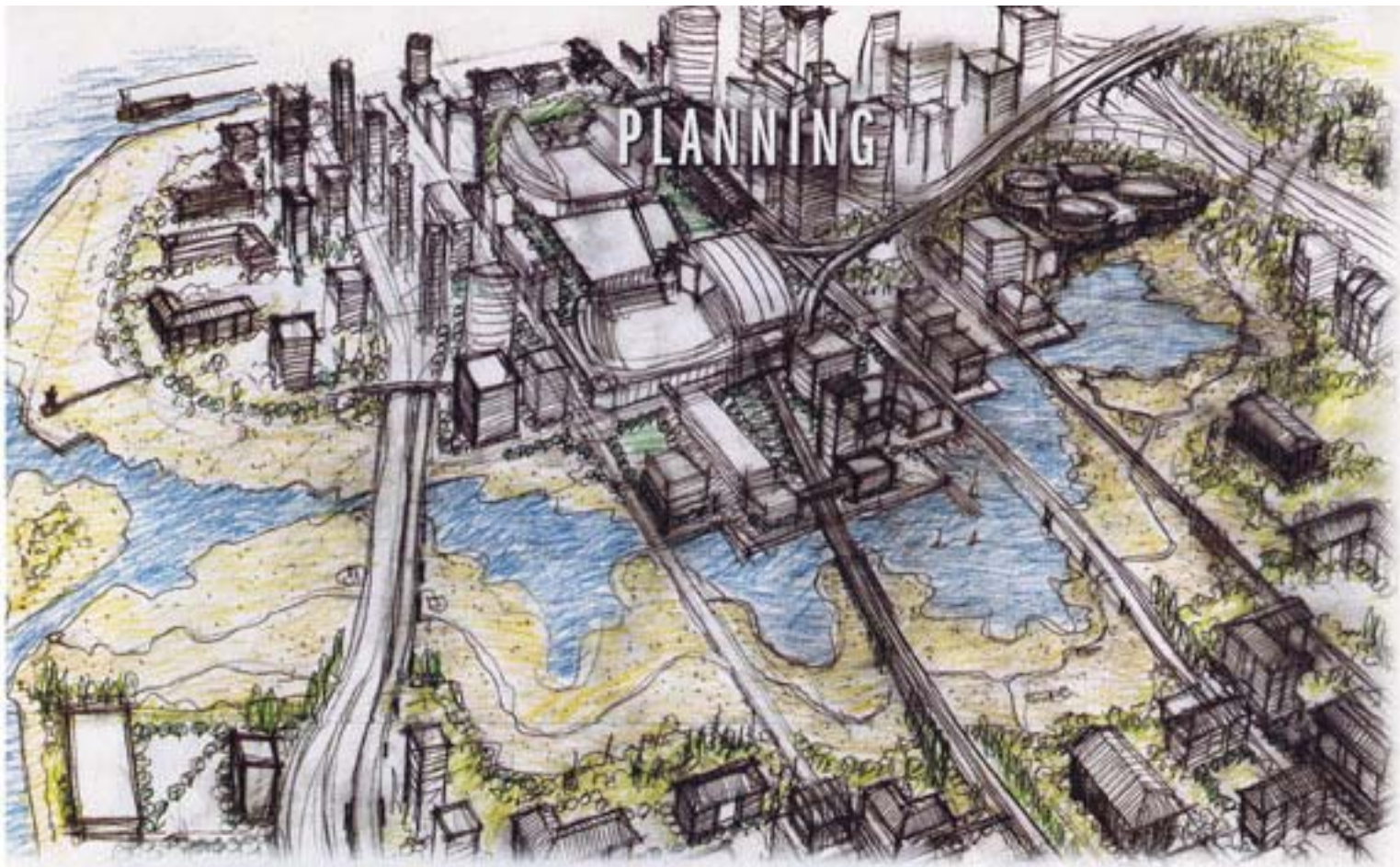


STRATEGIES FOR A GREENER FUTURE

A charrette designs Seattle's green infrastructure for the next century.

By Nancy Rottle, ASLA, and Brice Maryman, ASLA

FARMS AND FORESTS paved over by suburban sprawl. Lakes and rivers degraded by stormwater runoff. Rising oceans and hotter temperatures.

Is this a future that we must accept, or can we turn the tide of global climate change and shrinking land and water resources, while creating wonderful places to live, play, and work?

This past year landscape architects, allied professionals, and citizen activists imagined an alternative future for Seattle in a process called Open Space Seattle 2100. In the project's marquis event, participants convened for a two-day charrette to envision how tendrils of green might grow into an ideal Seattle that would take shape over the next century.

The solutions addressed local, regional, and global issues by imagining a cityscape that embraces a new green urbanism. By envisioning a dense, livable city with a well-developed network of bikeways, parks, tree canopies, restored shorelines, rain infiltrators, and other green infrastructure components, charrette attendees changed the way many citizens saw the city. Participants foresaw a Seattle in which city form reduces carbon emissions, controls and cleans stormwater runoff, moderates the

KENICHI NAKANO AND PIETRO POTESTA, DRAWING; STEVE HARRISON, WWW.HARTSONPHOTO.COM, BOTTOM

One downtown charrette team proposed a sculpted stormwater treatment lagoon over an existing earthquake fault, *above*, that doubles as salt marsh habitat and a public recreation amenity south of the stadium district. More than 300 planning and design professionals, citizens, and students worked together on 23 teams in February's open space planning charrette, *right*.

urban "heat-island" effect, and curbs the exodus from urban centers to suburban greenfields. The charrette planted the seeds of a comprehensive green infrastructure plan for Seattle and developed a recipe for revitalizing green urbanism that can be applied to other cities.

THE FRAMEWORK for Seattle's park system, like those of other cities such as Boston, Chicago, Minneapolis, Philadelphia, and Portland, Oregon, was laid more than a century ago. In 1903 John Charles Olmsted presciently forecast that the system of parks and boulevards the Olmsted Brothers firm proposed for Seattle would support the city for the next 100 years, until its population had swelled to half a million inhabitants. Seattle recently surpassed this figure.

Inspired by the Olmsted Centennial, a group of civic-minded residents resolved to renew the 100-year vision but on a larger scale, while embracing new challenges. How would the city and region meet the challenge of another doubling of the population? How could a new vision address the predicted environmental and social issues of our immediate future in addition to preparing for unforeseen conditions a century hence?

First, regional environmental groups began to imagine what the exurban environment might look like if given the Olmsted treatment. Beginning in 2004, the Cascade Land Conservancy organized a series of community roundtables in the four counties surrounding Seattle to examine the long-term future of the region's resources. The process outcome, called the Cascade Agenda, called on leaders to continue to focus dense, attractive development inside existing urban growth boundaries. By directing development toward urban hubs, the hope is that local counties can protect the remaining productive farmland and forestlands, support walkable communities, and minimize impacts of urbanization on rivers and streams. A critical component of this larger vision focuses on creating "magnet" cities, such as Bellevue, Tacoma, and Seattle, that would attract residents back to already urbanized areas. As the largest urban center in the region, Seattle is already leading in attracting residents back to in-town neighborhoods.

Spearheaded by faculty from the University of Washington's Department of Landscape Architecture, Open Space Seattle 2100 (OSS 2100) began where the Cascade Agenda ended by asking: How can we create a livable "magnet" city, and how can Seattle's green infrastructure regenerate healthy ecosystems and habitat in the city and region?

Students digitized their charrette teams' 20- and 100-year plans in GIS (the 20-year plan is shown *above*) and then stitched the 18 watershed visions into a comprehensive vision covering the entire city. The 100-year open-space vision, *opposite*, incorporates dense urban nodes with civic spaces, greenbelts along shorelines and steep slopes, an interconnected system of "green streets" and trails, daylighted streams, rain gardens, and green roofs.

This last question is particularly important when one considers Seattle's relationship to the Puget Sound and the endangered salmon and orca whales that swim in its waters. Not only does the city's Elliott Bay shelter an arc of degraded nearshore habitat, but

BETSY BEVERSTEIN

it also sits at critical thresholds to two major watersheds that hold the spawning grounds for thousands of salmon: the Lake Washington and Green River basins. As migrating juvenile salmon swim from the cold, clean waters of their spawning grounds, they must run a gauntlet as they pass through Seattle's polluted waters.

The Open Space Seattle 2100 Program

With grants from ASLA and the Urban Land Institute, OSS 2100 set out to enlist the talents and energies of local professionals, citizens, and students in a charrette modeled in part after 2004's Waterfront Charrette (see "In Seattle, the Mother of All Charrettes," *Landscape Architecture*, August 2004).

In September 2005, the first meeting of the OSS 2100 coalition gathered. Members of city departments representing transportation, sustainability, planning and development, parks and recreation, public utilities, and neighborhoods met with nonprofit organizations, representatives from the city's design and planning communities, and developers to begin shaping the parameters of the upcoming Green Futures Charrette.

Over the following months, this broad-based advisory group crafted a series of guiding principles for expanding the city's open space over the next century. Developed collaboratively, these principles represent some of the most comprehensive thinking about Seattle's integrated open space in the past century and provided useful targets to keep in focus.

Distilled to eight goals, the group proposed that open space in the city:

- be regionally responsive, taking into account Seattle's unique position at the intersection of two major watersheds
- be integrated and multifunctional, knit into the city's fabric and providing multiple benefits
- be equitable and accessible for all citizens within the city regardless of social–economic divisions
- have connectivity and coherence, so that a new, easily understandable geography of open space is inculcated within the city's populace
- provide quality, beauty, identity, and rootedness that speak to a pride in the local landscape
- provide ecological function and integrity, building nature into the cityscape
- offer a healthy and safe system for all of Seattle's citizens
- incorporate feasibility, flexibility, and stewardship into any proposals

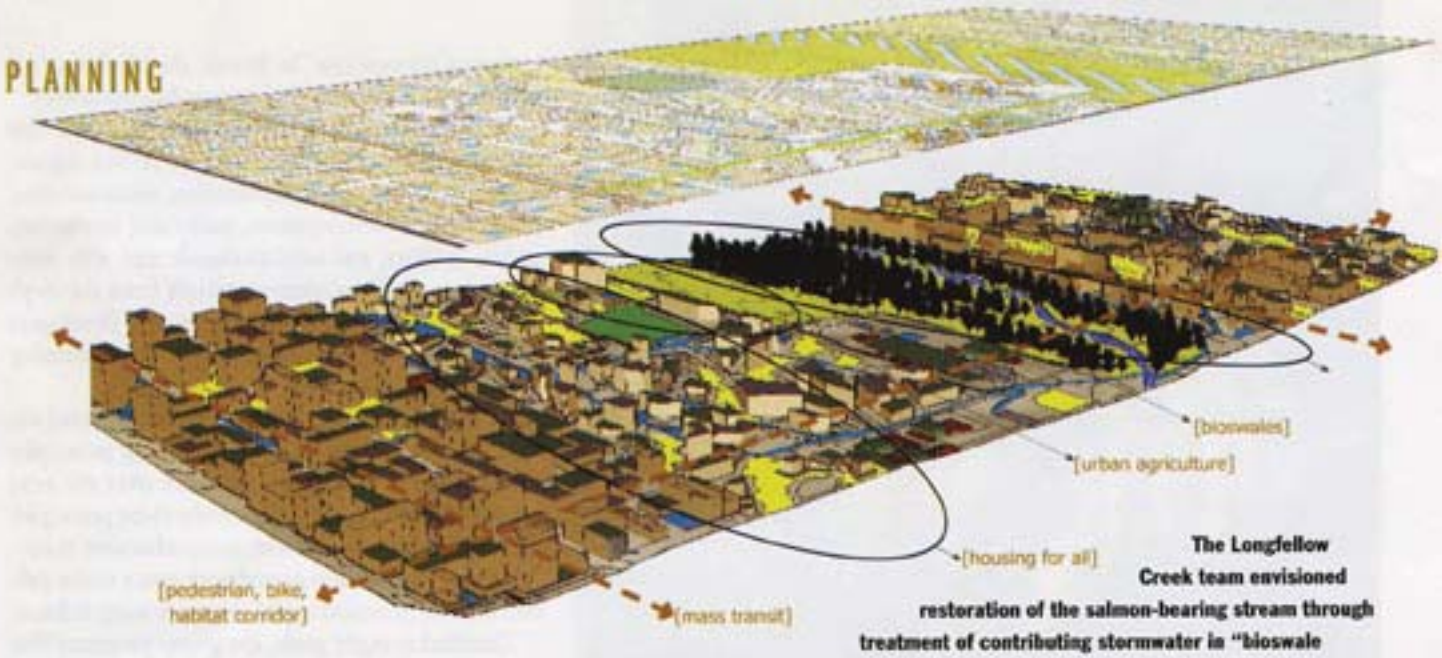
With these principles in hand, the OSS 2100 coalition took what was perhaps the most radical step in this comprehensive reconsideration of the city's greenspaces. Rather than using Seattle's traditional planning approach, divvying up the city into neighborhood planning units, the coalition instead decided to approach the city as a series of 17 urban watersheds.

The Green Futures Charrette

In February, the Green Futures Charrette—more than 300 citizens, landscape architects, planners, government officials, nonprofit representatives, developers, and students—spent two very full days working at two scales. First, 23 teams were each charged with creating a design for the whole city, looking at large patterns and areas that should be protected and set aside as open-space opportunities.

Second, and more comprehensive, each team developed detailed plans and drawings for spaces within their individual watershed-based study areas. Looking forward a full century then pulling back

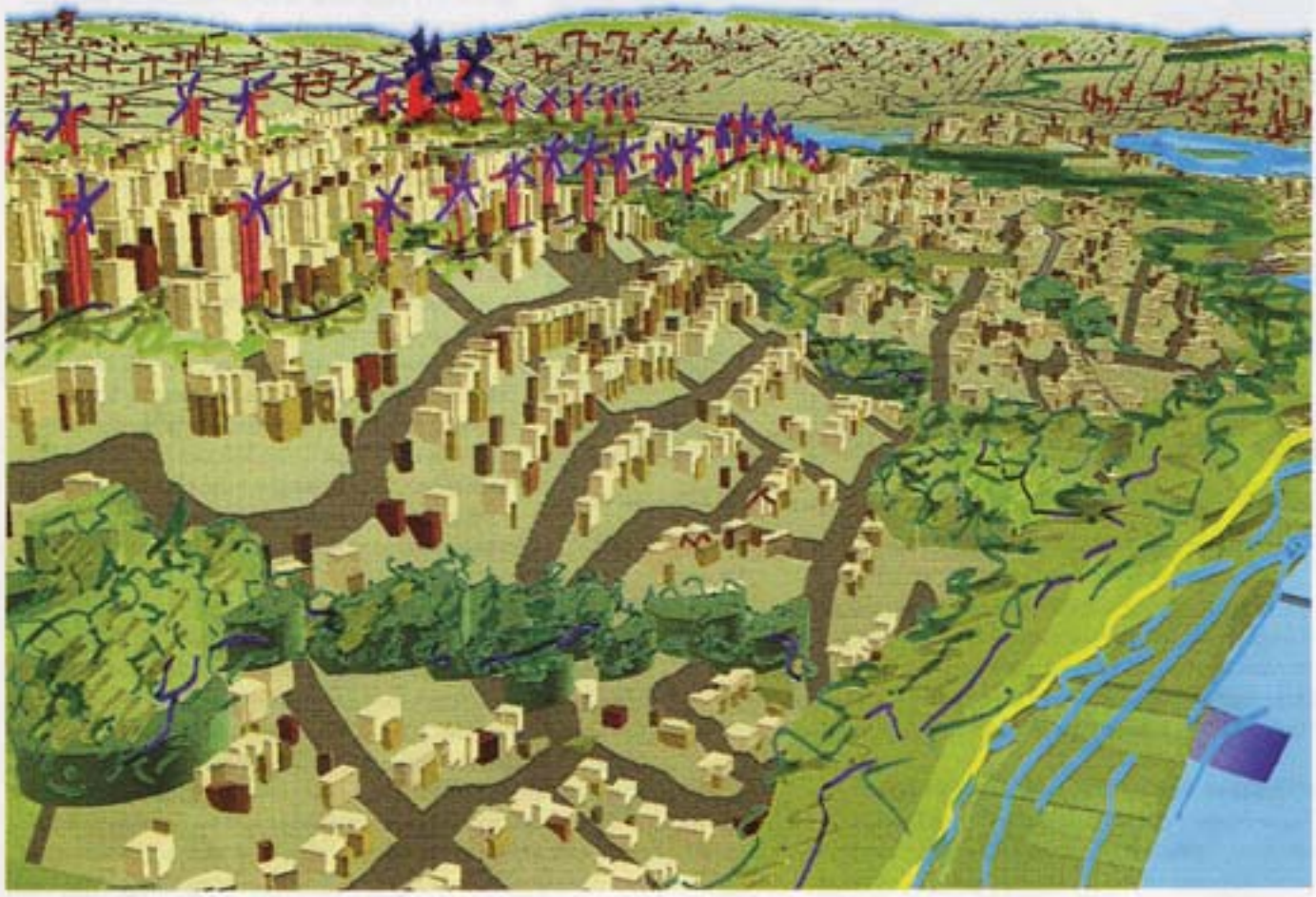
BETSY SILVERSTEIN



The Longfellow Creek team envisioned restoration of the salmon-bearing stream through treatment of contributing stormwater in "bioswale streets," *above*. The team proposed new green space for urban agriculture in the valley and dense, affordable housing on slopes and ridges, located in close proximity to new public transit and bikeways. The Lake Washington team's concept, *below*, focused on energy self-sufficiency, proposing density along the hillsides and solar windmill "landmark towers." Greenbelts connect residents to shoreline parks and Lake Washington, and fish habitat is restored in the lake's nearshore habitat zone.

to a 20-year time horizon, teams anticipated new, dense urban nodes that would accommodate the city's predicted population growth.

Charrette proposals included a new saltwater lagoon/water-treatment facility where a shallow earthquake fault line runs south of downtown; vast new swaths of greenspace above a lidded Interstate 5; reclamation of public shorelines as Puget Sound waters rise in response to global climate change; and self-sustaining



NOELLE HIGGINS AND SARA ROBERTSON, TOP; ALISON BLAKE, BOTTOM

"ecovillages" that supply their own energy, food, and wastewater treatment.

After the charrette, each student leader worked to refine his or her team's proposals and digitize the spatial plans into geographic information systems, or GIS. These GIS files were then combined to create citywide 20-year and 100-year road maps for the city's green infrastructure, which have since been presented back to the public and city leaders and shown in exhibitions across the city.

A Recipe for Green Urbanism

The creativity and breadth of the charrette teams' proposals suggest strategies other cities can use to achieve ecological, equitable, and functional green infrastructure. After the charrette, we mined the 23 teams' work for common themes and strategies that can inform policy and planning for Seattle and other cities around the world (see sidebar, page 65). The overarching themes called for city leaders to:

- create an integrated, connected green infrastructure
- plan for density and community
- create regenerative, ecological open spaces
- provide democratic access to parks and open spaces

While each region and municipality would implement these themes differently, the list provides a useful framework for developing municipal green infrastructure systems.

Other cities have already begun to use our resources and apply our process template of forming a coalition, inviting speakers, and engaging citizens in the charrette process, including groups in San Francisco; Minneapolis; Wichita, Kansas; and Kobe, Japan. The University of Washington hopes to encourage this by funding a Green Futures Design and Research Lab, which will be a home for open source/open space resources.

Next Steps for Seattle's Green Infrastructure

What are the chances that these visionary plans will be implemented in Seattle? As a start, the Seattle City Council has issued a proclamation endorsing the guiding open-space principles described above, with all nine council members signing.

To support the city council in its efforts to implement the ideas that came out of the charrette, members of OSS 2100's guidance committee have worked to refine and focus the ideas. While they are based on actual conditions and an informed design process, these plans require continued development, study, and vetting with citizens, business owners, and neighborhood residents.

The Taylor Creek watershed team envisioned a public lake shoreline restored for aquatic habitat and made accessible to all residents.

On May 31, 2006, the OSS 2100 coalition presented Seattle Mayor Gregory Nickels with a proposal for his upcoming biennial budget. These requests go directly toward creating, funding, and implementing a long-range vision and also suggest an interdepartmental approach to the city's green infrastructure. Our elected officials are being asked to set aside resources to:

- work with a consultant to identify 20-year action priorities to implement a 100-year vision based on the community's ideas developed during the Green Futures Charrette

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One Ballard team dreamed of a year 2100 self-sufficient eco-village, *left*, that would treat its own wastewater in "living machines" (note the glass house on the left) and then use the purified water to grow produce in a street no longer needed for cars. Several teams proposed multiple-use streets to accommodate transit, pedestrian, and bicycle corridors, *above*. These same streets would celebrate water as a public amenity through capture of stormwater and daylighting of buried streams.

• form a Green Infrastructure Task Force to identify opportunities for leveraging existing and future infrastructure expenditures, create nonpolluting green infrastructure, and act as the client group for the consultant above

• begin preliminary study of a Green Infrastructure Levy that might serve, in part, to replace Seattle's expiring parks levy

Glancing through the comments and feedback that the project has received over the months since the charrette, one scrawl in an exhibition guest book says it all: "This is the future I want to live in." The OSS 2100 coalition will continue working to make that futurescape a reality. Seattle's Director of Planning and Development Diane Sugimura offers this optimistic note: "I hope that 100 years from now, people will say they appreciate the farsighted legacy that Open Space Seattle 2100 left to the city." LAM

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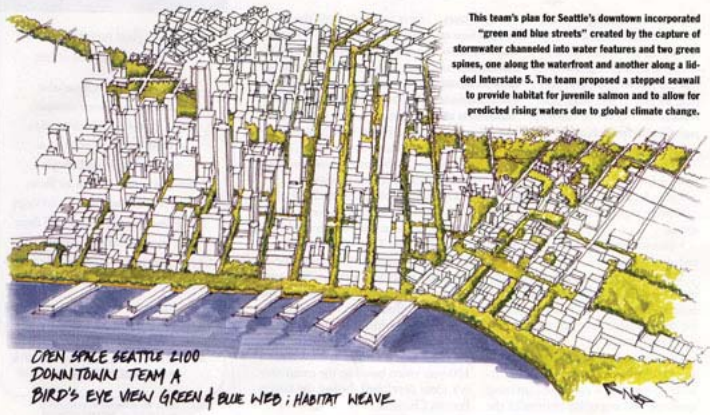
Resources

■ Most of the resources and outcomes of the Open Space Seattle 2100 program can be downloaded at *www.open2100.org*: Guiding Principles, Green Futures Toolkit, collated Seattle's Green Infrastructure Plans, and the 225-page report illustrating solutions for each watershed study area, *Envisioning Seattle's Green Future: Visions and Strategies from the Green Futures Charrette.*



This team's plan for Seattle's downtown incorporated "green and blue streets" created by the capture of stormwater channeled into water features and two green spines, one along the waterfront and another along a lidded Interstate 5. The team proposed a stepped seawall to provide habitat for juvenile salmon and to allow for predicted rising waters due to global climate change.

VINEBRAKE, TOP LEFT; PETER NELSEN, TOP RIGHT; DOWNTOWN TEAM A, BOTTOM

Strategies from The Green Futures Charrette: Green Infrastructure for The Twenty-first Century City

Integrated, Connected Green Infrastructure

Create an integrated green infrastructure to allow natural systems to support human needs:

★ 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 multifunctional open space. Recognizing the premium on land within the urban environment, maximize the uses and benefits of every parcel.

★ Redefine transportation corridors. Include ecosystem functions in the rights-of-way, as we move away from a car-dependent society to new transport methods. Lid freeways to create new urban space and join neighborhoods.

★ Re-create natural drainage to restore our waters. Use pervious surfaces, rain gardens, restored wetlands, and bioswales to clean and detain water before it enters streams, lakes, and Puget Sound and, in many neighborhoods, to provide cost-effective prevention of combined sewer overflows.

Density and Community

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

★ Create new urban villages with civic hearts. Numerous dense, walkable urban villages with mixed residential and commercial space, public amenities, and civic gathering spaces would accommodate the city's predicted doubling of population while creating magnet communities.

★ Employ green roofs and walls. Green surfaces on residential and commercial buildings would reduce the city's heat-island effect, detain stormwater, and create habitat.

★ Encourage decentralized self-sufficiency. Localized power generation, water treatment, and agriculture would reduce dependency and impacts on outside resources. Encourage ecoindustry that provides local employment in proximity to population centers.

Ecological Open Space

★ Understand the city as watersheds to repair water-based ecological corridors and to connect neighborhoods.

★ Respect underlying natural conditions to honor the existing ecology and minimize damage from natural disasters.

★ Reestablish historic streams that are now buried in pipes to assure that salmon will always have a place in our city. Express natural water flows on urban streets, in water collection and treatment features.

★ Restore lake and river shorelines for habitat and human use and reclaim waterfronts as climate change induces rising estuarine waters.

★ Establish and protect greenbelts, habitat networks, and urban forests. 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.

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 for public access. Therefore, provide equitable access to water from every neighborhood with waterfront.

★ Use open space for education/schools. Many charrette teams recommended incorporating schoolyards as community open space and creating learning spaces such as gardens, interpretive trails, and ecorevelatory features.

★ Provide a hierarchy and variety of open spaces. For every area of the city, ensure there are natural areas, large parks, playgrounds, community gardens, trails, and pocket parks.

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