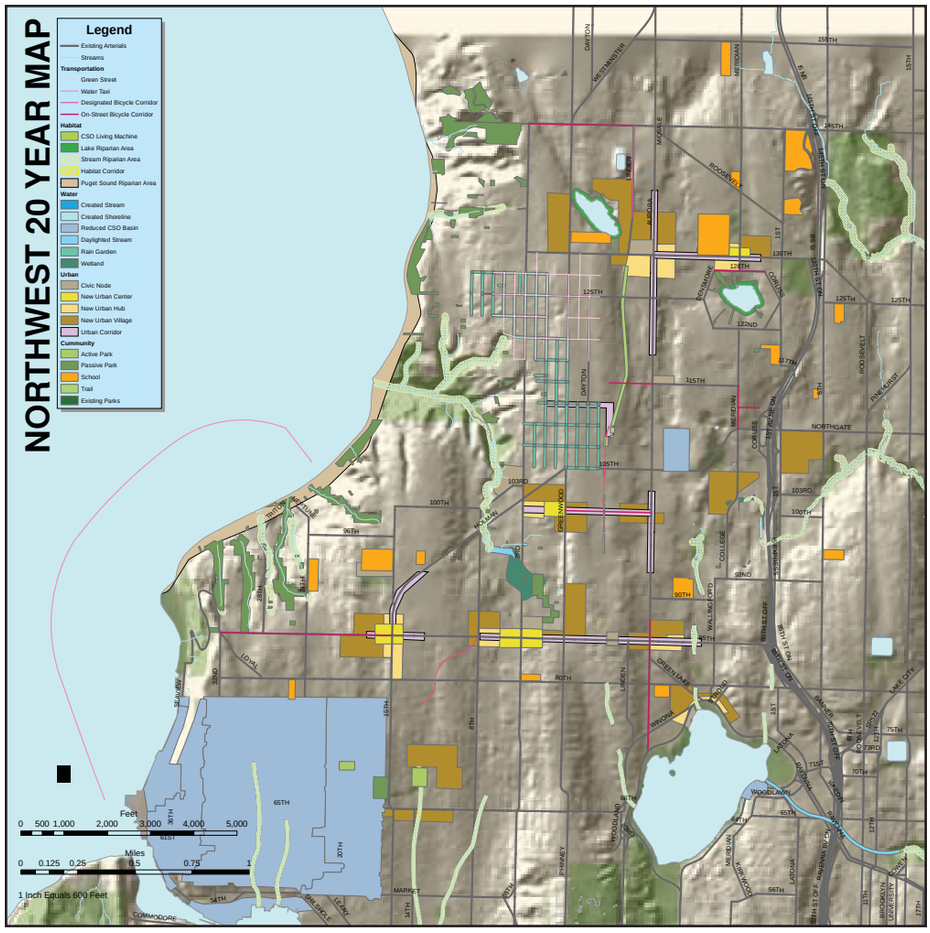
Beach-to-Bluff conceptual plan



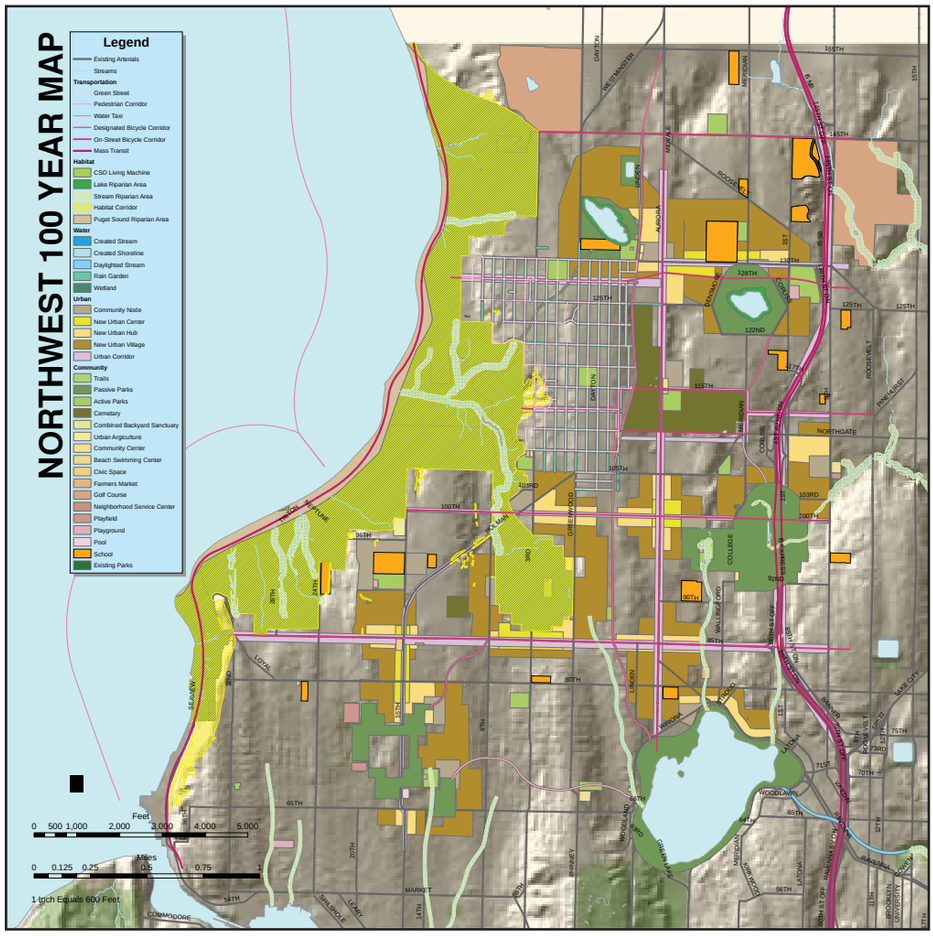
reBog the 'Bog'

I-5 Perforations

NORTHWEST 20 YEAR PLAN



NORTHWEST 100 YEAR PLAN



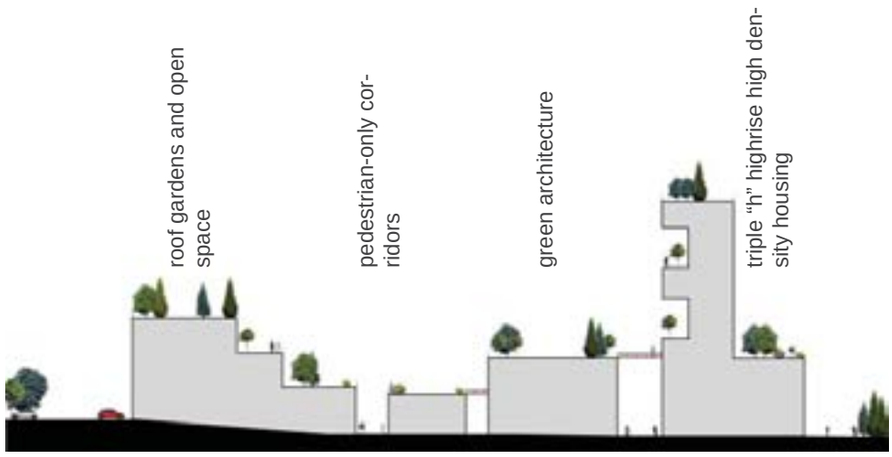
“REBOG” THE BOG

CONTEXT

- Located at 85th and Greenwood
- Dense single-family residential area
- Strong need for "density-relief" park
- Heavily populated shoreline does not have capacity to serve in this manner
- Unique, naturally-occurring habitat
- Closest bog of substantial size is Burns Bog in Victoria, Canada

DESIGN GOALS

- To provide a twenty-year plan without compromising the hundred-year vision
- To foster community investment through educational value and eco-tourism implications
- To abide by realistic implementation measures and expectations of needed housing



Northwest

demonstrational water treatment “living machine”

thematic playground

typical bog garden

high-density highrise housing

bog educational center

pedestrian retail hub

Scale 1"= 300'

DESIGN ELEMENTS

An intersecting network of elevated walkways provide access to all areas of the bog.

An example of playful and ecologically-inspired artwork.

Educational field trips for local primary schools allow younger generations to develop a sense of ownership for their community and grow in their understanding of the environment.

Formal recreational features are also provided for, while not compromising the environmental sensitivity of the bog.

A series of bog gardens, which provide intense diversity of rare, habitat-dependent flora.

Close-up exposure to a unique and dynamic natural habitat.

A brand new pedestrian-focused hub to infuse Greenwood with a vibrant social atmosphere worthy of its residents.

VEGETATIVE SUCCESSION

PHASE I
Upon removal of residential houses, alders and Douglas fir are planted to begin natural succession of a redeveloping forest.

PHASE II
During periods of no house removal, alders and Douglas fir develop a natural canopy and understory, naturally eliminating invasive species.

PHASE III
As further houses are removed, the cycle continues, while western red cedars seed and begin the final stage of developing a typical Pacific Northwest forest.

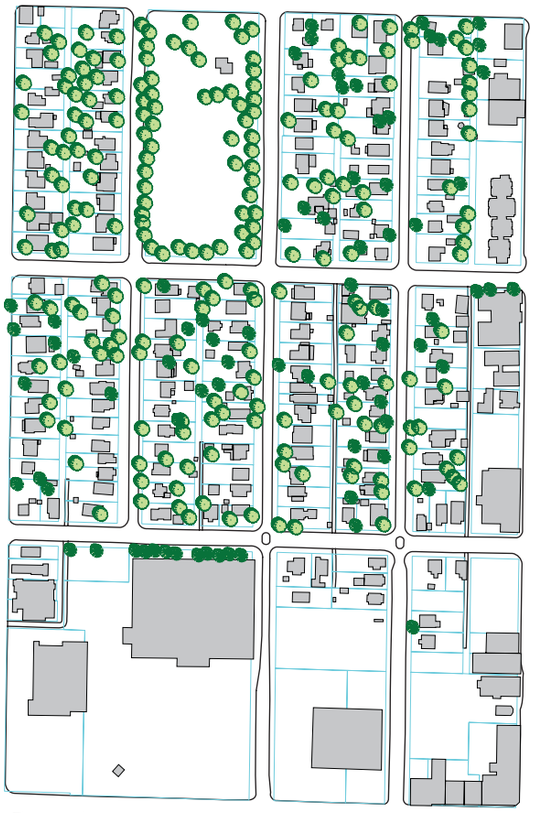
VIGNETTES

Thematic child's play park capitalizes on the fascinating qualities which Greenwood's bog has to offer.

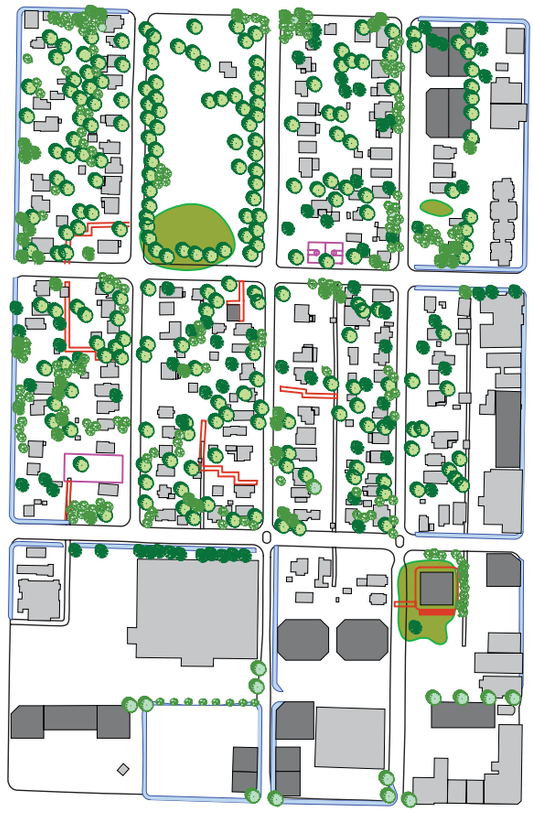
Highrise, high density housing enables residents to take advantage of the spectacular views of Puget Sound and the Pacific Northwest. Access is given to roof spaces of lower buildings for urban agriculture and recreational space.

STRUCTURAL SUCCESSION

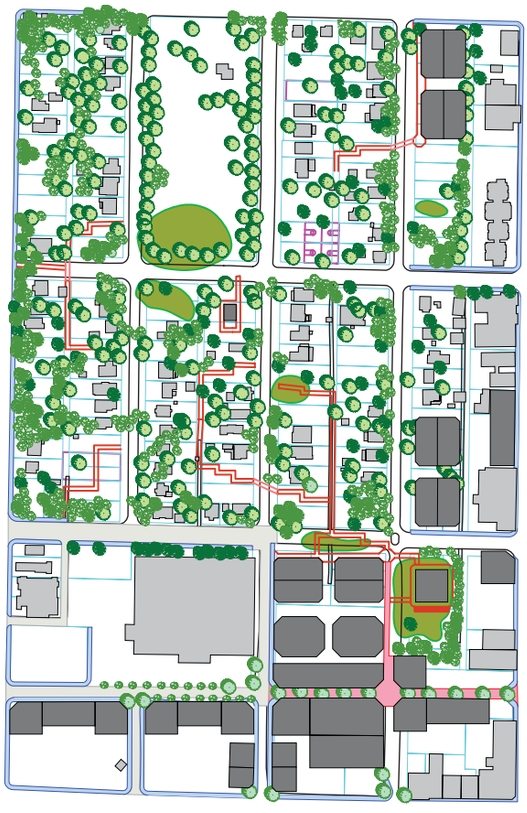
Over a period of twenty years, residential sites are acquired and incorporated into the reclamation process for Greenwood's bog. Among the first steps taken are the construction of an educational center to heighten residential awareness and involvement. Highrise high-density housing is built to offset the removal of traditional, single-family houses. Finally, recreational spaces and opportunities are formulated to accommodate the increased density and diversity of people.



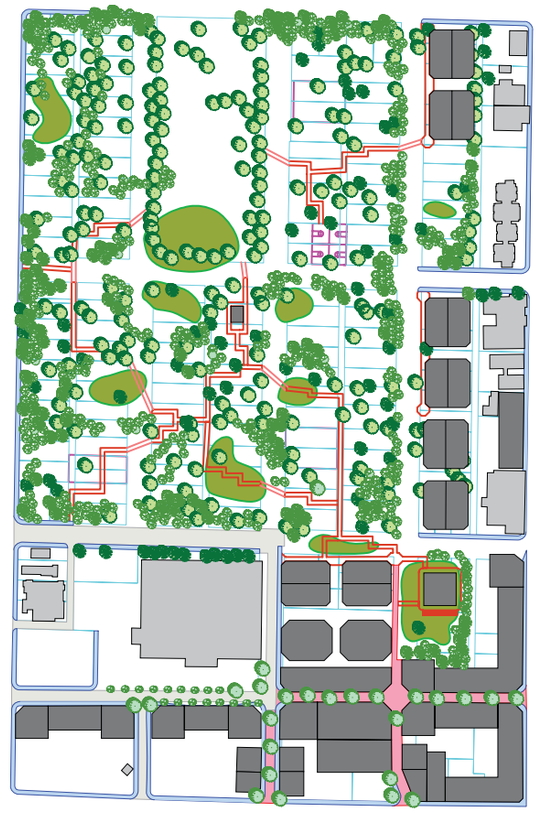
Present



5 Years



10 Years



20 Years

Northwest

CHAMPS D'AURORA

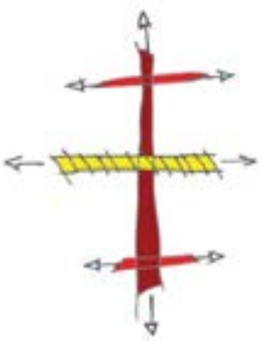
East-west pedestrian penetration through the creation of a mid-block stop. Improved pedestrian environment through intra-block multi-use space.

CONTEXT

- Located at 130th and Aurora
- Dense multi-family residential area and commercial area
- Strong need for planned density growth for new urban village
- Poor east-west connections
- Inadequate pedestrian connections and sidewalks
- Great opportunities to convert vast seas of concrete to green open space

DESIGN GOALS

- To provide a twenty-year plan without compromising the hundred-year vision
- Abide by realistic implementation measures and expectations of needed housing

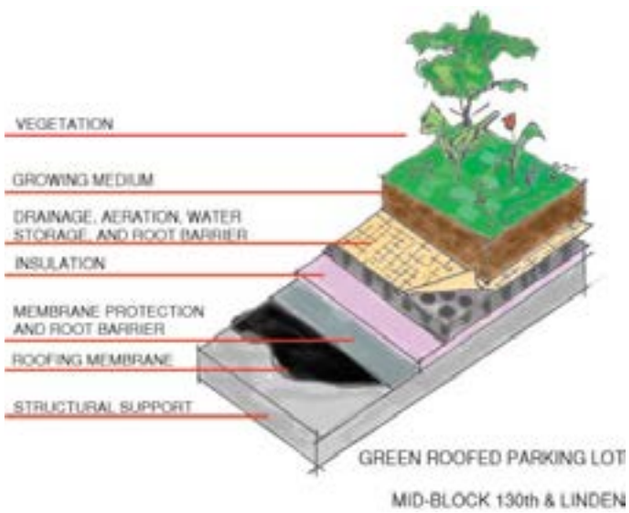


20-Year Implementation

- Mixed use near 130th and Linden development begins
- Linden corridor begins with tree plantings
- Install an allee of trees on Aurora
- Lightrail system arrives, serves as a catalyst
- Mid-block stop/station is built

100-Year Implementation

- Build underground parking lot between Linden and Aurora
- Mixed use developments with vegetated roofs
- Build more mixed use east of Aurora
- Vegetated rooftop courtyards and trees reach maturity



Mid-block 130th and Linden showing probable green-roofed underground parking lot materials, which serve as basis for intra-block green spaces. There are P-patches for local residents, markets and recreational facilities

Northwest

Exploded section shows phase aerial from charre new "green" Bitterlake u village

20 YEAR PLAN

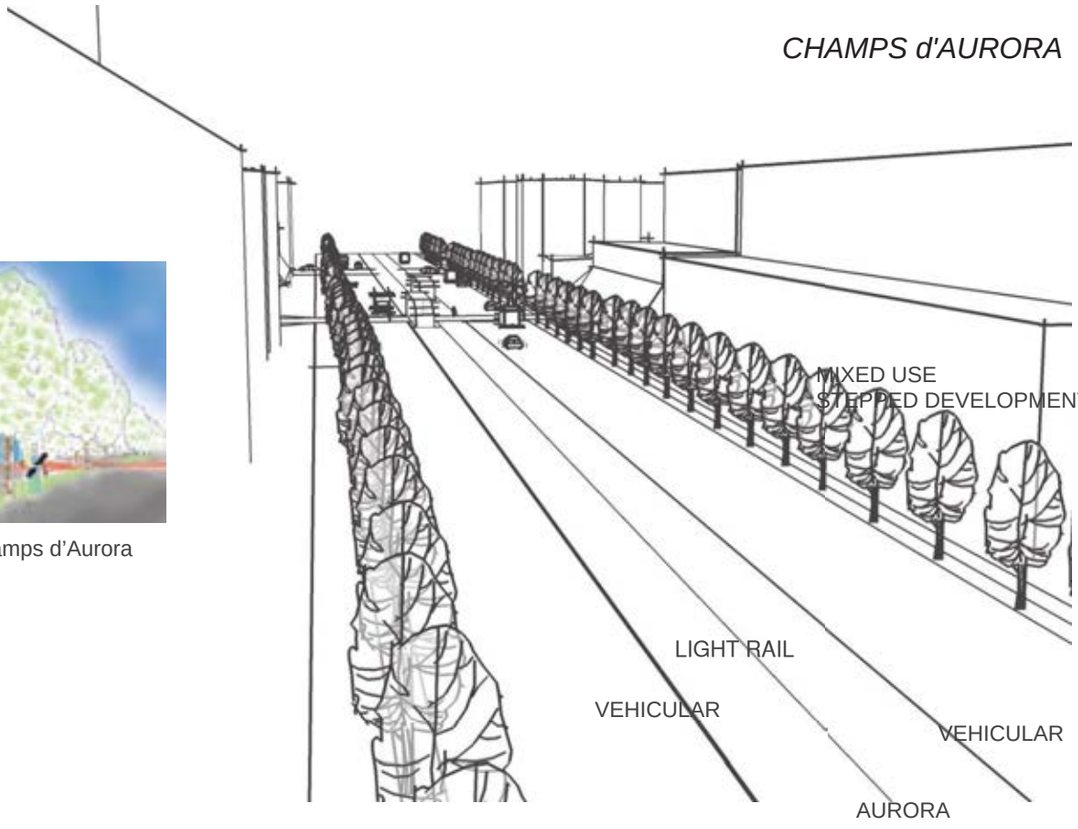
100 YEAR PLAN

N

20 YEAR BUILDINGS
100 YEAR BUILDINGS
INTRA-BLOCK CONNECTOR PATH
INTRA-BLOCK PEDESTRIAN PATH
INTRA-BLOCK MULTI USE OPEN SPACE
NON-POROUS CONCRETE

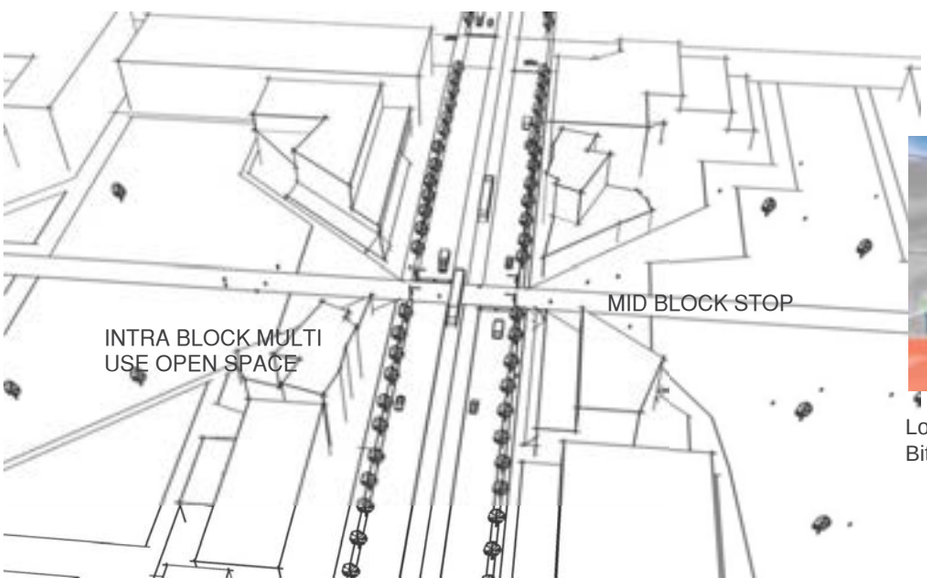
CHAMPS d'AURORA

Looking down Champs d'Aurora



Northwest

BITTERLAKE URBAN VILLAGE



Looking down east toward new Bitterlake station

This design is based on a new wave of urbanization, which combines commercial, residential, and agriculture functions all within the same space. It also takes into account the decrease in use of cars and concurrently more reliance on mass transit and non-motorized forms of transportation. The public right of way will be given mostly to pedestrians and bicyclists because these modes of transportation will become more significant with the increasing density and proximity of residential and commercial spaces. This new urbanization will open up more public space for people to socialize and relax, bringing life and energy to the metropolitan environment.

Section showing proportional relationship between Aurora and Linden

Concept Diagram

Plan View

LINDEN COMMUNITY NODE

MAIN CONCEPTS

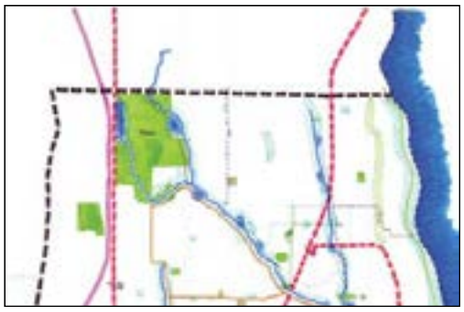
Create city at people scale
- Changing the hierarchy of public right of way, giving priority to pedestrians and bicyclists
- Using intersections to produce community nodes, with mass transit and pedestrians running over streets.

Structures providing multifunctional use
- Buildings will be mixed use, for both commercial and residential
- Roof top space will be used for urban agriculture and solar energy
- These large scale buildings will allow for more open space within the urban setting.

Streetscape

Public Right of Way

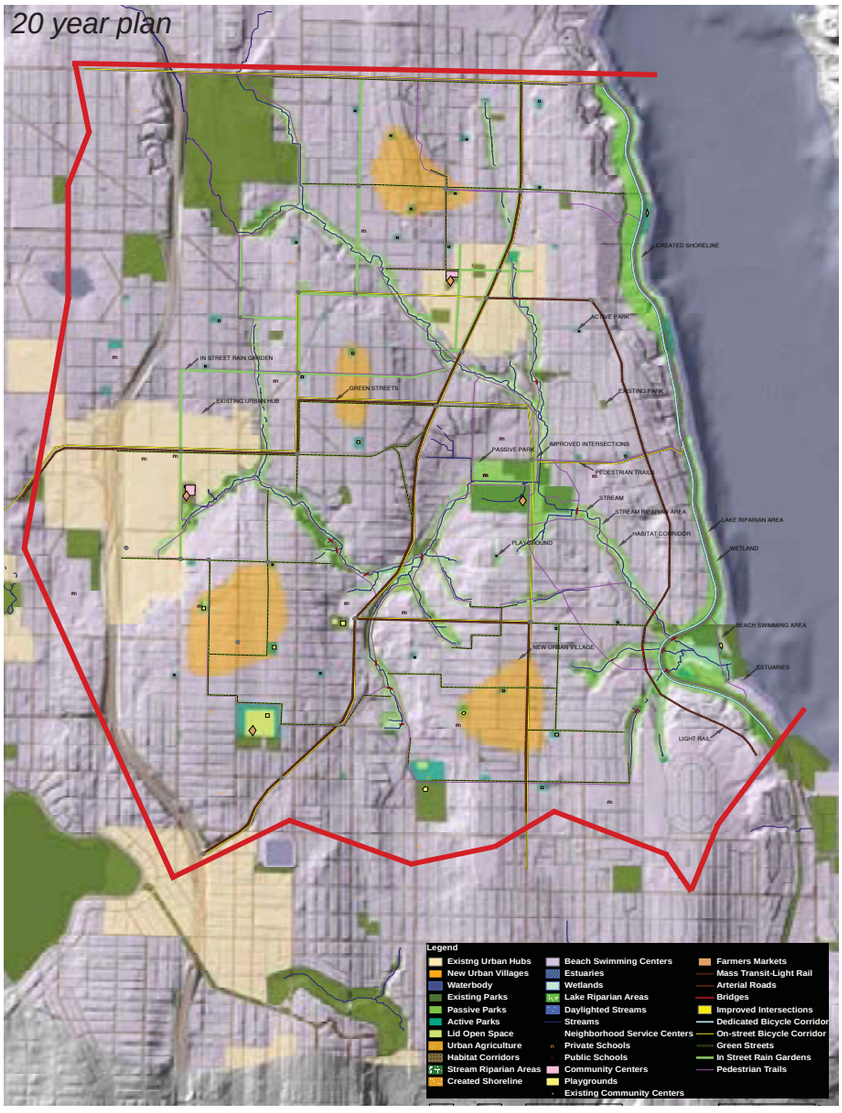
Urban Community Nodes



THORNTON CREEK

URBAN FLOW

Team Leaders: April Mills and Brooke Richardson
Student Team Leaders: Savannah Hines-Elzinga and Tehia Kalebough
Team Members: Hilary Dahl, Molly Deardorff, Cheryl Klinker and Marcy Kubbs



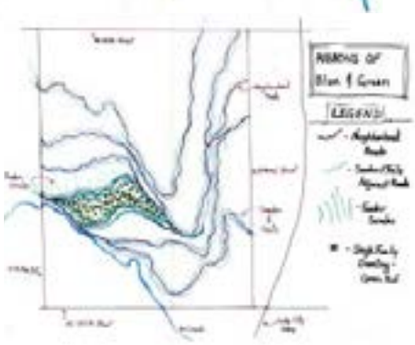
SITE ANALYSIS

Prior to the charrette, we thoroughly researched the Thornton Creek area. We talked with members of the community including the Thornton Creek Alliance and other residents. Along with our own explorations of the area, we conducted a site tour with our charette team members to help us understand the area and what would be the priorities needing to be addressed.

CONCEPT: URBAN FLOW

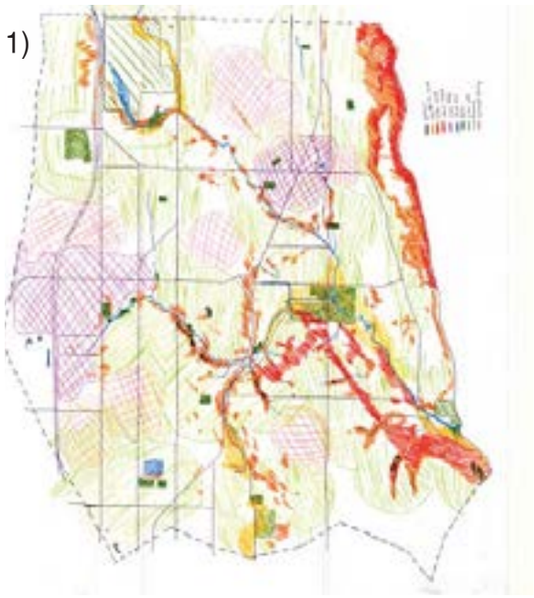
Three strong elements emerged from this concept: transportation flow, hydrological flow, and pedestrian flow. This concept recognizes that urban flows should be integrated with the watershed.

THE CHARRETTE PROCESS

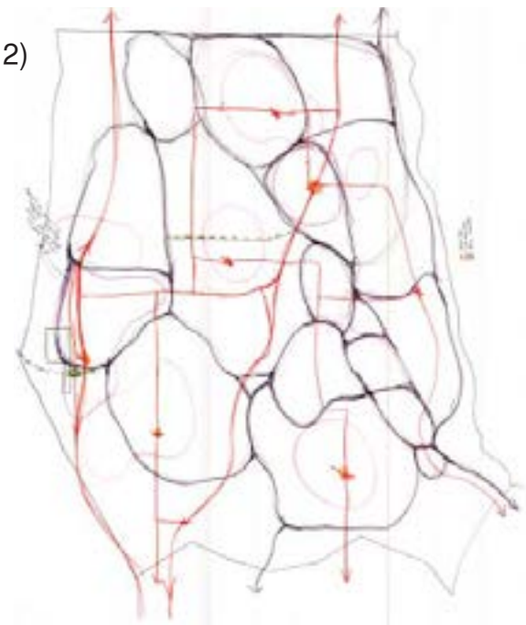


During the charette (top photos) participants focused on the ecological conditions of the area and how these would be integrated with the urban fabric.

1)



2)



3)

Post-charrette

The diagrams above demonstrate continued exploration of the existing conditions of the area and how that would influence growth.

1) a close examination of hazard zones such as slide and liquafaction areas, current urban hubs and potential hubs on more stable ground;

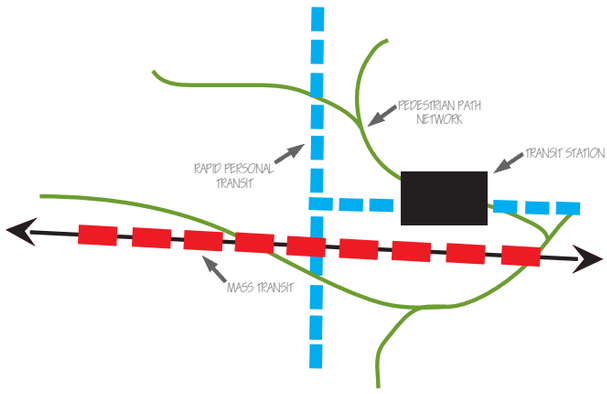
2) circulation overlay on the hazard analysis to assess pedestrian and vehicular movements;

3) synthesis of 1) and 2) led to analysis of potential open spaces and urban hub locations.

ENHANCING TRANSPORTATION FLOW: TYPOLOGIES

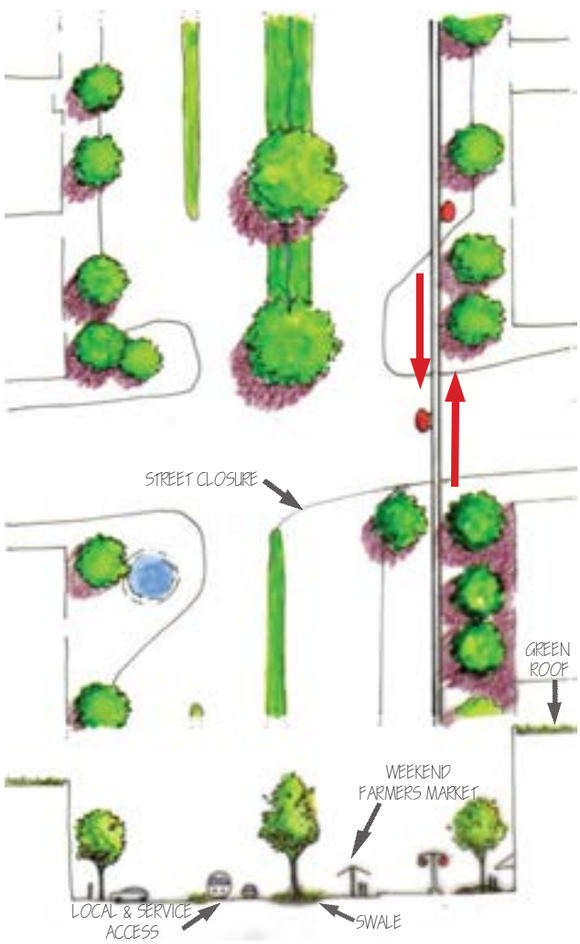
- Variety of transportation options including mass transit (along I-5 corridor) and personal transit (along major arterials).
- Transit nodes or hubs where multiple forms of transportation come together.
- Commuter bike tube (running along present I-5 corridor) that is climate controlled to encourage people to bike to work in all weather.
- Boulevard system that integrates green infrastructure, widen sidewalks, and lots of lush green trees to soften the edges

Personal rapid transit



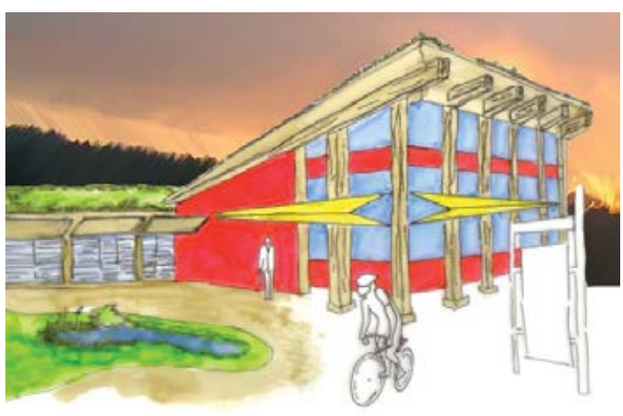
Typical transit hub diagram

Mass transit monorail



Typical boulevard layout

Commuter bike tube



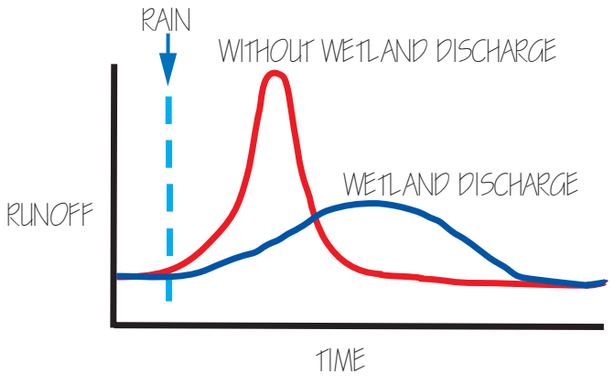
All transit hubs will include bike stations (concessions, lockers and showers)

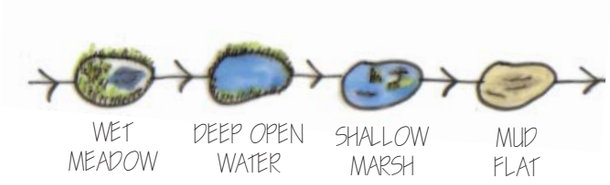
Thornton Creek

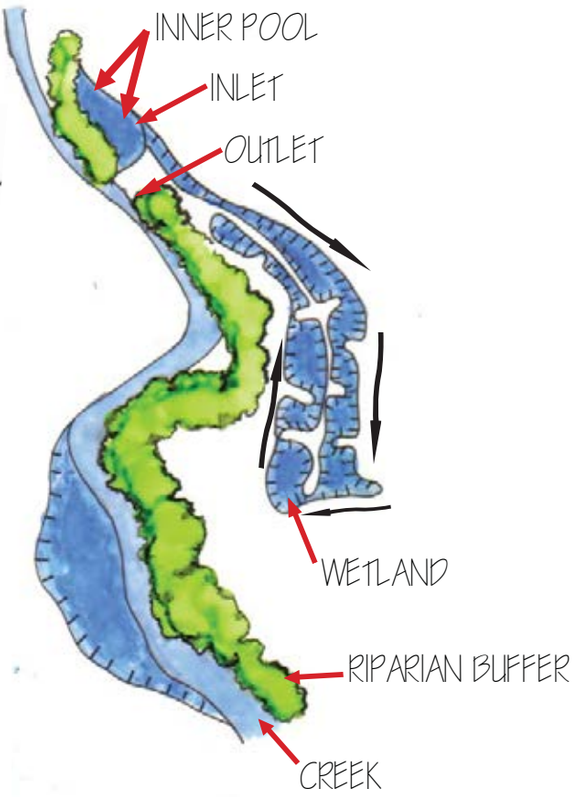
ENHANCING HYDROLOGICAL FLOW TYPOLOGIES

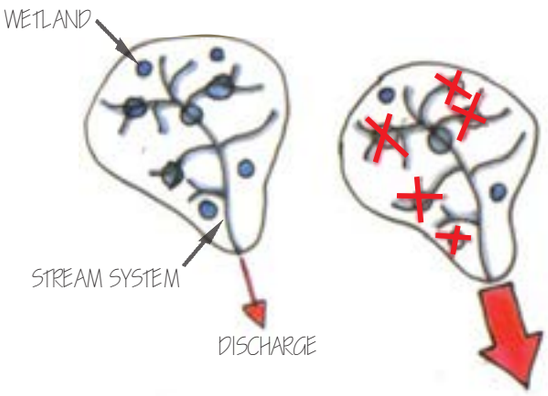
Main Goals

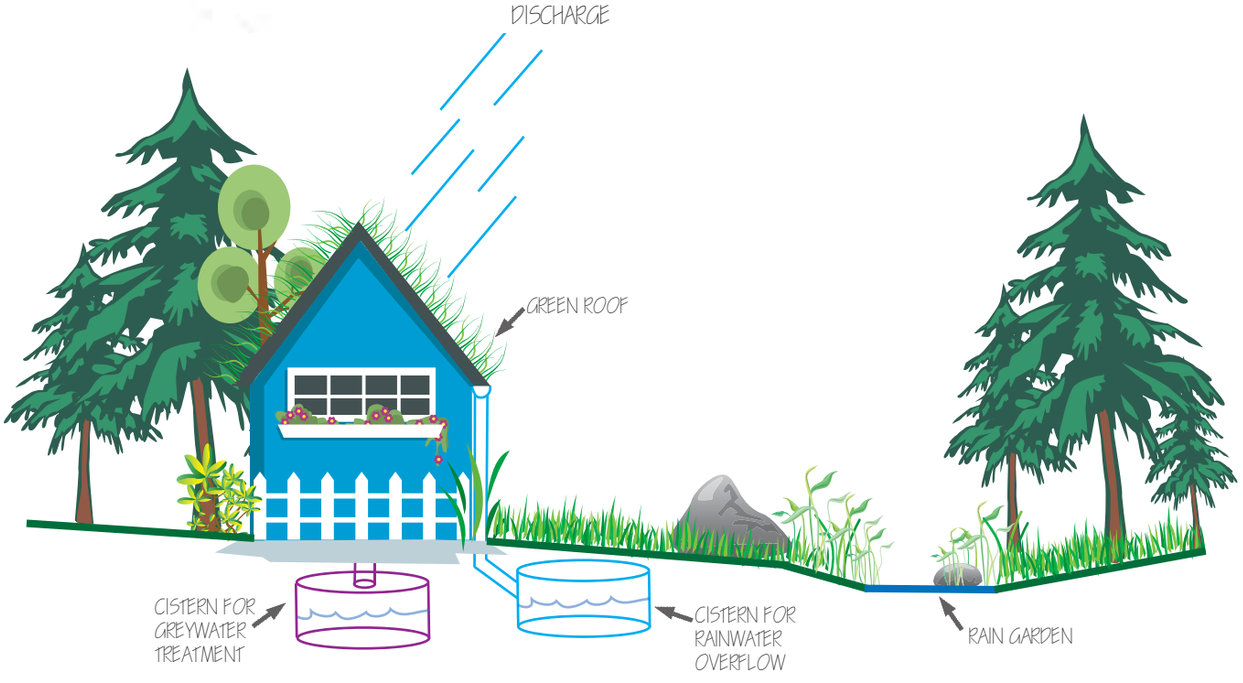
- Decrease runoff into streams and successfully manage all stormwater
- Use wetlands to their highest potential
- Restore as many natural wetlands as possible Wetlands provide habitat and act as a natural sponge soaking up contaminants and decreasing the amount of runoff in the watershed.
- An increased number of wetlands reduces the amount of discharge into Lake Washington creating slower waters for fish habitat.
- By placing contaminant reducing wetlands (designed and built specifically for this purpose) at the headwaters of creeks we can greatly reduce the number of contaminants that flow through there waters.
- Designing green infrastructure into the street system with the help of vegetated swales will add beauty and function for the community.
- Designing eco-function into the built environment, through the use of cisterns, graywater systems and green roofs will place responsibility on the individual homeowner.











ENHANCING PEDESTRIAN FLOW

- Designate some areas as wildlife-only areas in order for them to retain maximum health
- Create a series of walking loops for human movement and ecological corridors that link urban hubs and villages
- Design at human scale to create streets which are pedestrian friendly, less car-centric
- Incorporate "nature" in even the densest areas to educate people about our watershed and provide them with restorative environments
- Separate user on the trail system to provide everyone with the most enjoyable experience
- Provide everyday interaction with the watershed so people value it as a system

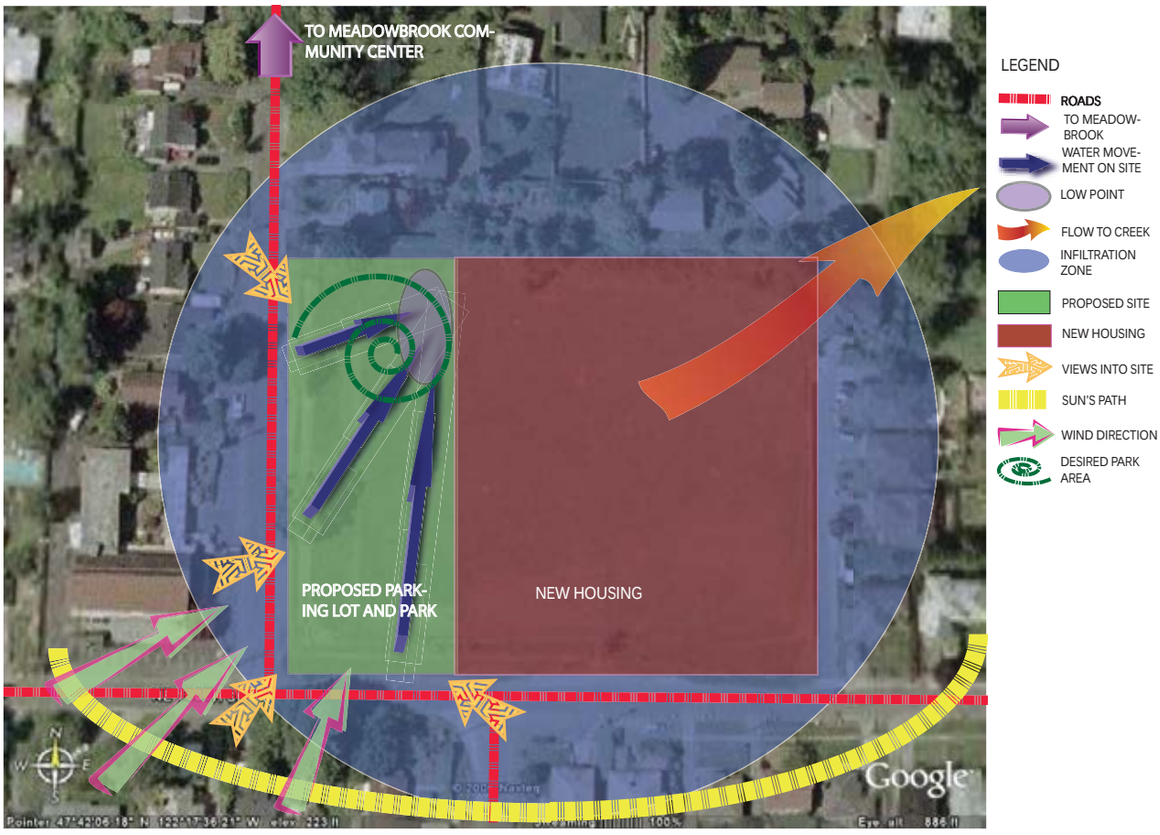
Green infrastructure

Wildlife-only areas

Integration of transportation with the creek

Nature in density

Separation of users



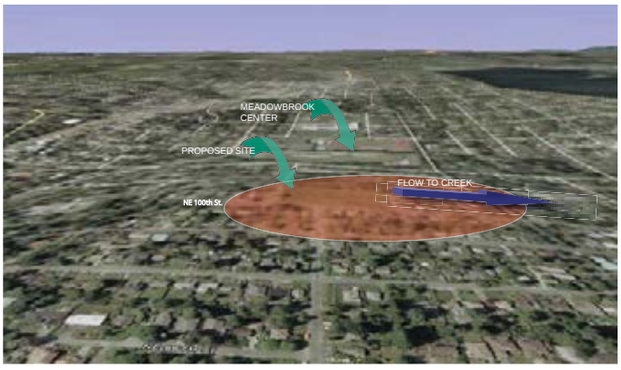
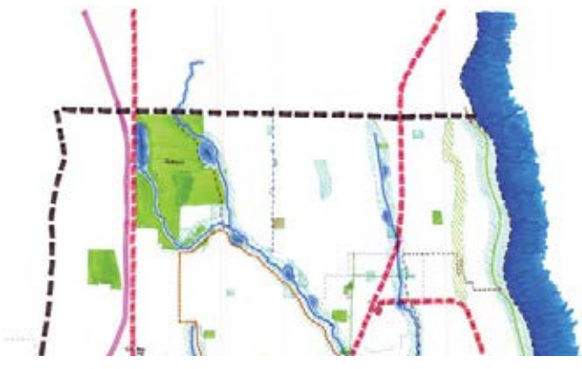


Diagram of hill and flow direction to creek

SITE ANALYSIS

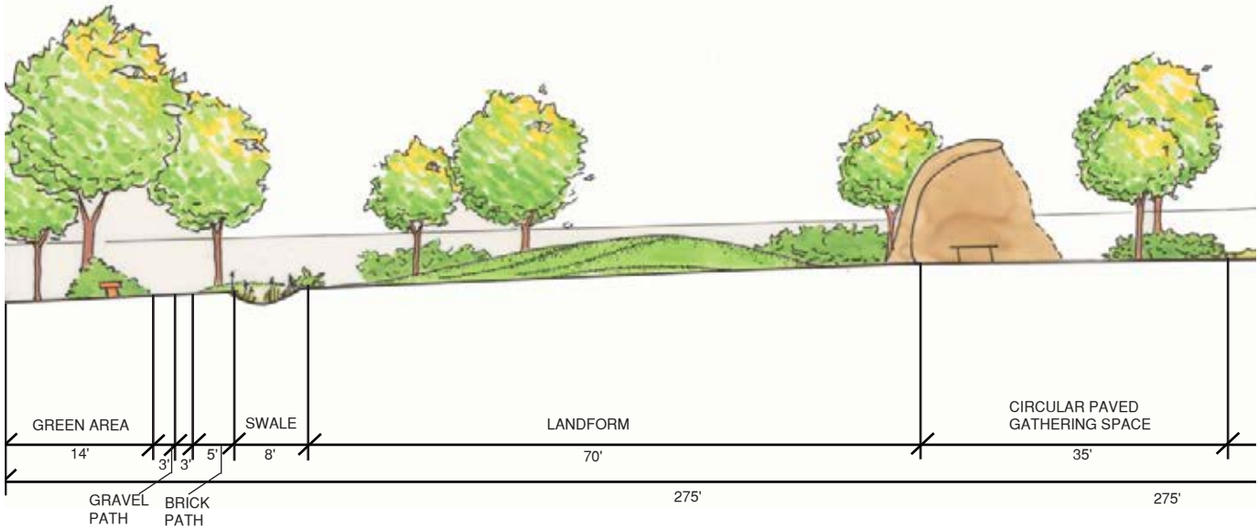
This site is located on 32nd Avenue NE and NE 100th. Though there is not a creek visible here, this is an important infiltration site that leads to the creek down the hill. The client, a Lutheran church, requires a 100-car parking lot and a small play area. This analysis and design project attempts to demonstrate how the requests of the client can be met while retaining water infiltration in an innovative way.

A GrassPave system which is capable of supporting vehicles' weight. This would allow the parking space to be used for events, such as weddings, or various sports.



Photos of the site

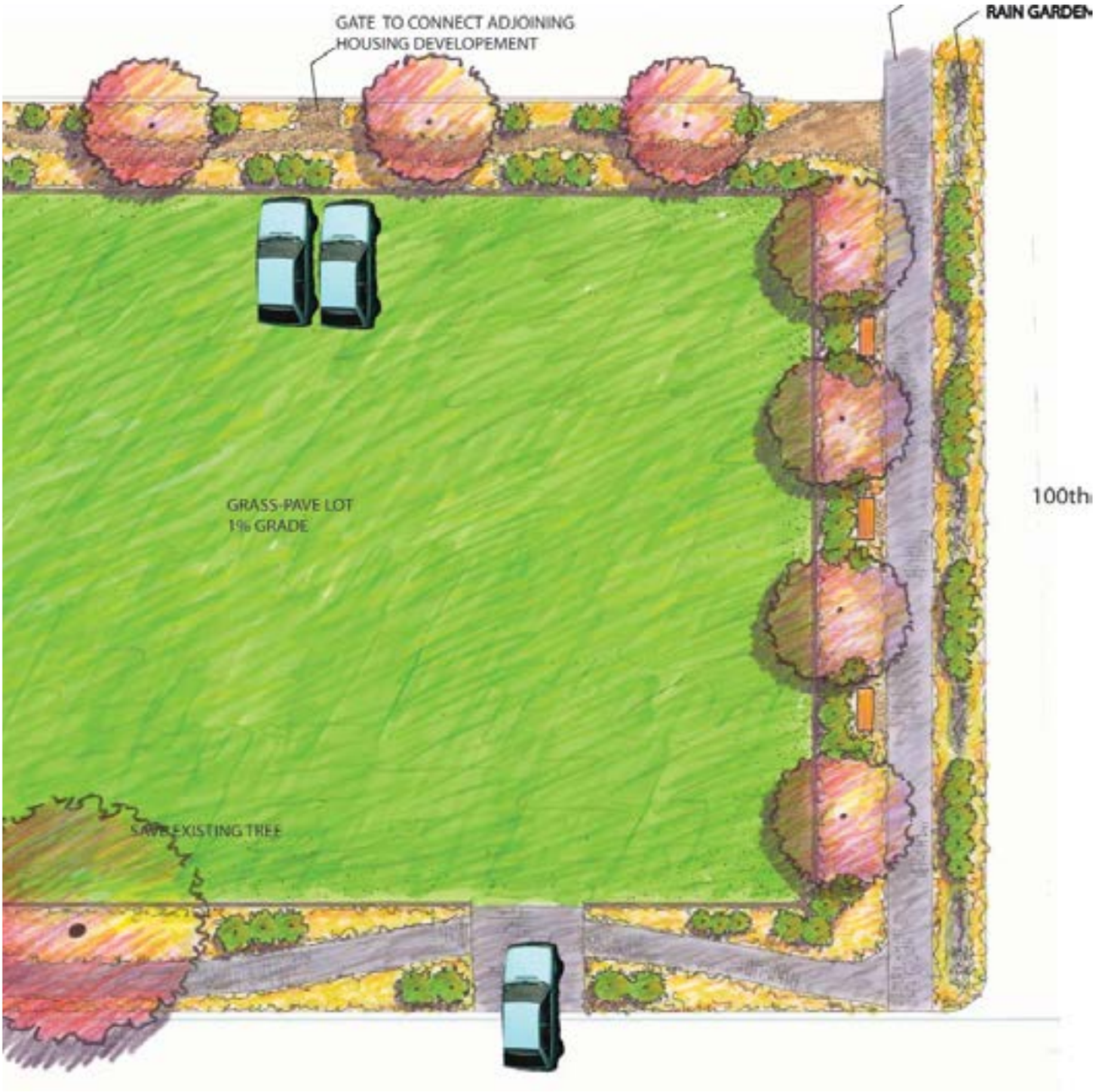
Sample of mosaic tile work to be placed in the gathering areas and retaining wall. This can be designed by the local community.

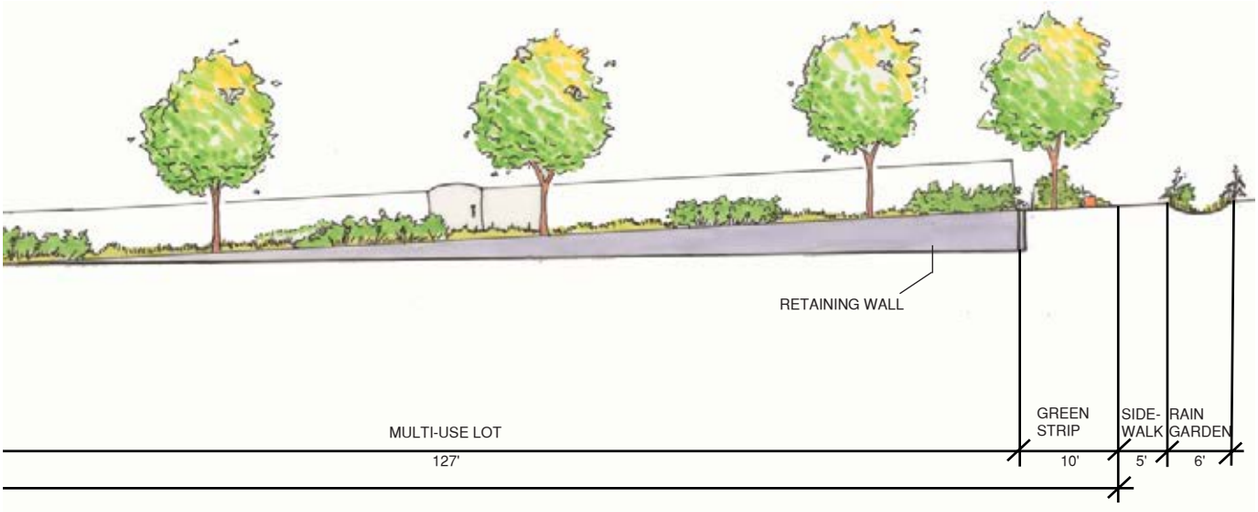


SITE DESIGN FEATURES

- A GrassPave system used for parking lot area, creates a multi-functional surface
- Focal gathering space for events, two smaller spaces for more intimate gatherings
- Swale system along street and North end of property to catch and filter stormwater runoff
- Several entry points onto the property, including a gate to connect the new development
- Experiential play and relaxing space
- Native planting throughout

Instead of a conventional play area, this design allows for various modes of play and exploration with choices in sitting and walking areas for all ages.

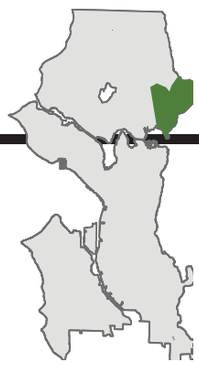




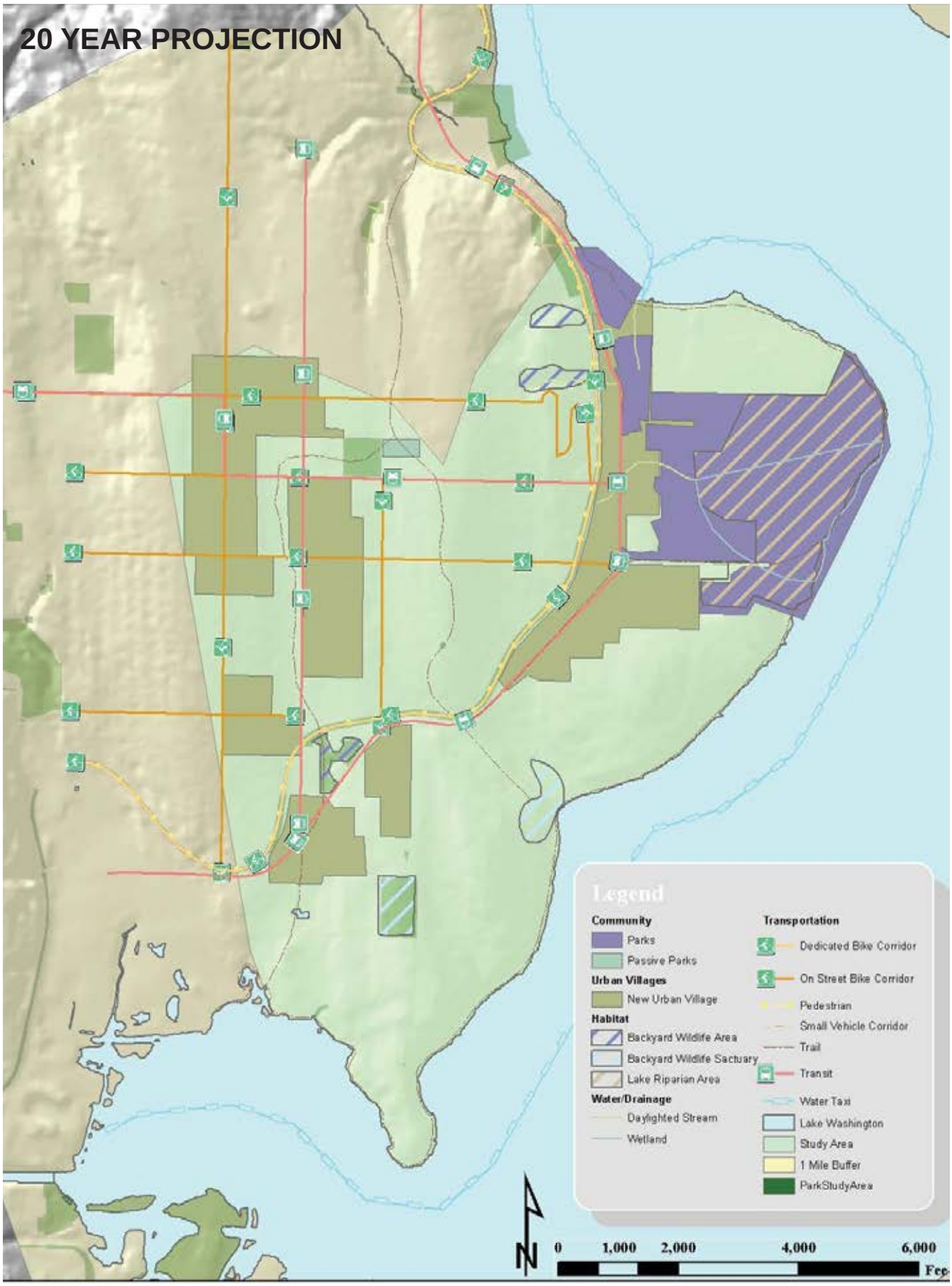
This 35-foot round gathering space can be utilized for a variety of uses, from weddings to picnics.

The current sidewalk on NE 100th would be updated to include a vegetated swale where the current grass strip is placed and add benches with vegetation to screen the parking lot below.

SANDPOINT/LAURELHURST



Team Leaders: Kari Olson, Jason Morse
Student Team Leaders: Tim Shuck, Terry Shaver.
Team Members: Lynda Betts, Thomas Hargrave, Lolly Kunkler, Diana Kincaid, Edith Sze Savadove, Bonnie Miller, Darby Ringer, Lynn Ferguson, Elizabeth Pachaud



By 2020 specific zoning ordinances have already been revised in order to create new urban villages. Having higher density in these areas will reduce the need for single family dwellings and allow for the newly zoned Yesler greenway. This swath of park follows the existing Yesler Creek. Portions of this creek are in the process of being daylighted with a complete restoration by 2100.

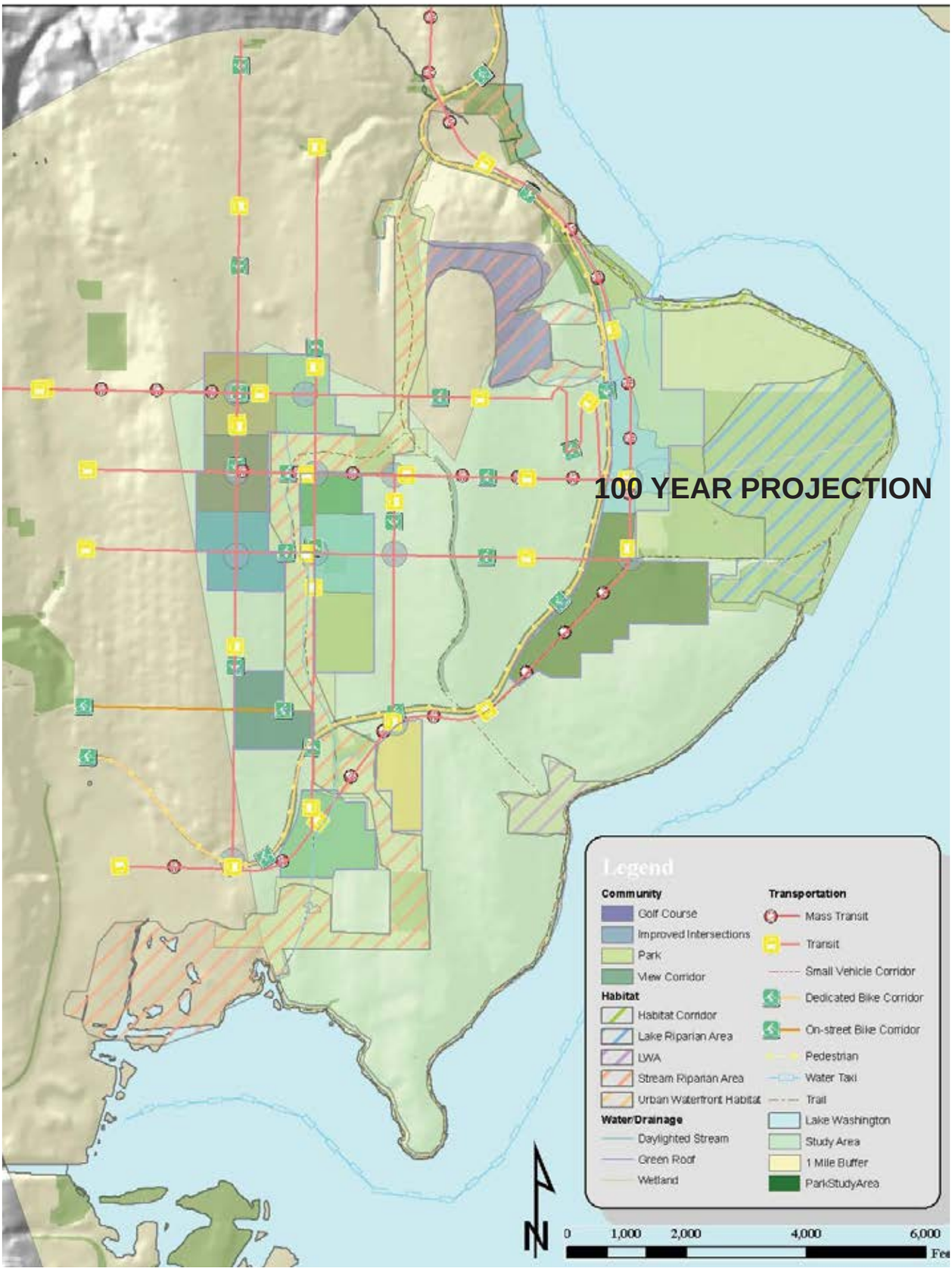
Habitat

Transportation

Community Features

Water/Drainage

Urban Villages



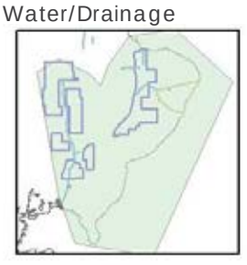
In the year 2100 the neighborhoods of Sandpoint and Laurelhurst will be bustling new urban villages with linked mass transit. The transit system will improve east to west connections and expand on existing routes. The Yesler Greenway spans from Matthews Beach to the terminus of Yesler Creek near the present Union Bay Natural Area. This serves as habitat, passive and active recreation, stormwater treatment and a connective tissue between Urban Villages. Residents are connected by various new trail systems that link to trails such as the waterfront trail, the View Ridge Trail and the existing Burke Gilman Trail.

Habitat

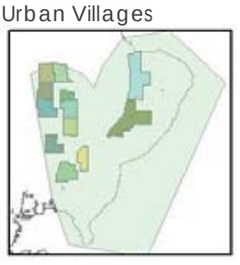
Transportation

Community Features

Water/Drainage



Urban Villages



RETHINKING STORMWATER

All images illustrated by Tim Shuck

Functional Diagram

This diagram explores the story of a drop of water over the next hundred years. Once a drop of water hits the roof of a building, it begins its journey to Lake Washington. This system utilizes green roofs, wall plantings, drainage swales, infiltration swales, the Yesler stream system, and storm wetlands before flowing into the lake.

Waterwise Buildings

New Urban Villages will promote sustainability and green infrastructure. One main aspect is the buildings. Shown here as a traditional brick building, this new four story mixed use building has the latest in green technologies. The roof of this building serves as the first step in the filtration of storm water. The building's green roof reduces the impact of impervious surfaces because it intercepts and delays rainwater run-off. This allows the majority of water the ability to infiltrate into the surfaces of the roof. Any excess water is directed into a vertical wall planting on the sides of the building. This series of plant boxes allows the water a prolonged course down to the street level. Delaying the water in these areas is essential to minimizing affects of storm water.

b

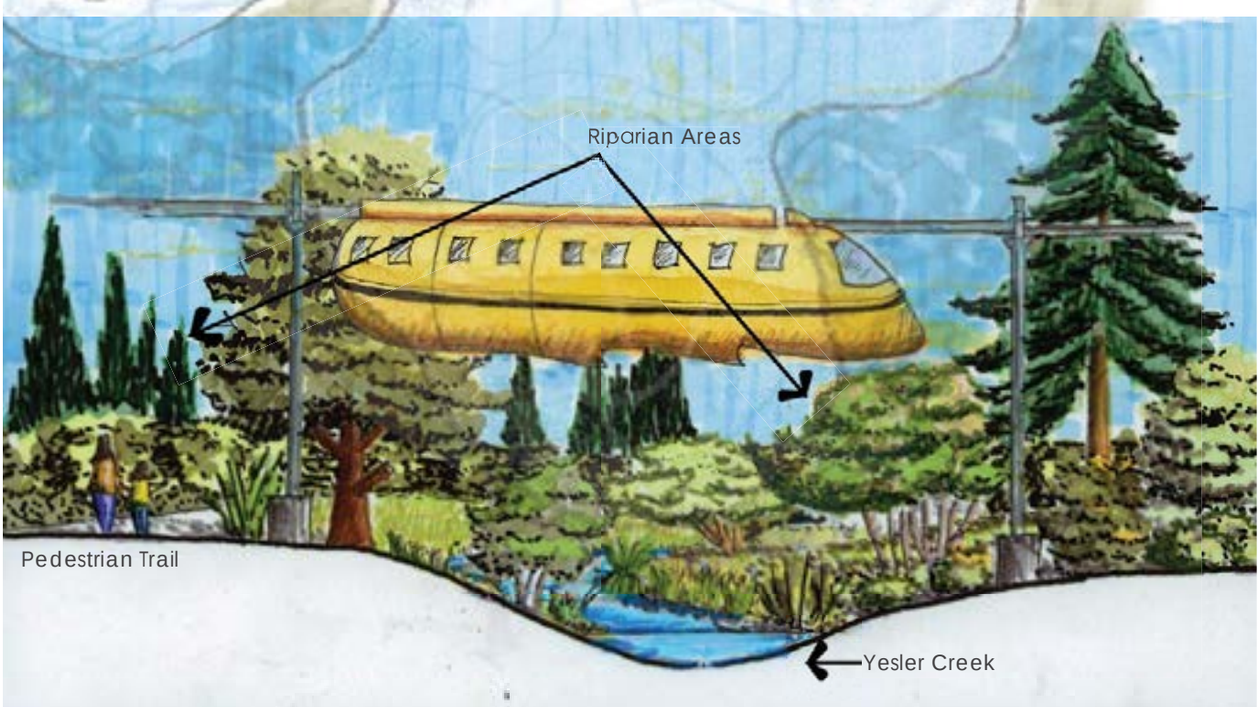
A Swale Place to Be

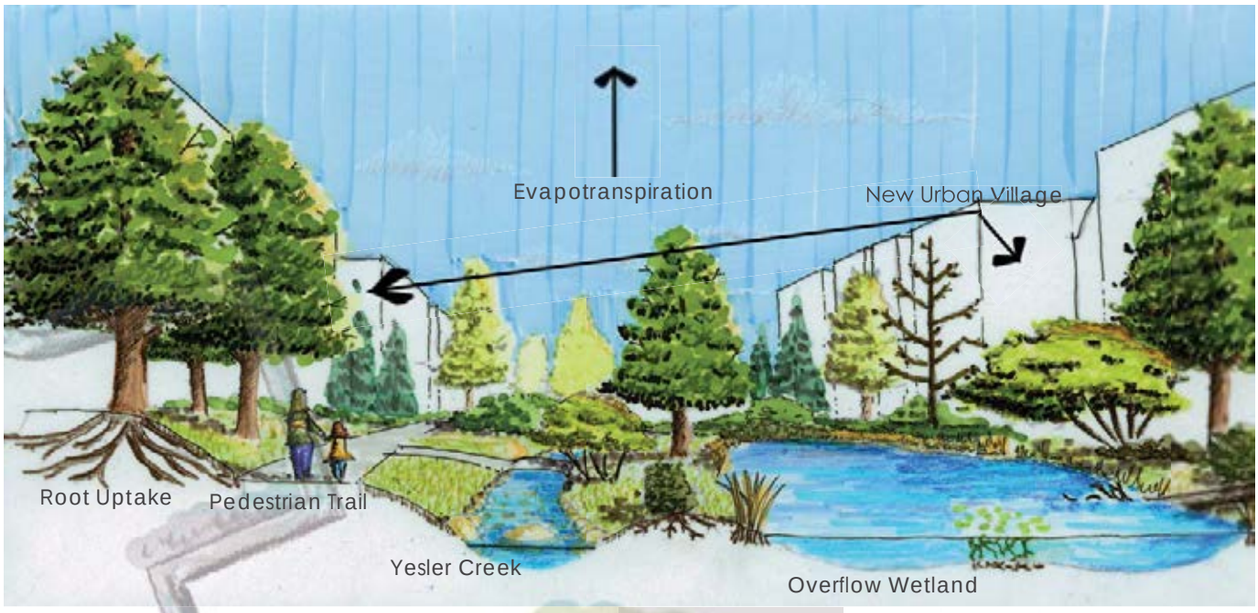
New Urban Villages are organized to be wonderful civic spaces. They are pedestrian friendly and organized at a human scale. Sidewalks are wide and are activated by ground level shops and outdoor cafes. Mass transit stops are present at urban center cores for transportation for leisure or work. These public corridors treat water through the grading of the spaces and drainage swales located below mass transit lines. The sidewalk/plaza areas are graded to direct runoff to these swales as sheet flow. Excess water from the rooftop and vertical garden system is also connected to these swales. Once water reaches these swales it begins to infiltrate and dissipate. Any water overflow will be slowly directed to the daylighted Yesler Stream system.

c

Streaming Water

The historical Yesler stream, now daylighted, serves as the primary transport for stormwater runoff to its terminus. This system is effective partly because of it has minimal human infrastructure affecting it. The mass transit monorail system allows vehicles to fly above the ground level reducing the need for bridges and other troublesome transportation structures. Riparian areas along the stream capture rain water, which allows them to recharge the ground water system. Excess water will enter the stream. The public will be invited to participate through a trail system that travels the length of the stream. They will be encouraged to stay on the trail so as not to negatively impact this essential living system.



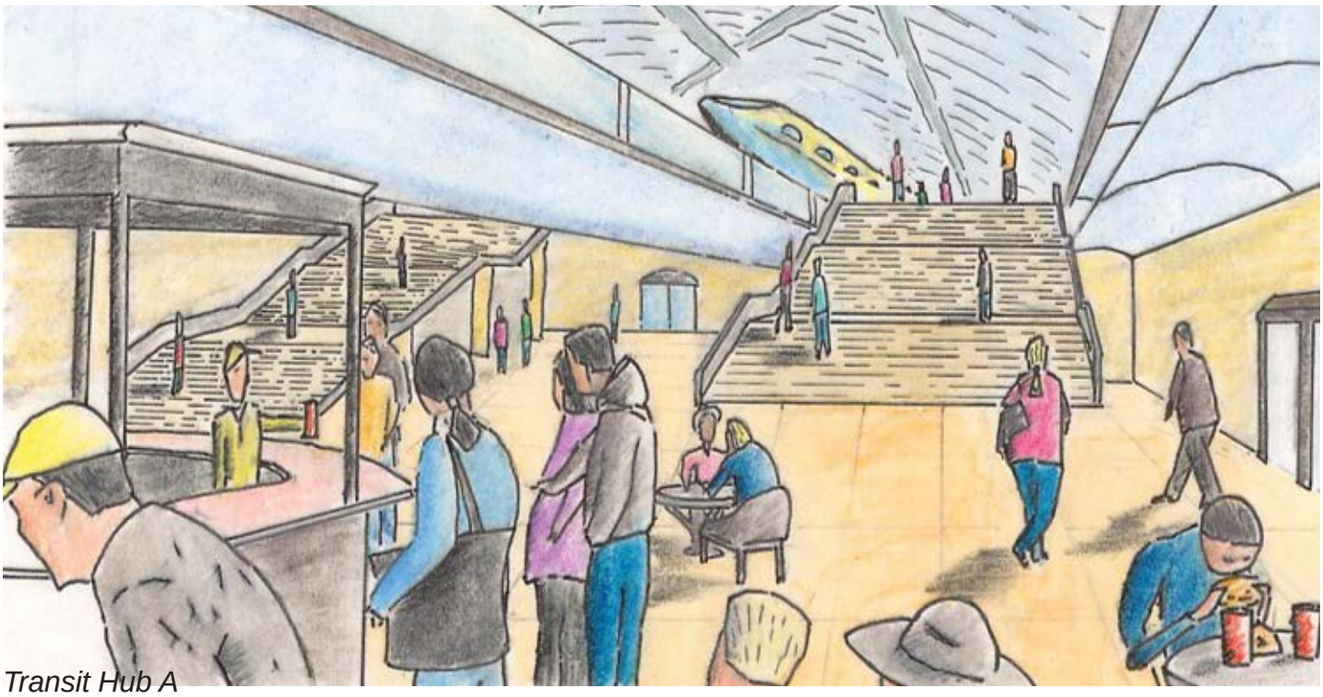


Overflow Wetlands

In large storm events where all aspects of the system are producing excess water and the stream capacity is high, a series of wetlands will be utilized to capture the water slow it down which will allow tiny polluted particles to settle out of the water. Once traveling through this wetland system the water will be transported back to the stream system pollutant free.

The Flow to the Lake

Now that the all storm water runoff has been transferred between different aspects of this system it is ready for its arrival at Lake Washington. The amount of water that reaches the lake is greatly reduced compared to a piped system. This is because the water travels to the lake so much slower. The surrounding landscape and riparian areas allow much of the rainwater to soak into the ground, green roofs and swales allow water to infiltrate and recharge natural ground water storage areas. Wetlands allow any other pollutants and toxins a final opportunity to release before flowing into the lake. This water has a much smaller volume, speed and is very clean.



Transit Hub A

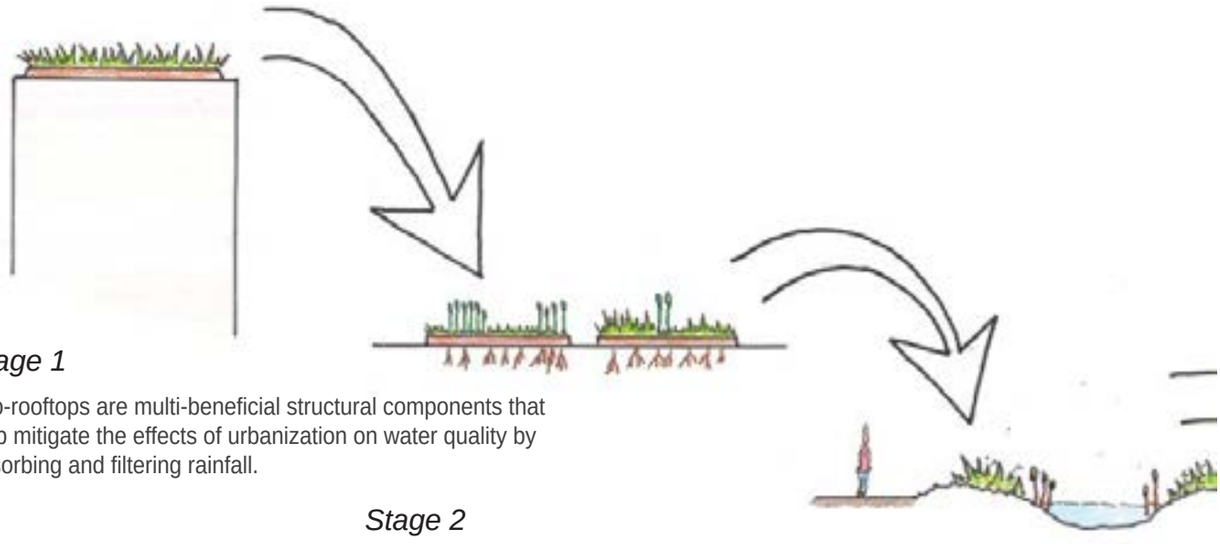
The intersection of 40th Avenue and 70th Street serves as a mass transit hub for east/west connections. This node not only provides the community with transportation benefits but supplies them with everything necessary for daily life. Here they can find places to live, shop, and eat. This further reduces the need for excess travel thus eliminating the use of already dwindling fossil fuels. Members in this community are being introduced to a new way of living and a more sustainable lifestyle.

Yesler Trail System B

The Yesler greenway provides those members within the urban environment places to recreate, both active and passively. This space provides areas to inform the users about the critical processes that nature acts out. This knowledge instills a passion for the environment that creates a better sense of stewardship over the environment found in their backyard.

Stream Crossing C

The trail system is designed to separate the human users from the most vulnerable points within the corridor system, such as the stream. At critical points where the two system overlap the land mass is built allowing the users to experience the space visually rather than physically. This ensures it remains a revered natural space.



Stage 1

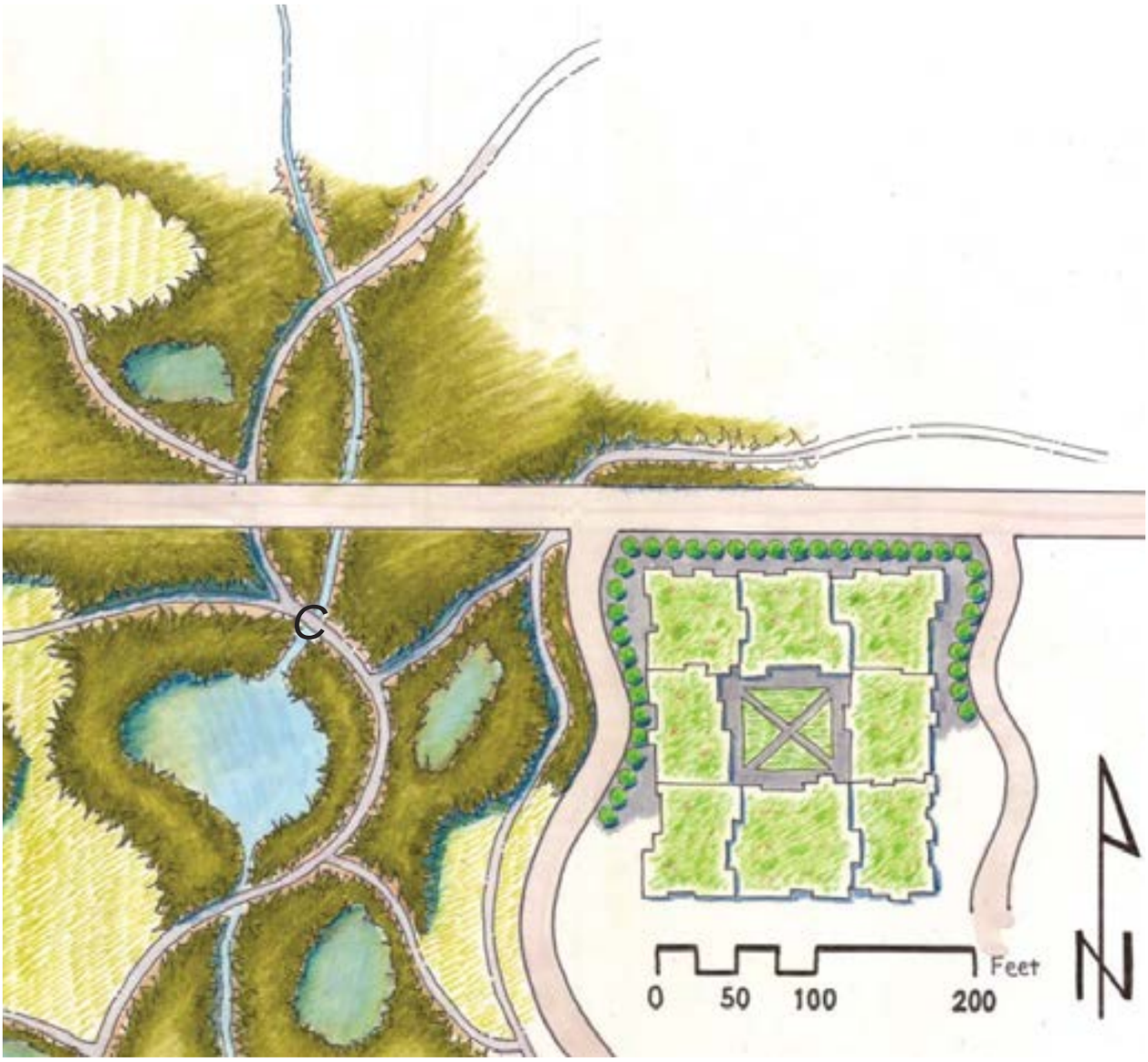
Eco-rooftops are multi-beneficial structural components that help mitigate the effects of urbanization on water quality by absorbing and filtering rainfall.

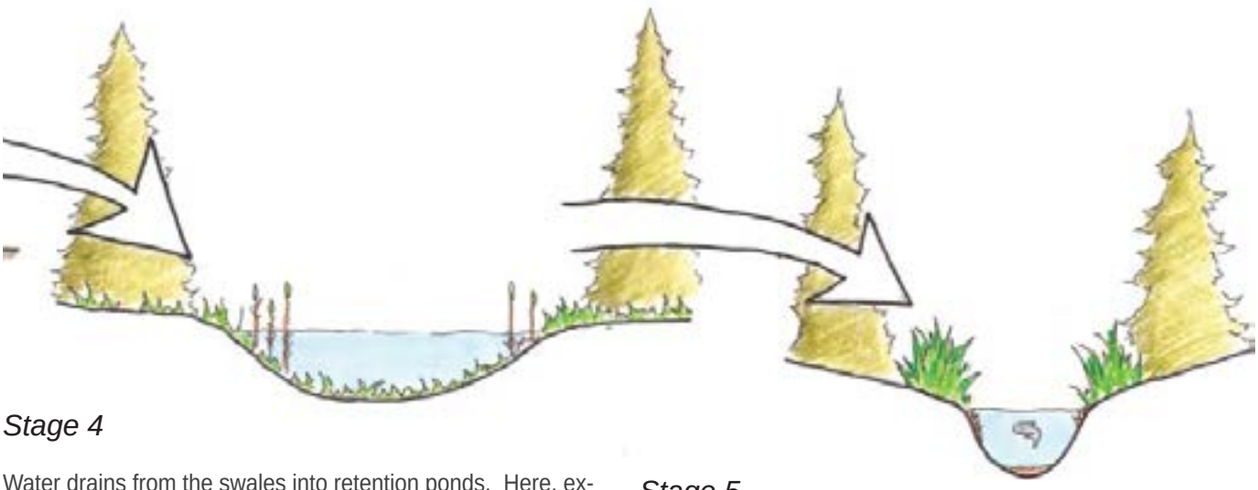
Stage 2

The filtered water combined with grey water from the buildings is then used in the courtyard community gardens.

Stage 3

Street side swales take the place of typical buried storm sewers. The decreased flow rates and on-site water storage aids in maximizing percolation and ground water recharge.



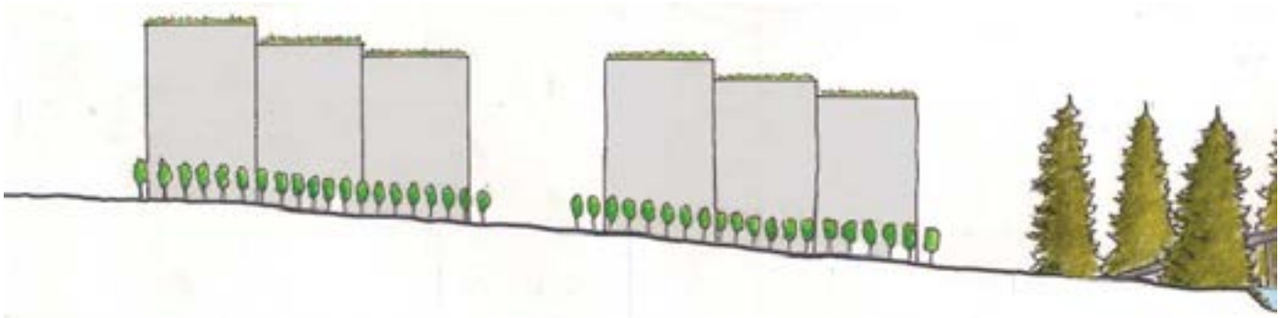


Stage 4

Water drains from the swales into retention ponds. Here, excess runoff is held to gradually percolate back into the soil and recharges the groundwater system.

Stage 5

The water reaches the stream system cleansed for the natural environment and is then transported to Lake Washington.



The Urban Environment

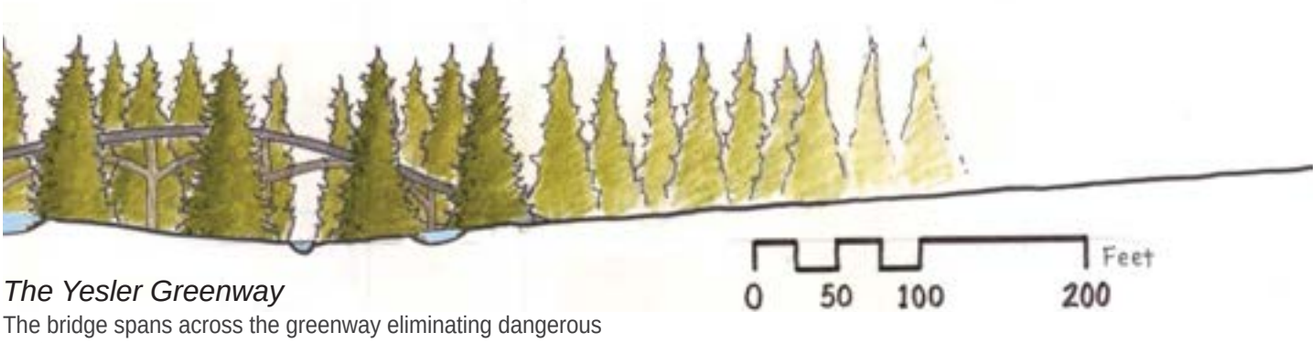
Trees line all streets adding life and vibrancy to the urban environment. The structures within the urban village will all feature greenroofs minimizing the effects of impervious surfaces.

Street Life

The street walks are widened offering spaces for covered street spaces for vendors and outdoor cafes. These spaces create a walkable community and betters relations with the members. Amenities along the street surface further reduce the need for vehicular travel thus forfeiting the secondary streets to bicyclists and pedestrians. A gentle meander creates a more scenic experience through the space. Street trees offer protection from the sun in the summer, rain in the winter as well as offer color to the urban environment and mask the face of structures.

Integrating Man And Nature

To minimize the effects of vehicular traffic through the greenway, a bridge crosses above the system. The runoff from the bridge is diverted towards the base where it enters the filtration system purifying it before it enters the stream. As the need for cars decreases, the bridge will be dismantled and only the mass transit line will be left. The tall trees not only mask the appearance of the bridge from within the greenway but offer a scenic journey through the canopy for those users on the bridge. The trail system is set apart from the stream, ensuring it remains untouched by the hand of man.

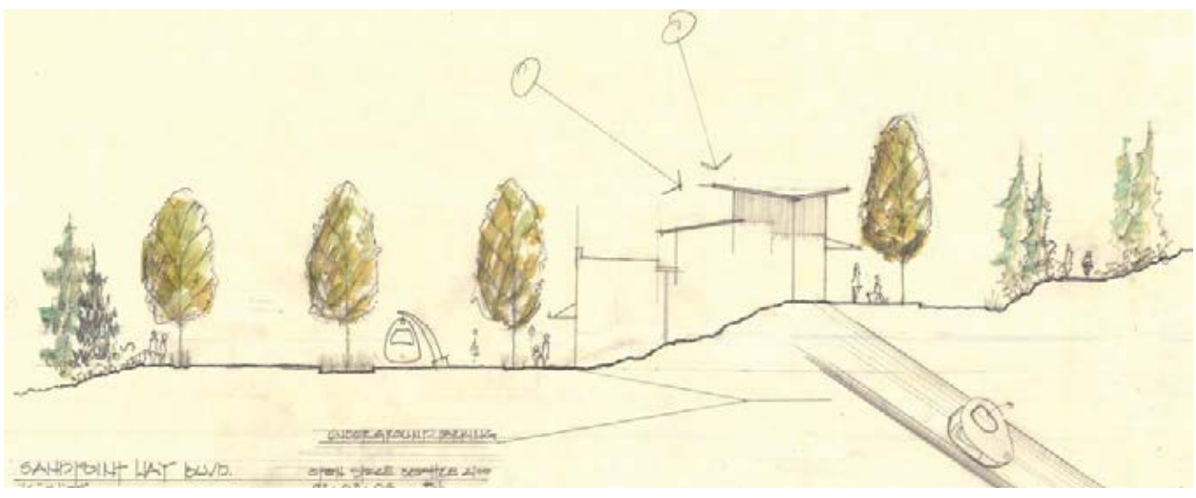


The Yesler Greenway

The bridge spans across the greenway eliminating dangerous conflicts between nature and vehicles.

A potential section exploring possibilities for Sandpoint Boulevard. Hanging mass transit, walkable streets, bike lanes, shops and multi-purpose buildings

This vignette illustrates the possibilities for the creation of a waterfront trail that connects Magnuson park to the Union Bay Natural Area. A water taxi is shown in the mid-ground.



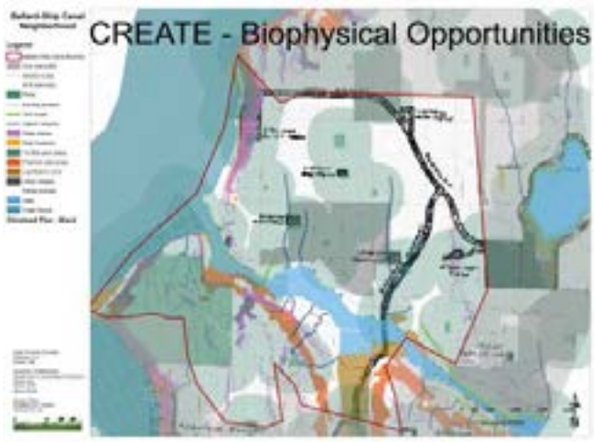
This section relates built structures to the street. This relationship allows parking to be moved underground eliminating the need for expansive street and lot parking areas, thus, reducing the amount of impervious surfaces

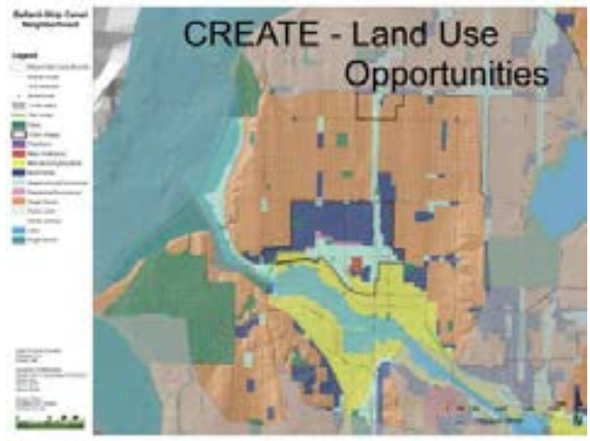
BALLARD/SHIP CANAL

Screaming Orcas and Salmon City Portal

Team Leaders: [A] Yes Duffy and Brooke McCurdy; [B] Melanie Davies and Vic Opperman
Student Team Leaders: Vanessa N Lee and Elizabeth A D Powers
Team Members: [A] Ray Berntsen, Rebecca Buttitta, Kelly Collins Early, Craig Hollow, Kate Howe, Richard Joyce, Jill Keller, Japhet Koteen, Kathleen Morris, Ed Schein, Zack Thomas; [B] Bob Baines, Dave Boyd, Mark Brandes, Josh Distler, Tom Early, Andrea Faste, Jenny Heins, Aaron Kahn, Ingrid Lundin, Ann Scheerer, Dulce Setterfield, Bridget Smith, Sam Star, Ingela Wanerstrand

ANALYSIS

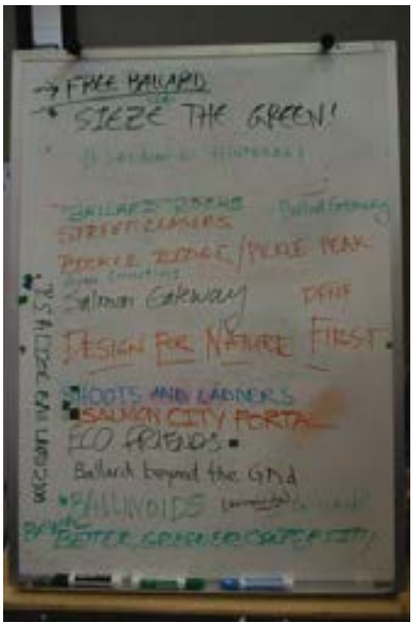


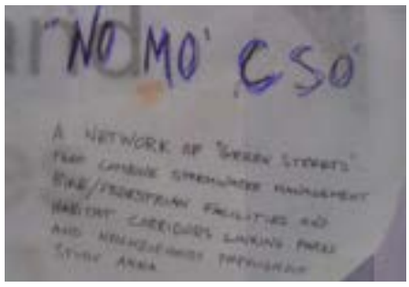


Analysis maps showing land use and biophysical properties helped identify opportunities.

CHARRETTE

Charrette processes involved 30-second design exercises, voting, prioritizing with Post-its, slogans, and lots of brainstorming.





100

COMMUNITY

- Park
- Community Center
- Civic Space
- Farmers Market
- Neighborhood Service Center
- School
- Urban Agriculture
- View Corridor

20

TRANSPO

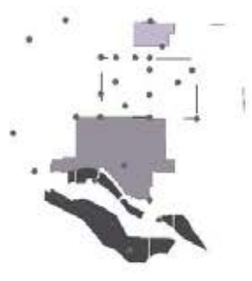
- Bike/Ped Trail
- Green Street
- Mass Transit
- On Street Bike Route
- Street Car
- Water Taxi

HABITAT

- Backyard Habitat
- Estuary
- Habitat Corridor
- Puget Sound Riparian
- Stream Riparian
- Steep Slope
- Waterfront Habitat

WATER

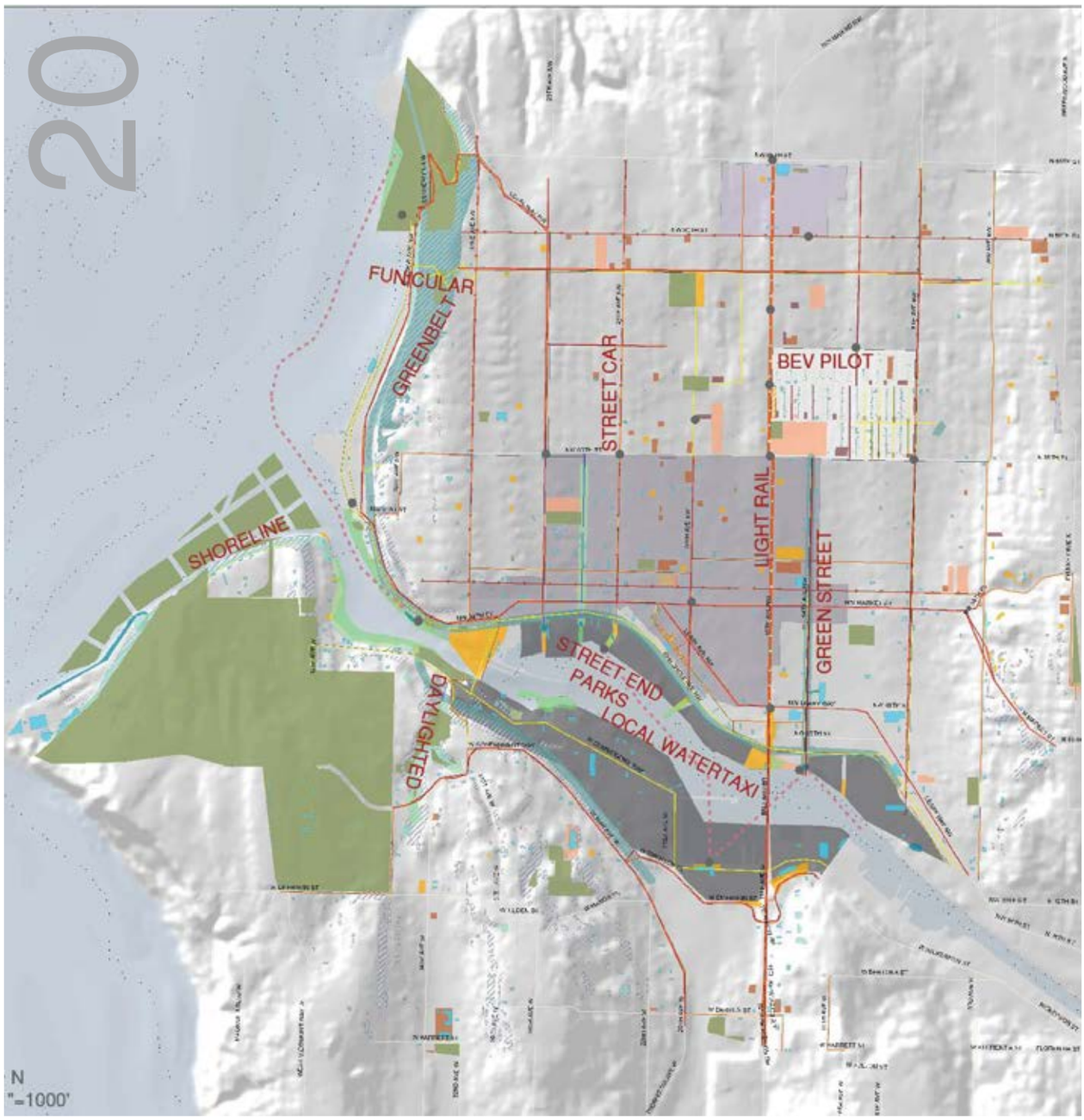
- Created Shoreline
- Reduced CSO Basin
- Daylighted Stream
- Green Roof
- Natural Drainage



URBAN

- Ecovillage
- Industrial Area
- Urban Hub
- Urban Village
- Community Node

Ballard / Ship Canal



HIGHLIGHTS

community: all STREET END PARKS complete

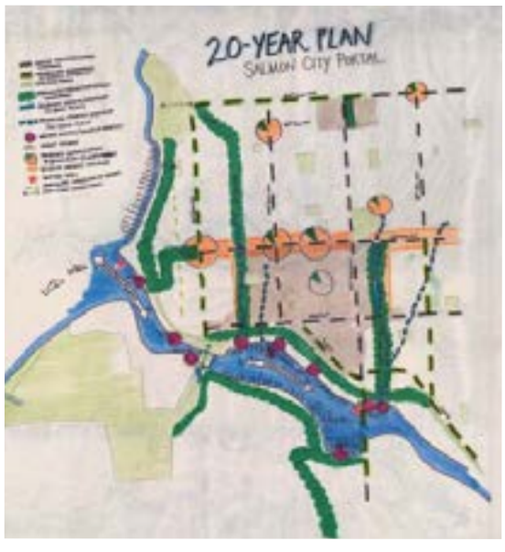
transpo: LIGHT RAIL on 15th; 8th + 14th ave GREEN STREETS; some BIKE TRAILS developing; FUNICULAR at sunset park

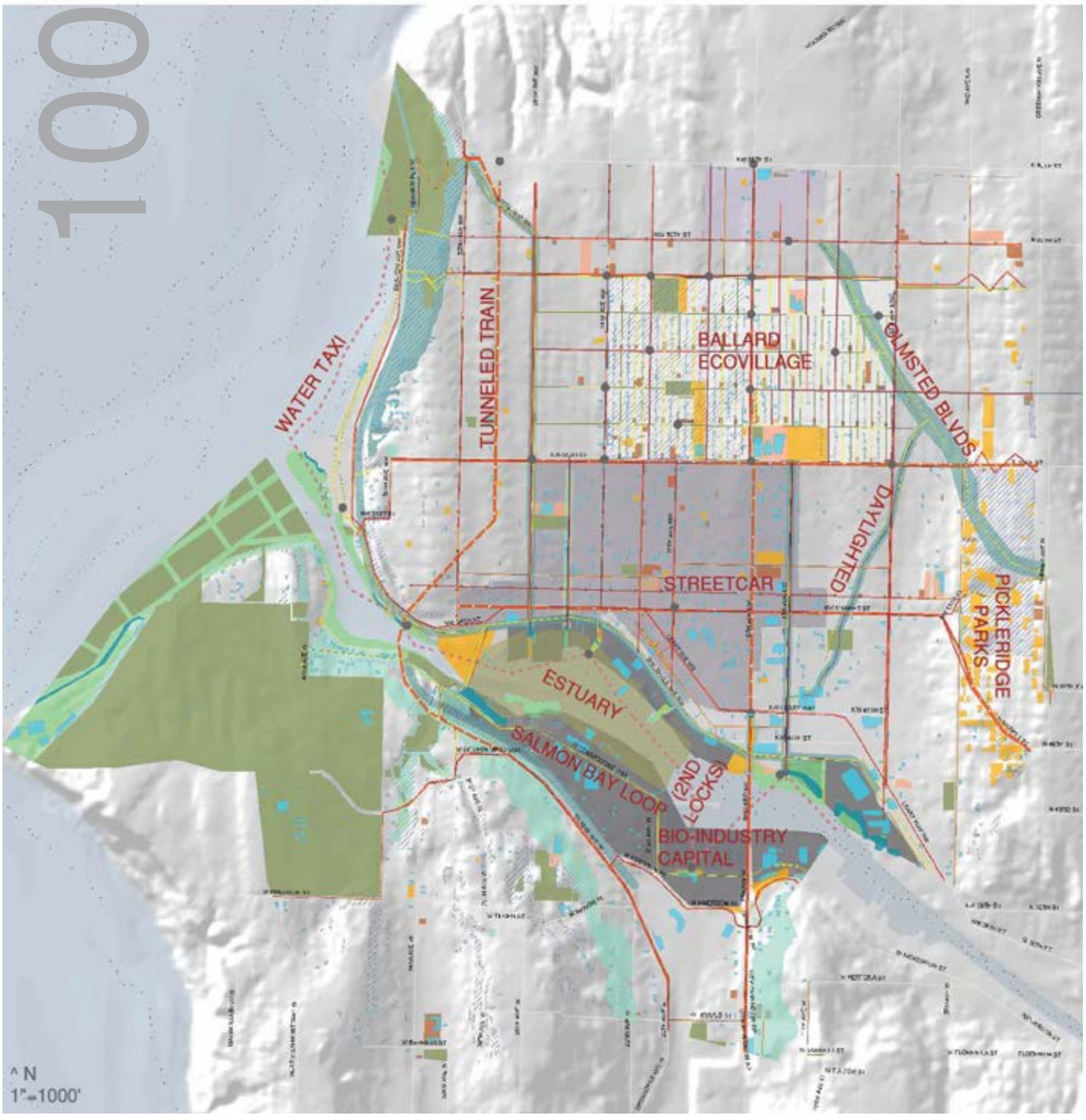
habitat: created SHORELINE, extended sunset GREENBELT

water: discovery park GREEN STREET PROJECT
WOLFE CREEK daylighted

urban: ECOVILLAGE PILOT project area, BIO-INDUSTRY developing

BREATHE
MOVE
LIVE
FLOW
GROW





HIGHLIGHTS

community: PICKLE RIDGE view parks; RAIL ROW park

transpo: TUNNELED TRAIN; continuous WATER TAXI; OLMSTED BOULEVARDS complete; SALMON BAY LOOP trail

habitat: 2ND CANAL LOCKS; restored ESTUARY; HEDGEROW BACKYARD SANCTUARIES (within BEV)

water: GREEN ROOF adoption across the city; GREEN STREET network
LIVING MACHINES + CONSTRUCTED WETLANDS reduce CSO areas
all STREAMS DAYLIGHTED

urban: ECOVILLAGE (BEV) fully developed; ballard as the BIO-INDUSTRY CAPITAL

BREATHE
MOVE
LIVE
FLOW
GROW

CHARRETTE PRODUCTS

Screaming Orca Vikings Team A

While both teams developed 100-year conceptual plans and a variety of vignettes, Screaming Orca Vikings Team A explored the modern hybrid of city and nature. As such, they assumed that Ballard will thrive as a walkable, bikeable, eco-technology hub, bounded by a reinvigorated shoreline that feeds and supports the regions primary salmon highway. The heart of Ballard will become more dense, a center of housing and commerce with rooftop and vertical gardens connecting canopy-covered multi-use green streets. Ballard will celebrate its heritage by preserving elements of the fishing and maritime industry along the Ship Canal, integrated with other green industry, bio-business, and public open space.

Salmon Super Highway

The Locks will be supplemented by a second set of Locks that together will create an estuary-like mixing chamber for the salmon and other species.

Completing the Hydrological Cycle

A network of green streets and block-based wetland pocket parks, bioswales, bike and pedestrian paths will provide wildlife habitat and eventually replace the stormwater sewer system eliminating CSO events.

Green and Blue Transportation

Ballard can improve its connections to other neighborhoods and the region by redeveloping rail and water transportation.

Salmon City Portal Team B

Central Themes

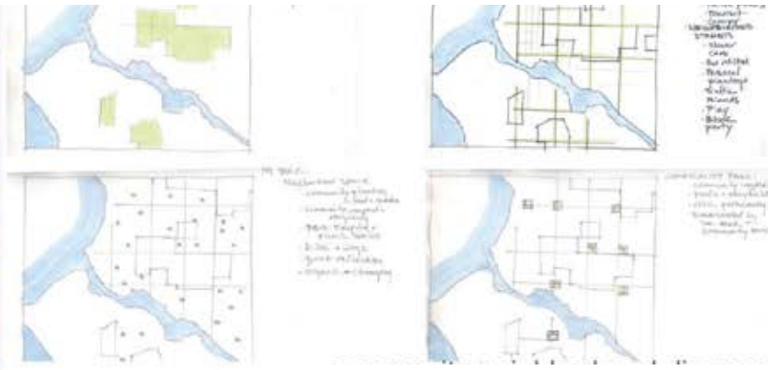
- Ecology and transportation
- Cultural and economic
- Democracy and respect

Specific Goals

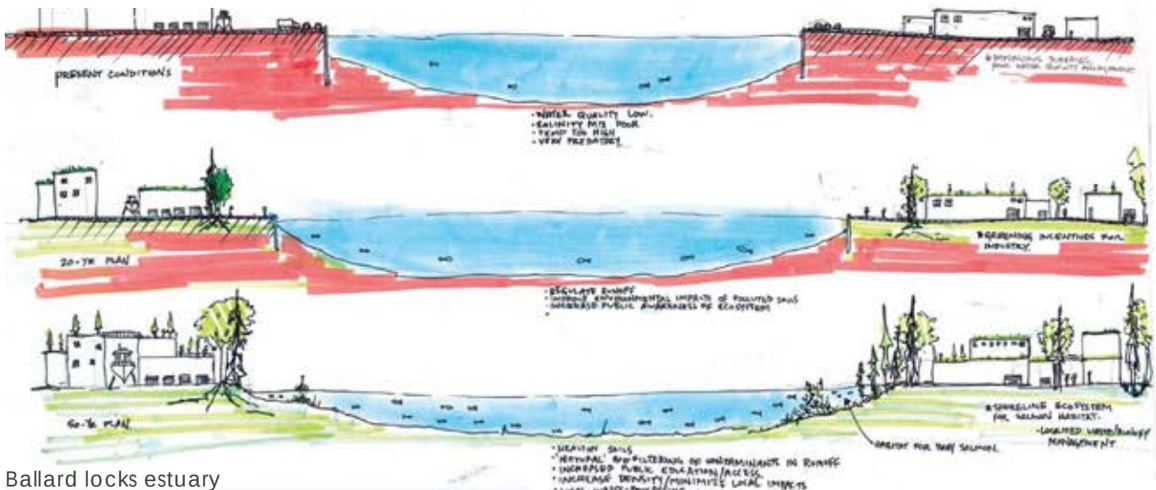
- Fabric or quilt of urban forests and habitat including free flowing waters, hedgerows
- Green corridors for multiple modes and uses such as connected pocket parks, breaking the standard street grid pattern (walk, bike, storm water, habitat)
- Celebration of the unique character of Ballard (maritime culture, Salmon Bay, Fisherman's Terminal, Scandinavian and native history, physical and visual access to waterfront, views, water access, forestry, landmarks, fresh and salt water shoreline, water taxis)
- Clean jobs and thriving industry that support and respect local residents (including wildlife, micro-energy generation)
- Diversity of activity (work, play, habitat, industry, micro-energy generation, etc.) while encouraging interconnection and interaction
- Open space planned around existing parks and streams by daylighting and drainage patterns
- Organic community-based democratic implementation

The Salmon City Portal team also developed a block level 100-year vision for an area between the two urban villages.

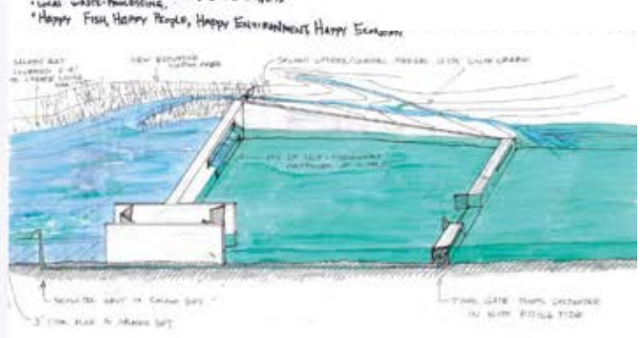
28th Avenue daylighted stream



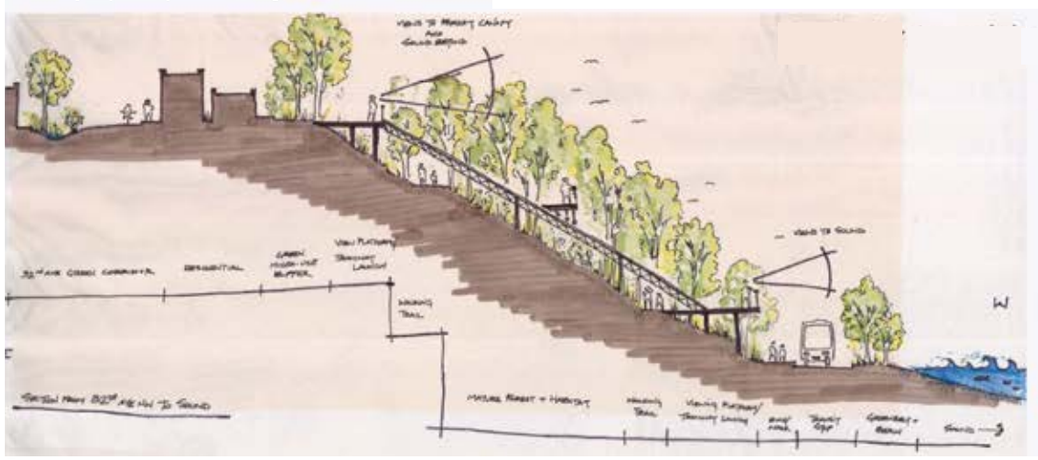
Community neighborhood diagrams



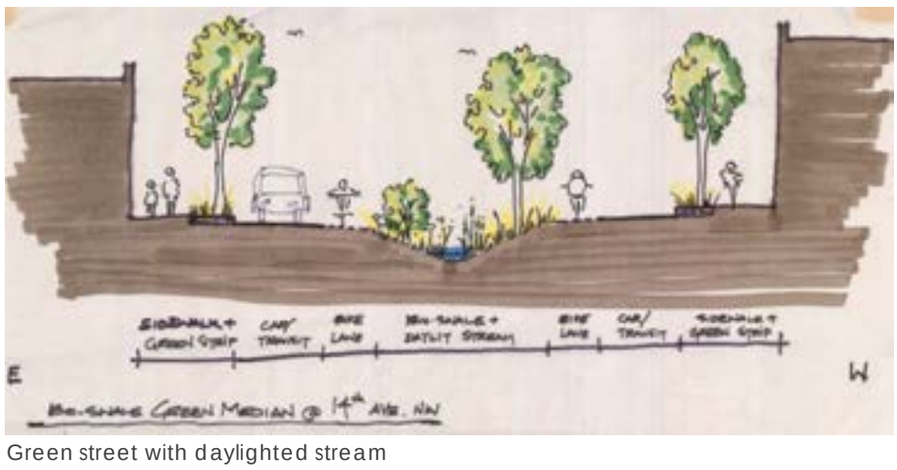
Ballard locks estuary



Industry open space integration



Funicular/ gondola access



Green street with daylighted stream

CHARRETTE TEAM ACTION PLANS

Implementation

[TEAM A]

LONG TERM GOALS

Transportation

- Multi-use rail corridors
- Mass water transit in Salmon Bay and all Seattle shores

Habitat

- Buy out of housing in cove Southeast of locks
- Optimize estuary using a second set of locks
- Complete Salmon Super Highway

Neighborhood/Community

- Daylight all hidden streams
- Finalize comprehensive network of green infrastructure

MID-TERM GOALS

Transportation

- Expand and connect Green Street network
- Enhance water taxi system
- Continue to shift from SOV transit towards foot and bike traffic along Green Streets

Habitat

- "Salmon Bay Shores" implementation
- Achieve zero CSO and low runoff in Ballard
- Further develop and interconnect bioswale network with Green Streets and lowlands
- Preserve bluffs and wild habitat connecting Ballard and Carkeek Park

Neighborhood/Community

- Establish extensive walkability
- Increase waterfront access with mixed use and habitat viewing
- Foster further utilization of green space for urban agriculture
- Convert guidelines and incentives to policies and laws to speed greening of city

SHORT TERM GOALS

Transportation

- Encourage biodiesel and other alternative, greener fuels for buses and personal transit
- Establish more transit hubs to connect Ballard via mass transit to neighborhood districts
- Establish a trial, seasonal water taxi service to downtown and West Seattle
- Implement Green Street models within Ballard (2 running East-West, 2 running North-South)
- Create seed park on site of former Azteca restaurant on Shilshole, serviced by water taxi and bus transit to begin alleviating coastline dependence on single-occupancy vehicles

Habitat

- Daylight Wolfe Creek and other hidden streams
- Strengthen educational outreach
- Develop local expertise in on-site waste and stormwater management to promote economic growth and development.
- Create a pilot bioswale along 14th Avenue NW

Neighborhood/Community

- Paint blue strips down streets where buried streams once existed
- Establish a legislative framework for acquisition and development of green infrastructure
- Create a community park stewardship program with incentives for participation
- Encourage more affordable housing intermixed in Ballard
- Extend Burke Gilman trail through Ballard
- Revitalize brownfields in Ballard
- Identify industrial uses that are beneficial to neighborhoods and encourage industrial Best Management Practices (BMPs)
- Strengthen LEEDS Green-built incentives for developers
- Stormwater utility fees, and management "service contracts" to renovate existing structures and neighborhoods
- Tax incentives and zoning code allowances to encourage private development of public spaces such as 2nd story plazas, courtyards

[TEAM B]

100 YEAR CONCEPT / APPROACH

The Salmon City Portal Team envisioned Ballard consisting of a network of connected parks and daylighted streams (storm water drainage) running along Ballard streets and flowing into the ship canal. A matrix of hedgerows and small wooded areas will provide habitat and natural amenities where properties met at back edges or four corners. There will be reduced car traffic on non-arterials which will make way for multi-use, local transport, walking, biking, and community areas in old right of ways. There will be additional nodes of mid-density concentrated at existing small commercial areas. There will be two dense focused areas of maritime industries, educational centers, water access, business and residential housing at the Ballard Urban Village and Shilshole Bay. There will be a few main multi-modal transportation corridors that connect with the rest of the city. Water taxis will also provide local and city transportation. Views and access to Puget Sound are enhanced from Sunset Hill, such as with the proposed funicular.

20 YEAR IMPLEMENTATION PLAN

Key Elements

- Build open space plan around existing green spaces, streams and shoreline.
- Connect existing parks+schools into greenway and break the grid.
- Revitalize Olmsted's Ballard Parkway concept
- Better connections within Ballard and to neighborhoods via land and water.
- Develop green spaces and water access points at Salmon Bay street ends: 14th Ave, 20th Ave, 24th Ave, 28th Ave, Ray's; water taxis
- Need more choices for east-west mobility
- Build population density to serve existing business districts and develop more community green space by converting existing residential intersections (20-50%) to include community amenities, i.e. P-patches, parks, playgrounds, kiosks.

20 YEAR PRIORITY PROJECTS

- Complete zoning law changes to better allow for smarter land use as proposed in 100 year plan ("Break the Grid")
- Complete Burke Gilman trail. Greenway along shoreline from Golden Gardens to industrial area to Fremont
- Complete "Salmon Bay Loop" project
- Start water taxi services from 14th Ave NW, Fisherman's Terminal, 24th Ave NW, west of Locks and connect to rest of Puget Sound
- Develop waterfront access to Puget Sound from Sunset View Park and Loyal Heights via funiculars and pedestrian stairways at Sunset View
- What schools are closing? Transform them into community farms
- Daylight Magnolia's Wolf Creek with Heron Habitat Helpers
- Develop 8th Avenue NW boulevard between Leary and NW 65th Street
- More integrated mass transit to reduce congestion.
- City to acquire more property for future green space.

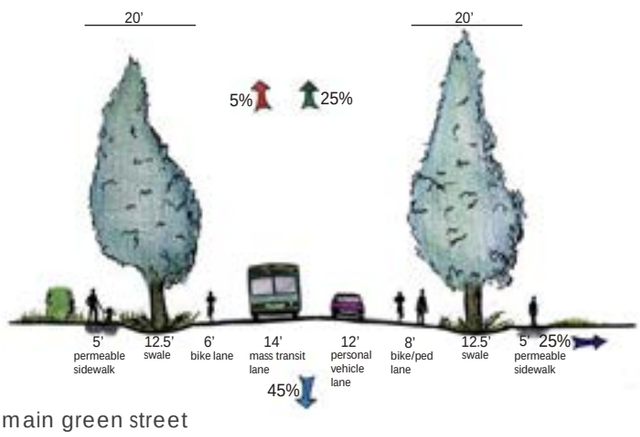
2-YEAR PRIORITY PROJECTS

- Improve 14th Avenue NW: Salmon Bay access point to NW 65th Street. Daylight stream.
- Develop greenway, bikeway.
- Plan for greenway from Golden Gardens to Loyal Way to 28th Ave NW to Salmon Bay. Daylight stream under 28th Avenue NW.
- Offer multiple modes of transportation.
- Plan for "Salmon Bay Loop" from Ballard to Magnolia.
- Discuss with Metro east-west bus service on NW 65th St.
- Develop smart zoning regulations to increase density and community amenities that reduce car ownership.

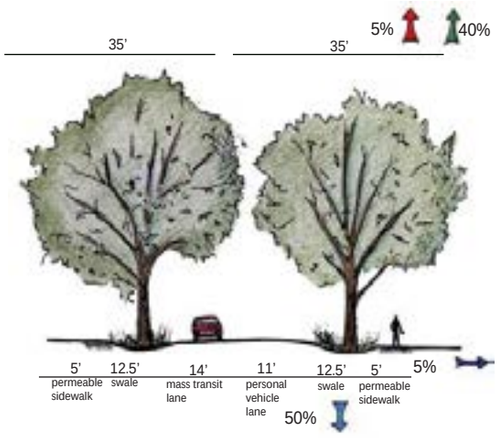
ECOLOGICAL BENEFIT EVALUATION

analysis of hydrological and habitat improvements: ballard and duwamish study areas

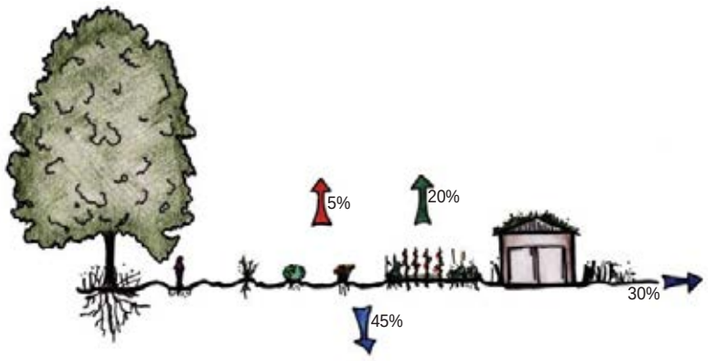
Ecological Function Typologies



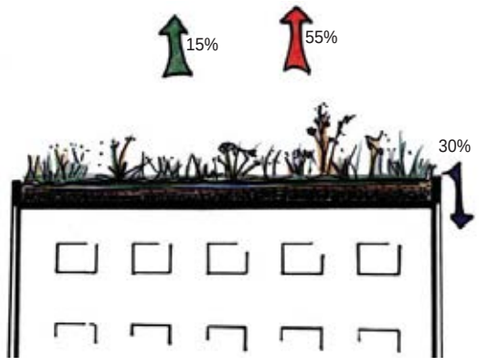
main green street



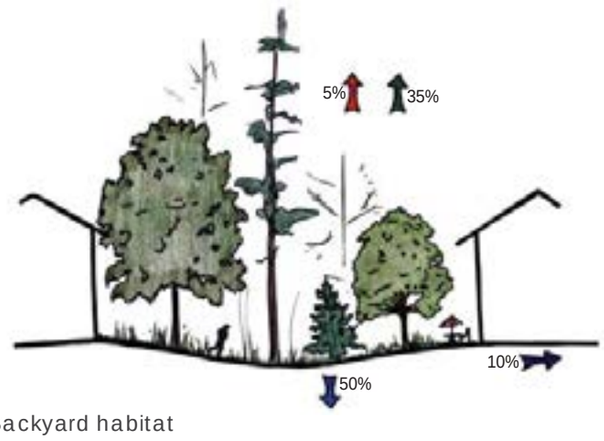
neighborhood green street



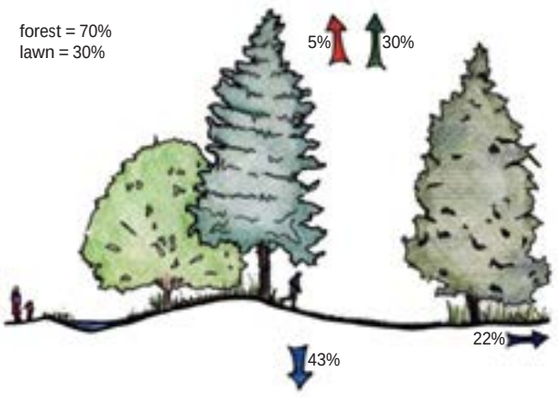
Urban agriculture



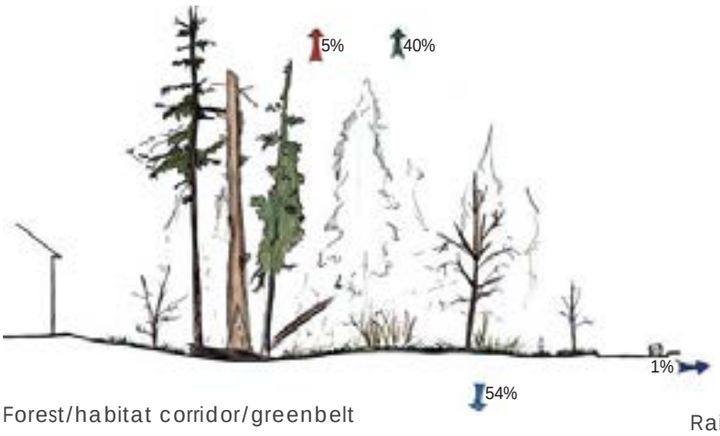
Green roof/lidded habitat



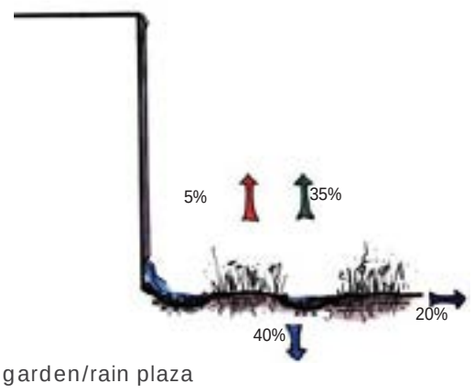
Backyard habitat



Passive park

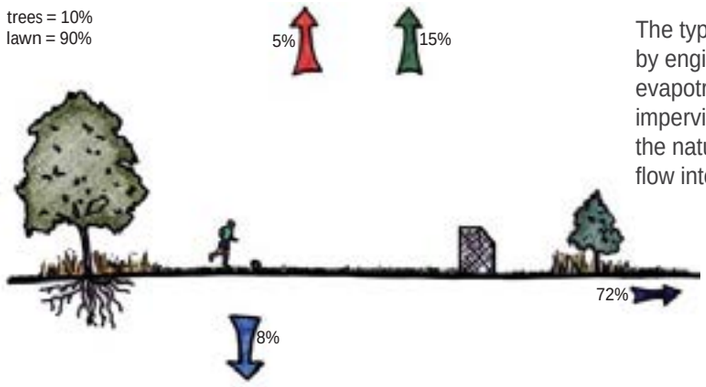


Forest/habitat corridor/greenbelt



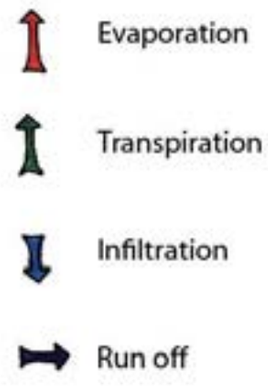
Rain garden/rain plaza

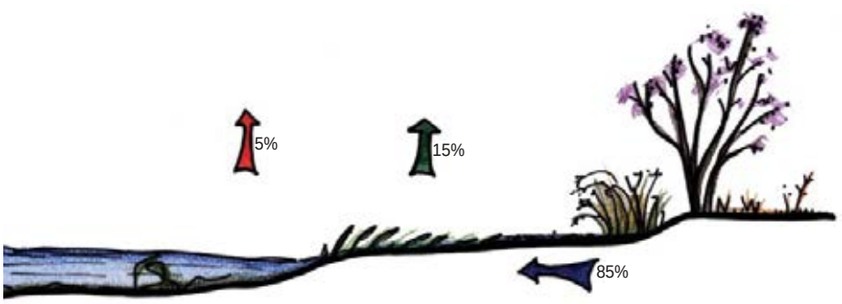
Ballard / Ship Canal



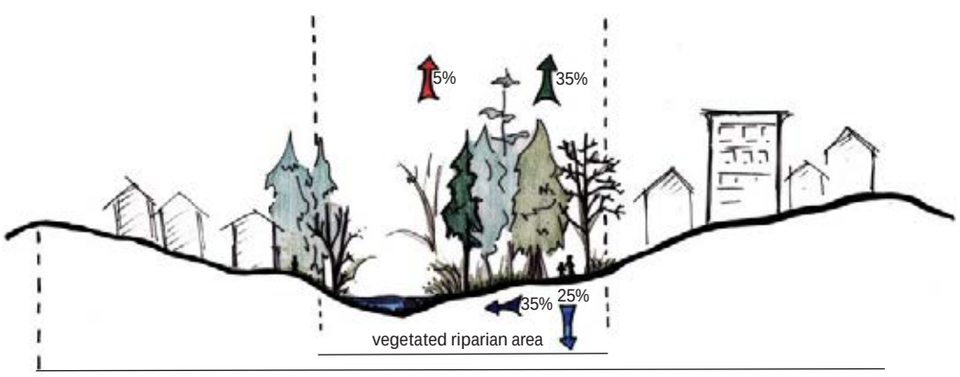
Recreational area

The typologies on the left try to mimic natural conditions by engineering ways to increase water infilitration and evapotranspiration, creating areas that contain some impervious surface but effectively pervious. This helps restore the natural hydrological cycle and reduce the volume of water flow into combined and separate stormwater sewer systems.



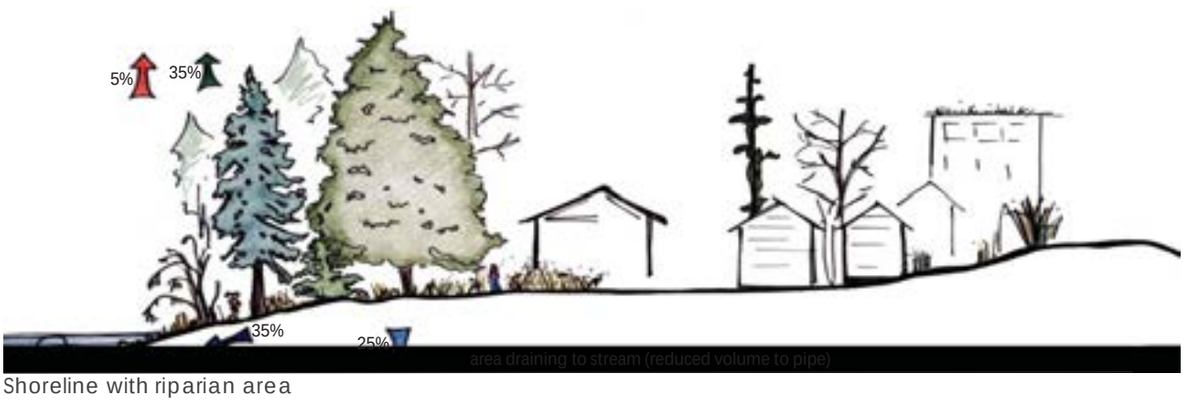


Intertidal/estuary/shallow water habitat



Stream with riparian area

Area draining to stream (reduced volume to pipe)

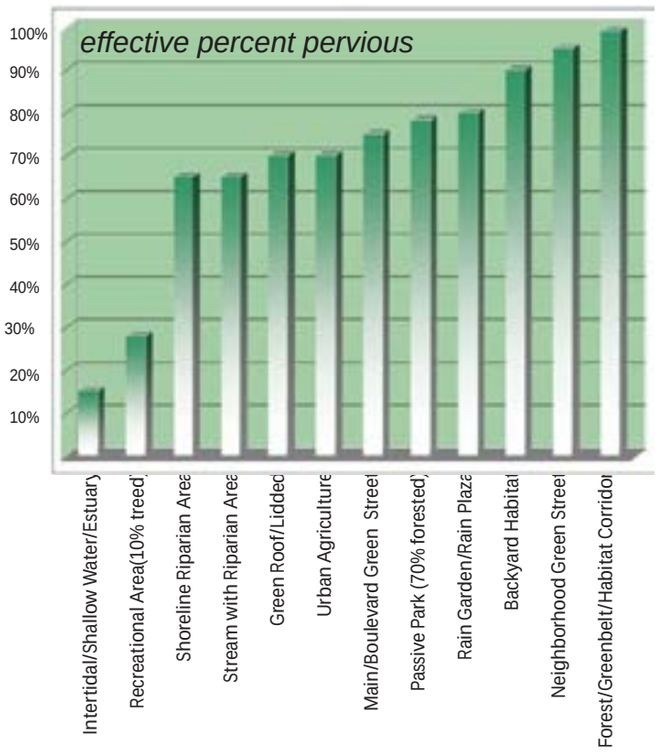


Shoreline with riparian area

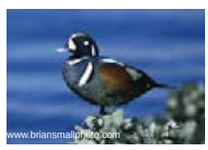
ECOLOGICAL BENEFIT EVALUATION

Analysis of hydrological and habitat improvements: Ballard Open space 2100 study areas

hydrology



habitat



Throughout the world, cities fragment, isolate, and degrade natural habitat. Application of the principles of landscape ecology, including interactions among patches, corridors, and metapopulation habitat networks, is valuable for enhancing urban ecological health. By improving habitat quantity, quality, and connectivity, it is possible to conserve and protect native plant and animal species.

Ballard Study Area Results

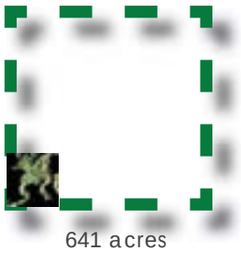
study area size: 706,053 acres
area of improvements (20 years): 8,284 acres
area of improvements (100 years):14,149 acres

current

3,129 acres effective pervious surface

1,663,937 CCF

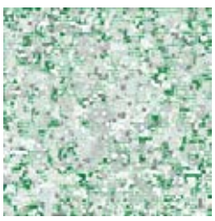
current



641 acres

- limited corridor connectivity
- few stepping stones
- low habitat quality outside of Discovery Park

20 year



5,828 acres effective pervious surface

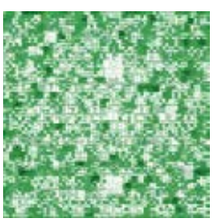
852,779 CCF

20 year

8,284 acres

- improved corridor connectivity
- more riparian habitat

100 year



11,617 acres effective pervious surface

285,881 CCF

100 year

14,149 acres

- additional high quality corridors
- matrix of stepping stones
- improved quality

Ballard / Ship Canal

BALLARD ECOVILLAGE (BEV) PLAN

Self-sustaining blocks between the Ballard and Crown Hill urban villages

100

- Community Node
- Dense/Commercial Area
- Church/School
- Farmer's Market
- Park/Habitat
- Hedge Row
- Green Roof
- Pedestrian/Bike Corridor
- Vehicular Access
- Constructed Wetland Street
- Living Machine Street
- "PeePee" Patches

20

local service nodes expanded parks urban agriculture limited vehicular access no mo' cso

Ballard / Ship Canal

EXISTING SYSTEM

MUNICIPAL TREATMENT

WESTPOINT TREATMENT FACILITY
King County REGIONAL SYSTEM
420 sq miles

90 ppl per block

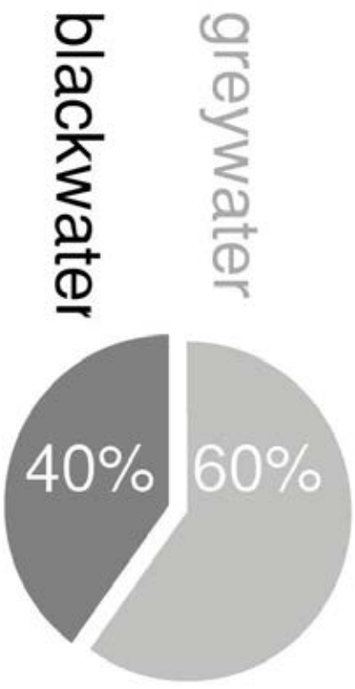
110 gpd used per person

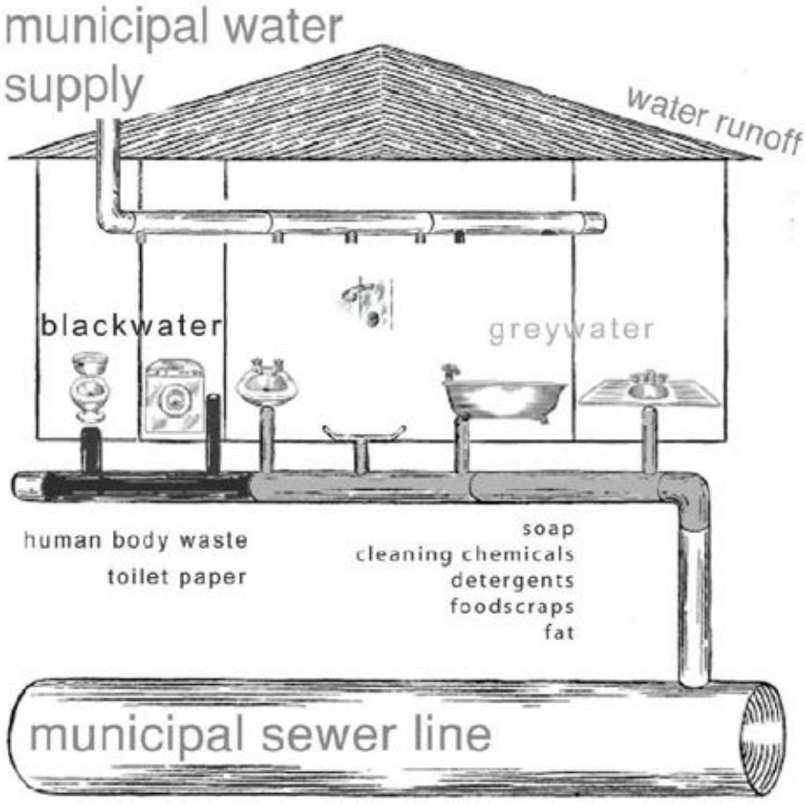
10,000 gpd per block

HOUSEHOLD WATER USE:

330 gpd used per house

used per house





PROPOSED
SYSTEM

LOCAL TREATMENT
BALLARD ECOVILLAGE
P.E.E. STREETS

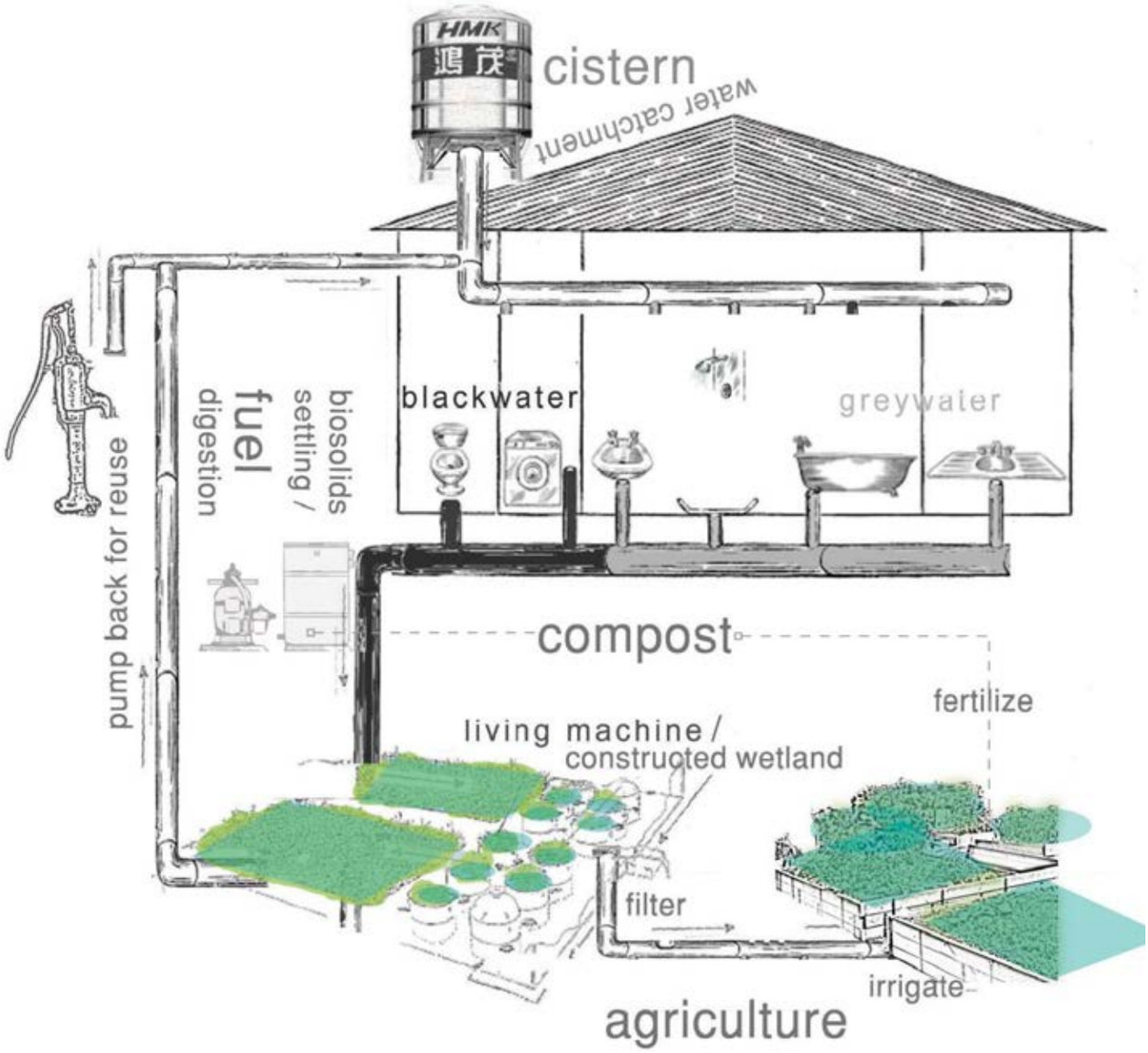
32,000 sq ft ROW per block

2100

180 ppl per block (double the population)

70 gpd used per person (better water-saving technologies)

13,000 gpd per block



BALLARD P.E.E. [PROGRESSIVE.ECOLOGICAL.EDGE] STREETS

CONSTRUCTED WETLAND
cost:
$10 per sq ft
$230,000
source: Reed, Crites, and Middlebrooks

LIVING MACHINE
cost:
$300 per sq ft
$500,000
source: Living Machine product sheet

area required:
23,000
sq ft

CONSTRUCTED WETLAND
black+greywater treatment
13,000 gpd per block

LIVING MACHINE
black+greywater treatment
25,000 gpd per block

360 ppl
(denser area serving 2x population)
per block

25,000
gpd per block

area required:
biosolids holding:
100 sq ft
greenhouse:
1600 sq ft
system:
1500 sq ft

BIOSWALE
stormwater retention
on limited narrow roads; the closed streets are now for local waste treatment + recycling... pee streets + peepee patches!

Ballard / Ship Canal

LIVING MACHINE

black+greywater treatment

CONSTRUCTED WETLAND

black+greywater treatment

Ballard / Ship Canal

GREEN LAKE

Team Leaders: Ryan Shubin
Student Team Leader: Jocelyn Liang Freilinger
Team Members: Michael Broili, Nate Kappen, Liz Kearns, John Marsh, Christian Poules, Kevin Ramsey, William Sinclair, Kaila Yun

Planning for Green Lake 2100

The Green Lake watershed incorporates the neighborhood of Green Lake and parts of Licton Springs, Phinney, and north Wallingford. Its dominant feature is Green Lake, which is the dominant feature of the regional park of the same name. Adjacent to Green Lake Park are Woodland Park, which features heavily used active and passive recreational areas, and the Woodland Park Zoo. The northern portion of the watershed includes Licton Springs Park, which contains Seattle's last remaining natural mineral springs. Historically, this spring was one of several, which fed Green Lake. Today, it bypasses Green Lake in a culvert, and empties out at Lake Union.

Green Lake is the busiest park in the state of Washington, receiving 1 million visitors in 2005, and the heart of a nutrient-rich ecosystem, which is still only partially understood. Urban development has had a profound impact on the hydrological action of the lake. A 1908 USGS map shows a slightly larger lake than the one we are familiar with today; the water level was lowered by about 10 feet under the Olmsted Plan. By the 1930s, the lake was suffering from deforestation, development and the elimination of natural stream flow. Periodic blooms of blue-green algae, and the microorganisms that cause swimmer's itch, continue to be a problem today. Invasive species including European carp and milfoil threaten to overwhelm the natural inhabitants of the ecosystem.

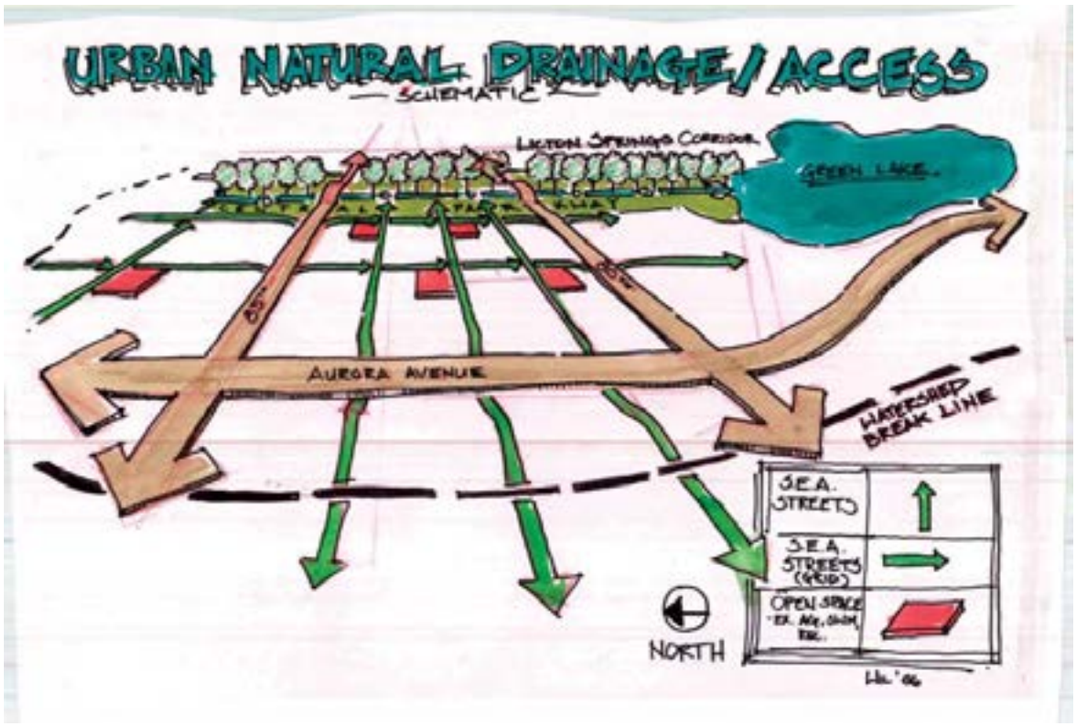
The primary goal of our plan is to promote the ecological health of our park system while also accommodating the needs and impacts of a growing population. Central to this plan is an effort to maintain and improve Green Lake as the heart of a naturally functioning ecosystem by improving the natural inflow and outflow of clean, balanced water. Restoration of the natural flow will help recharge groundwater, provide streamside wildlife habitat, enhance the aesthetics of the park and surrounding neighborhood, and increase environmental awareness of residents and visitors.

Our team identified several opportunities for restoring water flow to Green Lake: the historic stream that originates at Licton Springs and flowed through the Densmore Basin; and another historic stream that flowed from Crown Heights to Green Lake, which at times shares the path of the Interurban Trail. For outflow, daylighting Ravenna Creek would also provide opportunities to restore hydrologic connections and habitat connections. These daylighted streams would employ SEA street design and state-of-the-art filtration systems to treat water quality at various points throughout the system. These daylighted stream corridors would also provide opportunities to connect regional pedestrian and bicycle trails. This layering of ecological function with recreational trails is a key component of our plan.

In terms of how people get around, we hope to encourage people to use their cars less. Perhaps fewer cars and slower traffic might result in safer and more convenient conditions for those who choose to walk or ride bicycles. We would encourage people to use buses, which would be available at more frequent intervals, and which would also provide rides between nearby urban villages. We recommend that Green Lake Way be designated a green street, with limited vehicle access, thus blurring the boundary between park and street and improving pedestrian and bicycle access to the parks. Arterial bus and vehicle traffic would be encouraged to be re-routed between one to four blocks away from the perimeter of the park.

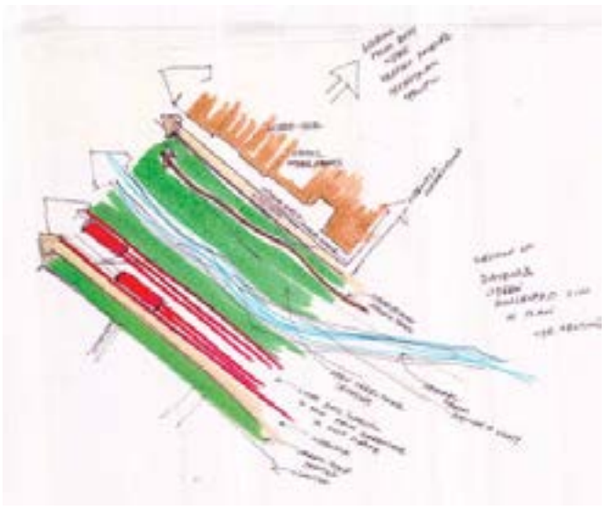
Also, to serve the needs of immediate residents of the watershed and to take some pressure off of the major parks, we recommend the creation of new small parks. These could be in the form of individual lots purchased with public money, or in a series of lid parks over I-5 which would improve safety and mobility across I-5 for pedestrians and bicyclists. Small parks are able to accommodate a range of uses, from a fitness trail to a P-patch, to more passive playgrounds and gardens. One idea that might accompany P-patches is a chicken coop co-op, in which participants would share the work and rewards for caring for chickens, and the co-op could exchange eggs, meat, and compost for vegetables grown in the an adjacent P-Patch.

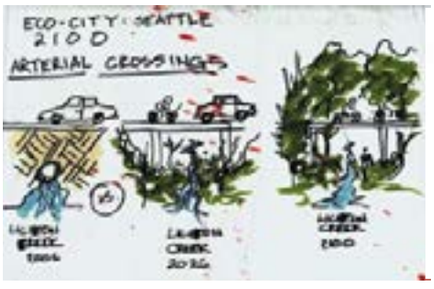
Since so much of this watershed is owned by individual homeowners, we would also recommend providing guidelines and incentives to homeowners for on-site stormwater treatment and habitat stewardship. This might be achieved in the form of green roofs, rain barrels, and rain gardens, or backyard habitat sanctuaries. Employing any of these strategies could result in a tax break for the owners.

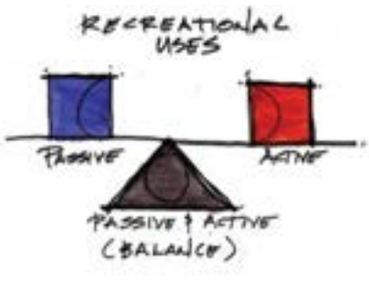


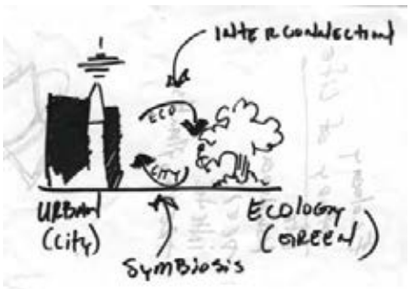
Goals

- Restore and protect natural functions
- Create and provide green corridors
- Provide passive and active social interaction
- Support and encourage multi-functional use
- Create symbiotic relationships between natural and built functions
- Encourage interconnection









Problems

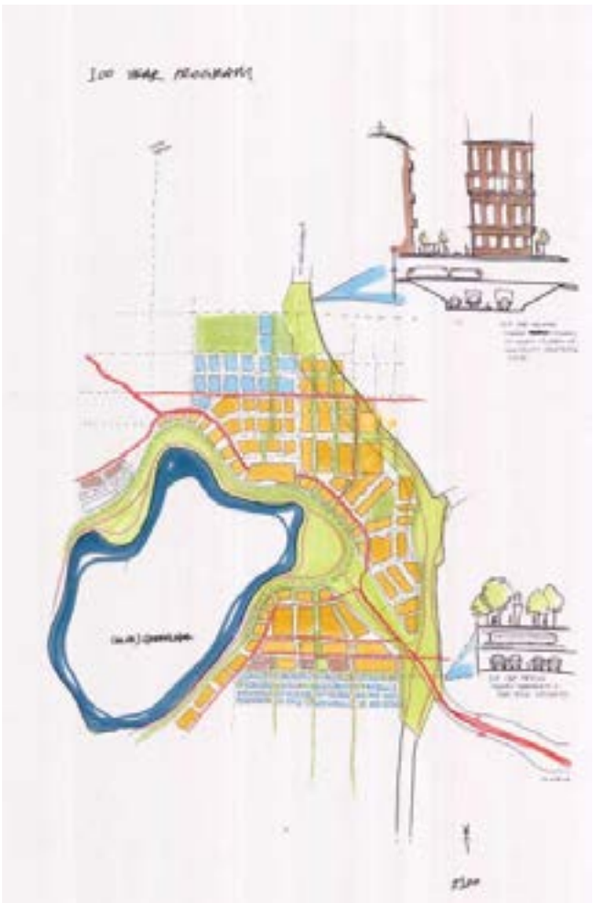
- Understanding that population will potentially double
- Mixed Use will be a primary solution
- We will see less of the single family housing model
- I-5 will come to an extreme turning point
- Expansion and densification will consume the existing urban village
- The automobile will be less significant
- Open/Park space will be threatened by density and the adjoining development
- Water preservation will become extremely relevant

Goals

- Preserve and restore natural waterways
- Expand/create more open space
- Encourage mixed use in higher density areas
- Reduce traffic congestion and emissions by minimizing use of automobiles
- Switch to rail/bus systems
- Use existing grid and street system and
- Give more life to the existing street, sideways
- Cap I-5 to allow for more open space and reduce urban heat island effect
- Green Streets
- SEA Streets nourish urban ecology
- Reduce surface water runoff
- Pocket Parks

Solutions - Plans - Implementation

- Widened Ravenna Boulevard:
- Large Green Corridor w/ pedestrian and bicycle paths
- Daylight Ravenna Creek
- Lid Parks over I-5
- Make Green Lake Way green street with little to no auto traffic
- Move primary traffic loop around Green Lake to block behind with frequent bus/ streetcar service
- Increase density from existing urban village
- Design mixed-use green developments to accommodate densification
- Design Green Fingers extending from lake and connecting to important public & private nodes.
- Layer transport below I-5
- Use green infrastructure to maximize open and green space



Development Diagrams of Green Lake Urban Village

IMPLEMENTATION TIMELINE

Short Term (3-5 Years)

- Funding for SEA Streets
- Acquire small neighborhood parks (start with steep street right-of-ways)
- P-patches
- Chicken coop coops
- Active & Passive Recreation
- Establish transit loops and spokes
- Increase frequency of service for convenience, reliability
- Daylight stream corridors/trails in phases/segments
- Develop right-of-ways where available/ acquisition when appropriate and opportune coordination with private owners

Middle Term (20-50 years)

- Lid Parks over I5
- Woodland Park zoodoo program becomes part of an electricity generation facility
- Ongoing linkage of daylighting and trail segments

Ongoing/Long Term

- Incorporate new filtration technologies in SEA Streets
- Streams and regional trails are fully linked
- Periodic reassessment of stream and lake water quality
- Regular audits of habitat quality

HYDROLOGY AND HABITAT

20-Year Plan

100-Year Plan

MULTIFUNCTIONAL LINKAGES

20-Year Plan

100-Year Plan

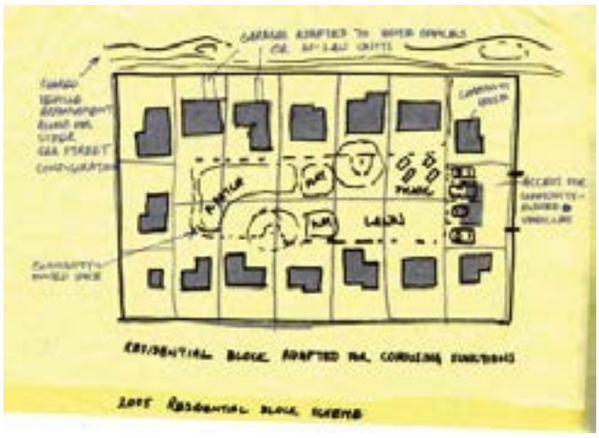
Adaptation of Co-housing Spatial Strategies to Existing Residential Infrastructure

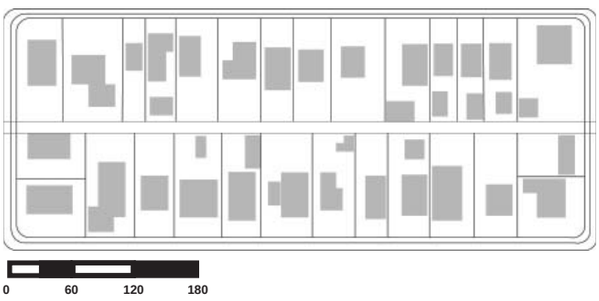
In a future where urban forms must accommodate greater density and facilitate the needs of a growing population, the adaptation of these spatial strategies may meet the open space needs of the community. In addition, activating these spaces for community use might also address one of the major critiques of the single-family home: that they are isolating and anti-social, and discourage community-building.

Many Americans, particularly those who live in single-family homes, have a cultural resistance to co-housing. They value the autonomy and privacy provided by a free-standing, single-family home. However, they may forgo convenient access to goods, services, and parks by choosing to live in one of these homes. These inconveniences may become even more pronounced as the city densifies.

The goal of this project is to explore the possibility of public to semi-public use of privately-owned open space, within the existing infrastructure. As the city increases in density, small, neighborhood-scale open spaces will increasingly be called upon to meet the needs of the community.

-JLF





Single Family Residential Block - in numbers

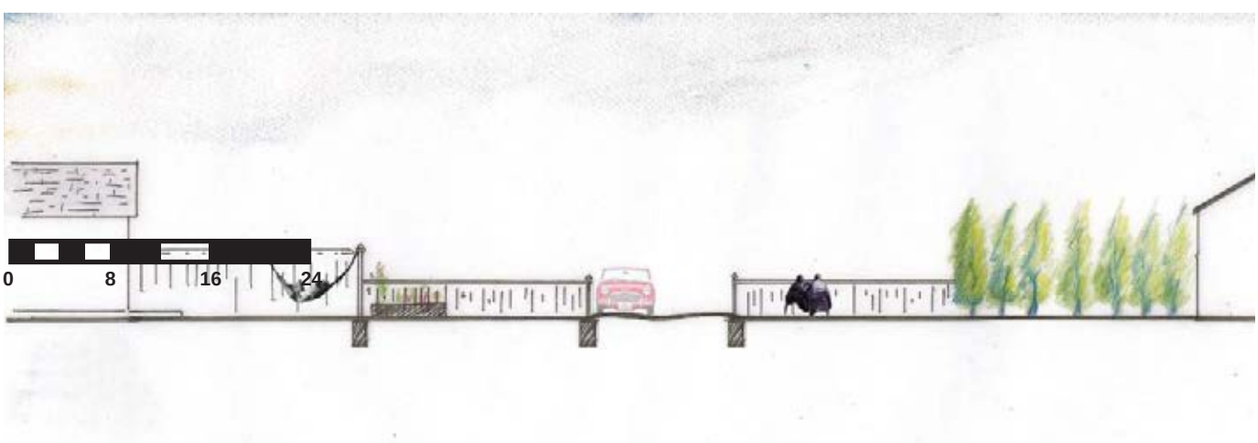
28 houses

56 - 112 people

28 - 42 cars

about 2.5 acres

Typical alley running through a residential city block



Section illustrating private to semi-private spaces

Open Space Functions

Passive Recreation

Social Space

Anti-social space

Active Recreation
- Play Structures
- Fitness Trail Stations

P-Patches

Public Gardens

Off-Leash Areas

Habitat

Implementation Strategies

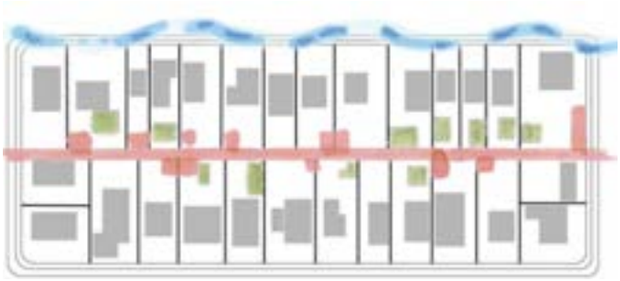
In addition to individual initiative, a number of legal and financial mechanisms can be helpful in facilitating these types of small-scale land uses, as well as formalizing community activities even as housing stock turns over. Different mechanisms can be structured so as to fit the desires and level of involvement suitable to the individuals involved.

- Conservation easements
- Incorporate as Co-op or Condo
- Small-scale land trusts; Community Land Trust
- Tax benefits, property tax breaks
- Green Roofs, Rain Barrels, Rain Gardens, Backyard Wildlife Habitat
- Zoning variances

Mending Fences

Community garden on multiple lots

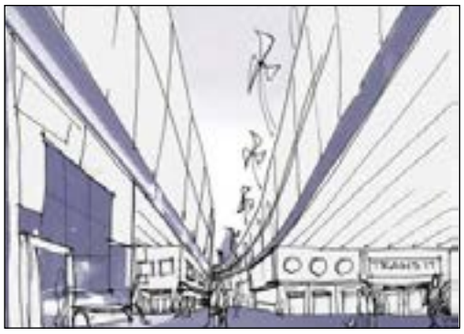
Potential Functional Configurations



Short Term Strategies: Natural Drainage System installed in neighborhood; experimentation with green roofs; experimentation with opening up/ sharing use of small spaces

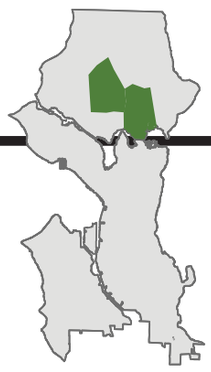
Long Term Strategies: Promote cooperative sharing of space for multiple functions. Acquire 1-2 individual lots for additional open space and/or a “community house.”

- *Drainage*
- *Green Roof*
- *Rain Barrel*
- *P-Patch*
- *Ornamental Garden*
- *Structured Play Area*
- *Passive Space*



GREENLAKE / UNIVERSITY DISTRICT

University Team B



Team Leaders: Rebecca Deehr, David Levinger
Student Team Leaders: Lauren Acheson
Team Members: Ellen Aagaard, Heidi Bedwell, Laura Davis, Lin Lin, Lorne McConachie, Sarah Short, Peg Staeheli, Bess Steiner, Tom Van Schrader, Anne Vernez Moudon, Daniel Winterbottom

CHARETTE PROCESS AND PRODUCTS

Key Ideas

- Natural systems for organization
- Multi-layered infrastructure
- Transportation corridors as open space
- Open space to support density, preserve character
- Hierarchy of open space types and scales

Overarching Goals

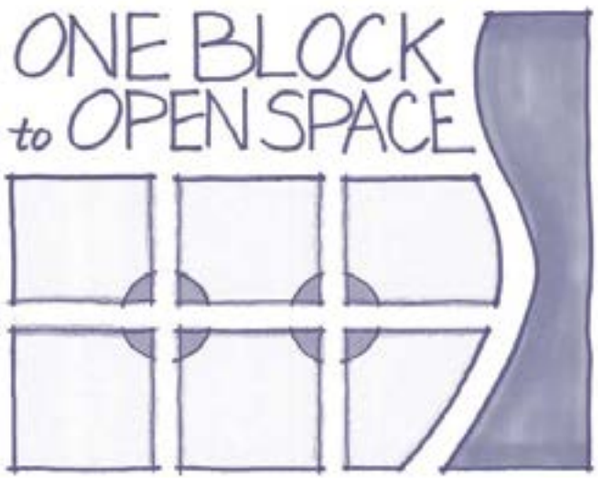
- Every citizen is invested in Seattle's open space
- Livable neighborhoods: density is balanced by increased access to open/green space, including along transportation corridors
- Open space integrates ecological systems and functions into the urban landscape

Site-Specific Goals

- Revitalize the Ravenna watershed
- Reclaim I-5 for neighborhood connectivity and open space
- Integrate University with surrounding vicinity
- Reduce ecological footprint, including using natural systems for drainage
- Improve pedestrian and bicycle experience
- Extend and enhance wildlife habitat

Schematic Diagram

Re-connect the Ravenna Creek System



CONCEPT: one block to open space

Concept Application

The strategy of one-block-to-open-space ensured that every citizen is personally, as well as equitably, invested in Seattle's open space system. Human-human and human-environment interactions are key to ecological and social aspects of sustainability. Integration of increased density development, active transportation, and open space make neighborhoods livable and economic sustainability viable. The city-wide network of green infrastructure and movement corridors is at the heart of block-level design. Open spaces have many forms, scales, and multiple social, ecological, and connective functions with a layered hierarchy that celebrates both our diverse environment and local culture.

Block Open-Space Plans

- Though new legislation of city council, every block in the city that is more than one block from open space is required to develop an open space plan to provide nearby of self-contained open space by the year 2100.
- Implementation of plans will result in every person living within one block of open space and provide ecological, social, and connective functions.
- Plans may support larger area visitors or result in inward-serving functions
- The process of approval and comparison will create political tributaries into a larger city-wide consciousness and campaign to develop a model city open space at all levels

3-5 Year Implementation

- Update code for block-level stormwater strategies
- Seattle Department of Transportation, Seattle Park and Recreation, Seattle Public Utilities must sit down at a table and figure out a working relationship for land that serves as park, transportation, and utility infrastructure
- Create a website system with interactive submittal and viewing capabilities for block-by-block, locally based open space planning
- Pass a city council resolution concerning block-scale development that incorporates open space for every block and citizen
- Designate desired lands for waterway reclamation and I-5 lid; develop a procedure for acquiring those lands over the next 100 years.

I-5 Lid

5 Conceptual Hydrological Typologies

Grassroots Implementation
- Block level, voluntary
- Personal rainwater catchment, kinetic sculpture, green roofs, permaculture

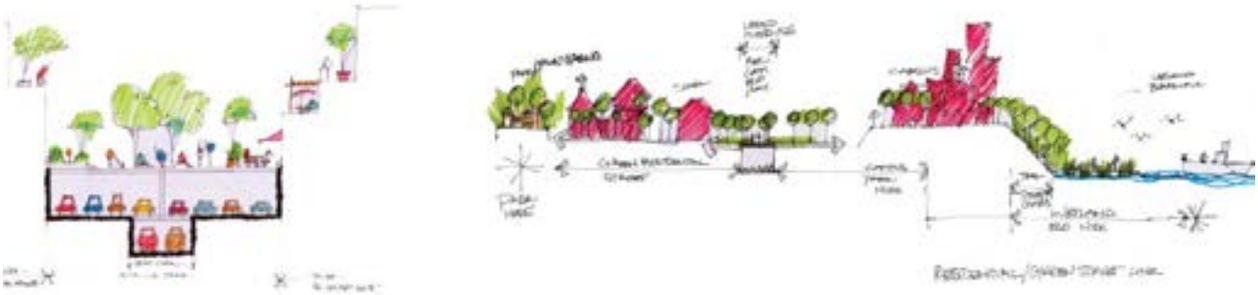
Large Public Open Space
- Largely already acquired and managed
- Eco-educational, accessible. Examples: Greenlake, Union Bay Natural Area

(Re)Claiming Waterways
- creating mixed-use investement in public waterways
- daylighting and capitalizing on existing hazards
- historic and appropriate daylighting waterways
- organizing principle for nodes to create deeper social function and meaning; trail, active, and passive recreation

SEA Streets
On-site water treatment mandatory within a mile of all open waterways

Aqua Grid
Watershed zoning through city-mandated stormwater strategies in strategic areas to restore watershed function

Ravenna Creek Tributary Typologies



I-5 Lid Sections

PROJECTED FUTURE

Community and Transportation

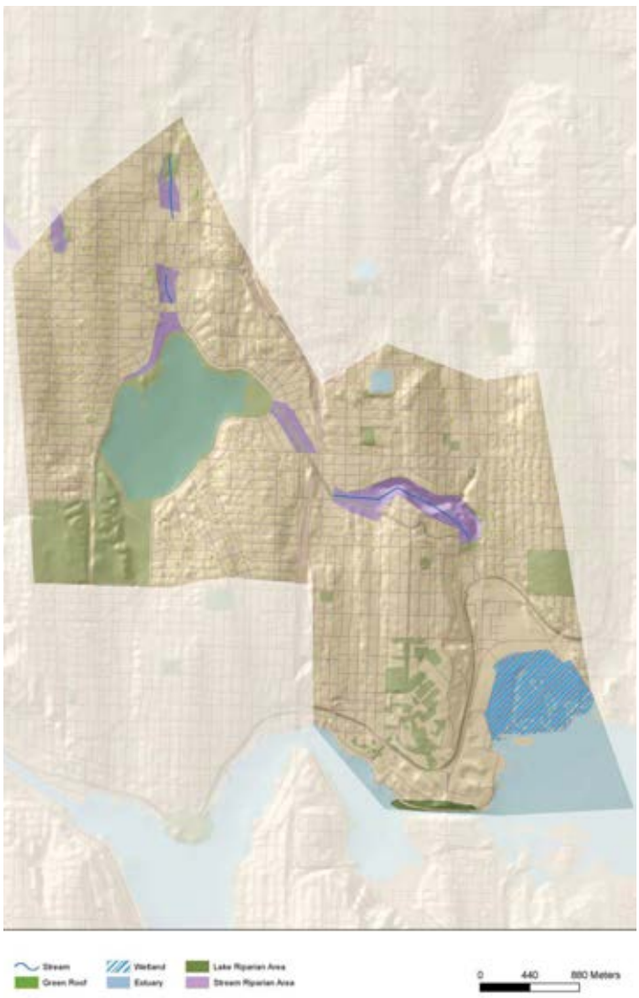
2020

- Target areas for higher-density development are established in locations primarily related to mass-transit stations and the university campus
- Road improvements, particularly as relates to pedestrian and bicycle navigation, are focused on creating corridors between places, such as Greenlake and the university campus; the goal is to provide a system for pedestrian movements within these neighborhoods
- Focus on I-5 corridor for re-development, both for the right-of-way itself and the surrounding parcels; the goal is to provide transportation AND public open-space amenities

2100

- Several new zones of higher-density and mixed-used development are established in strategic locations, primarily as related to mass transit stations, the I-5 corridor, and the university campus
- A place-based network of pedestrian and bicycle-friendly roads is established in the Greenlake-University District neighborhoods to provide an inner-loop to the Burke-Gilman trail that links the waterfront to inland amenities such as Greenlake. This system also provides orientation and navigation for small-scale movement along protected and more sensitively designed routes.
- The I-5 corridor has become the focus of intense and innovative urban development, namely a lid over the portion currently trenched, and infill development beneath the elevated portions. This right-of-way may contain space for personal vehicles and mass transit systems (both regional and local).

Habitat and Water



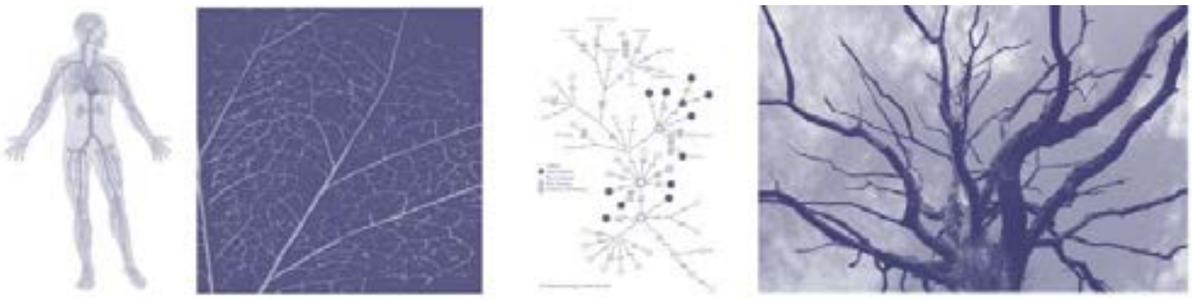
2020

- The city prioritizes the functional restoration of the Ravenna Creek watershed, including Greenlake
- The city prioritizes the acquisition of parcels necessary to establish the functional restoration of the ravenna creek watershed; these areas will also contribute to developing a connected water-based open space system
- The city prioritizes acquisition of parcels within hazardous zones, such as unstable soils and upon filled land
- Green roofs begin to appear in residential applications

2100

- The Ravenna Creek watershed is functionally restored from the stream tributaries to greenlake, through Ravenna Creek, down to the union bay natural area. This system connects not only natural drainage, but also habitat and human open-space.
- The City of Seattle has acquired parcels needed to daylight tributary streams, and also parcels located in hazardous areas as of 2000 (such as unstable soils)
- The treatment of stormwater is diffuse through the neighborhoods, with SEA street type models implemented widely (focused in those areas draining to the ravenna creek watershed)
- Green roofs are widely implemented

OPEN SPACE AND INFRASTRUCTURE: TRIBUTARY SYSTEMS



Tributary Organization

Tributary systems are interconnected networks of multiple scales, arranged in a hierarchy to ensure efficient, appropriate, and effective distribution (or collection) of resources. This philosophy provides a descriptive goal and model for structuring and integrating infrastructure and open space system design.

Infrastructure As Public Open Space

Infrastructure and open space systems are each public amenities that are funded with public money. Additionally, the integration of infrastructure systems into publicly used spaces gives the opportunity to instill social meaning, recognition and appreciation of urban infrastructure systems. The layering and integration of these functions in the same spaces provides the potential to increase the opportunities for creative and innovative design in each overlapping system.

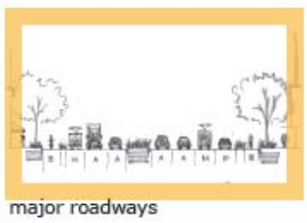
Olmsted and Infrastructure

Olmsted's landscape design often included components of urban infrastructure. These elements aided in establishing function, health, and identity, and have in turn created lasting and iconic landscapes. With contemporary understandings of engineering, hydrology, and environmental sciences, our ability to transform landscapes by restoring function can also serve to expand public access to open spaces.

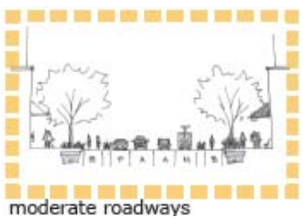
STRATEGY IN A SYSTEM

Roadway Re-thinking and Re-development

- As roads are re-designed for pedestrian and bicycle safety and sensitivity, these improvements should be focused upon creating a place-based network of routes
- Targeted roadways may be of large multi-use or small residential scale
- Pedestrian and bicycle safety are prioritized, along with common design features that indicate the route as part of a navigation system
- Permeable paving and stormwater treatment are also accounted for in new roadways
- Modular paving systems are implemented, thus allowing ease of access to sub-surface utilities, ease of repair to roadway patches, and ease of designation of right-of-way priority (different paving patterns for different types of traffic)



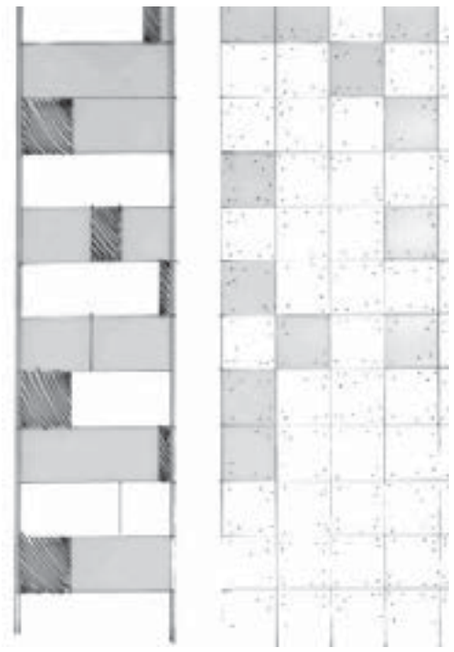
- Major roadways carrying vehicular and pedestrian traffic
- Mass transit route
- Off-street parking only; movement is prioritized
- Surface water treatment below paved surface



- Neighborhood connecting roads / mixed use development and transportation
- Smaller-scale mass transit routes
- Neighborhood parking provided
- Surface water treatment below paved surface; at surface if space allows

- Residential roads
- Pedestrian experience prioritized
- Neighborhood on-street parking
- Surface water treatment visible in planting strips

M = mass transit
B = bicycle lane
A = automobile lane
P = parking lane



Modular permeable paving units

Design Goal: INTEGRATE

- To connect humans to, and with, open space by layering access and activities on existent urban infrastructure systems: roadways and waterways
- To develop a connective place-based network to provide orientation, legibility, and access
- To look at infrastructure systems as integrative of built and natural systems

Target: INTERSTATE 5

- Wrap the urban forms of the city and natural functions of the land around and across this space.
- A lid over the trenched portion will reconnect human movement between the university district and Wallingford, while providing significant open space in a densifying neighborhood.
- Enclose the elevated portion of I-5 over Ravenna Boulevard to re-establish access between Roosevelt and Greenlake and encourage new activity in the reclaimed footprint.

Implementation: COORDINATE

The integration of Seattle's open space and built infrastructure will require concerted cooperative and collaborative efforts between several city officials and agencies to grow a multi-functional system.

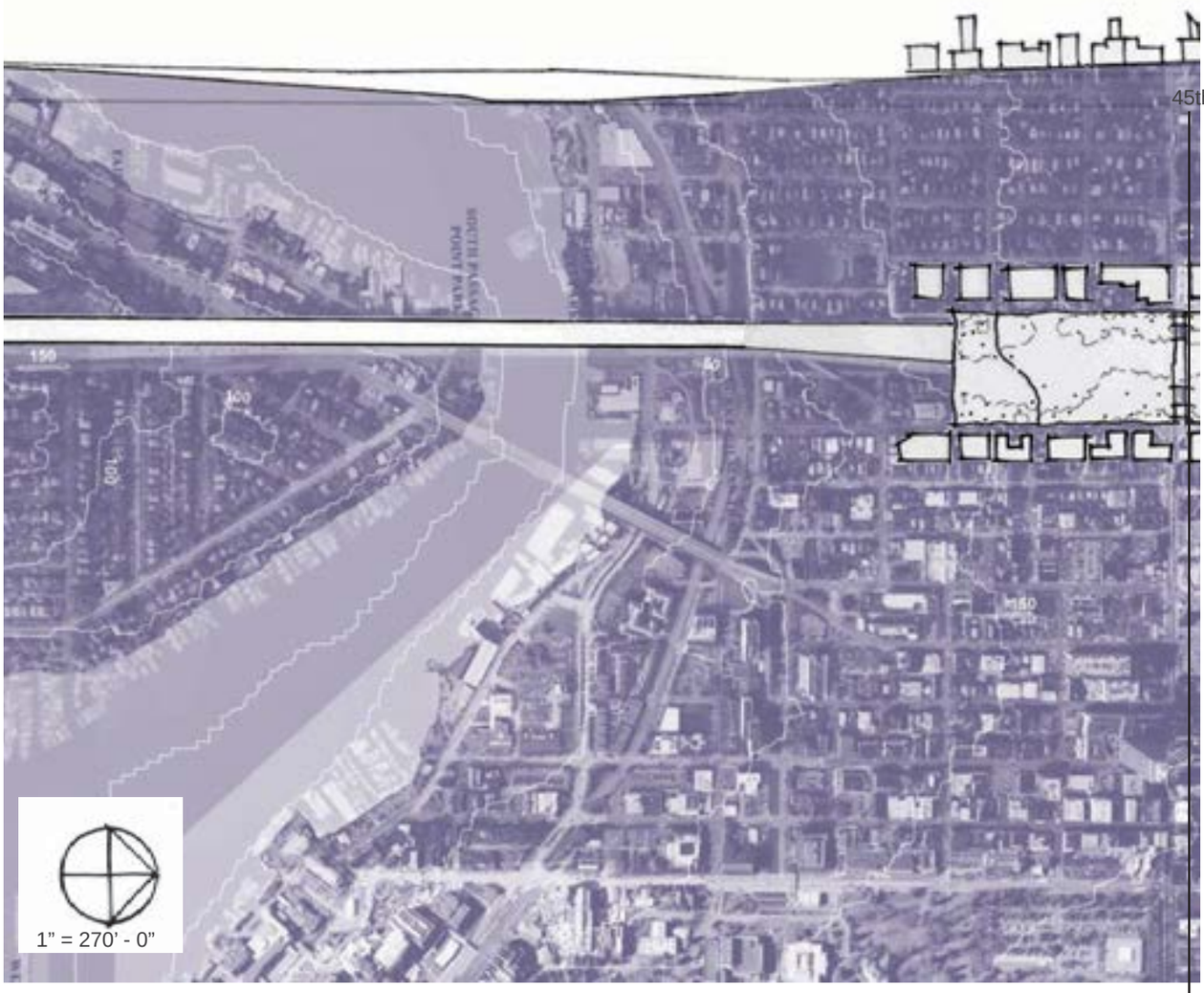
INTERSTATE 5: ROADWAY AND PARKWAY

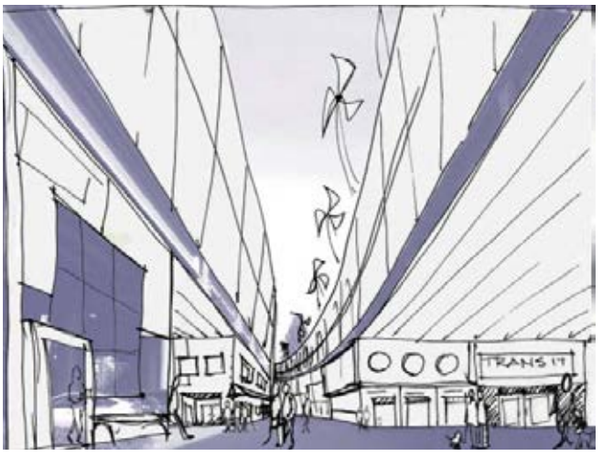
What if interstate-5, a major transportation corridor, could also serve as a public open space ammenity that encourages surrounding development and draws people toward it? what if the noise, pollution, and general nuisance created by the current roadway could be mitigated, lessened, or contained? in looking to develop a pedestrian-focused navigation and orientation route through the greenlake and university district neighborhoods, can I-5 become a part of this? can we create urban open space by using urban infrastructure?

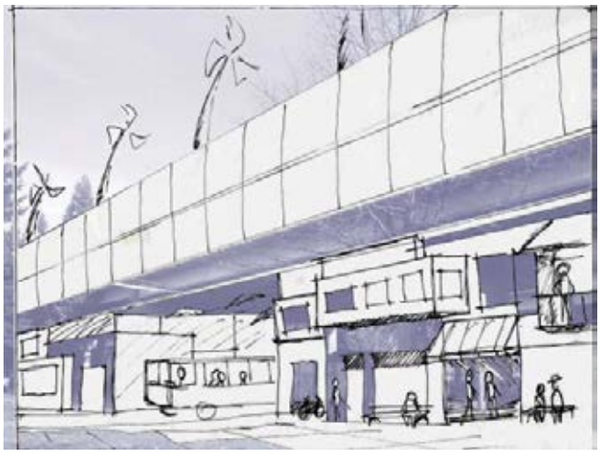
A Lid With A View

Consider a lid over I-5 from 42nd street to 57th street. This creates the potential for the equivalent of nearly 30 blocks of new public open space with a prime view to the downtown Seattle skyline. Embedded in this space may be recreation facilities, performance spaces, community garden plots, educational campuses, restaurants, small shops, and much more. Surrounding parcels may re-develop and support higher density to accommodate the growing city and take advantage of this new jewel.

Urban Open Space Infrastructure





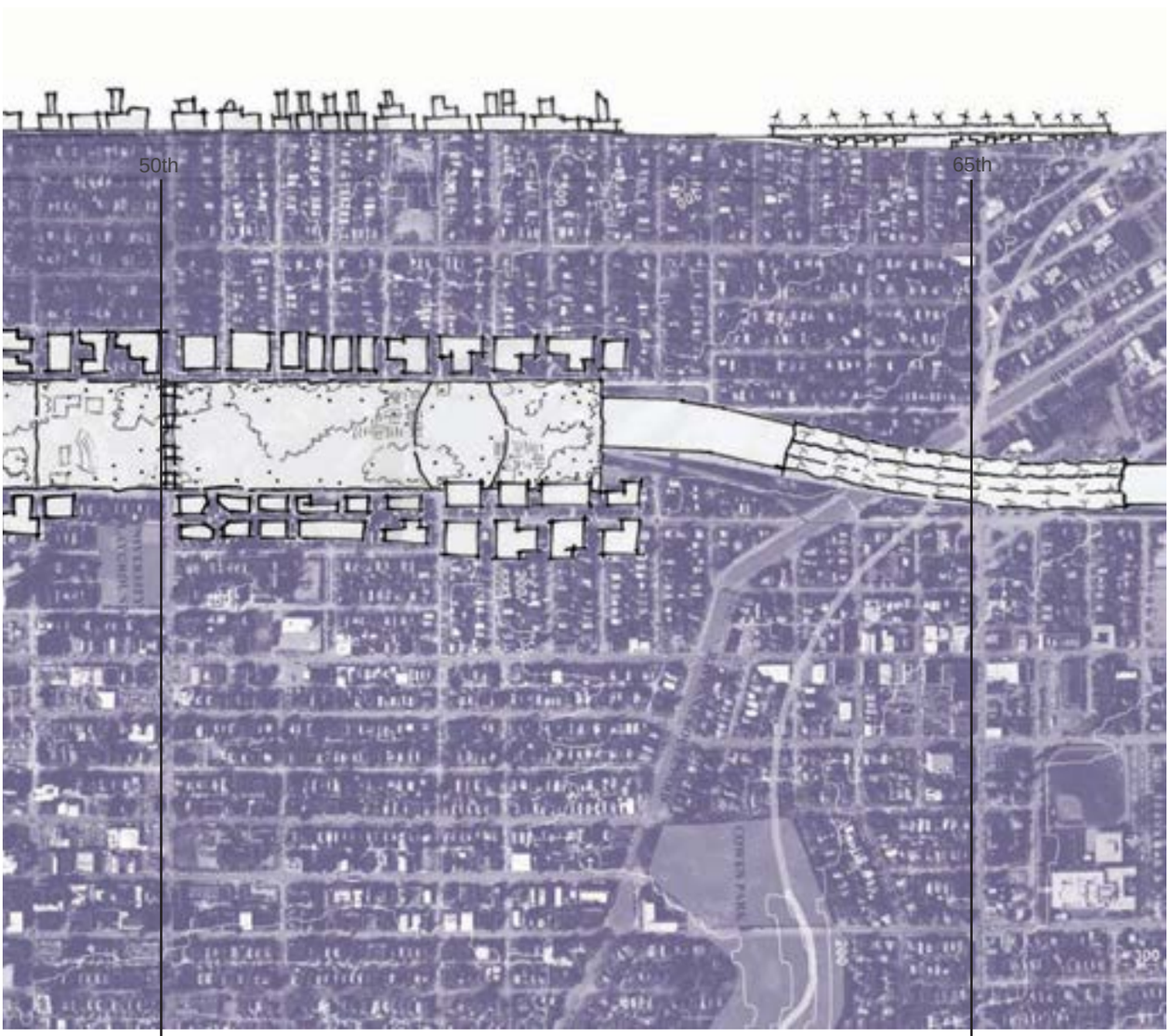


A Covered Marketplace

I-5 becomes an elevated structure between ravenna Boulevard and ne 67th street to respect the Olmstedian ravenna boulevard, but in so doing still divides the greenlake and roosevelt neighborhoods with a swath of under-utilized and unpleasant space. If the noise and general nuisance of the roadway were mitigated, such as by enclosing the roadway in a transparent tunnel, how might the space below be used? Given the Seattle climate, such an arrangement would provide much needed covered public space for activities such as year-round farmers market and pick-up basketball games. Infill development could include light industrial manufacturing, small businesses, and other pocket development. This area will also soon have a light-rail station and thus a greater intensity of neighborhood activity; this space must become a better utilized place.

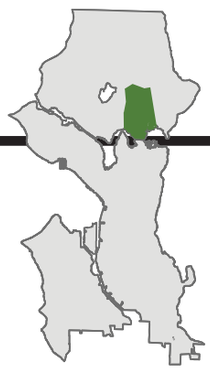
The Activity of Access

We can obtain more use and enjoyment from current public infrastructure spaces through more thoughtful and layered design. Our roads should be designed for more than cars, but for people, for bicycles, for transit, for stormwater treatment, and as connective corridors between places.



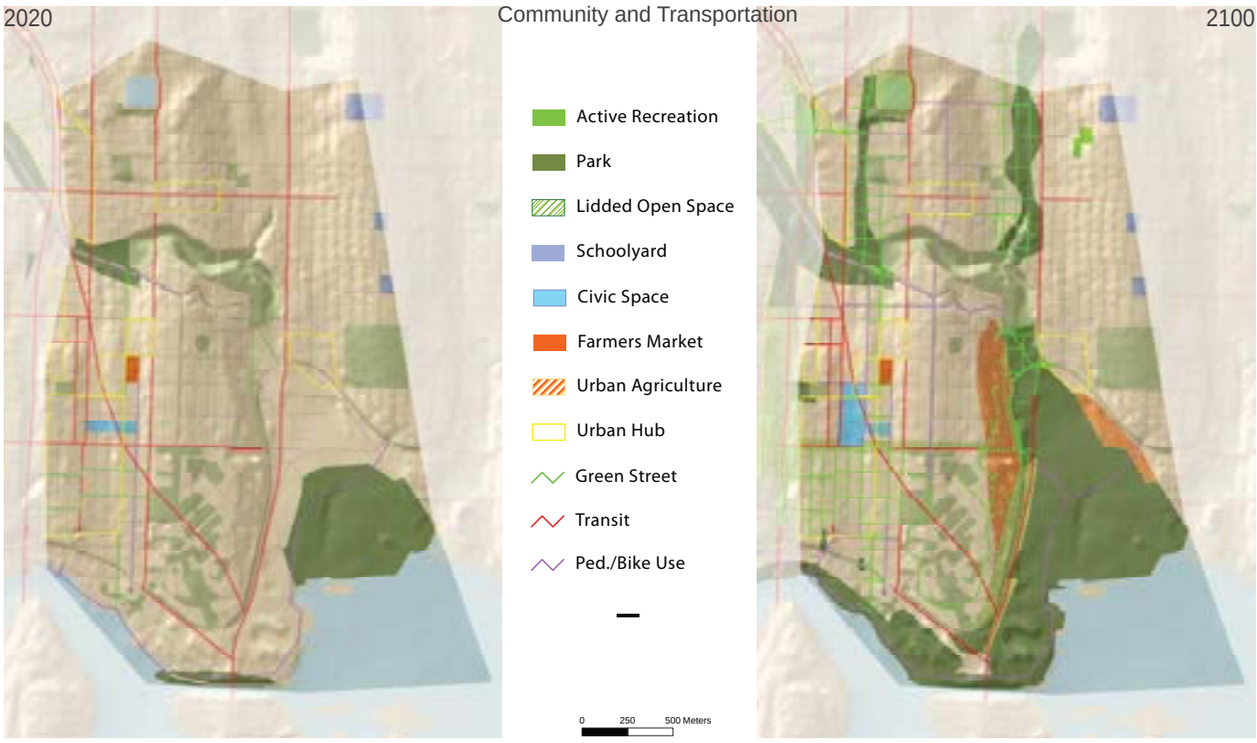
UNIVERSITY DISTRICT

Green - U



Team Leaders: Erika Matthias, Dave Rogers
Student Team Leader: Betsy Severtsen
Team Members: Jennifer Belk, Celeste Gilman, Lauren Hauck, Mary Hausladen, Caitlin McKee, Carley McNeice, Sean Tevlin, Dennis Trees, Roger Wagoner

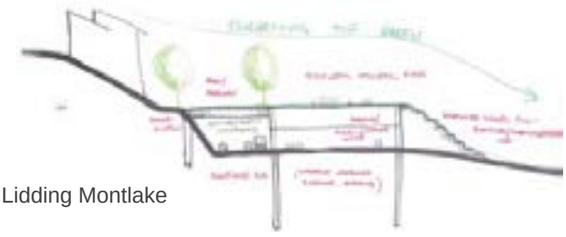
100 YEARS -- 100% GREEN FOOTPRINT



From 2000 feet above, charrette team members wanted to see the University District as an interconnected patchwork of pervious surfaces through increased traditional open spaces, green roofs, green walls, and green streets. The overall goal of the team's actions was to make the neighborhood a sustainable model for the world. With its ties to the University of Washington, this watershed is particularly suited towards experimentation with spaces and technologies that can help achieve such a goal.

An accessible waterfront

The main products of the charrette focused on planning and design interventions for open space and infrastructure. The "big moves" for our district fall under the categories of increasing open space patches, creating a transportation network that is safe for people and the environment and using spaces and technologies to promote a self sustaining community.

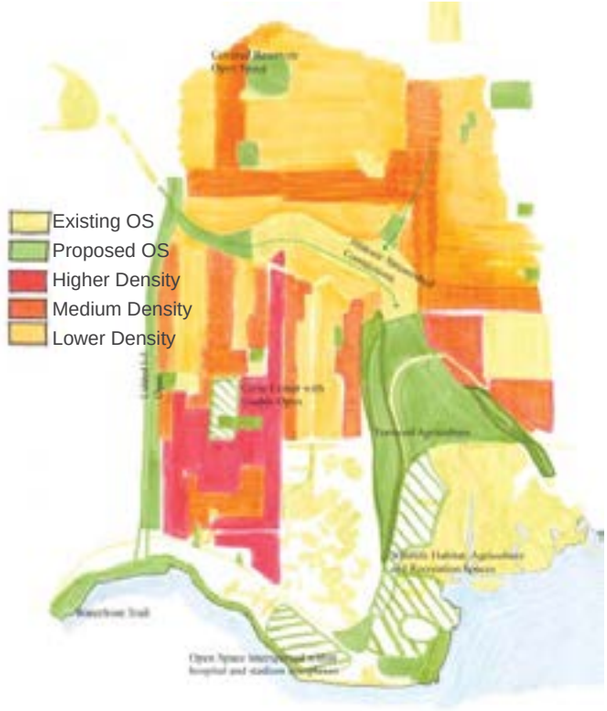


Lidding Montlake

Open space would be increased by:

- Day-lighting the historic Ravenna Stream and creating vegetated open spaces through this riparian corridor from Green Lake to Union Bay.
- Allowing public access along the entire waterfront
- Creating public and public/private spaces in close proximity to all residents

Integrating Open Space with Density



Providing public and public/private open space within two blocks of higher density residential areas of the U-district was a priority for the charrette team.

The transportation network would:

- Separate cross-town traffic (cars/buses/transit) from pedestrians (I-5, 45th Street, Montlake Avenue)
- Be made up of green streets whenever possible

A sustainable community through:

- Urban agriculture, with large scale applications terraced into the steep eastern slopes of campus to Union Bay and smaller gardens near residents through P-patches, common gardens and roof gardens.
- Energy harvesting with solar, wind and micro-hydro applications

Sustainable energy harvesting

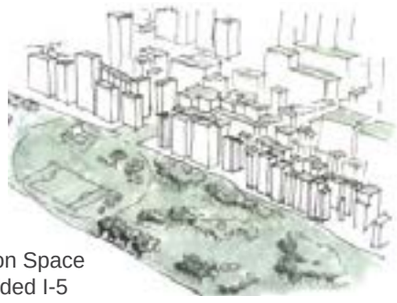
SMALL-SCALE INTERVENTIONS:

Increasing Open Space

Members came up with a typologies for smaller open space that could be used for the different densities that would be found within the entire neighborhood

SMALL-SCALE INTERVENTIONS:

Green Transportation Network



Recreation Space over a lidded I-5

Transit Streets

Green Streets

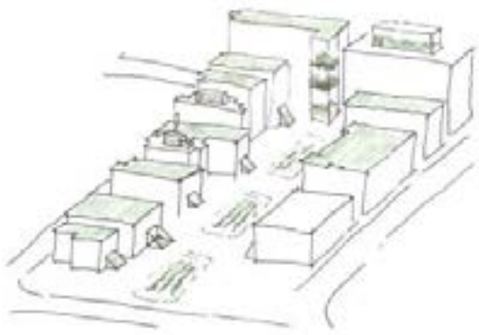
Pedestrian Streets

The charrette team was interested in providing a transportation network that was both safe to users and environmentally sustainable.

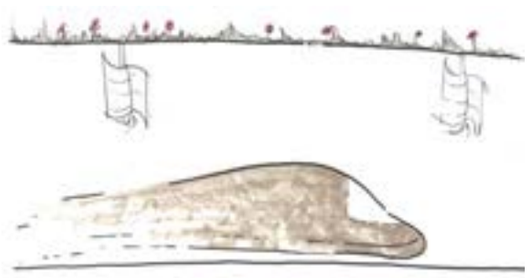
The streetscape topologies pay special attention to the pedestrian user and use swales and vegetation to treat stormwater run-off.

SMALL-SCALE INTERVENTIONS:
Urban agriculture and energy harvesting

The features of a self-sustaining community that the charrette team focused on were urban agriculture and alternative energy harvesting applications. Typologies of these features include large and small-scale agriculture and energy opportunities within the neighborhood.



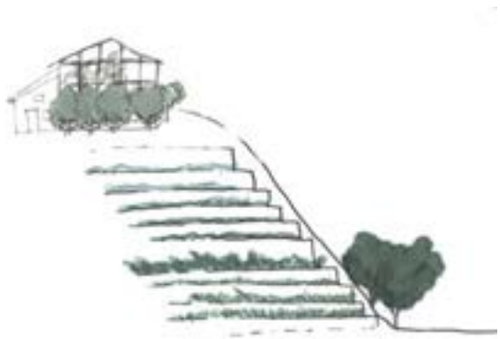
Opened blocks to the south allow sun in to community and individual gardens



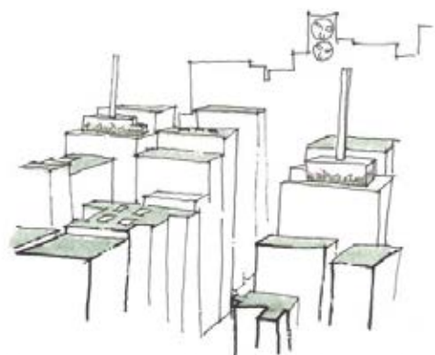
Turbines incorporated into lidded transit corridors, to capture wind from Mag-lev transit and other vehicles

Charismatic mega-fauna providing food, medicine and energy

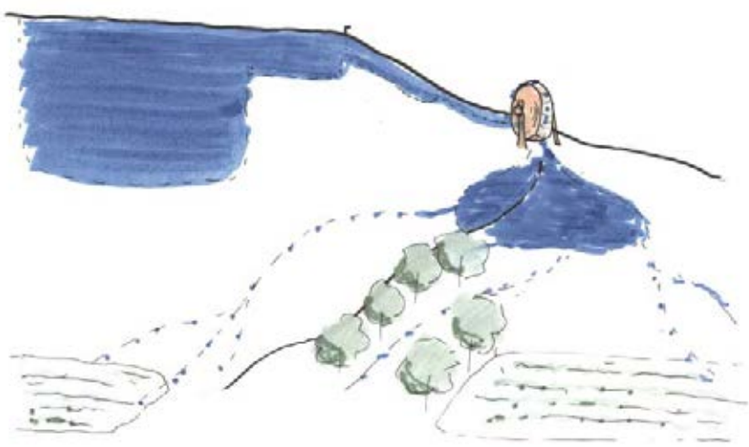
Structures embedded to fully capture added wind energy through hill speed-up effect



Terraced agriculture with caretaker residences on campus



Roofs provide more opportunities for agriculture and energy harvesting through photovoltaic applications

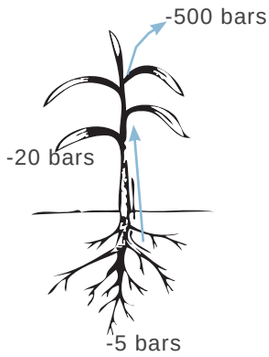


Micro-hydro energy harvesting combined with irrigation to large-scale urban agriculture

LARGE-SCALE MICRO-HYDRO ENERGY COMBINED WITH URBAN AGRICULTURE APPLICATION

*Water Potential (**Y**):*

Measure of the free energy of water, water flows from areas of high Y to areas of low Y.



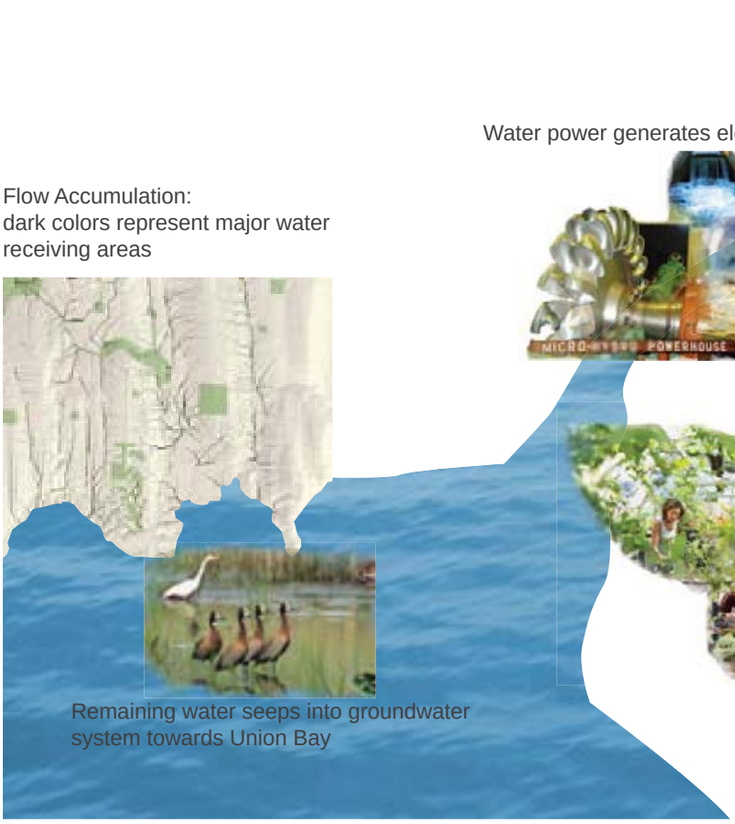
Global warming may induce warmer temperatures and more precipitation in the winter but less snowpack and thus less water in the summer. The future is rainwater storage and the multi-functional use of this resource.

Areas of the U-district can be used to experiment with micro-hydro energy harvesting combined with large scale irrigation. Large-scale demonstrations of such technologies could influence the use of small-scale applications around the city.

Ponds accumulate stormwater run-off

Water power generates electricity

Flow Accumulation:
dark colors represent major water receiving areas



Remaining water seeps into groundwater system towards Union Bay

Water discharge contributes to drip irrigation system for organic farming

University District

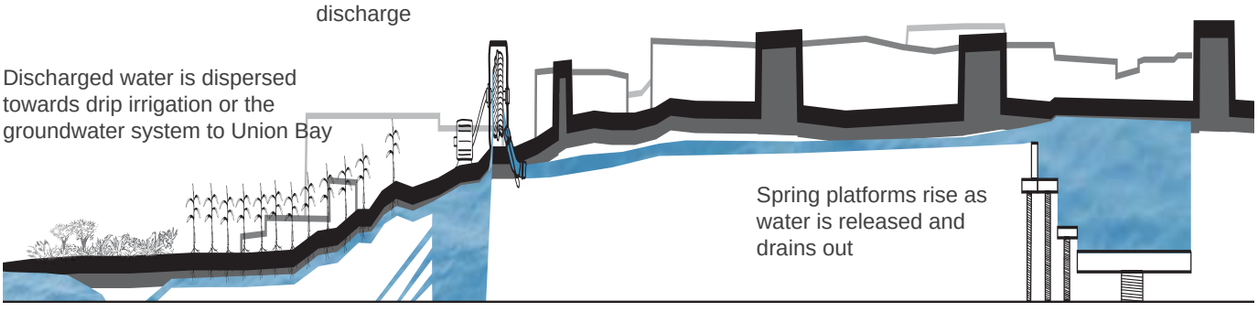
Conceptual Section

Water strikes Turgo turbine at an angle and runs through to other side, this minimizes slow down through water discharge

Water picks up speed as it is compressed through pipes

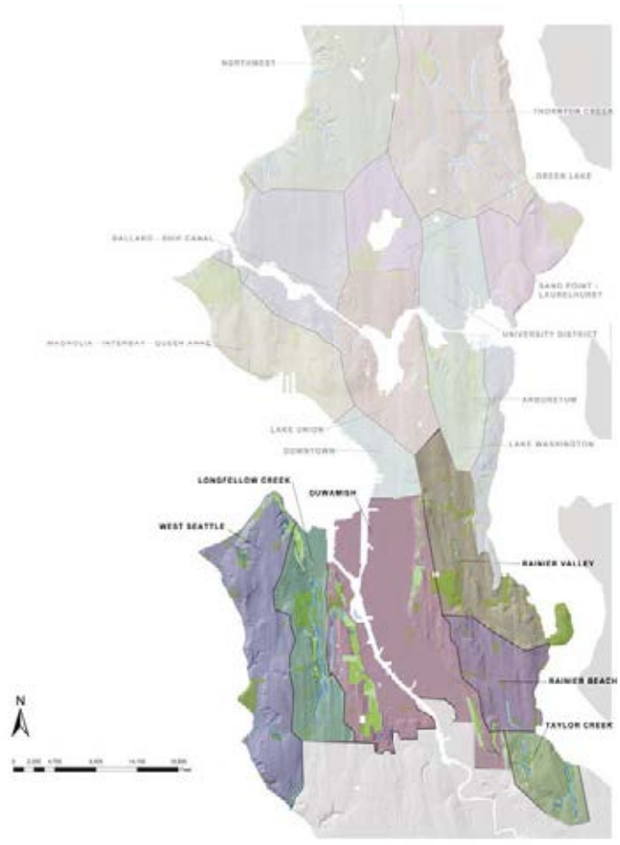
Retention ponds hold accumulated rainwater until it is needed

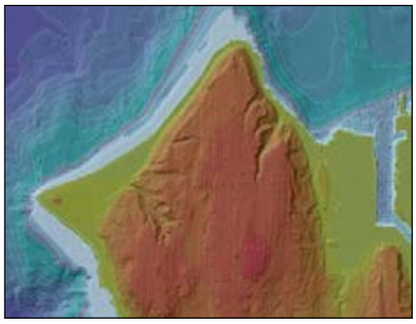
Discharged water is dispersed towards drip irrigation or the groundwater system to Union Bay



Spring platforms rise as water is released and drains out

SOUTH STUDY AREAS





WEST SEATTLE

LIVING LATTICE

Team Leaders: Nate Cormier, Peter Hummel
Student Team Leader: Meriwether Wilson
Team Members: Lynn Barker, Liz Fikejs, Lindsay Heller, Matt Mega, Charles Scott, Steve Sindiong, Jeremy Watson, Ken Yokum

CONTEXT

The overall strategy for envisioning future horizons for West Seattle was to explore solutions which embraced probable realities of both increasing population density and climate-related changes to a shifting baseline of environmental conditions. Therefore, our team initiated our work with a series of eight GIS maps for West Seattle. Collectively, these maps highlighted:

- The existing geographic conditions of the elevated ridge-to-shore landforms and bathymetry of Puget Sound;
- Areas that are considered hazards from a built-environment perspective, yet are also ecologically dynamic and biodiversity rich areas (e.g. slopes, ravines, streams and tidal shorelines.);
- Present configurations of ecological green spaces in both the public and private domain (parks, gardens, plazas, shorelines); and
- Present human habitation areas (commercial, residential, civic, recreation) and transportation modes and corridors.

To examine the above linkages and launch the charrette design phase, the core elements of these physical and ecological planning perspectives were combined into an initial 'opportunities map' (shown on this page). This map illustrates the intricate linkages of environments and human activity in West Seattle given the area's terraced slope-to-shore orientation, with views to the Olympic Mountains across Puget Sound looking west, and towards Seattle and the Cascade Mountains looking east.

BATHYMETRY / TOPOGRAPHY

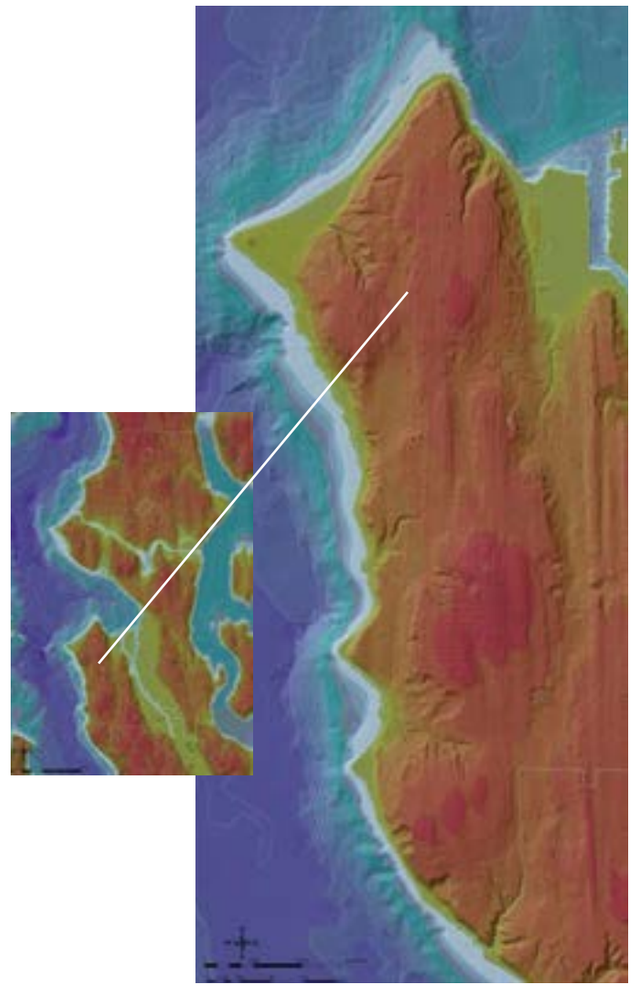
In light of the diverse, dynamic and dramatic geomorphologic and marine features which are unique to this region, the West Seattle team created a specialized GIS map to visualize these features. The Seattle and West Seattle maps on this page are generated from a combination of digital elevation models which integrate oceanographic sonar data for marine topography and depth, with topographic elevation data for land forms. These maps illustrate both land and marine elevation contours at colored 20 feet contour intervals.

This type of information and visual expression of physical forces of the region is highly relevant to long-term planning for Seattle and the Puget Sound area in light of emerging findings with regard to climate change. It is anticipated that there will be more extreme weather events (e.g. floods, droughts, storms) as well as incremental long-term changes, such as a possible sea-level rise of at least two feet in the next 100 years in some places, depending on topography and tectonic activity (in the case of the Pacific Northwest). Such rises in sea level could have profound implications on infrastructure in low-lying areas and nearshore aquatic ecosystems.

It is therefore imperative that human settlement patterns throughout West Seattle, and elsewhere minimize potential hazard situations through sensitive design of built-environment structures in ecologically dynamic areas, such as shorelines, river courses, streams and steep ridges.

The natural forces which shaped Puget Sound and its adjacent inland waterways in the past, continue to exert a strong influence on the people of Washington and the Pacific Northwest today. Rock cliffs and bluffs rise vertically more than 300 feet from the shore in many places. In close proximity are adjacent coastal forests, ridges, rocky intertidal zones, sandy beaches, streams and expansive mud flats. West Seattle's highest point is over 400 feet, while the depth of the natural marine channel between West Seattle and Vashon Island is approximately 900 feet deep.

Much of the historic, economic, aesthetic and social dimensions of our heritage are in response to the considerable diversity of land forms that characterize the greater Seattle region and Puget Sound.



GREEN CORRIDORS AS CONNECTIONS

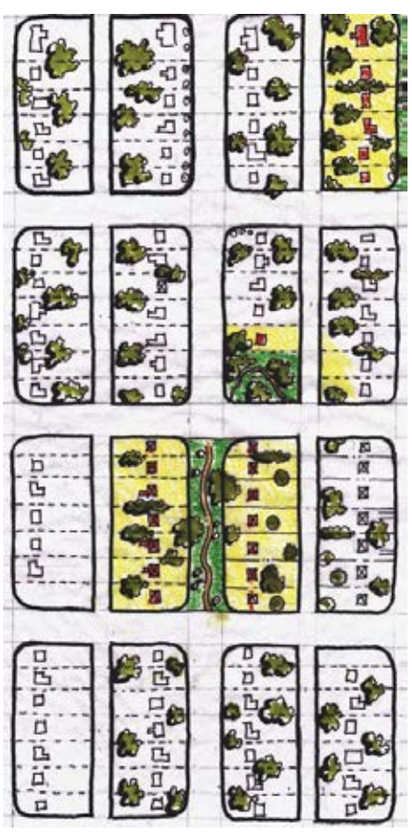
A key part of the West Seattle 2100 “Living Lattice” concept is the creation of ecologically functioning green spaces wherever and whenever possible.

We have incrementally lost habitat, through the fragmentation of natural systems over time. We can rebuild these connections through re-discovering and re-creating an abundance of gardens, forests, streams and shoreline features as integral elements of the urban corridors and spaces we use everyday. The vignettes on this page were created during the charrette to illustrate application of these concepts for different settings and scales.

Daylighting and maintaining streams through the city grid

Urban creeks and riparian buffers provide critical drainage, habitat and slope stability.

Gardens, street-side streams, tree-lined allees, and urban green plazas are essential elements of residential, commercial and transportation corridors.



Green alleys can provide human and natural connections places.

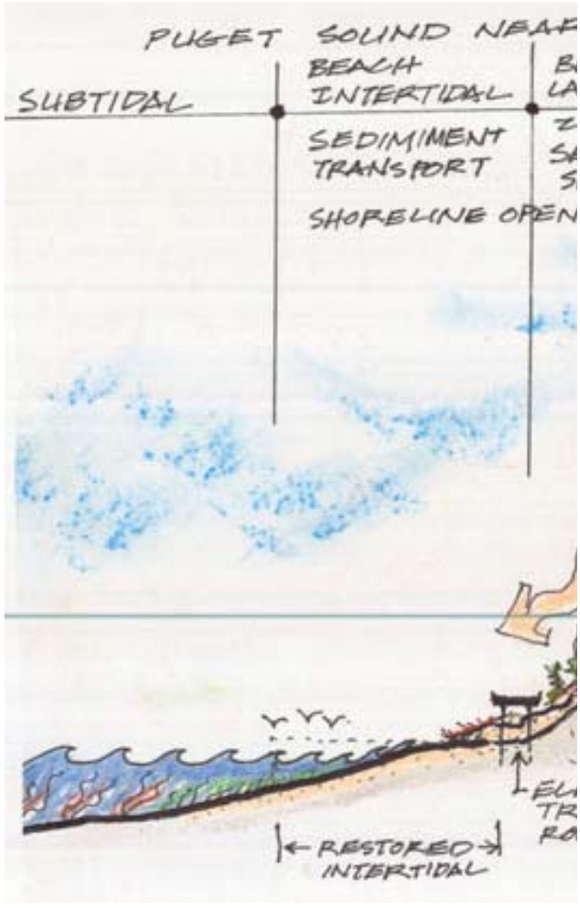
LIVING LATTICE

West Seattle, and its role in the region, can be conceived as a 'Living Lattice', connecting people and environments to be functionally sustaining over time:

The Roots
We should reinforce West Seattle's intrinsic pattern of plateaus and ravines by directing urban density to the high-flat areas while preserving and restoring the creeks, bluffs and shoreline as a connected system of habitat and hydrology.

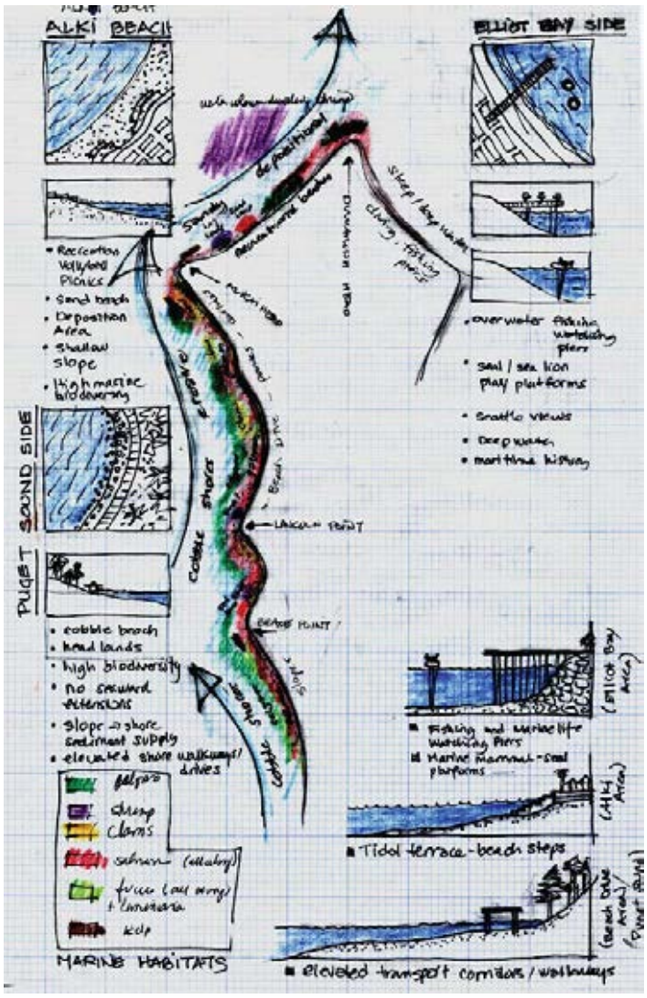
The Twigs, Branches, and Trunks
We should connect our community with a network of greenways that collect and direct the flow of water and people.

The Leaves
We should create meaningful places that express the integration of built and natural environments for the health of our community.



West Seattle

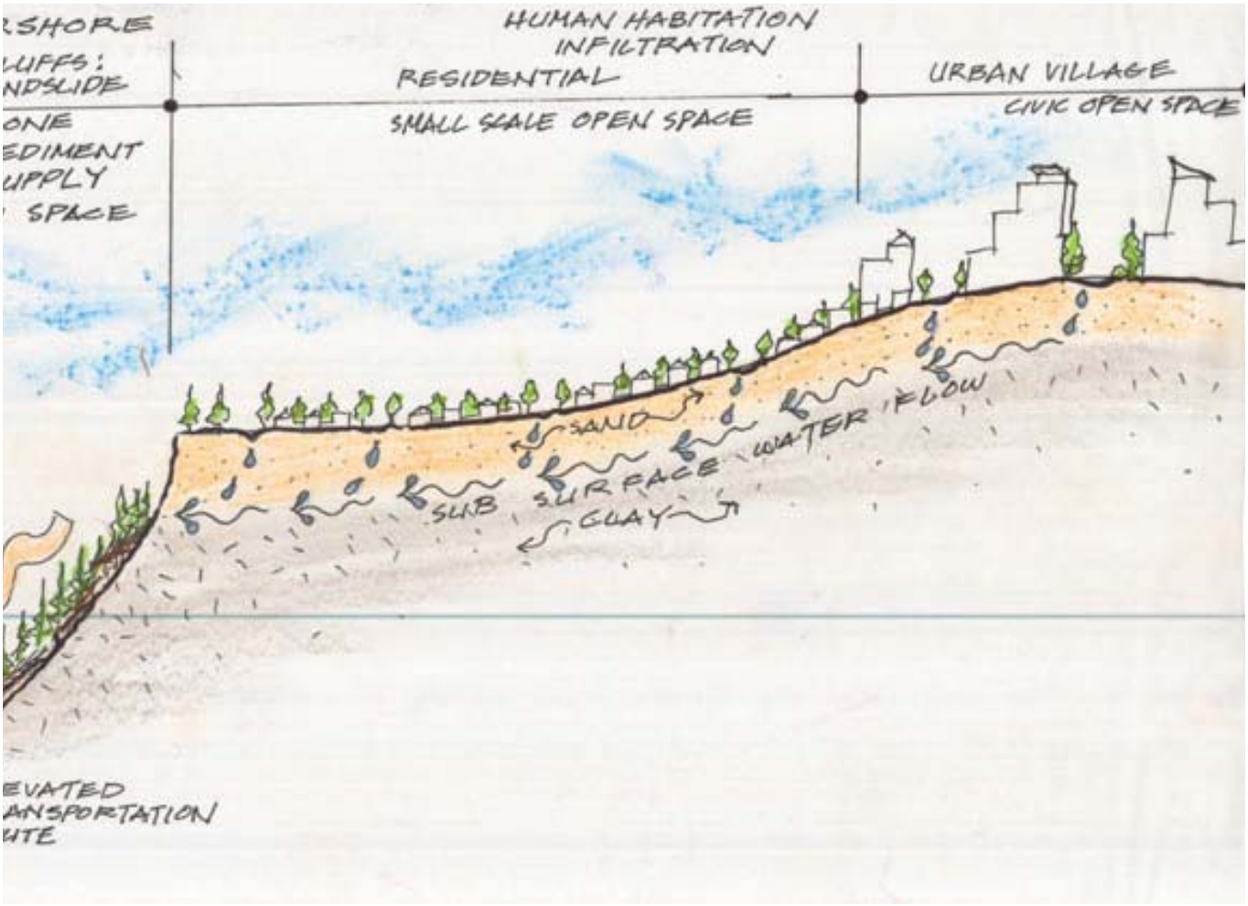
SLOPE-TO-SHORE CONNECTIONS



Like most of Puget Sound, the shorelines of West Seattle are highly dynamic and diverse areas that warrant sensitive planning and design considerations; as illustrated through these drawings created during the charrette.

These pictures present stylized aerial and cross-sections of the slope-to-shore zones and habitats of West Seattle. Ridge soils are sandy, with good drainage. The shoreline has steep slopes, with naturally eroding bluffs, held intact by forests and vegetation. The bluffs provide critical sediment supply to down-slope areas. The intertidal zone is dynamic with an average 15' tidal depth range.

The three shoreline areas of West Seattle, are each different, requiring distinct built-environment, ecological function treatments. The west side is a cobbly erosive shore; Alki is a sandy, depositional shore; while the Elliot Bay side is steep and deep. Sea-level rise changes could have potential impacts on the erosive dynamics and tidal extent for parts of West Seattle.



PRIORITIES FOR 2020

Near to Mid-Term Priorities (5-20 years)

- Park 'gap' analysis toupdate neighborhood pocket park acquisition strategy and implementation;
- Shoreline feasibility study to assess sedimentation and habitat connections and design recommendations;
- Facilitate zoning changes to accommodate decreasing density with less new build in ecologically vulnerable - hazard areas; e.g. nearshore liquifaction zones, steep ridges, slopes and streams;
- Open space plans for the urban villages and property acquistion strategies, incorporating design of urban village plazas as green lattice connection nodes;
- Implement school yard asphalt removal as part of city-wide greening and natural drainage restoration;
- Community effort to plan, design and implement 'green' street programs that are both city-wide and neighborhood oriented;
- Explore and trial developer incentives for open space development in urban villages and in support of neighborhood plans;
- Develop a mass transit transportation plan for high capacity transit corridor for multi-modal elements linked around green interconnections in West Seattle and the region (e.g. water taxis, trolleys, light-rail, buses); and
- Implement expanded people and habitat-experience trails, e.g. kayaks, passenger ferries, walk-ways, running and biking trails.

Pilot Projects

- Alki Point as an ecological and cultural heritage area;
- Schmidtz Creek daylighting project;
- Fauntleroy Creek completion;
- SEA street implementation to connect natural areas; e.g. Meek-wa-Mooks or Schmitz Park; and
- Eddy Street stream restoration and recreation through the ravine.

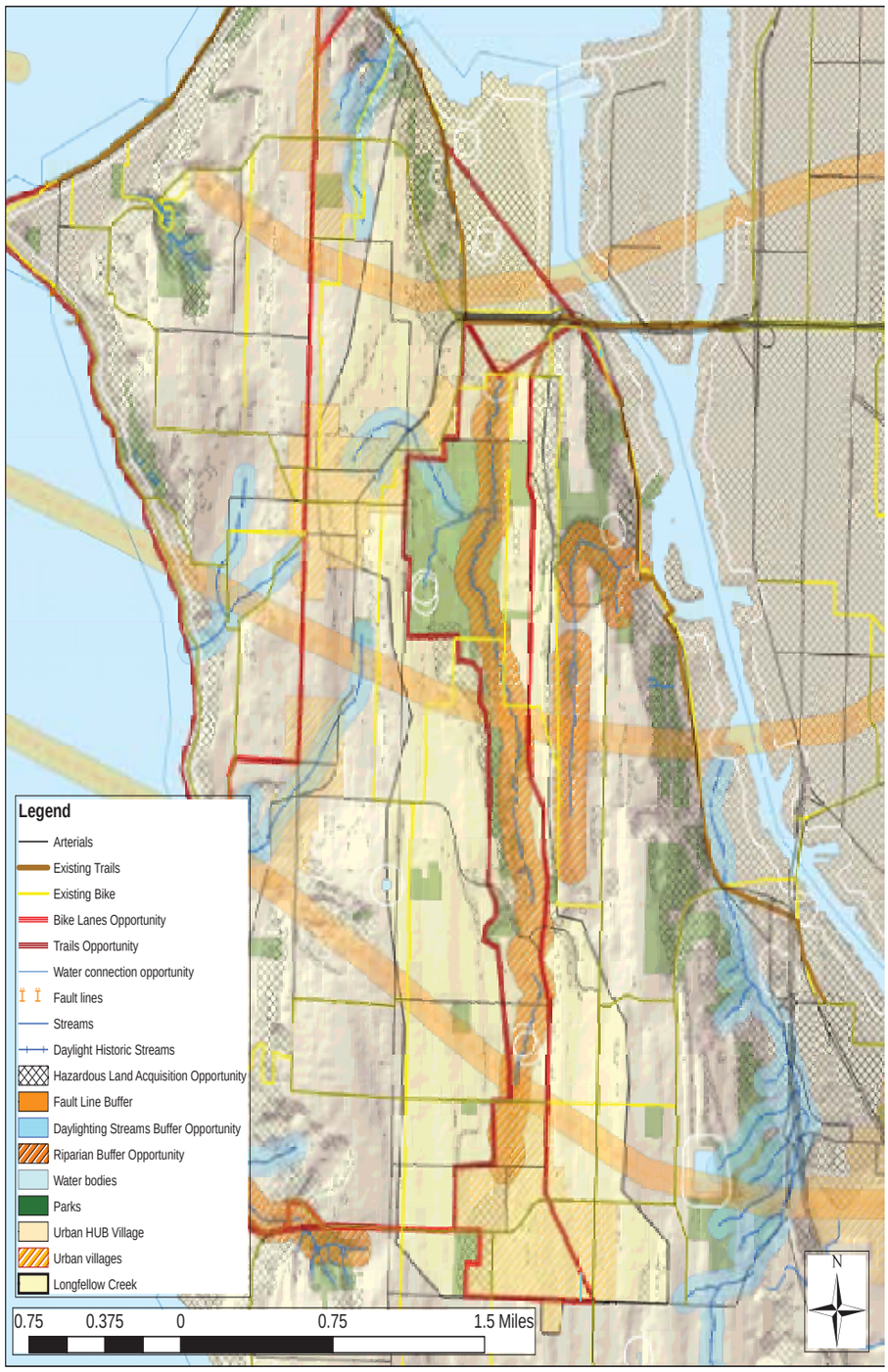
PRIORITIES FOR 2100

- Have an interconnected system of built and natural open spaces throughout West Seattle neighborhoods to:
- Increase species diversity through enhanced tree canopy cover and re-establishment of hydrologic cycle functions;
- Restore slope-to-shore sediment supply throughout West Seattle and Puget Sound;
- Strengthen existing rules to reduce building in ecologically sensitive zones and to minimize injury and property loss in hazard prone areas (e.g. landslides, earthquakes and floods);
- Encourage public property acquisition along Beach Drive for recreation, access and coastal protection;
- Diversify and balance people transportation modes, e.g. 33% mass transit; 33% pedestrian / bike, 33% personal vehicle;
- Enhance local food production, e.g. 50%; through expanded farmer's markets, pea patches, community gardens and school gardens;
- Activate urban plazas with open spaces at each urban village center; and
- Achieve full realization of the "Living Lattice" concept for Seattle, with West Seattle as a regional demonstration area.

LONGFELLOW CREEK:

Team Leaders: Maureen Colaizzi, Don Benson
Student Team Members: Noelle Higgins, Sara Robertson
Team Members: Liz Browning, Sherell Ehlers, Jeff Bash, Matt Filipiak, Eileen Alduenda, Kate Stannard, Alison Maitland Scheetz.

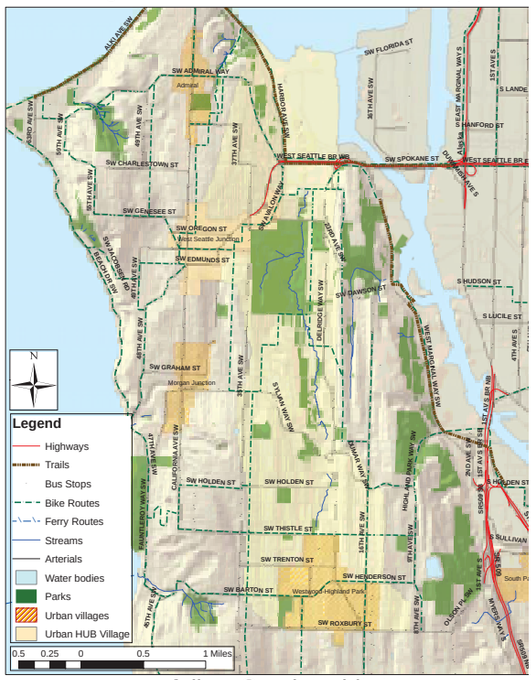
Longfellow Creek Opportunities Map



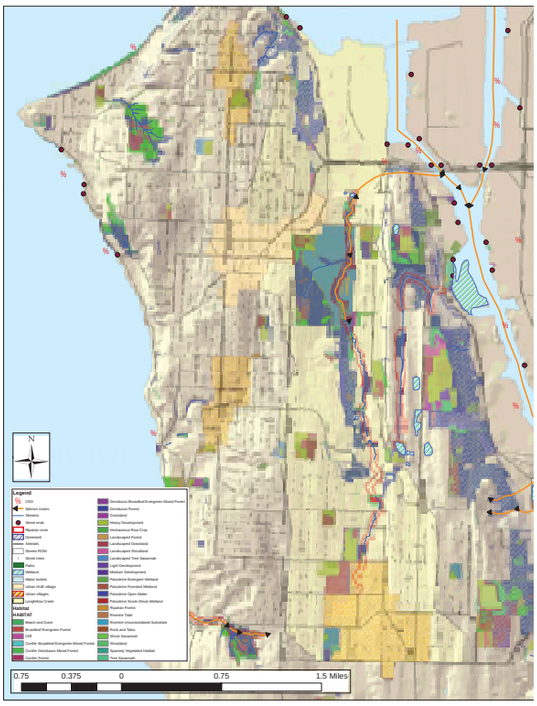
Longfellow

pre-charette- student analysis

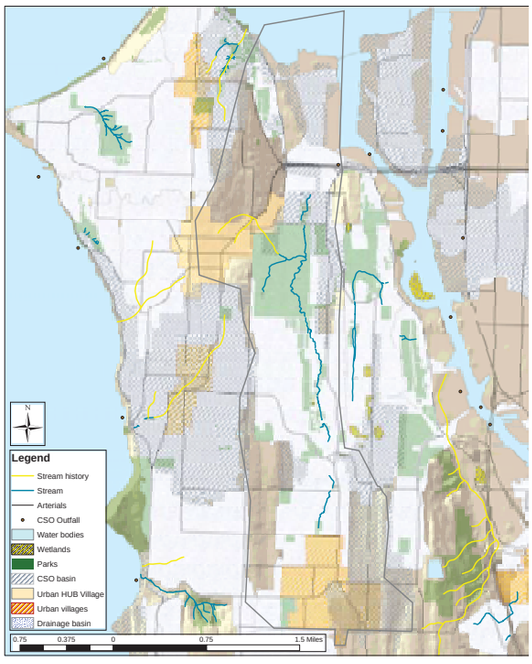
Longfellow Creek Urban Connections Map



Longfellow Creek Habitat Map



Longfellow Creek Water Map



Neighborhood
Longfellow creek is a mixed income, diverse neighborhood in SW Seattle. It is almost landlocked, sandwiched between West Seattle, (a higher income neighborhood which is bounded by waterfront), Duwamish (a primarily industrial area with some single family homes) and White Center (not currently annexed to Seattle, it is a significantly diverse neighborhood in income and population and has a lively shopping district which is utilized by the Longfellow Creek population). This area is culturally diverse neighborhood, still pretty affordable, with several mixed income/low income housing developments.

The Longfellow creek watershed is long and narrow region, between two ridges. Longfellow Creek is a salmonid stream in its lower reaches, it extends throughout the study area, with headwaters in the Roxhill bog and Park. It presents opportunities for habitat restoration, heritage discovery and corridor and community connections.

Assets
Natural Assets Highlight
Long Fellow Creek & riparian zone
Roxhill Bog and Park.
Parks
Creek work, new mixed housing use)
valley/ridge structure
Some projects underway, investment in open space infrastructure (High Point, Longfellow
Pea Patches/Market Garden
Stormwater retention pond park, pocket parks, drainage swales

Cultural Highlights
Diversity
Affordability
Youngstown Cultural Center
Library
Communty Center
Community Participation & Stewardship
High Point Project SHA Project new housing for residents restructuring of streets, mixed with private development,Amphitheater, other amenities

OPPORTUNITIES

Lack of economic development
Maintain the economic and cultural personality
Daylighting of the creek along its entire length
Reconnect the creek to the community
Implement sustainable design strategies
Identify pedestrian/bikeway connections
East/west connections
Educational and outreach opportunities
Signage
Identify important heritage and historic landmarks
Introduce the area to visitors and residents

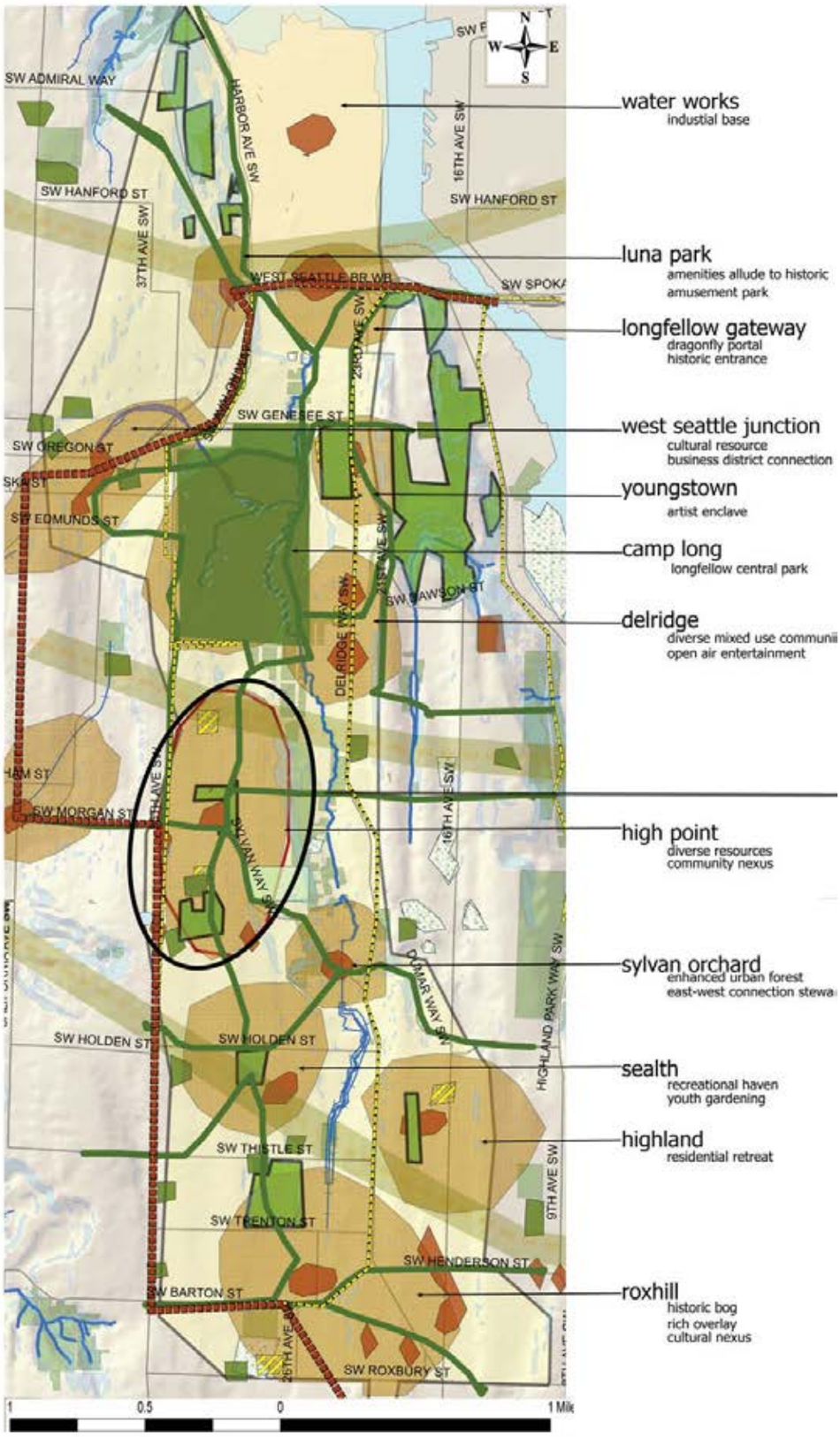
CHARETTE GROUP CONCEPTS

Key design stategies

Connections between open space and potential residential density livability, and sustainability of systems.

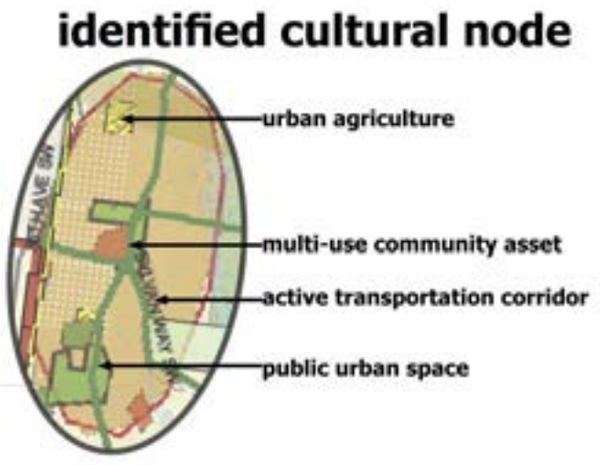
Regional responsiveness how does this area fit into the whole city? Connections are key.

vision2026



charrette- 20 year plan

post-charrette -GIS analysis of charrette 20 year plan



post charrette

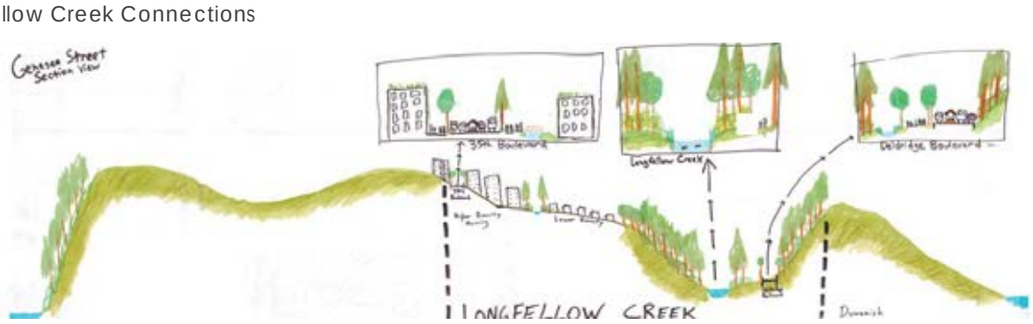
Longfellow

Section- Green/Water Boulevard

Plan - Longfellow Creek Connections

Open Space Brainstorming (for Seattle) Issues for the 21st Century

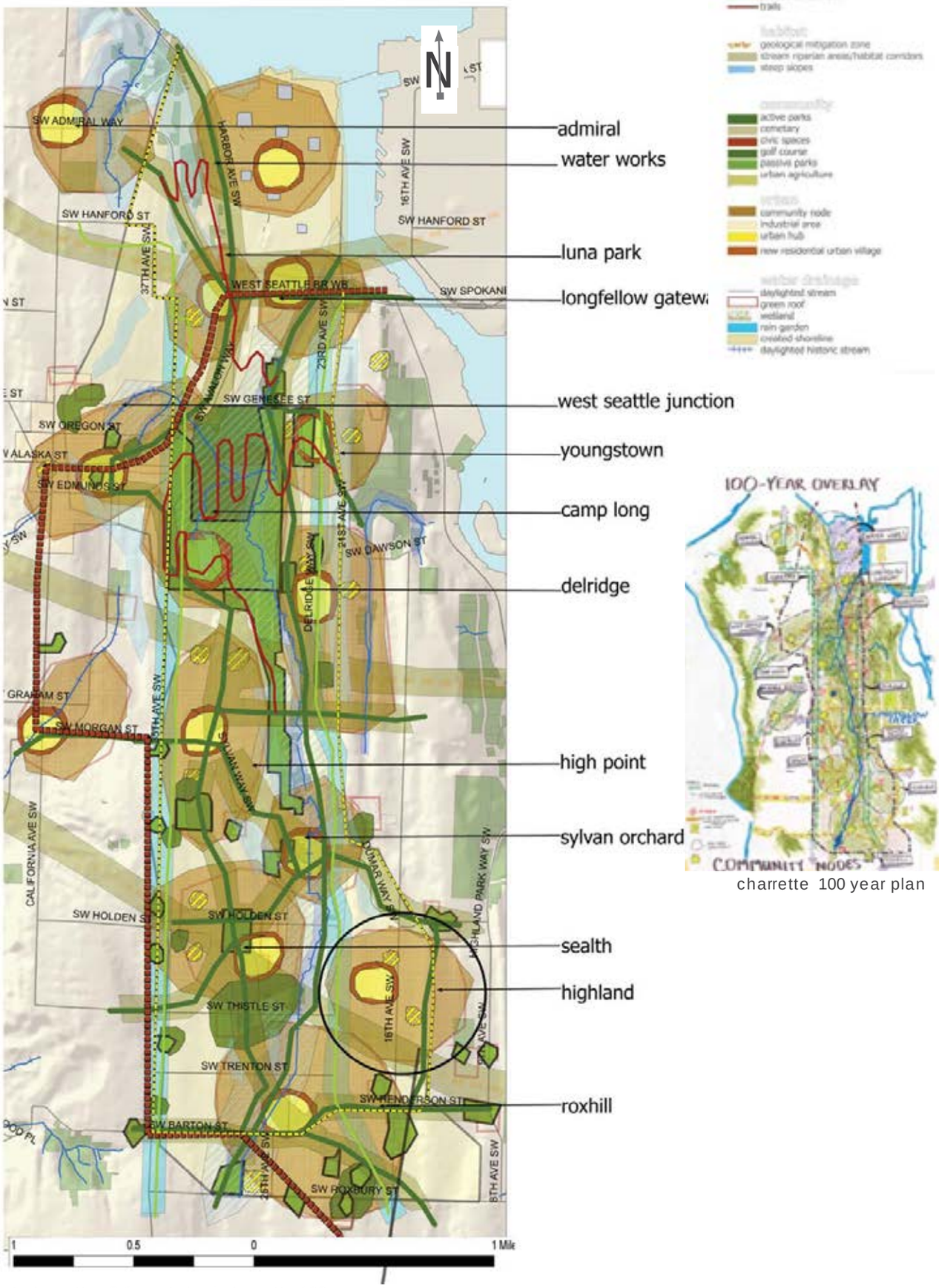
Think of sidewalks, alleys, boulevards, bus stops, planting strips
as green infrastructure. Not just parks.
Potential to create open space out of existing schoolyards.
Schools are along creeks another advantage.
Streets and sidewalks for people use and not just cars.
Close down streets from cars pedestrian malls.
Woonerfs or other traffic calming devices/techniques
Integrating cars and people (safely on the street)
Hold onto monorail land for green space
Daylighting creeks
Creation of artificial creeks
No wasted water
Water quality improvements/swales, etc around the city.
Less impervious surfaces
Narrowing streets more filtration areas improving city street codes for water quality purposes
Creating designated bike lanes
Better transportation corridors
Bonds for open space
Fund green space maintenance in Seattle
Political charettes SPU and Parks
Leaders need to be interdisciplinary
Politicians need to show leadership on this.
Encouraging people to visit other neighborhoods.
Where should transit systems be located to help people get around the city?
Re-using existing facilities / historic preservation
Local food production reducing cost of transport
Development of centers with commercial districts
Ensure city properly funds maintenance of open space
Encourage neighborhood ownership of open space and volunteer efforts
Provide better training for parks employees for maintaining open space (possibly LEED certification)
Help to foster institutional change amongst Seattles natural resource management agencies. Reduce turf was between Seattles public agencies encourage integration overcoming political conflicts. Encourage public/private partnerships to assist with maintenance of open space
Encourage better connections between neighborhoods in Seattle
Education of the public on open space issues
Create policies that require open space mitigation based on footprint of development (example: Chief Sealth Trail)
Focus on quality of urban habitat



Section-SW Graham Street

Section-SW Genesee Street

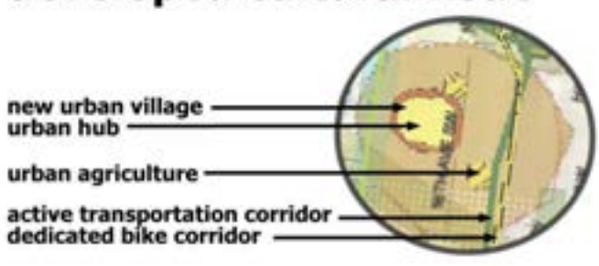
vision2106



post-charrette -GIS analysis of charrette 100 year plan

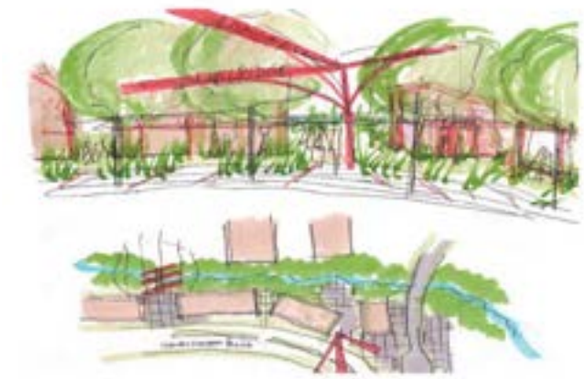
charrette 100 year plan

developed cultural node



Longfellow

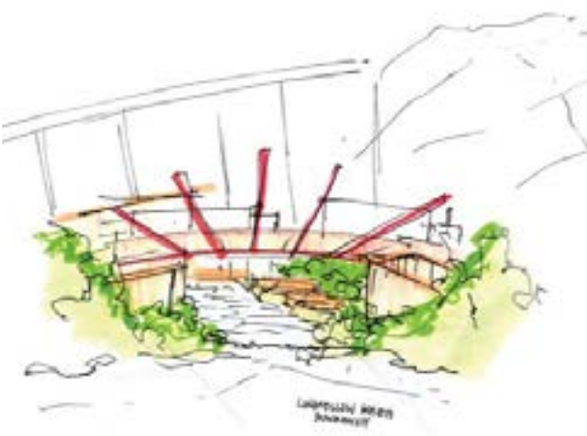
post charrette



Longfellow Creek Gateway on Delridge

Plan - High Density Node Concept

Public Open Space-Leading to Creek



Longfellow Creek Meets the Duwamish

Regional Goals (Delridge, West Seattle, Duwamish, White Center)

Green Infrastructure is the guiding principle for transportation connections between these areas
Use Longfellow Creek as the basis for other riparian corridor development in Seattle
Provide connections between watersheds regional and subregional
Use dead space created in transportation corridors for open space
Provide trail connections with recreational opportunities
Connect the Duwamish and Green River
White Center should serve as a diverse regional hub
Develop indicators for what we would consider a thriving or healthy community.
Encourage multi-modal connections, by enhancing bus corridors, connections, connecting to light rail, connecting to ferry systems, airports, etc.
Build vertical connections between lowlands and uplands, stairways, funiculars.
Longfellow Creek, in relation to the city as a whole

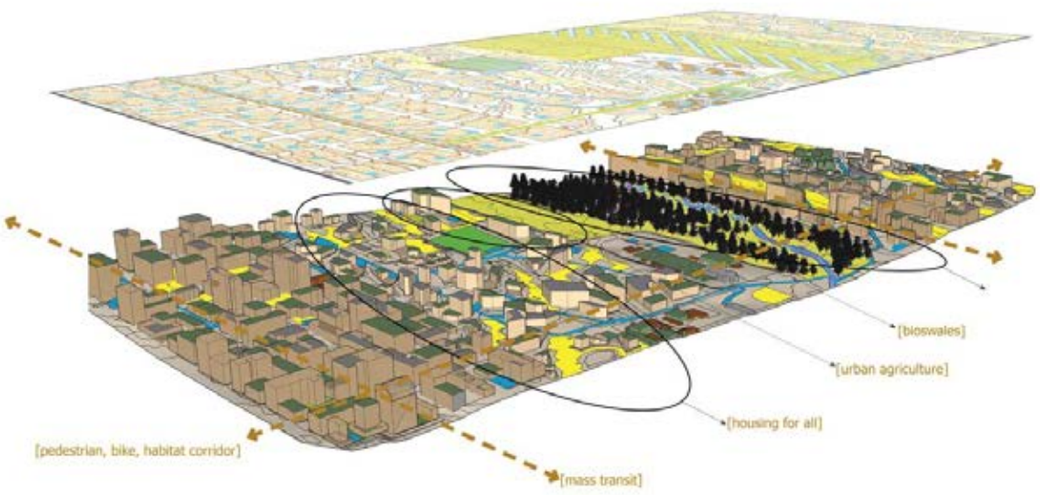
Opportunities for the Longfellow Creek Corridor

Increasing width of riparian zone of Longfellow Creek
Daylighting entire creek
Identifying potential landslide areas
Acquisition of hazardous areas, fault line buffers, steep slopes, slide prone areas, landfill areas
Maintenance of greenbelt removal of invasive species, restoration of erosion spots
Linear pea patch
Creating community and cultural nodes
Using Longfellow Creek as a spine for connection to other areas, nodes. For example, connections to the Duwamish Greenbelt.
Connection to Puget Creek (towards West Seattle)
Natural/Cultural/Economic Corridors
Tie in Economic Development and Housing Drivers
Convert 35th Ave SW and Delridge Way in boulevards (with green infrastructure) with multi-model transportation choices.
Acquire Cleveland HS for mixed-use or open space.
Increase level of basic services in area (more grocery stores, hospital)
Provide open space that has good public access
Embrace history of region in new development
Opportunities for other Seattleites to visit Longfellow creek
Create a village in Delridge with commercial services provide economic opportunities for local residents
Improved bus service increase transportation choices
Develop regional plan for pulling visitors to experience the joys of Longfellow Creek.
Combine open space planning with urban planning connecting open space with economic centers.
Restore and promote healthy salmon run in Longfellow Creek
by daylighting creek, creating better habitat, removing barriers
to passage

EVOLVING A COMMUNITY NODE

urban agriculture

axonometric view



developed community node

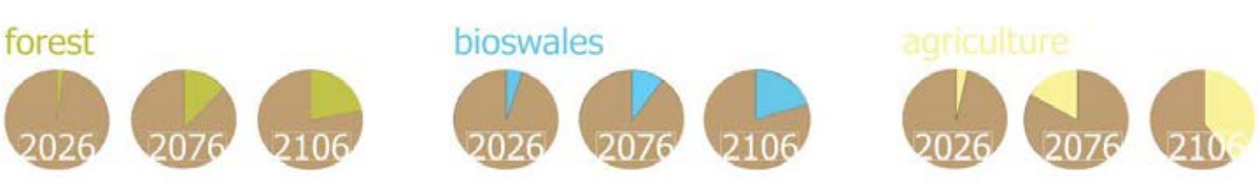
Longfellow

New OpenSpace Types

Urban Agriculture
Urban Forest
Bioswales streets
Community Commons
Human Corridors
Habitat corridors

100 year evolved neighborhood node

Alternative transportation
Emphasis on community open space
Housing for everyone
Follow topography not grid
Take advantage of critical areas for open space



open space succession in developed node
post charrette-student design

DESIGN CONCEPT

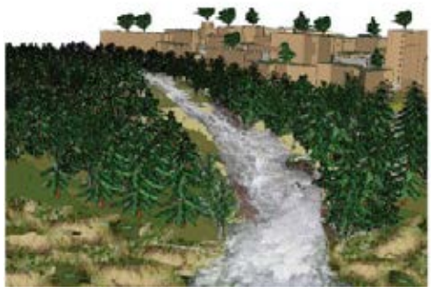
Nurture community within a community

mixed housing types

Completely daylight creek
ncorporate mass transit
Create a densified, mixed-use corridor along 35th Ave SW
Close SW Kenyon Ave except to pedestrian/bike/habitat
Implement sustainable design strategies-
Street Edge Alternatives
Low Impact Development
Expand the stream riparian zone
Create connections
Integrate cultural place-making and restoration
Stewardship=Community
Expand urban agriculture
Maintain affordable neighborhood
Identify cultural and economic nodes
Encourage economic sustainability
Encourage food security
Encourage self sufficiency

Focus areas

Food
Water
Transportation
Economic opportunities
Cultural diversity



urban forest

Implement plan incrementally

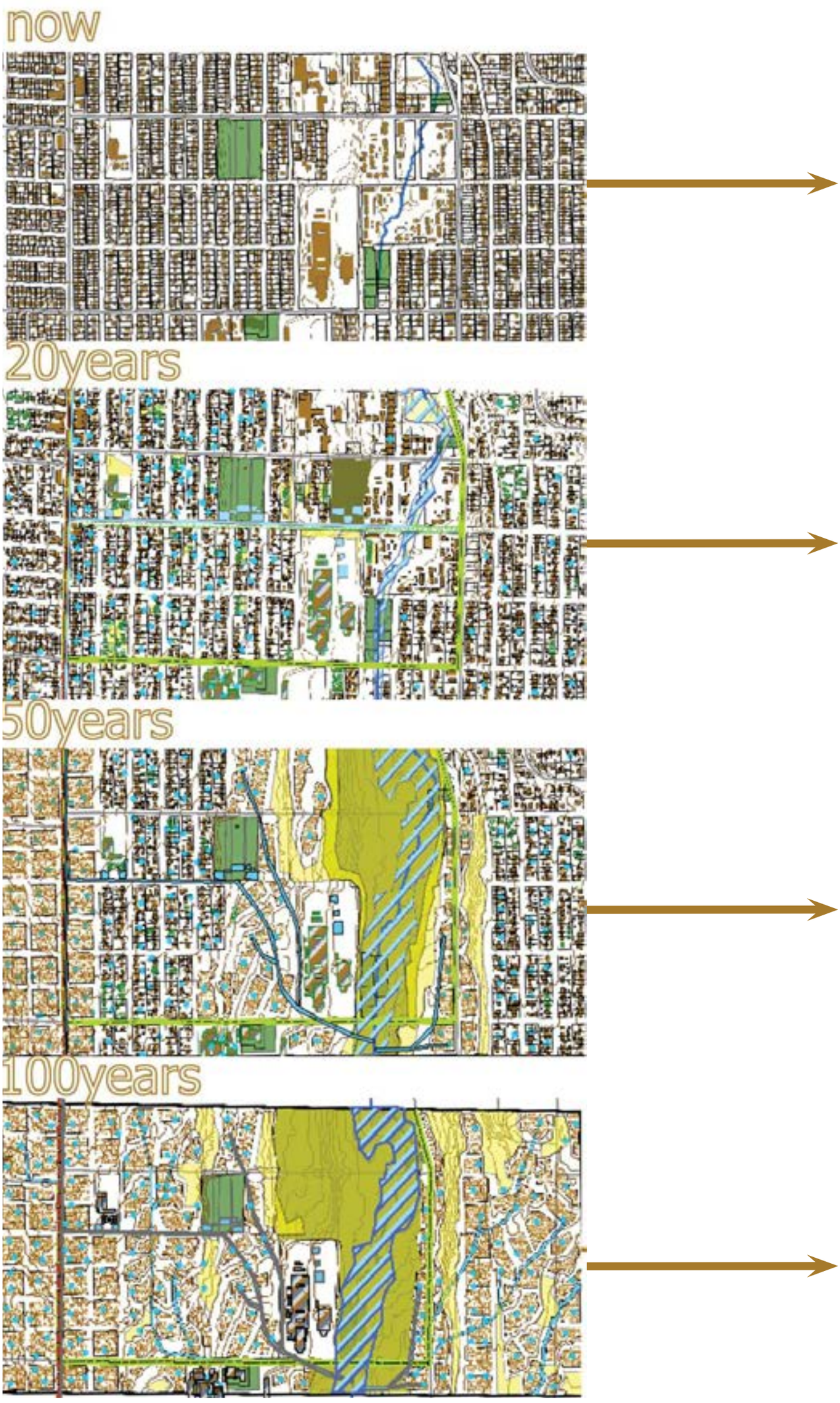
Creek improved with urban forest established
Mass transit generates growth
Encourages use of public transit
Less car-centric
Encourages dense, mixed use development
Sustainable streetscapes
Incorporated affordable housing
All new development is LID
Smaller block sizes- more walkable neighborhood
Improve water quality returned to stream
Restore native amphibious species to stream
Diverse culture & income maintained
Community stewardship + municipal support = evolved neighborhood.
Extensive urban agriculture

bioswales

mass public transit

post charrette-student design

EVOLVING A COMMUNITY NODE



Longfellow

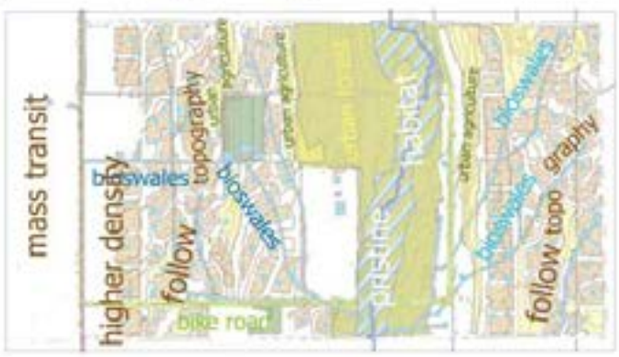
post charrette-student design

implementation phases now [2006]

phase 1 [2026]

phase 2 [2076]

phase 3 [2106]



Implementation Strategies:

Funding mechanism to support maintenance of Longfellow Creek

Creation of Longfellow Creek as an official park status

Seek funds from the Neighborhood Matching Grants program for green infrastructure

Utilize transfer development rights to preserve current open space

Utilize Real Estate Excise tax 2 to acquire land for connections
and trails
conservation easements to allot land as preserved

Zoning changes to incorporate higher density, more walkable community

Acquire geological hazard mitigation land for perservation and
non-buildable land

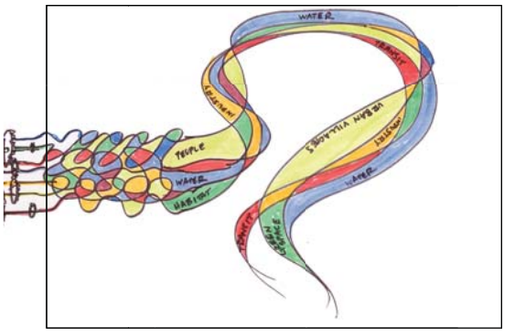
Create public.private partnerships for stewardship requirements

Open space management classes to ensure quality control

Pedestrian Habitat Corridor

Longfellow

post charrette-student design



DUWAMISH

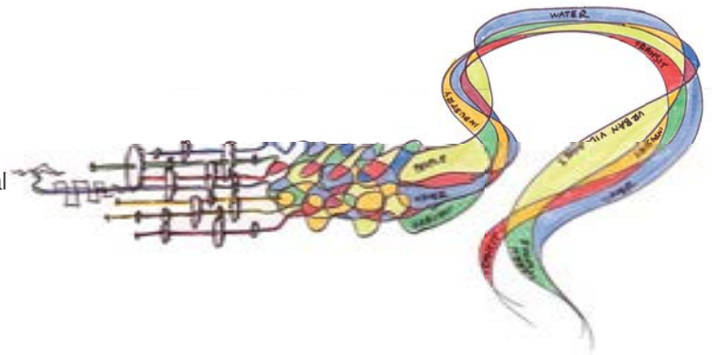
A RIVER LOOM

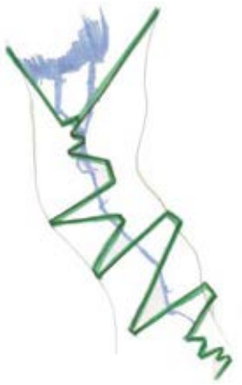
Team Leaders: Mark Johnson, Jim Brennan
Student Team Members: Kari Stiles, Melissa Martin
Team Members: Cari Simson, Karen Janosky, Dottie Faris, James Rasmussen, Sarah Kavage, Eric Higbee, Tom Knaublaugh, Scott Holsapple

THE DUWAMISH WATERSHED

A River Loom

Interdependent threads of activity and land use are woven together across the Duwamish Valley to create a rich landscape fabric that supports a dynamic interaction of industrial, residential and ecological activity. The unique industrial and ecological histories of the Duwamish Watershed are recognized, enhanced and their interactions strengthened through the development of integrated transit and habitat corridors and focused density and new development.





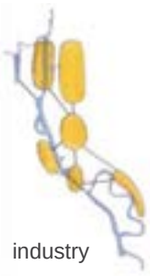
Zipper

Just as the interlocking teeth of a zipper bring two disparate elements together to form a greater, stronger whole, this plan knits the east and west Duwamish landscapes together along the seam of the Duwamish River. Industrial and ecological landscapes, human and wildlife uses, as well as the movement of humans and physical forces come together along the banks of the Duwamish and along the flanking greenbelts.

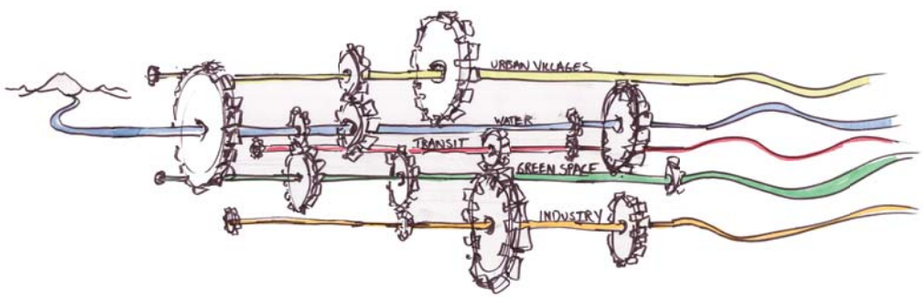
transportation

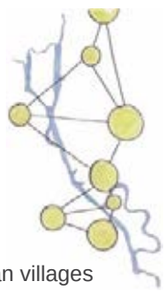
Axles and Gears

Powered by the water of the Duwamish, the axles of industry, habitat, transit and human activity interact to drive and shape one another. Industry that is water dependent is woven into the banks of the river in a way that supports industrial needs and ecological functions, cleans the environment and provides wildlife habitat. Open spaces that provide recreational and educational opportunities are located near population centers. Transit corridors provide easy access to industry and population centers while also celebrating and reinforcing green connections and habitat corridors.

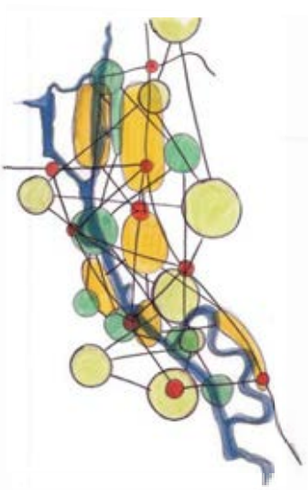


industry





urban villages

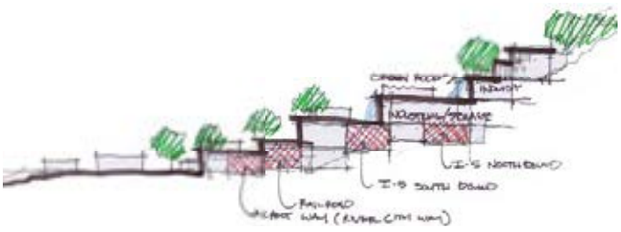


A Braided Fabric

The axles of the Duwamish are woven together to produce a flexible, diverse, strong and adaptable fabric that is rooted in the hydrological and ecological foundations of the watershed. Beads of development (habitat, industry, commercial and residential) are encouraged where their habitat, transit, human and spatial requirements are optimized. Rooted in the immediate local environment, a shift to environmentally-focused land use and development will lead to a strong, locally-appropriate, diverse urban fabric that both restores the ecological health of the landscape and allows for punctuated change as needs and conditions shift.

green space

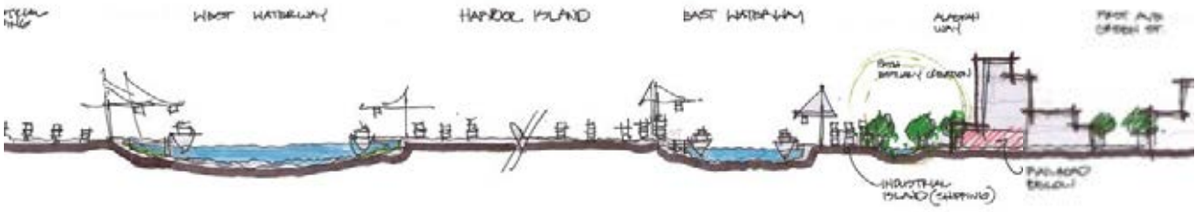
Charrette Conceptual Plans



Terraced development

Charrette 100 year plan

Alaskan Way container canyon

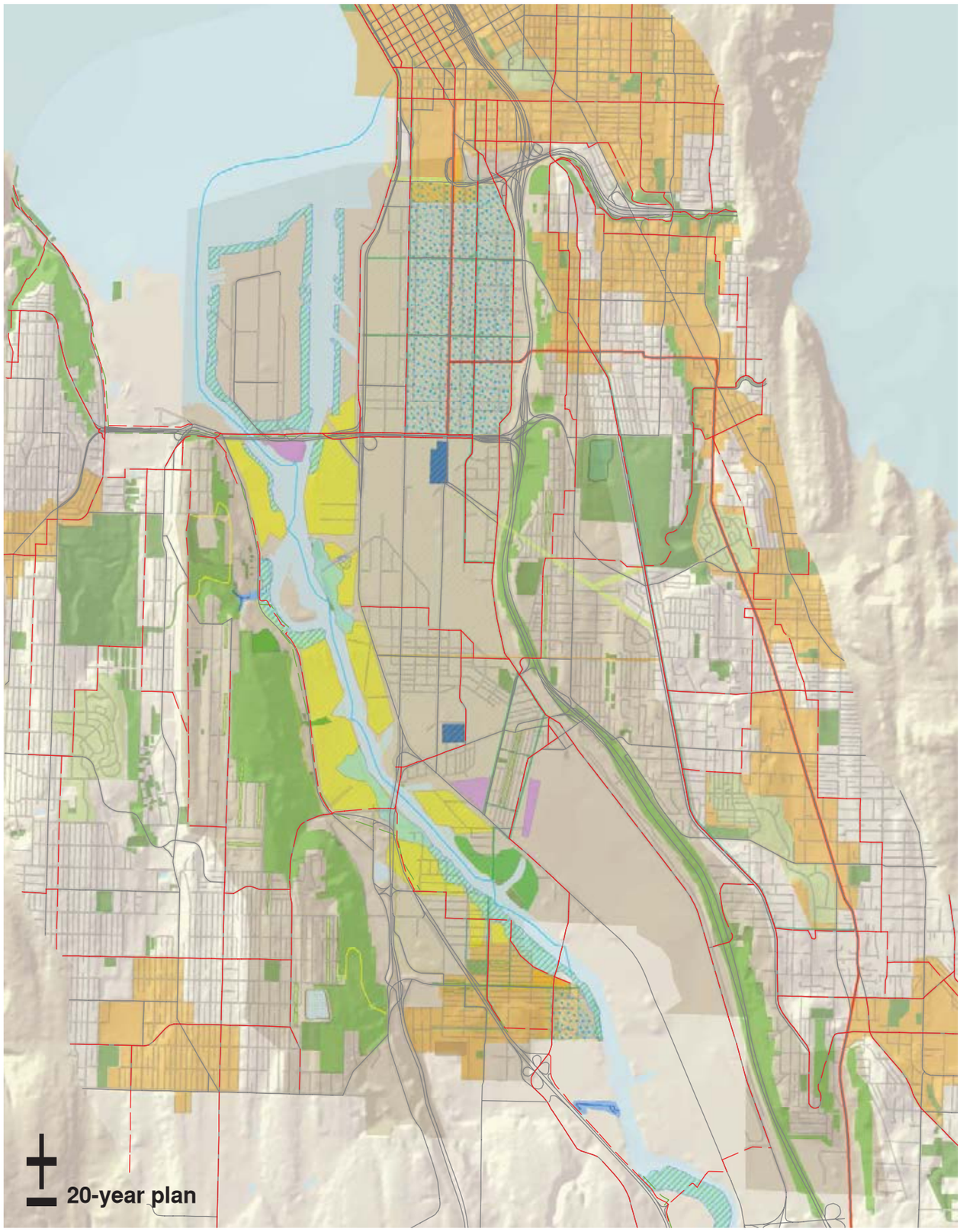


River mouth area

Kellogg Island

New river channel

PLANNING FOR 20 YEARS



20-year priorities

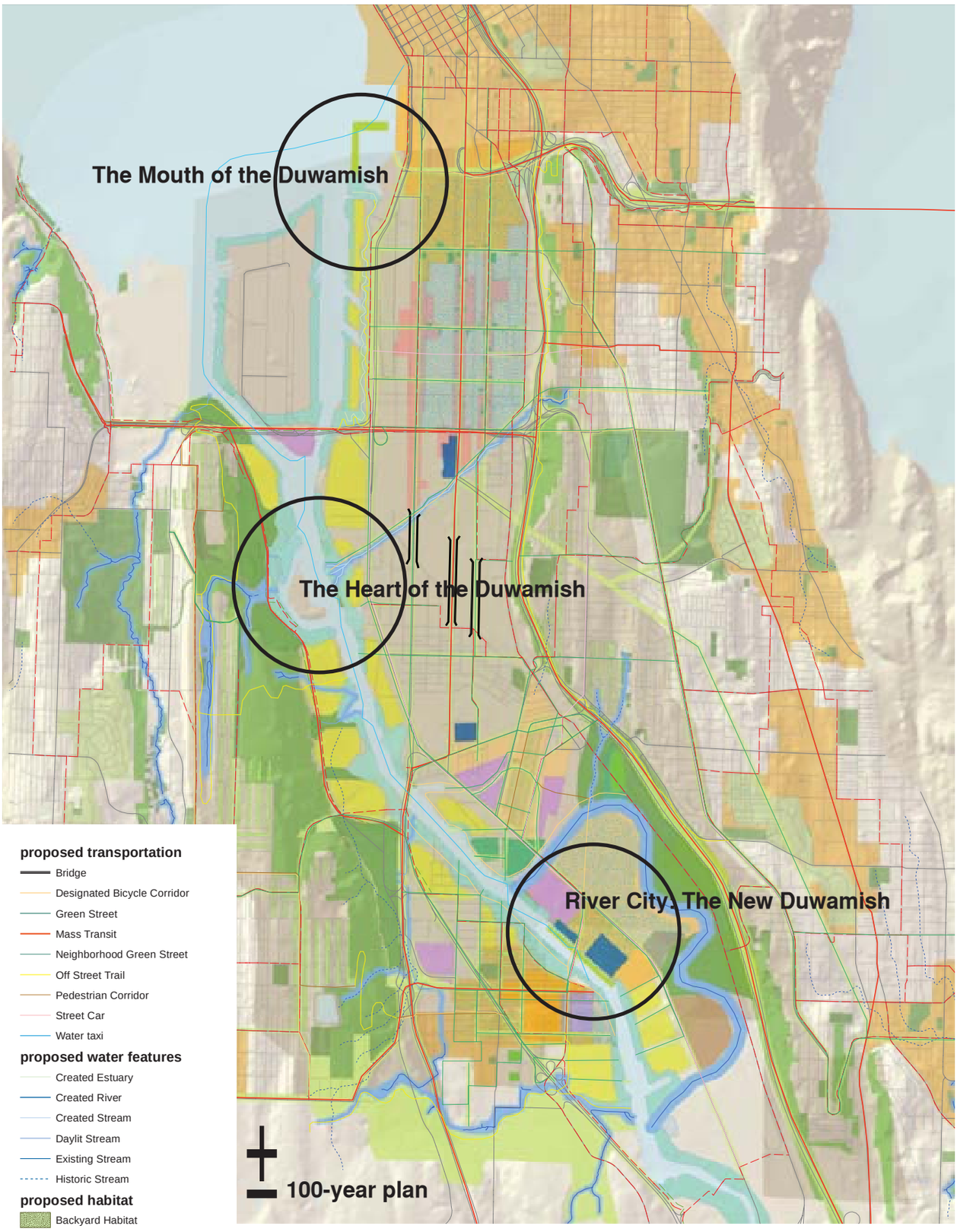
Transportation

- Build a green street network
- Build a transit network
  - light rail
  - Sounder
- Reconnect neighborhoods
- I-5/I-90 lid
- Replace 14th Avenue bridge
- Lid SR 99 at West Marginal
- Build a trail network
- Finish Chief Sealth trail
  - East Duwamish greenbelt trail
  - Puget and Longfellow creek trails
- Add water transportation
  - water taxi to Duwamish
  - small craft landings

Habitat

- Soften edges of Harbor Island
  - East waterway habitat restoration
- Expand Herrings House/T107 to the south
- Bring Puget creek back to the Duwamish
- Create shallow water habitat on east side of Kellogg Island
  - Diagonal restoration and CSO treatment facility
- Continue to soften river banks; remove riprap
  - Gateway North intertidal habitat
- Create viewing area at old pump house
- Create paths along river
- Add intertidal habitat throughout salt/freshwater wedge along both sides of river
- Open mouth of Hamm Creek for intertidal habitat and create viewing areas

LOOKING FORWARD 100 YEARS,



proposed transportation
- Bridge
- Designated Bicycle Corridor
- Green Street
- Mass Transit
- Neighborhood Green Street
- Off Street Trail
- Pedestrian Corridor
- Street Car
- Water taxi

proposed water features
- Created Estuary
- Created River
- Created Stream
- Daylit Stream
- Existing Stream
- Historic Stream

proposed habitat
- Backyard Habitat
- CSO Living Machine
- Estuary
- Habitat Corridor
- Mixed Forest
- Puget Sound Riparian Area
- Stream Riparian Area
- Urban Waterfront Habitat

proposed water and drainage
- Green Roof
- Rain Garden
- Rain Plaza

proposd community amenities
- Active Park
- Civic Space
- Lidded Open Space
- Passive Park
- Urban Agriculture

proposed urban centers
- Commercial Area
- Industrial Area
- New Urban Hub
- New Urban Village
- Urban Corridor

existing areas
- existing gardens
- existing greenbelts
- existing park
- existing urban villages

existing habitat
- existing habitat

existing trails
- existing arterials
- existing bike trails
- existing trails

duwamish study area
- duwamish study area

duwamish buffer area
- duwamish buffer area

Strategies and implementation

- Percent of State Sales Tax applied to lidding regional transportation corridors
- Increase incentives for Transfer of Development Rights and Conservation Easements to increase designated habitat acreage
- Develop citywide financial incentives to encourage implementation of Green Energy Technology and Sustainable Development (i.e. wind, microhydro, solar, green roofs)
- Public Purchase of waterfront and greenbelt parcels to create continuous terrestrial and waterfront habitat corridors
- Use Real Estate Excise Tax to develop public open space amenities (i.e. parks, green streets, rain gardens and green roofs)
- Develop transportation networks that facilitate industrial development in non critical (i.e. non-waterfront) habitat areas

Unfolding Landscapes Across the Duwamish.

Exploring Multi-Use and Mobile Spaces along the 8th Avenue Corridor

industrial, commercial, residential

ACTIVITY

3 zones of the Duwamish

industrial zone

- local development focuses on providing opportunities for water-based industry\habitat is seamlessly integrated into industrial infrastructure

integration zone

- human access to the river is prioritized
- natural and built infrastructure is integrated and exposed to reveal interactions between the built and natural environment

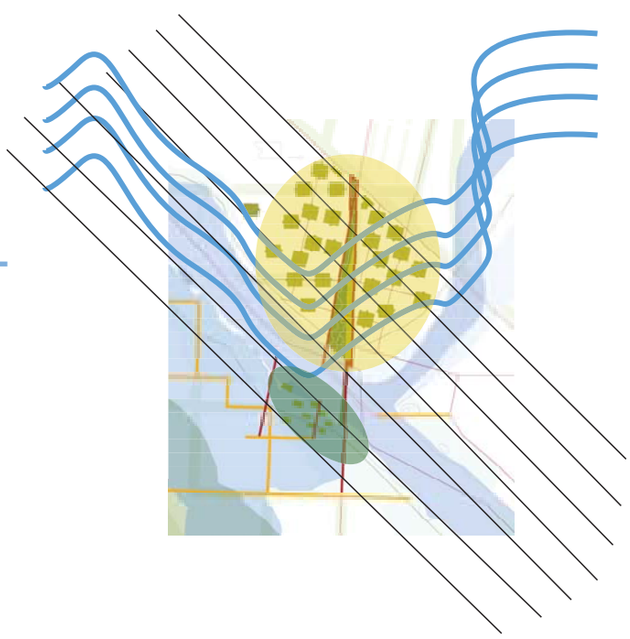
habitat zone

- all development prioritizes restoration of Duwamish River
- habitats and processes

transportation connections

Duwmaish

ENERGY



local energy harvest powers new developments

- microturbines use water running under new developments to power local neighborhoods
- wind is harvested on rooftops and across the Duwamish
- solar energy is captured on rooftops of all new developments
- green fuel is produced in local wetland and terrestrial nursery beds

habitat connections

2100. looking north
South Park, Georgetown, and River city have grown up around Duwamish River Park

spanning the Duwamish
habitat, pedestrian corridors and windmills replace the street grid across the Duwamish

water plaza collects and filters stormwater

bio-buildings capture water, solar and wind energy, contract to reduce impermeable surfaces and prvide vertical habitat for wildlife

convertible plaza space for agriculture, plant nurseries, native gardens and community gathering spaces

native riparian habitat and passive park space

seep walls reveal the subsurface water movement and recycled building materials

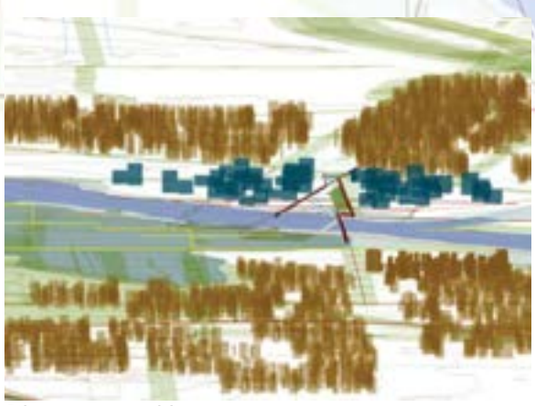
native estuary habitat

bridges provide pedestrian and habitat connections while also harvesting wind energy

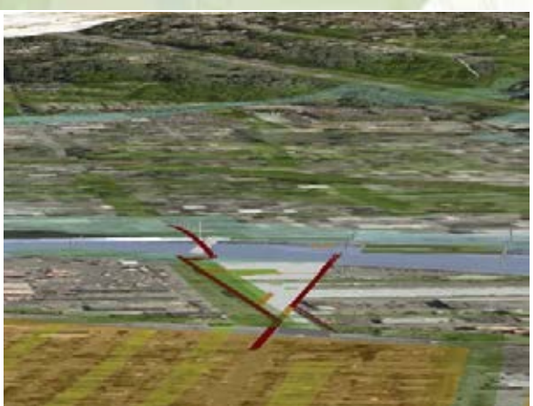
boardwalks provide pedestrian access throughout reclaimed landscapes

wetland agricultural space grows food for local communities and native plants for restoration projects

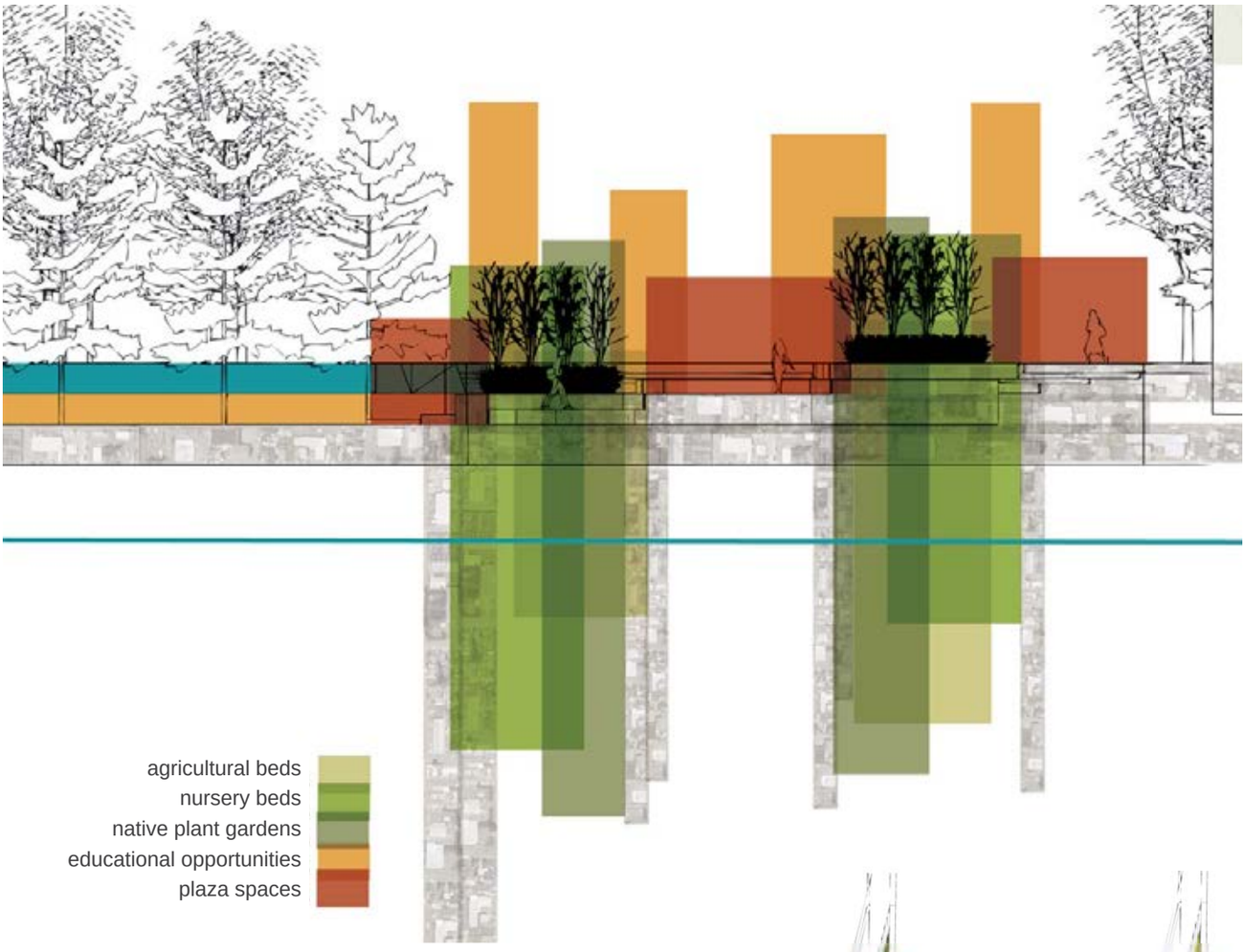
landfill and flood zones are reclaimed by shoreline and forest vegetation

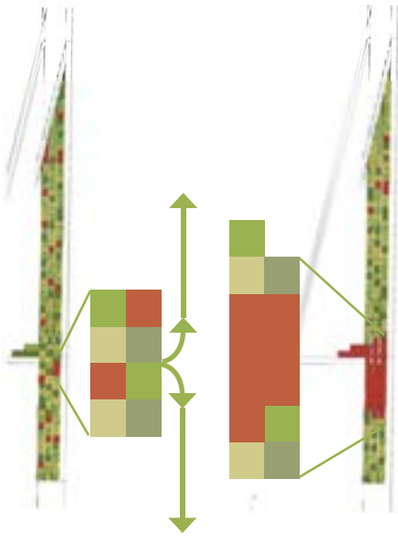


8th avenue corridor
Duwamish River Park bridges the habitat and pedestrian gap between Georgetown and South Park



wetlands, forests and agriculture
the flood zone, the landfill and the slide zone have been reclaimed for estuary habitat and native plant nurseries





agri-plazas

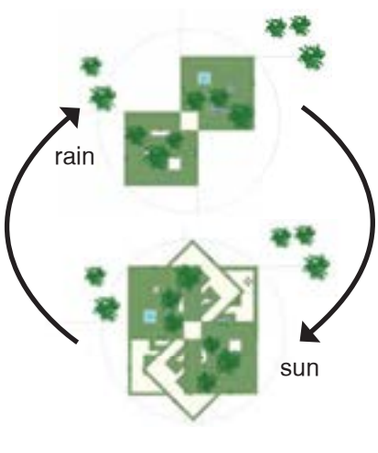
terraced agricultural and nursery beds shift along tracks to make room for intimate plazas and large community gathering spaces

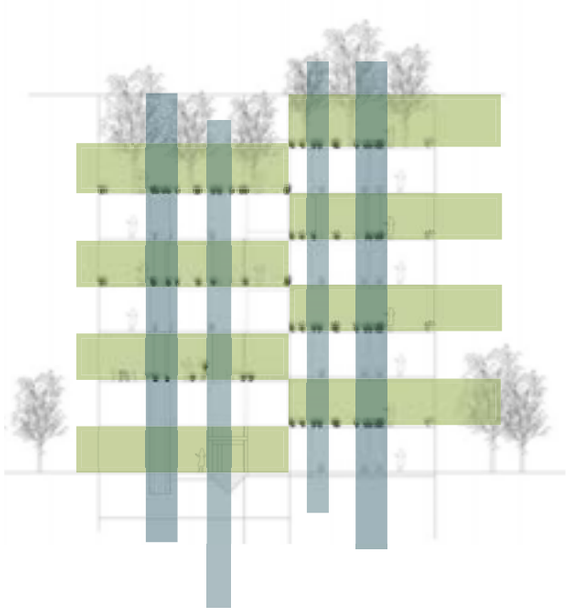
Duwmaish

bio-buildings

buildings and landscapes respond to environmental conditions by changing form and position to maximize energy efficiency and human use

structures unfurl to capture sunlight and collapse to reduce impervious surfaces



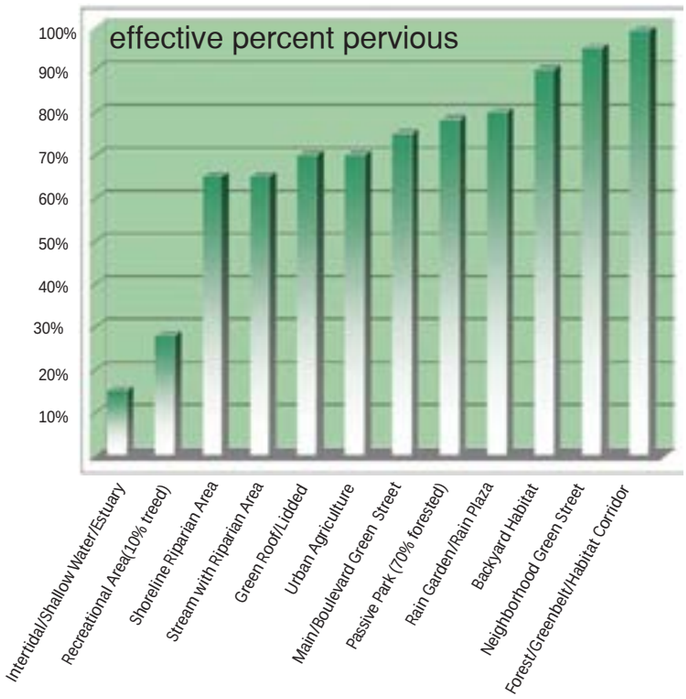


buildings provide the vertical habitat structure that has been lost from the urban landscape

ECOLOGICAL BENEFIT EVALUATION

analysis of hydrological and habitat improvements: ballard and duwamish study areas

hydrology



habitat

Throughout the world, cities fragment, isolate, and degrade natural habitat. Application of the principles of landscape ecology, including interactions among patches, corridors, and metapopulation habitat networks, is valuable for enhancing urban ecological health. By improving habitat quantity, quality, and connectivity, it is possible to conserve and protect native plant and animal species.

Duwamish Study Area Results

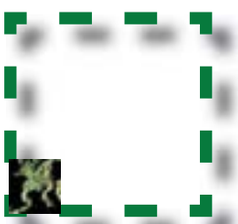
study area size: 1,230,036 acres
area of improvements (20 years): 959 acres
area of improvements (100 years): 3054 acres

current

1,369 acres effective pervious surface

970,476 CCF

current



797 acres

limited corridor connectivity
low habitat quality
limited interior habitat
few stepping stones

20 year

2,636 acres effective pervious surface

822,164 CCF

20 year

2,855 acres

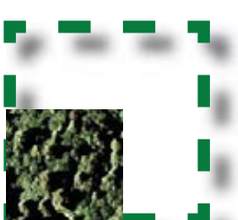
increased habitat quality
expanded stepping stones

100 year

4,799 acres effective pervious surface

205,194 CCF

100 year



5,531 acres

improved corridor connectivity
enhanced habitat qulaity
increased interior habitat
expanded stepping stones

Duwamish

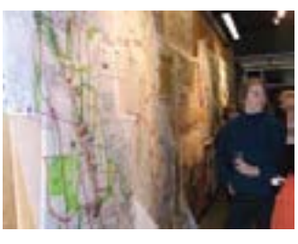
RAINIER VALLEY

ENVISION THE VALLEY/PROSPER IN PLACE

Team Leaders: Julia Walton, Maggi Johnson
Student Team Leaders: Peter Nelson, Elizabeth Umbanhowar
Team Members: David Saxen, Michael Hintze, David Wright, Laura Grignon, Christopher Peragine, Gina Mares Kurtz, Suni Hatcher, Gwen Rousseau, Rodney Rutherford, Patrick Donnelly, Joyce Moty, Audrey Stout, Chris Rhinehart, David George, Mark Troxel, Mikala Woodward, Jay Rood, Andrew Kidde, Christina Gallegos, Sarah Huntting, Barb Biondo, Bill Zosel, Michael J. Webb, Valerie Porter, Jodie Vice

PRELIMINARY RESEARCH

PRELIMINARY RESEARCH



CONCEPT

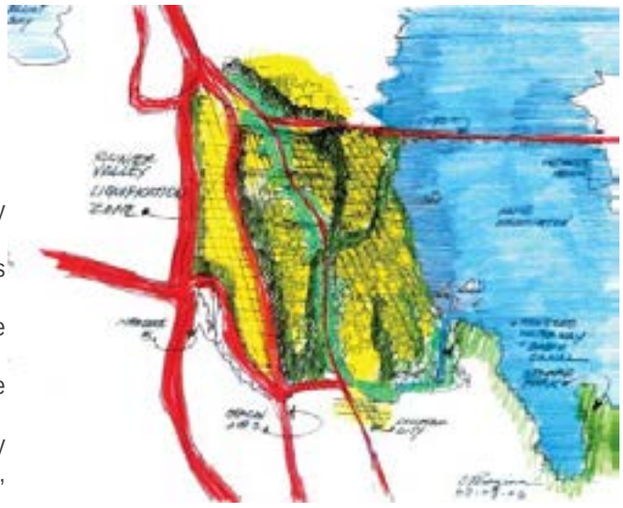
Rainier Valley Team “B” or, the Prosper in Place Team (PIP), is composed almost entirely of people who live in and love Rainier Valley. Our vision responds both to our appreciation of the place of Rainier Valley in the City in the present and into the future; and to our nuanced understanding of the existing physical place and its history. At present, in terms of cultural resources and physical topography, Rainier Valley is rich. However, in many other ways, the residents and workers of Rainier Valley are underserved in terms of daily needs. Typical of so many Seattle neighborhoods, north-south circulation in Rainier Valley is easy, while cross town connections represent a signi?cant obstacle to coherent movement.

To address the issues of mobility, access, equity, environment, education and economy, we envision a future where the neighborhood is self-suf?cient, that is, everything a person might need is available in situ—recreation, goods, services and employment. While we have strong functional connections to downtown and other neighborhoods via automobile routes and public transportation, we have urgent need of improved multi-modal access in and out of our neighborhood. We are also an important crossroads for cross-lake automobile traf?c to downtown as well as the Mountains to Sound Greenway bicycle commuters. The PIP team has developed scenarios for both anticipated demographic density and resource scarcity. By interweaving economic nodes into the fabric of green infrastructure, the team has undertaken to both enhance cultural vitality and protect natural resources.

The PIP team appreciates that our community and our watershed can only remain viable for 100 years by pairing density with open space and thereby emphasizing both sustainability and self-reliance.

Our view is both introspective and holistic; we look in (refuge) to both social and natural resources in the watershed while investing in city and regional connectivity and infrastructure (vantage). We envision a place that fully embraces its geographic location, natural resources and cultural diversity. With this in mind, we strive to maintain strong community bonds through efforts to build the rich palette of opportunities and resources within the watershed, while maintaining important linkages to the greater region.

IMPLEMENTATION



Rainier Valley Team A Notes

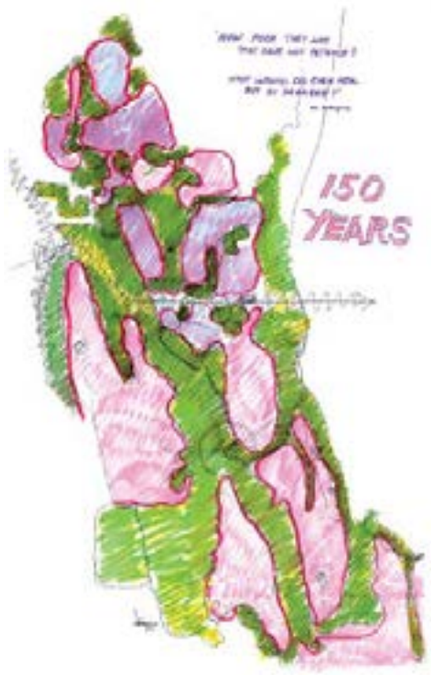
Immediate Policy Changes
- Establish a TDR program to create the new Rainier Valley agricultural zone
- Lobby for a tax shift (away from income/services, towards resource consumption)
- Legislation to change water rights (allow capturing and reuse of storm/gray water, cistern)
- Forge partnerships with custodians of existing open space (schools, parks, DOT, churches, government)
- Revise zoning and building codes to encourage environmentally sustainable development (green roofs, water collection/reuse, permeable surfaces, cisterns)
- Increase incentives for private development of public plazas

Continuing Initiatives
- Expand P-patch gardens (e.g., McClellan Hillside Garden)
- Renew "gray to green" school yard initiative
- Ensure equitable access to open space

5 Years
- Engage artists to create wayfinding system reflective of local culture/identity (unified, city-wide format with direction and distance to nodes, pedestrian scale)
- Improve bike/pedestrian path continuity on Beacon Ave South
- Build Martin Luther King greenway (with path on east side of ROW between I-90 and Rainier)*
- Construct bike/pedestrian connection ramp between I-90/ Rainier bus stops and I-90 bike path
- Acquire open space in Squire Park
- Expand open space through public/private partnerships (schools, churches, alleys)
- Build green residential streets to improve ecological function and safety
- Complete Mountains-to-Sound Greenway to Elliott Bay
- Enhance existing and build new pedestrian stairways on street ROWs
- Identify pedestrian stairways with artistic solar/wind towers
- Acquire agricultural valley farmland
- Establish pedestrian water taxi service at Stan Sayers Park to U-District, Eastside, etc.
- Encourage local energy generation on public and private buildings (solar, wind, etc)
- Establish 'ReStore' outlet

20 Years
- Build bike/pedestrian promenade along Weller Street (with/I-5 underpass)
- Build bike/pedestrian promenade along Main Street (with Yesler Terrace redevelopment)
- Build MLK greenway north of I-90 (with pervious pavers along edges and parking lane)
- Build connections to future I-5 Bikeway
- Create a gray water distribution system
- Fix MLK/Rainier intersection (tunnels? roundabout?)
- Connect Cheasty and Mount Baker Boulevards
- Re-establish the historic agricultural activities in the Rainier Valley (community-supported agriculture)

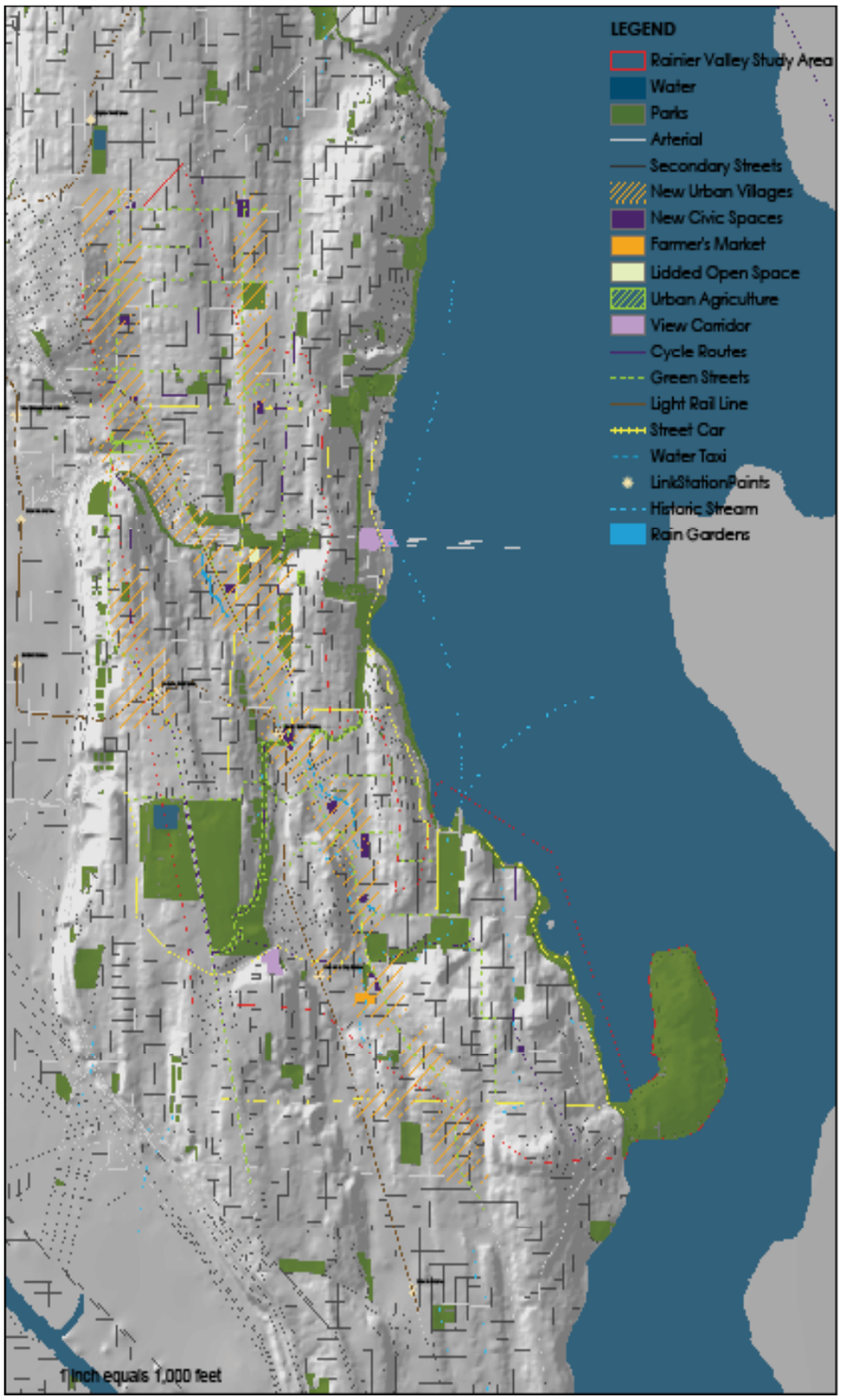
100 Years
- Restore Rainier Valley creeks
- Expand agricultural opportunities
- Mine the landfills at Genessee Meadow to recover materials and to restore natural waterways

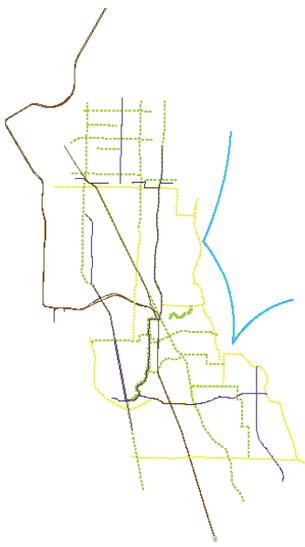


Goals
- Create equitable access to nature and public space
- Develop continuous network of diverse open spaces layered with functioning ecosystems, urban agriculture, passive use, travel
- Reduce impervious surfaces by 70%
- Become energy self-sufficient with local energy production
- Reallocate public ROWs for

Envision the Valley
- Healthy living streams, forests and fields
- People live, love, work, play and travel
- People produce food and medicinal herbs, recycle waste and harvest energy from the wind, sun and water
- East west streets are community bridges
- Green streets produce less noise and pollution
- Connected to neighboring areas and city by open space, transit, biking and walking corridors
- Waste stream is captured as living energy and used within the community
- The powers of the wind, sun, and water fuel life
- Energy production, waste recycling, de-paving, and agriculture provide a diverse job base
- Streets support walking, biking, transit, drainage and agriculture
- Community identity and continuity gently evolves from diverse peoples and ecosystems
- Food and public spaces connect people
- Artful wind and solar towers mark valley entrances, corridors
- Traffic noise evolves to bicycle bells, birds, and babbling brooks
- Green infrastructure is cared for and continually replenished

20-YEAR VISION





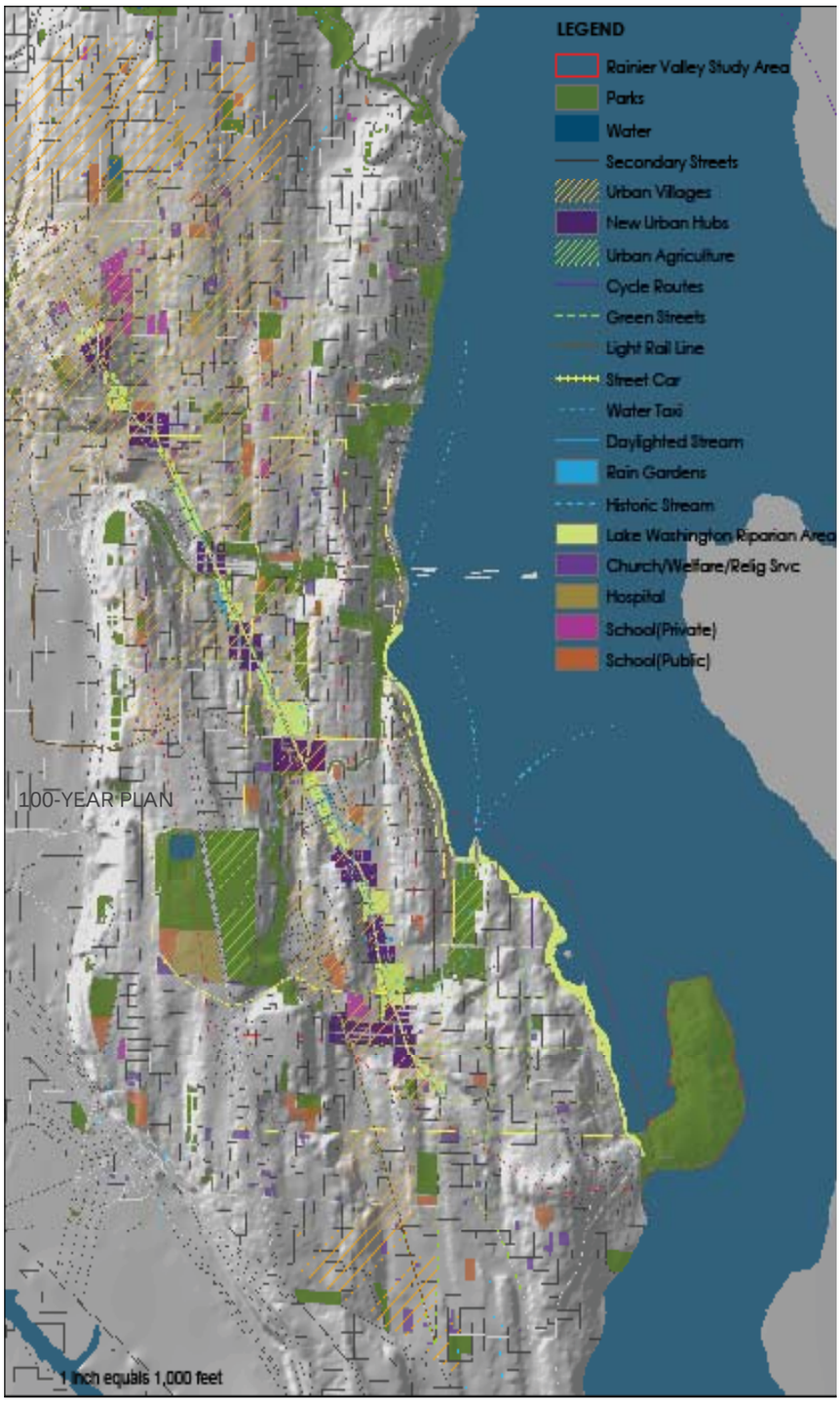
20-YEAR PLAN

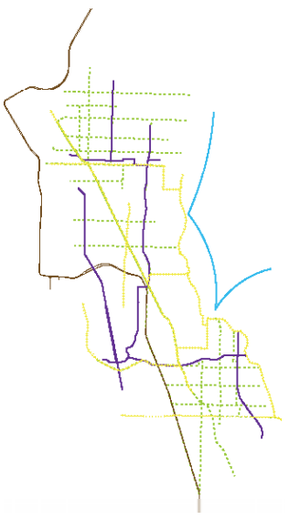
The 20-year plan takes into account current planning documents (neighborhood and city) as well as the intimate knowledge of residents of the watershed, the communities, and the dynamics of existing land use and transportation patterns. The 20-year plan augments or creates trails, way?nding devices, and natural drainage streets and embraces the current planning for Sound Transit Light Rail. Combined sewer over?ows (CSOs) are largely eliminated by the construction of green streets. In the next 20 years, the City accomplishes this by identifying and prioritizing those streets with the most impact on the individual CSO subbasins. We assume all streets are constructed as green streets, minimizing runoff, maximizing in?ltration, and providing habitat with native plantings.

We envision an interconnected network of ef?cient and multimodal transportation, including a focus on a variety of non-motorized vehicles and pedestrians. We have identi?ed missing corridors required to complete this mission. This includes light rail connections between the Eastside and Rainier Valley, and a number of small bus or rail lines.

Density is moderated by pocket gardens on each block and identifying a number of steep slopes as open space. Quality of life is enhanced by plazas in each commercial core, and by careful consideration of adjacent uses – commercial activities that enhance public gathering spaces (like an espresso cart at the dog park) or picnic plazas near open air markets and clusters of dining places.

100-YEAR VISION





Rainier Valley

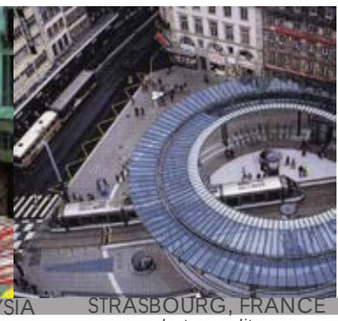
100-YEAR PLAN

The 100-year plan uses broader strokes to describe a watershed replete with a highly integrated and interconnected network of multi-modal arterials and streets, with the understanding that current modes of motorized transport technologies may change radically in the future. Rainier Valley will remain as welcoming a place for future immigrant communities as it is today, offering opportunities to maintain cultural identities while connecting to the fabric of the community through open spaces that provide gathering places, recreation, agriculture and ecosystem function.

An elaborate system of funding and implementation has been explored through the augmentation of current funding mechanisms and the creation of new sources. These include: levies, fee waivers, private foundations, public use of private spaces, brownfield funding, matching funds, and commercial business improvement districts. Further, energy generated through wind power, methane production, water harvesting and reuse and grid exchange will be sold back to the city in exchange for additional funding.

LAS RAMBLAS, BARCELONA, SPAIN

KUALA LUMPUR, MALAYSIA



STRASBOURG, FRANCE

photo credit: pps.org

HISTORIC
UNCOVERED

LIGHT RAIL-RAINIER STREET CAR TRANSFER
Connecting the entire Rainier Valley community to Seattle's new light rail stations-- to their places of work-- will allow people to access mass transit without driving.

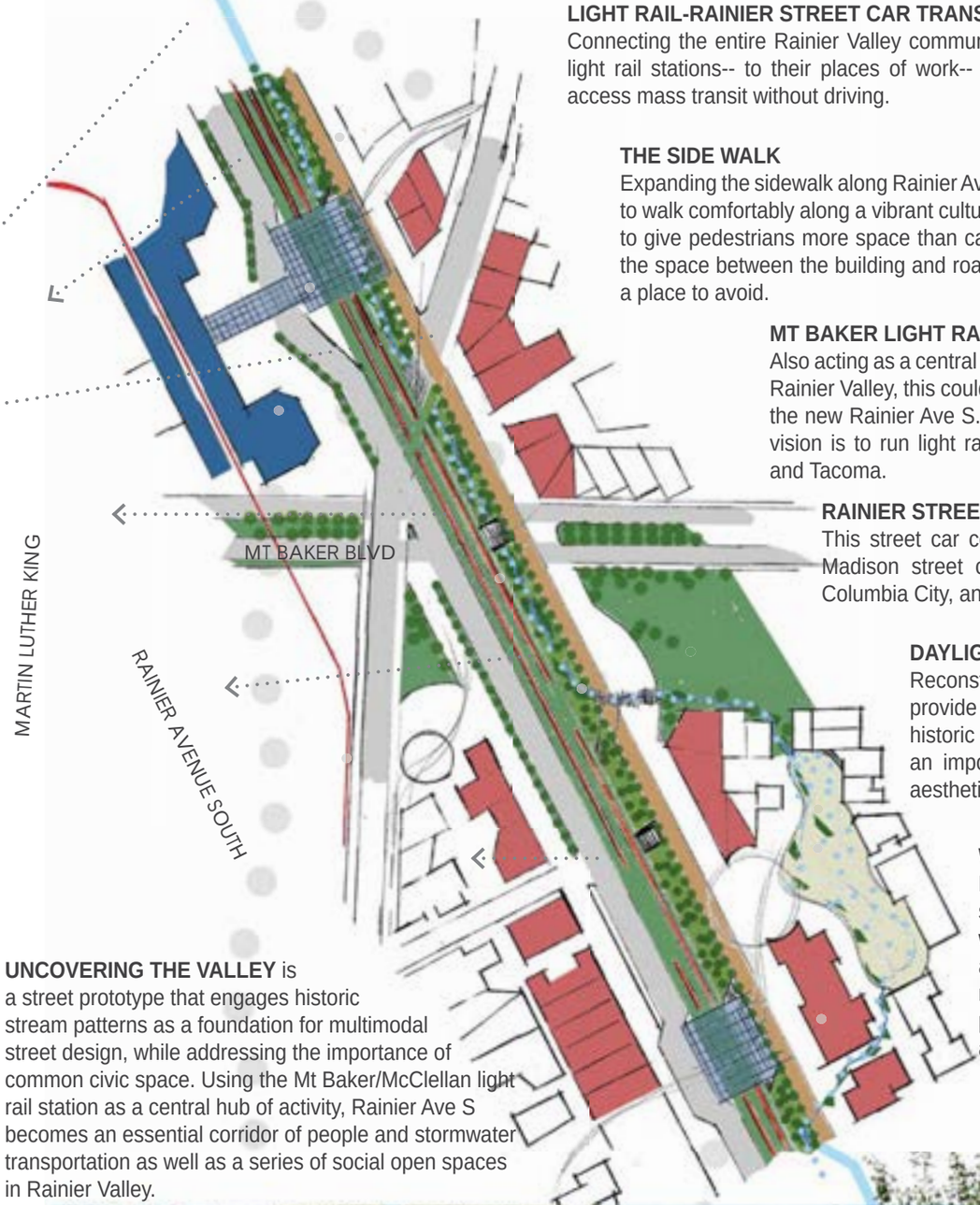
THE SIDE WALK
Expanding the sidewalk along Rainier Ave will give people room to walk comfortably along a vibrant cultural corridor. The idea is to give pedestrians more space than cars, so that we will see the space between the building and road as a place to be, not a place to avoid.

MT BAKER LIGHT RAIL STATION
Also acting as a central hub for community activity in Rainier Valley, this could be a destination anchor for the new Rainier Ave S. The ultimate Sound Transit vision is to run light rail between Everett, Seattle, and Tacoma.

RAINIER STREET CAR
This street car connects Rainier Valley with Madison street car, as well as Mt. Baker, Columbia City, and Othello light rail stations.

DAYLIGHTED STREAM
Reconstruction of Rainier Ave will provide an opportunity to daylight a historic stream that could serve as an important stormwater ?lter and aesthetic value to the street.

WETLAND FILTER
Diverting the daylighted stream through development would slow water down allowing sediment and nutrient removal while providing a breathing amenity to dense housing



Rainier Valley

UNCOVERING THE VALLEY is a street prototype that engages historic stream patterns as a foundation for multimodal street design, while addressing the importance of common civic space. Using the Mt Baker/McClellan light rail station as a central hub of activity, Rainier Ave S becomes an essential corridor of people and stormwater transportation as well as a series of social open spaces in Rainier Valley.

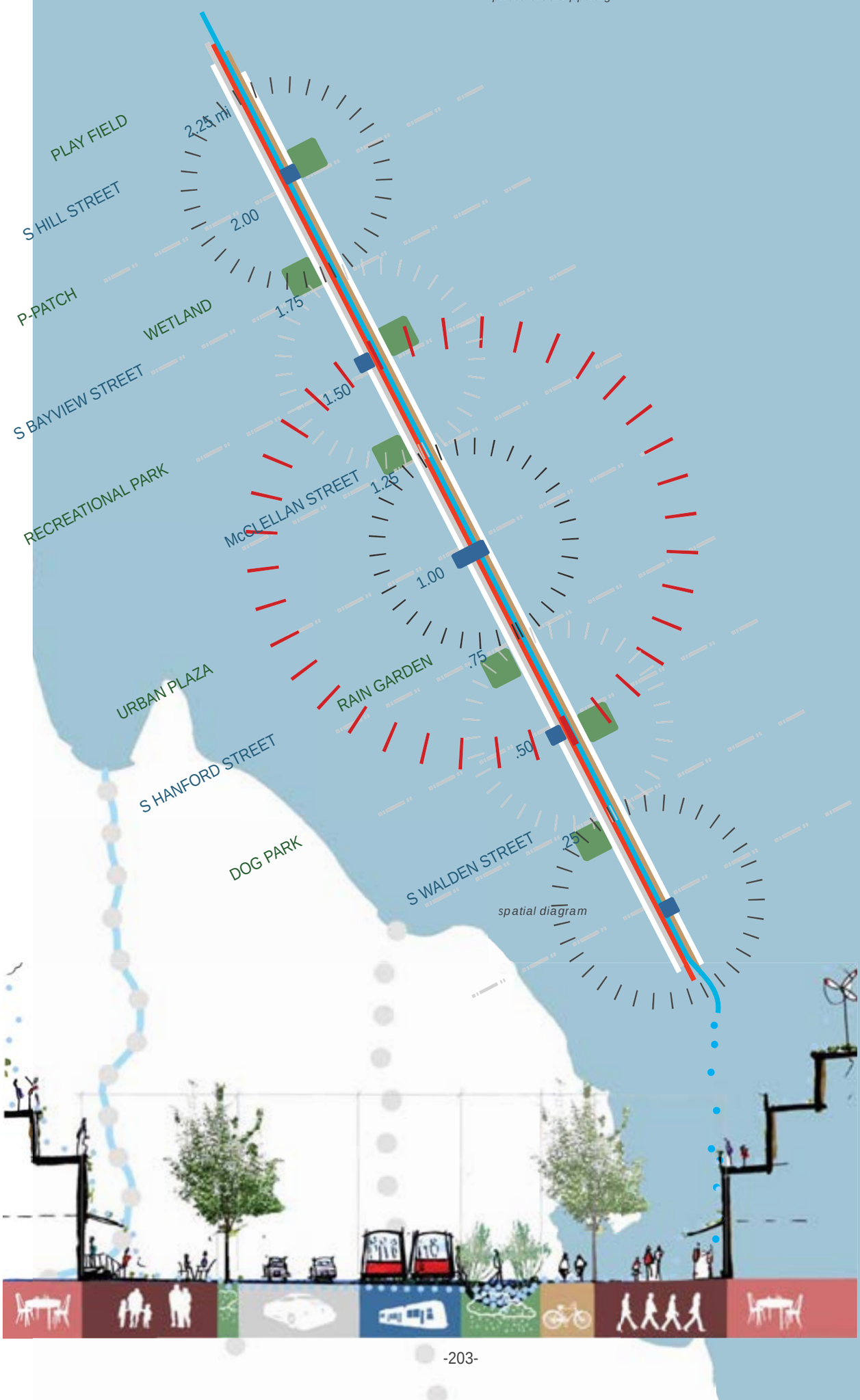
Daylighted stream on Rainier Ave S

UNCOVERING THE VALLEY

FREIBURG, GERMANY

AVINGUDA DE GAUDI BARCELONA, SPAIN

photo credit: pps.org



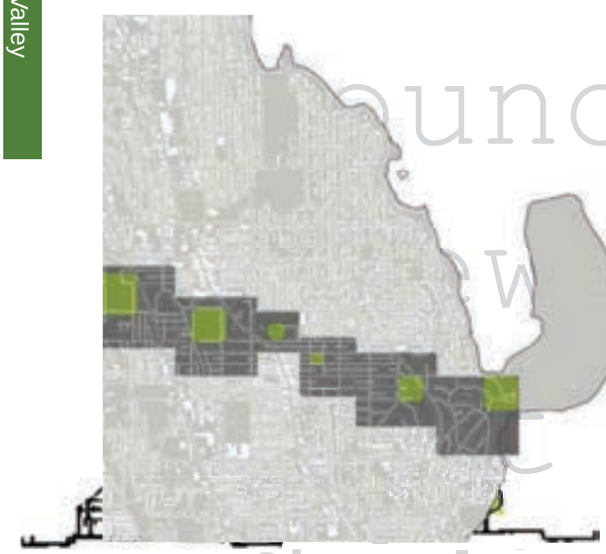
spatial diagram

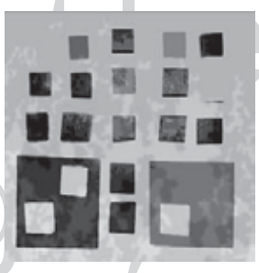
DESIGN CONCEPT

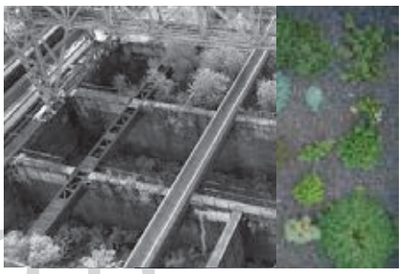
The infrastructural matrix of the city is shaped by the need to transport goods and provide services to a dense urban population. Metropolitan centers require vast external energy inputs to maintain robustness. Matrix components comprise a homogenous network of concrete, petroleum and steel, materials, which are conducive to vehicular mobility rather than facilitating non-motorized movement. Within this conventional paradigm, vegetation is interpolated as an aesthetic afterthought.

Through the mechanism of succession,(re)framing the city proposes to transform this matrix from a unsustainable, homogenous uni-directional resource sink into a diverse, renewable, multi-directional vegetative matrix into which human infrastructure is nested. The matrix retains the integrity of the grid thereby simultaneously honoring the historic agricultural footprint of Rainier Valley and the pervasive urban organizing principle, while also supporting ecological functionality. The proposed matrix will engage four typologies, or frameworks: forest, ?eld, farm and fallow. These frameworks converge, overlap, blur, disappear and reemerge ultimately creating a green continuum. Like the successional model proposed within the ecological context, these linked frameworks will form a green corridor, one which provides a vital lifeline to neighborhood civic nodes and to the city at large. They will foster ecological, cultural and economic sustainability and awareness at different scales through onsite remediation of stormwater, carbon sequestration and phytodegradation. At the same time, these corridors act as cultural corridors, increasing community interaction by accommodating recreation, high density livable housing, alternative transportation modalities, urban agriculture and habitat for song birds, amphibians and small mammals.

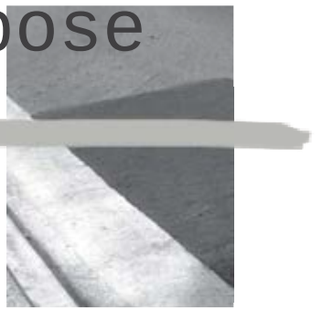
The project will be initiated by seeding existing parks, traf?c circles and other open spaces with a fabric of complex typological layers. Both cyclical and catastrophic mechanisms instigate change over time:earthquakes, ?res and landslides, decay and rejuvenation, and culling.
As these hubs expand, they will be connected along an east/west axis through a series of interwoven paths, daylighted streams, non-motorized transportation, play?elds, and high density affordable artist-designed prefabricated housing for a transitional and diverse population. As these hubs expand, they will be connected along an east/west axis through a series of interwoven paths, daylighted streams, non-motorized transportation, play?elds, and high density affordable artist-designed prefabricated housing for a transitional and diverse population. Fallow frameworks--comprising vacant lots, alleys, rooftops, street edges--are creative spaces of the organic city that simultaneously function as wastelands and productive sites. They are undesigned, democratic and grassroots.







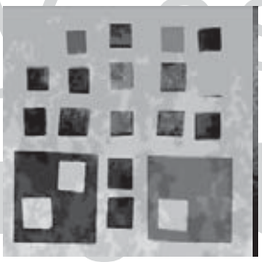
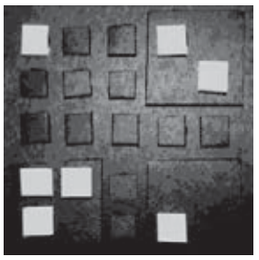
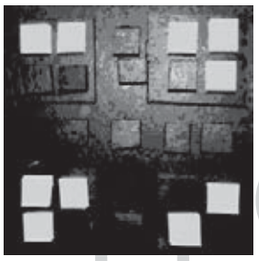
repose




fissure


germinate



Rainier Valley

noise of s arr
like spare dre
citizens w ere
the real c uld
We had cro sed
red forest we
a w
we could have
asts
n bri
support the gu
t. We co
meant song out

Rainier Valley



forest fallow farm field

forest and field frameworks

cyclical and catastrophic mechanisms for succession and change

farm , field and fallow frameworks overlap

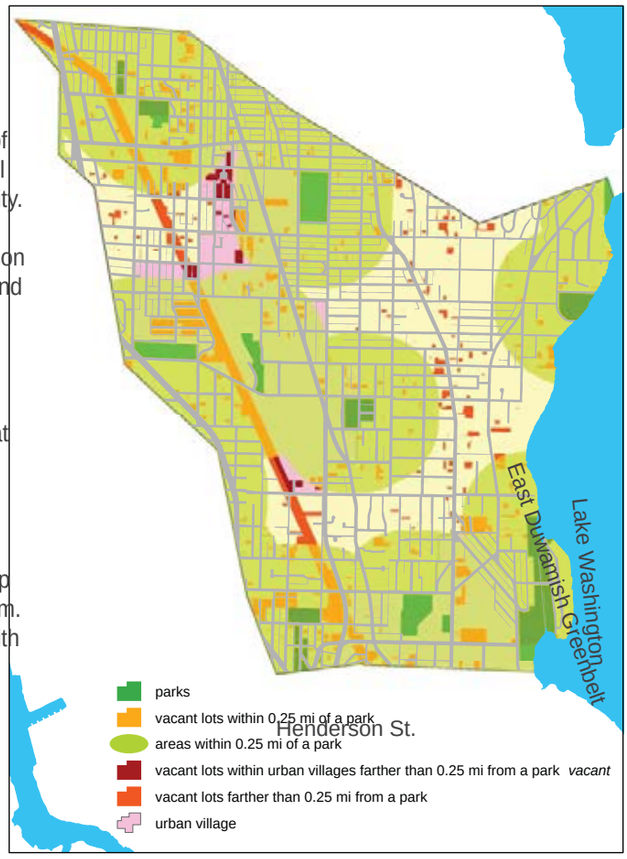
RAINIER BEACH

Team Leaders: Michael Lane
Student Team Members: Virginia Coffman
Team Members: Cheryl Eastberg, Daniel Bretzke, Kara Weaver, Rebecca Lane, Sarah Durkee, Tauschia Copeland, Jourdan Keith

The Neighborhood

The Rainier Beach neighborhood harbors unique social and economic diversity, planned density in 3 urban villages including the New Holly development, planned light rail connections at New Holly and Henderson St. and a variety of distinct open space opportunities that will serve the area well as it continues to evolve into the future as a livable community. Located between the East Duwamish greenbelt to the west and the shores of Lake Washington to the east; the Henderson St. corridor anchors the southern end of the neighborhood and serves as a hub connecting the fingers of north/south ridges and the busy arterials of Beacon Ave., Martin Luther King Jr. Way South, Rainier Ave. South, and Seward Park Ave. The boundary of the study area are defined by the watershed encompassing small northern tributaries of Mapes Creek that historically flowed between the north/south ridges that run through the neighborhood.

Previous to the charrette, opportunity maps were created to call out opportunities within the neighborhood that would help guide the openspace planning decisions of the charrette team. Some of these opportunities included vacant lots or areas with large ajoining backyards, steep slopes and riparian zones. The key opportunities within the neighborhood are the utility corridor as well as the lake shore and the East Duwamish Greenbelt.



Map by Virginia Coffman
Opportunity Map: this map depicts current opportunities for park creation. The dark red patches are vacant lots within areas planned for density and in areas lacking in easy park access.

Charrette Process

The Rainier Beach charrette team was composed of 3 community members, 2 landscape architects, 1 urban designer, 1 planner and two students.

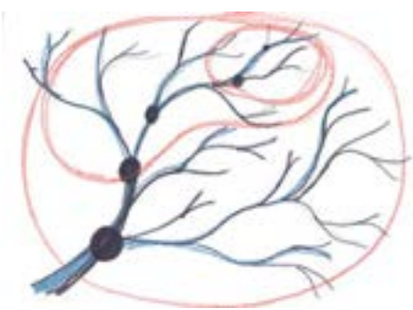
Together during the 2 day charrette process in a flurry of trace paper and flying pens we charted our goals, identified opportunities, created a concept that encompassed goals and opportunities and maped out that concept in a 20 and 100 year plan respectivly.

Guiding principles

Our process started on the city wide scale. We created a wish list and then selected items from the list that were most important, both in terms of human/community and ecological needs for open space. From this brainstorming session we established a list of principles that encapsulated our values, interests and ideas. From that list, after some discussion, we arrived at a city wide concept. The guiding principles that we discussed and idenified to direct our throughts for the city and neighborhood scale were: connectivity, local, revealing ecosystems, democratic access and health.

Concept Development

From these goals our concept emerged. Our primary concept was Neighborshed: a base unit within the larger city system that has a distinct ecological and social identity and function. Its boarders define a catchment region of residents for local urban villages and local services, of water, wastes and energy for collection and processing with green infrastructure, of people as a collector area for transit nodes, of connected open space and greenbelts for healthy habitat creation. Healthy environments and open space are integrated with movement corridors and community nodes and locally managed. The neighborshed is the area that captures, directs and condenses all of these elements to form a livable place with a sense of local identity. This Neighhorshed connects to others via the connective tissue of transit corridors, green corridors and large waterways.



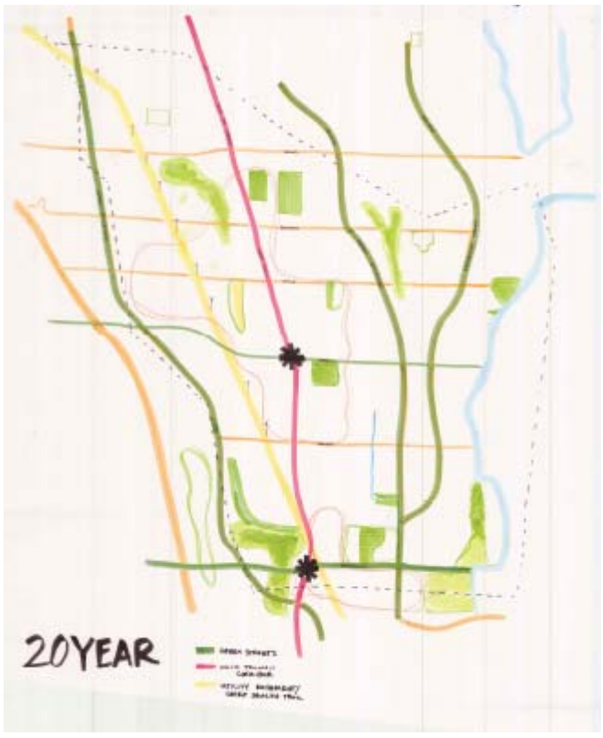
Concept diagram by Kara Weaver

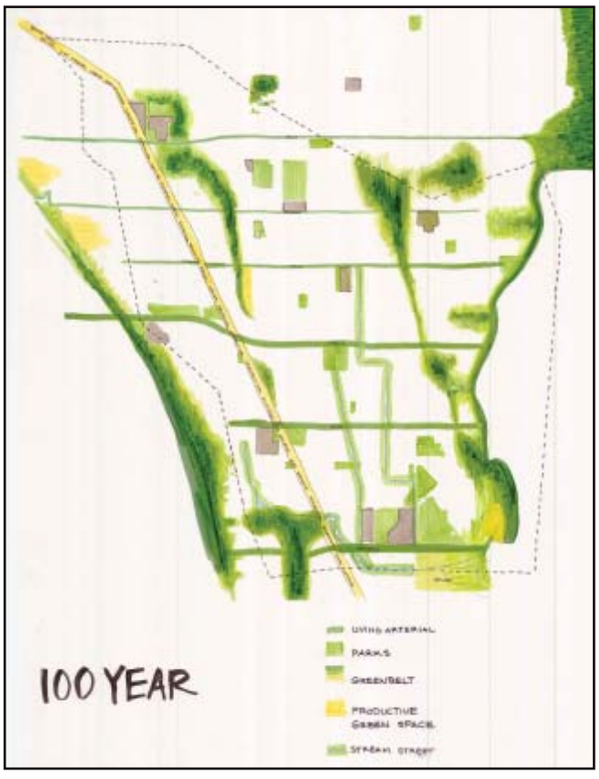
After defining our concept we looked to the opportunity maps to identfy what places and patterns were currently present and what could be built upon. The idea of local access was very important on a neighborhood scale. We identfied the distance of 1/4 mile as a standard unit of accessability from all homes to walkable streets, services and a variety of openspace options. Throughout the study area we identfied a network of east/west streets as greenstreets at 1/4 mi intervals; where these green streets connect with major north/south street major transit hubs and services would be developed. The entire region would develop along the following stratigies:

1. Urban nodes of service and openscape equally distributed for equality of access and walkability.
2. Urban hubs centered around transit connections-to include public gathering squares to facilitate democratic process, neighborhood identity building and support local social con nections.
3. Commercial development along north/south spines. With greatest development in the Henderson corridor.
4. Backyard farming for local food production.
5. Backyard nature sanctuaries for habitat formation.
6. Historic stream and riparian zone recreation.
7. Lake riparian zone restoration.
8. Deomocratic shorelines.
9. Democratic views.
10. Distribution of p-patches for food production and formation of community activity.
11. Large boulevards on north/south corridors to improve on-street conditions.
12. Trail systems throughout to connect with major trials such as the Chief Sealth, newly created Lakefront greenbelt and Duwamish greenbelt.
13. Wind energy systems along ridgelines.

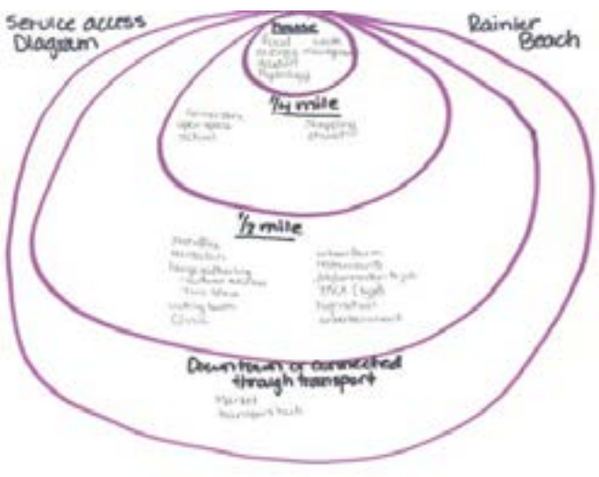
Open Space Planning

Much of our planning integrated many more facets of space than open space. We weren't so interested in areas for single-use recreation than we were for areas for what we called democratic access particularly along shorelines and where view are best. We felt the most important function for open space was for multi-purpose uses i.e. one corridor for human powered transit, wind power generation and food production or one swath for high density and high ecological function. Each space we created or rethought incorporated multiple functions within its boundaries.





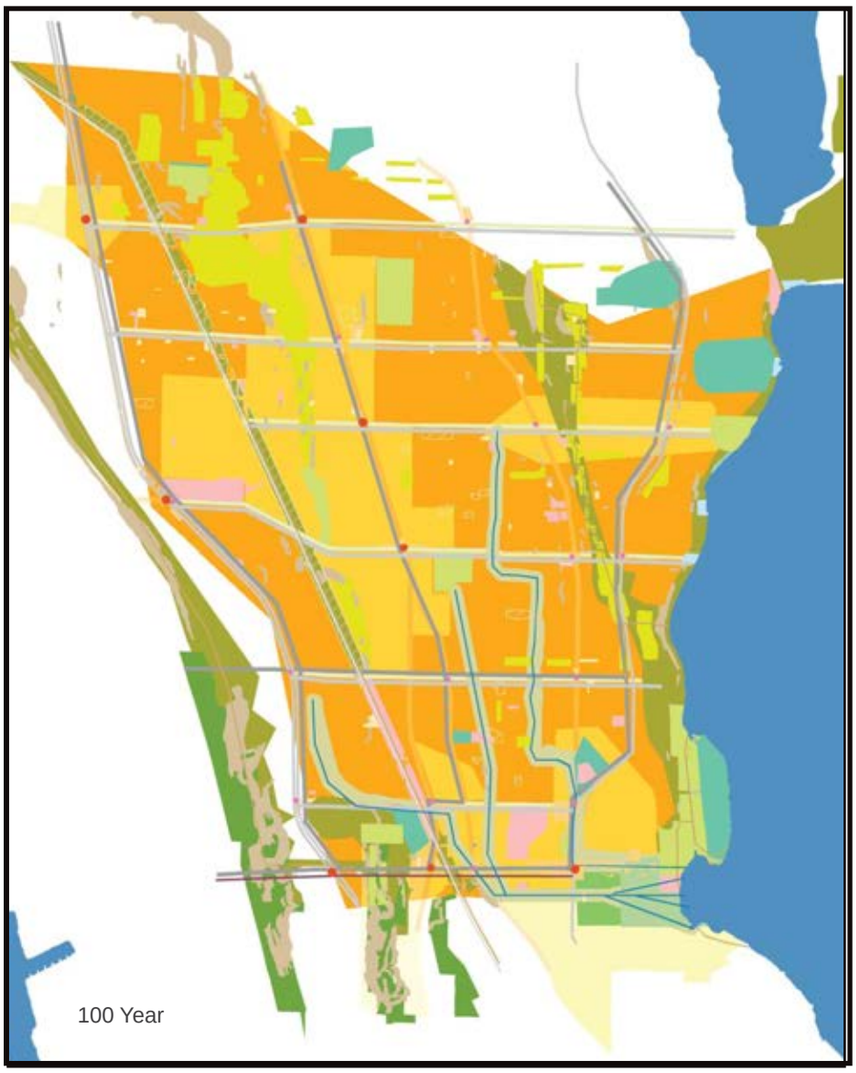
Maps by Kara Weaver and Sara Durkee



Drawing by Tauschia Copeland

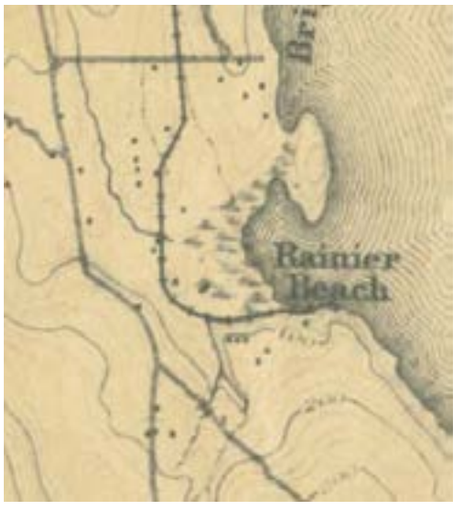
Implementation

Our plan relies heavily on local involvement and stewardship created by people who care about and are invested in the area. They are partially responsible for defining, patronizing and maintaining these spaces.



URBAN HUBS
STUDY AREA
COMMUNITY NODES
URBAN VILLAGE
GREEN STREETS
BACKYARD SANCTUARY
LIVING MACHINE
DAYLIGHTED STREAM
GREEN BELT
HABITAT CORRIDOR
LAKE RIPARIAN AREA
STREAM RIPARIAN AREA
STEEP SLOPE
URBAN WATERFRONT HABITAT
WETLAND
EXISTING PARK
ACTIVE PARK
BEACH SWIMMING CENTER
CIVIC SPACE
PLAY GROUND
PASSIVE PARK
WATER TAXI
DEDICATED BICYCLE CORRIDOR
MASS TRANSIT
ONSTREET BICYCLE CORRIDOR
OFF STREET TRAIL
PEDESTRIAN CORRIDOR

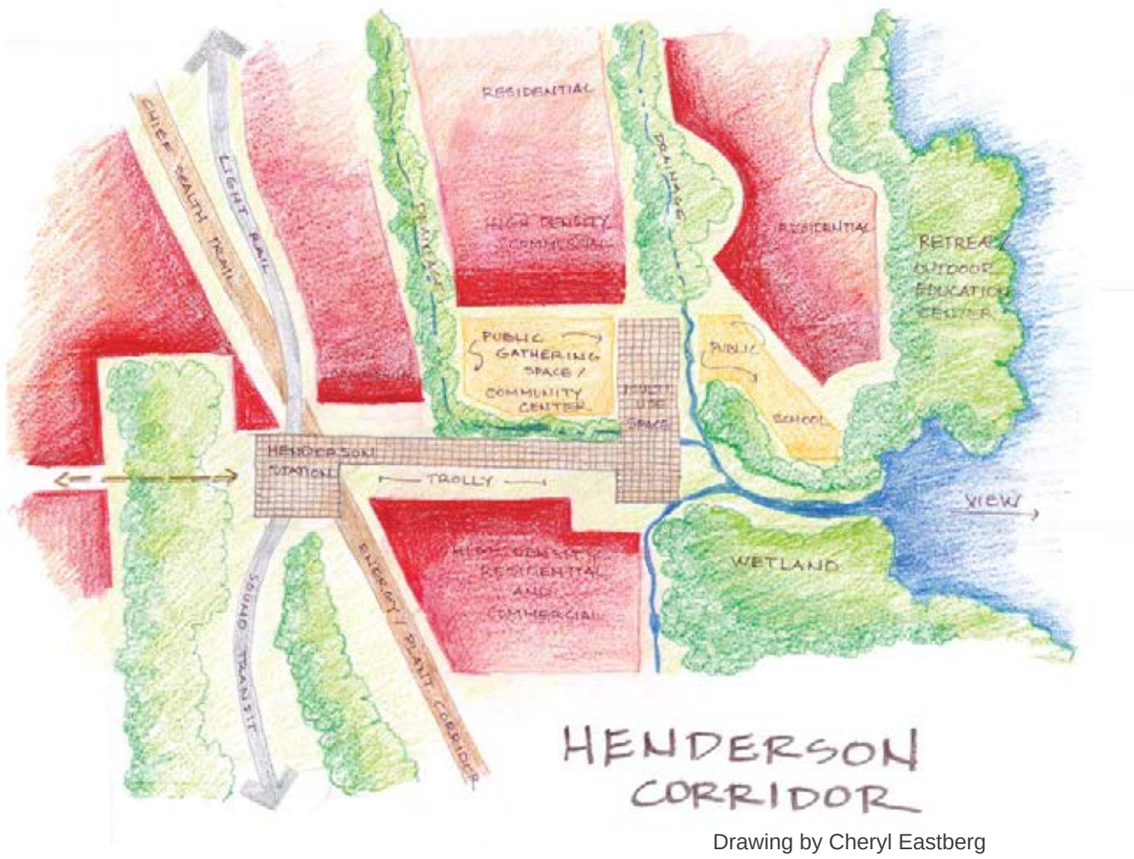
Maps by Virginia Coffman



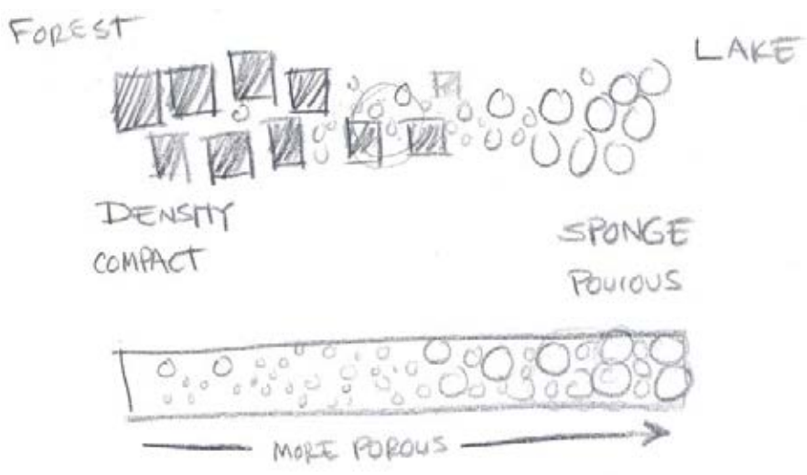
USGS map, 1893.

Urban Sponge

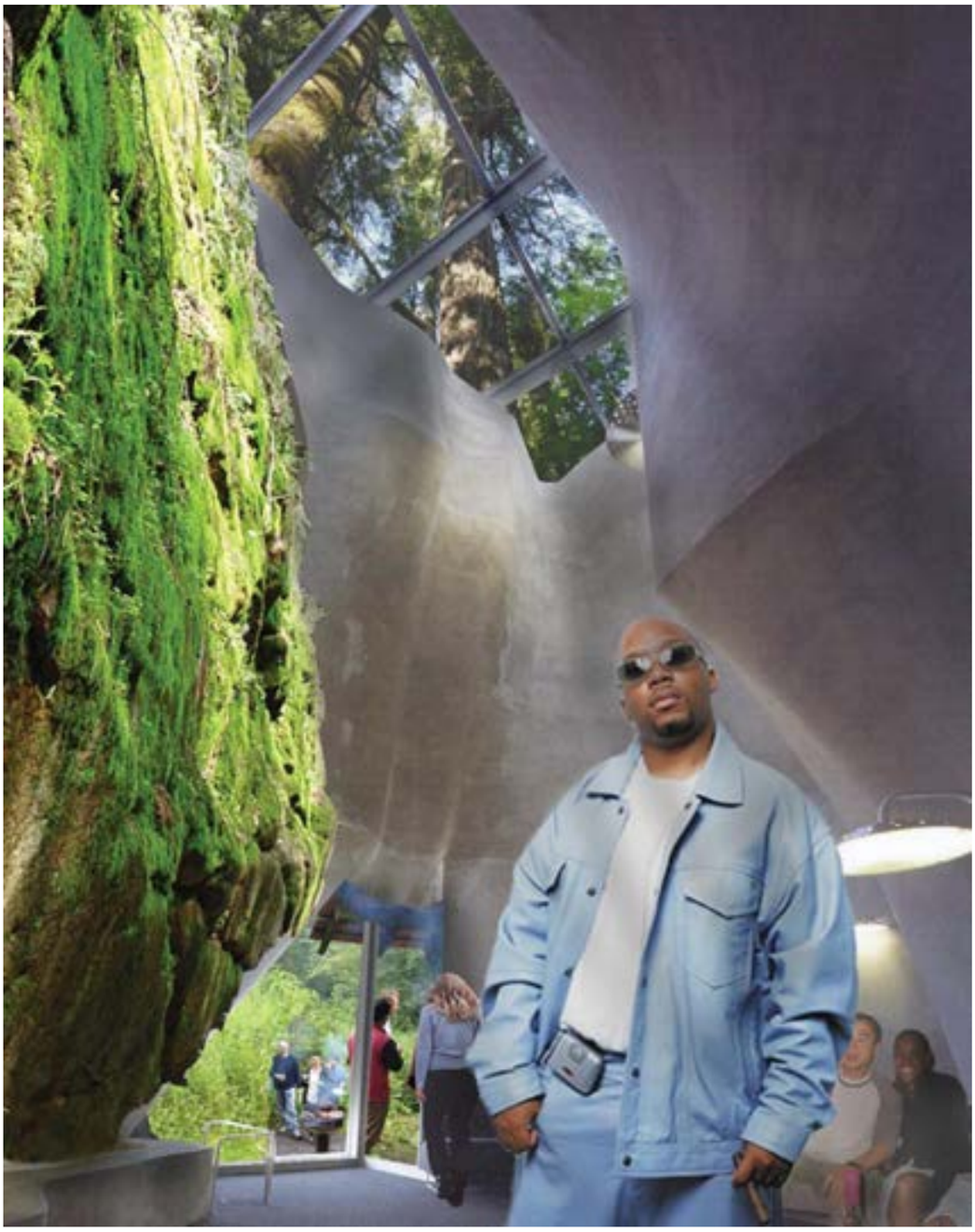
Building on the Neighborshed concept I looked to the focal point of the neighborhood: the Henderson Street Corridor to develop my design. The charrette team had identified this corridor as the highest density area within the neighborhood. In the Rainier Beach Neighborshed the catchment area of all up-stream activity is the Henderson Street corridor. This area historically was a wetland and in the future according to the concept it could be a dense, transit oriented Urban Village. This design proposes that in the future this area will function as both wetland and dense human residential and commercial area: a highly productive place. In the future it is assumed that buildings will be seamlessly integrated into the landscape in both form and function: capturing all Neighborshed wide waste and water and like a wetland, holding and processing before release into Lake Washington. The future vision for the corridor is an integrated built landscape where buildings and landscape function like the area did historically: a wetland.



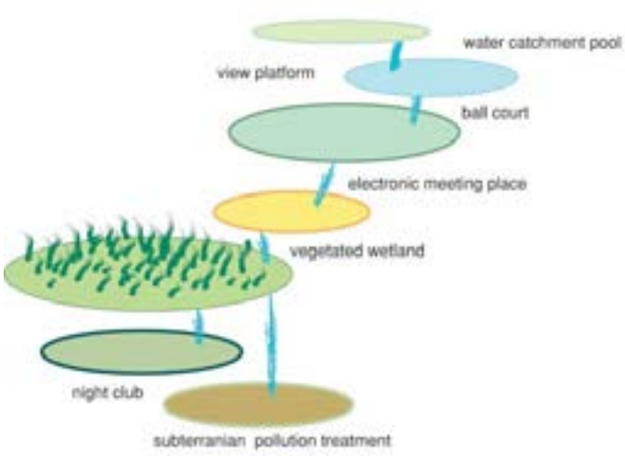
Drawing by Cheryl Eastberg



Sketch by Virginia Coffman



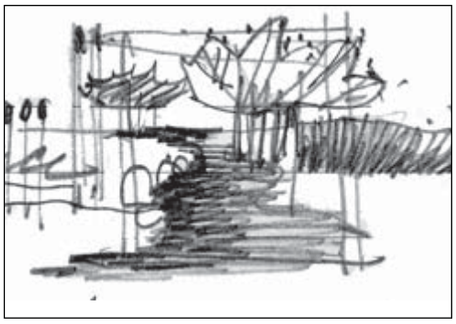
Living in a Pore: indoor, outdoor, building and landscape are all highly integrated, functional and fun.



Potential Pore composition

Pores: functional, small-scale social areas within the sponge

Continuing down in scale I investgated the small intersticial spaces that human would occupy within this functional and highly productive urban landscape. Within the productive urban landscape of the Henderson Corridor all social and ecological processes will be connected and revealed through pores. Pores are small scale spaces just outside the front door, between buildings, areas that integrate indoor and outdoor, landscape and building and serve a variety of functions. In the future offices my no longer exist, just as the telephone used to be a place and is no longer. Space will demand flexibility and muiti- functionality. Pores will be the conduits for movement and the places for pause. Pores are the apretures that connect through the strata of social activity and ecological process and where integration of the two occurs.



TAYLOR CREEK

URBAN TAPESTRY

Team Leader: Kent Scott
Student Team Leader: Nicole Mikesh
Team Members: Anita Lehmann, Dan Bertolet, Don Vehige, Iain Roberston, Ken Pirie, Michael McMasters, Micheal Lentz, Mieko DePippo, Nina Albert, Wilma Stordahl.

URBAN TAPESTRY:

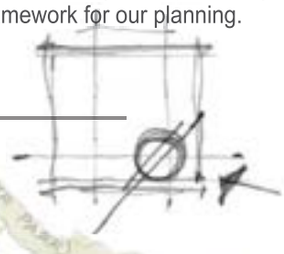
WEAVING TOGETHER HUMAN AND NATURAL SYSTEMS

"Living systems develop and evolve. Therefore, understanding them requires understanding renewal, change, and transformation."

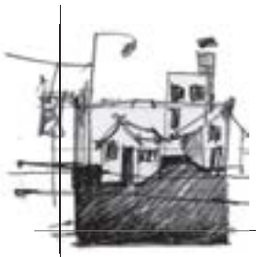
-Center for Ecoliteracy, 'Systems Thinking'

Taylor Creek is Seattle's southeast fringe, connected as much to Renton as to Seattle.

The relatively rugged terrain, treed ravines, ridges, filled shoreline and wetlands, and its significant creeks provided a compelling physical framework for our planning.



Few buildings remain to remind residents of its history as a winter camp for the Duwamish, a logging community, its location at the end of a line trolley with weekend cabins, or its ferry to Kennydale.



HUMAN SYSTEMS

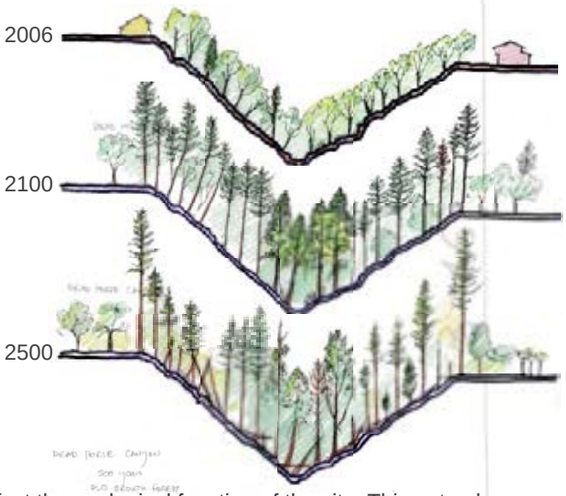
Open space is an integral part of the urban tapestry which is made up of threads from information systems, transportation systems, park systems, and natural systems, bound together by all the people, dogs, birds, and fish that use them.

The patterns that emerge when the threads weave together create a rich environment for community involvement and life long learning.

When human systems are managed like an ecosystem, their complexity is highly valued and they are managed for wholeness rather than the efficiency of individual components.

e-zones

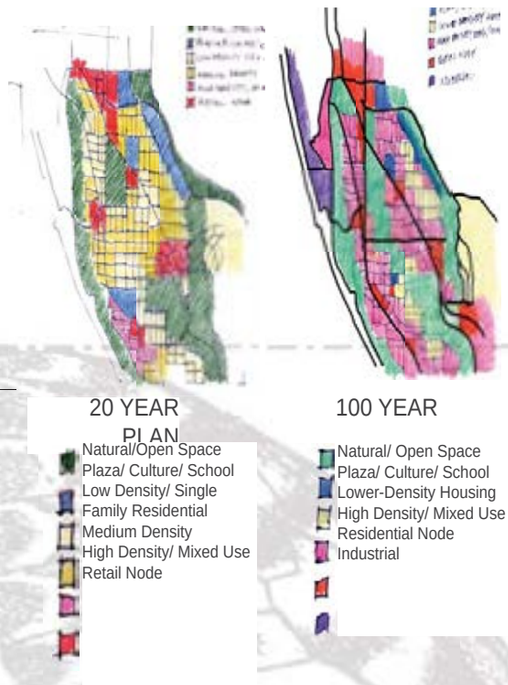
E-Zones, or environmental zones, are based on the Portland, OR zoning precedent. Areas within the city are assessed for their potential ecological importance and zoned accordingly. Future development within designated areas must positively



affect the ecological function of the site. This not only discourages development around sensitive natural systems, but encourages sustainable development and an urban fabric that weaves human and natural systems into a functional tapestry.

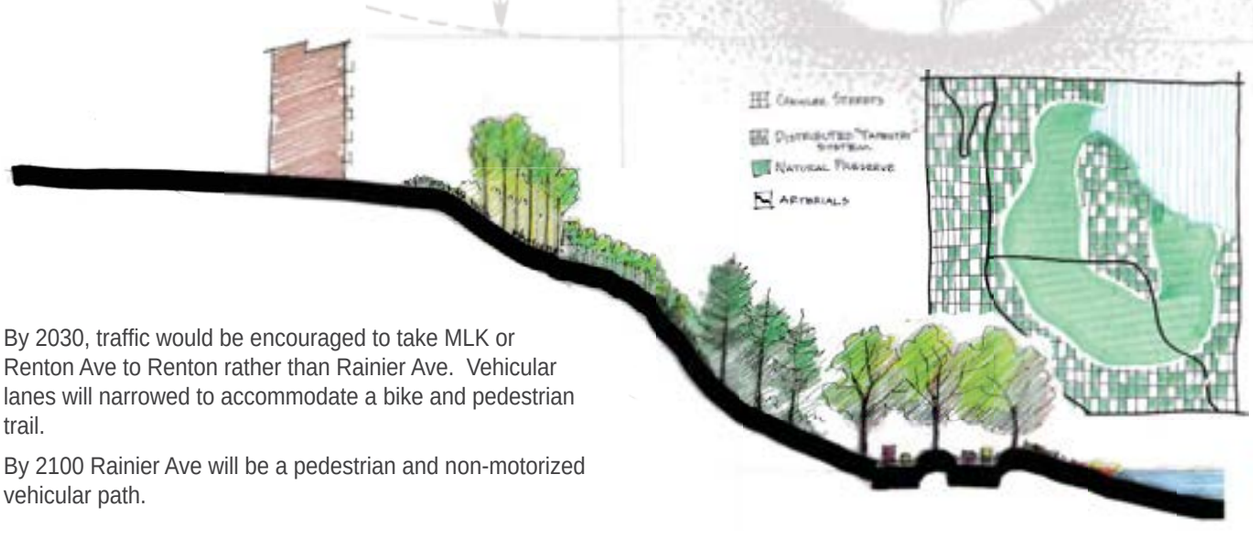
tapestry streets

Encourage density of people and activities around civic cores such as schools, grocery stores, community centers, and libraries to accommodate population growth and protect the functioning natural systems. By 2030 he transportation/connections grid will begin to shift to multiple uses rather serving than singular



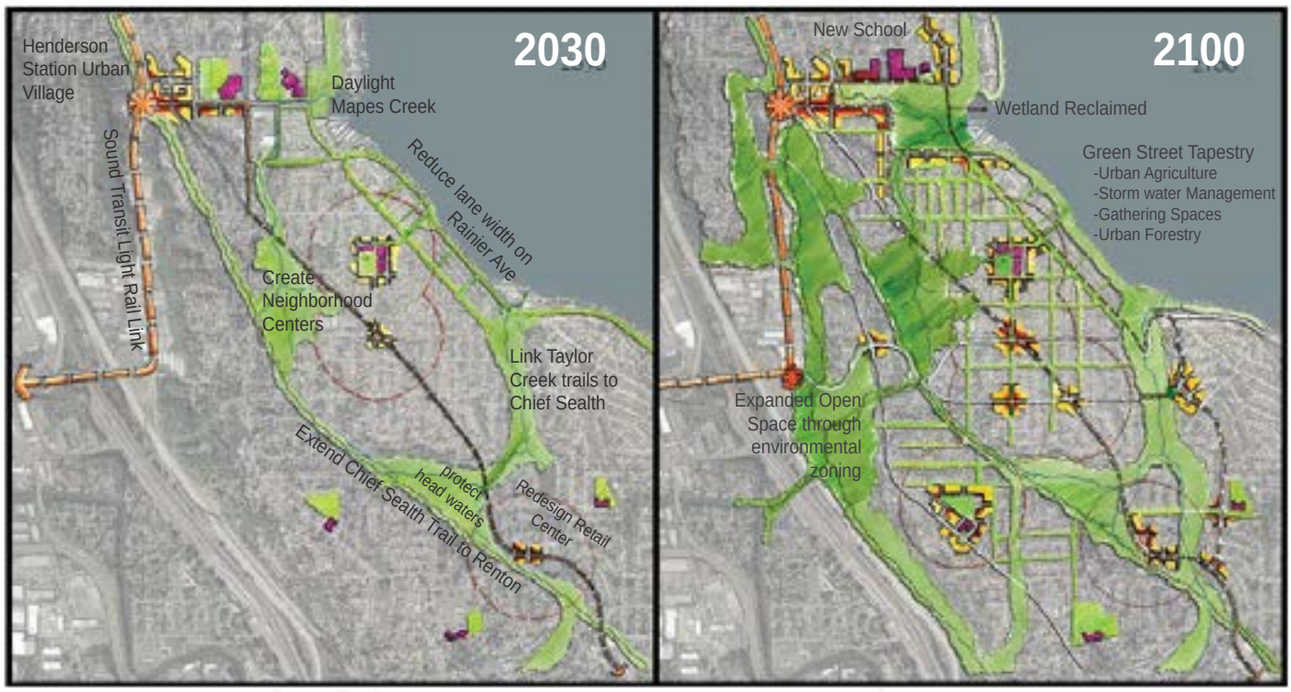
purpose of moving motor vehicles. Sidewalks and pedestrian corridors will be integrated with local built facilities and natural environments to encourage walking.

The portion of Rainier Ave along the lake will be developed as a pedestrian corridor with recreational, cultural, and retail opportunities with respect to sensitive habitat.



By 2030, traffic would be encouraged to take MLK or Renton Ave to Renton rather than Rainier Ave. Vehicular lanes will narrowed to accommodate a bike and pedestrian trail.

By 2100 Rainier Ave will be a pedestrian and non-motorized vehicular path.



NATURAL SYSTEMS

the urban forest

Street trees are valued for aesthetics as well as function.

They are a defining characteristic of Olmsted's boulevards. They moderate temperature fluctuations. They are the lungs of our city, absorbing the carbon dioxide we produce and providing us with oxygen.

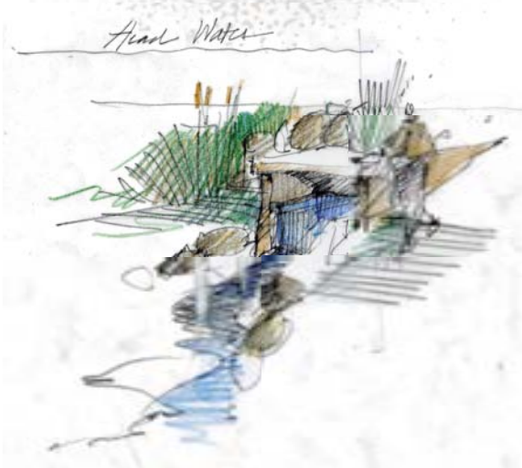
Since the average urban street tree has a limited life span of 60 years, why not manage them like a commercial forest? By planting blocks sequentially over several years with trees that have wood with high economic value, there will always be tree cover through out the city and the city would have an economically sustainable urban forest. Currently, harvested street trees are being used by local carpenters who make and sell high-end furniture and artwork.

Taylor Creek

the shoreline

The shoreline from Pritchard Island south to the mouth of the Cedar River is vital salmon habit that has been severely degraded over the years by filling and armoring.

To restore the sediment and vegetative cycles, which are a critical part of aquatic habitat, parcels along the shoreline and the adjacent slopes should be actively acquired.



the hydrology

Protect and daylight Mapes and Taylor Creeks.

Increase awareness of the water cycle by acquiring and celebrating the land around their headwaters.

Increase storm water infiltration within the street grid to regulate water entering the stream and alleviate the resulting riparian habitat damage.

When learning is approached as an ecosystem,
everything is interconnected;
mathematics is a living organism,
physics is art, and
poetry explains complex ideas.

CURRICULUM GOALS

Foster learning through curiosity

Learn from the source whenever possible

Promote community-based stewardship

Develop critical and creative thinking skills

Understand processes and functions

Develop process and decision-making skills

Understand core ideas within the context of 'Place'

Understand a sense of 'Place' within context:

Local, regional, continental, universal

CORE IDEAS

LEARNING ZONES

Open to everyone for structured and non structured activities

Encourage multi-generational collaboration

Connect core educational ideas to a tangible world

INTERPRETIVE TRAIL

Connecting the learning zones

An extension of the classroom

Reinforces the sense of place

Thematically influenced by learning zone curriculum

Shaped with art by students and community members

Encourage community stewardship

Promote life long learning.

open space should support the

community's need to congregate,

move, and learn.

IMPLEMENTATION STRATEGIES

IMPLEMENTATION STATEMENT

Our unified goal is the implementation of the strategies and spatial patterns that emerged from the work of the participants in the Green Futures Charrette. By working with our existing coalition members in city government, the development community, the non-profit sector, our educational allies and neighborhood advocates, we believe that we can attain even the most ambitious visions of the Open Space Seattle coalition.

The following outlines our five key strategies for bringing the Green Futures' visions to fruition and identifies agencies and organizations that will play critical roles in stewarding this implementation.

1. Establish the Vision

In cooperation with a Mayor-appointed Green Infrastructure Task Force and an independent design consultant, the City should use the work of the charrette teams, additional public input and the ongoing efforts in our vibrant neighborhoods to further develop a visionary, long-range green infrastructure plan for Seattle's next century. This plan will chart a livable, sustainable course for clean air and climate protection, restored shorelines and clean water, robust forests parks, trails, open spaces and habitat corridors, and strong neighborhoods with connected civic elements. In short, we seek the re-establishment of Seattle as a mythic place on a sustainable planet.

For this reason, we have included a request in the 2007-2008 biennial budget for the following: Through community, consultant and city collaboration, further develop the 100-year Green Infrastructure Plan from the visions generated during the Green Futures Charrette and existing neighborhood plans, that spatially locates and integrates strategic green infrastructure investments and establishes a 20-year, near-term implementation strategy.

Key Organizations Responsible: City of Seattle Government, Outside Consultants, Green Infrastructure Task Force, Green Futures Charrette Participants, Open Space Seattle 2100/Green Futures Institute (UW), Seattle Great Cities Initiative.

2. Advocate for the Vision

From the beginning, the Open Space Seattle 2100 coalition has rallied around the idea of a long-term vision for Seattle's green infrastructure. With a long-term, city-wide vision in place, it will be up to each of the constituencies within the coalition to advocate to their leaders, elected representatives, neighborhood councils and others to popularize, embrace and adopt the long-term spatial plans and implementation mechanisms developed by the city/consultant partnership.For this reason, and to develop implementation strategies, we have made a request in the 2007-2008 budget for the City to establish a Green Infrastructure Task Force.

Key Organizations Responsible: Green Infrastructure Task Force, Seattle Great Cities Initiative, Non-profit partners, Neighborhood Organizations, Green Futures Charrette Participants and Open Space Seattle 2100 Coalition Members.

3. Adopt the Vision

Having a roadmap and making a journey are two very different propositions. At this critical juncture, it will be up to the City's leaders—with with support and expectations, pressure and prodding from Open Space Seattle 2100's non-profit partner non-profits, charrette participants and citizens—to take the ideas in the Green Infrastructure Plan and to root them within our comprehensive planning, civic, design, and land use cultures. However, this cannot be an add-on to existing city planning initiatives, but rather a complete integration into existing city planning efforts/

The adoption of this plan must not be the exclusive domain of our elected officials; it should be institutionalized within the City without being locked up. The panoply of urban livability proponents, neighborhood activists, "Friends of" groups, creek stewards, p-patch coordinators, mobility groups and others shall guide the implementation of the larger, city-wide vision within their local community.

Key Organizations Responsible: Mayor Gregory Nickels, Seattle City Council, Seattle Parks, DPD, SDOT, SPU, OSE, Parks Advocacy Organizations, Environmental Organizations, Seattle Great Cities Initiative, Neighborhood Councils, Green Futures Charrette Participants, Creek and Shoreline Stewardship Organizations, Bike and Pedestrian Mobility Organizations, Urban Agriculture Advocates

4. Fund the Vision

Without financial resources, this vision will remain unrealized. As with any large-scale municipal initiative, the leveraging of existing resources and the knitting together of beneficial partnerships will be key to successful implementation.

However, we do see two potential opportunities within the existing city budget to expedite the implementation of a citywide vision of integrated green infrastructure. The first involves reallocating existing resources around a systematic directive to make nominal investments in green infrastructure measures within each municipal project. From streets to community centers to new transportation projects, Seattle could henceforth make ecological open space a small portion of every project to create a system of green infrastructure.

Second, we see tremendous potential in a Green Infrastructure Levy that will fund all types of "Green Works," creating a model of interdepartmental cooperation for a sustainable City. Thus, we can work to install and expand walking and biking trails, sidewalks, natural drainage systems, riparian conservation easements, parks, p-patches, urban forests and other types of green infrastructure. For this reason we have made a budget request for the 2007-2008 budget that will begin planning for a Green Infrastructure Levy to replace the expiring Pro-Parks Levy.

Key Organizations Responsible: Green Infrastructure Task Force, Mayor Gregory Nickels, Seattle City Council, Seattle Voters, Key Non-profit and Private Partners

5. Implement the Vision

With a cohesive vision propelling us toward the next century of green infrastructure in the City, Seattle's reputation amongst the legions of worldwide urbanists seeking a greener, more progressive urbanism will soar. However, without implementation of this vision, our words and goals seem hollow.

The implementation of the vision will not happen overnight, and it will not happen without the support of all sectors. From city agencies to neighborhood groups, non-profits to developers, the implementation of a green infrastructure system will require the momentum of every constituency in the City. With grants, incentives and requirements, we can create a Future Seattle that has enduring beauty, utility and ecological integrity that will benefit our children and grandchildren for generations to come.

Slowly, parcel by parcel, we will create a system of green infrastructure for our grandchildren that will be the envy of urbanists the world over.

Key Organizations Responsible: Mayor Gregory Nickels, Seattle City Council, Seattle Parks, DPD, SDOT, SPU, OSE, Seattle Neighborhood Organizations, Development Partners, Parks Advocacy Organizations, Environmental Organizations, Green Futures Charrette Participants, Creek and Shoreline Stewardship Organizations, Bike and Pedestrian Mobility Organizations, Urban Agriculture Advocates and virtually every constituency in the city

Strategies for Implementation from the Green Futures Charrette

The pebble has been dropped…how can we keep the ripples going? - Bert Gregory

Organize.

- Develop a Work Plan. Involve City departments, private and non-profit sectors. Develop 5 major strategies. Identify key issues in the realms of design, finance and governance. Identify long-term and short-term steps and milestones.
- Tie in with existing efforts, e.g. Cascade Agenda's Urban Working Group and their set of strategies, and the Great Cities project. Dovetail with existing City agendas, e.g. Mayor's Committee on Parks, Climate Protection, Development Impact Fee. Include non-traditional agencies that go beyond existing efforts, i.e. Public Health, Clear Air Agency, etc.
- Establish a City interdepartmental team to plan Seattle's integrated open space. Consider using existing Interdepartmental Team (Mayor's Subcabinet), with funds for staff research and development. Have interdepartmental team meet with public team quarterly.
- Establish allied organizations for study, advocacy, and implementation: a Green Futures Institute at the UW, a Green Futures non-profit, and interdepartmental teams at the City of Seattle.
- Maintain a coalition of organizations, each contributing their expertise.
- Work with Seattle School District to identify which properties have open space potential and value, which are being surplussed and can be purchased.
- Build a list of properties of interest for public acquisition, and evaluation criteria; check and re-collaborate every 5-10 years.
- Get grassroots neighborhood involvement
- Run a Green Seattle Slate for City Council

Adopt Policies and Regulations.

- City Council to adopt OSS 2100 Principles.
- Incorporate proposed strategies in the City, DoPar, and other departments' Comprehensive Plans.
- Institute Green Performance requirements for all redevelopment and new development.
- Conduct open space planning on a watershed basis.
- Make all street ends and privatized public spaces publicly accessible.
- Re-write cistern vs water-take legal definition to match runoff volume of natural conditions.
- Establish "Green Zones" with their own tax overlays and powers, e.g. City Center Green Development Authority. Authorities could establish a land bank to trade for properties that are desired for open space.
- Support new technologies for complementary uses, e.g. stormwater to generate power.
- Rezone to make cooperative ownership of block portions possible, e.g. "Greenblock." Re-evaluate single-family yard allotment; allow shared landscapes.
- Adopt policy aimed at stormwater treatment within ¼ mile of all waterways.
- Start aggressive process to naturalize streamsides and shorelands; use incentives to owners.

Conceptualize. Study. Plan. Design.

- Plan by watersheds, with neighborhoods contributing. Create a strategy to integrate watershed emphasis, incorporating restoration of shores, streamsides and acquisition of the most ecologically valuable properties.
- Engage diverse communities in charrette follow-up planning.
- Create a transportation plan that identifies priority green streets for every watershed.
- Perform a hard surface audit and identify which impervious surfaces can be eliminated or made permeable.
- Create street plans to guide new development in integrated, multi-functional green development corridors.
- Develop, or compile, a connected City-wide open space plan, for adoption as a 100-year vision. Include provisions for wildlife habitat, ecological function, and human use. Identify major themes at city scale and promote unique neighborshed-specific themes. Create one big plan that tells our story and gives the plan underpinnings. Potential themes are: integrating nature into daily lives, connected open space, overall sustainability of system, increased ecological and watershed consciousness.
- Undertake a Gap study in connectivity between neighborhoods (professional contract).
- Identify existing assets and how those assets can become multi-functional or shifted to a new function.
- Establish an Open Space Commission (similar to the Planning Commission). (idea added after meeting, so no chance to vote on this one).

Advocate. Communicate. Analyze. Educate.

- Publish and promote visions, including analysis of ideas, priorities, benefits. Make a case for why it's important (See TPL fall issue editorial).
- Make certain that the "inclusive needs" goals are a part of this vision, involving diverse communities.

- Fund a comprehensive “Seattlecentric” ecological economics, e.g. logarithms to analyze development/ restoration costs.
- Get buy-in from public and private sectors.
- Encourage ownership through broad public education and make it interesting to capture imaginations; use artists to communicate.
- Analyze/demonstrate the benefits of the Green Futures plans, e.g. the economy of density which the green enables. Involve interdisciplinary departments from the UW. Consider software such as City Green (economic benefits of trees).
- Develop a Scorecard of successes to see progress, and to evaluate and prioritize decisions and strategies.
- Integrate all concepts into one graphic image, and poster it everywhere.
- Create a video of the project, or with examples of great green systems around the world. Create education program with it for schools.
- Identify process and citizen ownership strategy to obtain citizen and political backing.

Fund. Create Incentives.

- Re-institute use of Dept. of Neighborhood funds for acquisition, including acquisition of ecologically valuable property.
- Direct funds from CSO overhaul to stormwater projects that are multi-functional.
- Pass a Green Infrastructure Levy that funds integrated parks, streets, drainage projects, with equitable project distribution.
- Integrate percent for green space in all major public works projects: streets, drainage, bridges.
- Implement a Green Factor Area point system like Copenhagen’s.
- Create more property through zoning--e.g. density, allowed uses, bonuses-- accompanied by public open space.
- Use higher density to generate more funds for open space through impact fees.
- Consider independent political authority (e.g. Vancouver B. C. Parks Commission), e.g. “Public Realm Commission”
- Identify how you can use a combination of development with open space, e.g. waterfront.
- Tie Green to overall Economic Health: technology transfer; license, profit, ideas into economy. Seattle’s technology image: Partner with software component. Manufacturing for sustainable building sector: products, construction training. Attract sustainable business to region.
- TDRs for moving development from ecologically sensitive and hazardous to urban hubs and urban villages. (Need functional market for TDRs, incentives, stability.)
- Develop public-private partnerships.
- Actively seek funding for brownfield remediation sites for open space.
- City to purchase neighborhood-generated power with funds going back to neighborhood.
- Offer incentives for green roofs and rainwater harvest.
- Tax relief for use of sites for urban agriculture.
- Institute toll sites, e.g. roads for green infrastructure.
- Other mechanisms:

Institute sales tax for integrated open space
Use gas tax for highway lidding.
Use the REET (Real Estate Excise Tax)
Institute development fee to fund green infrastructure/fee waivers for green infrastructure.
Adopt Tax Increment Financing - (Draft bill in process to state).
Create Neighborhood Local Improvement Districts (LID)
Tax non-renewable practices, waste, lot coverage, impervious surfaces, parking lots; use fees to fund incentive programs for renewable energy, open space, natural drainage.

Get started.

- Identify some immediate, representative projects. Pick near-term, tangible demonstration projects to serve as examples, catalysts, and incentives, connecting to the Open Space Seattle 2100 vision. Possibly:
- Projects in Center City, using Impact Fees.
- Madison Transect/Lake to Bay (incorporates diverse communities)
- SE Action Agenda: McClelland.
- Select 3 types, e.g. Private, Public, Public-Private Partnership.
- Existing single-family blocks: share back yards
- Paint blue on streets with underground streams.
- Streets that are bicycle and electric-car priority.
- Rights of ways (green drainage, pedestrian corridors)
- Add elements to transportation levy
- Create 10,000 project campaign, with each project connecting to others

Build in Stewardship and Public Use.

- Establish stewardship zones.
- Establish green technology zones.
- Establish seasonal restrictions for select habitat areas.
- Expand bicycle Saturdays and Sundays.

APPENDICES

Metathemes and Themes from the Green Futures Charrette

Concept: The Living Lattice, Network of Neighborsheds

	Central					
	Madison	Magnolia / Interbay / Queen Anne	Lake Union	Downtown	Arboretum	Lake Washington
Integrated, Connected Green Infrastructure						
• Aggregation of Open Space to Create Connections and Urban Greenways			x			x
• Multi-functional Open Space	x	x	x	x	x	
• Redefined Transportation Corridors	x	x	x	x	x	x
Density and Community						
• New Urban Villages with Civic Hearts	x	x	x		x	
• Green Roofs and Walls	x		x	x	x	
• Decentralized Self-Sufficiency	x		x		x	x
Ecological Open Space						
• Understand the City as Watersheds	x	x	x	x	x	x
• Respect for Underlying Conditions		x		x		
• Re-establish Historic Streams		x	x			
• Restore Shorelines for Habitat	x	x		x		x
• Recreate Natural Drainage to Restore Our Waters	x	x	x	x	x	
• Enhance Greenbelts and Habitat		x	x		x	x
Networks						
Access and Use						
• Equality in Accessibility			x		x	x
• Increased Access to Water	x	x	x	x		x
• Open Space for Education/Schools for Open Space				x		
• Hierarchy and Variety of Open Space	x	x	x	x	x	

North							South					
Northwest	Thornton Creek	Sandpoint	Ballard / Ship Canal	Greenlake	Greenlake / University	University District	West Seattle	Longfellow Creek	Duwamish	Rainier Valley	Rainier Beach	Taylor Creek
x	x	x	x	x	x	x	x	x	x	x	x	x
	x		x			x	x	x	x	x	x	x
x	x	x		x	x	x	x	x	x		x	
		x		x			x	x	x		x	
x		x		x		x		x	x	x		
			x			x		x	x	x	x	
x	x	x	x	x	x	x	x	x	x	x	x	x
x	x						x	x				x
	x	x	x	x	x	x	x	x	x	x		x
			x				x	x	x		x	x
	x	x	x	x		x		x	x	x		
x	x		x	x	x	x	x	x				
					x				x	x	x	x
x	x	x	x			x	x	x			x	x
x			x	x			x	x				x
x	x	x			x	x				x	x	

Ecological Function and Integrity Scorecard

Open Space 2100 Design Charette, Feb 3 and 4, 2006

Charette Team Name: _____

Design intent:	Open space features and characteristics that contribute to design intent:	Degree achieved (circle) Highest Lowest
Increase the extent, diversity and connectivity of **terrestrial and aquatic habitats** and promote **species diversity** and abundance.	a) Forest canopy and green belts are well-connected (minimal fragmentation) with appropriate canopy volume for the land use	a) 3 2 1
	b) Streams are buffered by riparian corridors with room for channel migration and for flood plain storage of water and sediments, as adjacent uses allow	b) 3 2 1
	c) Green belts connect terrestrial, riparian, aquatic habitat areas	c) 3 2 1
	d) Interior or core habitat, including stands of trees and understory, provide ample bird and wildlife habitat	d) 3 2 1
	e) Edge habitat areas are serving as transitions between habitat types, including between terrestrial and coastal-marine habitat	e) 3 2 1
	f) Falling leaves and seasonal mulching adds organic matter to depleted soils	f) 3 2 1
	g) Tree and plant selection provides for year-round foliage and habitat value	g) 3 2 1
	h) Shore edges provide protection for nesting waterfowl	h) 3 2 1
Minimize water use and stormwater runoff to promote healthy water bodies and streams.	i) Open water bodies (lakes, bays, and canals) are integrated as essential elements of the City's open space system	i) 3 2 1
	j) Bio-swales, natural drainage, detention areas and absorptive surfaces (geo-sculpting, soil amendments, green roofs and tree canopies) slow, treat and infiltrate rainwater	j) 3 2 1
	k) Landscaping elements are drought-tolerant and emphasize natives; lawn and planting areas that require post-establishment irrigation are minimized	k) 3 2 1
	l) Rainwater harvest and storage facilities incorporated where irrigation is needed	l) 3 2 1
	m) Landscaping features are selected to require minimal pesticides; especially adjacent to aquatic habitats	m) 3 2 1
	n) Pavement is minimal -- and permeable where the soils and usage patterns allow	n) 3 2 1
	o) Vehicle parking areas are sited to avoid water contamination of adjacent water bodies or wetlands	o) 3 2 1
Lighten human impacts by reducing resource use, waste generation and emissions.	p) 'Active transportation' corridors facilitate and encourage pedestrian, bicycle and other non-motorized modes of travel	p) 3 2 1
	q) Development adjacent to 'active transportation' corridors includes employment, housing, essential retail, recreation and entertainment destinations to reduce demands on existing transportation infrastructure	q) 3 2 1
	r) Decentralized renewable energy generation capacity is integrated	r) 3 2 1
	s) Food production capacity helps reduce food importation	s) 3 2 1
	t) Tree canopy coverage is expanded to achieve Citywide tree canopy cover goals, increasing street-level comfort	t) 3 2 1
Reveal ecological functions - help **connect** residents to surroundings.	u) Daily and seasonal natural cycles (hydrological, tidal, solar, etc.) are expressed in the aesthetics of the built environment	u) 3 2 1
	v) Interpretive features convey how ecological concepts and habitat types are manifested locally	v) 3 2 1
	w) Art, in conjunction with the natural and built environment, fosters human's physical, emotional and spiritual connections to nature	w) 3 2 1
	x) Sense of place is reinforced through public and private developments	x) 3 2 1
Cross-cutting	y) Streets and whole rights-of-way are utilized to maximize ecological functions throughout the public realm	y) 3 2 1

Total score: _____

Version: 2-1-06 – With questions or comments – Richard.Gelb@seattle.gov